

Krishnagiri REZ Transmission Limited

A 100% wholly owned subsidiary of Power Grid Corporation of India Limited)

B-9, Qutab Institutional Area, Katwaria Sarai, New Delhi - 110 016

CIN : U42201DC2026GOI470964

Ref: PG_KREZTL/License/

Dated: 08.08.2026

To,

The Secretary,
Central Electricity Regulatory Commission,
7th Floor, Tower B, World Trade Centre,
Nauroji Nagar, New Delhi-110029

Subject: Petition under Section 14, 15, 79(1)(e) of the Electricity Act, 2003 read with Central Electricity Regulatory Commission (Procedure, Terms and Conditions for Grant of Transmission License and other related matters) Regulations, 2024 with respect to Transmission License to Krishnagiri REZ Transmission Ltd. (a 100% wholly owned subsidiary of Power Grid Corporation of India Limited)

Sir,

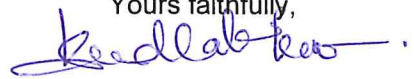
Three copies (1 original + 2 copies) of the petition for the above subject matter have been enclosed and e-filing has been done on CERC website. As per the public notice issued on 28.08.2010 by the Hon'ble Commission, the amount of Rs.1,00,000/- (Rupees One Lakh only) for filing the petition is being paid through NEFT/ RTGS and in accordance with the Regulations 12(2), Payment of Fees Regulations 2012, **Form-I** duly filled in against the aforementioned petition is also enclosed herewith.

Electronic Copies of the petition are being forwarded to the CTUIL (Nodal Agency) and to the Bid Process Coordinator and beneficiaries of the Southern Region and DICs as party to the Petition based on the list of the beneficiaries furnished by the CTUIL. The complete petition along with Annexures is posted on the website:

www.powergrid.in/en/subsidiaries

Thanking You,

KOLTHURU SUDHAKAR RAO
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SUDHAKAR RAO
Date: 2026.08.09
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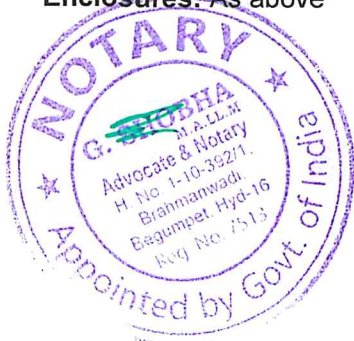
Yours faithfully,

(Sh. K. Sudhakar Rao)

Project In-charge

Krishnagiri REZ Transmission Ltd.

Email: regulatory@powergrid.in

Enclosures: As above



ATTESTED

G. SHOBHA M.A.L.L.M.
Advocate & Notary
H. No: 1-10-352/1, Brahmanwadi,
Begumpet, Hyderabad-16
Appointed by Govt. of India

- 8 AUG 2026

**BEFORE THE CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

IN THE MATTER OF: -

Subject matter:

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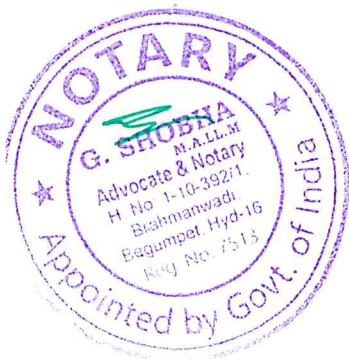
(A 100% wholly owned subsidiary of Power Grid Corporation of India Limited)

Registered office:

B-9, Qutab Institutional Area, Katwaria Sarai, New Delhi 110 016

Address for Correspondence:

ED (Commercial & RC),
Power Grid Corporation of India Limited,
Floor No. 02, Tower-01, IRCON International Tower,
Plot No. 16, Institutional Area, Sector-32,
Gurgaon-122003



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VERSUS

Central Transmission Utility of India Ltd,

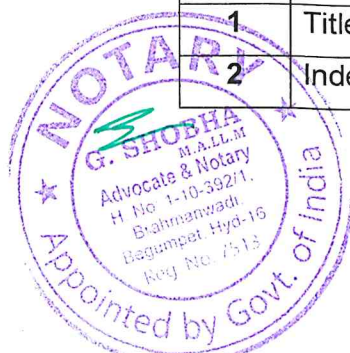
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& Ors.

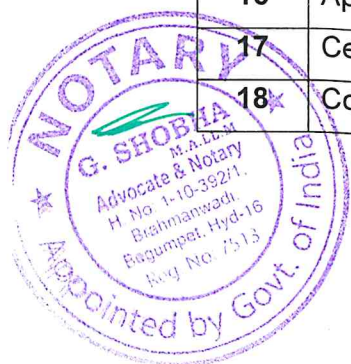
.....RESPONDENT(S)

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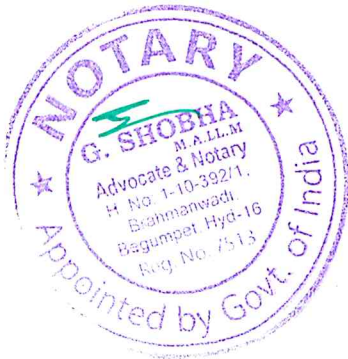
(Sh. K. Sudhakar Rao)

Project In-charge,

Krishnagiri REZ Transmission Ltd.

Place: Secunderabad

Date: 08.08.2026



ATTESTED

(Signature)
G. SHOBHA M.A.L.L.M.
Advocate & Notary
H. No: 1-10-392/1, Brahmanwadi,
Begumpet, Hyderabad-16
Appointed by Govt. of India

- 8 AUG 2026

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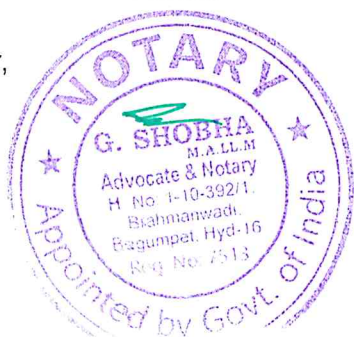
... RESPONDENT(S)

To,

The Secretary

Central Electricity Regulatory Commission
New Delhi - 110029

Sir,

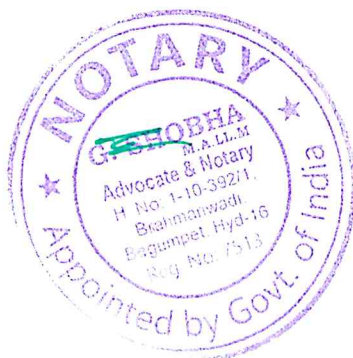


Petitioner: Krishnagiri REZ Transmission Ltd.
(A 100% wholly owned subsidiary of Power Grid Corporation of India Limited)

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Represented by (Sh. K. Sudhakar Rao)
Project In-charge
Krishnagiri REZ Transmission Ltd.

Date: 08.08.2026



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MEMO OF APPEARANCE

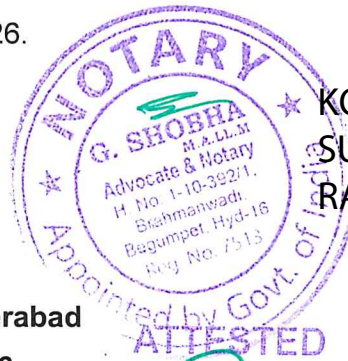
Krishnagiri REZ Transmission Ltd.

..... PETITIONER

I, Sh. K. Sudhakar Rao, the petitioner above named do hereby nominate/ appoint following officers to act, plead and appear on my/our behalf in the aforesaid matter.

1. Sh. K. Sudhakar Rao, Project In-charge
2. A Jagannath Rao, Chief General Manager
3. Ashish Agrawal, Sr. Dy. General Manager
4. Prashant Kumar, Dy. General Manager
5. Abhijit Daimari, Dy. General Manager

IN WITNESS WHEREOF I/We have set and subscribed my/our hands to this writing on this 08th day of August 2026.



**KOLTHURU
SUDHAKAR
RAO**

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**(Sh. K. Sudhakar Rao)
Project In-charge,
Krishnagiri REZ Transmission Ltd.**

Place: Secunderabad

Date: 08.08.2026

- 8 AUG 2026

G. SHOBHA M.A.L.L.M
Advocate & Notary
H. No: 1-10-392/1, Brahmanwadi,
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Central Transmission Utility of India Ltd,

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& Ors.

.... RESPONDENT(S)

MEMO OF PARTIES

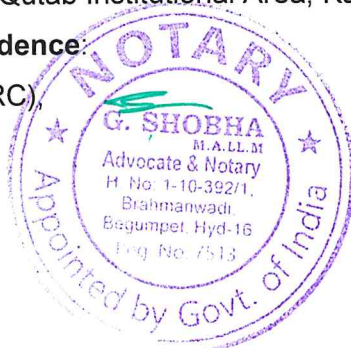
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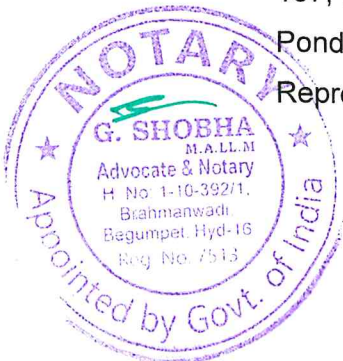


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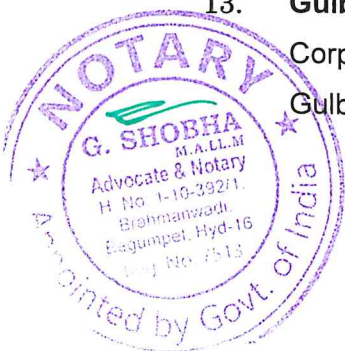
.... PETITIONER

VERSUS

1. **Central Transmission Utility of India Ltd, (CTUIL)**
Floor No. 05th to 10th, Tower-01,
IRCON International Tower,
Plot No. 16, Institutional Area, Sector-32,
Gurgaon-122003
Email: ctu@ctuil.in
2. **PFC Consulting Ltd. (PFCCL)**
First Floor, 'Urjanidhi',
1, Barakhamba Lane, Connaught Place,
New Delhi-110001
3. **Tamil Nadu Power Distribution Corporation Limited (TNPDCCL)**
(Formerly TANGEDCO)
NPKRR Maaligai, 800, Anna Salai,
Chennai – 600 002
Represented by its Chairman & Managing Director
4. **Kerala State Electricity Board Ltd (KSEBL)**
Vaidyuthi Bhavanam
Pattom, Thiruvananthapuram – 695 004
Represented by its Chairman
5. **Electricity Department, Government of Goa**
Vidyuti Bhawan, Panaji, Goa 403001
Represented by Chief Engineer (Electrical)
6. **Electricity Department, Govt. of Pondicherry**
137, Netaji Subash Chandra Bose Salai
Pondicherry - 605001
Represented by its Chief Secretary



7. **Eastern Power Distribution Company of Andhra Pradesh Limited (APEPDCL)**
P&T Colony, Seethmadhara, VISHAKHAPATNAM, Andhra Pradesh,
Represented by its Chairman & Managing Director
8. **Southern Power Distribution Company of Andhra Pradesh Ltd (APSPDCL)**
#19-13-65/A, Srinivasapuram, Tiruchanoor Road
Tirupati – 517503, Andhra Pradesh
Represented by Its Chairman & Managing Director
9. **Andhra Pradesh Central Power Distribution Company Limited (APCPDCL)**
Corporate Office, Beside Polytechnic College, ITI Road
Vijayawada - 520 008, Krishna District, Andhra Pradesh
Represented by Its Chairman & Managing Director
10. **Southern Power Distribution Company of Telangana Limited (TSSPDCL)**
6-1-50, Corporate Office, Mint Compound,
HYDERABAD – 500 063, Telangana
Represented by Its Chairman & Managing Director
11. **Northern Power Distribution Company of Telangana Limited (TSNPDCL)**
H.No 2-5-3 1/2, Vidyut Bhawan, Corporate Office,
Nakkal Gutta, Hanamkonda, WARANGAL – 506 001, Telangana
Represented by Its Chairman & Managing Director
12. **Bangalore Electricity Supply Company Ltd., (BESCOM)**
Corporate Office, K.R.Circle,
BANGALORE – 560 001, Karanataka
Represented by Its Managing Director
13. **Gulbarga Electricity Supply Company Ltd. (GESCOM)**
Corporate Office, Station Main Road, Opp. Parivar Hotel,
Gulbarga (Kalburgi), KARNATAKA - 585102



Represented by Its Managing Director

14. Hubli Electricity Supply Company Ltd. (HESCOM)

Navanagar, PB Road, HUBLI, Karnataka- 580025

Represented by Its Managing Director

15. Mangalore Electricity Supply Company Ltd. (MESCOM)

Corporate Office, 1st Floor, MESCOM Bhavan,

Kavoor Cross Road, Bejai, Mangalore – 575 004, Karnataka

Represented by Its Managing Director

16. Chamundeswari Electricity Supply Corporation Ltd. (CESC)

Corporate Office, #29, Vijayanagara 2nd Stage,

Hinkal, Mysuru-570017, KARNATAKA

Represented by Its Managing Director

.... RESPONDENTS

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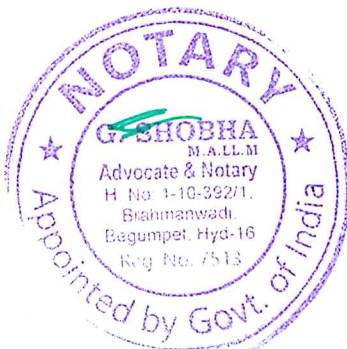
(Sh. K. Sudhakar Rao)

Project In-charge

Krishnagiri REZ Transmission Ltd.

Place: Secunderabad

Date: 08.08.2026



ATTESTED

G. SHOBHA M.A.L.L.M.
Advocate & Notary
H. No: 1-10-392/1, Brahmanwadi,
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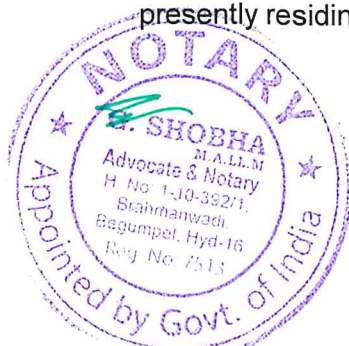
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& Ors.

.... RESPONDENT(S)

AFFIDAVIT

I, Sh. K. Sudhakar Rao, son of Late Sh. K. Jagan Dass, aged 52 years, Project In-Charge, presently residing at Qtr No D-8, 4th Floor, Power Grid Corporation of India Ltd, 6-6-8/32, 395E,



**KOLTHURU
SUDHAKAR
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Old Praga Tools Premises, Kavadiguda Road, Secunderabad, Telangana - 500080 do hereby solemnly affirm and state as follows: -

1. I am the Authorised Signatory of the Petitioner Company in the above matter, and I am duly authorized by the Petitioner Company to affirm this affidavit. I say that I am conversant with the facts and circumstances of this case.
2. The statements made in paragraphs of the petition are true and correct based on my knowledge and belief based on the information received, and I believe them to be true.
3. That the annexures annexed to the Petition are correct and true copies of the respective originals.
4. I say that there are no proceedings pending in any court of law/ tribunal or arbitrator or any other authority, wherein the Petitioner is a party and where issues arising and/ or reliefs sought are identical or similar to the issues in the matter pending before the Hon'ble Commission.

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DEPONENT

Place: Secunderabad

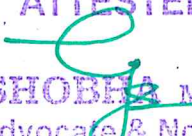
Date: 08.08.2026

VERIFICATION/ DECLARATION:

I, the Deponent above named hereby solemnly declares that nothing material has been concealed or suppressed and further declares that the enclosures and typed set of material papers relied upon and filed herewith are true copies of originals/ fair representation of the originals/true translation thereof.

Verified by me on this the 08th day of August, 2026 at Secunderabad.

ATTESTED


G. SHOBHA M.A.L.L.M
Advocate & Notary
H. No: 1-10-392/1, Brahmanwadi,
Begumpet, Hyderabad-16
Appointed by Govt. of India

- 8 AUG 2026

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DEPONENT



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& Ors.

.... RESPONDENT(S)

APPLICATION

MOST RESPECTFULLY SHOWETH:

I. INTRODUCTION

1. The present petition is being filed by **Krishnagiri REZ Transmission Ltd. ("KREZTL"** / **"Applicant"** / **"Petitioner"**) under Section 15 of the Electricity Act, 2003 read with Central Electricity Regulatory Commission (Procedure, Terms and Conditions for Grant

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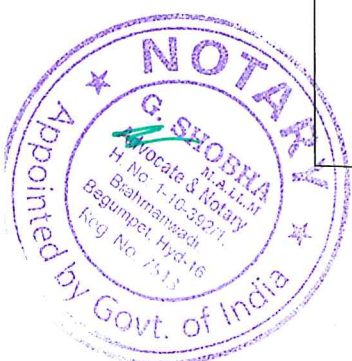
of Transmission License and other related matters) Regulations, 2024 seeking grant of a Transmission Licence to the petitioner for implementation of **Inter-State Transmission System** forming part of the “**Transmission System for integration of Krishnagiri REZ Phase-I**”, (“**the Project**”) under Tariff Based Competitive Bidding under Section 63 of the Act on a Build, Own, Operate and Transfer (“**BOOT**”) basis.

2. The details regarding Transmission Project for which the present transmission licence is sought and Scheduled Commercial Operation Date (“**SCOD**”) are set out as below:

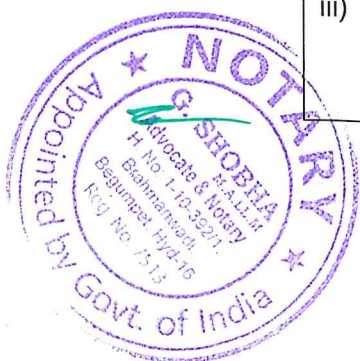
S. No.	Name of the Transmission Element	Schedule CoD in months from Effective Date
1	Establishment of 4x1500 MVA, 765/400 kV and 5x500 MVA, 400/220kV Krishnagiri Pooling Station near Kodumur in Kurnool district along with 2x330 MVA (765 kV) bus reactors at Krishnagiri PS with provision of two (2) sections of 4500 MVA each at 400kV level • 765/400kV, 1500 MVA, ICTs – 4 Nos. (13x500 MVA incl. 1 spare unit) • 765kV ICT bays – 4 Nos. • 400kV ICT bays – 4 Nos. • 765kV line bays – 6 Nos. (at Krishnagiri PS for termination of Krishnagiri – Doma, Krishnagiri – Raichur New and Krishnagiri – Sagar 765kV D/c lines) • 765kV, 330 MVA Bus Reactor – 2 Nos. (7x110 MVA inc. 1 switchable spare unit for both bus reactor and line reactor) • 765kV Bus Reactor bays – 2 Nos. • 400/220kV, 500 MVA, ICTs – 5 Nos. • 400kV ICT bays – 5 Nos. • 220kV ICT bays – 5 Nos. • 220kV line bays – 6 Nos. • 220kV Bus Sectionalizer : 1 set • 220 kV Bus Coupler (BC) Bay – 2 Nos. • 220kV Transfer Bus Coupler (TBC) Bay– 2 Nos. Future Space Provisions: • 765/400kV, 1500 MVA, ICTs – 2 Nos. • 765kV ICT bays – 2 Nos.	36 Months (03.08.2029)



	• 400kV ICT bays – 2 Nos. • 400/220kV, 500 MVA, ICTs – 13 Nos. • 400kV ICT bays – 13 Nos. • 220kV ICT bays – 13 Nos. • 765kV line bays – 8 Nos. (with provision for SLR) • 400kV line bays – 12 Nos. (with provision for SLR) • 220kV line bays – 19 Nos. • 220kV Bus Sectionalizer : 2 sets • 220 kV Bus Coupler (BC) Bay – 2 Nos. • 220kV Transfer Bus Coupler (TBC) Bay – 2 Nos. • 400kV Bus Sectionalizer : 1 set	
2	± 300 MVar STATCOM at Krishnagiri PS • 400kV bay – 1 no. • ± 300 MVar STATCOM – 1 set	
3	Krishnagiri – Doma 765kV D/c line with 240 MVar SLR (convertible) at both ends on both circuits • 765kV line bays – 2 Nos. (at Doma) • 765kV, 240 MVar SLR at Krishnagiri PS – 2 Nos. (7x80 MVar inc. 1 switchable spare unit) • Switching Equipment for 765kV SLR at Krishnagiri PS – 2 Nos. • 765kV, 240 MVar SLR at Doma PS – 2 Nos. (7x80 MVar inc. 1 switchable spare unit) • Switching Equipment for 765kV SLR at Doma PS – 2 Nos.	
4	Krishnagiri – Raichur New 765 kV D/c line with 240 MVar SLR (convertible) at Raichur New end on both circuits	
5	Establishment of 3x1500 MVA, 765/400kV Sagar substation with 2x330 MVar (765kV) bus reactors with space provision for establishment of 220kV switchyard • 765/400kV, 1500 MVA, ICTs – 3 Nos. (10x500 MVA incl. 1 spare unit) • 765kV ICT bay – 3 Nos. • 400kV ICT bay – 3 Nos. • 765kV line bays – 2 Nos. (at Sagar for termination of Krishnagiri – Sagar 765 kV D/c line) • 765kV, 330 MVar Bus Reactors – 2 Nos. (7x110 MVar inc. 1 switchable spare unit) • 765kV Bus Reactor bays – 2 Nos. • 400kV line bays – 2 Nos. (at Sagar for termination of Sagar – Nagarjunasagar 400 kV quad D/c line)	



	Future Space Provisions: • 765/400kV, 1500 MVA, ICTs – 3 Nos. • 765kV ICT bays – 3 Nos. • 400kV ICT bays – 3 Nos. • 765kV line bays – 12 Nos. (with provision for SLR) • 400kV line bays – 10 Nos. (with provision for SLR) • 400kV Bus Sectionalizer : 1 set Future Space Provisions for 220kV switchyard: • 400/220kV, 500 MVA, ICTs – 10 Nos. • 400kV ICT bays – 10 Nos. • 220kV ICT bays – 10 Nos. • 220kV line bays – 16 Nos. • 220kV Bus Sectionalizer: 3 set • 220 kV Bus Coupler (BC) Bay – 4 Nos. • 220kV Transfer Bus Coupler (TBC) Bay – 4 Nos.	
6	Krishnagiri – Sagar 765kV D/c line with 240 MVA SLR (convertible) at both ends on both circuits • 765kV, 240 MVA SLR at Krishnagiri PS – 2 Nos. (6x80 MVA switchable units) • Switching Equipment for 765kV SLR at Krishnagiri PS – 2 Nos. • 765kV, 240 MVA SLR at Sagar – 2 Nos. (7x80 MVA inc. 1 switchable spare unit) • Switching Equipment for 765kV SLR at Sagar – 2 Nos.	
7	Sagar – Nagarjunasagar 400kV quad D/c line	
Notes: i) The Krishnagiri – Raichur New 765kV D/c line is to be terminated in the existing 240 MVA bus reactor bays. Conversion of existing 765 kV Bus Reactor bays to 765 kV SLR Line bays at Raichur New for termination of Krishnagiri – Raichur New 765kV D/c line is in the scope of POWERGRID. ii) 2 No. of 400kV line bays at Nagarjunasagar for termination of Sagar – Nagarjunasagar 400 kV quad D/c line is in the scope of POWERGRID. Line termination shall be in the scope of TSP. iii) TSP of Doma S/s to provide space (free of cost) for 2 Nos. of 765kV line bays with provision of SLR at Doma S/s for termination of Krishnagiri – Doma 765 kV D/c line.		



3. The transmission Scheme was discussed and agreed in 38th CMETS-SR held on 02.06.2025 which was further discussed and agreed in 55th SRPC meeting held on 26.07.2025. The National Committee on Transmission in its 32nd meeting held on 12.08.2025 recommended the implementation of the Scheme through TBCB route. Subsequently, Scheme was discussed in 33rd NCT meeting held on 16.09.2025, 34th NCT meeting held on 10.11.2025 & 35th NCT meeting was held on 19.11.2025. Ministry of Power, Government of India, vide its Gazette Notification no. **CG-DL-E-01012026-268996 dated 26.12.2025** declared establishment of “**Transmission System for integration of Krishnagiri REZ Phase-I**” through tariff based competitive bidding process route.

All the relevant extracts of aforesaid meetings are enclosed and marked as **Annexure-1(Colly)**.

4. Pursuant to the aforesaid approval of the Project by the National Committee on Transmission, Ministry of Power, Government of India, vide Gazette Notification no. CG-DL-E-01012026-268996 dated 26.12.2025 declared establishment of “Transmission System for integration of Krishnagiri REZ Phase-I” through tariff based competitive bidding process route and notified “**PFC Consulting Ltd.**”, First Floor, ‘Urjanidhi’, 1, Barakhamba Lane, Connaught Place, New Delhi-110001. (“**PFCCL**”/ “**Respondent No. 2**”) as the Bid Process Coordinator (“**BPC**”) for the purpose of selection of Bidder as Transmission Service Provider (TSP) to establish the Project through Tariff Based Competitive Bidding process on build, own, operate and transfer basis. Copy of the said Gazette Notification is enclosed and marked as **Annexure-2**.
5. In furtherance of the aforesaid Government Decision, **PFCCL**, in its capacity as the duly appointed BPC, issued the **Request for Proposal** dated **12.01.2026 (“RfP”)** inviting bids for development of the Project through the TBCB process in accordance with the TBCB Guidelines and the Guidelines for Encouraging Competition in Development of Transmission Projects issued by the Ministry of Power under Section 63 of the Act, as amended from time to time.
6. In terms of the RfP, the Project was to be implemented through a **Special Purpose Vehicle (“SPV”)** structure. Accordingly, the Petitioner was incorporated by PFCCL as the SPV. The SPV, of which one hundred percent (100%) equity shares will be acquired by the Selected Bidder, shall be responsible as the TSP for ensuring that it undertakes



ownership, financing, development, design, engineering, procurement, construction, commissioning, operation and maintenance of the Project, and providing Transmission Services.

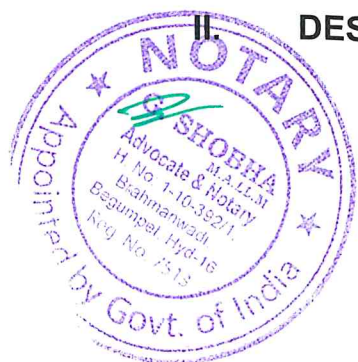
Accordingly, a company under the Companies Act 2013 by the name "**Krishnagiri REZ Transmission Ltd.**" having its registered office at New Delhi was incorporated on **29.04.2026** by PFCCL as its wholly owned subsidiary to initiate the activities for execution of the Project and subsequently to act as Transmission Service Provider (TSP).

7. Pursuant to the bidding process conducted by PFCCL in accordance with the RfP, including the **e-reverse auction** concluded on **02.07.2026**, "**Power Grid Corporation of India Limited**" ("**POWERGRID**") emerged as the Successful Bidder for the Project, having quoted the lowest levelised (uniform) Annual Transmission Charges, and was accordingly issued a **Letter of Intent ("LoI")** dated **10.07.2026** by PFCCL.
8. In accordance with the RfP and the LoI, the Petitioner, which had been incorporated by PFCCL as the SPV for implementation of the Project, was transferred to the successful bidder on **03.08.2026**.

Accordingly, on **03.08.2026**, PFCCL, POWERGRID and the Petitioner executed the Share Purchase Agreement ("**SPA**"). In addition, the Transmission Service Agreement ("**TSA**") was signed between the Petitioner and CTUIL on **03.08.2026**, pursuant to which 100% of the equity shareholding of the Petitioner stood transferred to POWERGRID, and the Petitioner became the duly appointed Transmission Service Provider ("**TSP**") for the Project.

9. Further, **Clause 2.15.4 of the RfP** required that, upon completion of the acquisition of the Petitioner by the Successful Bidder under the SPA, the Petitioner, as the duly appointed TSP, is required to apply to the Appropriate Commission for grant of a Transmission Licence within five (5) working days.
10. The present Petition is therefore being filed strictly in compliance with the said contractual and statutory requirement.

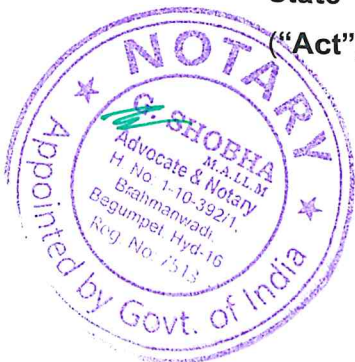
II DESCRIPTION OF THE PARTIES



11. The Applicant/ Petitioner, i.e. **Krishnagiri REZ Transmission Ltd., (“KREZTL”/ “Applicant”/ “Petitioner”)** is a company incorporated under the Companies Act, 2013 as a **SPV** under the TBCB framework for the exclusive purpose to undertakes ownership, financing, development, design, engineering, procurement, construction, commissioning, operation and maintenance of the Project which is as an Inter-State Transmission System and to provide Transmission Services.
12. **Respondent No. 1, Central Transmission Utility of India Ltd. (“CTUIL”)**, is a Government Company and has been notified by the Ministry of Power, Government of India, vide Gazette Notification dated 09.03.2021 as the Central Transmission Utility (“CTU”) under Section 38 of the Electricity Act, 2003. CTUIL is responsible for discharging all functions of the CTU, including undertaking transmission of electricity through the Inter-State Transmission System, and planning and coordination relating to such system, as specified under the Act. CTUIL is also the Nodal Agency as per the RfP and TSA of the Project.
13. **Respondent No. 2, PFC Consulting Ltd. (“PFCCL”)**, was incorporated on 25.03.2008 as a wholly owned subsidiary of **Power Finance Corporation (PFC)**, a Schedule-A, Maha Ratna Public Sector Enterprise under the Ministry of Power, Govt. of India. PFCCL was appointed by the Government of India vide Gazette notification no. CG-DL-E-01012026-268996 dated 26.12.2025 as the BPC for selection of the TSP for the Project through the TBCB process.
14. **Respondent Nos. 3 to 16** are the Designated Inter-State Customers (**DICs**) and beneficiaries of the **Southern Region**, in terms of Regulation 5(3) of the Central Electricity Regulatory Commission (Procedure, Terms and Conditions for Grant of Transmission Licence and Other Related Matters) Regulations, 2024.

III. JURIDICITION

15. The Petitioner submits that this Hon’ble Commission has the requisite jurisdiction to entertain, hear and adjudicate the present Petition, as the Project constitutes an **Inter-State Transmission System (ISTS)** within the meaning of the Electricity Act, 2003 (“Act”).



16. In terms of Sections 14, 15 and 79(1)(e) of the Act, this Hon'ble Commission is the **Appropriate Commission** empowered to grant transmission licences to entities engaged in Inter-State Transmission of electricity. The present Petition has been filed seeking the grant of a transmission licence in accordance with the provisions of Section 15 of the Act and the applicable regulations framed thereunder.
17. The Petitioner submits that the Project/ Transmission Scheme has been planned as an Inter-State Transmission System (ISTS) project by CTUIL, recommended by the NCT and approved by the Ministry of Power, Govt. of India. The Project comprises of establishment of Sub-Stations, STATCOMs and Transmission line in the State of **Andhra Pradesh, Telangana & Karnataka** forming an integral part of the ISTS. Accordingly, the Project falls within the ambit of inter-state transmission and is subject to regulatory and adjudicatory jurisdiction of this Hon'ble Commission under the provisions of the Act.
18. The present Petition is also maintainable under the provisions of the **Central Electricity Regulatory Commission (Procedure, Terms and Conditions for Grant of Transmission Licence and Other Related Matters) Regulations, 2024** ("Transmission Licence Regulations, 2024"), which prescribe the manner, form and procedure for grant of transmission licences by this Hon'ble Commission.
19. In view of the foregoing, the present Petition is fully maintainable and deserves to be considered by this Hon'ble Commission under the provisions of the Act read with the Transmission Licence Regulations, 2024.

IV. FACTUAL BACKGROUND

The relevant facts for the kind consideration of this Hon'ble Commission are as follows:

20. Govt. of India has set a target of 500 GW generation capacity from non-fossil fuel resources by 2030. In this direction, MNRE has identified addition of 86 GW RE Potential in the State of Andhra Pradesh, Telangana, Karnataka and Tamil Nadu (Offshore) in Southern Region. Out of the identified (86 GW) RE Potential in Southern Region, 51 GW has been identified in the State of Andhra Pradesh (Ananthapur – 20 GW, Kurnool – 23 GW & Kadapa – 8 GW).
21. The "Transmission System for integration of Krishnagiri REZ Phase-I" shall facilitate immediate integration & evacuation of power from RE generation projects for about 4.5



GW of RE potential in Kurnool area out of the identified total potential of 23 GW in Kurnool, Andhra Pradesh.

22. The Transmission System was discussed and agreed in the 38th CMETS-SR held on 02.06.2025. The scheme was further discussed and agreed in the 55th SRPC meeting held on 26.07.2025.
23. The National Committee on Transmission in its 32nd meeting held on 12.08.2025 has recommended the implementation of the subject transmission scheme through TBCB route and has identified the PFC Consulting Limited as BPC for bidding of the transmission scheme.
24. Subsequently, the Scheme was discussed in the 33rd NCT meeting held on 16.09.2025 wherein it was informed that in order to ensure optimum utilization of the transmission lines, RE power from Krishnagiri REZ-Phase-1 (4.5 GW) and of Ananthapuram-III REZ-Phase-I (4.5GW) may be evacuated through the already identified Transmission System in Kurnool and Ananthapuram areas respectively during non-solar hours with implementation of co-located BESS. NCT opined that possibility may be explored for grant of additional connectivity for optimal utilization of the Transmission System during non-solar hours.
25. The scheme was again discussed in the 35th NCT meeting held on 19.11.2025 wherein it was deliberated that holding up of implementation of Krishnagiri PS may lead to non-development of RE generation in that area and after detailed deliberations, NCT recommended that Transmission Scheme for Krishnagiri may be taken up for implementation. Ministry of Power vide Gazette notification dated 26.12.2025 has notified the transmission scheme for implementation through TBCB route.
26. Meanwhile, in furtherance of the aforesaid Government decisions, PFCCL, in its capacity as the duly appointed BPC, issued the **Request for Proposal ("RfP")** dated **12.01.2026**, together with the Global Invitation and advertisements, inviting bids for development of the Project through the TBCB process in accordance with the TBCB Guidelines and the Guidelines for Encouraging Competition in Development of Transmission Projects issued by the Ministry of Power under Section 63 of the Act, as amended from time to time. Under the RfP, the successful bidder was required to acquire 100% of the equity shareholding of the Petitioner, being the SPV incorporated for the Project.



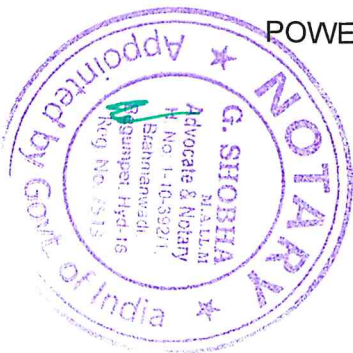
Copy of relevant extract of **RfP** dated **12.01.2026** along with the Global Invitation and advertisements is annexed herewith and marked as **Annexure-3 (Colly)**.

27. On **13.01.2026**, PFCCL, in its capacity as the duly appointed BPC, formally informed this Hon'ble Commission of the initiation of the TBCB process for selection of the TSP for the Project, by issuance of a Global Invitation in National/ International newspapers in terms of the Standard Bidding Documents for TBCB Projects. A copy of the said letter is annexed herewith and marked as **Annexure-4**.
28. On the same date i.e. **13.01.2026**, PFCCL also formally informed Ministry of Power that the TBCB process for the Project had been initiated by issuance of the Global Invitation and RFP and requested Ministry of Power to publish the RFP notice and RFP documents on its website. A copy of the said letter is annexed herewith and marked as **Annexure-5**.
29. A company under the Companies Act 2013 by the name "**Krishnagiri REZ Transmission Ltd.**" having its registered office at New Delhi was incorporated on **29.04.2026** by PFCCL as its wholly owned subsidiary to initiate the activities for execution of the Project and subsequently to act as Transmission Service Provider (TSP).

A copy of the Certificate of Incorporation of "**Krishnagiri REZ Transmission Ltd.**" is annexed herewith and marked as **Annexure-6**.

30. On **19.05.2026**, in furtherance of the RfP and in accordance with Clause 1.6.2.1(5) thereof, **PFCCL**, acting as the Bid Process Coordinator, issued a communication to POWERGRID intimating the **tentative Acquisition Price** payable by the Selected Bidder for acquisition of **100% equity shareholding of the Petitioner**, along with all its assets and liabilities. Subsequently, prior to the transfer of the SPV, PFCCL vide its letter dated **13.07.2026** informed POWERGRID to deposit the **Acquisition Price of ₹19,82,02,754/-** for acquisition of the Petitioner.

Copies of the letters dated 19.05.2026 and 13.07.2026 issued by PFCCL to POWERGRID are annexed hereto and marked as **Annexure-7(Colly)**.



31. In furtherance of the RfP and in compliance with Clause 1.6.2.1 thereof, which mandates the BPC to obtain **approval under Section 68** of the Act for laying of overhead transmission lines, the Petitioner (then wholly owned by PPFCL) approached Ministry of Power for said approval. Thereafter, approval under Section 68 of the Electricity Act, 2003 was accorded, which is annexed herewith and marked as **Annexure-8**.
32. Pursuant to the Request for Proposal (RfP), POWERGRID submitted its Technical Bid and Initial Price Offer on **17.06.2026** in response to the Final RfP issued by the Bid Process Coordinator (BPC) for selection of a Transmission Service Provider (TSP) through the Tariff Based Competitive Bidding (TBCB) process.
33. Subsequently, e-Reverse Auction for the Project was concluded on **02.07.2026** in accordance with the RfP and the TBCB Guidelines, wherein POWERGRID emerged as the Successful Bidder having quoted the lowest final quoted (uniform) Annual Transmission Charges.
34. After completion of the e-Reverse Auction and verification of the bid documents submitted by POWERGRID, the Bid Evaluation Committee ("**BEC**") constituted under the TBCB Bidding framework evaluated the bids in accordance with the "Tariff Based Competitive Bidding Guidelines for Transmission Service" and the "Guidelines for Encouraging Competition in Development of Transmission Projects" issued by the MoP under Section 63 of the Electricity Act, 2003.
35. Thereafter, on **09.07.2026**, the Bid Evaluation Committee issued its Certificate confirming the following: -
- "It is certified that:
- a. the entire bid process has been carried out in accordance with the "Tariff based Competitive Bidding Guidelines for Transmission Service" and "Guidelines for encouraging competition in development of the Transmission Project" issued by Ministry of Power, Govt. of India under Section 63 of the Electricity Act, 2003 as amended from time to time.



- b. 'M/s Power Grid Corporation of India Limited' emerged as the successful bidder after the conclusion of e-reverse bidding process with the lowest Quoted Transmission Charges of **Rs8,209.60** million per annum.
- c. The quoted tariff is lower than the Levelised Tariff calculated based on CERC norms considering the Capital Cost for the Project "**Transmission System for integration of Krishnagiri REZ Phase-I**" as assessed by Cost Committee. The quoted tariff discovered through e-reverse bidding process is acceptable."

A copy of the Bid Evaluation Committee Certificate dated **09.07.2026** is annexed herewith and marked as **Annexure-9**.

36. Therefore, upon completion of the e-Reverse Auction and evaluation of bids in accordance with the RfP, PFCCL issued the **LoI to POWERGRID**, declaring it as the Successful Bidder for the Project under Clause 3.6.1 of the RfP, with the Quoted Annual Transmission Charges of **Rs. 8,209.60** Million.

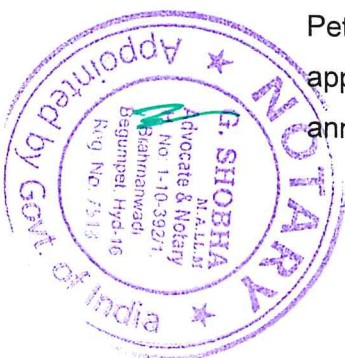
A copy of the **LoI** dated **10.07.2026** issued by PFCCL to POWERGRID is annexed herewith and marked as **Annexure-10**.

37. On **23.07.2026**, Ministry of Power, Govt. of India (MoP) officially approved the sale and transfer of the project to the POWERGRID.

A copy of the approval of MoP dated 23.07.2026 to PFCCL is annexed herewith and marked as **Annexure-11**.

38. On **31.07.2026**, PFCCL extended validity of LoI issued to POWERGRID for "Transmission System for integration of Krishnagiri REZ Phase-I" from 20.07.2026(10 days from LoI) to till 03.08.2026. Copy of letter is attached as **Annexure-12**.

39. Further, on **03.08.2026**, in accordance with the RfP and the LoI, PFCCL, POWERGRID and the Petitioner executed the SPA. On the same date TSA was executed between the Petitioner and CTUIL. Pursuant thereto, 100% of the equity shareholding of the Petitioner stood transferred to POWERGRID, and the Petitioner became the duly appointed TSP for the Project. Copies of the SPA and TSA both dated **03.08.2026** are annexed herewith and marked as **Annexure-13** and **Annexure-14** respectively.



40. Factual Matrixes or final timelines involved in the bidding process conducted by PFCCL are as under:

Date	Event
12.01.2026	Publication of RfP
17.06.2026	Submission Technical & Price Bid (Online submission of Bid through electronic bidding portal)
02.07.2026	e-Reverse Auction (Financial Bid – Final Offer) for the Qualified Bidders
10.07.2026	Selection of Successful Bidder and Issuance of LOI
31.07.2026	Validity of Lol extended vide letter dated 31.07.2026 from 20.07.2026 (10 days from Lol) to 03.08.2026
03.08.2026	Signing of Agreements and Transfer of SPV i.e. Krishnagiri REZ Transmission Ltd.

V. GROUNDS

Re. Compliance with Statutory Framework under the Act

41. The Petitioner submits that it is fully entitled, both in law and on facts, to be granted a transmission licence under Sections 14, 15 & 79(1)(e) of the Act. The Petitioner is the SPV incorporated exclusively for implementation of the Project and has been selected as the TSP pursuant to a TBCB process conducted under Section 63 of the Act.
42. Section 14 of the Act contemplates that a transmission licence shall be granted to any person who is duly authorised to establish, operate and maintain a transmission system. In the present case, the Petitioner derives its authority directly from the outcome of a statutorily governed competitive bidding process, conducted under Section 63 of the Act and implemented through the Govt. of India vide its Gazette CG-DL-E-01012026-268996 dated 26.12.2025. The Petitioner is therefore not merely an applicant, but the legally selected entity vested with the responsibility to execute the Project.
43. Further, Section 79(1)(e) of the Act vests this Hon'ble Commission with exclusive jurisdiction to grant licences for Inter State Transmission Systems. The Project, being



part of Inter State transmission network, squarely falls within the territorial and subject matter jurisdiction of this Hon'ble Commission.

Re. Compliance with Tariff Based Competitive Bidding (TBCB) Framework

44. The Project has been awarded strictly in accordance with the TBCB Guidelines issued by the Ministry of Power, Govt. of India under Section 63 of the Act, pursuant to a transparent and competitive bidding process conducted by PFCCL, the duly notified Bid Process Coordinator under the Govt. of India decision dated 26.12.2025.
45. The entire bidding process, including issuance of the RfP, conduct of e-reverse auction, declaration of POWERGRID as the successful bidder, and issuance of the Letter of Intent dated 10.07.2026, was carried out strictly in accordance with the RfP and the applicable TBCB Guidelines.
46. In accordance with Clause 1.5 of the RfP, the Petitioner SPV was acquired by POWERGRID pursuant to execution of the SPA dated 03.08.2026, and the TSA was simultaneously executed, thereby vesting all rights, obligations and project implementation responsibilities in the Petitioner as the TSP.

Re. Compliance with CERC Transmission Licence Regulations, 2024

47. **Regulation 5** of the Central Electricity Regulatory Commission (Procedure, Terms and Conditions for grant of Transmission Licence and other related matters) Regulations, 2024 requires that a petition for grant of transmission licence be made in **Form-I** and be accompanied by the prescribed affidavit and documents. The present Petition has been filed strictly in the said format.

A true copy of the duly completed Form-I, together with all enclosures thereto, is annexed herewith and marked as **Form-I**.

48. The Petitioner shall publish a notice of its petition for grant of licence in **Form-II** of the Transmission Licence Regulations in at least two leading daily digital newspapers, one in English language and another in the Indian language of the State or Union Territory where an element of the project or concerned transmission line is situated or proposed



to be situated within 03 working days of filing the petition, inviting comments from the general public in compliance with Regulations 5(5) of the said Regulation.

49. The Petitioner is a project-specific SPV, fully owned and controlled by POWERGRID. The financial, technical and managerial capability of POWERGRID has already been evaluated and accepted by PFCCL during the TCB process and therefore stands conclusively established for the purposes of grant of licence.
50. Grant of the transmission licence will enable timely execution of the Project and is therefore squarely in public interest, grid security, and the objectives of the Act.
51. In accordance with Section 5(3) of the License Regulations, 2024 a copy of the present Petition is being simultaneously served upon CTUIL, being the nodal agency, for its comments and recommendations. A copy of the present petition is also being served upon PFCCL, the Bid Process Coordinator, to enable it to place on record its confirmation in respect of the Tariff Based Competitive Bidding process undertaken for the Project.
52. That a copy of Application has also been marked to Designated ISTS Customers (DICs) and beneficiaries of the Northern Region as party to the Petition. If this Hon'ble Commission deems it necessary to implead any other party, then Petitioner shall implead such party as directed by this Hon'ble Commission.
53. The Petition along with annexures and enclosures has been hosted on the website of the Applicant i.e. www.powergrid.in/en/subsidiaries to facilitate access to the Petition by any person through the internet in compliance of the Regulation 5(4) of the Transmission License Regulations, 2024.
54. The Applicant/Petitioner shall publish the requisite Notices in the newspapers as per the Transmission Licence Regulations and after publication of the same, the Applicant/ Petitioner shall place a copy of the said publications before this Hon'ble Commission.
55. In view of the above, it is humbly submitted that the Applicant/ Petitioner fulfils the eligibility criteria for grant of transmission licence as stipulated in Section 14 and 15 of the Act and the Transmission License Regulations and therefore, this Hon'ble Commission may kindly grant the prayers, as prayed for.

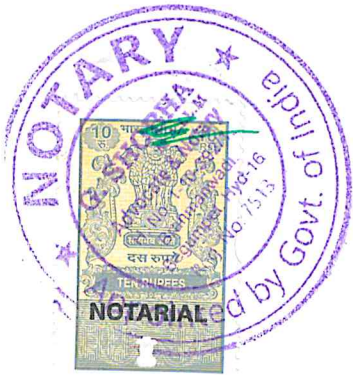


56. The present Petition is filed *bona fide* and in the interest of justice.

PRAYER

57. The Applicant/ Petitioner hereby humbly prays the Hon'ble Commission to:

- (a) Grant a Transmission Licence under Sections 14, 15 & 79(1)(e) of the Electricity Act, 2003 in favour of the Applicant, **Krishnagiri REZ Transmission Ltd.**, to Build, Own, Operate and Transfer of the "**Transmission System for integration of Krishnagiri REZ Phase-I**", being the inter-state transmission system; and
- (b) Direct issuance of the Transmission Licence in the prescribed Form-III of the Central Electricity Regulatory Commission (Procedure, Terms and Conditions for grant of Transmission Licence and other related matters) Regulations, 2024, subject to the general and specific conditions contained therein; and/or
- (c) Condone any minor, inadvertent or procedural defects or omissions, if any, in the present Petition and permit the Applicant to place on record such additional documents, information or clarifications as this Hon'ble Commission may require from time to time in the interest of justice; and
- (d) Pass such other order / orders, as may be deemed fit and proper in the facts and circumstances of the case.



ATTESTED
G. SHOBHA M.A.L.L.M.
Advocate & Notary
H. No: 1-10-392/1, Brahmanwadi,
Begumpet, Hyderabad-16
Appointed by Govt. of India
- 8 AUG 2026

Krishnagiri REZ Transmission Ltd.
Petitioner

KOLTHURU

SUDHAKAR RAO

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KOLTHURU SUDHAKAR RAO
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Represented by Sh. K. Sudhakar Rao
Project In-charge
Krishnagiri REZ Transmission Ltd.

Place: Secunderabad

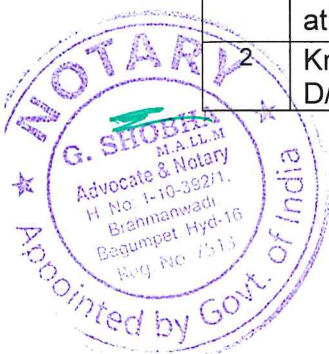
Date: 08.08.2026

FORM-I**1. Particulars of the Applicant**

S. No.	Particulars	Details
1.	Particulars of the Applicant	
i	Name of the Applicant	KRISHNAGIRI REZ TRANSMISSION LTD.
ii	Status: Individual/ Partnership firm/ Private Limited Company/ Public Limited Company	Public Limited Company
iii	Address	B-9, Qutab Institutional Area, Katwaria Sarai, New Delhi 110 016
iv	Name, Designation & Address of the Contact Person	Sh. K. Sudhakar Rao Project In-Charge, Krishnagiri REZ Transmission Ltd. (100% wholly owned subsidiary of Power Grid Corporation of India Limited) C/o ED (Commercial & RC), Power Grid Corporation of India Limited, Floor No. 02, Tower-01, IRCON International Tower, Plot No. 16, Institutional Area, Sector-32, Gurgaon-122003
v	Contact Tele. No.	9490611112
vi	Fax No.	0124-2822062
vii	Email ID (s)	regulatory@powergrid.in
viii	Place of Incorporation / Registration	New Delhi, India
ix	Year of Incorporation / Registration	2026
X	Following documents are to be enclosed:	
a.	Certificate of Registration	Enclosed as Annexure-6
b.	Copy of Power of Attorney of the signatory to commit the Applicant or its promoter	Enclosed as Annexure-15

2. Particulars of the Project for which license/ Amendment in license (list of existing elements and proposed addition/ deletion element in case) is being sought:**(a) Transmission Lines:**

S. No.	Name (end-points location)	Voltage class (kV)	Length (km)	Type (S/C or D/C)	Remarks
1	Krishnagiri – Doma 765kV D/c line with 240 MVar SLR (convertible) at both ends on both circuits	765kV	~ 180.26km	D/c	Line mentioned as per BPC Survey Report
2	Krishnagiri – Raichur New 765 kV D/c line with 240 MVar SLR	765kV	~ 114.69km	D/c	



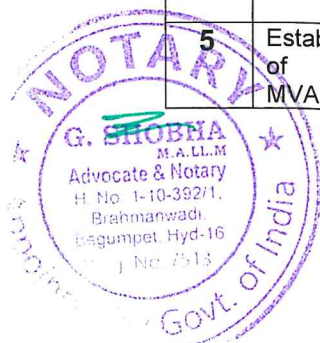
	(convertible) at Raichur New end on both circuits				
3	Krishnagiri – Sagar 765kV D/c line with 240 MVAR SLR (convertible) at both ends on both circuits	765kV	~ 320.41kM	D/c	
4	Sagar – Nagarjunasagar 400kV quad D/c line	400kV	~ 53.79kM	D/c	

(b) Sub-stations:

S. No.	Name (location)	Voltage Level(s) (kV)	Transformer (Nos. & MVA Capacity)	Reactive/ Capacitive compensation (device with MVAR capacity)	No of Bays	Remark
1	Establishment of 4x1500 MVA, 765/400kV and 5x500 MVA, 400/220kV Krishnagiri Pooling Station near Kodumur in Kurnool district along with 2x330 MVAR (765 kV) bus reactors at Krishnagiri PS with provision of two (2) sections of 4500 MVA each at 400kV level	765kV & 400kV	765/400kV, 1500 MVA, ICTs – 4 Nos. (13x500 MVA incl. 1 spare unit) 400/220kV, 500 MVA, ICTs – 5 Nos.	765kV, 330 MVAR Bus Reactor – 2 Nos. (7x110 MVAR inc. 1 switchable spare unit for both bus reactor and line reactor) 765kV, 240 MVAR SLR at Krishnagiri PS – 2 Nos. (7x80	765kV ICT bays – 4 Nos. 400kV ICT bays – 4 Nos. 765kV line bays – 6 Nos. (at Krishnagiri PS for termination of Krishnagiri – Doma, Krishnagiri – Raichur New and Krishnagiri – Sagar 765kV D/c lines) 765kV Bus Reactor bays – 2 Nos. 400kV ICT bays – 5 Nos. 220kV ICT bays – 5 Nos. 220kV line bays – 6 Nos. 220kV Bus Sectionalizer : 1 set 220 kV Bus Coupler (BC) Bay – 2 Nos. 220kV Transfer Bus Coupler (TBC) Bay– 2 Nos. Switching Equipment for 765kV SLR at Krishnagiri PS – 2 Nos.	For Krishnagiri – Doma 765kV D/c line with



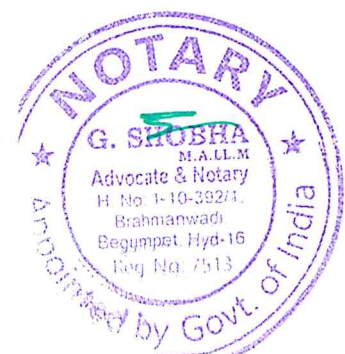
				MVAr inc. 1 switchable spare unit)		240 MVAr SLR (convertible) at both ends on both circuits
				765kV, 240 MVAr SLR at Krishnagiri PS – 2 Nos. (6x80 MVAr switchable units)	Switching Equipment for 765kV SLR at Krishnagiri PS – 2 Nos.	For Krishnagiri – Sagar 765kV D/c line with 240 MVAr SLR (convertible) at both ends on both circuits
2	Future Space Provisions at Krishnagiri Pooling Station near Kodumur in Kurnool district:		765/400kV, 1500 MVA, ICTs – 2 Nos. 400/220kV, 500 MVA, ICTs – 13 Nos.		765kV ICT bays – 2 Nos. 400kV ICT bays – 2 Nos. 400kV ICT bays – 13 Nos. 220kV ICT bays – 13 Nos. 765kV line bays – 8 Nos. (with provision for SLR) 400kV line bays – 12 Nos. (with provision for SLR) 220kV line bays – 19 Nos. 220kV Bus Sectionalizer : 2 sets 220 kV Bus Coupler (BC) Bay – 2 Nos. 220kV Transfer Bus Coupler (TBC) Bay – 2 Nos. 400kV Bus Sectionalizer : 1 set	
3	± 300 MVAr STATCOM at Krishnagiri PS	400kV		± 300 MVAr STATCOM – 1 set	400kV bay – 1 no.	
4	765kV Doma Substation	765kV		765kV, 240 MVAr SLR at Doma PS – 2 Nos. (7x80 MVAr inc. 1 switchable spare unit)	765kV line bays – 2 Nos. (at Doma) Switching Equipment for 765kV SLR at Doma PS – 2 Nos.	Krishnagiri – Doma 765kV D/c line with 240 MVAr SLR (convertible) at both ends on both circuits
5	Establishment of 3x1500 MVA,	765kV & 400kV	765/400kV, 1500 MVA, ICTs		765kV ICT bay – 3 Nos. 400kV ICT bay – 3 Nos.	



	765/400kV Sagar substation with 2x330 MVA (765kV) bus reactors with space provision for establishment of 220kV switchyard		- 3 Nos. (10x500 MVA incl. 1 spare unit)	765kV, 330 MVA Bus Reactors - 2 Nos. (7x110 MVA inc. 1 switchable spare unit) 765kV, 240 MVA SLR at Sagar - 2 Nos. (7x80 MVA inc. 1 switchable spare unit)	765kV line bays - 2 Nos. (at Sagar for termination of Krishnagiri - Sagar 765 kV D/c line) 765kV Bus Reactor bays - 2 Nos. 400kV line bays - 2 Nos. (at Sagar for termination of Sagar - Nagarjunasagar 400 kV quad D/c line) Switching Equipment for 765kV SLR at Sagar - 2 Nos.	For Krishnagiri - Sagar 765kV D/c line with 240 MVA SLR (convertible) at both ends on both circuits
6	(i) Future Space Provisions at Sagar substation (ii) Future Space Provisions for 220kV switchyard at Sagar Substation	765kV & 400kV 400kV & 220kV	765/400kV, 1500 MVA, ICTs - 3 Nos. 400/220kV, 500 MVA, ICTs - 10 Nos.		765kV ICT bays - 3 Nos. 400kV ICT bays - 3 Nos. 765kV line bays - 12 Nos. (with provision for SLR) 400kV line bays - 10 Nos. (with provision for SLR) 400kV Bus Sectionalizer : 1 set 400kV ICT bays - 10 Nos. 220kV ICT bays - 10 Nos. 220kV line bays - 16 Nos. 220kV Bus Sectionalizer: 3 set 220kV Bus Coupler (BC) Bay - 4 Nos. 220kV Transfer Bus Coupler (TBC) Bay - 4 Nos.	

a) Remarks: Status whether the element is existing or proposed to be added or deleted.

- Application is being filed for grant of a fresh license for addition of elements



b) Scheduled COD: **03.08.2029**

c) Agreements with Identified Long-term transmission Customer or CTU for the Project, as applicable: CTU as Nodal Agency for the Project & Transmission Service Agreement (TSA) executed with CTUIL is enclosed as **Annexure-14** to the instant petition.

3. Quoted Transmission Charges in case of the project selected through the guidelines of competitive bidding and estimated completion cost of the project in other cases:

: Transmission charges **Rs.8,209.60** Million per annum

4. In case applicant has been selected in accordance with the competitive bidding guidelines, enclose:

(a) Approval of Central Government as per Electricity (Transmission System Planning, Development and Recovery of Inter-state Transmission Charges) Rules, 2021

Copy of Gazette Notification is enclosed as **Annexure-2** to the petition

(b) Evaluation report (if made public) by the Bid Process Coordinator

Certificate of Bid Evaluation Committee as furnished by BPC is enclosed **Annexure-9** to the petition

5. List of documents enclosed:

- Certificate of Registration, MoA & AoA
- Certificate of Bid Evaluation Committee as furnished by BPC
- Copy of Power of Attorney



ATTESTED
[Signature]
G. SHOBHA M.A.L.L.M.
Advocate & Notary
H. No: 1-10-392/1, Brahmanwadi,
Begumpet, Hyderabad-16
Appointed by Govt. of India
- 8 AUG 2026

Signature of the Applicant

KOLTHURU SUDHAKAR RAO
Digitally signed by **KOLTHURU SUDHAKAR RAO**
Represented by **Sh. Date Sudhakar Rao**
Project in-charge
Krishnagiri REZ Transmission Ltd.

Place: Secunderabad

Date: 08.08.2026



सेंट्रल ट्रांसमिशन यूटिलिटी ऑफ इंडिया लिमिटेड

(पावर ग्रिड कॉर्पोरेशन ऑफ इंडिया लिमिटेड के स्वामित्व में)

(भारत सरकार का उद्यम)

CENTRAL TRANSMISSION UTILITY OF INDIA LTD.

(A wholly owned subsidiary of Power Grid Corporation of India Limited)

(A Government of India Enterprise)

Ref: CTU/S/00/38th CMETS-SR

Date: 10.07.2025

As per distribution list

Subject: Minutes of 38th Consultation Meeting for Evolving Transmission Schemes in Southern Region held on 02.06.2025– reg.

Dear Sir/Ma'am,

दक्षिण क्षेत्र में पारेषण योजनाओं के नियोजन के लिए 38वीं परामर्श बैठक दिनांक 02.06.2025 को वर्चुअल मोड (वीडियो कॉन्फ्रेंसिंग) के माध्यम से संपन्न हुई। अतः इस संदर्भ में संबंधित परामर्श बैठक का कार्यवृत्त संलग्नक है और वेबसाइट ([>> ISTS Planning and Coordination >> Consultation Meeting for ISTS >> Southern Region](http://www.ctuil.in)) पर भी उपलब्ध है।

Please find attached minutes of the 38th Consultation Meeting for Evolving Transmission Scheme in Southern Region held on 02.06.2025 through virtual mode. The minutes are also available at our website ([>> ISTS Planning and Coordination >> Consultation Meeting for ISTS >> Southern Region](http://www.ctuil.in)).

Thanking you,

Yours faithfully,

(Anil Kr. Meena)
General Manager

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Date: 2026.08.09
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Distribution List:

1. Chief Engineer (PSP&A – I) Central Electricity Authority Sewa Bhawan, R.K.Puram, New Delhi – 110 066	2. Chief Engineer (Transmission/GEC) Ministry of New and Renewable Energy, Block 14, CGO Complex, Lodhi Road, New Delhi – 110 003
3. Director (Transmission) Transmission Corp. of Andhra Pradesh Ltd. (APTRANSCO) Vidyut Soudha, Gunadala, Eluru Rd, Vijayawada, Andhra Pradesh – 520 004	4. Member Secretary Southern Regional Power Committee 29, Race Course Cross Road Bangalore – 560 009
5. Director Transmission) Transmission Corp. of Telangana Ltd. Vidyut Soudha Hyderabad – 500 082 Fax: 040-23321751	6. Director (Transmission) Karnataka State Power Transmission Corp. Ltd., Cauvery Bhawan Bangalore – 560 009 Fax: 080-22228367
7. Director (Trans. & System Op.), Kerala State Electricity Board Ltd. Vidyuthi Bhawanam, Pattom, P.B. No. 1028 Thiruvananthapuram – 695 004. Fax: 0471-2444738	8. Director (Transmission Projects) Tamil Nadu Transmission Corporation Ltd (TANTRANSCO) 6th Floor, Eastern Wing, 800 Anna Salai, Chennai – 600 002 Fax: 044-28516362
9. Superintending Engineer –I First Floor, Electricity Department Gingy Salai, Puducherry – 605 001	10. Director (SO) Grid-India 9th Floor, IFCI Towers, 61, Nehru Place, New Delhi – 110 019
11. Executive Director Southern Regional Load Dispatch Centre Grid-India 29, Race Course Cross Road, Bangalore – 560 009	12. Director (Power System) Solar Energy Corporation of India Ltd. 6 th Floor, Plate-B, NBCC Office Block Tower-2, East Kidwai Nagar, New Delhi- 110023

Connectivity/GNA Applicants:

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55. Shri Kunal Gauba Authorised Signatory Vanthali Renewables Pvt. Ltd. 1st Floor, Eastern Wing, Thapar House, 124, Janpath, New Delhi-110001 Email: kunal.gauba@edf-re.in; rohan.kale@edf-re.in	56. Shri Pritpal Singh DGM Business Development JSW Neo Energy Limited JSW Centre Bandra Kurla Complex Bandra East Mumbai-400051 Email: pritpal.singh@jsw.in; abhay.yagnik@jsw.in
57. Shri Ashutosh Kapil Director JIRE Green Energy Project One Limited Habitat India, 1st Floor, C-3 Qutub Institutional Area, Katwaria Sarai, New Delhi- 110016 Email: REPROJECTS5@JIREL.com; reprojects4@jirel.com	58. Shri Abhilash Yadav Authorized Signatory Ampin Energy Utility Pvt. Ltd. 309, 3rd Floor, Rectangle One, Behind Sheraton Hotel, Saket, New Delhi-110017 Email: ayadav@ampenergyindia.com; rsharma@ampenergyindia.com

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Minutes of 38th Consultation Meeting for Evolving Transmission Scheme in SR, held on 02.06.2025

38th CMETS-SR held on 02.06.2024 through virtual mode. Sr.GM, CTU welcomed all the participants to the meeting. List of participants attached at **Annexure-P**.

A. Confirmation of the minutes of the 36th and 37th CMETS-SR

Minutes of the 36th and 37th CMETS-SR were circulated vide letter dated 10.04.2025 and 23.05.2025. As no observations were received, the minutes were confirmed as circulated.

B. ISTS Network expansion schemes in Southern Region

B.1. Augmentation of transformation capacity by 1x500 MVA, 400/220kV ICT (3rd) at Narendra (existing) S/s in Karnataka

CTU informed that during the 210th OCC meeting of SRPC held on 10.01.2024 the requirement of additional ICT at Narendra (existing) S/s due to continuous over loading / N-1 violation of existing ICTs was discussed and the proposal for additional 500 MVA ICT at Narendra (existing) was approved in principle. It was decided that POWERGRID may submit the proposal in CMETS meeting with all the information regarding site availability and connectivity scheme.

Further, SRLDC in its quarterly report Q4(Jan'24-Mar'24) has mentioned that during high demand period of Karnataka, about 3% of time in Jan'24, 10% of time in Feb'24 and 46% of time in Mar'24, ICTs at Narendra are not complying to N-1 criteria.

The issue of high loading of ICTs at Narendra (existing) was also deliberated during the joint study meeting held on 01.04.2024 to discuss the intra- state transmission system proposals of Karnataka. During the meeting, augmentation of 1x500 MVA, 400/220kV ICT (3rd) at Narendra (existing) was agreed considering the load growth of Karnataka and 'N-1' contingency criteria.

The proposal for augmentation of transformation capacity by 1x500 MVA, 400/220kV ICT (3rd) at Narendra(existing) 400/220kV S/s was discussed in the 32nd CMETS-SR held on 28.06.2024. During the meeting, POWERGRID was requested to provide the information regarding space availability for 3rd ICT and its interconnection with 400kV and 220kV switchyards. POWERGRID informed that they will provide the information within 2-3 days.

Subsequently, POWERGRID vide email dated 28.04.2025 has communicated that space is available for 3rd ICT at Narendra substation. It was also informed that, following is required as per actual site conditions for accommodating the ICT:

After detailed deliberations, it was decided that a Joint Site visit for assessment of space availability for 2 nos. of 400kV line bays at Kolar HVDC for proposed Kolar – Doddattagalli 400kV (quad) D/c line of KPTCL may be carried out with participation from CEA, SRPC, CTUIL, POWERGRID and KPTCL. The proposal will be discussed in the next CMETS-SR meeting, based on the outcome of Joint Site visit.

B.6. Transmission system for integration of Kurnool-V, Ananthapuram-III and Kadapa-II REZs in Andhra Pradesh and Transmission system for proposed Green Hydrogen / Green Ammonia projects at Kakinada (Ph-II), Pendurthi (proposed by APTRANSCO to meet state loads and GH loads in Vizag area) and Ramayapatnam in Andhra Pradesh

CTU informed that Transmission system for integration of Potential REZ in Kurnool / Anantapur area and Green Hydrogen / Green Ammonia projects in Kakinada / Vizag area in Andhra Pradesh was studied in the Joint Study meeting held from 21st to 23rd Nov, 2024 at SRPC, Bengaluru. The above transmission system was discussed in the 36th CMETS-SR, held on 19.12.2024 wherein TNPDC stated that Kalaikurchi substation may not be required as the same is in vicinity of Ariyalur substation of Tamil Nadu.

It was further informed that APTRANSCO vide letter dated 17.02.2025 has submitted that proposed 765 kV Venkatagiri & Shakavaram substations and their inter-connection with AP are not required. In view of the above, APTRANSCO submitted alternative HVAC system for conducting further joint studies. Further, NREDCAP vide letter dated 19.03.2025 has shared the proposed coordinates for Anantapur-III and Kurnool-V substation in Urvakonda/Belaguppa/Kalyandurg and Kodumur/Kurnool district where NREDCAP has already made allocations for wind and solar projects.

During the Joint Study meeting, APTRANSCO stated that as per the Govt. of India initiative for promoting the Green Hydrogen / Green Ammonia based projects, coordinates of Kakinada GH substation has already been identified. Further, a number of Green Hydrogen / Green Ammonia projects are envisaged in Kakinada and Vizag area. Further, a number of data center loads are envisaged near Pendurthi / Vizag. APTRANSCO also informed that applications have already been received from certain developers at Pendurthi. Further as per the requirement of data centers, reliable power supply from two sources is required to be provided. In view of the above, LILO of Kalpakka – Maradam 400 kV D/c line at Pendurthi has been proposed. Further reliable power supply from ISTS shall be ensured with proposed interconnection of Pendurthi substation.

It was informed that Connectivity applications for 6904.7 MW has already been granted / agreed for grant at Ananthapuram-II PS. In addition to the above, additional applications for 2750 MW has already been received till Apr'25 at Ananthapuram-II PS. Further Ananthapuram-II PS is planned for 7.5 GW and accordingly Ananthapuram-III PS shall be required for grant of connectivity for balance

applications seeking connectivity in Anantapur area. Similarly, applications for 6740 MW has already been granted / agreed for grant at Kurnool-IV PS. In addition to the above, additional applications for 1780 MW has already been received till Apr'25 at Kurnool-IV PS. Further Kurnool-IV PS is planned for 7.5 GW and accordingly Kurnool-V PS shall be required for grant of connectivity for balance applications seeking connectivity in Kurnool area.

Joint Study meeting of SR constituents was held from 23rd to 25th April, 2025 at Thrissur with participation from SRPC, CTUIL, SRLDC, NLDC, KPTCL, KSEBL, APTRANSCO, TGTRANSCO, TANTRANSCO and TNPDC (Minutes of Joint Study meeting attached at **Annexure-C**). Based on the additional inputs from TNPDC, NREDCAP and APTRANSCO, transmission system for integration of potential REZ in Anantapur, Kurnool-V REZ, Kadapa-II and Green Hydrogen/ Green Ammonia loads in Kakinada / Vizag and Ramayapatnam area in Andhra Pradesh was reviewed and following transmission system was agreed during the above Joint Study meeting :

1) Transmission System for Integration of Kurnool-V REZ (near Kodumur proposed in Kurnool district proposed as per NERCAP letter dated 19.03.25) – 7.5 GW

Phase-I(4.5GW)

- Establishment of 4x1500 MVA, 765/400 kV and 5x500 MVA, 400/220kV Kurnool-V Pooling Station along with 2x330 MVA bus reactor at Kurnool-V
- $\pm$ 300 MVA STATCOM at Kurnool-V
- Kurnool-V – Shadnagar 765 kV D/c line (240 km) 1x240 MVA SLR at both ends on both circuits
- Kurnool-V – Raichur New 765 kV D/c line (150 km) 1x240 MVA SLR at Kurnool-V end on both circuits
- Establishment of 3x1500 MVA, 765/400 kV Sagar substation with 2x330 MVA bus reactors and space provision for establishment of 400/220 kV switchyard
- Sagar – N'Sagar 400 kV quad D/c line (25 km)
- Kurnool-V – Sagar 765 kV D/c line (240 km) 1x240 MVA SLR at both ends on both circuits

Phase-II(3GW)

- Augmentation of 2x1500 MVA, 765/400 kV and 5x500 MVA, 400/220kV ICTs at Kurnool-V Pooling Station
- Kurnool-V – Nellore 765 kV D/c line (240 km) 1x240 MVA SLR at both ends on both circuits
- Khammam-II – Sagar 765 kV D/c line (150 km) 1x240 MVA SLR at Khammam-II end on both circuits

2) Transmission System for Integration of Ananthapuram-III REZ (near Urvakonda/Beluguppa/Kalyandurg areas in Anantapur district proposed as per NERCAP letter dated 19.03.25) – 7.5 GW

Phase-I (4.5GW)

- Establishment of 4x1500 MVA, 765/400 kV and 5x500 MVA, 400/220kV Ananthapuram-III Pooling Station along with 2x330 MVar bus reactor
- + 300 MVar STATCOM or SYNCON (on pilot basis) at Ananthapuram-III
- Ananthapuram-III – Kurnool-V 765kV D/c line (170 km) with 1x330 MVar SLR at Ananthapuram-III end on both circuit
- Upgradation of existing 400/220kV Bidadi Station to 765kV level with 3x1500 MVA, 765/400 kV ICTs (Additional land for upgradation to 765kV level to be provided by KPCL at the earliest so that it can be implemented in matching timeframe)
- Ananthapuram-III – Bidadi 765kV D/c line (90 km)

Phase-II (3GW)

- Augmentation of 2x1500 MVA, 765/400 kV and 5x500 MVA, 400/220kV ICTs at Ananthapuram-III Pooling Station

**The interconnection at 765 & 400 kV from Bidadi to be facilitated by KPTCL. Further, KPTCL to identify adequate 220 kV transmission system for drawl of power for optimal utilization of ISTS infrastructure*

3) Transmission System for Integration of Kadapa-II REZ – 7.5 GW

Phase-I(4.5GW)

- Establishment of 4x1500 MVA, 765/400 kV and 5x500 MVA, 400/220kV Kadapa-II Pooling Station along with 2x330 MVar bus reactor
- + 300 MVar STATCOM at Kadapa-II
- Kadapa-II – Thiruvelam 765kV D/c line (250 km) 1x240 MVar SLR at both ends on both circuits
- Ananthapuram-III – Kadapa-II 765kV D/c line (220 km) with 1x330 MVar SLR at Ananthapuram-III end on both circuits

Phase-II (3 GW)

- Augmentation of 2x1500 MVA, 765/400 kV and 5x500 MVA, 400/220kV Kadapa-II Pooling Station
- Upgradation of Nagapattinam GIS to 765 kV level with 2x1500 MVA, 765/400kV ICTs
- Thiruvelam – Nagapattinam 765kV D/c line (250 km) 1x240 MVar SLR at both ends on both circuits

4) Transmission system for Green Hydrogen/ Green Ammonia projects at Kakinada (Ph-II) and Pendurthi (proposed by APTRANSCO to meet state loads and GH loads in Vizag area) – about 9 GW

Phase-I (for AP loads & GH loads at Pendurthi)

- Establishment of 4x1500 MVA, 765/400 kV Pendurthi (Vizag) GIS substation with 1x330 MVar bus reactor and space provision for establishment of 400/220 kV switchyard
- Establishment of 3x1500 MVA, 765/400 kV Khammam-II substation with 1x330 MVar bus reactor and space provision for establishment of 400/220 kV switchyard
- + 300 MVar STATCOM at Pendurthi and space provision for additional 2nd STATCOM
- Pendurthi – Srikakulam 765 kV D/c line (200 km) 1x330 MVar SLR at Pendurthi end on both circuits
- Khammam-II – Warangal (new) 765 kV D/c line (100 km)
- Khammam-II – Pendurthi 765 kV D/c line (350 km) with 1x330 MVar SLR on both circuits on both ends
- Khammam-II – Khammam (existing) 400 kV (quad) D/c line (20 km)
- LILO of Kalpakka – Maradam 400 kV (quad) D/c line at Pendurthi (20 km)

Phase-II (for GH loads at Kakinada & Pendurthi)

- Augmentation of 2x1500 MVA, 765/400 kV ICTs at Pendurthi (Vizag)
- Augmentation of 3x1500MVA, 765/400 kV ICTs at Kakinada GH
- Sagar – Kakinada 765 kV D/c line (320 km) 1x330 MVar SLR on both circuits on both ends
- Pendurthi – Kakinada GH 765 kV D/c line (120 km) 1x240 MVar SLR at Pendurthi end on both circuits

Note : Above transmission system shall be taken-up in phases based on receipt of GNA applications

5) Transmission system for proposed Green Hydrogen / Green Ammonia projects in Ramayapatnam area(4 GW)

Phase-I

- Establishment of 3x1500 MVA, 765/400 kV Ramayapatnam substation with 1x330 MVar bus reactor and space provision for establishment of 400/220 kV switchyard
- + 300 MVar STATCOM at Ramayapatnam and space provision for additional 2nd STATCOM
- Ramayapatnam – Kadapa-II 765 kV D/c line (220 km) 1x330 MVar SLR at Kadapa-II end on both circuits
- Ramayapatnam – Sagar 765 kV D/c line (200 km) 1x330 MVar SLR at Ramayapatnam end on both circuits

Phase-II

- Augmentation of 2x1500 MVA, 765/400 kV ICTs at Ramayapatnam
- LILO of Kurnool-V – Nellore PS 765 kV D/c line at Ramayapatnam (50 km)

Note : Above transmission system shall be taken-up in phases based on receipt of GNA applications

APTRANSCO stated that the proposed transmission scheme for integration of potential REZ in Kurnool/Ananatpur/Cuddapah area and integration of Green Hydrogen/ Green Ammonia based loads at Kakinada/Vizag/ Pendurthy and Ramayapatnam may be approved. He further stated that transmission system for integration of Green Hydrogen/ Green Ammonia based loads in Kakinada has already been approved and is being taken-up. Accordingly, for better utilization of RE sources being integrated at Kurnool-V, Sagar-Kakinada 765 kV D/c line may be considered under Kurnool-V scheme under Ph-II in place of Khammam-II-Sagar 765 kV D/c line. In this regard, CTU stated that under the transmission schemes for integration of Green Hydrogen/ Green Ammonia loads in Kakinada/Vizag/Pendurthy area, augmentation of transformation capacity at Kakinada and further integration of Kakinada GH with Sagar and Pendurthi has been considered in Phase-II which shall be taken-up for implementation depending on the receipt of applications from Green Hydrogen developers at Kakinada. Further, no applications have been granted connectivity / GNA at Kakinada. Accordingly, implementation as well as utilization of Sagar-Kakinada 765 kV D/c line shall be highly dependent on materialization of Green Hydrogen developers at Kakinada. On the other hand, a large number of applications are being received in Kurnool REZ and accordingly Kurnool-V substation and associated transmission lines are required to be taken-up on priority. In view of the above, Sagar-Kakinada 765 kV D/c line has been considered in Ph-II of Kakinada REZ scheme.

TNPDCL stated that proposal is in order. However, Thiruvelam – Nagapattinam 765kV D/c line proposed under the transmission system for integration of potential REZ at Cuddapah-II may be re-assessed. In this regard, CTU stated that Upgradation of Nagapattinam PS and integration with Cuddapah REZ through Cuddapah-Thiruvelam-Nagapattinam 765 kV corridors was proposed in the Joint Studies by TANTRANSCO/TNPDCL and as per the assessment carried out in the Joint Studies, same was considered for optimal dispersal of RE power in Cuddapah area to Nagapattinam and further dispersal to load centres in Tamil Nadu and Puducherry. Further, same is also expected to be useful for integration of potential RE in Virudhunagar/ Shalimangalam area and further dispersal of power to Chennai Area (through integration at SP Koil) in future time.

TGTRANSCO stated the transmission scheme is generally in order and may be approved.

SRPC also opined that transmission scheme as well as phasing of the transmission scheme is generally in order and may be approved.

SRLDC also agreed for the subject transmission schemes.

KSEB also agreed for the subject transmission schemes.

After detailed deliberations, following transmission system was agreed for integration of potential REZ in Anantapur, Kurnool-V REZ, Kadapa-II and Green Hydrogen/ Green Ammonia loads in Kakinada / Vizag and Ramayapatnam area in Andhra Pradesh :

1) Transmission System for Integration of Kurnool-V REZ (near Kodumur proposed in Kurnool district proposed as per NERCAP letter dated 19.03.25) – 7.5 GW

Phase-I(4.5GW)

- Establishment of 4x1500 MVA, 765/400 kV and 5x500 MVA, 400/220kV Kurnool-V Pooling Station along with 2x330 MVAR bus reactor at Kurnool-V
- $\pm$ 300 MVAR STATCOM at Kurnool-V
- Kurnool-V – Shadnagar 765 kV D/c line (240 km) 1x240 MVAR SLR (convertible) at both ends on both circuits
- Kurnool-V – Raichur New 765 kV D/c line (150 km) 1x240 MVAR SLR (convertible) at Raichur New end on both circuits
- Establishment of 3x1500 MVA, 765/400 kV Sagar substation with 2x330 MVAR bus reactors and space provision for establishment of 400/220 kV switchyard
- Sagar – N'Sagar 400 kV quad D/c line (25 km)
- Kurnool-V – Sagar 765 kV D/c line (240 km) 1x240 MVAR SLR (convertible) at both ends on both circuits

Phase-II(3GW)

- Augmentation of 2x1500 MVA, 765/400 kV and 5x500 MVA, 400/220kV ICTs at Kurnool-V Pooling Station
- Kurnool-V – Nellore 765 kV D/c line (240 km) 1x240 MVAR SLR (convertible) at both ends on both circuits
- Khammam-II – Sagar 765 kV D/c line (150 km) 1x240 MVAR SLR (convertible) at Khammam-II end on both circuits

2) Transmission System for Integration of Ananthapuram-III REZ (near Urvakonda/Beluguppa/Kalyandurg areas in Anantapur district proposed as per NERCAP letter dated 19.03.25) – 7.5 GW

Phase-I (4.5GW)

- Establishment of 4x1500 MVA, 765/400 kV and 5x500 MVA, 400/220kV Ananthapuram-III Pooling Station along with 2x330 MVar bus reactor
- $\pm$ 300 MVar STATCOM at Ananthapuram-III
- Ananthapuram-III – Kurnool-V 765kV D/c line (170 km) with 1x330 MVar SLR (convertible) at Ananthapuram-III end on both circuit
- Upgradation of existing 400/220kV Bidadi Station to 765kV level with 3x1500 MVA, 765/400 kV ICTs (Additional land for upgradation to 765kV level to be provided by KPCL at the earliest so that it can be implemented in matching timeframe)
- Ananthapuram-III – Bidadi 765kV D/c line (90 km)

Phase-II (3GW)

- Augmentation of 2x1500 MVA, 765/400 kV and 5x500 MVA, 400/220kV ICTs at Ananthapuram-III Pooling Station

**The interconnection at 765 & 400 kV from Bidadi to be facilitated by KPTCL. Further, KPTCL to identify adequate 220 kV transmission system for drawl of power for optimal utilization of ISTS infrastructure*

3) Transmission System for Integration of Kadapa-II REZ – 7.5 GW

Phase-I(4.5GW)

- Establishment of 4x1500 MVA, 765/400 kV and 5x500 MVA, 400/220kV Kadapa-II Pooling Station along with 2x330 MVar bus reactor
- $\pm$ 300 MVar STATCOM at Kadapa-II
- Kadapa-II – Thiruvelam 765kV D/c line (250 km) 1x240 MVar SLR (convertible) at both ends on both circuits
- Ananthapuram-III – Kadapa-II 765kV D/c line (220 km) with 1x330 MVar SLR (convertible) at Ananthapuram-III end on both circuits

Phase-II (3 GW)

- Augmentation of 2x1500 MVA, 765/400 kV and 5x500 MVA, 400/220kV Kadapa-II Pooling Station
- Upgradation of Nagapattinam GIS to 765 kV level with 2x1500 MVA, 765/400kV ICTs
- Thiruvelam – Nagapattinam 765kV D/c line (250 km) 1x240 MVar SLR (convertible) at both ends on both circuits

4) Transmission system for Green Hydrogen/ Green Ammonia projects at Kakinada (Ph-II) and Pendurthi (proposed by APTRANSCO to meet state loads and GH loads in Vizag area) – about 9 GW

Phase-I (for AP loads & GH loads at Pendurthi)

- Establishment of 4x1500 MVA, 765/400 kV Pendurthi (Vizag) GIS substation with 1x330 MVar bus reactor and space provision for establishment of 400/220 kV switchyard
- Establishment of 3x1500 MVA, 765/400 kV Khammam-II substation with 1x330 MVar bus reactor and space provision for establishment of 400/220 kV switchyard
- $\pm$ 300 MVar STATCOM at Pendurthi and space provision for additional 2nd STATCOM
- Pendurthi – Srikakulam 765 kV D/c line (200 km) 1x330 MVar SLR (convertible) at Srikakulam end on both circuits
- Khammam-II – Warangal (new) 765 kV D/c line (100 km)
- Khammam-II – Pendurthi 765 kV D/c line (350 km) with 1x330 MVar SLR (convertible) on both circuits on both ends
- Khammam-II – Khammam (existing) 400 kV (quad) D/c line (20 km)
- LILO of Kalpakka – Maradam 400 kV (quad) D/c line at Pendurthi (20 km)

Phase-II (for GH loads at Kakinada & Pendurthi)

- Augmentation of 2x1500 MVA, 765/400 kV ICTs at Pendurthi (Vizag)
- Augmentation of 3x1500MVA, 765/400 kV ICTs at Kakinada GH
- Sagar – Kakinada 765 kV D/c line (320 km) 1x330 MVar SLR (convertible) on both circuits on both ends
- Pendurthi – Kakinada GH 765 kV D/c line (120 km) 1x240 MVar SLR (convertible) at Pendurthi end on both circuits

Note : Above transmission system shall be taken-up in phases based on receipt of GNA applications

5) Transmission system for proposed Green Hydrogen / Green Ammonia projects in Ramayapatnam area(4 GW)

Phase-I

- Establishment of 3x1500 MVA, 765/400 kV Ramayapatnam substation with 1x330 MVar bus reactor and space provision for establishment of 400/220 kV switchyard
- $\pm$ 300 MVar STATCOM at Ramayapatnam and space provision for additional 2nd STATCOM
- Ramayapatnam – Kadapa-II 765 kV D/c line (220 km) 1x330 MVar SLR (convertible) at Kadapa-II end on both circuits
- Ramayapatnam – Sagar 765 kV D/c line (200 km) 1x330 MVar SLR (convertible) at Ramayapatnam end on both circuits

Phase-II

- Augmentation of 2x1500 MVA, 765/400 kV ICTs at Ramayapatnam
- LILO of Kurnool-V – Nellore PS 765 kV D/c line at Ramayapatnam (50 km)

Note : Above transmission system shall be taken-up in phases based on receipt of GNA applications

CTU Communication representative enquired about the availability of Optical Ground Wire (OPGW) on the following transmission line owned by APTRANSCO which is proposed to be LILOed at upcoming Pendurthi ISTS Substation:

- Kalpakka – Maradam 400 kV D/c line

After LILOing OPGW is required to establish voice & data communication including protection requirements between Kalpakka , Maradam & Pendurthi stations. APTRANSCO representative informed that they shall provide the same information within one week to CTUIL

B.7. Transmission system for reliable power supply to Puducherry

CTU informed that, as per the decision in the 216th OCC meeting held on 10.07.2024, matter pertaining to identification of transmission system for reliable power supply to Puducherry was discussed in the Joint Study meeting held from 21st to 23rd Nov'24 wherein following transmission system was proposed for reliable power supply to Puducherry as well as Cuddalore area in Tamil Nadu :

Alternative – 1 : New 400/230kV substation near Nellikuppam area :

- Establishment of 400/230kV substation with 3x500 MVA ICTs and 1x125 MVAR bus reactor near Nellikuppam
- Nellikuppam – Nagapattinam 400kV (quad) D/c line (70 km)
- Nellikuppam – Bahoor 230kV S/c high capacity line (15 km)
- Nellikuppam – Karaikal 230kV S/c high capacity line (110 km)
- Nellikuppam – Villianur 230kV S/c high capacity line (25 km)
- Additional outlets from Nagapattinam 230kV to TANTRANSCO 230kV stations as per TANTRANSCO requirements

Alternative – 2 : Establishment of 230kV switchyard at Nagapattinam 765/400kV GIS (presently charged at 400kV) :

- Establishment of 230kV level at Nagapattinam 765/400kV GIS (presently charged at 400kV) with 3x500 MVA, 400/230kV ICTs
- Nagapattinam – Bahoor 230kV S/c high capacity line (70 km)

NTPC enquired TGTRANSCO about the quantum of share they would like to draw from Stage-II. Towards this TGTRANSCO clarified that they require only 800 MW from Unit-3 and there is no change in the power requirements from Stage-II. NTPC informed that the transmission system under ISTS has been already identified studied during the Joint Study meeting.

TGTRANSCO informed that they require time for further studies.

After detailed deliberations, it was decided that separate meeting may be convened for finalization of transmission system requirements.

C. Connectivity related issued deliberated in earlier CMETS-SR

C.1. Closure of connectivity application no. 2200000405

Sl.	Application ID, date	Name of the Applicant	Project Location	Application for: Connectivity/ GNA/ GNARE	Eligibility criterion for application	Nature of Applicant	Location details of Connectivity / GNA requested	Installed Capacity/ GNA (Break up)	Power injection to ISTS (MW)	Start date of Connectivity/ GNA (requested)
1.	2200000405	Nava Bharat Energy India Limited	Khammam, Telangana	Connectivity	NA	(i) Generating station(s), including REGS(s), without ESS	Budidempadu, Khammam	150 (Thermal)	150	15.10.2024

CTU Informed that, M/s Nava Bharat Energy India Ltd. (NBEIL) is an STU embedded generation, connected to Budidempadu 220 kV TGTRANSCO S/s through 220kV D/c line and seeking grant of connectivity for 150 MW through 400kV ISTS Khammam S/s. The matter was already discussed in 27th CMETS-SR, held on 30.01.2025 wherein it was deliberated that, migration of connectivity from STU to CTU would requires consent letter /NOC from concerned STU. However, M/s Nava Bharat Energy India Ltd. did not submitted the requisite consent letter /NOC from concerned STU till date.

Applicant did not attend the meeting. Further, after deliberation it was decided that as M/s Nava Bharat Energy India Ltd. (NBEIL) failed in submission of requisite documents and did not participating in the process, therefore the application may be closed.

- Transmission System for Integration of Anantapur-II REZs (Phase-I) (details as per **Annexure-III**)
- Transmission System for Anantapur-II REZ - Phase-II, as per **Annexure-III A**

Note: Applicants are required to submit applicable BGs within one month from the intimation for in-principle grant of Connectivity.

Further, applications pending for grant of connectivity at Ananthpur-IIPS were deliberated along with other applications received for grant of connectivity at Ananthpur-III PS.

C.10. Details of the applications pending for grant at Kurnool-IV PS

CTU informed that details of the applications pending for grant from earlier CMETS-SR are given below.

Sl. No.	Application ID, Date & time	Name of the Applicant	Project Location	Eligibility criterion	Nature of Applicant	Location details of Connectivity (as requested)	Installed Capacity (MW)	Connectivity Quantum (MW)	Start date of Connectivity (as requested)	Scope of implementation of terminal bay at ISTS end (as requested)
I.	2200001644 dt. 11-Jan-25	EG Electricia Energy Pvt. Ltd.	Krishnagiri, Kurnool, Andhra Pradesh	Land Route	(i) Generating station(s), including REGS(s), without ESS	Kurnool-IV	100 (Wind)	100	31-Dec-27	Applicant
II.	2200001675 dt. 20-Jan-25	ABC CT RE Park (05) Private Limited	Aspari, Kurnool, Andhra Pradesh	Land BG Route	(i) Renewable Power Park developer	Kurnool-IV	250 (Wind)	250	01-Oct-28	ISTS
III.	2200001686 dt. 23-Jan-25	Reliance Nu Suntech Pvt. Ltd.	Manikurthi, Kurnool, Andhra Pradesh	LOA or PPA [Project Capacity under SECI LoA : 930 MW]	(i) Generating station(s), including REGS(s), with ESS	Kurnool-IV	930 (Solar) BESS: 465 MW	930	31-Dec-27	ISTS

Sl. No.	Application ID, Date & time	Name of the Applicant	Project Location	Eligibility criterion	Nature of Applicant	Location details of Connectivity (as requested)	Installed Capacity (MW)	Connectivity Quantum (MW)	Start date of Connectivity (as requested)	Scope of implementation of terminal bay at ISTS end (as requested)
IV.	2200001697 dt. 28-Jan-25	EG Energia Supply Pvt. Ltd.	Krishnagiri, Kurnool, Andhra Pradesh	Land Route	(i) Generating station(s), including REGS(s), without ESS	Kurnool-IV	100 (wind)	100	31-Dec-27	Applicant
V.	2200001737 dt. 05-Feb-25 & 19-Feb-25	Enfinity Global Sunsource Pvt. Ltd.	Krishnagiri, Kurnool, Andhra Pradesh	Land Route	(i) Generating station(s), including REGS(s), without ESS	Kurnool-IV	100 (wind)	100	31-Dec-27	Sharing with EG Electricia Energy Pvt.Ltd. for app/ no. 2200001644
Total								1480		

- Further, cumulative capacity of Kurnool-IV which can be considered for grant of Connectivity : 7500 MW
- During the process some of the applicant withdrawn its connectivity application, reduced the connectivity quantum etc.
- Already Connectivity granted / agreed for grant at Kurnool-IV PS : 6840 MW
- Accordingly, margins available for grant of additional connectivity : about 660 MW
- Further, Transmission System for Kurnool-IV REZ – Phase-II (includes augmentation by 2x1500 MVA, 765/400 KV and 400/220 kV, 6x500 MVA ICTs at Kurnool-IV PS) is under bidding with implementation schedule of 30 months from the date of SPV transfer. The scheme is tentatively expected from March.'28. Details of the phase-II transmission system are provided at **Annexure-IVA**
- During the meeting, M/s EG Electrica Energy Pvt. Ltd. requested to consider grant of connectivity to its application no. 2200001644 along with app. no. 2200001697 and 2200001737 (Si. No. I, IV & V of above table respectively) at a single ISTS S/s and same has been requested vide letter dated 21.04.2025. CTU informed that as per available margins and priority of the applications, app. no. 2200001697 and 2200001737 may not be granted connectivity at Kurnool-IV PS. Applicants requested to consider all the three applications at Kurnool-V.
- As per priority of the receipt of the application, M/s ABC CT RE Park (05) Private Limited (app. no. 2200001675) was offered for grant of connectivity for 250 MW. After deliberations, the same was agreed. Details of the connectivity transmission system is given below.

- After allocation of margins for grant of connectivity for application no. 2200001675, margins of about 410 MW is available for grant. The same was offered to M/s Reliance Nu Suntech Pvt. Ltd. (application no. 2200001686 submitted for 930 MW). The applicant requested to grant connectivity for entire 930 MW, in this regard CTU reiterated that margins of about 410 MW is available at Kurnool-IV PS and same may be considered for grant if applicant is willing to reduce its connectivity quantum from 930 MW to 410 MW. However, if applicant is willing to consider grant of connectivity for 930 MW only then same may be considered for grant at Kurnool-V only. M/s Reliance Nu Suntech Pvt. Ltd. requested to consider part quantum of the application at Kurnool-IV PS and part quantum of the application at Kurnool-V PS. In this regard, CTU mentioned that a single application can not be considered for grant at two nos. of ISTS S/s. Applicant requested to consider grant of connectivity for 410 MW at Kurnool-IV PS as per margins for its app. No. 2200001686, however, in case margins get available on withdrawal / revocation at Kurnool-IV PS their application may be considered as per priority for allocation of such margins. In this regard, CTU informed that once an application is discussed and agreed for grant with reduced connectivity quantum, the application cannot be considered again for grant of additional connectivity quantum on availability of margins. However, the application (processed with reduced connectivity) may be considered for additional connectivity quantum, if margins get available before next CMETS meeting or issuance of in-principle grant of connectivity, whichever is earlier. After, detailed deliberations, it was decided that connectivity may be granted to M/s Reliance Nu Suntech Pvt. Ltd. for 410 MW at Kurnool-IV PS. Details of the connectivity transmission system are given below.

Sl.	Application ID	Name of the Applicant	Conn. location	Conn. Quantum (MW)	Connectivity Transmission System under GNA			Start date of Connectivity	BG details
					Dedicated Connectivity Transmission System (DTL)	ATS	Augmentation other than ATS		
II.	2200001686 dt 23-Jan-25	Reliance Nu Suntech Pvt. Ltd	Kurnool-IV PS	410	- Generation Station of M/s Reliance Nu Suntech Pvt. Ltd. – Kurnool-IV PS 220 kV D/c line along with line bay at generation PS – under the scope of applicant 2 no. 220 kV line bay at Anantapur-II PS for above DTL – under the scope of ISTS	NIL	Details given below.	31.03.2028* (Tentative) with availability of common tr. System other than ATS	- Conn-BG1: Rs. 50 lakhs - Conn-BG2: 6.0 Crs - Conn-BG-3 : Rs. 8.2 Cr (@ Rs.

Sl.	Application ID	Name of the Applicant	Conn. location	Conn. Quantum (MW)	Connectivity Transmission System under GNA			Start date of Connectivity	BG details
					Dedicated Connectivity Transmission System (DTL)	ATS	Augmentation other than ATS		
									2.0 lakh /MW)

Common transmission system (augmentation) other than ATS for all above connectivity applicants :

- ISTS Network Expansion scheme in Western Region & Southern Region for export of surplus power during high RE scenario in Southern Region as per Annexure-I.
- Transmission System for Integration of Kurnool-IV PS (Phase-1) details as per **Annexure-IV**
- Transmission System for Integration of Kurnool-IV PS (Phase-II) details as per **Annexure-IVA**

Note : Applicants are required to submit applicable BGs within one month from the intimation of in-principle grant of Connectivity

It was also agreed that after allocation of connectivity margins to above applications at Kurnool-IV PS, pending applications will be considered for grant at Kurnool-V PS.

D. Connectivity related proposal for applications received in March' - April' 25

D.1. Connectivity related proposal at Bijapur PS

CTU informed that details of the applications received during Mar.'25 - April.'25 at Bijapur PS are given below .

Sl.	Application ID & date	Name of the Applicant	Project Location	Application for	Eligibility criterion for application	Nature of Applicant	Location details of Connectivity (as requested)	Total Installed Capacity [MW]	Connectivity Quantum (MW)]	Start date of Connectivity (as requested)	Scope of Implementation of terminal bay at ISTS end (as requested)
I.	2200001950 dt 16.04.2025	TEQ Green Power XVI	Muddebihal, Vijayapura, Karnataka	Application for addition of Generation	-	Generating station(s), including	Bijapur PS	Already agreed/ granted	Already agreed/ granted (2200000429) :	17.01.2027	NA

Sl.	Application ID	Name of the Applicant	Conn. location	Conn. Quantum (MW)	Connectivity Transmission System under GNA			Start date of Connectivity	BG details
					Dedicated Connectivity Transmission System (DTL)	ATS	Augmentation other than ATS		
					1 no. 220 kV line bay at Anantapur-III PS for above DTL – under the scope of ISTS				Rs. 2.0 lakh /MW)
IX.	2200001999 dt. 30.04.2025 & 15.05.2025	Chittoor Solar Power Private Limited	Ananthapuram-III PS	300	- Generation Station of M/s Chittoor Solar Power Private Limited – Anantapur-III PS 220 kV S/c line along with line bay at generation PS – under the scope of applicant. 1 no. 220 kV line bay at Anantapur-III PS for above DTL – under the scope of ISTS	NIL	Details given below.	30.09.2029 (Tentative) with availability of common tr. System other than ATS	- Conn-BG1: Rs. 50 lakhs - Conn-BG2: 3.0 Crs - Conn-BG-3: Rs. 6.0 Cr (@ Rs. 2.0 lakh /MW)
	Total								

*implementation of S/c line on D/c tower, as per request of the applicant.

Common transmission system (augmentation) other than ATS for above Connectivity applications:

- ISTS Network Expansion scheme in Western Region & Southern Region for export of surplus power during high RE scenario in Southern Region as per **Annexure-I**.
- Transmission System for Integration of Anantapur-III REZs (Phase-1 & Phase-II) (details as per **Annexure-VI**)
- Transmission System for Integration of Kurnool-V, as per **Annexure-VII & VII A**
- Inter-Regional Strengthening between SR Grid and WR Grid i.e. Bidar – Parli 765 kV D/c line

Note: Applicants are required to submit applicable BGs within one month from the intimation for in-principle grant of Connectivity.

D.9. Connectivity related proposal at Kurnool-V PS

CTU informed that details of the applications received at Kurnool-IV PS in Mar'25 – April.'25 are given below

Sl. No.	Application ID, Date	Name of the Applicant	Project Location	Eligibility criterion	Nature of Applicant	Location details of Connectivity (as requested)	Installed Capacity (MW)	Connectivity Quantum (MW)	Start date of Connectivity (as requested)	Scope of implementation of terminal bay at ISTS end (as requested)
I.	2200001932 dt. 08.04.2025	Purvah Green Power Private Limited	Karumanchi District Kurnool State Andhra Pradesh	Land BG Route	Generating station(s), including REGS(s), without ESS	Kurnool-IV/V	300 MW [Solar]	300	01.09.2029	ISTS

- CTU informed that margins are not available for grant of additional connectivity at Kurnool-IV PS, therefore, the S/s has been closed for grant of connectivity.

List of applications pending for grant of connectivity at Kurnool-IV PS are given below.

Sl. No.	Application ID, Date & time	Name of the Applicant	Project Location	Eligibility criterion	Nature of Applicant	Location details of Connectivity (as requested)	Installed Capacity (MW)	Connectivity Quantum (MW)	Start date of Connectivity (as requested)	Scope of implementation of terminal bay at ISTS end (as requested)
I.	2200001644 dt. 11-Jan-25	EG Electricia Energy Pvt. Ltd.	Krishnagiri, Kurnool, Andhra Pradesh	Land Route	(i) Generating station(s), including REGS(s), without ESS	Kurnool-IV	100 (Wind)	100	31-Dec-27	Applicant
II.	2200001697 dt. 28-Jan-25	EG Energia Supply Pvt. Ltd.	Krishnagiri, Kurnool, Andhra Pradesh	Land Route	(i) Generating station(s), including REGS(s), without ESS	Kurnool-IV	100 (wind)	100	31-Dec-27	Applicant

Sl. No.	Application ID, Date & time	Name of the Applicant	Project Location	Eligibility criterion	Nature of Applicant	Location details of Connectivity (as requested)	Installed Capacity (MW)	Connectivity Quantum (MW)	Start date of Connectivity (as requested)	Scope of implementation of terminal bay at ISTS end (as requested)
III.	2200001737 dt. 05-Feb-25 & 19-Feb-25	Enfinity Global Sunsource Pvt. Ltd.	Krishnagiri, Kurnool, Andhra Pradesh	Land Route	(i)Generating station(s), including REGS(s), without ESS	Kurnool-IV	100 (wind)	100	31-Dec-27	Sharing with EG Electricia Energy Pvt.Ltd. for app/ no. 2200001644
Total								300		

- Further, for integration of additional RE capacity under the potential identified by MNRE in Kurnool area, Kurnool-V has been identified for integration of 7.5 GW RE capacity. Details of the transmission system are given below.

Transmission System for Integration of Kurnool-V REZ :

Phase-I(4.5GW)

- Establishment of 4x1500 MVA, 765/400 kV and 5x500 MVA, 400/220kV Kurnool-V Pooling Station along with 2x330 MVar bus reactor at Kurnool-V
- ± 300 MVar STATCOM at Kurnool-V
- Kurnool-V – Shadnagar 765 kV D/c line (240 km) 1x240 MVar SLR at both ends on both circuits
- Kurnool-V – Raichur New 765 kV D/c line (150 km) 1x240 MVar SLR at Kurnool-V end on both circuits
- Establishment of 3x1500 MVA, 765/400 kV Sagar substation with 2x330 MVar bus reactors and space provision for establishment of 400/220 kV switchyard
- Sagar – N’Sagar 400 kV quad D/c line (25 km)
- Kurnool-V – Sagar 765 kV D/c line (240 km) 1x240 MVar SLR at both ends on both circuits

Phase-II(3GW)

- Augmentation of 2x1500 MVA, 765/400 kV and 5x500 MVA, 400/220kV ICTs at Kurnool-V Pooling Station
- Kurnool-V – Nellore 765 kV D/c line (240 km) 1x240 MVar SLR at both ends on both circuits

- Khammam-II – Sagar 765 kV D/c line (150 km) 1x240 MVar SLR at Khammam-II end on both circuits
- Considering implementation schedule of 24 / 30 months from the date of SPV transfer along with administrative and bidding process, the scheme is tentatively expected from Sept.'27 / March.'28
- Connectivity application under consideration : 600 MW.
- System study analysis have been carried out and it is observed that connectivity may be granted to all above applicants at Kurnool-V PS with ISTS Network Expansion scheme in Western Region & Southern Region for export of surplus power during high RE scenario in Southern Region as per **Annexure-I**, Transmission System for Integration of Kurnool-V PS (**Phase-I**) details as per **Annexure-VII** and Inter-Regional Strengthening between SR Grid and WR Grid i.e. Bidar – Parli 765 kV D/c line
- After detailed deliberations, it was agreed that connectivity may be granted to above application as per details given below.

Sl.	Application ID	Name of the Applicant	Connectivity at	Connectivity Quantum (MW)	Connectivity Transmission System under GNA			Start date of Connectivity/	BG details
					Dedicated Connectivity Transmission System (DTL)	ATS	Augmentation other than ATS		
I.	2200001644 dt. 11-Jan-25	EG Electricia Energy Pvt. Ltd.	Kurnool-V PS	100 MW	• Generation Station of M/s EG Electricia Energy Pvt. Ltd – Kurnool-V PS 220 kV S/c line along with line bay at generation PS – under the scope of applicant • 1 no. 220 kV line bay at Kurnool - V PS for above DTL – under the scope of applicant	Nil	Details given below.	31.12.2027* (Tentative) with availability of common tr. System other than ATS	• Conn-BG1 : Rs. 50 lakhs • Conn-BG2 : NA • Conn-BG-3 : Rs. 2.0 Cr (@ Rs. 2.0 lakh /MW)
II.	2200001697 dt. 28-Jan-25	EG Energia Supply Pvt. Ltd.	Kurnool-V PS	100 MW	• Through sharing of dedicated connectivity transmission system of M/s M/s EG Electricia Energy Pvt. Ltd. for app. no. 2200001644 i.e. Generation Station of M/s EG Electricia Energy Pvt. Ltd – Kurnool-V PS 220 kV S/c line – all	Nil	Details given below.	31.12.2027* (Tentative) with availability of common tr. System other than ATS	• Conn-BG1 : Rs. 50 lakhs • Conn-BG2: NA • Conn-BG-3 : Rs. 2.0 Cr (@ Rs. 2.0 lakh /MW)

Sl.	Application ID	Name of the Applicant	Connectivity at	Connectivity Quantum (MW)	Connectivity Transmission System under GNA			Start date of Connectivity/	BG details
					Dedicated Connectivity Transmission System (DTL)	ATS	Augmentation other than ATS		
					arrangement under the scope of applicant				
III.	2200001737 dt. 05-Feb-25 & 19-Feb-25	Enfinity Global Sunsource Pvt. Ltd.	Kurnool-V PS	100 MW	Through sharing of dedicated connectivity transmission system of M/s M/s EG Electricia Energy Pvt. Ltd. for app. no. 2200001644 i.e. Generation Station of M/s EG Electricia Energy Pvt. Ltd – Kurnool-V PS 220 kV S/c line – all arrangement under the scope of applicant	Nil	Details given below.	31.12.2027* (Tentative) with availability of common tr. System other than ATS	- Conn-BG1 : Rs. 50 lakhs - Conn-BG2 : NA - Conn-BG-3 : Rs. 2.0 Cr (@ Rs. 2.0 lakh /MW)
IV.	2200001932 dt. 08.04.2025	Purvah Green Power Private Limited	Kurnool-V PS	300	- Generation Station of M/s Purvah Green Power Private Limited – Kurnool-V PS 220 kV S/c line along with line bay at generation PS – under the scope of applicant 1 no. 220 kV line bay at Kurnool-V PS for above DTL – under the scope of ISTS	NIL	Details given below.	01.09.2029* (Tentative) with availability of common tr. System other than ATS	- Conn-BG1 : Rs. 50 lakhs - Conn-BG2 : Rs. 3.0 Crs. - Conn-BG-3 : Rs. 6.0 Cr (@ Rs. 2.0 lakh /MW)
	Total			600					

Common transmission system (augmentation) other than ATS for all above connectivity applicants :

- ISTS Network Expansion scheme in Western Region & Southern Region for export of surplus power during high RE scenario in Southern Region as per **Annexure-I**.
- Transmission System for Integration of Kurnool-V PS (**Phase-I**) details as per **Annexure-VII**
- Inter-Regional Strengthening between SR Grid and WR Grid i.e. Bidar – Parli 765 kV D/c line

Note : Applicants are required to submit applicable BGs within one month from the intimation of in-principle grant of Connectivity.

D.10. Connectivity Related proposals at Koppal PS:

Details of the applications received between Mar.'25 to April.'25 for grant of connectivity at Koppal PS are given below

Sl.	Application ID & date	Name of the Applicant	Project Location	Application for: Conn. / GNA/ GNARE	Eligibility criterion	Nature of Applicant	Location details of Conn. / GNA requested	Total Installed Capacity / GNA	Conn. Sought for [Power interchange with ISTS (MW)]	Start date of Conn. / GNA (as requested)	Implementation of terminal bay at ISTS end under the scope of (as requested)
I.	2200001947 dt. 14.04.2025	Serentica Renewables India 1 Private Limited	Alwandi District Koppal	Installed capacity addition	Application under regulation 5.2 for addition of generation capacity including ess within the quantum of connectivity	Generating station(s), including REGS(s), without ESS	Koppal PS	Proposed augmentation in installed capacity : 204 MW [Solar: 73 MW, Wind: 106 MW, BESS: 25 MW]	Already granted connectivity (app. no 1200003822) : 10 MW Proposed enhancement in connectivity : 0MW	31.12.2026	Application No. 1200003822 already granted Connectivity

CTU mentioned that M/s Serentica Renewables India 1 Private Limited has been granted connectivity for 10 MW under CERC GNA Regulations 2022 for application no. 1200003822 and sought augmentation of the installed capacity for 204 MW without change in connectivity quantum.

CTU requested M/s Serentica Renewables India 1 Private Limited to present the matter and may explain to forum that how installed capacity of 204 MW, including augmentation of BESS for 25 MW, will be utilized for 10 MW granted connectivity. M/s Serentica Renewables India 1 Private Limited mentioned that augmentation in installed capacity has been sought for all applications granted connectivity at Koppal PS. In this regard, CTU requested applicant to re submit the application for augmentation of installed capacity under regulation 5.2 of CERC GNA Regulations 2022. Further, applicant is required to mention only one application no. against which

Annexure-VI A

Transmission System for Integration of Ananthapuram-III REZ

Phase-II (3GW)

- Augmentation of 2x1500 MVA, 765/400 kV and 5x500 MVA, 400/220kV ICTs at Ananthapuram-III Pooling Station

Annexure-VII

Transmission System for Integration of Kurnool-V REZ

Phase-I (4.5GW)

- Establishment of 4x1500 MVA, 765/400 kV and 5x500 MVA, 400/220kV Kurnool-V Pooling Station along with 2x330 MVar bus reactor at Kurnool-V
- $\pm$ 300 MVar STATCOM at Kurnool-V
- Kurnool-V – Shadnagar 765 kV D/c line (240 km) 1x240 MVar SLR at both ends on both circuits
- Kurnool-V – Raichur New 765 kV D/c line (150 km) 1x240 MVar SLR at Kurnool-V end on both circuits
- Establishment of 3x1500 MVA, 765/400 kV Sagar substation with 2x330 MVar bus reactors and space provision for establishment of 400/220 kV switchyard
- Sagar – N'Sagar 400 kV quad D/c line (25 km)
- Kurnool-V – Sagar 765 kV D/c line (240 km) 1x240 MVar SLR at both ends on both circuits

Annexure-VII A

Transmission System for Integration of Kurnool-V REZ

Phase-II (3GW)

- Augmentation of 2x1500 MVA, 765/400 kV and 5x500 MVA, 400/220kV ICTs at Kurnool-V Pooling Station
- Kurnool-V – Nellore 765 kV D/c line (240 km) 1x240 MVar SLR at both ends on both circuits
- Khammam-II – Sagar 765 kV D/c line (150 km) 1x240 MVar SLR at Khammam-II end on both circuits

E-Mail /Website

भारत सरकार केंद्रीय विद्युत प्राधिकरण दक्षिण क्षेत्रीय विद्युत समिति 29, रेसकोर्स क्रॉस रोड बेंगलूर- 560 009	 सत्यमेव जयते	Government of India Central Electricity Authority Southern Regional Power Committee 29, Race Course Cross Road Bengaluru-560 009	
Email:mssrpc-ka@nic.in		Phone: 080-22287205	
सं/No.	SRPC/MS/Min-55 /2025/4219-4298	दिनांक/ Date	20.08.2025

सेवा में / To:

(वितरण सूची के अनुसार / *As per the distribution list*)

विषय : एसआरपीसी की 55 वीं और टीसीसी के 52 वीं बैठकों के कार्यवृत्त - के संबंध में

Subject: Minutes of the 55th Meeting of SRPC and 52nd Meeting of TCC -reg.

महोदया /महोदय,

Madam/Sir,

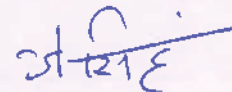
एसआरपीसी की 55 वीं और टीसीसी के 52 वीं बैठक 26.07.2025 और 25.07.2025 उदयपुर, राजस्थान में आयोजित की गई थीं उनके कार्यवृत्त संलग्न हैं। कार्यवृत्त एसआरपीसी की वेबसाइट पर उपलब्ध है।

Please find attached Minutes of the 55th SRPC and 52nd TCC Meetings held on 26.07.2025 and 25.07.2025 at Udaipur, Rajasthan. The same has been uploaded on SRPC website.

धन्यवाद / Thanking you,

भवदीय/Yours faithfully,

Enclosure as above/ संलग्न यथोपरि:



(असित सिंह /Asit Singh)

सदस्य सचिव/Member Secretary

Distribution List:

A. Members of SRPC:

- 1) **Shri Mir Mohammed Ali, Chairperson SRPC & CMD , KSEBL, Thiruvananthapuram**
- 2) Shri Hemant Jain , Member (GO & D), CEA, New Delhi.
- 3) Shri K Vijayanand, CMD , APTRANSCO, Vijayawada
- 4) Shri KVN Chakradhar Babu, Managing Director, APGENCO, Vijayawada
- 5) Shri AKV Bhaskar, Director (Grid & Tr. Mgmt), APTRANSCO, Vijayawada
- 6) Shri K Sanhtosha Rao, CMD, APSPDCL, Tirupati
- 7) Shri Gaurav Gupta, MD , KPCL, Bengaluru
- 8) Shri Pankaj Kumar Pandey, Managing Director, KPTCL, Bengaluru
- 9) Shri Lokhande Snehal Sudhakar, Managing Director, PCKL, Bengaluru
- 10) Shri Giridhar Kulkarni, Director (Projects & Op), KPTCL, Bengaluru
- 11) Chief Engineer (E), SLDC, KPTCL, Bengaluru
- 12) Shri Sivadas S, Director (T, SO & P), KSEBL, Thiruvananthapuram
- 13) Shri Saji Paulose, Director (Distribution & SCM), KSEBL, Thiruvananthapuram
- 14) Shri Sajeev G, Director (Gen –Elec, REES, SOURA, S&W), KSEBL, Thiruvananthapuram
- 15) Dr J Radhakrishnan, CMD, TNPDC & TNPGL & Chairman, TANTRANSCO, Chennai
- 16) Dr Aneesh Sekhar, Managing Director, TNGECL, Chennai
- 17) Shri Govind Rao, Managing Director, TNPGL, Chennai
- 18) Ms K Indirani, Managing Director, TANTRANSCO, Chennai
- 19) Shri A Krishnavel, Director (Operation)(FAC), TANTRANSCO, Chennai
- 20) Shri D Krishna Bhaskar, CMD, TGTRANSCO, Hyderabad
- 21) Shri S Harish, CMD, TGGENCO, Hyderabad
- 22) Shri G Sampath Kumar, Director(G&TM), TGTRANSCO, Hyderabad
- 23) Shri K Varun Reddy, CMD, TGNPDCL, Warrangal
- 24) Ms A Muthamma, Secretary (Power), Govt. of Puducherry, Puducherry
- 25) Shri Naveen Srivastava, Director (Operation), PGCIL, Gurugram
- 26) Shri Ashok Pal, COO, CTUIL, Gurugram
- 27) Shri Jayakumar Srinivasan, Director (Finance), NTPC, New Delhi
- 28) Shri M Venkatachalam, Director (Power) NLCIL, Neyveli
- 29) Shri M Sankaranarayanan, Director (Finance), NPCIL, Mumbai
- 30) Shri S K Sinha, CEO, NTECL, Vallur
- 31) Shri Kanti Biswas, Head (O&M), APL-Udupi, Udupi
- 32) Shri Jyotiprakash Panda, Head-Regulatory & Power Sales, JSWEL, New Delhi
- 33) Shri K Anandaramanujam, CEO, NTPL, Tuticorin
- 34) Shri J Mahapatra, CEO, SEIL, Gurugram
- 35) Shri Bhavani Prasad, Business Head, ITPCL, Chennai
- 36) Shri K S Nagendra, CEO, HNPCL, Hyderabad
- 37) Shri Manoj Kumar Jhavar, CMD , PTC India Ltd., New Delhi
- 38) Shri Nihar Raj, Sr. VP and Head O&M, Adani Energy Solutions Limited, Ahmedabad
- 39) Shri Pinaki Bhattacharyya, MD & CEO, Ampin Energy, New Delhi
- 40) Shri Rajeev Kumar Porwal, Director(O & MO), Grid India, New Delhi
- 41) Shri V Balaji, Executive Director, SRLDC, Grid India, Bengaluru

B. Members of TCC:

- 1) **Shri Sivadas S, Chairperson, TCC & Director (T, SO & P), KSEBL, Thiruvananthapuram**
- 2) **Shri AKV Bhaskar, Director (G &TM), APTRANSCO, Vijayawada**
- 3) **Shri P Ashok Kumar Reddy, Director (Thermal), APGENCO, Vijayawada**
- 4) **Shri K Guravaiah, Director (Technical), APSPDCL, Tirupathi**
- 5) **Shri Giridhar Kulkarni, Director (Projects & Op), KPTCL, Bengaluru**
- 6) **Chief Engineer (E), SLDC, KPTCL, Bengaluru**
- 7) **Shri B J Umesh, Additional Director (Projects) , PCKL, Bengaluru**
- 8) **Shri Krishnamurthy S , Technical Director, KPCL, Bengaluru**
- 9) **Shri Saji Paulose, Director (Distribution & SCM), KSEBL, Thiruvananthapuram**
- 10) **Shri Sajeev G, Director (Gen –Elec, REES, SOURA, S&W), KSEBL, Thiruvananthapuram**
- 11) **Ms K Indirani, Managing Director, TANTRANSCO, Chennai**
- 12) **Shri A Krishnavel, Director (Operation)(FAC), TANTRANSCO, Chennai**
- 13) **Shri K Muthukrishnan, Director (Technical), TNPGL, Chennai**
- 14) **Shri S Mangalanathan, Director(Technical)(FAC), TNGECL, Chennai**
- 15) **Shri G Sampath Kumar, Director(G&TM), TGTRANSCO, Hyderabad**
- 16) **Ms D Latha Vinod, Director (Projects), TGTRANSCO, Hyderabad**
- 17) **Shri Y Rajasekhara Reddy, Director (Thermal & Projects),TGGENCO, Hyderabad**
- 18) **Shri T Madhusudhan, I/c Director (O) TGNPDCL, Warrangal**
- 19) **Shri Rajesh Sanyal, Superintending Engineer-cum-HOD, Elec. Dept., Puducherry**
- 20) **Shri Ajay Dua, Regional Executive Director, (SR), NTPC, Secunderabad**
- 21) **Ms Manju Gupta, Dy. COO, CTUIL, Gurugram**
- 22) **Shri Doman Yadav, Executive Director (SR- I), PGCIL, Secunderabad**
- 23) **Shri Krishna Kumar, Executive Director (SR- II), PGCIL, Bengaluru**
- 24) **Shri T Vanchinathan. Executive Director (Thermal) I/c ,NLCIL, Neyveli**
- 25) **Shri Choudhary Nitin R, OS & ED(C), NPCIL, Mumbai**
- 26) **Shri Kishore Chandra Patra, GM (O&M), General Manager(O&M), NTECL, Vallur**
- 27) **Shri Kartikeya Misra, VP and Head of Plant, JSWEL**
- 28) **Shri Manoj Taunk, Associate VP, Endorse (Prot & Metering), UPCL**
- 29) **Dr Pothala Koteswara Rao, Station Head, IL&FS Tamil Nadu Power Company Limited**
- 30) **Shri K Anandaramanujam, CEO, NTPL, Tuticorin**
- 31) **Shri Milind Nigudkar, Sr. GM (Comml), SEIL, Gurugram**
- 32) **Shri S Mukharjee, Sr VP (O & M), & Plant Head, HNPCL, Hyderabad**
- 33) **Shri Bikram Singh Guram, Executive Director (Marketing), PTCIL, New Delhi**
- 34) **Shri Abhishek Kukreja, Lead O&M, Adani Energy Solutions Limited, Ahemdabad**
- 35) **Shri Amol Gokhale, Head Projects, Ampin Energy, New Delhi**
- 36) **Shri Brieflee Lyngkhohi, Chief Engineer (GM), CEA, New Delhi**
- 37) **Ms Rishika Sharan, Chief Engineer (NPC), CEA, New Delhi**
- 38) **Ms S Usha, Head, NLDC, New Delhi**
- 39) **Shri V Balaji, Executive Director, SRLDC, Grid India, Bengaluru**

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TCC Deliberations

- j) CTUIL informed that with the receipt of Rs. 13.25 Crores payment, the total payment received was Rs. 12308 lakhs under Category-B (List of IPPs and state utilities who did not file appeals in APTEL). 24 IAs had been filed by CTUIL for vacation of stay to raise the bill and the same had been listed for hearing on 01.08.2025.

As per the CERC Order, relinquished generators were liable to pay the relinquishment charges within six months. For those who had not paid the dues, CTUIL imposed Regulation of Power Supply. Subsequently, a few generators had approached CERC, while others filed appeals before APTEL. Five petitions had been filed by the generators before CERC on invoices raised for Category C. CTUIL informed that invoices had been raised for all generators who did not file appeal as well as for those who filed appeals, but undergoing insolvency proceedings.

Legal Opinion finalized by Senior Advocate Shri M.G. Ramachandran was reviewed by CTUIL legal counsel for the case and furnished some comments. Final legal opinion would be furnished by Shri M.G. Ramachandran within 15 days.

All Southern Region (SR) states were requested to implead in all the petitions. It was noted that APPCC and PCKL had already impleaded in the petitions.

- k) TNPDCCL was observed that no remedy was apparent in the near future as the appeals and the stay vacation application were repeatedly getting adjourned in the hearings. Therefore, CTUIL /PGCIL had been requested to exclude the above specified relinquishment charges computed by CTUIL since the States were no way responsible for the stalemate. (Refer Annexure 6E)
- l) CTUIL replied that this cannot be excluded and it needs to be settled as per CERC Order. The matter regarding exclusion of the amount from the pool had been deliberated in various meetings. Since transmission licensees are entitled to receive the full amount, the exclusion of this amount is not possible.

SRPC Deliberations

- m) TNPDCCL again requested to exclude the amount from the Pool.
- n) CTUIL clarified that as per Regulations, the amount collected in the pool is for the existing transmission system. The relinquishment charges received were being disbursed; further receipts would also be disbursed accordingly. It was mentioned that the matter was under litigation and the amount needs to be finalized first, following which appropriate action can be initiated. Final legal opinion would be furnished by Shri M.G. Ramachandran within 15 days.
- o) All SR States to implead in all petitions. CTUIL would update all the states on Petitions, hearing schedules etc.

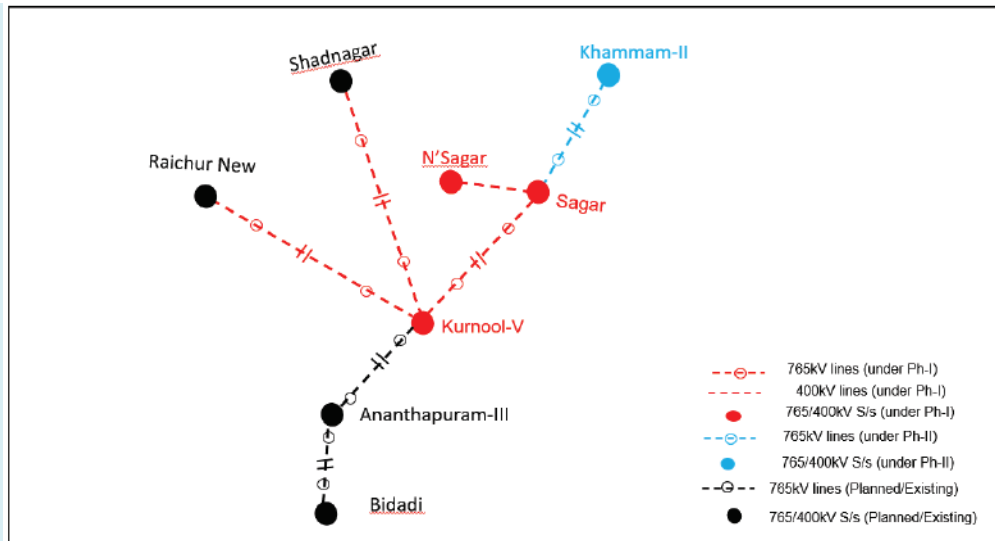
10 ISTS NETWORK EXPANSION SCHEME FOR VIEWS OF SOUTHERN REGION POWER COMMITTEE (SRPC)

- a) CTUIL vide letter dated 09.07.2025 had furnished the following ISTS Network Expansion schemes discussed and agreed in the 38th Consultation Meetings for Evolving

Transmission Schemes in Southern Region held on 02.06.2025 (MoM awaited) for SRPC views:

- b) Details of the above transmission schemes in the prescribed format are given at **Annexure-10**. The tentative increment in YTC due to the above schemes shall be communicated shortly
- c) Further, Para 6 (3A) & Para 11 of MoP Gazette dated 03.12.2021 on resolution for establishment of SRPC stipulate the following: *"3A- To provide views on the inter-state transmission system planned by CTU within 45 days of receipt of the proposal by the concerned RPC. The views of RPC will be considered by National Committee on Transmission for sending their recommendation to Ministry of Power for approval of new inter-state transmission system."*
- d) Further it is to mention that the transmission schemes at SI. No. 1, 2 & 3 would facilitate integration and immediate evacuation of RE capacity from Kurnool-V, Ananthapuram-III & Kadapa-II REZs in Andhra Pradesh. Further, these transmission schemes shall also act as an enabler towards achieving the Govt. of India target of establishing 500 GW capacity from non-fossil based energy sources by 2030. The transmission scheme at SI. No. 4 would facilitate evacuation of RE power and meeting the Green Hydrogen / Green Ammonia demand in Vizag area in Andhra Pradesh.

Sl.No	Name of Scheme	State(s)	Estimated Cost (Rs.Crore)
1	Transmission System for Integration of Kurnool-V REZ- Phase-I	AP	6932
	<i>Transmission System for Integration of Kurnool-V REZ (near Kodumur proposed in Kurnool district proposed as per NERCAP letter dated 19.03.25) – 7.5 GW</i> Phase-I(4.5GW): - Establishment of 4x1500 MVA, 765/400 kV and 5x500 MVA, 400/220kV Kurnool V Pooling Station along with 2x330 MVar bus reactor at Kurnool-V + 300 MVar STATCOM at Kurnool-V - Kurnool-V – Shadnagar 765 kV D/c line (240 km) 1x240 MVar SLR (convertible) at both ends on both circuits - Kurnool-V – Raichur New 765 kV D/c line (150 km) 1x240 MVar SLR (convertible) at Kurnool-V end on both circuits - Establishment of 3x1500 MVA, 765/400 kV Sagar substation with 2x330 MVar bus reactors and space provision for establishment of 400/220 kV switchyard - Sagar – N'Sagar 400 kV quad D/c line (25 km) - Kurnool-V – Sagar 765 kV D/c line (240 km) 1x240 MVar SLR (convertible) at both ends on both circuits		



TCC Deliberations

- e) CTUIL stated that 1900 MW connectivity application had been received at Kurnool V PS as on June 2025. Details of connectivity Applications received at Kurnool-V PS as on Jun'25 is shown below:

Sl. No.	Applicant	Connectivity quantum (MW)	Generation Type (MW)			Start Date of Conn.
			Solar	Wind	PSP	
1	Purvah Green Power Pvt. Ltd.	300	300			01.09.2029
2	Clean Max Tadoba Pvt. Ltd.	150	151.8	120		28.12.2028
3	Clean Max Draco Pvt. Ltd.	50	52.8	45		29.12.2028
4	Jire Green Energy Project Eleven Ltd.	380	200	340	150	31.12.2028
5	Terra Clean Ltd.	350	250	100		31.12.2028
6	Clean Max Solstice Pvt. Ltd.	100	99	80		31.12.2028
7	Reliance Nu Suntech Private Limited	220	220			Under Process
8	Reliance Nu Suntech Private Limited	300	300			Under Process
9	Clean Max Tahoe Private Limited	50	52.8	45		Under Process
	Total	1900	1626.4	730	150	

- f) CTUIL informed that the tentative cost is **₹. 6932 Crores** and implementation schedule is 30 months.

- g) APTRANSCO proposed to consider 765kV Sagar to Kakinada D/c instead of 765kV Sagar to Khammam-II. CTUIL stated that Sagar to Khammam-II interconnection is required for transmitting renewable energy from the Kurnool area to the Pendurthi substation. Sagar to Kakinada section would be too lengthy and would not be feasible to connect. Pendurthi SS, is further connected to Kakinada SS.
- h) Further, CTUIL mentioned that this scheme was proposed under Phase-II in the Joint Study meeting. While finalizing the Scheme-II, the transmission scheme may be studied further, as the Kakinada substation is significantly farther. Additionally, CTUIL mentioned that Phase-I, with a proposed capacity of 4.5 GW, was under consideration. Phase-II proposal may be further deliberated in next joint study meeting.
- i) With the concurrence of the SR Constituents and considering the receipt of applications, the proposal had been recommended for implementation.
- j) **TCC recommended for the SRPC approval.**

SRPC Deliberations

SRPC noted the views of TCC Forum and concurred the Transmission System for Integration of Kurnool-V REZ Phase-I – 4.5 GW.

Sl.No	Name of Scheme	State(s)	Estimated Cost (Rs.Crore)
2	Transmission System for Integration of Ananthapuram-III REZ- Phase-I	AP	4476
	<i>Transmission System for Integration of Ananthapuram-III REZ (near Urvakonda/Beluguppa/Kalyandurg areas in Anantapur district proposed as per NERCAP letter dated 19.03.25) – 7.5 GW</i> Phase-I (4.5GW): - Establishment of 4x1500 MVA, 765/400 kV and 5x500 MVA, 400/220kV Ananthapuram-III Pooling Station along with 2x330 MVar bus reactor ± 300 MVar STATCOM or SYNCON (on pilot basis) at Ananthapuram-III - Ananthapuram-III – Kurnool-V 765kV D/c line (170 km) with 1x330 MVar SLR (convertible) at Ananthapuram-III end on both circuit - Upgradation of existing 400/220kV Bidadi Station to 765kV level with 3x1500 MVA, 765/400 kV ICTs (Additional land for upgradation to 765kV level to be provided by KPCL at the earliest so that it can be implemented in matching timeframe) - Ananthapuram-III – Bidadi 765kV D/c line (90 km)		



भारत सरकार
Government of India
विद्युत मंत्रालय
Ministry of Power
केंद्रीय विद्युत प्राधिकरण
Central Electricity Authority
विद्युत प्रणाली योजना एवं मूल्यांकन प्रभाग- II
Power System Planning & Appraisal Division-II

सेवा में /To

As per list of Addresses

विषय: ट्रांसमिशन पर राष्ट्रीय समिति (एनसीटी) की बत्तीसवीं बैठक के संशोधित कार्यवृत्त ।

Subject: Revised minutes of the 32nd Meeting of the National Committee on Transmission (NCT)-reg.

महोदया (Madam) / महोदय (Sir),

The 32nd meeting of the National Committee on Transmission (NCT) was held 12th August, 2025 at New Delhi. The revised minutes of the meeting are attached herewith.

भवदीय / Yours faithfully

(बी.एस. बैरवा / B.S. Bairwa)

मुख्य अभियन्ता एवं सदस्य सचिव, (एन.सी.टी.)/
Chief Engineer & Member Secretary (NCT)

प्रतिलिपि / Copy to:

Joint Secretary (Trans), Ministry of Power, New Delhi

List of Addresses:

1.	Chairperson, Central Electricity Authority Sewa Bhawan, R.K. Puram, New Delhi – 110 066.	2.	Member (Power Systems), Central Electricity Authority Sewa Bhawan, R.K. Puram, New Delhi – 110 066.
3.	Member (Economic & Commercial), Central Electricity Authority Sewa Bhawan, R.K. Puram, New Delhi – 110 066.	4.	Director (Trans), Ministry of Power Shram Shakti Bhawan, New Delhi-110001.
5.	Sh. Abhay Bakre, Mission Director, MNRE Atal Akshay Urja Bhawan Opposite CGO Complex gate No. 2, Lodhi Road, New Delhi – 110003	6.	Chief Operating Officer, CTUIL, Floors Nos. 5-10, Tower 1, Plot Nos. 16, IRCON International Tower, Institutional Area, Sector 32, Gurugram, Haryana - 122001.
7.	Sh. Rajnath Ram, Adviser (Energy), NITI Aayog, Parliament Street, New Delhi – 110 001.	8.	CMD, Grid Controller of India, B-9 (1 st Floor), Qutub Institutional Area, Katwaria Sarai, New Delhi – 110016
9.	Sh. Ravinder Gupta Expert Member	10.	Smt. Raheela Wani, TCC& Managing Director, JKPTCL, Office of Managing Director, Grid Station Complex, Janipur, Jammu/ PDD Complex Bemina Srinagar- 190010
11.	Member Secretary , Western Region Power Committee 2nd Floor, Vidyut Seva Bhavan, P.O.: Sunder Nagar, Danganiya, Raipur: 492 013	12.	Shri Shivdas.S, Chairperson (TCC) and Director (Transmission, System Operation & Planning), KSEBL Vydyuthi Bhavanam, Pattom, Thiruvananthapuram, Kerala- 695004
13.	Sh. Sabyasachi Roy, Director (Operations), WBSETCL	14.	Shri A T Mondal Chairman, NERPC & Hon'ble Power Minister, Govt. of Meghalaya NERPC Complex, Dong Parmaw, Lapalang, Shillong - 793006, Meghalaya
15.	Shri Santanu Basu (IAS) Chairperson, Eastern Regional Power Committee (ERPC) & CMD (WBSEDCL) 14, Golf Club Road, Tollygunge Kolkata-700033		

Special Invitee

1. Chief Engineer (PCD), CEA
2. CEO, RECPDCL
3. CEO, PFCCL

from AIS to GIS shall lead to increase in estimated cost by additional ₹ 35 crore. It was explained that this additional cost will be about 1.08% of the original cost of the scheme for which NCT is empowered to approve.

- 3.3.4 After deliberations, NCT approved the modification of Change in Type of bay to be constructed at Shadnagar (TGTRANSCO) substation from AIS to GIS in the transmission scheme “Transmission System for Kurnool-IV REZ - Phase-II (3 GW) and para-9 of the transmission scheme may be updated as below:

<i>Sl. No.</i>	<i>Scope of the Transmission Scheme</i>	<i>Capacity /km</i>	<i>Schedule</i>
9.	Shadnagar – Shadnagar GIS (TGTRANSCO) 400 kV quad D/c line (about 50 kms) {TGTRANSCO to implement 400kV Shadnagar GIS (TGTRANSCO) substation in matching time frame}	~ 50 km 400kV GIS line bays – 2 Nos. (at Shadnagar GIS (TGTRANSCO))	30 months

4 New Transmission Schemes:

4.1 WR-ER Inter-Regional Network Expansion Scheme

- 4.1.1 Representative of CTUIL stated that to alleviate critical loading in the WR–ER transmission corridors under peak solar scenarios (2028–29), ensure N-1 reliability, and enable evacuation of power from upcoming generation projects in Chhattisgarh [in order to facilitate evacuation of power from 2x800MW Raigarh TPS of APL at Raigarh (Kotra)-II, Korba Power Limited (2x660MW) at Champa and & Korba Power Limited (2x800MW) at Dharamjaygarh Substation], two new 765/400 kV ISTS substations at Raigarh (Kotra-II) in WR and Jamshedpur (New) in ER along with WR – ER inter-regional link and associated transmission lines have been planned. The scheme addresses overloading issues on key 765 kV and 400 kV lines in WR & ER, mitigates critical loading and fault level constraints at existing Raigarh (Kotra).
- 4.1.2 It was also informed that, scheme was recommended in a Special Joint TCC and ERPC meeting of ERPC held on 11.08.2025 and 55th meeting of WRPC held on 08.08.2025
- 4.1.3 GRID-INDIA stated that, with the future generation envisaged in the Raigarh complex and anticipated power flow from NR to ER region, the utilization of Champa–Kurukshetra HVDC in the forward direction (WR->NR) could be limited during high VRE generation scenario in NR. Therefore, possibility of reverse power flow capability in HVDC Champa–Kurukshetra bipoles may be explored.
- 4.1.4 GRID-INDIA further added that, with the LILO of 765kV New Ranchi-Medinipur D/c and 400kV New Ranchi-New Purulia PSP D/c at Jamshedpur, low voltages in West Bengal and N-1 violation of 765/400 kV ICTs at New Jeerat is observed. Further, in

<i>Sl. No.</i>	<i>Scope of the Transmission Scheme</i>	<i>Capacity /km</i>
		• Tertiary arrangement with 33 kV cable – 1 set
2.	2 Nos. of 220kV line bays for termination of 220kV transmission lines along with 220kV bus sectionaliser	• 220kV line bays – 2 Nos. (GIS) • 220kV bus sectionaliser – 1 set • 220 kV Bus Coupler (BC) Bay – 1 no
3.	Extension of 220kV GIS hall to accommodate 6 Nos. of 220kV bays (2 Nos. of 220kV ICT bays and 4 Nos. of 220kV line bays) and associated 220kV bus sectionaliser	• Extension of 220kV GIS hall to accommodate 6 Nos. of 220kV bays and associated 220kV bus sectionaliser

4.4 Transmission System for integration of Kurnool-V, Ananthapuram-III and Kadapa-II REZs in Andhra Pradesh

- 4.4.1 Representative of CTUIL informed that Govt. of India has set a target of 500 GW generation capacity from non-fossil fuel resources by 2030. In this direction, MNRE has identified addition of 86 GW RE Potential in the State of Andhra Pradesh, Telangana, Karnataka and Tamil Nadu (Offshore) in Southern Region. Out of the identified (86 GW) RE Potential in Southern Region, 51 GW has been identified in the State of Andhra Pradesh (Ananthapuram – 20 GW, Kurnool – 23 GW & Kadapa – 8 GW).
- 4.4.2 CTU mentioned that Connectivity applications from RE generation developers for about 3630 MW have already been received till Jun'2025 at Ananthapuram-III PS. Similarly, Connectivity applications for about 1380 MW has already been received till Jun'25 at Kurnool-IV PS. Further, connectivity application of about 300 MW has been received at Kadapa-II PS till Jun'25. In view of the same, Kurnool-V, Ananthapuram-III and Kadapa-II REZs transmission system have been identified for total 7.5 GW RE evacuation, however these transmission schemes are to be implemented each in two phases with Phase-I for 4.5 GW and phase-II for 3 GW.
- 4.4.3 CTUIL further informed that additional Connectivity applications of 1673 MW have been received in July 2025 at Ananthapuram-III. Therefore, it was proposed to take-up the implementation of Ananthapuram-III Phase-I and Phase-II schemes together.
- 4.4.4 As the Connectivity applications are very less, it was decided that Kadapa-II transmission system may be deliberated in next NCT meeting based on the receipt of further Connectivity applications. Further, it was decided that Ananthapuram-III

Phase-2 transmission may put-up for discussion in subsequent meeting of NCT after due consultation in CTU / SRPC meetings.

- 4.4.5 GRID-INDIA stated that SCR of all three pooling stations are below 5 (recommended in CEA technical standards for connectivity to the grid), especially after including the generation envisaged under Phase-II. It was highlighted that low-SCR renewable pockets are one of the contributing factors for low-frequency oscillations triggered due to controller interactions. It was suggested to plan for system strengthening measures, such as SynCON in these pockets to improve system strength and dynamic voltage stability.
- 4.4.6 CTU informed that SR grid is a well-integrated network with large number of conventional as well as RE generations and majority of the substations have higher short circuit strength. The present transmission schemes under Phase-I do not have SCR issues.
- 4.4.7 After deliberations, the transmission scheme “Transmission system for integration of Kurnool-V REZ Phase-I and Ananthapuram-III REZ Phase-I” in Andhra Pradesh was recommended for implementation under TBCB mode.

4.4.8 Summary of the scheme is given below:

Sl. No.	Name of the scheme and tentative implementation timeframe	Estimated Cost (₹ Crore)	Remarks
1.	Transmission system for integration of Kurnool-V REZ - Phase-I Tentative implementation timeframe: 30 months from the date of SPV transfer	7187	Recommended under TBCB mode with PFCCCL as BPC
2.	Transmission system for integration of Ananthapuram-III REZ - Phase-I Tentative implementation timeframe: 30 months from the date of SPV transfer	4531	Recommended under TBCB mode with PFCCCL as BPC

4.4.9 Detailed scope of the scheme is given below:

(A) Transmission System for integration of Kurnool-V REZ - Phase-I

Sl. No.	Scope of the Transmission Scheme	Capacity /km
1.	Establishment of 4x1500 MVA, 765/400 kV and 5x500 MVA, 400/220kV Kurnool-V Pooling Station near Kodumur in Kurnool district along with 2x330 MVar (765 kV) bus reactors at	• 765/400kV, 1500 MVA, ICTs – 4 Nos. (13x500 MVA incl. 1 spare unit) • 765kV ICT bays – 4 Nos. • 400kV ICT bays – 4 Nos. • 765kV line bays – 6 Nos. (at Kurnool-V PS for termination of Kurnool-V –

Sl. No.	Scope of the Transmission Scheme	Capacity /km
	Kurnool-V PS with provision of two (2) sections of 4500 MVA each at 400kV level Future Space Provisions: • 765/400kV, 1500 MVA, ICTs – 2 Nos. • 765kV ICT bays – 2 Nos. • 400kV ICT bays – 2 Nos. • 400/220kV, 500 MVA, ICTs – 13 Nos. • 400kV ICT bays – 13 Nos. • 220kV ICT bays – 13 Nos. • 765kV line bays – 8 Nos. (with provision for SLR) • 400kV line bays – 12 Nos. (with provision for SLR) • 220kV line bays – 19 Nos. • 220kV Bus Sectionalizer : 2 sets • 220 kV Bus Coupler (BC) Bay – 2 Nos. • 220 kV Transfer Bus Coupler (TBC) Bay – 2 Nos. • 400kV Bus Sectionalizer : 1 set	Shadnagar, Kurnool-V – Raichur New and Kurnool-V – Sagar 765kV D/c lines) • 765 kV, 330 MVA Bus Reactor – 2 Nos. (7x110 MVA inc. 1 switchable spare unit for both bus reactor and line reactor) • 765 kV Bus Reactor bays – 2 Nos. • 400/220kV, 500 MVA, ICTs – 5 Nos. • 400kV ICT bays – 5 Nos. • 220kV ICT bays – 5 Nos. • 220kV line bays – 6 Nos. • 220kV Bus Sectionalizer : 1 set • 220 kV Bus Coupler (BC) Bay – 2 Nos. • 220 kV Transfer Bus Coupler (TBC) Bay – 2 Nos.
2.	$\pm$ 300 MVA STATCOM at Kurnool-V PS	• 400kV bay – 1 no. • $\pm$ 300 MVA STATCOM – 1 set
3.	Kurnool-V – Shadnagar 765 kV D/c line (about 240 km) with 240 MVA SLR (convertible) at both ends on both circuits	~ 240 km • 765 kV line bays – 2 Nos. (at Shadnagar) • 765 kV, 240 MVA SLR at Kurnool-V PS – 2 Nos. (7x80 MVA inc. 1 switchable spare unit) • Switching Equipment for 765 kV SLR at Kurnool-V PS – 2 Nos. • 765 kV, 240 MVA SLR at Shadnagar PS – 2 Nos. (7x80 MVA inc. 1 switchable spare unit) • Switching Equipment for 765 kV SLR at Shadnagar PS – 2 Nos.
4.	Kurnool-V – Raichur New 765 kV D/c line (about 150 km) with 240 MVA SLR (convertible) at Raichur New end on both circuits	~ 150 km • Conversion of 765 kV Bus Reactor bay to 765 kV Line bay with SLR – 2 Nos. (at Raichur New) (The Kurnool-V – Raichur 765kV D/c line is to be terminated in the existing 240 MVA bus reactor bays and converting these bus reactors into switchable line reactors)

<i>Sl. No.</i>	<i>Scope of the Transmission Scheme</i>	<i>Capacity /km</i>
5.	Establishment of 3x1500 MVA, 765/400 kV Sagar substation with 2x330 MVar (765 kV) bus reactors with space provision for establishment of 220 kV switchyard Future Space Provisions: • 765/400kV, 1500 MVA, ICTs – 3 Nos. • 765kV ICT bays – 3 Nos. • 400kV ICT bays – 3 Nos. • 765kV line bays – 12 Nos. (with provision for SLR) • 400kV line bays – 10 Nos. (with provision for SLR) • 400kV Bus Sectionalizer : 1 set Future Space Provisions for 220kV switchyard: • 400/220kV, 500 MVA, ICTs – 10 Nos. • 400kV ICT bays – 10 Nos. • 220kV ICT bays – 10 Nos. • 220kV line bays – 16 Nos. • 220kV Bus Sectionalizer: 3 set • 220 kV Bus Coupler (BC) Bay – 4 Nos. • 220 kV Transfer Bus Coupler (TBC) Bay – 4 Nos.	• 765/400kV, 1500 MVA, ICTs – 3 Nos. (10x500 MVA incl. 1 spare unit) • 765kV ICT bay – 3 Nos. • 400kV ICT bay – 3 Nos. • 765kV line bays – 2 Nos. (at Sagar for termination of Kurnool-V – Sagar 765 kV D/c line) • 765 kV, 330 MVar Bus Reactors – 2 Nos. (7x110 MVar inc. 1 switchable spare unit) • 765 kV Bus Reactor bays – 2 Nos. • 400kV line bays – 2 Nos. (at Sagar for termination of Sagar – Nagarjunasagar 400 kV quad D/c line)
6.	Kurnool-V – Sagar 765 kV D/c line (about 240 km) with 240 MVar SLR (convertible) at both ends on both circuits	~ 240 km • 765 kV line bays – 2 Nos. (at Sagar) • 765 kV, 240 MVar SLR at Kurnool-V PS – 2 Nos. (6x80 MVar switchable units) • Switching Equipment for 765 kV SLR at Kurnool-V PS – 2 Nos. • 765 kV, 240 MVar SLR at Sagar – 2 Nos. (7x80 MVar inc. 1 switchable spare unit) • Switching Equipment for 765 kV SLR at Sagar – 2 Nos.
7.	Sagar – Nagarjunasagar 400 kV quad D/c line (about 25 km)	~ 25 km • 400kV line bays – 2 Nos. (at Nagarjunasagar)

Note :

- i) The Kurnool-V – Raichur 765kV D/c line is to be terminated in the existing 240 MVA bus reactor bays and converting these bus reactors into switchable line reactors. POWERGRID to provide space (free of cost) for the same.
- ii) POWERGRID to provide space (free of cost) for 2 Nos. of 400kV line bays at Nagarjunasagar for termination of Sagar – Nagarjunasagar 400 kV quad D/c line.
- iii) TSP of Shadnagar S/s to provide space (free of cost) for 2 Nos. of 765kV line bays with provision of SLR at Shadnagar S/s for termination of Kurnool-V – Shadnagar 765 kV D/c line.

(B) Transmission System for integration of Ananthapuram-III REZ - Phase-I

Sl. No.	Scope of the Transmission Scheme	Capacity /km
1.	Establishment of 4x1500 MVA, 765/400 kV and 9x500 MVA, 400/220kV Ananthapuram-III Pooling Station near Urvakonda/Beluguppa/Kalyandurg areas in Anantapur district along with 2x330 MVA (765 kV) bus reactors at Ananthapuram-III PS with provision of two (2) sections of 4500 MVA each at 400kV level Future Space Provisions: • 765/400kV, 1500 MVA, ICTs – 2 Nos. • 765kV ICT bays – 2 Nos. • 400kV ICT bays – 2 Nos. • 400/220kV, 500 MVA, ICTs – 10 Nos. • 400kV ICT bays – 9 Nos. • 220kV ICT bays – 9 Nos. • 765kV line bays – 10 Nos. (with provision for SLR) • 400kV line bays – 11 Nos. (with provision for SLR) • 220kV line bays – 14 Nos. • 220kV Bus Sectionalizer : 1 set • 220 kV Bus Coupler (BC) Bay – 1 no. • 220 kV Transfer Bus Coupler (TBC) Bay – 1 no.	• 765/400kV, 1500 MVA, ICTs – 4 Nos. (13x500 MVA incl. 1 spare unit) • 765kV ICT bays – 4 Nos. • 400kV ICT bays – 4 Nos. • 765kV line bays – 4 Nos. (at Ananthapuram-III PS for termination of Ananthapuram-III – Kurnool-V and Ananthapuram-III – Bidadi 765kV D/c lines) • 765 kV, 330 MVA Bus Reactor – 2 Nos. (7x110 MVA inc. 1 switchable spare unit for both bus reactor and line reactor) • 765 kV Bus Reactor bays – 2 Nos. • 400/220kV, 500 MVA, ICTs – 9 Nos. • 400kV ICT bays – 9 Nos. • 220kV ICT bays – 9 Nos. • 400kV Bus Sectionalizer : 1 set • 220kV line bays – 11 Nos. • 220kV Bus Sectionalizer: 2 sets • 220 kV Bus Coupler (BC) Bay – 3 Nos. • 220 kV Transfer Bus Coupler (TBC) Bay – 3 Nos.
2.	± 300 MVA STATCOM at Ananthapuram-III PS	• 400kV bay – 1 no. • ± 300 MVA STATCOM – 1 set
3.	Ananthapuram-III – Kurnool-V 765 kV D/c line (about 170 km) with 330 MVA SLR (convertible) at Ananthapuram-III end on both circuits	~ 170 km • 765 kV line bays – 2 Nos. (at Kurnool-V) • 765 kV, 330 MVA SLR at Ananthapuram-III PS – 2 Nos. (6x110 MVA switchable units)



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Government of India

विद्युत मंत्रालय

Ministry of Power

केंद्रीय विद्युत प्राधिकरण

Central Electricity Authority

विद्युत प्रणाली योजना एवं मूल्यांकन प्रभाग- II

Power System Planning & Appraisal Division-II

सेवा में /To

As per list of Addresses

विषय: ट्रांसमिशन पर राष्ट्रीय समिति (एनसीटी) की तैंतीसवीं बैठक की कार्यवृत्त ।

Subject: Minutes of 33rd Meeting of the National Committee on Transmission (NCT)-reg.

महोदया (Madam) / महोदय (Sir),

The 33rd meeting of the National Committee on Transmission (NCT) was held on 16th September, 2025 at New Delhi. The minutes of the meeting are attached herewith.

भवदीय / Yours faithfully

(बी.एस. बैरवा / B.S. Bairwa)

मुख्य अभियन्ता एवं सदस्य सचिव, (एन.सी.टी.)/
Chief Engineer & Member Secretary (NCT)

प्रतिलिपि / Copy to:

Joint Secretary (Trans), Ministry of Power, New Delhi

List of Addresses:

1.	Chairperson, Central Electricity Authority Sewa Bhawan, R.K. Puram, New Delhi – 110 066.	2.	Member (Power Systems), Central Electricity Authority Sewa Bhawan, R.K. Puram, New Delhi – 110 066.
3.	Member (Economic & Commercial), Central Electricity Authority Sewa Bhawan, R.K. Puram, New Delhi – 110 066.	4.	Director (Trans), Ministry of Power Shram Shakti Bhawan, New Delhi-110001.
5.	Sh. Abhay Bakre, Mission Director, MNRE Atal Akshay Urja Bhawan Opposite CGO Complex gate No. 2, Lodhi Road, New Delhi – 110003	6.	Chief Operating Officer, CTUIL, Floors Nos. 5-10, Tower 1, Plot Nos. 16, IRCON International Tower, Institutional Area, Sector 32, Gurugram, Haryana - 122001.
7.	Sh. Rajnath Ram, Adviser (Energy), NITI Aayog, Parliament Street, New Delhi – 110 001.	8.	CMD, Grid Controller of India, B-9 (1 st Floor), Qutub Institutional Area, Katwaria Sarai, New Delhi – 110016
9.	Smt. Raheela Wani, TCC& Managing Director, JKPTCL, Office of Managing Director, Grid Station Complex, Janipur, Jammu/ PDD Complex Bemina Srinagar- 190010	10.	Member Secretary, Western Region Power Committee 2nd Floor, Vidyut Seva Bhavan, P.O.: Sunder Nagar, Danganiya, Raipur: 492 013
11.	Shri Shivdas.S, Chairperson (TCC) and Director (Transmission, System Operation & Planning), KSEBL Vydyuthi Bhavanam, Pattom, Thiruvananthapuram, Kerala- 695004	12.	Sh. Sabyasachi Roy, Director (Operations), WBSETCL
13.	Shri A T Mondal Chairman, NERPC & Hon'ble Power Minister, Govt. of Meghalaya NERPC Complex, Dong Parmaw, Lapalang, Shillong - 793006, Meghalaya	14.	Shri Santanu Basu (IAS) Chairperson, Eastern Regional Power Committee (ERPC) & CMD (WBSEDCL) 14, Golf Club Road, Tollygunge Kolkata-700033

Special Invitee

1. Chief Engineer (PCD), CEA
2. CEO, RECPDCL
3. CEO, PFCCL

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Minutes of the 33rd meeting of National Committee on Transmission

1 Confirmation of the minutes of the 32nd meeting of National Committee on Transmission

- 1.1 The minutes of the 32nd meeting of NCT held on 12.08.2025 were issued on 22.08.2025 vide CEA letter no. CEA-PS-12-13/3/2019-PSPA-II Division/ I/53063/2025. No comments have been received on the minutes.
- 1.2 Members confirmed the minutes.

2 Status of the transmission schemes noted/approved/recommended to MoP in the 32nd meeting of NCT:

2.1 NCT noted the following:

2.1.1 Status of transmission schemes approved/recommended:

Sr. No	Name of the Transmission Scheme	Noted/ Recommended / Approved	Mode of Implementation	BPC/ Implementing Agency	Award/ Gazette notification
1.	WR-ER Inter-Regional Network Expansion Scheme- Part A	Recommended	TBCB	RECPDCL	Informed to MoP vide letter dated 21.08.2025. Under process for approval in MoP.
2.	WR-ER Inter-Regional Network Expansion Scheme- Part C	Recommended	TBCB	RECPDCL	
3.	NERGS-III Siang Basin	Recommended	TBCB	PFFCL	
4.	Transmission system for integration of Kurnool-V REZs-Phase-I	Recommended	TBCB	PFFCL	
5.	Transmission system for integration of Ananthapuram-III REZs-Phase-I	Recommended	TBCB	PFFCL	
6.	Transmission system for proposed Green Hydrogen / Green Ammonia projects in Vizag area, Andhra Pradesh (Phase-I)” Tentative implementation timeframe:	Recommended	TBCB	RECPDCL	
7.	Augmentation of 1x500 MVA, 400/220kV ICT (3rd) at Thrissur VSC HVDC Station in Kerala	Approved	RTM	POWERGRID	Informed to CTUIL vide letter dated 21.08.2025.

Sr. No	Name of the Transmission Scheme	Noted/ Recommended / Approved	Mode of Implementation	BPC/ Implementing Agency	Award/ Gazette notification
8.	WR-ER Inter-Regional Network Expansion Scheme-Part B	Approved	RTM	M/s Purulia and Kharagpur Transmission Company Ltd. (owned by Indigrid)	CTUIL awarded the schemes to implementing agencies on 21.08.2025.

2.1.2 Status of transmission schemes where modifications was suggested/approved in 32nd NCT meeting:

S. No.	Scheme where modifications was suggested	Status
1.	Transmission System for Kurnool-IV REZ – Phase-II	Informed to BPCs vide letter dated 21.08.2025

- 2.2 Joint secretary (Transmission), MoP informed that in order to ensure optimum utilization of the transmission lines, RE power from Kurnool-V REZ-Phase-1 (4.5 GW) and of Ananthapuram-III REZ-Phase-1 (4.5GW) may be evacuated through the already identified transmission system in Kurnool and Ananthapuram areas respectively during non-solar hours with implementation of co-located BESS. He mentioned that the schemes at S.No. 4 and 5 at para 2.1.1 above, will be referred again to NCT in light of the optimum utilization of the existing/under implementation transmission lines in those REZs. He further informed that the scheme at S.No 6 is under examination.
- 2.3 NCT opined that possibility may be explored for grant of additional connectivity for optimal utilization of the transmission system during non-solar hours. Representative of CTUIL informed that details of margins available for grant of connectivity during non-solar is being worked out and shall be made available on CTU website shortly for information of the stakeholders.
- 2.4 MNRE was requested to provide bifurcation of wind and solar potential separately on the Kurnool and Ananthapuram areas including additional RE potential declared by MNRE in the State of Andhra Pradesh for discussion in next meeting of the NCT.

3 Modification in earlier approved transmission schemes

3.1 Extension of Implementation Timeframe for ISTS Transmission Scheme at Siot, Jammu & Kashmir

- 3.1.1 The transmission scheme "Creation of 400/220 kV, 2x315 MVA Substation at Siot,



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Power System Planning & Appraisal Division-II

सेवा में /To

As per list of Addresses

विषय: ट्रांसमिशन पर राष्ट्रीय समिति (एनसीटी) की चौतीसवीं बैठक का कार्यवृत्त ।

Subject: Minutes of the 34th Meeting of the National Committee on Transmission (NCT)-reg.

महोदया (Madam) / महोदय (Sir),

The 34th meeting of the National Committee on Transmission (NCT) was held on 10th November, 2025 at New Delhi. The minutes of the meeting are attached herewith.

भवदीय / Yours faithfully

(बी.एस.बैरवा / B.S. Bairwa)

मुख्य अभियन्ता एवं सदस्य सचिव, (एन.सी.टी.)/
Chief Engineer & Member Secretary (NCT)

List of Addresses:

1.	Chairperson, Central Electricity Authority Sewa Bhawan, R.K. Puram, New Delhi – 110 066.	2.	Member (Power Systems), Central Electricity Authority Sewa Bhawan, R.K. Puram, New Delhi – 110 066.
3.	Member (Economic & Commercial), Central Electricity Authority Sewa Bhawan, R.K. Puram, New Delhi – 110 066.	4.	Joint Secretary (Trans), Ministry of Power Shram Shakti Bhawan, New Delhi-110001.
5.	Sh. Abhay Bakre, Mission Director, MNRE Atal Akshay Urja Bhawan Opposite CGO Complex gate No. 2, Lodhi Road, New Delhi – 110003	6.	Chief Operating Officer, CTUIL, Floors Nos. 5-10, Tower 1, Plot Nos. 16, IRCON International Tower, Institutional Area, Sector 32, Gurugram, Haryana - 122001.
7.	Sh. Rajnath Ram, Adviser (Energy), NITI Aayog, Parliament Street, New Delhi – 110 001.	8.	CMD, Grid Controller of India, B-9 (1st Floor), Qutub Institutional Area, Katwaria Sarai, New Delhi – 110016
9.	Sh. Abhay Choudhary Expert Member	10.	Managing Director, Jammu Power Distribution Corporation Limited (JPDCL) Gladni Narwal, Jammu, Jammu & Kashmir, India - 180006
11.	Sh. S.R Narasimhan Expert Member	12.	Shri. Shivdas.S, Director (Transmission & System Operation) Vydyuthi Bhavanam, Pattom, Thiruvananthapuram, Kerala- 695004
13.	Sh. Sabyasachi Roy, Director (Operations), WBSETCL	14.	Chairperson, North Eastern Region Power Committee Hon'ble Minister of Power, Govt. of Assam, Guwahati – 781 006
15.	Chairperson, Western Region Power Committee 2nd Floor, Vidyut Seva Bhavan, P.O. Sunder Nagar, Danganiya, Raipur: 492 013		

Special Invitee

- i) Chief Engineer (PCD), CEA
- ii) CEO, RECPDCL
- iii) CEO, PFCCL

Minutes of the 34th meeting of National Committee on Transmission (NCT)

1. Confirmation of the minutes of the 33rd meeting of National Committee on Transmission (NCT)

- 1.1. The minutes of the 33rd meeting of NCT held on 16.09.2025 were issued on 26.09.2025 vide CEA letter no. CEA-PS-12-13/3/2019-PSPA-II Division/I/53063/2025. No comments have been received on the minutes.
- 1.2. Members confirmed the minutes.

2. Status of the transmission schemes noted/approved/recommended to MoP in the 33rd meeting of NCT:

- 2.1. NCT noted the following:

- 2.1.1. Status of transmission schemes approved/recommended:

Sr. No	Name of the Transmission Scheme	Noted/ Recommended/ Approved	Mode of Implementation	BPC	Award/ Gazette notification
1.	Scheme to resolve High loading on Lara-I – Raigarh (Kotra) 400kV D/c line	Approved	RTM	PGCIL	Informed to CTUIL vide letter dated 26.09.2025
2.	Shifting of 2 Nos. of 63 MVAR line reactors at Madhugiri S/s to vacant 400 kV bays (space) to use as bus reactors	Approved	RTM	PGCIL	CTUIL awarded the projects to the implementing agency on 26.09.2025.
3.	Installation of 2 Nos. of Synchronous Condensers (SynCon) units at 765/400/220kV Fatehgarh-II PS	Recommended	TBCB	PFFCL	Informed to MoP vide letter dated 26.09.2025.

- 2.1.2. Status of transmission schemes where modifications were suggested/approved in 33rd NCT meeting:

S. Nos.	Scheme where modifications were suggested	Status
1.	Creation of 400/220 kV, 2x315 MVA Substation at Siot, Jammu & Kashmir	Informed to BPCs vide letter dated 26.09.2025
2.	Transmission system strengthening at Tumkur-II for integration of additional RE potential (1.5 GW)	
3.	Inter-Regional Strengthening between SR Grid and ER	

2.1.3. Communication schemes approved in 33rd NCT meeting:

Sl. No.	Name of Transmission Scheme	Noted/ Recommended/ Approved	Implementation Mode	Implementing Agency	Remarks
1.	Redundant communication for Narora Atomic Power Plant (NPCIL)	Approved	RTM	POWERGRID	Informed to CTUIL vide letter dated 26.09.2025
2.	Redundant communication for Saharanpur S/s (PG)	Approved	RTM	POWERGRID	CTUIL awarded the projects to the implementing agency on 26.09.2025.
3.	Redundant communication for Manesar S/s	Approved	RTM	POWERGRID	
4.	Communication requirement incidental to upcoming CN'Halli ISTS S/s	Approved	RTM	POWERGRID	
5.	Replacement of 15 no. of FOTE at critical ISTS location in Southern Region	Approved	RTM	POWERGRID	

3. Modification in earlier approved transmission schemes

3.1. Route and Cost optimization of transmission schemes recommended by National Committee on Transmission (NCT) for approval of Ministry of Power (MoP)

- 3.1.1. MoP vide order dated 17.09.2025 informed that during review of ISTS projects in MoP, final/revised cost of the project, as informed by the Transmission Service Providers (TSPs), is observed to be much higher than the cost of project communicated by the NCT while recommending the project for approval of Ministry. The difference is mainly due to increase in land cost and compensation cost. MoP requested NCT to ensure route optimization and cost optimization of each project, considering technological interventions, while recommending the projects for approval of Ministry.
- 3.1.2. Chairperson, NCT suggested that implementation of monopole towers, insulated cross-arms etc. near substation end shall be explored to reduce the cost of RoW.
- 3.1.3. Representative of GRID-INDIA stated that in case of multi-circuit towers, simultaneous forced outage of multiple lines may be a concern. Also, facilitating outage of one line on multi-circuit tower may require outage of other circuits also on the same tower due to safety concerns. These aspects may be factored in suitably during design, planning and execution of such circuits.
- 3.1.4. After deliberations, it was decided that multi circuit/monopole and other technology

options which reduces RoW should be used (i) near to the substations and (ii) densely populated areas.

3.2. Review of transmission scheme “Transmission System for integration of Kurnool-V REZ Phase-I” and “Transmission System for integration of Ananthapuram-III REZ –Phase-I”

3.2.1. “Transmission System for integration of Kurnool-V REZ Phase-I” and “Transmission System for integration of Ananthapuram-III REZ –Phase-I” were recommended in the 32nd meeting of NCT held on 12.08.2025 for implementation through TBCB mode.

3.2.2. MoP vide order dated 17.09.2025 made following observations:

I. It has been observed that the transmission system for evacuation of 10.5 GW RE potential (7.5 GW at Kurnool-IV PS, 3 GW at Kurnool-III PS) and 7.5 GW RE potential (at Ananthapuram-II PS) has already been identified in Kurnool area and in Ananthapuram area respectively which is at various stages of implementation.

II. In order to ensure optimum utilization of the transmission lines, RE power from Kurnool-V REZ-Phase-I (4.5 GW) and from Ananthapuram-III REZ-Phase-I (4.5 GW) can be evacuated through the already identified transmission system in Kurnool area and in Ananthapuram area respectively during non-solar hours with implementation of co-located BESS.

3.2.3. Further, NCT was requested to review the scheme in light of the optimum utilization of the existing/under implementation transmission lines in those REZs.

3.2.4. Representative of CTUIL stated that they had interacted with RE developers for optimization of connectivity quantum as per the decision taken during the meeting held on 30.09.2025 under chairperson, CEA. During the meeting, all RE developers were requested to submit the details regarding optimization of the connectivity. However, CTUIL has received response from only 3 Nos. of developers.

3.2.5. NCT directed CTUIL to take up with NTPC and Tata Power for optimization of connectivity quantum at Kurnool and Ananthapuram. CTUIL was also directed to take up with applicants requesting connectivity at Kurnool-V for shifting to Kurnool-III or Kurnool-IV with BESS for non-solar hour. Applicants requesting connectivity at Ananthapuram-III shall also be requested for shifting to Ananthapuram and Ananthapuram-II with BESS. Further, it was agreed to take up the matter in the next meeting of NCT.

3.3. Transmission system for proposed Green Hydrogen / Green Ammonia projects in Vizag area, Andhra Pradesh (Phase-I)

3.3.1. The “Transmission system for proposed Green Hydrogen / Green Ammonia projects in Vizag area, Andhra Pradesh (Phase-I)” was recommended in the 32nd meeting of NCT held on 12.08.2025 for implementation under TBCB mode.

3.3.2. MoP vide letter dated 17.09.2025 has conveyed that the transmission scheme for “Green Hydrogen / Green Ammonia projects in Vizag area, Andhra Pradesh (Phase-I)” will be taken up for approval of competent authority only after addressing the financial



सत्यमेव जयते

भारत सरकार

Government of India

विद्युत मंत्रालय

Ministry of Power

केंद्रीय विद्युत प्राधिकरण

Central Electricity Authority

विद्युत प्रणाली योजना एवं मूल्यांकन प्रभाग- II

Power System Planning & Appraisal Division-II

सेवा में /To

As per list of Addresses

विषय: ट्रांसमिशन पर राष्ट्रीय समिति (एनसीटी) की पैंतीसवी बैठक का कार्यवृत्त ।

Subject: Minutes of the 35th Meeting of the National Committee on Transmission (NCT)-reg.

महोदया (Madam) / महोदय (Sir),

The 35th meeting of the National Committee on Transmission (NCT) was held on 19th November, 2025 at New Delhi. The minutes of the meeting are enclosed herewith.

भवदीय / Yours faithfully

(बी.एस. बैरवा / B.S. Bairwa)

मुख्य अभियन्ता एवं सदस्य सचिव, (एन.सी.टी.)/
Chief Engineer & Member Secretary (NCT)

List of Addresses:

1.	Chairperson, Central Electricity Authority Sewa Bhawan, R.K. Puram, New Delhi – 110 066.	2.	Member (Power Systems), Central Electricity Authority Sewa Bhawan, R.K. Puram, New Delhi – 110 066.
3.	Member (Economic & Commercial), Central Electricity Authority Sewa Bhawan, R.K. Puram, New Delhi – 110 066.	4.	Joint Secretary (Trans), Ministry of Power Shram Shakti Bhawan, New Delhi-110001.
5.	Sh. Abhay Bakre, Mission Director, MNRE Atal Akshay Urja Bhawan Opposite CGO Complex gate No. 2, Lodhi Road, New Delhi – 110003	6.	Chief Operating Officer, CTUIL, Floors Nos. 5-10, Tower 1, Plot Nos. 16, IRCON International Tower, Institutional Area, Sector 32, Gurugram, Haryana - 122001.
7.	Sh. Rajnath Ram, Adviser (Energy), NITI Aayog, Parliament Street, New Delhi – 110 001.	8.	CMD, Grid Controller of India, B-9 (1st Floor), Qutub Institutional Area, Katwaria Sarai, New Delhi – 110016
9.	Sh. Abhay Choudhary Expert Member	10.	Managing Director, Jammu Power Distribution Corporation Limited (JPDCL) Gladni Narwal, Jammu, Jammu & Kashmir, India - 180006
11.	Sh. S.R Narasimhan Expert Member	12.	Shri. Shivdas.S, Director (Transmission & System Operation) Vydyuthi Bhavanam, Pattom, Thiruvananthapuram, Kerala- 695004
13.	Sh. Sabyasachi Roy, Director (Operations), WBSETCL	14.	Chairperson, North Eastern Region Power Committee Hon'ble Minister of Power, Govt. of Assam, Guwahati – 781 006
15.	Chairperson, Western Region Power Committee 2nd Floor, Vidyut Seva Bhavan, P.O. Sunder Nagar, Danganiya, Raipur: 492 013		

Special Invitee

- i) Chief Engineer (PCD), CEA
- ii) CEO, RECPDCL
- iii) CEO, PFCCL

Minutes of the 35th meeting of National Committee on Transmission (NCT)

1. Modification in earlier approved transmission schemes

1.1. Review of transmission scheme “Transmission System for integration of Kurnool-V REZ Phase-I” and “Transmission System for integration of Ananthapuram-III REZ –Phase-I”

1.1.1. “Transmission System for integration of Kurnool-V REZ Phase-I” and “Transmission System for integration of Ananthapuram-III REZ –Phase-I” were recommended in the 32nd meeting of NCT held on 12.08.2025 for implementation under TBCB mode.

1.1.2. MoP vide order dated 17.09.2025 made following observations:

I. It has been observed that the transmission system for evacuation of 10.5 GW RE potential (7.5 GW at Kurnool-IV PS, 3 GW at Kurnool-III PS) and 7.5 GW RE potential (at Ananthapuram-II PS) has already been identified in Kurnool area and in Ananthapuram area respectively which is at various stages of implementation.

II. In order to ensure optimum utilization of the transmission lines, RE power from Kurnool-V REZ-Phase-I (4.5 GW) and from Ananthapuram-III REZ-Phase-I (4.5 GW) can be evacuated through the already identified transmission system in Kurnool area and in Ananthapuram area respectively during non-solar hours with implementation of co-located BESS.

1.1.3. Further, NCT was requested to review the scheme in light of the optimum utilization of the existing/under implementation transmission lines in those REZs.

1.1.4. In the 34th meeting of NCT, CTUIL was directed to take up with NTPC and Tata Power for optimization of connectivity quantum at Kurnool and Ananthapuram. CTUIL was also directed to take up with applicants requesting connectivity at Kurnool-V for shifting to Kurnool-III or Kurnool-IV with BESS for non-solar hour. Further, applicants requesting connectivity at Ananthapuram-III shall also be requested for shifting to Ananthapuram and Ananthapuram-II with BESS.

1.1.5. Representative of CTUIL stated matter has been taken up with all the concerned RE developers at Kurnool & Ananthapuram complexes for optimization of their connectivity as per the decision taken during the meeting held on 30.09.2025 under chairperson, CEA. Further, all the RE developers including NTPC and Tata Power were again requested to optimize their connectivity quantum as per the directions of the 34th NCT meeting. However, responses from the RE developers are awaited.

1.1.6. MD, NREDCAP stated that they have identified the location for Kurnool-V and the location for Ananthapuram-III is under finalization. He mentioned that the location details would be provided to CTUIL shortly.

1.1.7. Chairperson, NCT, emphasized that the connectivity quantum at these locations needs to be optimized and should be aligned with the Resource Adequacy Plan.

1.1.8. Representative of CTUIL stated that during the preliminary engineering, it was observed that space is available for 2 nos. of 400kV line bays at Nagarjunasagar, but

line corridor is not available for termination of Sagar – Nagarjunasagar 400 kV quad D/c line. Accordingly, shifting of existing 50 MVA bus reactor at Nagarjunasagar to a new bay is required for termination of one circuit of Sagar – Nagarjunasagar 400 kV quad D/c line and 2nd circuit may be terminated in a new bay through GIS duct. Similarly, space is available for 2 nos. of 765kV line bays at Raichur New substation but line corridor is not available for termination of Kurnool-V – Raichur New 765kV D/c line, accordingly, Kurnool-V – Raichur 765kV D/c line was proposed to be terminated in the existing 2x240 MVA bus reactor bays after conversion of 765 kV Bus Reactor bays to 765 kV SLR Line bays. It was also proposed that, to avoid difficulties during shifting of the bus reactor and subsequent commercial / maintenance issues at Nagarjunasagar & Raichur New substations, the above modification works may be considered for implementation by the owner of existing substation.

- 1.1.9. It was deliberated that holding up of implementation of Kurnool-V and Ananthapuram-III may lead to non-development of RE generation in that area.
- 1.1.10. After deliberations, it was decided that transmission system for Ananthapuram-III shall be discussed again in the next NCT meeting.
- 1.1.11. Further, NCT recommended that transmission scheme for Kurnool-V may be taken up for implementation with above mentioned minor modification in transmission scheme. The estimated cost of the scheme is about Rs 7627 Cr. at May'25 price level. Details of the transmission scheme is given below.

Sl. No.	Scope of the Transmission Scheme	Capacity /km
1.	Establishment of 4x1500 MVA, 765/400 kV and 5x500 MVA, 400/220kV Kurnool-V Pooling Station near Kodumur in Kurnool district along with 2x330 MVA (765 kV) bus reactors at Kurnool-V PS with provision of two (2) sections of 4500 MVA each at 400kV level Future Space Provisions: • 765/400kV, 1500 MVA, ICTs – 2 Nos. • 765kV ICT bays – 2 Nos. • 400kV ICT bays – 2 Nos. • 400/220kV, 500 MVA, ICTs – 13 Nos. • 400kV ICT bays – 13 Nos. • 220kV ICT bays – 13 Nos. • 765kV line bays – 8 Nos. (with provision for SLR) • 400kV line bays – 12 Nos. (with provision for SLR) • 220kV line bays – 19 Nos. • 220kV Bus Sectionalizer : 2 sets • 220 kV Bus Coupler (BC) Bay – 2 Nos.	• 765/400kV, 1500 MVA, ICTs – 4 Nos. (13x500 MVA incl. 1 spare unit) • 765kV ICT bays – 4 Nos. • 400kV ICT bays – 4 Nos. • 765kV line bays – 6 Nos. (at Kurnool-V PS for termination of Kurnool-V – Shadnagar, Kurnool-V – Raichur New and Kurnool-V – Sagar 765kV D/c lines) • 765 kV, 330 MVA Bus Reactor – 2 Nos. (7x110 MVA inc. 1 switchable spare unit for both bus reactor and line reactor) • 765 kV Bus Reactor bays – 2 Nos. • 400/220kV, 500 MVA, ICTs – 5 Nos. • 400kV ICT bays – 5 Nos. • 220kV ICT bays – 5 Nos. • 220kV line bays – 6 Nos. • 220kV Bus Sectionalizer : 1 set • 220 kV Bus Coupler (BC) Bay – 2 Nos. • 220 kV Transfer Bus Coupler (TBC) Bay – 2 Nos.

Sl. No.	Scope of the Transmission Scheme	Capacity /km
	• 220 kV Transfer Bus Coupler (TBC) Bay – 2 Nos. • 400kV Bus Sectionalizer : 1 set	
2.	± 300 MVar STATCOM at Kurnool-V PS	• 400kV bay – 1 no. • ± 300 MVar STATCOM – 1 set
3.	Kurnool-V – Shadnagar 765 kV D/c line (about 240 km) with 240 MVar SLR (convertible) at both ends on both circuits	~ 240 km • 765 kV line bays – 2 Nos. (at Shadnagar) • 765 kV, 240 MVar SLR at Kurnool-V PS – 2 Nos. (7x80 MVar inc. 1 switchable spare unit) • Switching Equipment for 765 kV SLR at Kurnool-V PS – 2 Nos. • 765 kV, 240 MVar SLR at Shadnagar PS – 2 Nos. (7x80 MVar inc. 1 switchable spare unit) • Switching Equipment for 765 kV SLR at Shadnagar PS – 2 Nos.
4.	Kurnool-V – Raichur New 765 kV D/c line (about 150 km) with 240 MVar SLR (convertible) at Raichur New end on both circuits	~ 150 km
5.	Establishment of 3x1500 MVA, 765/400 kV Sagar substation with 2x330 MVar (765 kV) bus reactors with space provision for establishment of 220 kV switchyard Future Space Provisions: • 765/400kV, 1500 MVA, ICTs – 3 Nos. • 765kV ICT bays – 3 Nos. • 400kV ICT bays – 3 Nos. • 765kV line bays – 12 Nos. (with provision for SLR) • 400kV line bays – 10 Nos. (with provision for SLR) • 400kV Bus Sectionalizer : 1 set Future Space Provisions for 220kV switchyard: • 400/220kV, 500 MVA, ICTs – 10 Nos. • 400kV ICT bays – 10 Nos. • 220kV ICT bays – 10 Nos. • 220kV line bays – 16 Nos. • 220kV Bus Sectionalizer: 3 set	• 765/400kV, 1500 MVA, ICTs – 3 Nos. (10x500 MVA incl. 1 spare unit) • 765kV ICT bay – 3 Nos. • 400kV ICT bay – 3 Nos. • 765kV line bays – 2 Nos. (at Sagar for termination of Kurnool-V – Sagar 765 kV D/c line) • 765 kV, 330 MVar Bus Reactors – 2 Nos. (7x110 MVar inc. 1 switchable spare unit) • 765 kV Bus Reactor bays – 2 Nos. • 400kV line bays – 2 Nos. (at Sagar for termination of Sagar – Nagarjunasagar 400 kV quad D/c line)

Sl. No.	Scope of the Transmission Scheme	Capacity /km
	• 220 kV Bus Coupler (BC) Bay – 4 Nos. • 220 kV Transfer Bus Coupler (TBC) Bay – 4 Nos.	
6.	Kurnool-V – Sagar 765 kV D/c line (about 240 km) with 240 MVar SLR (convertible) at both ends on both circuits	~ 240 km • 765 kV, 240 MVar SLR at Kurnool-V PS – 2 Nos. (6x80 MVar switchable units) • Switching Equipment for 765 kV SLR at Kurnool-V PS – 2 Nos. • 765 kV, 240 MVar SLR at Sagar – 2 Nos. (7x80 MVar inc. 1 switchable spare unit) • Switching Equipment for 765 kV SLR at Sagar – 2 Nos.
7.	Sagar – Nagarjunasagar 400 kV quad D/c line (about 25 km)	~ 25 km

Note :

- The Kurnool-V – Raichur New 765kV D/c line is to be terminated in the existing 240 MVar bus reactor bays. Conversion of existing 765 kV Bus Reactor bays to 765 kV SLR Line bays at Raichur New for termination of Kurnool-V – Raichur New 765kV D/c line is in the scope of POWERGRID.*
- 2 No. of 400kV line bays at Nagarjunasagar for termination of Sagar – Nagarjunasagar 400 kV quad D/c line is in the scope of POWERGRID. Line termination shall be in the scope of TSP.*
- TSP of Shadnagar S/s to provide space (free of cost) for 2 Nos. of 765kV line bays with provision of SLR at Shadnagar S/s for termination of Kurnool-V – Shadnagar 765 kV D/c line.*

1.1.12. NCT also approved modification works at Nagarjunasagar and Raichur New as given below:

Sl. No.	Scope of the Transmission Scheme	Capacity /km	Remarks
1.	Conversion of 765 kV Bus Reactor bays to 765 kV SLR Line bays – 2 Nos. (at Raichur New)	• Conversion of 765 kV Bus Reactor bays to 765 kV SLR Line bays – 2 Nos. (at Raichur New) (for termination of Kurnool-V – Raichur 765kV D/c line under the scheme “Transmission System for integration of Kurnool-V REZ - Phase-I”)	• Approved under RTM mode through POWERGRID • Estimated Cost - Rs 91 Crore • Tentative implementation timeframe: 30 months from the date of allocation

Sl. No.	Scope of the Transmission Scheme	Capacity /km	Remarks
2.	Shifting of existing 50 MVar bus reactor at Nagarjunasagar to a new bay for termination of one circuit of Sagar – Nagarjunasagar 400 kV quad D/c line	• Shifting of existing 50 MVar bus reactor at Nagarjunasagar to a new bay for termination of 1st circuit of Sagar – Nagarjunasagar 400 kV quad D/c line and upgradation of entire existing 50 MVar bus reactor diameter equivalent to quad moose capacity. • Termination of 1st circuit of Sagar – Nagarjunasagar 400 kV quad D/c line including line side equipment in existing 50 MVar bus reactor bay. • 400 kV bays – 1 Nos. [at Nagarjunasagar S/s for installation of shifted 50 MVar bus reactor] • 400kV line bays – 1 No. along with GIS duct and associated equipment for termination of 2nd circuit of Sagar – Nagarjunasagar 400 kV quad D/c line.	

1.2. Transmission system for proposed Green Hydrogen / Green Ammonia projects in Vizag area, Andhra Pradesh (Phase-I)

- 1.2.1. The “Transmission system for proposed Green Hydrogen / Green Ammonia projects in Vizag area, Andhra Pradesh (Phase-I)” was recommended in the 32nd meeting of NCT held on 12.08.2025 for implementation under TBCB mode.
- 1.2.2. MoP vide letter dated 17.09.2025 has conveyed that the transmission scheme for “Green Hydrogen / Green Ammonia projects in Vizag area, Andhra Pradesh (Phase-I)” is on hold and will be taken up for approval of competent authority only after addressing the financial security of the transmission system by CERC.
- 1.2.3. CTUIL mentioned applications have been received from Green Hydrogen/Ammonia developers for grant of GNA at Tuticorin, Kakinada and Vizag. NTPC has submitted



भारत का राजपत्र The Gazette of India

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असाधारण
EXTRAORDINARY

भाग II—खण्ड 3—उप-खण्ड (ii)
PART II—Section 3—Sub-section (ii)

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विद्युत मंत्रालय

अधिसूचना

नई दिल्ली, 26 दिसम्बर, 2025

का.आ. 6026(अ).—विद्युत अधिनियम, 2003 (2003 की सं. 36) की धारा 63 के अंतर्गत परिचालित दिशा-निर्देशों के पैरा 3 के उप-पैरा 3.2 द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए केंद्र सरकार ने निम्नानुसार राजपत्र अधिसूचना के माध्यम से, टीवीसीवी मोड के अंतर्गत निम्नलिखित पारेषण स्कीम को अधिसूचित किया था:—

क्रम सं.	स्कीम का नाम	राजपत्र अधिसूचना जिसके द्वारा स्कीम अधिसूचित की गई थी
1.	तुमकुर-II में पारेषण प्रणाली का सुदृढीकरण	का.आ (अ) दिनांकित 19.08.2025 [फा.सं.- 15/3/2018- ट्रांस- भाग (4)]

2. अब, केंद्र सरकार ने 35वीं राष्ट्रीय पारेषण समिति की सिफारिशों के आधार पर उपर्युक्त स्कीम के कार्यक्षेत्र में संशोधन करने का निर्णय लिया है। तदनुसार, स्कीम का संशोधित नाम “तुमकुर-II में नवीकरणीय ऊर्जा क्षमता (2.7 गीगावाट) के एकीकरण हेतु पारेषण प्रणाली का सुदृढीकरण” कर दिया गया है। इसके अतिरिक्त, तालिका में उल्लिखित अनुसार, क्रम सं.-2 और 3 पर उल्लिखित “तुमकुर-II में अतिरिक्त नवीकरणीय ऊर्जा क्षमता (1.5 गीगावाट) के एकीकरण हेतु पारेषण प्रणाली का सुदृढीकरण” स्कीम के कार्यक्षेत्र में संशोधन किया जाता है तथा, क्रम सं.-5 और 6 पर दो नए कार्यक्षेत्र जोड़े जाते हैं, पारेषण स्कीम के अन्य सभी कार्यक्षेत्र तथा बोली प्रक्रिया समन्वयक पूर्ववत् अपरिवर्तित रहेंगे।

क्रम सं.	पारेषण स्कीम का कार्यक्षेत्र	पारेषण स्कीम का मूल कार्यक्षेत्र	पारेषण स्कीम का संशोधित कार्यक्षेत्र
2.	तुमकुर-II – मधुगिरि 400 केवी (क्वाड) डी/सी लाइन (~100 किमी)	(i) 400 केवी लाइन बे - 2 (तुमकुर-II पीएस पर) (ii) 400 केवी लाइन बे - 2 (मधुगिरि में)	(i) 400 केवी लाइन बे – 2 (तुमकुर-II पीएस पर) (ii) मधुगिरि में 400 केवी लाइन बे – तुमकुर-II से मधुगिरि 400 केवी (क्वाड) डबल सर्किट लाइन को मौजूदा लाइन बे में समाप्त किया जा सकता है, जो नरेंद्र न्यू-मधुगिरि 765 केवी डबल सर्किट लाइन (वर्तमान में 400 केवी स्तर पर चार्ज) को उसकी निर्धारित 765 केवी वोल्टेज स्तर पर अपग्रेड किए जाने के पश्चात उपलब्ध होंगे। यह अपग्रेडेशन “कर्नाटक में दावणगेरे/चित्रदुर्ग तथा बेल्लारी आरईजेड के एकीकरण हेतु पारेषण स्कीम” के अंतर्गत कार्यान्वित किया जा रहा है।
3.	तुमकुर-II पीएस पर ± 300 एमवीएआर स्टैटकॉम, जिसमें कार्यान्वयनाधीन 2×125 एमवीएआर बस रिएक्टरों की स्विचिंग की व्यवस्था होगी।	(i) तुमकुर-II पीएस पर ± 300 एमवीएआर स्टैटकॉम, जिसमें कार्यान्वयनाधीन 2×125 एमवीएआर बस रिएक्टरों की स्विचिंग की व्यवस्था होगी। (ii) 400 केवी बे – 1	(i) तुमकुर-II पीएस पर ± 300 एमवीएआर स्टैटकॉम, जिसमें कार्यान्वयनाधीन 2×125 एमवीएआर बस रिएक्टरों की स्विचिंग की व्यवस्था होगी। (ii) 400 केवी बे – 1 (iii) स्टैटकॉम के लिए तुमकुर-II पीएस के निकट अतिरिक्त भूमि का अधिग्रहण।
5.	400/220 केवी, 3×500 एमवीए इंटर-कनेक्टिंग ट्रांसफॉर्मर (आईसीटी) (8वां से 10वां) सहित तुमकुर-II पीएस का संवर्द्धन।	-	(i) 400/220 केवी, 500 एमवीए आईसीटी – 3 (ii) 400 केवी आईसीटी बे – 3 (iii) 220 केवी आईसीटी बे – 3 (iv) 220 केवी बस सेक्शनलाइज़र – 1 सेट। (v) 220 केवी बस कपलर (बीसी) बे – 1 (vi) 220 केवी ट्रांसफर बस कपलर (टीबीसी) बे-1
6.	नवीकरणीय ऊर्जा उत्पादनकर्ता की समर्पित पारेषण लाइनों की समाप्ति हेतु तुमकुर-II पीएस पर चार 220 केवी लाइन बे	-	(i) 220 केवी लाइन बे – 4

[फा.सं. 15/3/2018-ट्रांस-भाग(4)]
नाओरेम इंद्रकुमार सिंह, अवर सचिव (पारेषण)

MINISTRY OF POWER

NOTIFICATION

New Delhi, the 26th December, 2025

S.O. 6026(E).— In exercise of the powers conferred by sub-para 3.2 of Para 3 of the Guidelines circulated under Section 63 of the Electricity Act, 2003 (No. 36 of 2003), the Central Government had notified following scheme, for implementation under TBCB mode, vide Gazette Notification mentioned below:—

Sl. No.	Name of the Scheme	Gazette Notification by which Scheme was notified
1.	Transmission system strengthening at Tumkur-II	S.O. 3804(E) dated 19.08.2025 [F. No. 15/3/2018-Trans-Part(4)]

2. Now, the Central Government, on the recommendations of 35th National Committee on Transmission has decided to modify the scope of above mentioned scheme. As such, the name of the scheme has been modified as “Transmission system strengthening at Tumkur-II for integration of RE potential (2.7 GW)”. Further, the scope of scheme “Transmission system strengthening at Tumkur-II for integration of additional RE potential (1.5 GW)” mentioned at Sl. No. 2 and 3 are hereby modified and two new scopes at Sl No. 5 and 6 are added, as mentioned in Table below, other scopes of the Transmission Scheme and Bid Process Co-ordinator shall remain unchanged:

Sl. No.	Scope of the Transmission Scheme	Original scope of the Transmission Scheme	Revised scope of the Transmission Scheme
2.	Tumkur-II – Madhugiri 400kV (Quad) D/c line (~ 100 km)	(i) 400kV line bays – 2 Nos. (at Tumkur-II PS) (ii) 400kV line bays – 2 Nos. (at Madhugiri)	(i) 400kV line bays – 2 nos. (at Tumkur-II PS) (ii) 400kV line bays at Madhugiri – The Tumkur- II – Madhugiri 400kV (Quad) D/c line may be terminated in the existing line bays which will be available upon upgradation of Narendra New – Madhugiri 765 kV D/c line (presently charged at 400 kV level) at its rated 765 kV voltage level which is being implemented under “Transmission Scheme for integration of Davanagere / Chitradurga and Bellary REZ in Karnataka”
3.	± 300 MVAR STATCOM at Tumkur-II PS with switching arrangement of under implementation 2x125 MVar bus reactors	(i) ±300 MVAR STATCOM at Tumkur-II PS with switching arrangement of under implementation 2x125 MVar bus reactors. (ii) 400 kV bay – 1 No.	(i) ± 300 MVAR STATCOM at Tumkur-II PS with switching arrangement of under implementation 2x125 MVar bus reactors. (ii) 400 kV bay – 1 No. (iii) Acquisition of additional land adjacent to Tumkur- II PS for STATCOM.
5.	Augmentation of Tumkur-II PS by 400/220 kV, 3x500 MVA ICTs (8th to 10th)	-	(i) 400/220kV, 500 MVA, ICTs – 3 Nos. (ii) 400kV ICT bays – 3 Nos. (iii) 220kV ICT bays – 3 Nos. (iv) 220kV Bus Sectionalizer: 1 set (v) 220 kV Bus Coupler (BC) Bay – 1 No. (vi) 220 kV Transfer Bus Coupler (TBC) Bay – 1 No.
6.	4 Nos. of 220kV line bay at Tumkur-II PS for termination of dedicated transmission lines of RE developers	-	(i) 220kV line bays – 4 Nos.

[F.No. 15/3/2018-Trans-Part(4)]

NAOREM INDRAKUMAR SINGH, Under Secy. (Transmission)

अधिसूचना

नई दिल्ली, 26 दिसम्बर, 2025

का.आ. 6027(अ).—विद्युत अधिनियम, 2003 (2003 की सं. 36) की धारा 63 के अंतर्गत परिचालित दिशा-निर्देशों के पैरा 3 के उप-पैरा 3.2 द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए केंद्र सरकार ने 35वीं राष्ट्रीय पारेषण समिति की बैठक की सिफारिशों पर, संबंधित बोली-प्रक्रिया समन्वयक (बीपीसी) के विवरण सहित टीबीसीबी मोड के अंतर्गत निम्नलिखित पारेषण स्कीमों को एतद्वारा अधिसूचित करती है: —

1. पारेषण स्कीम का नाम और कार्यक्षेत्र		
कृष्णागिरि आरईजेड चरण-I के एकीकरण के लिए पारेषण प्रणाली		
संभावित कार्यान्वयन समय सीमा: 30 माह		
बीपीसी: पावर फाइनेंस कॉर्पोरेशन लिमिटेड (पीएफसी)		
कार्यक्षेत्र:		
क्र.सं	पारेषण स्कीम का कार्यक्षेत्र	क्षमता/किमी
1.	400 केवी स्तर पर प्रत्येक 4500 एमवीए के दो (2) सेक्शन के प्रावधान सहित कृष्णागिरि पीएस पर 2×330 एमवीएआर (765 केवी) बस रिएक्टरों के साथ कुर्नूल ज़िले के कोडुमुर के निकट 4×1500 एमवीए, 765/400 केवी तथा 5×500 एमवीए, 400/220 केवी कृष्णागिरि पूर्लिंग स्टेशन की स्थापना। भविष्य के स्थान का प्रावधान: ➤ 765/400 केवी, 1500 एमवीए, आईसीटीएस- 2 ➤ 765 केवी आईसीटी बे - 2 ➤ 400 केवी आईसीटी बे - 2 ➤ 400/220 केवी, 500 एमवीए, आईसीटीएस - 13 ➤ 400 केवी आईसीटी बे - 13 ➤ 220 केवी आईसीटी बे - 13 ➤ 765 केवी लाइन बे - 8 (एसएलआर के प्रावधान के साथ) ➤ 400 केवी लाइन बे - 12 (एसएलआर के प्रावधान के साथ) ➤ 220 केवी लाइन बे - 19 ➤ 220 केवी बस सेक्शनलाइजर : 2 सेट ➤ 220 केवी बस कपलर (बीसी) बे - 2 ➤ 220 केवी ट्रांसफर बस कपलर	(i) 765/400 केवी, 1500 एमवीए, आईसीटीएस - 4 (1 स्पेयर यूनिट सहित 13x500 एमवीए) (ii) 765 केवी आईसीटी बे - 4 (iii) 400 केवी आईसीटी बे - 4 (iv) 765 केवी लाइन बे - 6 (कृष्णागिरि पीएस पर कृष्णागिरि-डोमा, कृष्णागिरि-रायचूर नेवांड कृष्णागिरि-सागर 765 केवी डी/सी लाइनों की समाप्ति के लिए) (v) 765 केवी, 330 एमवीएआर बस रिएक्टर - 2 (बस रिएक्टर और लाइन रिएक्टर के लिए 1 स्विचबल स्पेयर यूनिट सहित 7x110 एमवीएआर) (vi) 765 केवी बस रिएक्टर बे - 2 (vii) 400/220 केवी, 500 एमवीए, आईसीटीएस - 5 (viii) 400 केवी आईसीटी बे - 5 (ix) 220 केवी आईसीटी बे - 5 (x) 220 केवी लाइन बे - 6 (xi) 220 केवी बस सेक्शनलाइजर: 1 सेट (xii) 220 केवी बस कपलर (बीसी) बे - 2 (xiii) 220 केवी ट्रांसफर बस कपलर (टीबीसी) बे-2

	(टीबीसी) बे - 2 ➤ 400 केवी बस सेक्शनलाइजर: 1 सेट	
2.	कृष्णागिरि पीएस पर ± 300 एमवीएआर स्टेडकॉम	(i) 400 केवी बे - 1 (ii) ± 300 एमवीएआर स्टेडकॉम - 1 सेट
3.	दोनों सर्किटों के दोनों छोर पर 240 एमवीएआर एसएलआर (कन्वर्टबल) सहित कृष्णागिरी- डोमा 765 केवी डी/सी लाइन (लगभग 240 किमी)	~ 240 किमी (i) 765 केवी लाइन बे - 2(डोमा पर) (ii) 765 केवी, कृष्णागिरि पर 240 एमवीएआर एसएलआर पीएस - 2 (1 स्विचबल स्पेयर यूनिट सहित 7 x 80 एमवीएआर) (iii) कृष्णागिरि पीएस पर 765 केवी एसएलआर के लिए स्विचिंग उपकरण- 2 (iv) डोमा पीएस पर 765 केवी, 240 एमवीएआर एसएलआर - 2 (1 स्विचबल स्पेयर यूनिट सहित 7x80 एमवीएआर) (v) डोमा पीएस पर 765 केवी एसएलआर के लिए स्विचिंग उपकरण - 2
4.	रायचूर न्यू छोर के दोनों सर्किट पर 240 एमवीएआर एसएलआर (कन्वर्टबल) सहित कृष्णागिरी - रायचूर न्यू 765 केवी डी/सी लाइन (लगभग 150 किमी)	~ 150 किमी
5.	220 केवी स्विचयार्ड की स्थापना के लिए स्थान प्रावधान के साथ 2x330 एमवीएआर (765 केवी) बस रिएक्टरों के साथ 3x1500 एमवीए, 765/400 केवी सागर सबस्टेशन की स्थापना। भविष्य के स्थान प्रावधान: (i) 765/400 केवी, 1500 एमवीए, आईसीटीएस - 3 (ii) 765 केवी आईसीटी बे - 3 (iii) 400 केवी आईसीटी बे - 3 (iv) 765 केवी लाइन बे - 12 (एसएलआर के प्रावधान के साथ) (v) 400 केवी लाइन बे - 10 (एसएलआर के प्रावधान के साथ) (vi) 400 केवी बस सेक्शनलाइजर: 1 सेट 220 केवी स्विचयार्ड के लिए भविष्य के स्थान प्रावधान (i) 400/220 केवी, 500 एमवीए, आईसीटीएस - 10	(i) 765/400 केवी, 1500 एमवीए, आईसीटीएस - 3 (1 स्पेयर यूनिट सहित 10x500 एमवीए) (ii) 765 केवी आईसीटी बे - 3 (iii) 400 केवी आईसीटी बे - 3 (iv) 765 केवी लाइन बे - 2 (सागर पर कृष्णागिरि - सागर 765 केवी डी/सी लाइन की समाप्ति के लिए) (v) 765 केवी, 330 एमवीएआर बस रिएक्टर - 2 (1 स्विचबल स्पेयर यूनिट सहित 7x110 एमवीएआर) (vi) 765 केवी बस रिएक्टर बे - 2 (vii) 400 केवी लाइन बे - 2 (सागर पर सागर – नागार्जुनसागर 400 केवी क्राड डी/सी लाइन की समाप्ति के लिए)

	(ii) 400 केवी आईसीटी बे - 10 (iii) 220 केवी आईसीटी बे - 10 (iv) 220 केवी लाइन बे - 16 (v) 220केवी बस सेक्शनलाइजर: 3 सेट (vi) 220 केवी बस कपलर (बीसी) बे - 4 (vii) 220 केवी ट्रांसफर बस कपलर (टीबीसी) बे - 4	
6.	दोनों सर्किट के दोनों छोर पर 240 एमवीएआर एसएलआर (कन्वर्टबल) के साथ कृष्णागिरि- सागर 765 केवी डी/सी लाइन (लगभग 240 किमी)	~ 240 किमी (i) कृष्णागिरि पीएस पर 765 केवी, 240 एमवीएआर एसएलआर- 2 (6x80 एमवीएआर स्विचबल यूनिट) (ii) कृष्णागिरि पीएस पर 765 केवी एसएलआर के लिए स्विचिंग उपकरण -2 (iii) सागर पर 765 केवी, 240 एमवीएआर एसएलआर – 2 (1 स्विचबल स्पेयर यूनिट सहित 7x80 एमवीएआर) (iv) सागर -पर 765 केवी एसएलआर के लिए स्विचिंग उपकरण।
7.	सागर - नागार्जुनसागर 400 केवी क्वाड डी/सी लाइन (लगभग 25 किमी)	~ 25 किमी

नोट :

- मौजूदा 240 एमवीएआर बस रिएक्टर बे पर कृष्णागिरि - रायचूर 765 केवी डी/सी लाइन को समाप्त किया जाना है और इन बस रिएक्टरों को स्विचबल लाइन रिएक्टरों में परिवर्तित किया जाना है। पावरग्रिड इसके लिए स्थान (निःशुल्क) उपलब्ध कराएगी।
- पावरग्रिड के कार्यक्षेत्र में सागर - नागार्जुनसागर 400 केवी क्वाड डी/सी लाइन की समाप्ति के लिए नागार्जुनसागर पर दो 400 केवी लाइन बे। लाइन समाप्ति टीएसपी के कार्यक्षेत्र में होगी।
- डोमा सबस्टेशन का टीएसपी, कृष्णागिरि - डोमा 765 केवी डी/सी लाइन की समाप्ति के लिए डोमा सबस्टेशन पर एसएलआर के प्रावधान के साथ दो 765 केवी लाइन बे के लिए स्थान (निः शुल्क) उपलब्ध कराएगी।

2. पारेषण स्कीम का नाम और कार्यक्षेत्र

वाईजैग क्षेत्र, आंध्र प्रदेश (चरण-I) में प्रस्तावित हरित हाइड्रोजन/हरित अमोनिया परियोजनाओं के लिए पारेषण प्रणाली

संभावित कार्यान्वयन समय सीमा: एसपीवी अंतरण की तिथि से 30 माह

बीपीसी: आरईसी पावर डेवलपमेंट एंड कंसल्टेंसी लिमिटेड

कार्यक्षेत्र :

क्र.सं	पारेषण स्कीम का कार्यक्षेत्र	क्षमता / किमी
1.	220 केवी स्विचयार्ड की स्थापना के लिए भविष्य के स्थान प्रावधान के साथ 1x330 एमवीएआर (765 केवी) बस रिएक्टर के साथ 4x1500 एमवीए, 765/400 केवी पेंडुर्थी (वाईजैग) जीआईएस सबस्टेशन की स्थापना भविष्य के स्थान का प्रावधान: (i) 765/400 केवी, 1500 एमवीए, आईसीटीएस - 2 (ii) 765 केवी आईसीटी बे - 2 (iii) 400 केवी आईसीटी बे - 2 (iv) 765 केवी लाइन बे - 8 (एसएलआर के प्रावधान के साथ) (v) 400 केवी लाइन बे - 12 (एसएलआर के प्रावधान के साथ)	(i) 765/400 केवी, 1500 एमवीए, आईसीटीएस - 4 (1 स्पेयर यूनिट सहित 13x500 एमवीए) (ii) 765 केवी आईसीटी बे - 4 (iii) 400 केवी आईसीटी बे - 4 (iv) 765 केवी लाइन बे - 2 (पेंडुर्थी (वाईजैग) जीआईएस पर पेंडुर्थी (वाईजैग) - श्रीकाकुलम 765 केवी डी/सी लाइन की समाप्ति के लिए) (v) खम्माम-II - पेंडुर्थी (वाईजैग) -765 केवी

	(vi) 400 केवी बस सेक्शन लाइजर: 1 सेट 220 केवी स्विचयार्ड के लिए भविष्य के स्थान प्रावधान (i) 400/220 केवी, 500 एमवीए, आईसीटीएस - 10 (ii) 400 केवी आईसीटी बे - 10 (iii) 220 केवी आईसीटी बे - 10 (iv) 220 केवी लाइन बे - 16 (v) 220 केवी बस सेक्शन लाइजर: 3 सेट (vi) 220 केवी बस कपलर (बीसी) बे - 4 (vii) 220 केवी ट्रांसफर बस कपलर (टीबीसी) बे - 4	डी/सी लाइन की समाप्ति के लिए एसएलआर पेंडुरथी (वाईजैग) पर) के प्रावधान के साथ 765 केवी लाइन बे - 2 (vi) 765 केवी, 330 एमवीएआर बस रिएक्टर - 1 (दो बस रिएक्टर और लाइन रिएक्टर के लिए 1 स्विचबल स्पेयर यूनिट सहित 4x110 एमवीएआर) (vii) 765 केवी बस रिएक्टर बे - 1 (viii) 400 केवी लाइन बे - 4 (पेंडुरथी (वाईजैग) जीआईएस पर पेंडुरथी स्थित कलपक्का - मरदम 400 केवी (क्वाड) डी/सी लाइन के लिलो की समाप्ति के लिए)	
2.	(i) प्रस्तावित 1x330 एमवीएआर बस रिएक्टर के लिए नियंत्रण स्विचिंग व्यवस्था के साथ पेंडुरथी (वाईजैग) जीआईएस पर 2x125 एमवीएआर एमएससी के साथ ± 300 एमवीएआर स्टेटकॉम (ii) पेंडुरथी (वाईजैग) जीआईएस पर 2x125 एमवीएआर एमएससी के साथ 2 ± 300 एमवीएआर स्टेटकॉम के लिए स्थान प्रावधान	(i) 400 केवी बे - 1 (ii) प्रस्तावित 1x330 एमवीएआर बस रिएक्टर - 1 सेट के लिए नियंत्रण स्विचिंग व्यवस्था के साथ पेंडुरथी (वाईजैग) जीआईएस पर 2x125 एमवीएआर एमएससी के साथ ± 300 एमवीएआर स्टेटकॉम	
3.	श्रीकाकुलम छोर के दोनों सर्किट पर 330 एमवीएआर एसएलआर (कन्वर्टबल) के साथ पेंडुरथी (वाईजैग) - श्रीकाकुलम 765 केवी डी/सी लाइन (लगभग 200 किमी)	~200 किमी (i) श्रीकाकुलम पर एसएलआर जीआईएस बे के साथ 765 केवी लाइन - "दक्षिण क्षेत्रीय ग्रिड और पूर्वी क्षेत्रीय ग्रिड के बीच अंतर-क्षेत्रीय सुदृढीकरण" स्कीम के अंतर्गत प्रस्तावित एसएलआर के साथ भविष्य की लाइन बे में समाप्ति की जाने वाली डी/सी लाइन। (ii) श्रीकाकुलम पर 765 केवी, 330 एमवीएआर एसएलआर - 2 (1 स्विचबल स्पेयर यूनिट सहित 7x110 एमवीएआर स्विचबल यूनिट)	
4.	पेंडुरथी पर कलपक्का - मारादम 400 केवी (क्वाड) डी/सी लाइन का लिलो (लगभग 20 किमी)	~ 20 किमी	
5.	220 केवी स्विचयार्ड की स्थापना के लिए स्थान प्रावधान के साथ 1x330 एमवीएआर (765 केवी) बस रिएक्टर के साथ 3x1500 एमवीए, 765/400 केवी खम्माम-II सबस्टेशन की स्थापना भविष्य के स्थान का प्रावधान : (i) 765/400 केवी, 1500 एमवीए, आईसीटीएस - 3 (ii) 765 केवी आईसीटी बे - 3 (iii) 400 केवी आईसीटी बे - 3 (iv) 765 केवी लाइन बे - 8 (एसएलआर के प्रावधान के साथ)	(i) 765/400 केवी, 1500 एमवीए, आईसीटीएस - 3 (1 स्पेयर यूनिट सहित 10x500 एमवीए) (ii) 765 केवी आईसीटी बे - 3 (iii) 400 केवी आईसीटी बे - 3 (iv) 765 केवी लाइन बे - 4 (खम्माम-II पेंडुरथी और खम्माम-II - वारंगल नई 765 केवी डी/सी लाइन की समाप्ति के लिए खम्माम-II पर) (v) 765 केवी, 330 एमवीएआर बस रिएक्टर - 1 (दो बस रिएक्टर और एक लाइन रिएक्टर दोनों के लिए एक स्विचबल स्पेयर यूनिट सहित)	

	(v) 400 केवी लाइन बे - 10 (एसएलआर के प्रावधान के साथ) (vi) 400 केवी बस सेक्शन लाइजर: 1 सेट 220 केवी स्विचयार्ड के लिए भविष्य के स्थान प्रावधान (i) 400/220 केवी, 500 एमवीए, आईसीटीएस - 10 (ii) 400 केवी आईसीटी बे - 10 (iii) 220 केवी आईसीटी बे - 10 (iv) 220 केवी लाइन बे - 16 (v) 220 केवी बस सेक्शन लाइजर: 3 सेट (vi) 220 केवी बस कपलर (बीसी) बे - 4 (vii) 220 केवी ट्रांसफर बस कपलर (टीबीसी) बे - 4	4x110 एमवीएआर) (vi) 765 केवी बस रिएक्टर बे - 1 (vii) 400 केवी लाइन बे - 2 (खम्माम-II खम्माम (मौजूदा) 400 केवी (क्वाड) डी/सी लाइन) की समाप्ति के लिए खम्माम-II पर)	
6.	खम्माम-II - वारंगल न्यू 765 केवी डी/सी लाइन (लगभग 100 किमी)	~ 100 किमी 765 केवी लाइन बे - 2 (वारंगल न्यू पर)	
7.	दोनों सर्किट पर दोनों छोर पर 330 एमवीएआर एसएलआर (कन्वर्टबल) के साथ खम्माम-II - पेंडुर्थी (वाईजैग) 765 केवी डी/सी लाइन (लगभग 350 किमी)	~ 350 किमी (i) 765 केवी, पेंडुर्थी (वाईजैग) पर 330 एमवीएआर एसएलआर - 2 (6x110 एमवीएआर स्विचबल यूनिट) (ii) पेंडुर्थी (वाईजैग) जीआईएस में 765 केवी एसएलआर के लिए स्विचिंग उपकरण-2 (iii) खम्माम-II पर 765 केवी, 330 एमवीएआर एसएलआर-2 (6x110 एमवीएआर स्विचबल यूनिट) (iv) खम्माम-II पीएस पर 765 केवी एसएलआर के लिए स्विचिंग उपकरण-2	
8.	खम्माम-II - खम्माम (मौजूदा) 400 केवी (क्वाड) डी/सी लाइन (लगभग 20 किमी)	~ 20 कि.मी (i) 400 केवी लाइन बे - 2 (खम्माम पर)(मौजूदा)	
	नोट : i) डेढ़ ब्रेकर स्कीम में व्यास (जीआईएस) को पूरा करने के लिए आवश्यक बे को भी टीएसपी द्वारा निष्पादित किया जाएगा। ii) पावरग्रिड, श्रीकाकुलम पर एसएलआर जीआईएस बे के साथ 765 केवी लाइन के लिए स्थान (निःशुल्क) उपलब्ध कराएगा - "दक्षिण क्षेत्रीय ग्रिड और पूर्वी क्षेत्रीय ग्रिड के बीच अंतर-क्षेत्रीय सुदृढीकरण" स्कीम के अंतर्गत प्रस्तावित एसएलआर के साथ भविष्य की लाइन बे में समाप्ति की जाने वाली डी/सी लाइन। iii) पावरग्रिड, खम्माम-II- खम्माम (मौजूदा) 400 केवी (क्वाड) डी/सी लाइन की समाप्ति के लिए खम्माम पर दो 400 केवी लाइन बे के लिए स्थान (निः शुल्क) उपलब्ध कराएगा। iv) वारंगल न्यू सबस्टेशन (अडानी) का टीएसपी खम्माम-II वारंगल न्यू 765 केवी डी/सी लाइन की समाप्ति के लिए वारंगल न्यू सबस्टेशन पर एसएलआर के प्रावधान के साथ दो 765 केवी लाइन बे के लिए स्थान (निःशुल्क) उपलब्ध कराएगा।		

2. बोली प्रक्रिया समन्वयक की नियुक्ति, विद्युत मंत्रालय द्वारा इस संबंध में जारी और समय-समय पर संशोधित दिशानिर्देशों में निर्धारित शर्तों के अधीन होगी।
3. बीपीसी तकनीकी विकल्पों के माध्यम से मार्ग के अधिकार (आरओडब्ल्यू) की चौड़ाई में कमी की गणना के लिए सीईए की समिति की रिपोर्ट दिनांक 24.09.2024 के अनुसार आरओडब्ल्यू अनुकूलन सुनिश्चित करेंगे।
4. शहरी/अर्ध-शहरी/वन क्षेत्रों में मोनोपोल टॉवर संरचनाएं, इंसुलेटेड क्रॉस आर्म्स और अन्य आरओडब्ल्यू कॉरिडोर अनुकूलन उपाय अपनाए जाएंगे।
5. जहां आरओडब्ल्यू मुद्दे की संभावना है, वहां मोनोपोल टॉवर संरचनाओं का उपयोग किया जाएगा, जबकि लैटिस टावरों का उपयोग अन्य सेक्शन में किया जाएगा।
6. इसके अलावा, मार्ग को पीएम गति शक्ति पोर्टल पर सत्यापन और भौतिक सर्वेक्षण के बाद ही अंतिम रूप दिया जाना चाहिए।

[फा. सं. 15/3/2018-ट्रांस-भाग(4)]

नाओरेम इंद्रकुमार सिंह, अवर सचिव (पारेषण)

NOTIFICATION

New Delhi, the 26th August, 2025

S.O. 6027(E).— In exercise of the powers conferred by sub-para 3.2 of Para 3 of the Guidelines circulated under Section 63 of the Electricity Act, 2003 (No. 36 of 2003), the Central Government on the recommendations of 35th meeting of National Committee on Transmission, hereby notifies the following transmission schemes under TBCB mode, with details of respective Bid-Process Coordinator (BPC): —

3. Name & Scope of the Transmission Scheme		
Transmission System for integration of Krishnagiri REZ Phase-I		
Tentative implementation timeframe: 30 months		
BPC: Power Finance Corporation Limited (PFC)		
Scope:		
Sl No.	Scope of the Transmission Scheme	Capacity /km
1.	Establishment of 4x1500 MVA, 765/400 kV and 5x500 MVA, 400/220kV Krishnagiri Pooling Station near Kodumur in Kurnool district along with 2x330 MVA (765 kV) bus reactors at Krishnagiri PS with provision of two (2) sections of 4500 MVA each at 400kV level <u>Future Space Provisions:</u> ➤ 765/400kV, 1500 MVA, ICTs – 2 Nos. ➤ 765kV ICT bays - 2 Nos. ➤ 400kV ICT bays - 2 Nos. ➤ 400/220kV, 500 MVA, ICTs - 13 Nos. ➤ 400kV ICT bays - 13 Nos. ➤ 220kV ICT bays - 13 Nos.	(i) 765/400kV, 1500 MVA, ICTs – 4 Nos. (13x500 MVA incl. 1 spare unit) (ii) 765kV ICT bays – 4 Nos. (iii) 400kV ICT bays – 4 Nos. (iv) 765kV line bays – 6 Nos. (at Krishnagiri PS for termination of Krishnagiri–Doma, Krishnagiri–Raichur New and Krishnagiri– Sagar 765kV D/c lines) (v) 765 kV, 330 MVA Bus Reactor – 2 Nos. (7x110 MVA r/c. 1 switchable spare unit for both bus reactor and line reactor) (vi) 765 kV Bus Reactor bays – 2 Nos. (vii) 400/220kV, 500 MVA, ICTs – 5 Nos. (viii) 400kV ICT bays – 5 Nos. (ix) 220kV ICT bays – 5 Nos. (x) 220kV line bays – 6 Nos. (xi) 220kV Bus Sectionalizer : 1 set (xii) 220 kV Bus Coupler (BC) Bay – 2 Nos. (xiii) 220 kV Transfer Bus Coupler (TBC) Bay – 2

	➤ 765kV line bays - 8 Nos. (with provision for SLR) ➤ 400kV line bays - 12 Nos. (with provision for SLR) ➤ 220kV line bays - 19 Nos. ➤ 220kV Bus Sectionalizer : 2 sets ➤ 220 kV Bus Coupler (BC) Bay - 2 Nos. ➤ 220 kV Transfer Bus Coupler (TBC) Bay - 2 Nos. ➤ 400kV Bus Sectionalizer : 1 set	Nos.
2.	± 300 MVar STATCOM at Krishnagiri PS	(i) 400kV bay – 1 no. (ii) ± 300 MVar STATCOM – 1 set
3.	Krishnagiri– Doma 765 kV D/c line (about 240 km) with 240 MVar SLR (convertible) at both ends on both circuits	~ 240 km (i) 765 kV line bays – 2 Nos. (at Doma) (ii) 765 kV, 240 MVar SLR at Krishnagiri PS – 2 Nos. (7x80 MVar inc. 1 switchable spare unit) (iii) Switching Equipment for 765 kV SLR at Krishnagiri PS – 2 Nos. (iv) 765 kV, 240 MVar SLR at Doma PS – 2 Nos. (7x80 MVar inc. 1 switchable spare unit) (v) Switching Equipment for 765 kV SLR at Doma PS – 2 Nos.
4.	Krishnagiri – Raichur New 765 kV D/c line (about 150 km) with 240 MVar SLR (convertible) at Raichur New end on both circuits	~ 150 km
5.	Establishment of 3x1500 MVA, 765/400 kV Sagar substation with 2x330 MVar (765 kV) bus reactors with space provision for establishment of 220 kV switchyard Future Space Provisions: (i) 765/400kV, 1500 MVA, ICTs – 3 Nos. (ii) 765kV ICT bays – 3 Nos. (iii) 400kV ICT bays – 3 Nos. (iv) 765kV line bays – 12 Nos. (with provision for SLR) (v) 400kV line bays – 10 Nos. (with provision for SLR) (vi) 400kV Bus Sectionalizer : 1 set Future Space Provisions for 220kV switchyard: (i) 400/220kV, 500 MVA, ICTs – 10 Nos. (ii) 400kV ICT bays – 10 Nos. (iii) 220kV ICT bays – 10 Nos. (iv) 220kV line bays – 16 Nos. (v) 220kV Bus Sectionalizer: 3 set (vi) 220 kV Bus Coupler (BC) Bay – 4 Nos. (vii) 220 kV Transfer Bus Coupler (TBC) Bay – 4 Nos.	(i) 765/400kV, 1500 MVA, ICTs – 3 Nos. (10x500 MVA incl. 1 spare unit) (ii) 765kV ICT bay – 3 Nos. (iii) 400kV ICT bay – 3 Nos. (iv) 765kV line bays – 2 Nos. (at Sagar for termination of Krishnagiri – Sagar 765 kV D/c line) (v) 765 kV, 330 MVar Bus Reactors – 2 Nos. (7x110 MVar inc. 1 switchable spare unit) (vi) 765 kV Bus Reactor bays – 2 Nos. (vii) 400kV line bays – 2 Nos. (at Sagar for termination of Sagar – Nagarjunasagar 400 kV quad D/c line)

6.	Krishnagiri – Sagar 765 kV D/c line (about 240 km) with 240 MVar SLR (convertible) at both ends on both circuits	~ 240 km (i) 765 kV, 240 MVar SLR at Krishnagiri PS – 2 Nos. (6x80 MVar switchable units) (ii) Switching Equipment for 765 kV SLR at Krishnagiri PS – 2 Nos. (iii) 765 kV, 240 MVar SLR at Sagar – 2 Nos. (7x80 MVar inc. 1 switchable spare unit) (iv) Switching Equipment for 765 kV SLR at Sagar – 2 Nos.
7.	Sagar – Nagarjunasagar 400 kV quad D/c line (about 25 km)	~ 25 km

Note :

- i) The Krishnagiri – Raichur 765kV D/c line is to be terminated in the existing 240 MVar bus reactor bays and converting these bus reactors into switchable line reactors. POWERGRID to provide space (free of cost) for the same.
- ii) 2 Nos. of 400kV line bays at Nagarjunasagar for termination of Sagar – Nagarjunasagar 400 kV quad D/c line in the scope of POWERGRID. Line termination shall be in the scope of TSP.
- iii) TSP of Doma S/s to provide space (free of cost) for 2 Nos. of 765kV line bays with provision of SLR at Doma S/s for termination of Krishnagiri – Doma 765 kV D/c line.

4. Name & Scope of the Transmission Scheme

Transmission system for proposed Green Hydrogen / Green Ammonia projects in Vizag area, Andhra Pradesh (Phase-I)

Tentative implementation timeframe: 30 months from the date of SPV transfer

BPC: REC Power Development and Consultancy Limited

Scope:

SI No.	Scope of the Transmission Scheme	Capacity /km
1.	Establishment of 4x1500 MVA, 765/400 kV Pendurthi (Vizag) GIS substation with 1x330 MVar (765 kV) bus reactor with space provision for establishment of 220 kV switchyard Future Space Provisions: (i) 765/400kV, 1500 MVA, ICTs – 2 Nos. (ii) 765kV ICT bays – 2 Nos. (iii) 400kV ICT bays – 2 Nos. (iv) 765kV line bays – 8 Nos. (with provision for SLR) (v) 400kV line bays – 12 Nos. (with provision for SLR) (vi) 400kV Bus Sectionalizer : 1 set Future Space Provisions for 220kV switchyard: (i) 400/220kV, 500 MVA, ICTs – 10 Nos. (ii) 400kV ICT bays – 10 Nos. (iii) 220kV ICT bays – 10 Nos. (iv) 220kV line bays – 16 Nos. (v) 220kV Bus Sectionalizer : 3 set (vi) 220 kV Bus Coupler (BC) Bay – 4 Nos. (vii) 220 kV Transfer Bus Coupler (TBC) Bay – 4 Nos.	(i) 765/400kV, 1500 MVA, ICTs – 4 Nos. (13x500 MVA incl. 1 spare unit) (ii) 765kV ICT bay – 4 Nos. (iii) 400kV ICT bay – 4 Nos. (iv) 765kV line bays – 2 Nos. (at Pendurthi (Vizag) GIS for termination of Pendurthi (Vizag) – Srikakulam 765 kV D/c line) (v) 765kV line bays – 2 Nos. with provision of SLR (at Pendurthi (Vizag) GIS for termination of Khammam-II – Pendurthi (Vizag) – 765 kV D/c line) (vi) 765 kV, 330 MVar Bus Reactors – 1 no. (4x110 MVar inc. 1 switchable spare unit for both bus reactor and line reactor) (vii) 765 kV Bus Reactor bays – 1 no. (viii) 400kV line bays – 4 Nos. (at Pendurthi (Vizag) GIS for termination of LILO of Kalpakka – Maradam 400 kV (quad) D/c line at Pendurthi)
2.	(i) ± 300 MVar STATCOM with 2x125 MVar MSC at Pendurthi (Vizag) GIS with control switching arrangement for proposed	(i) 400kV bay – 1 no. (ii) ± 300 MVar STATCOM with 2x125 MVar MSC at Pendurthi (Vizag) GIS with control

	1x330 MVA bus reactor (ii) Space provision for 2nd ± 300 MVA STATCOM with 2x125 MVA MSC at Pendurthi (Vizag) GIS	switching arrangement for proposed 1x330 MVA bus reactor – 1 set
3.	Pendurthi (Vizag) – Srikakulam 765 kV D/c line (about 200 km) with 330 MVA SLR (convertible) at Srikakulam end on both circuits	~ 200 km (i) 765 kV line along with SLR GIS bays at Srikakulam - The D/c line to be terminated in the future line bays with SLR proposed under the scheme “Inter- Regional Strengthening between SR Grid and ER Grid” (ii) 765 kV, 330 MVA SLR at Srikakulam – 2 Nos. (7x110 MVA switchable units inc. 1 switchable spare unit)
4.	LILO of Kalpakka – Maradam 400 kV (quad) D/c line at Pendurthi (about 20 km)	~ 20 km
5.	Establishment of 3x1500 MVA, 765/400 kV Khammam-II substation with 1x330 MVA (765 kV) bus reactor with space provision for establishment of 220 kV switchyard Future Space Provisions: (i) 765/400kV, 1500 MVA, ICTs – 3 Nos. (ii) 765kV ICT bays – 3 Nos. (iii) 400kV ICT bays – 3 Nos. (iv) 765kV line bays – 8 Nos. (with provision for SLR) (v) 400kV line bays – 10 Nos. (with provision for SLR) (vi) 400kV Bus Sectionalizer : 1 set Future Space Provisions for 220kV switchyard: (i) 400/220kV, 500 MVA, ICTs – 10 Nos. (ii) 400kV ICT bays – 10 Nos. (iii) 220kV ICT bays – 10 Nos. (iv) 220kV line bays – 16 Nos. (v) 220kV Bus Sectionalizer : 3 set (vi) 220 kV Bus Coupler (BC) Bay – 4 Nos. (vii) 220 kV Transfer Bus Coupler (TBC) Bay – 4 Nos.	(i) 765/400kV, 1500 MVA, ICTs – 3 Nos. (10x500 MVA incl. 1 spare unit) (ii) 765kV ICT bay – 3 Nos. (iii) 400kV ICT bay – 3 Nos. (iv) 765kV line bays – 4 Nos. (at Khammam-II for termination of Khammam-II – Pendurthi and Khammam-II – Warangal New 765 kV D/c lines) (v) 765 kV, 330 MVA Bus Reactors – 1 no. (4x110 MVA inc. 1 switchable spare unit for both bus reactor and line reactor) (vi) 765 kV Bus Reactor bays – 1 no. (vii) 400kV line bays – 2 Nos. (at Khammam-II for termination of Khammam-II – Khammam (existing) 400 kV (quad) D/c line)
6.	Khammam-II – Warangal New 765 kV D/c line (about 100 km)	~ 100 km 765 kV line bays – 2 Nos. (at Warangal New)
7.	Khammam-II – Pendurthi (Vizag) 765 kV D/c line (about 350 km) with 330 MVA SLR (convertible) at both ends on both circuits	~ 350 km (i) 765 kV, 330 MVA SLR at Pendurthi (Vizag) – 2 Nos. (6x110 MVA switchable units) (ii) Switching Equipment for 765 kV SLR at Pendurthi (Vizag) GIS – 2 Nos. (iii) 765 kV, 330 MVA SLR at Khammam- II – 2 Nos. (6x110 MVA switchable units) (iv) Switching Equipment for 765 kV SLR at Khammam-II PS – 2 Nos.
8.	Khammam-II – Khammam (existing) 400 kV (quad) D/c line (about 20 km)	~ 20 km (i) 400kV line bays – 2 Nos. (at Khammam (existing))
	Note : i) Bay(s) required for completion of diameter (GIS) in one-and-half breaker scheme shall also be executed by the TSP. ii) POWERGRID to provide space (free of cost) for 765 kV line along with SLR GIS bays at	

	Srikakulam – The D/c line to be terminated in the future line bays with SLR proposed under the scheme “Inter-Regional Strengthening between SR Grid and ER Grid”. iii) POWERGRID to provide space (free of cost) for 2 Nos. of 400kV line bays at Khammam for termination of Khammam-II – Khammam (existing) 400 kV (quad) D/c line. iv) TSP of Warangal New S/s (Adani) to provide space (free of cost) for 2 Nos. of 765kV line bays with provision of SLR at Warangal New S/s for termination of Khammam-II – Warangal New 765 kV D/c line.	
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2. The appointment of the Bid Process Coordinator is subject to the conditions laid down in the Guidelines issued by Ministry of Power in this regard, amended from time to time.
3. BPCs shall ensure RoW optimization as per the CEA’s Committee report dated 24.09.2024 for calculation of reduction of Right of Way (RoW) Width through Technological Options.
4. Monopole tower structures, insulated cross arms and other RoW corridor optimization measures to be adopted in urban/ semi-urban /forest areas.
5. Monopole tower structures to be used where RoW issues are anticipated, while lattice towers shall be used in other sections.
6. Further, the route must be finalised after validation on PM Gati Shakti portal and physical survey.

[F. No. 15/3/2018-Trans-Part (4)]

NAOREM INDRAKUMAR SINGH, Under Secy. (Transmission)

PFC CONSULTING LIMITED

(A wholly owned subsidiary of PFC Limited)

Regd. Office: First Floor, "Urjanidhi", 1, Barakhamba Lane, Connaught Place,
New Delhi - 110001, (India) Fax: 011-23443990

GLOBAL INVITATION (THROUGH E-BIDDING ONLY)

FOR SELECTION OF TRANSMISSION SERVICE PROVIDER ON BUILD, OWN, OPERATE AND TRANSFER (BOOT) BASIS FOR INTER-STATE TRANSMISSION PROJECTS

PFC Consulting Limited, a wholly owned subsidiary of Power Finance Corporation Limited (A Government of India Undertaking), invites proposals for setting up of transmission projects on Build, Own, Operate and Transfer (BOOT) basis following single stage two envelope process of "Request for Proposal" (RFP).

Interested bidders may refer to the RFP notification and RFP documents available on the website <https://www.mstcecommerce.com> and <https://www.pfcclindia.com>.

The Bidders may obtain the RFP documents on all working days between 10:30 hrs (IST) and 16:00 hrs (IST) from **12.01.2026 to one working day prior to bid submission for the projects mentioned below** on payment of a non-refundable fee of Rs. 5,00,000/- or USD 7,000 plus applicable GST @18% from 9th Floor, Wing – A, Statesman House, Connaught Place, New Delhi - 110001, Tel.: 91-11-23443996; Fax: 91-11-23443990; e-mail: pfccl.itp@pfcindia.com. The RFP documents can also be downloaded from <https://www.mstcecommerce.com> and <https://www.pfcclindia.com>, however, in such case, interested party can submit Response to RFP only on submission of non-refundable fee of Rs. 5,00,000/- or USD 7,000 plus applicable GST @18% separately. The survey report and clarification to RFP documents shall be issued to those bidders, who have obtained/ purchased RFP documents by paying requisite fee at least one working day prior to bid submission date. Bidders should regularly visit website to keep themselves updated regarding clarifications/ amendments/ time extensions etc., if any. The important timelines in this regard are as follows:

S. No	Name of Transmission Scheme	Last Date for seeking clarifications (dd/mm/yyyy)	Last Date for submission of response to RFP (dd/mm/yyyy)	Date of opening of Response to RFP (dd/mm/yyyy)
1.	Transmission System for integration of Krishnagiri REZ Phase-I	02/02/2026	17/03/2026 up to 15:00 hrs (IST)	17/03/2026 up to 15:30 hrs (IST)

Note: PFC Consulting Limited reserves the right to cancel or modify the process without assigning any reason and without any liability. This is not an offer.

Bid Process Coordinator



(A wholly owned subsidiary of PFC Ltd.)
(A Govt. of India Undertaking)

An Initiative of



Ministry of Power
Government of India

Initiative Partner



Central Electricity Authority

पीएफसी कन्सल्टिंग लिमिटेड

(पीएफसी लिमिटेड की पूर्ण स्वामित्व वाली सहायक कंपनी)

पंजीकृत कार्यालय: प्रथम तल, "ऊर्जानिधि", 1, बाराखंबा लेन, कनॉट प्लेस,

नई दिल्ली 110001, (भारत) फ़ैक्स: 011-23443990

वैश्विक आमंत्रण (केवल ई-निविदा के माध्यम से)

अंतर-राज्य पारेषण परियोजनाओं के लिए निर्माण, स्वामित्व, प्रचालन और स्थानांतरण (बूट) आधार पर ट्रांसमिशन सेवा प्रदाता के चयन हेतु

पीएफसी कन्सल्टिंग लिमिटेड, पावर फाइनेंस कॉरपोरेशन लिमिटेड (भारत सरकार का एक उपक्रम) के पूर्ण स्वामित्व वाली सहायक कंपनी "प्रस्ताव हेतु अनुरोध" (आरएफपी) के एकल चरण दो लिफाफा प्रक्रिया का पालन करते हुए निर्माण, स्वामित्व, प्रचालन और स्थानांतरण (बूट) आधार पर पारेषण परियोजनाओं की स्थापना के लिए प्रस्ताव आमंत्रित करता है।

इच्छुक निविदादाता वेबसाइट <https://www.mstcecommerce.com> एवं <https://www.pfcclindia.com> पर उपलब्ध आरएफपी अधिसूचना और आरएफपी दस्तावेजों का अवलोकन कर सकते हैं।

निविदादाता अ-प्रतिदेय शुल्क रु. 5,00,000/- या यूएसडी 7,000 प्लस लागू जीएसटी @18 प्रतिशत का भुगतान करके आरएफपी दस्तावेज 12.01.2026 से निम्नलिखित परियोजना के लिए निविदा जमा तिथि से एक कार्यदिवस पूर्व तक 10:30 बजे (आईएसटी) से 16:00 बजे (आईएसटी) के बीच सभी कार्यदिवसों में 9वां तल, विंग-ए, स्टेट्समैन हाउस, कनॉट प्लेस, नई दिल्ली-110001, फोन: 91-11-23443996; फ़ैक्स: 91-11-23443990; ई-मेल: pfccl.itp@pfcindia.com से प्राप्त कर सकते हैं। आरएफपी दस्तावेज <https://www.mstcecommerce.com> एवं <https://www.pfcclindia.com> से भी डाउनलोड किए जा सकते हैं, यद्यपि ऐसे मामले में इच्छुक पार्टियां आरएफपी के उत्तर जमा करते समय अलग से अ-प्रतिदेय शुल्क रु. 5,00,000/- या यूएसडी 7,000 प्लस लागू जीएसटी @18 प्रतिशत जमा कर सकते हैं। सर्वेक्षण रिपोर्ट एवं आरएफपी दस्तावेजों पर स्पष्टीकरण केवल उन निविदादाताओं को जारी किया जाएगा जो निविदा जमा तिथि से न्यूनतम एक कार्यदिवस पूर्व तक किसी भी कार्यदिवस में अपेक्षित शुल्क का भुगतान करके आरएफपी दस्तावेज खरीद/प्राप्त कर चुके हैं। निविदादाता किसी भी स्पष्टीकरण/संशोधन/समय विस्तार आदि, यदि कोई हो, के बारे में नवीनतम जानकारी हेतु वेबसाइट नियमित रूप से देखते रहें। इस संबंध में महत्वपूर्ण समय-सारणी निम्नानुसार है:

क्र. सं.	पारेषण योजना का नाम	स्पष्टीकरण प्राप्त करने की अंतिम तिथि (दिन/माह/वर्ष)	आरएफपी के उत्तर जमा करने की अंतिम तिथि (दिन/माह/वर्ष)	आरएफपी के उत्तर खोलने की तिथि (दिन/माह/वर्ष)
1.	कृष्णागिरि आरईजेड चरण-1 के एकीकरण के लिए पारेषण प्रणाली	02/02/2026	17/03/2026 को 15:00 बजे (आईएसटी) तक	17/03/2026 को 15:30 बजे (आईएसटी) तक

टिप्पणी : पीएफसी कन्सल्टिंग लिमिटेड बिना कोई कारण बताए और बिना कोई जिम्मेदारी लिए प्रक्रिया का निरस्त या संशोधित करने का अधिकार रखता है। यह कोई प्रस्ताव नहीं है।

बोली प्रक्रिया समन्वयक

पीएफसी कन्सल्टिंग लिमिटेड

(पीएफसी लिमि. की पूर्ण स्वामित्व वाली सहायक कंपनी)
(भारत सरकार का उपक्रम)

पहल कर्ता



विद्युत मंत्रालय
भारत सरकार

पहल साझेदार



केन्द्रीय विद्युत प्राधिकरण

SINGLE STAGE REQUEST FOR PROPOSAL DOCUMENT

FOR

**SELECTION OF BIDDER AS TRANSMISSION SERVICE PROVIDER THROUGH TARIFF
BASED COMPETITIVE BIDDING PROCESS**

TO

ESTABLISH INTER-STATE TRANSMISSION SYSTEM

FOR

TRANSMISSION SYSTEM FOR INTEGRATION OF KRISHNAGIRI REZ PHASE-I

ISSUED BY



**Registered Office:
1st Floor, "Urjanidhi", 1, Barakhamba Lane,
Connaught Place, New Delhi-110001**

January 12, 2026

PFC CONSULTING LIMITED
(A wholly owned subsidiary of Power Finance Corporation Limited)

Corporate Office:
9th Floor, A-Wing, Statesman House
Connaught Place, New Delhi-110001

Request for Proposal Document for selection of Bidder as Transmission Service Provider through tariff based competitive bidding process to establish Inter-State Transmission System for “Transmission System for integration of Krishnagiri REZ Phase-I” is issued by PFC Consulting Limited.

This RFP document is issued to -

M/s. _____

General Manager
PFC Consulting Limited
9th Floor, A-Wing, Statesman House
Connaught Place, New Delhi-110001
Email: pfcl.itp@pfcindia.com
Place: New Delhi
Date:

REQUEST FOR PROPOSAL NOTIFICATION

PFC CONSULTING LIMITED

(A wholly owned subsidiary of Power Finance Corporation Limited)

Corporate Office:

**9th Floor, A-Wing, Statesman House
Connaught Place, New Delhi-110001**

1. The Government of India, Ministry of Power, vide its gazette notification no **CG-DL-E-01012026-268996** dated December 26, 2025 has notified PFC Consulting Limited (PFCCL) to be the Bid Process Coordinator (BPC) for the purpose of selection of Bidder as Transmission Service Provider (TSP) to establish Inter-State transmission system for **“Transmission System for integration of Krishnagiri REZ Phase-I”** through tariff based competitive bidding process.
2. PFC Consulting Limited (PFCCL) (hereinafter referred to as BPC) hereby invites all prospective Bidders for issue of Request for Proposal (RFP) for selection of Bidder as Transmission Service Provider (TSP) on the basis of international competitive bidding in accordance with the “Tariff Based Competitive Bidding Guidelines for Transmission Service” and “Guidelines for Encouraging Competition in Development of Transmission Projects” issued by Government of India, Ministry of Power under section – 63 of The Electricity Act, 2003 and as amended from time to time. The responsibility of the TSP would be to establish the following Inter-State Transmission System- **“Transmission System for integration of Krishnagiri REZ Phase-I”** (hereinafter referred to as 'Project') on build, own, operate & transfer basis and to provide transmission service:

Transmission System for integration of Krishnagiri REZ Phase-I		
S. No.	Name of Transmission Element	Scheduled COD in months from Effective Date
1.	Establishment of 4x1500 MVA, 765/400 kV and 5x500 MVA, 400/220kV Krishnagiri Pooling Station near Kodumur in Kurnool district along with 2x330 MVar (765 kV) bus reactors at Krishnagiri PS with provision of two (2) sections of 4500 MVA each at 400kV level • 765/400kV, 1500 MVA, ICTs – 4 Nos. (13x500 MVA incl. 1 spare unit) • 765kV ICT bays – 4 Nos. • 400kV ICT bays – 4 Nos. • 765kV line bays – 6 Nos. (at Krishnagiri PS for termination of Krishnagiri – Doma, Krishnagiri – Raichur New and Krishnagiri – Sagar 765kV D/c lines) • 765 kV, 330 MVar Bus Reactor – 2 Nos. (7x110 MVar inc. 1 switchable spare unit for both bus reactor and line reactor) • 765 kV Bus Reactor bays – 2 Nos. • 400/220kV, 500 MVA, ICTs – 5 Nos. • 400kV ICT bays – 5 Nos. • 220kV ICT bays – 5 Nos. • 220kV line bays – 6 Nos. • 220kV Bus Sectionalizer : 1 set • 220 kV Bus Coupler (BC) Bay – 2 Nos.	30 Months

Transmission System for integration of Krishnagiri REZ Phase-I		
S. No.	Name of Transmission Element	Scheduled COD in months from Effective Date
	220 kV Transfer Bus Coupler (TBC) Bay– 2 Nos. Future Space Provisions: 765/400kV, 1500 MVA, ICTs – 2 Nos. 765kV ICT bays – 2 Nos. 400kV ICT bays – 2 Nos. 400/220kV, 500 MVA, ICTs – 13 Nos. 400kV ICT bays – 13 Nos. 220kV ICT bays – 13 Nos. 765kV line bays – 8 Nos. (with provision for SLR) 400kV line bays – 12 Nos. (with provision for SLR) 220kV line bays – 19 Nos. 220kV Bus Sectionalizer : 2 sets 220 kV Bus Coupler (BC) Bay – 2 Nos. 220 kV Transfer Bus Coupler (TBC) Bay – 2 Nos. 400kV Bus Sectionalizer : 1 set	
2.	+ 300 MVar STATCOM at Krishnagiri PS 400kV bay – 1 no. + 300 MVar STATCOM – 1 set	
3.	Krishnagiri – Doma 765 kV D/c line with 240 MVar SLR (convertible) at both ends on both circuits 765 kV line bays – 2 Nos. (at Doma) 765 kV, 240 MVar SLR at Krishnagiri PS – 2 Nos. (7x80 MVar inc. 1 switchable spare unit) - Switching Equipment for 765 kV SLR at Krishnagiri PS – 2 Nos. 765 kV, 240 MVar SLR at Doma PS – 2 Nos. (7x80 MVar inc. 1 switchable spare unit) - Switching Equipment for 765 kV SLR at Doma PS – 2 Nos.	
4.	Krishnagiri – Raichur New 765 kV D/c line with 240 MVar SLR (convertible) at Raichur New end on both circuits	
5.	Establishment of 3x1500 MVA, 765/400 kV Sagar substation with 2x330 MVar (765 kV) bus reactors with space provision for establishment of 220 kV switchyard 765/400kV, 1500 MVA, ICTs – 3 Nos. (10x500 MVA incl. 1 spare unit) 765kV ICT bay – 3 Nos. 400kV ICT bay – 3 Nos. 765kV line bays – 2 Nos. (at Sagar for termination of Krishnagiri – Sagar 765 kV D/c line) 765 kV, 330 MVar Bus Reactors – 2 Nos. (7x110 MVar inc. 1 switchable spare unit) 765 kV Bus Reactor bays – 2 Nos. 400kV line bays – 2 Nos. (at Sagar for termination of Sagar – Nagarjunasagar 400 kV quad D/c line)	

Transmission System for integration of Krishnagiri REZ Phase-I		
S. No.	Name of Transmission Element	Scheduled COD in months from Effective Date
	Future Space Provisions: 765/400kV, 1500 MVA, ICTs – 3 Nos. 765kV ICT bays – 3 Nos. 400kV ICT bays – 3 Nos. 765kV line bays – 12 Nos. (with provision for SLR) 400kV line bays – 10 Nos. (with provision for SLR) 400kV Bus Sectionalizer : 1 set Future Space Provisions for 220kV switchyard: 400/220kV, 500 MVA, ICTs – 10 Nos. 400kV ICT bays – 10 Nos. 220kV ICT bays – 10 Nos. 220kV line bays – 16 Nos. 220kV Bus Sectionalizer: 3 set 220 kV Bus Coupler (BC) Bay – 4 Nos. 220 kV Transfer Bus Coupler (TBC) Bay – 4 Nos.	
6.	Krishnagiri – Sagar 765 kV D/c line with 240 MVar SLR (convertible) at both ends on both circuits 765 kV, 240 MVar SLR at Krishnagiri PS – 2 Nos. (6x80 MVar switchable units) - Switching Equipment for 765 kV SLR at Krishnagiri PS – 2 Nos. 765 kV, 240 MVar SLR at Sagar – 2 Nos. (7x80 MVar inc. 1 switchable spare unit) - Switching Equipment for 765 kV SLR at Sagar – 2 Nos.	
7.	Sagar – Nagarjunasagar 400 kV quad D/c line	
Notes: - The Krishnagiri – Raichur 765kV D/c line is to be terminated in the existing 240 MVar bus reactor bays and converting these bus reactors into switchable line reactors. POWERGRID to provide space (free of cost) for the same. 2 No. of 400kV line bays at Nagarjunasagar for termination of Sagar – Nagarjunasagar 400 kV quad D/c line is in the scope of POWERGRID. Line termination shall be in the scope of TSP. - TSP of Doma S/s to provide space (free of cost) for 2 Nos. of 765kV line bays with provision of SLR at Doma S/s for termination of Krishnagiri – Doma 765 kV D/c line.		

- The TSP shall ensure that design; construction and testing of all equipment, facilities, components and systems of the Project shall be in accordance with the provisions of the Transmission Service Agreement and applicable Rules/ Regulations, Orders and Guidelines issued by the Central Government.
- Transmission License:** The TSP shall obtain the Transmission License from the Commission.
- Bidding Process:** The Transmission Service Provider shall be selected through tariff based competitive bidding process for the Project based on meeting stipulated Qualification

Requirements prescribed in Clause 2.1 of Section 2 of RFP and the lowest Quoted Transmission Charges discovered from Final Offers quoted during the e-reverse bidding. The selection of the TSP shall be subject to it obtaining Transmission License from the Commission, which, after expiry, may be further extended by such period as deemed appropriate by the Commission under powers vested with it to amend the conditions of the Transmission License.

The entire bidding process shall be conducted on electronic platform created by MSTC Limited.

The Bid shall be a single stage two envelope bid comprising the Technical Bid and the Financial Bid. The Bidders shall submit the Bid online through the electronic bidding platform. In addition to the online submission, the Bidder with lowest Final Offer will be required to submit original hard copies of Annexure 3, Annexure 4 (if applicable), Annexure 6 (if applicable) and Annexure 14 before issuance of LoI. There shall be no physical submission of the Financial Bid.

The Technical Bid shall be opened first and the Financial Bid of only the bidder who have qualified in the Technical Bid shall be opened. The Financial Bid will comprise of two rounds. In the first round the Initial Offer of the responsive bids would be opened and Quoted Transmission Charges of Initial Offer shall be ranked on the basis of ascending order. The Bidders, in the first fifty per cent of the ranking (with any fraction rounded off to higher integer) or four Bidders, whichever is higher, shall qualify for participating in the electronic reverse auction stage and submit their Final Offer.

6. The objective of the bidding process is to select a Successful Bidder pursuant to this RFP, who shall acquire one hundred percent (100%) of the equity shares of **SPV (UNDER INCORPORATION)** along with all its related assets and liabilities as per the provisions of the Share Purchase Agreement, at the Acquisition Price to be intimated by the BPC, twenty (20) days prior to the Bid Deadline.

The **SPV (UNDER INCORPORATION)**, of which one hundred percent (100%) equity shares will be acquired by the Selected Bidder, shall be responsible as the TSP, for ensuring that it undertakes ownership, financing, development, design, engineering, procurement, construction, commissioning, operation and maintenance of the Project, and to provide Transmission Service as per the terms of the RFP Project Documents.

The TSP shall ensure transfer of all project assets along with substation land, right of way and clearances to CTU or its successors or an agency as decided by the Central Government after 35 years from COD of project at zero cost and free from any encumbrance and liability. The transfer shall be completed within 90 days after 35 years from COD of project failing which CTU shall be entitled to take over the project assets Suo moto.

7. **Commencement of Transmission Service:** The Bidder shall have to commence Transmission Service in accordance with the provisions of the Transmission Service Agreement.
8. **Transmission Charges:** The Transmission Charges shall be payable by the Designated ISTS Customers in Indian Rupees through the CTU as per Central Electricity Regulatory Commission (Sharing of Inter-State Transmission Charges and Losses) Regulations as amended from time to time. Bidders shall quote the Transmission Charges as per the pre-specified structure, as mentioned in the RFP.
9. **Issue of RFP document:** The detailed terms and conditions for qualification and selection of the Transmission Service Provider for the Project and for submission of Bid are indicated in the RFP document. All those interested in purchasing the RFP document may respond in writing to **General Manager, Tel. +91 11 23443996, Fax +91 11 23443990, Email: pfcccl.itp@pfcindia.com** at the address given in para 12 below with a non-refundable fee of **Rs. 5,00,000/- (Rupees Five**

Lakh Only) or US\$ 7000/- (US Dollars Seven Thousand Only) plus 18% GST, to be paid via electronic transfer to the following Bank Account:

Bank Account Name : PFC Consulting Limited
Account No. : 000705036117
Bank Name : ICICI Bank
IFSC : ICIC0000007
Branch : Connaught Place, New Delhi-110001

latest by **March 16, 2026**. Immediately after issuance of RFP document, the Bidder shall submit the Pre-Award Integrity Pact in the format as prescribed in **Annexure B**, which shall be applicable for and during the bidding process, duly signed on each page by any whole-time Director / Authorized Signatory, duly witnessed by two persons, and shall be submitted by the Bidder in two (2) originals in a separate envelope, duly superscripted with Pre-Award Integrity Pact. The Bidder shall submit the Pre-Award Integrity Pact on non-judicial stamp paper of Rs. 100/- each duly purchased from the National Capital Territory of Delhi. In case the Bidder is in a consortium, the Pre-Award Integrity Pact shall be signed and submitted by each member of the Consortium separately.

The RFP document shall be issued to the Bidders on any working day from **January 12, 2026 to March 16, 2026, between 10:30 hours (IST) to 16:00 hours (IST)**. The BPC, on written request and against payment of the above mentioned fee by any Bidder shall promptly dispatch the RFP document to such Bidder by registered mail/ air mail. BPC shall, under no circumstances, be held responsible for late delivery or loss of documents so mailed.

10. **Receipt and opening of Bid:** The Bid must be uploaded online through the electronic bidding platform on or before **15:00 hours (IST) on March 17, 2026**. Technical Bid will be opened by the Bid Opening Committee on the same day at 15:30 hours (IST) in the office of Central Electricity Authority, in the online presence of Bidders' representatives who wish to attend. If the Bid Deadline is a public holiday at the place of submission of Bid, it shall be opened on the next working day at the same time and venue. In addition to the online submission, the Bidder with lowest Final Offer will be required to submit original hard copies of Annexure 3, Annexure 4 (if applicable), Annexure 6 (if applicable) and Annexure 14 before issuance of Lol. Bidders meeting the Qualification Requirements, subject to evaluation as specified in Clause 3.2 to 3.4 shall be declared as "Qualified Bidders" and eligible for opening of Initial Offer.
11. The RFP document is not transferable. BPC reserves the right to reject all Bid and/or annul the process of tariff based competitive bidding for selection of Bidder as TSP to execute the Project without assigning any reason. BPC shall not bear any liability, whatsoever, in this regard.

12. Nodal person for enquiries and clarifications

All correspondence and clarification in respect of RFP document shall be addressed to:

General Manager
PFC Consulting Limited
9th Floor, A-Wing, Statesman House
Connaught Place, New Delhi - 110001, India
Tel. + 91-11-23443996
Fax + 91-11-23443990
Email: pfcl.itp@pfcindia.com

DISCLAIMER

1. This Request for Proposal (RFP) document is not an agreement or offer by the BPC to the prospective Bidders or to any other party. The purpose of this RFP document is to provide interested parties with information to assist the formulation of their Bid. The RFP document is based on material and information available in public domain.
2. This RFP, along with its Annexures, is not transferable and the information contained therein are to be used only by the person to whom it is issued. It may not be copied or distributed by the recipient to third parties (other than in confidence to the recipient's professional advisors). In the event that the recipient does not continue with its involvement in the Project in accordance with this RFP, this RFP must be kept confidential.
3. While this RFP has been prepared in good faith, neither the BPC nor its employees or advisors/consultants make any representation or warranty expressed or implied as to the accuracy, reliability or completeness of the information contained in this RFP. The Bidders shall satisfy themselves, on receipt of the RFP document, that the RFP document is complete in all respects. Intimation of any discrepancy shall be given to this office immediately. If no intimation is received from any Bidder within ten (10) days from the date of issue of this RFP document on or before the date & time mentioned in this RFP, it shall be considered that the issued document, complete in all respects, has been received by the Bidders.

This bidding process is in accordance with the Bidding Guidelines issued by Ministry of Power, Government of India under Section 63 of the Electricity Act, 2003. Revisions or amendments in these Bidding Guidelines may cause the BPC to modify, amend or supplement this RFP document, including the RFP Project Documents to be in conformance with the Bidding Guidelines.

4. This RFP document includes statements, which reflect various assumptions arrived at by BPC in order to give a reflection of current status in the RFP. These assumptions should not be entirely relied upon by Bidders in making their own assessments. This RFP document does not purport to contain all the information each Bidder may require and may not be appropriate for all persons. It is not possible for BPC to consider the investment objectives, financial situation and particular needs of each party who reads or uses this RFP document. Certain Bidders may have a better knowledge of the Project than the others. Each Bidder should conduct its own investigations and analysis and should check the accuracy, reliability and completeness of the information in this RFP document and obtain independent advice from appropriate sources.
5. Neither BPC nor their employees or consultants make any representation or warranty as to the accuracy, reliability or completeness of the information in this RFP document.
6. Neither BPC, its employees nor its consultants will have any liability to any Bidder or any other person under the law of contract, tort, the principles of restitution or unjust enrichment or otherwise for any loss, expense or damage which may arise from or be incurred or suffered in connection with anything contained in this RFP document, any matter deemed to form part of this RFP document, the award of the Project, the information supplied by or on behalf of BPC or its employees, any consultants or otherwise arising in any way from the qualification process for the said Project.
7. By participating in the bidding process, each of the Bidder shall have acknowledged and accepted that it has not been induced to enter into such agreement by any representation or warranty, expressed or implied, or relied upon any such representation or warranty by or on behalf of BPC or any person working in the bidding process.
8. BPC may in its absolute discretion, but without being under any obligation to do so, update, amend

or supplement this RFP document. Such updations, amendments or supplements, if any, will however be circulated to the Bidders not later than 15 days prior to the last date for submission of Bid.

9. Each Bidder unconditionally agrees, understands and accepts that the BPC reserves the rights to accept or reject any or all Bids without giving any reason. Neither the BPC nor its advisers shall entertain any claim of any nature, whatsoever, including without limitations, any claim seeking expenses in relation to the preparation of Bids.
10. This RFP may be withdrawn or cancelled by the BPC at any time without assigning any reasons thereof. BPC further reserves the right, at its complete discretion to reject any or all of the Bids without assigning any reasons whatsoever.

Amendment No. 1 dated 18.03.2026 to the RFP documents for selection of Bidder as Transmission Service Provider for “Transmission System for integration of Krishnagiri REZ Phase-I”

S. No.	Existing Provisions	Modified Provisions
1.	All the relevant clauses of RFP and TSA Scheduled COD of the Transmission Elements: 30 Months	All the relevant clauses of RFP and TSA Scheduled COD of the Transmission Elements: 36 Months
2.	All the relevant clauses of RFP and TSA Scope of Work (S. No. 2) + 300 MVar STATCOM at Krishnagiri PS • • + 300 MVar STATCOM – 1 set 	All the relevant clauses of RFP and TSA Scope of Work (S. No. 2) ± 300 MVar STATCOM at Krishnagiri PS • • ± 300 MVar STATCOM – 1 set
3.	All the relevant clauses of RFP and TSA Scope of Work (Notes) i) The Krishnagiri – Raichur 765kV D/c line is to be terminated in the existing 240 MVar bus reactor bays and converting these bus reactors into switchable line reactors. POWERGRID to provide space (free of cost) for the same. 	All the relevant clauses of RFP and TSA Scope of Work (Notes) i) The Krishnagiri – Raichur New 765kV D/c line is to be terminated in the existing 240 MVar bus reactor bays. Conversion of existing 765 kV Bus Reactor bays to 765 kV SLR Line bays at Raichur New for termination of Krishnagiri – Raichur New 765kV D/c line is in the scope of POWERGRID.

Amendment No. 2 dated 27.04.2026 to RFP documents for “Transmission System for integration of Krishnagiri REZ Phase-I” through tariff based competitive bidding process.

S. No.	Existing Clause	New/ Revised Clause																																																															
1.	All the relevant clauses of RFP, TSA and SPA Document SPV [under incorporation]”	All the relevant provisions of RFP, TSA and SPA Document “SPV [which is under incorporation]” may be read as “KRISHNAGIRI REZ TRANSMISSION LIMITED”																																																															
2.	RFP and TSA Document C.8.7.1 General Requirements The Technical Parameters of the Transformer shall be as below <table><tr><th>Sl.No.</th><th>Description</th><th>Unit</th><th>Technical Parameters</th></tr><tr><td>.....</td><td>.....</td><td>.....</td><td>.....</td></tr><tr><td>1.16</td><td>Bushing</td><td></td><td></td></tr><tr><td>.....</td><td>.....</td><td>.....</td><td>.....</td></tr><tr><td>vii)</td><td>Tan delta of bushings</td><td></td><td></td></tr><tr><td></td><td>HV</td><td>%</td><td>Refer Note 2</td></tr><tr><td></td><td>MV</td><td>%</td><td>Refer Note 2</td></tr><tr><td>.....</td><td>.....</td><td>.....</td><td>.....</td></tr></table> 	Sl.No.	Description	Unit	Technical Parameters					1.16	Bushing							vii)	Tan delta of bushings				HV	%	Refer Note 2		MV	%	Refer Note 2					RFP and TSA Document C.8.7.1 General Requirements The Technical Parameters of the Transformer shall be as below <table><tr><th>Sl.No.</th><th>Description</th><th>Unit</th><th>Technical Parameters</th></tr><tr><td>.....</td><td>.....</td><td>.....</td><td>.....</td></tr><tr><td>1.16</td><td>Bushing</td><td></td><td></td></tr><tr><td>.....</td><td>.....</td><td>.....</td><td>.....</td></tr><tr><td>vii)</td><td>Tan delta of bushings[#]</td><td></td><td></td></tr><tr><td></td><td>HV</td><td>%</td><td rowspan="2">≤ 0.5</td></tr><tr><td></td><td>MV</td><td>%</td></tr><tr><td>.....</td><td>.....</td><td>.....</td><td>.....</td></tr></table> # Tan δ value of OIP/RIP/RIS condenser bushing shall be 0.005 (max.) in the temperature range of 10 °C to 40 °C. If tan delta is measured at a temperature beyond above mentioned limit, necessary correction factor as per IEEE shall be applicable. The measured Tan δ value at site should not exceed by 0.001 w.r.t. factory results (measured at	Sl.No.	Description	Unit	Technical Parameters					1.16	Bushing							vii)	Tan delta of bushings [#]				HV	%	≤ 0.5		MV	%				
Sl.No.	Description	Unit	Technical Parameters																																																														
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Amendment No. 2 dated 27.04.2026 to RFP documents for “Transmission System for integration of Krishnagiri REZ Phase-I” through tariff based competitive bidding process.

S. No.	Existing Clause	New/ Revised Clause
		approx. similar temperature conditions) during warrantee period.
3.	RFP and TSA Document C.6.7 Loss Requirements The TSP must guarantee the total losses of STATCOM Station, be less than 1% of the reactive power output individually at its inductive limit and capacitive limit for the cumulative highest reactive power output of STATCOM Station at PCC with the worse combination of manufacturing tolerances. For the purpose of total loss measurements, it should be assumed that the ambient temperature is 20 °C, the PCC voltage is 1 per unit, and the slope setting is 1%. The STATCOM system may not operate under these conditions, but they provide a common base.	RFP and TSA Document C.6.7 Loss Requirements The TSP must guarantee the total losses of STATCOM Station, be less than 1.5% of the reactive power output individually at its inductive limit and capacitive limit for the cumulative highest reactive power output of STATCOM Station at PCC with the worse combination of manufacturing tolerances. For the purpose of total loss measurements, it should be assumed that the ambient temperature is 20 °C, the PCC voltage is 1 per unit, and the slope setting is 1%. The STATCOM system may not operate under these conditions, but they provide a common base.

Amendment No. 3 dated 29.05.2026 to the RFP documents for selection of Bidder as Transmission Service Provider for “Transmission System for integration of Krishnagiri REZ Phase-I”

Sr. No.	Existing Clause	New/Revised Clause
1.	RFP & TSA- Specific Technical Requirements for Transmission Line ... A.20 Routing of transmission line through protected areas of India shall be avoided to the extent possible. In case, it is not possible to avoid protected areas, the towers of the transmission line up to 400 kV level, which are installed in protected areas shall be designed for Multicircuit (4 circuits) configuration of same voltage level considering reliability level of at least two (2). The top two circuits of these multi-circuit towers shall be used for stringing of the transmission line under present scope and the bottom two circuits shall be made available for stringing of any future transmission line of any transmission service providers/ State transmission utilities/Central transmission utilities passing through the same protected area. Further, the configuration and coordinates of such transmission towers shall be submitted to CEA, CTU and BPC by the TSP. ...	RFP & TSA- Specific Technical Requirements for Transmission Line ... A.20.(a) Routing of transmission line through protected areas of India shall be avoided to the extent possible. In case, it is not possible to avoid protected areas, the towers of the transmission line up to 765 kV level, which are installed in protected areas, shall be designed for Multi-circuit (4-circuits) configuration of same voltage level considering the reliability level of at least TWO (2) in case of 400 kV and THREE (3) in case of 765 kV. The top two circuits of these multi-circuit towers shall be used for stringing of the transmission line under present scope and the bottom two circuits shall be made available for stringing of any future transmission line of any transmission service providers/ State transmission utilities/Central transmission utilities passing through the same protected area. Further, the configuration and coordinates of such transmission towers shall be submitted to CEA, CTU and BPC by the TSP. It shall be ensured that Minimum ground clearance is maintained such that statutory Electrical Clearances and Electric Field limit of 10 kV/m at 1 m and 1.8 m from ground level are not violated. A.20.(b) Routing of transmission lines through all Metropolitan areas, Municipal Corporations, Municipalities, Nagar

Amendment No. 3 dated 29.05.2026 to the RFP documents for selection of Bidder as Transmission Service Provider for “Transmission System for integration of Krishnagiri REZ Phase-I”

Sr. No.	Existing Clause	New/Revised Clause
		Panchayats, and all Urban Planning areas notified by State Governments and Forest areas notified by Ministry of Environment, Forest, and Climate Change (MoEFCC) shall be avoided to the extent possible. However, if it is not possible to avoid these areas, then in order to optimize Right of Way (RoW) in these areas, for up to 765 kV transmission lines, Double Circuit Pole Structures designed with reliability level of THREE (3) (preferably with insulated cross arm) shall be implemented. It shall also be ensured that Minimum ground clearance is maintained such that statutory Electrical Clearances and Electric Field limit of 10 kV/m at 1 m and 1.8 m from ground level are not violated. In case of more than TWO parallel Circuits up to 400 kV, the same shall be accommodated using Pole Structures designed for so many Circuits. ...
2.	RFP Document- Annexure A Technical Details with respect to electronic bidding In order to submit online bids in the e-bidding process for selection of Transmission Service Provider, interested Bidders are required to register themselves with the e-procurement website of MSTC limited namely www.mstcecommerce.com/eprochome/tsp/index.jsp. To register with the website, the Bidder is required to fill up the online	RFP Document- Annexure A Technical Details with respect to electronic bidding In order to submit online bids in the e-bidding process for selection of Transmission Service Provider, interested Bidders are required to register themselves with the e-procurement website of MSTC limited namely https://www.mstcecommerce.com/eprocn/index.jsp. To register with the website, the Bidder is required to fill up the online

Amendment No. 3 dated 29.05.2026 to the RFP documents for selection of Bidder as Transmission Service Provider for “Transmission System for integration of Krishnagiri REZ Phase-I”

Sr. No.	Existing Clause	New/Revised Clause
	form available under the link Register as Vendor in the above website and fill up the same and click on Submit.	form available under the link Register as Vendor in the above website and fill up the same and click on Submit.

Amendment No. 4 dated 05.06.2026 to the RFP documents for selection of Bidder as Transmission Service Provider for “Transmission System for integration of Krishnagiri REZ Phase-I”

S. No.	Existing Clause	New/Revised Clause
1.	RFP and TSA Specific Technical Requirements for Substation Clause. No. B.1.2 part (xiii) xiii) 765 kV Raichur S/s: Refer SLD-C.ENG/ TBCB/KOPP/II PART-B/RAICHUR/SLD/01 attached, Krishnagiri – Raichur 765 kV D/C line is to be terminated in the existing bays (Main Bay Nos. 709 and 718). 	RFP and TSA Specific Technical Requirements for Substation Clause. No. B.1.2 part (xiii) xiii) 765 kV Raichur S/s: Refer SLD: C.ENG/ TBCB/KOPP/II PART-B/RAICHUR /SLD/01 and GA Drawing: C/ENG/RTM/ KURNOOL-V UPGRAD /RAICHUR /GA /01 Rev 0 attached, Krishnagiri – Raichur 765 kV D/C line is to be terminated in the existing bays (Main Bay Nos. 709 and 718) including the following scope: • 765 kV 1-Ph GIS bus duct (approx. 1130 mtrs) along with associated SF6 to Air Bushings and Line termination gantry (for bay no. 709). Additional Requirements related to GIS (as applicable): 765 kV GIS equipment: GIS (Gas Insulated Substation) shall be in accordance to IEC: 62271-203. The switchgear shall be designed and specified to withstand operating conditions and duty requirements. The GIS assembly shall consist of separate modular compartments filled with SF₆ Gas and separated by gas tight partitions so as to minimize risk to human life, allow ease of maintenance and limit the effects of gas leaks failures and internal arcs etc. These compartments shall be designed to minimize the risk of damage to adjacent sections and protection of personnel in the event of a failure occurring within the compartments. Rupture diaphragms with suitable deflectors shall be provided to prevent uncontrolled bursting pressures developing within the enclosures under worst operating conditions, thus providing controlled pressure relief in the affected compartment. The layout of Gas Insulated Bus Ducts shall be properly planned to optimize the length of bus ducts and for easy accessibility for maintenance. Each section shall have plug-in or easily removable connection pieces to allow for easy replacement of any component with the minimum disturbance to the remainder of the equipment.

Amendment No. 4 dated 05.06.2026 to the RFP documents for selection of Bidder as Transmission Service Provider for “Transmission System for integration of Krishnagiri REZ Phase-I”

S. No.	Existing Clause	New/Revised Clause
		The material and thickness of the enclosures shall be such as to withstand an internal flashover without burns through for a period of 300 ms at rated short time withstand current. The material shall be such that it has no effect of environment as well as from the by-products of SF6 breakdown under arcing conditions. This shall be validated with Type Test. UHF sensors in GIS for PD (Partial Discharge) detection: The adequate number of Ultra High Frequency (UHF) sensors shall be provided in the offered GIS along with suitable portable type Partial Discharge (PD) measuring instrument for detection of Partial discharge (of 5 pC and above as per IEC 60270). The number and location of these sensors shall be based on laboratory tests on the typical design of GIS as per recommendations of CIGRE Document No. 654 (Application Guide for sensitivity verification for UHF Partial discharge detection system for GIS). SF6 to Air Bushing The Outdoor bushings, for the connection of conventional external conductors to the SF6 metal enclosed switchgear, shall be provided. Bushings shall generally be in accordance with the requirements of IEC-60137. The creepage distance over the external surface of outdoor bushings shall not be less than 31 mm/kV. SF6 to air Bushing shall be of Polymer/ composite type and shall be robust and designed for adequate cantilever strength to meet the requirement of seismic conditions. The electrical and mechanical characteristics of bushings shall be in accordance with IEC-60137. Polymer/composite insulator shall be seamless sheath of silicon rubber compound. The housing and weather sheds should have silicon content of minimum 32% by weight. It should protect the bushing against environmental influences, external pollution and humidity. The hollow silicon composite insulators shall comply with the requirements of IEC- 61462 and the relevant parts of IEC-62217.
2.	Relevant provisions of RFP and TSA “Percentage of Quoted Transmission Charges recoverable on Scheduled COD	Relevant provisions of RFP and TSA Revised percentage of Quoted Transmission Charges recoverable on Scheduled COD of the Element of the Project is enclosed at Annexure-III.

Amendment No. 4 dated 05.06.2026 to the RFP documents for selection of Bidder as Transmission Service Provider for “Transmission System for integration of Krishnagiri REZ Phase-I”

S. No.	Existing Clause	New/Revised Clause
	of the Element of the Project”	

Percentage of Quoted Transmission Charges recoverable on Scheduled COD of the Element of the Project

Sl. No.	Name of the Transmission Element	Scheduled COD as per Gazette Notification	% of Quoted Transmission Charges recoverable on Scheduled COD of the Element of the Project	Element(s) which are pre-required for declaring the commercial operation (COD) of the respective Element
1.	Establishment of 4x1500 MVA, 765/400 kV and 5x500 MVA, 400/220kV Krishnagiri Pooling Station near Kodumur in Kurnool district along with 2x330 MVar (765 kV) bus reactors at Krishnagiri PS with provision of two (2) sections of 4500 MVA each at 400kV level	36 months	15.8	Element at Sl. No. 2, 3, 4, 5, 6 & 7
2.	± 300 MVAR STATCOM at Krishnagiri PS		4	Element at Sl. No. 1, 3, 4, 5, 6 & 7
3.	Krishnagiri – Doma 765 kV D/c line with 240 MVar SLR (convertible) at both ends on both circuits		28.2	Element at Sl. No. 1, 2, 4, 5, 6 & 7
4.	Krishnagiri – Raichur New 765 kV D/c line with 240 MVar SLR (convertible) at Raichur New end on both circuits		14.8	Element at Sl. No. 1, 2, 3, 5, 6 & 7
5.	Establishment of 3x1500 MVA, 765/400 kV Sagar substation with 2x330 MVar (765 kV) bus reactors with space provision for establishment of 220 kV switchyard		8.8	Element at Sl. No. 1, 2, 3, 4, 6 & 7
6.	Krishnagiri – Sagar 765 kV D/c line with 240 MVar SLR (convertible) at both ends on both circuits		26.7	Element at Sl. No. 1, 2, 3, 4, 5 & 7
7.	Sagar – Nagarjunasagar 400 kV quad D/c line (about 25 km)		1.7	Element at Sl. No. 1, 2, 3, 4, 5 & 6

Amendment No. 05 dated 15.06.2026 to the RFP documents for selection of Bidder as Transmission Service Provider for Inter-State Transmission Scheme “Transmission System for integration of Krishnagiri REZ Phase-I”

S. No.	Clause No. & Existing Provision	New/Revised Clause
1.	Specific Technical Requirements for Transmission Lines in RFP & TSA read in conjunction with amendment issued in this regard A.20.(a) Routing of transmission line through protected areas of India shall be avoided to the extent possible. In case, it is not possible to avoid protected areas, the towers of the transmission line up to 765 kV level, which are installed in protected areas, shall be designed for Multi-circuit (4-circuits) configuration of same voltage level considering the reliability level of at least TWO (2) in case of 400 kV and THREE (3) in case of 765 kV. The top two circuits of these multi-circuit towers shall be used for stringing of the transmission line under present scope and the bottom two circuits shall be made available for stringing of any future transmission line of any transmission service providers/ State transmission utilities/Central transmission utilities passing through the same protected area. Further, the configuration and coordinates of such transmission towers shall be submitted to CEA, CTU and BPC by the TSP. It shall be ensured that Minimum ground clearance is maintained such that statutory Electrical Clearances and Electric Field limit of 10 kV/m at 1 m and 1.8 m from ground level are not violated. A.20.(b) Routing of transmission lines through all Metropolitan areas, Municipal Corporations, Municipalities, Nagar Panchayats, and all Urban Planning areas notified by State Governments and Forest areas notified by Ministry of Environment, Forest, and Climate Change	Specific Technical Requirements for Transmission Lines in RFP & TSA read in conjunction with amendment issued in this regard A.20.(a) Routing of transmission line through protected areas of India shall be avoided to the extent possible. In case, it is not possible to avoid protected areas, the towers of the transmission line up to 765 kV level, which are installed in protected areas, shall be designed for Multi-circuit (4-circuits) configuration of same voltage level considering the Reliability Level and Design Span as per CEA (Technical standards for construction of Electrical Plants and Electric Lines) Regulations, 2022, as amended from time to time. The top two circuits of these multi-circuit towers shall be used for stringing of the transmission line under present scope and the bottom two circuits shall be made available for stringing of any future transmission line of any transmission service providers/ State transmission utilities/Central transmission utilities passing through the same protected area. Further, the configuration and coordinates of such transmission towers shall be submitted to CEA, CTU and BPC by the TSP. It shall be ensured that Minimum ground clearance is maintained such that statutory Electrical Clearances and Electric Field limit of 10 kV/m at 1 m and 1.8 m from ground level are not violated. A.20.(b) Routing of transmission lines through all Metropolitan areas, Municipal Corporations, Municipalities, Nagar Panchayats, and all Urban Planning areas notified by State Governments and Forest areas notified by the Ministry of Environment, Forest and Climate

Amendment No. 05 dated 15.06.2026 to the RFP documents for selection of Bidder as Transmission Service Provider for Inter-State Transmission Scheme “Transmission System for integration of Krishnagiri REZ Phase-I”

S. No.	Clause No. & Existing Provision	New/Revised Clause
	(MoEFCC) shall be avoided to the extent possible. However, if it is not possible to avoid these areas, then in order to optimize Right of Way (RoW) in these areas, for up to 765 kV transmission lines, Double Circuit Pole Structures designed with reliability level of THREE (3) (preferably with insulated cross arm) shall be implemented. It shall also be ensured that Minimum ground clearance is maintained such that statutory Electrical Clearances and Electric Field limit of 10 kV/m at 1 m and 1.8 m from ground level are not violated. In case of more than TWO parallel Circuits up to 400 kV, the same shall be accommodated using Pole Structures designed for so many Circuits. 	Change (MoEFCC), shall be avoided to the extent possible. However, if it is not possible to avoid these areas, then, in order to optimize Right of Way (RoW) in all Metropolitan areas, Municipal Corporations, Municipalities, Nagar Panchayats, and all Urban Planning areas notified by State Governments, for up to 400 kV transmission lines, Double Circuit Pole Structures designed with a Reliability Level and Design Span as per CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2022 as amended from time to time) (preferably with insulated cross arms) shall be implemented. It shall also be ensured that Minimum ground clearance is maintained such that statutory Electrical Clearances and Electric Field limit of 10 kV/m at 1 m and 1.8 m from ground level are not violated. In case of more than TWO parallel Circuits up to 400 kV, the same shall be accommodated using Pole Structures designed for so many Circuits.

Ref. No. 04/ITP-116/25-26/RFP

January 13, 2026

To,
Secretary,
Central Electricity Regulatory Commission,
6th, 7th & 8th Floors, Tower B, World Trade Centre,
Nauroji Nagar, New Delhi- 110029

Subject: Intimation about initiation of the bid process for selection of Transmission Service Provider (TSP) for establishing transmission system for "Transmission System for integration of Krishnagiri REZ Phase-I" and issuance of RFP Document.

Dear Sir,

Ministry of Power vide Gazette Notification No. CG-DL-E-01012026-268996 dated 26.12.2025 has appointed PFC Consulting Limited (PFCCL) as Bid Process Coordinator (BPC) to undertake the bid process for selection of Transmission Service Provider (TSP) for establishing "Transmission System for integration of Krishnagiri REZ Phase-I" in accordance with the Guidelines namely "Tariff based Competitive Bidding Guidelines for Transmission Service" and "Guidelines for encouraging Competition in Development of Transmission Projects" issued by Ministry of Power.

The Request for Proposal (RFP) process has been initiated on 12.01.2026 with the publication of RFP notification in:

1. Financial Express (English) – All Edition
2. Indian Express (English) – All Edition
3. Jansatta (Hindi) – All Editions
4. The Financial Times – Worldwide (All Editions)

The same has also been made available along with the RFP documents on PFCCL website 'www.pfcclindia.com' w.e.f. 12.01.2026. It may be noted that these RFP Documents are based on the Single Stage Two Envelope (RFQ & RFP combined) based Standard Bidding Documents (SBD) issued by Ministry of Power on 06.08.2021 and project specific inputs furnished by Central Transmission Utility of India Limited (CTUIL) and Central Electricity Authority (CEA). The last date for submission of Responses to RFP is 17.03.2026.

As per the requirements of the Guidelines (Clause 4.2 of Tariff based Competitive-bidding Guidelines for Transmission Service), we hereby intimate the Commission about initiation of the bid process for selection of Transmission Service Provider (TSP) for establishing

पंजीकृत कार्यालय : प्रथम तल, "उर्जानिधि", 1 बाराखम्बा लेन, कनॉट प्लेस, नई दिल्ली-110001

Regd. Office : First Floor, "Urjanidhi", 1, Barakhamba Lane, Connaught Place, New Delhi-110001

कंपनी मुख्यालय : नौवाँ तल (ए विंग), स्टेट्समैन हाउस, कनॉट प्लेस, नई दिल्ली - 110001 दूरभाष : 011 - 23443900 फैक्स : 011 - 23443990

Corporate Office : 9th Floor (A Wing), Statesman House, Connaught Place, New Delhi - 110001 Phone : 011 - 23443900 Fax : 011 - 23443990

वैबसाईट / Website : www.pfcclindia.com CIN : U74140DL2008GOI175858

transmission system for **“Transmission System for integration of Krishnagiri REZ Phase-I”**
We are also enclosing herewith the RFP documents for your kind information, perusal and records please.

Thanking You,

Yours sincerely,



(Naveen Phougat)
General Manager

Encl.: As Above

Ref. No. 04/ITP-116/25-26/RFP

January 13, 2026

To,
Director (Transmission),
Ministry of Power,
Shram Shakti Bhawan,
New Delhi – 110001

Subject: Publishing RFP notification and RFP Documents for Selection of the Transmission Service Provider for establishing transmission system for “Transmission System for integration of Krishnagiri REZ Phase-I” on the website of MoP.

Dear Sir,

Ministry of Power vide Gazette Notification No. CG-DL-E-01012026-268996 dated 26.12.2025 has appointed PFC Consulting Limited (PFCCL) as Bid Process Coordinator (BPC) to undertake the bid process for selection of Transmission Service Provider (TSP) for establishing “**Transmission System for integration of Krishnagiri REZ Phase-I**” in accordance with the Guidelines namely “Tariff based Competitive Bidding Guidelines for Transmission Service” and “Guidelines for encouraging Competition in Development of Transmission Projects” issued by Ministry of Power.

The bid process for selection of Transmission Service Provider (TSP) for establishing transmission system for “**Transmission System for integration of Krishnagiri REZ Phase-I**” has been initiated with the publication of RFP notification on 12.01.2026 (copy of the RFP notification enclosed). The same has also been made available along with the RFP document on PFCCL website ‘www.pfcclindia.com’ w.e.f. 12.01.2026. It may be noted that these RFP Document are based on the Single Stage Two Envelope (RFQ & RFP combined) Standard Bidding Documents (SBD) issued by Ministry of Power on 06.08.2021. The last date for submission of Responses to RFP is 17.03.2026.

It is requested that in line with the requirements of the Guidelines (Clause 9.2 of Tariff based Competitive-bidding Guidelines for Transmission Service), the RFP Notice and RFP documents may be published on the website of Ministry of Power. The soft copy of the RFP Notification and RFP documents has been mailed separately at the email address transdesk-mop@nic.in. We are also enclosing herewith the RFP documents for your kind information, perusal and records please.

Thanking You,

Yours sincerely,


(Naveen Phougat)
General Manager

Encl.: As Above

पंजीकृत कार्यालय : प्रथम तल, “उर्जानिधि”, 1 बाराखम्बा लेन, कनॉट प्लेस, नई दिल्ली-110001

Regd. Office : First Floor, "Urjanidhi", 1, Barakhamba Lane, Connaught Place, New Delhi-110001

कंपनी मुख्यालय : नौवौं तल (ए विंग), स्टेट्समैन हाउस, कनॉट प्लेस, नई दिल्ली - 110001 दूरभाष : 011 - 23443900 फैक्स : 011 - 23443990

Corporate Office : 9th Floor (A Wing), Statesman House, Connaught Place, New Delhi - 110001 Phone : 011 - 23443900 Fax : 011 - 23443990

वैबसाईट / Website : www.pfcclindia.com CIN : U74140DL2008GOI175858



**GOVERNMENT OF INDIA
MINISTRY OF CORPORATE AFFAIRS**

Central Registration Centre

Certificate of Incorporation

[Pursuant to sub-section (2) of section 7 and sub-section (1) of section 8 of the Companies Act, 2013 (18 of 2013) and rule 18 of the Companies (Incorporation) Rules, 2014]

I hereby certify that KRISHNAGIRI REZ TRANSMISSION LIMITED is incorporated on this TWENTY NINETH day of APRIL TWO THOUSAND TWENTY SIX under the Companies Act, 2013 (18 of 2013) and that the company is Company limited by shares

The Corporate Identity Number of the company is **U42201DC2026GOI470964**

The Permanent Account Number (PAN) of the company is **AAMCK8328E***

The Tax Deduction and Collection Account Number (TAN) of the company is **DELK31800G***

Given under my hand at Manesar this TWENTY NINETH day of APRIL TWO THOUSAND TWENTY SIX

Signature Not Verified

Digitally signed by
DS MINISTRY OF CORPORATE
AFFAIRS , CRC MANESAR 2
Date: 2026.04.29 18:22:10 IST

Bayyapureddy Chaitanya

Assistant Registrar of Companies/ Deputy Registrar of Companies/ Registrar of Companies

For and on behalf of the Jurisdictional Registrar of Companies

Registrar of Companies

Central Registration Centre

Disclaimer: This certificate only evidences incorporation of the company on the basis of documents and declarations of the applicant(s). This certificate is neither a license nor permission to conduct business or solicit deposits or funds from public. Permission of sector regulator is necessary wherever required. Registration status and other details of the company can be verified on mca.gov.in

Mailing Address as per record available in Registrar of Companies office:

KRISHNAGIRI REZ TRANSMISSION LIMITED

First Floor, Urjanidhi, 1, Barakhamba Lane, Connaught Place, New Delhi, Central Delhi- 110001, Delhi

*as issued by Income tax Department



Ref. No.: 04/26-27/ITP-116/RFP

May 19, 2026

To,

Mr. Pankaj Pandey, ED (TBCB)
Power Grid Corporation of India Limited,
"Saudamini" Plot No 2, Sector 29,
Gurgaon-122001

E-mail: ppandey@powergrid.in

**Subject: Inter-State Transmission Scheme "Transmission System for integration of Krishnagiri REZ
Phase-I" – Regarding Estimated Acquisition Price**

Dear Sir,

In line with the requirement of the RFP document specified in Clause 1.6.2.1 (5), the following may be noted with respect to the Acquisition Price:

"The estimated Acquisition Price payable by the selected Bidder to the PFC Consulting Limited for the acquisition of one hundred percent (100%) of the equity shareholding of "**KRISHNAGIRI REZ TRANSMISSION LIMITED**", along with all its related assets and liabilities is **Rs.19,57,01,021/-** (Rupees Nineteen Crore Fifty Seven Lakh One Thousand Twenty One Only)."

This is for your information and further action, please.

Thanking you,

Yours faithfully



(Naveen Phougat)
General Manager

Ref. No. 04/26-27/ITP-116/RFP

July 13, 2026

To,
Mr. Pankaj Pandey, ED (TBCB)
Power Grid Corporation of India Limited,
"Saudamini" Plot No 2, Sector 29,
Gurgaon-122001

E-mail: ppandey@powergrid.in

Sub.: Inter-State Transmission Scheme "Transmission System for integration of Krishnagiri REZ Phase-I" - Regarding submission of CPG and Due Diligence for transfer of SPV.

Dear Sir,

In line with the provisions of Clause 2.15.2 (a), (b) & (c) of the RFP Document, Contract Performance Guarantee in favour of Nodal Agency i.e. Central Transmission Utility of India Limited (CTUIL) has to be provided, the Share Purchase Agreement has to be executed and the SPV namely, '**Krishnagiri REZ Transmission Limited**' has to be acquired by the selected bidder i.e., '**Power Grid Corporation of India Limited**' along with all its related assets and liabilities for an Acquisition Price.

It may be noted that the SPV is tentatively scheduled to be transferred in July, 2026. You are therefore requested to arrange for due diligence process accordingly.

It is intimated that the Acquisition Price of the SPV '**Krishnagiri REZ Transmission Limited**' is **Rs.19,82,02,754/- (Rupees Nineteen Crore Eighty Two Lakh Two Thousand Seven Hundred Fifty Four Only)**. The break-up for this amount is given below:

S. No.	Description	Amount (in INR)
1.	PFCCL Management Fees	15,00,00,000
2.	Goods and Service Tax on PFCCL Management Fees	2,70,00,000
3.	Borrowings from PFCCL	2,11,02,754
4.	Share Capital	1,00,000
	Total	19,82,02,754

The payment of the Acquisition Price may be made as detailed hereunder:

Name	: PFC Consulting Limited
PFCCL Goods and Service Tax No.	: 07AAECP6182F1ZC
PFCCL PAN No.	: AAEC6182F
Mode of Payment	: RTGS

Bank Details:

Bank Name	ICICI Bank, 9A, Phelps Building, Connaught Place, New Delhi
Name of Account	PFC CONSULTING LIMITED
A/C No.	000705036117
IFSC Code	ICIC0000007

It is requested that TDS may be deducted against the above payment as per I.T. rules. Copy of PAN Card and Cheque of the above bank are enclosed herewith.

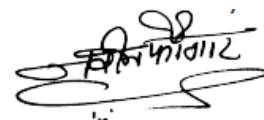
You are requested to make the above payment as per the details provided above through RTGS at the earliest.

You are requested to provide the Contract Performance Guarantee as per the details provided in RFP documents, at the earliest.

Further, it is requested to provide the Contract Performance Guarantee (CPG) in favour of Nodal Agency i.e. Central Transmission Utility of India Limited (CTUIL) as per the details provided at **Annexure –A** at the earliest.

With kind regards,

Yours sincerely,



(Naveen Kumar)
General Manager

Contract Performance Guarantee (CPG)**Transmission System for integration of Krishnagiri REZ Phase-I**

S No.	Name of Nodal Agency	Address	Amount of CPG
1	Central Transmission Utility of India Limited	5 th to 10 th Floor, Ircon International Tower-1, Sector-32, Gurugram-122001	Rs.204.25 Crore (Rupees Two Hundred Four Crore and Twenty Five Lakh Only)



No. 25-17/90/2026-POWER GRID(MoP)

संख्या 25-17/90/2026-पावर ग्रिड(एमओपी)

भारत सरकार
Government of India
विद्युत मंत्रालय
Ministry of Power

Shram Shakti Bhawan, Rafi Marg
New Delhi, Dated 17th July, 2026

To,

Shri Harish Bhakuni, Director,
KRISHNAGIRI REZ TRANSMISSION LIMITED,
First Floor, "Urjanidhi", 1, Barakhamba Lane
Connaught Place, New Delhi - 110001

Subject: Prior approval of the Government of India under Section 68 (1) of the Electricity Act, 2003, for installation of overhead transmission lines under the transmission scheme "Transmission System for integration of Krishnagiri REZ Phase-I" to M/s KRISHNAGIRI REZ TRANSMISSION LIMITED, a wholly owned subsidiary of PFC Consultancy Limited (PFCCL) – regarding.

Sir,

I am directed to refer to the PFCCL's online application ID SW8624267326-M029_D002_A003-1781162421114 dated 11.06.2026 on NSWS Portal, seeking prior approval of Government of India under Section 68 (1) of the Electricity Act, 2003 for installation of the following overhead transmission lines under the transmission scheme "Transmission System for integration of Krishnagiri REZ Phase-I", in favour of 'M/s KRISHNAGIRI REZ TRANSMISSION LIMITED', a wholly owned subsidiary of PFCCL, who shall own the transmission scheme project:

- (i) Krishnagiri– Doma 765 kV D/c line (~ 240 km)
- (ii) Krishnagiri – Raichur New 765 kV D/c line (~150 km)
- (iii) Krishnagiri – Sagar 765 kV D/c line (~ 240 km)
- (iv) Sagar – Nagarjunasagar 400 kV D/c line (~ 25 km)

2. Ministry of Power vide Gazette no. CG-DL-E-01012026-268996 dated 26.12.2025 has appointed PFC Consultancy Limited (PFCCL) as the Bid Process Coordinator for the purpose of selection of Bidder as Transmission Service Provider (TSP) to establish the transmission scheme "Transmission System for integration of Krishnagiri REZ Phase-I" to be implemented through Tariff Based Competitive Bidding (TBCB) route. PFCCL, the Bid Process Coordinator, has incorporated the SPV, 'KRISHNAGIRI REZ TRANSMISSION LIMITED', for implementation of the transmission scheme "Transmission System for integration of Krishnagiri REZ Phase-I".

3. Ministry of Power, Government of India on the basis of the recommendation of Central Electricity Authority (CEA), conveys the prior approval under Section 68 (1) of the Electricity Act, 2003 to the SPV, 'KRISHNAGIRI REZ TRANSMISSION LIMITED' for installation of the following overhead transmission lines under the transmission scheme "Transmission System for integration of Krishnagiri REZ Phase-I":

Contd/...

- (i) Krishnagiri– Doma 765 kV D/c line (~ 240 km)
- (ii) Krishnagiri – Raichur New 765 kV D/c line (~150 km)
- (iii) Krishnagiri – Sagar 765 kV D/c line (~ 240 km)
- (iv) Sagar – Nagarjunasagar 400 kV D/c line (~ 25 km)

4. The approval would be subject to compliance of:

- (i) The relevant provisions of the Electricity Act, 2003, as amended from time to time and the rules and regulations made there under, and
- (ii) CEA (Measures relating to Safety and Electric Supply) Regulations, 2023, and any subsequent amendments made thereto.

5. The approval would also be subject to the following conditions:

- (i) The implementing agency will commence construction of the project within three years of grant of approval, unless this term is extended by Ministry of Power.
- (ii) Ministry of Power may withdraw the approval before the expiry of the period of three years after giving a one-month notice.
- (iii) The implementing agencies shall abide by the provisions of Works of Licensees Rules, 2006 notified by the Govt. of India, Ministry of Power in the Gazette of India, extraordinary Part-II, Section 3(i) dated 18-04-2006 (vide GSR 217 (E) dated 18-04-2006).

Yours faithfully,



(M.V.N. Vara Prasad/ एम.वी.एन. वरा प्रसाद)
Under Secretary to the Government of India
Tele: 011-23730264

Copy to:

The Chairperson
Central Electricity Authority
Sewa Bhawan, R.K. Puram, New Delhi 110066.

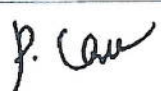
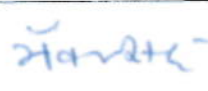
Date: July 09, 2026

CERTIFICATE BY THE BID EVALUATION COMMITTEE

Sub.: Selection of Successful Bidder as Transmission Service Provider to establish "Transmission System for integration of Krishnagiri REZ Phase-I".

It is hereby certified that:

1. The entire bid process has been carried out in accordance with the "Tariff based Competitive Bidding Guidelines for Transmission Service" and "Guidelines for encouraging competition in development of the Transmission Projects" issued by Ministry of Power, Govt. of India under Section 63 of the Electricity Act, 2003 and as amended from time to time.
2. 'Power Grid Corporation of India Limited' emerged as the Successful Bidder after the conclusion of e-reverse bidding process with the lowest Quoted Transmission Charges of Rs.8,209.60 million per annum.
3. The quoted tariff is lower than the Levelised Tariff calculated based on CERC norms considering the Capital Cost for the Project "Transmission System for integration of Krishnagiri REZ Phase-I" as assessed by Cost Committee. The quoted tariff discovered through e-reverse bidding process is acceptable.

Name of Committee Member	Signature
Sh. Amit Jog, General Manager, State Bank of India, Commercial Clients Group Regional Office-II, New Delhi - Chairman	
Sh. T. Sudeevan Kumar, Chief Engineer (Projects), APTRANSCO - Member	
Smt. P. Vasundhara, Chief Engineer, 400kV Construction, TGTRANSCO - Member	
Sh. Ganeswara Rao Jada, Director, PSPA-I Division, CEA - Member	
Sh. Bhanwar Singh Meena, Director, PSPA-I Division, CEA - Member	
Sh. Rakesh Mohan, Chairman, Krishnagiri REZ Transmission Limited, New Delhi - Convener Member	

Ref. No. 04/26-27/ITP-116/RFP

July 10, 2026

To,

Mr. Pankaj Pandey,

Executive Director (TBCB)

Power Grid Corporation of India Limited,

"Saudamini" Plot No 2, Sector 29,

Gurgaon-122001

E-mail: ppandey@powergrid.in

Sub.: Inter-State Transmission Scheme "Transmission System for integration of Krishnagiri REZ Phase-I" - Letter of Intent

Dear Sir,

We refer to:

1. The Request for Proposal document dated **January 12, 2026** issued to '**Power Grid Corporation of India Limited**' as regards participation in the international competitive bidding process for Transmission Scheme for "**Transmission System for integration of Krishnagiri REZ Phase-I**", and as amended till the bid deadline including all correspondence/ clarifications/ amendments exchanged between '**Power Grid Corporation of India Limited**' and PFC Consulting Limited in regard thereto (hereinafter collectively referred to as the "**Final RFP**");
2. The Offer of '**Power Grid Corporation of India Limited**' by way of a Technical Bid pursuant to (1) above submitted on **June 17, 2026** in response to the Final RFP.
3. The Offer of '**Power Grid Corporation of India Limited**' by way of Financial Bid-Initial Offer submitted on **June 17, 2026** in response to the Final RFP.
4. The offer of '**Power Grid Corporation of India Limited**' by way of a Financial Bid-Final Offer Submitted during e-Reverse Auction process concluded on **July 02, 2026** in response to the Final RFP.
5. The Technical Bid as at S. No. (2) above and the Financial Bid as at S. No. (3) & (4) above, hereinafter collectively referred to as the "**Bid**".

This is to inform you that the process of evaluating bids received pursuant to the Final RFP, including the Bid, has been concluded. We are pleased to inform you that your proposal and offer received by way of the "**Bid**" has been accepted and '**Power Grid Corporation of India Limited**' is hereby declared as the Successful Bidder as per Clause 3.6.1 of the Final RFP for the above project and consequently, this Letter of Intent (hereinafter referred to as the "**LoI**") is being issued.

This LoI is based on the Final RFP and you are requested to please comply with the following:

- a) Acknowledging its issuance and unconditionally accepting its contents and recording "Accepted unconditionally" under the signature of your authorized signatory on each page of the duplicate

पंजीकृत कार्यालय : प्रथम तल, "उर्जानिधि", 1 बाराखम्बा लेन, कनॉट प्लेस, नई दिल्ली-110001

Regd. Office : First Floor, "Urjanidhi", 1, Barakhamba Lane, Connaught Place, New Delhi-110001

कंपनी मुख्यालय : नौवो तल (ए विंग), स्टेट्समैन हाउस, कनॉट प्लेस, नई दिल्ली - 110001 दूरभाष : 011 - 23443900 फैक्स : 011 - 23443990

Corporate Office : 9th Floor (A Wing), Statesman House, Connaught Place, New Delhi - 110001 Phone : 011 - 23443900 Fax : 011 - 23443990

वेबसाइट / Website : www.pfcclindia.com CIN : U74140DL2008GOI175858

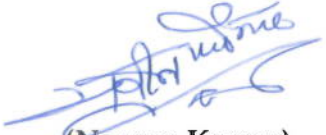
copy of this letter attached herewith and returning the same to PFC Consulting Limited within seven (07) days of the date of issuance of LoI. This LoI is issued to you in duplicate.

- b) Completion of various activities as stipulated in the Final RFP including in particular Clause 2.15.2, Clause 2.15.3 and Clause 2.15.4 of the Final RFP, within the timelines as prescribed therein.

It may be noted that PFC Consulting Limited has the rights available to them under the Final RFP, including rights under Clause 2.15.5 and Clause 3.6.3 thereof, upon your failure to comply with the aforementioned conditions.

As you are aware, the issuance and contents of this LoI are based on the Bid submitted by you as per the Final RFP including the Transmission charges and other details regarding the Scheduled COD as contained therein. The Quoted Transmission Charges as submitted by you and the Scheduled COD of each transmission element and the Project as agreed by you in your Bid, as per Annexure 21 and Format-1 of Annexure 8 respectively of the Final RFP is annexed herewith as **Schedule-A** and incorporated herein by way of reference.

Yours sincerely,
For PFC Consulting Limited



(Naveen Kumar)
General Manager

Enclosures:

1. **Schedule A** – Quoted Transmission Charges and the Scheduled COD of each Transmission Element and the Project submitted in your Bid, as per Annexure 21 and Format-1 of Annexure 8 respectively of the Final RFP

Copy to:

1. **Chairman and Managing Director, Power Finance Corporation Limited, "Urjanidhi", 1, Barakhamba Lane, Connaught Lane, New Delhi – 110 001**
2. **Director (Transmission), Ministry of Power, Shram Shakti Bhawan, Rafi Marg, New Delhi-110001**
3. **Chief Engineer (PSPA-I) and Member Secretary (NCT), Central Electricity Authority, 3rd Floor, Sewa Bhawan, R.K. Puram, New Delhi – 110066**
4. **Chief Operating Officer (COO), Central Transmission Utility of India Limited (CTUIL), 5th-10th Floor, Ircon International Tower-1, Sector-32, Gurugram-122001**
5. **Secretary, Central Electricity Regulatory Commission, 6th, 7th & 8th Floors, World Trade Center, Tower-B, Nauroji Nagar, New Delhi – 110029**

SCHEDULE - A

(Page 1 of 2)

1. **Quoted Transmission Charges as per Annexure-21-Format For Financial Bid**

Quoted Transmission Charges: Rs.8,209.60 million per annum



2. Scheduled COD of each Transmission Element and the Project as per Format 1 of Annexure-8 of RFP

S. No.	Name of the Transmission Element	Scheduled COD as per Gazette Notification	% of Quoted Transmission Charges recoverable on Scheduled COD of the Element of the Project	Element(s) which are pre-required for declaring the commercial operation (COD) of the respective Element
1.	Establishment of 4x1500 MVA, 765/400 kV and 5x500 MVA, 400/220kV Krishnagiri Pooling Station near Kodumur in Kurnool district along with 2x330 MVar (765 kV) bus reactors at Krishnagiri PS with provision of two (2) sections of 4500 MVA each at 400kV level	36 months	15.8	Element at Sl. No. 2, 3, 4, 5, 6 & 7
2.	± 300 MVAR STATCOM at Krishnagiri PS		4	Element at Sl. No. 1, 3, 4, 5, 6 & 7
3.	Krishnagiri – Doma 765 kV D/c line with 240 MVar SLR (convertible) at both ends on both circuits		28.2	Element at Sl. No. 1, 2, 4, 5, 6 & 7
4.	Krishnagiri – Raichur New 765 kV D/c line with 240 MVar SLR (convertible) at Raichur New end on both circuits		14.8	Element at Sl. No. 1, 2, 3, 5, 6 & 7
5.	Establishment of 3x1500 MVA, 765/400 kV Sagar substation with 2x330 MVar (765 kV) bus reactors with space provision for establishment of 220 kV switchyard		8.8	Element at Sl. No. 1, 2, 3, 4, 6 & 7
6.	Krishnagiri – Sagar 765 kV D/c line with 240 MVar SLR (convertible) at both ends on both circuits		26.7	Element at Sl. No. 1, 2, 3, 4, 5 & 7
7.	Sagar – Nagarjunasagar 400 kV quad D/c line (about 25 km)		1.7	Element at Sl. No. 1, 2, 3, 4, 5 & 6

Scheduled COD for the Project: 36 months

No. 24-9/4/2024-PFC (MoP)
Government of India
Ministry of Power

Shram Shakti Bhawan, Rafi Marg,
New Delhi, Dated: 23rd July, 2026

To,

The Chief Executive Officer,
PFCCL, First Floor
Urjanidhi, 1, Barakhamba Lane,
New Delhi-110003

Subject: Approval of the Government for transfer of shares held by PFCCL in various SPVs, incorporated for development of inter-State transmission systems, to respective successful bidders- reg.

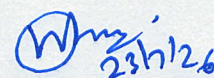
Ref: (i) PFCCL's letter No. 04/26-27/ITP-116/RFP dated 16.07.2026
(ii) PFCCL's letter No. 04/26-27/ITP-117/RFP dated 16.07.2026

Sir,

I am directed to refer to PFCCL's letters under reference (i) to (ii) above, on the subject cited above and to convey the approval of the Competent Authority for divesting the shareholding of PFCCL and its nominee in following Special Purpose Vehicles (SPVs), incorporated for carrying out bidding of various inter-State transmission projects under Tariff Based Competitive Bidding (TBCB) mode, to the respective successful bidders, as indicated in below table, with a view to facilitate transfer of the SPVs to the successful bidders, as required under Ministry of Heavy Industries, Department of Public Enterprises O.M. No. 22(1)/2009-GM dated 04.02.2010:

S. No.	Name of the Project	Name of the SPV	Successful Bidder
1	Transmission System for integration of Krishnagiri REZ Phase-I	Krishnagiri REZ Transmission Limited	Power Grid Corporation of India Limited
2	Transmission System for Integration of Ananthapuram-III PS REZ-Phase-I (3 GW)	Ananthapuram Transmission Limited	Apraava Energy Private Limited

Yours faithfully



(Nidhi Juneja)

Under Secretary to the Govt. of India
Email: juneja.n13@nic.in/
sopfcrc-mop@gov.in
Tele: 011-23711302

Copy for information to:

- CMD, PFC Limited, New Delhi.
- US (Trans):- With the request that Transmission Wing may write to concerned States, informing about the project, for extending all possible help in assessment of compensation to be paid to landowners and also expediting forest clearance, if involved in the project.
- PPS to Secretary (Power)/JS (Dist.)/Dir (Dist), Ministry of Power.

Ref. 04/26-27/ITP-116/RFP

31.07.2026

To,
Mr. Pankaj Pandey, ED (TBCB)
Power Grid Corporation of India Limited,
"Saudamini" Plot No 2, Sector 29,
Gurgaon-122001

E-mail: ppandey@powergrid.in

Sub: Inter-State Transmission Scheme "Transmission System for integration of Krishnagiri REZ Phase-I"--Regarding extension of LoI.

Dear Sir,

This is with reference to Letter of Intent (LoI) issued on 10.07.2026 for establishment of subject transmission scheme. The Clause No. 2.15.2 of the RFP document stipulates that within ten (10) days from the issuance of LoI, the selected bidder shall complete all the activities including the acquisition of SPV.

As the SPV transfer scheduled on 03.08.2026, the last date for completion of various activities under Clause No. 2.15.2 of the RFP document is extended from 20.07.2026 (10 days from LoI) to 03.08.2026.

Thanking you,

Yours faithfully,


(Naveen Phogat)
General Manager

पंजीकृत कार्यालय : प्रथम तल, "उर्जानिधि", 1 बाराखम्बा लेन, कनॉट प्लेस, नई दिल्ली-110001

Regd. Office : First Floor, "Urjanidhi", 1, Barakhamba Lane, Connaught Place, New Delhi-110001

कंपनी मुख्यालय : नौवौं तल (ए विंग), स्टेट्समैन हाउस, कनॉट प्लेस, नई दिल्ली - 110001 दूरभाष : 011 - 23443900 फैक्स : 011 - 23443990

Corporate Office : 9th Floor (A Wing), Statesman House, Connaught Place, New Delhi - 110001 Phone : 011 - 23443900 Fax : 011 - 23443990

वैबसाईट / Website : www.pfcclindia.com CIN : U74140DL2008GOI175858

Dated 03.08.2026

SHARE PURCHASE AGREEMENT

BETWEEN

PFC CONSULTING LIMITED

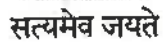
AND

KRISHNAGIRI REZ TRANSMISSION LIMITED

AND

POWER GRID CORPORATION OF INDIA LIMITED





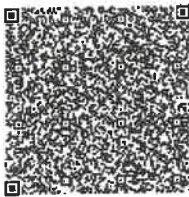
Government of National Capital Territory of Delhi

₹500

e-Stamp

Certificate No.	: IN-DL85982158923692Y
Certificate Issued Date	: 31-Jul-2026 11:31 AM
Account Reference	: IMPACC (IV)/ dl806203/ DELHI/ DL-WSD
Unique Doc. Reference	: SUBIN-DL80620336579940295758Y
Purchased by	: PFC CONSULTING LIMITED
Description of Document	: Article 5 General Agreement
Property Description	: Not Applicable
Consideration Price (Rs.)	: 0 (Zero)
First Party	: PFC CONSULTING LIMITED
Second Party	: Not Applicable
Stamp Duty Paid By	: PFC CONSULTING LIMITED
Stamp Duty Amount(Rs.)	: 500 (Five Hundred only)

सत्यमेव जयते



55

Please write or type below this line

This Stamp Paper Forms Part of enclosed Share Purchase Agreement executed between **PFC CONSULTING LIMITED, KRISHNAGIRI REZ TRANSMISSION LIMITED** and **POWER GRID CORPORATION OF INDIA LIMITED**



Statutory Alert:

Statutory Alert:

1. The authenticity of this Stamp certificate should be verified at 'www.shcilestamp.com' or using e-Stamp / Mobile App of Stock Holding. Any discrepancy in the details on this Certificate and as available on the website / Mobile App renders it invalid.
2. The onus of checking the legitimacy is on the users of the certificate.
3. In case of any discrepancy please inform the Competent Authority.

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सत्यमेव जयते

INDIA NON JUDICIAL

Government of National Capital Territory of Delhi

₹500

e-Stamp

Certificate No.	: IN-DL65981489535600Y
Certificate Issued Date	: 31-Jul-2026 11:31 AM
Account Reference	: IMPACC (IV)/ dl806203/ DELHI/ DL-WSD
Unique Doc. Reference	: SUBIN-DL80620336579396946871Y
Purchased by	: PFC CONSULTING LIMITED
Description of Document	: Article 5 General Agreement
Property Description	: Not Applicable
Consideration Price (Rs.)	: 0 (Zero)
First Party	: PFC CONSULTING LIMITED
Second Party	: Not Applicable
Stamp Duty Paid By	: PFC CONSULTING LIMITED
Stamp Duty Amount(Rs.)	: 500 (Five Hundred only)

सत्यमेव जयते



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This Stamp Paper Forms Part of enclosed Share Purchase Agreement executed between PFC CONSULTING LIMITED, KRISHNAGIRI REZ TRANSMISSION LIMITED and POWER GRID CORPORATION OF INDIA LIMITED



Statutory Alert:

1. The authenticity of this Stamp certificate should be verified at 'www.shoilestamp.com' or using e-Stamp Mobile App of Stock Holding Corporation of India Limited. Any discrepancy in the details on this Certificate and as available on the website / Mobile App renders it invalid.
2. The onus of checking the legitimacy is on the users of the certificate.
3. In case of any discrepancy please inform the Competent Authority.



सत्यमेव जयते

INDIA NON JUDICIAL

Government of National Capital Territory of Delhi

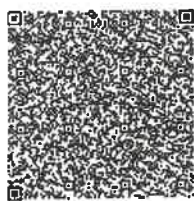
₹200

e-Stamp

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Certificate Issued Date	: 31-Jul-2026 11:34 AM
Account Reference	: IMPACC (IV)/ dl806203/ DELHI/ DL-WSD
Unique Doc. Reference	: SUBIN-DL80620336584008091929Y
Purchased by	: PFC CONSULTING LIMITED
Description of Document	: Article 5 General Agreement
Property Description	: Not Applicable
Consideration Price (Rs.)	: 0 (Zero)
First Party	: PFC CONSULTING LIMITED
Second Party	: Not Applicable
Stamp Duty Paid By	: PFC CONSULTING LIMITED
Stamp Duty Amount(Rs.)	: 200 (Two Hundred only)

सत्यमेव जयते

₹200



Please write or type below this line

IN-DL65987184983966Y

This Stamp Paper Forms Part of enclosed Share Purchase Agreement executed between PFC CONSULTING LIMITED, KRISHNAGIRI REZ TRANSMISSION LIMITED and POWER GRID CORPORATION OF INDIA LIMITED



Statutory Alert:

1. The authenticity of this Stamp certificate should be verified at 'www.shcilestamp.com' or using e-Stamp Mobile App of Stock Holding Corporation of India. Any discrepancy in the details on this Certificate and as available on the website / Mobile App renders it invalid.
2. The onus of checking the legitimacy is on the users of the certificate.
3. In case of any discrepancy please inform the Competent Authority

SHARE PURCHASE AGREEMENT

This **SHARE PURCHASE AGREEMENT** ('Agreement') made on August 03, 2026, at New Delhi by and between:

PFC CONSULTING LIMITED (a wholly owned subsidiary of Power Finance Corporation Ltd.), a company incorporated under the Companies Act, 1956, with CIN No. U74140DL2008GOI175858, having its registered office at First Floor, "Urjanidhi", 1 Barakhamba Lane, Connaught Place, New Delhi – 110 001, (hereinafter referred to as "**PFCCL**", which expression shall, unless it be repugnant to the context or meaning thereof, be deemed to mean and include its successors and permitted assigns) of the **FIRST PART**;

AND

KRISHNAGIRI REZ TRANSMISSION LIMITED, a company incorporated under the Companies Act, 2013, with CIN U42201DC2026GOI470964, and having its registered office at, First Floor, Urjanidhi, 1, Barakhamba Lane, Connaught Place, New Delhi, Central Delhi- 110 001, (hereinafter referred to as "**Company**" which expression shall, unless repugnant to the context or meaning thereof, be deemed to mean and include its successors and permitted assigns) of the **SECOND PART**;

AND

POWER GRID CORPORATION OF INDIA LIMITED, a company incorporated under the Companies Act, 1956 with CIN L40101DL1989GOI038121, and having its registered office at B – 9, Qutab Institutional Area, Katwaria Sarai, New Delhi - 110 016, (hereinafter referred to as "**Selected Bidder**" which expression shall, unless repugnant to the context or meaning thereof, be deemed to mean and include its successors and permitted assigns) of the **THIRD PART**.

WHEREAS:

- A. Ministry of Power vide Gazette Notification No. CG-DL-E-01012026-268996 dated 26.12.2025 had notified PFC Consulting Limited (PFCCL) as the Bid Process Coordinator (BPC) for the purpose of selection of Bidder as Transmission Service Provider (TSP) to establish transmission scheme "**Transmission System for integration of Krishnagiri REZ Phase-I**" through Tariff Based Competitive Bidding (TBCB) process.
- B. In accordance with the Bidding Guidelines, PFCCL had initiated a Bid Process through issuance of RFP documents for selecting a Successful Bidder to build, own, operate and transfer the Project in accordance with and on the terms and conditions mentioned in the RFP Project Documents (as defined hereinafter).
- C. PFCCL has incorporated the **Company** and PFCCL along with the Nominees hold One hundred per cent (100 %) of total issued and paid-up equity share capital of the Company.
- D. PFCCL has initiated the development of the Project and has obtained survey report, certain clearances, consents and permits as specified in the RFP regarding the Project.



- E. Pursuant to the said Bid Process, **Power Grid Corporation of India Limited** has been identified as the Selected Bidder vide Letter of Intent dated 10th July, 2026 issued by the PFCCCL in favor of the Selected Bidder.
- F. As envisaged in the RFP, the Shares Seller (as defined hereinafter) has agreed to sell the Sale Shares (as defined hereinafter) to the Selected Bidder and the Selected Bidder has agreed to purchase the Sale Shares from the Shares Seller, subject to and on the terms and conditions set forth in this Agreement.

NOW THEREFORE, IN CONSIDERATION OF THE MUTUAL COVENANTS AND AGREEMENTS SET FORTH IN THIS AGREEMENT AND FOR OTHER GOOD AND VALUABLE CONSIDERATION, THE PARTIES HEREBY AGREE AS FOLLOWS:

1. DEFINITIONS

- 1.1 Capitalized terms in this Agreement, unless defined in this Agreement shall, in so far as the context admits, have the same meaning in this Agreement as has been ascribed to them in the Transmission Service Agreement.
- 1.2 Additionally, the following terms shall have the meaning hereinafter respectively assigned to them herein below:
- (i) **"Acquisition Price"** shall mean **INR 19,82,02,754/- (Rupees Nineteen Crore Eighty Two Lakh Two Thousand Seven Hundred Fifty Four Only)**, which is the aggregate consideration payable by the Selected Bidder towards purchase of the **Sale Shares at par** along with assets and liabilities of the Company as on the Closing Date subject to adjustment as per the audited accounts of the Company as on the Closing Date;
 - (ii) **"Agreement"** or **"the Agreement"** or **"this Agreement"** shall mean this Share Purchase Agreement and shall include the recitals and/or annexures attached hereto, and the contracts, certificates, disclosures and other documents to be executed and delivered pursuant hereto, if any, and any amendments made to this Agreement by Parties in writing;
 - (iii) **"Bid Process"** shall mean the competitive bidding process initiated by the Company, by issuance of RFP Documents for selecting a Successful Bidder to build, own, operate and transfer the Project in accordance with and on the terms and conditions mentioned in the RFP Project Documents;
 - (iv) **"Board"** shall mean the board of directors of the Company
 - (v) **"Closing Date"** shall mean a mutually agreed date between the Parties falling within the period as mentioned in Clause 2.4 of RFP or on failure of such mutual agreement between the Parties shall be the date falling on the last date of such period;
 - (vi) **"CTU"** or **"Central Transmission Utility of India Limited"** shall have same meaning as defined in the Electricity Act, 2003;



- (vii) **"Encumbrance"** shall mean any mortgage, pledge, lien, charge, security assignment, hypothecation, trust, encumbrance or any other agreement having the effect of creating security interest;
- (viii) **"Letter of Intent"** shall have the meaning ascribed thereto under the RFP;
- (ix) **"Nominees"** shall mean the Persons, who are named in Annexure A, holding the Sale Shares as nominees of PFCCL.
- (x) **"Party"** shall mean PFCCL, Company and the Selected Bidder, referred to individually, and **"Parties"** shall mean PFCCL, Company and the Selected Bidder collectively referred to, as relevant;
- (xi) **"Person"** shall include an individual, an association, a corporation, a partnership, a joint venture, a trust, an unincorporated organization, a joint stock company or other entity or organization, including a government or political subdivision, or an agency or instrumentality thereof, and/or any other legal entity;
- (xii) **"RFP Project Documents"** shall mean the following documents, referred to collectively:
 - a) Transmission Services Agreement;
 - b) this Agreement; and
 - c) Any other agreement(s) as may be required.
- (xiii) **"Representations and Warranties"** shall mean the representations and warranties mentioned in **Clause 4** hereto;
- (xiv) **"Sale Shares"** shall mean 10,000 [Ten Thousand Only] Equity Shares, representing 100 percent of the total issued, subscribed and fully paid-up equity share capital of the Company held by the Shares Seller and Nominees as more particularly described in Annexure A attached hereto;
- (xv) **"Shares"** shall mean the fully paid-up equity shares of Company, of face value Rs. 10 each;
- (xvi) **"Shares Seller"** shall mean PFCCL;
- (xvii) **"Transmission Services Agreement"** or **"TSA"** means the agreement titled 'Transmission Services Agreement' dated 03.08.2026 entered into between Central Transmission Utility of India Limited and Krishnagiri REZ Transmission Limited the TSP pursuant to which the TSP shall build, own, operate and transfer the Project and make available the assets of the Project to Central Transmission Utility of India Limited on a commercial basis, as may be amended from time to time;
- (xviii) **"Transmission Service Provider"** or **"TSP"** shall mean KRISHNAGIRI REZ TRANSMISSION LIMITED which has executed the Transmission Service Agreement, and which shall be acquired by the Selected Bidder.

1.3 Interpretation Clause



Unless the context otherwise requires, the provisions of the TSA relating to the interpretation of the TSA shall apply to this Agreement as if they were set out in full in this Agreement and to this end are incorporated herein by reference.

2. TRANSFER OF SHARES

- 2.1 Subject to the terms and conditions of this Agreement, the Shares Seller agrees to sell and transfer to the Selected Bidder and the Selected Bidder hereby agrees to purchase from the Shares Seller, the Sale Shares of the Company free from Encumbrances with rights and benefits attached thereto in consideration of the Acquisition Price and the covenants, undertakings and the agreements of the Selected Bidder contained in this Agreement.
- 2.2 The Shares Seller hereby undertakes to cause the Nominees to transfer part of the Sale Shares held by them as Nominees of the Shares Seller to the Selected Bidder and execute any documents required to deliver good title to the Sale Shares to the Selected Bidder.

3. CLOSING

- 3.1 Prior to the Closing Date, the Selected Bidder shall provide to the Shares Seller, valid share transfer forms ("Share Transfer Forms") duly stamped with requisite amount of stamp duty payable on the transfer of Sale Shares.
- 3.2 On the Closing Date, the Shares Seller shall hand over to the Selected Bidder or its authorised representative, the original share certificates representing the Sale Shares ("Sale Share Certificates") along with the Share Transfer Forms duly executed by the Shares Seller and the Nominees in favour of the Selected Bidder, simultaneously against the Selected Bidder handing over to the Shares Seller demand drafts drawn in favour of the Shares Seller for the Acquisition Price payable to it.

Provided that prior to the handing over of the Sale Share Certificates to the Selected Bidder as mentioned above, the Selected Bidder shall provide satisfactory evidence to PFCCCL that on or before the Closing Date, the Selected Bidder has furnished the Performance Bank Guarantee to Central Transmission Utility of India Limited and is in a position to comply with all other requirements of Clause 2.4 of the RFP.

- 3.3 The Selected Bidder shall immediately upon receiving the Sale Share Certificates and the Share Transfer Forms, duly execute the Share Transfer Forms and duly lodge the Share Transfer Forms and the Sale Share Certificates with the Company. The Selected Bidder may also propose the names of its nominees to be appointed on the Board of the Company and the address outside the jurisdiction of the Registrar of Companies Delhi - II, which would be the new registered office of the Company. The Company shall, upon receipt of the said documents from the Selected Bidder, do the following:

- (i) Immediately on the Closing Date convene a meeting of the Board, wherein the Board shall pass the following necessary resolutions:
- (a) approving the transfer of the Shares constituting the Sale Shares from the Shares Seller and the Nominees to the name of the **Power Grid Corporation of India Limited and its nominees** and transfer of all assets and liabilities of the Company as on Closing Date;



- (b) Approving the **Power Grid Corporation of India Limited and its nominees** as a member of the Company and entering the name of the **Power Grid Corporation of India Limited and its nominees** in the register of members.
- (c) Changing the address of the registered office of the Company to the new address, outside the jurisdiction of the Registrar of Delhi - 11, as may be provided by the Selected Bidder.
- (d) appointing the nominees of the Selected Bidder on the Board and accepting the resignations of the other existing Directors on the Board and the Chair of the meeting which was taken by one of the existing Directors shall be vacated and appointment of a new Chairman who shall be one of the newly appointed Director, for the rest of the meeting.

Pursuant to the acceptance of resignation of the existing Directors and appointment of new Chairman, the newly constituted Board of Directors shall hold a meeting and pass the following resolution:

- (a) terminating all the authorizations granted regarding the business and/or operations of the Company or the operations of the bank accounts of the Company, with prospective effect; and
 - (b) Acknowledging and accepting the terms and conditions as contained in the executed copies of the RFP Project Documents and to abide by the provisions contained therein.
- (ii) Enter the name of the **Power Grid Corporation of India Limited and its nominees** as the legal and beneficial owner of the Sale Shares, free of all Encumbrances, in the register of members of the Company;
 - (iii) Make the necessary endorsements on the Sale Share Certificates, indicating the name of the **Power Grid Corporation of India Limited and its nominees** as the legal and beneficial owner of the Sale Shares evidenced there under;
 - (iv) Return the original Sale Share Certificates, duly endorsed in the name of the **Power Grid Corporation of India Limited and its nominees**, to the **Power Grid Corporation of India Limited and its nominees**, as the case may be or its authorized representative;
 - (v) Handover all the statutory registers and records, if any, of the Company to the Selected Bidder.
 - (vi) Handover certified true copies of the Board resolution passed by the Company as per (i)(a) to (d) of Clause 3.3 (i) to Central Transmission Utility of India Limited.

3.4 The Parties to this Agreement agree to take all measures that may be required to ensure that all the events contemplated in the **Clauses 3.1 to 3.3** above on the Closing Date are completed on the same day.

Notwithstanding the provisions of **Clause 3.3** hereto, all proceedings to be taken and all documents to be executed and delivered by the Parties at the Closing Date shall be deemed



to have been taken and executed simultaneously and no proceedings shall be deemed to have been taken nor documents executed or delivered until all have been taken, executed and delivered.

- 3.5 The Selected Bidder hereby acknowledges and agrees that after the date of acquisition of one hundred percent (100%) of the equity shareholding of the Company, by the Selected Bidder as per Clause 3.3, (a) the authority, rights and obligations of the PFCCL/Company in respect of the Bid Process shall forthwith cease and any actions to be taken thereafter regarding the Bid Process will be undertaken by Central Transmission Utility of India Limited themselves or through their any other authorized representative(s), (b) all rights and obligations of the PFCCL/Company shall be of the Selected Bidder and (c) any decisions taken by the PFCCL/Company prior to the date of its acquisition by the Selected Bidder shall continue to be binding on the Selected Bidder. The Parties hereby agree that this provision shall survive the termination of this Agreement.
- 3.6 This agreement shall be effective from the date of its signing by the Parties and shall remain in force until all the obligations of the respective Parties under Clause 3.3 hereto are fulfilled.

4. REPRESENTATIONS AND WARRANTIES

- 4.1 The Selected Bidder hereby represents and warrants to the Shares Seller that:
- 4.1.1 The Selected Bidder has full legal right, power and authority to enter into, execute and deliver this Agreement and to perform the obligations, undertakings and transactions set forth herein, and this Agreement has been duly and validly executed and delivered by the Selected Bidder and constitutes its legal, valid and binding obligations, enforceable against it in accordance with its terms;
- 4.1.2 The execution, delivery and performance of this Agreement by the Selected Bidder (i) will not violate or contravene any provision of the Memorandum of Association or Articles of the Selected Bidder, (ii) will not violate or contravene any law, statute, rule, regulation, licensing requirement, order, writ, injunction or decree of any court, governmental instrumentality or other regulatory, governmental or public body, agency or authority by which the Selected Bidder are bound or by which any of its and/or their properties or assets are bound, and (iii) except to the extent that the same have been duly and properly completed or obtained, will not require any filing with, or permit, consent or approval of or license from, or the giving of any notice to, any court, governmental instrumentality or other regulatory, governmental or public body, agency or authority, joint venture party, or any other entity or person whatsoever; and
- 4.1.3 The Selected Bidder is not restricted in any manner whatsoever, including without limitation, on account of any judicial or governmental order, action or proceeding, or any contractual obligation assumed by the Selected Bidder, from purchasing the Sale Shares from the Shares Seller in the manner provided for in this Agreement.
- 4.2 The Shares Seller hereby represents and warrants to the Selected Bidder that:
- 4.2.1 The Shares Seller and the Nominees are the legal and beneficial owners of the Sale Shares, free and clear of any Encumbrance and the delivery to the Selected Bidder of the Sale



Shares pursuant to the provisions of this Agreement will transfer to the Selected Bidder a good title to the Sale Shares.

- 4.2.2 The Shares Seller has full legal right, power and authority to enter into, execute and deliver this Agreement and to perform the obligations, undertakings and transactions set forth herein. The execution, delivery and performance of this Agreement will not violate the Memorandum and Articles of Association of the Shares Seller or contravene any contract by which it is bound.
- 4.2.3 The Shares Seller has obtained requisite authorizations to sell and transfer the Sale Shares to the Selected Bidder. The Shares Seller also represent that it is not prevented from transferring and selling the Sale Shares. Also, to the best of its knowledge, the Sale Shares are not the subject matter of any claim or pending proceeding or threatened by any legal proceeding made by any third party.
- 4.3 Except as specified in Clause 4.2, above the Shares Seller shall not be deemed to have, made any representation or warranty whatsoever, whether express or implied, in relation to the Sale Shares or Company, including but not limited to any implied warranty or representation as to the business or affairs of the Company.
- 4.4 The Representations and Warranties are given as at the date of this Agreement except that where a Representation and Warranty is expressed to be made as at another date, the Representation and Warranty is given with respect to that date only.
- 4.5 Each Representation and Warranty is to be construed independently of the others and is not limited by reference to any other Warranty. The Representations, Warranties and undertakings contained in this **Clause 4** hereto or in any document delivered pursuant to or in connection with this Agreement are continuing in nature and shall survive the Closing Date for one (1) year.
- 4.6 The Parties represent to each other that all Representations and Warranties provided herein by the respective Party shall be true as of Closing Date.

5. OBLIGATIONS OF THE SELECTED BIDDER

The Selected Bidder agrees that the Shares Seller shall not be liable in any manner, nor shall it assume any responsibility or liability whatsoever, in respect of the business of the Company and its operations or activities, arising after Closing Date, to any Person or any authority, central, state, local or municipal or otherwise and the same shall be the sole responsibility of the Selected Bidder.

6. MISCELLANEOUS

6.1 NOTICES

- a) All notices to be given under this Agreement shall be in writing and in the English language.
- b) All notices must be delivered personally or by registered or speed post or by recognised courier to the addresses below:



Selected Bidder (Lead Member in case of Consortium)	Company Secretary Power Grid Corporation of India Limited B – 9, Qutab Institutional Area, Katwaria Sarai, New Delhi – 110 016, India
Name of the Holding Company of the SPV	Company Secretary PFC Consulting Limited First Floor, Urjanidhi, 1, Barakhamba Lane, Connaught Place, Central Delhi, New Delhi – 110 001
Company (Before Closing Date)	Project in-charge Krishnagiri REZ Transmission Limited First Floor, Urjanidhi, 1, Barakhamba Lane, Connaught Place, New Delhi, Central Delhi- 110001
Company (After Closing Date)	Krishnagiri REZ Transmission Limited B – 9, Qutab Institutional Area, Katwaria Sarai, New Delhi – 110 016, India

- c) Any Party may by notice of at least fifteen (15) days to the other Parties change the address and / or addresses to which such notices and communications to it are to be delivered or mailed.

6.2 RESOLUTION OF DISPUTES

- 6.2.1 If any dispute arises between the Parties, in connection with the validity, interpretation, implementation or alleged breach of any provision of this Agreement ("Dispute"), the disputing Parties hereto shall endeavor to settle such Dispute amicably. The attempt to bring about an amicable settlement shall be considered to have failed if not resolved within 60 days from the date of the Dispute.
- 6.2.2 If the Parties are unable to amicably settle the Dispute in accordance with Clause 6.2.1 within the period specified therein, any of the Parties shall be entitled to within 30 days after expiry of the aforesaid period, refer the Dispute to the Company Secretary of PFCCCL and Chief Executive/ Managing Director of the Selected Bidder for resolution of the said Dispute. The attempt to bring about such resolution shall be considered to have failed if not resolved within 30 days from the date of receipt of a written notification in this regard.
- 6.2.3 In the event the Dispute is not settled in accordance with Clause 6.2.2 above, any Party to the Dispute shall be entitled to serve a notice invoking this Clause and making a reference to a sole arbitrator. If the Parties to the Dispute cannot agree as to the appointment of the sole arbitrator within 30 days of receipt of the notice of the Party making the reference, then the Shares Seller along with the Company shall appoint one arbitrator and the Selected Bidder shall appoint one arbitrator and the two arbitrators, so appointed shall appoint a third arbitrator. However, after the Closing Date, in such an event the Shares Seller shall



appoint one arbitrator and the Selected Bidder along with the Company shall appoint one arbitrator and the two arbitrators, so appointed shall appoint the third arbitrator.

- 6.2.4 The place of the arbitration shall be New Delhi. The Arbitration proceedings shall be governed by the Arbitration and Conciliation Act, 1996.
- 6.2.5 The proceedings of arbitration shall be in English language.
- 6.2.6 The arbitrator's award shall be substantiated in writing. The arbitrators shall also decide on the costs of the arbitration proceedings. In case the arbitrators have not decided on the costs of the arbitration proceedings, each Party to the Dispute shall bear its own costs, in relation to the arbitration proceedings.

6.3 AUTHORISED PERSON

For the purposes of this Agreement, the Selected Bidder is represented by Sh. Arup Samanta, General Manager, Company Secretariat, POWERGRID, pursuant to an authorization granted to Sh. Arup Samanta, General Manager, Company Secretariat, POWERGRID, through necessary Board resolutions. Further, Sh. Arup Samanta, General Manager, Company Secretariat, POWERGRID, is also authorized by such resolutions to take any decision which may be required to be taken, do all acts and execute all documents which are or may be required by the Selected Bidder for the proper and effective fulfillment of the rights and obligations under this Agreement. Any action taken or document executed by Sh. Arup Samanta, General Manager, Company Secretariat, POWERGRID, shall be deemed to be acts done or documents executed by the Selected Bidder and shall be binding on the Selected Bidder.

6.4 RESERVATION OF RIGHTS

No forbearance, indulgence or relaxation or inaction by any Party at any time to require performance of any of the provisions of this Agreement shall in any way affect, diminish or prejudice the right of such Party to require performance of that provision, and any waiver or acquiescence by any Party of any breach of any of the provisions of this Agreement shall not be construed as a waiver or acquiescence of any continuing or succeeding breach of such provisions, a waiver of any right under or arising out of this Agreement or acquiescence to or recognition of rights other than that expressly stipulated in this Agreement.

6.5 CUMULATIVE RIGHTS

All remedies of either Party under this Agreement whether provided herein or conferred by statute, civil law, common law, custom or trade usage, are cumulative and not alternative and may be enforced successively or concurrently.

6.6 PARTIAL INVALIDITY

If any provision of this Agreement or the application thereof to any person or circumstance shall be invalid or unenforceable to any extent, the remainder of this Agreement and the application of such provision to persons or circumstances other than those as to which it is



held invalid or unenforceable shall not be affected thereby, and each provision of this Agreement shall be valid and enforceable to the fullest extent permitted by law. Any invalid or unenforceable provision of this Agreement shall be replaced with a provision, which is valid and enforceable and most nearly reflects the original intent of the unenforceable provision.

6.7 TERMINATION

If (i) the Closing does not occur on the Closing Date for any reason whatsoever, or (ii) the Letter of Intent is withdrawn or terminated for any reason, or (iii) due to termination of the TSA by Central Transmission Utility of India Limited in accordance with Article 3.3.2 or Article 13 of the TSA thereof, PFCCCL shall have a right to terminate this Agreement forthwith by giving a written notice to the other Parties hereto.

6.8 AMENDMENTS

No modification or amendment of this Agreement and no waiver of any of the terms or conditions hereof shall be valid or binding unless made in writing and duly executed by all the Parties.

6.9 ASSIGNMENT

This Agreement and the rights and liabilities hereunder shall bind and inure to the benefit of the respective successors of the Parties hereto, but no Party hereto shall assign or transfer its rights and liabilities hereunder to any other Person without the prior written consent of the other Parties, which will not be unreasonably withheld.

6.10 ENTIRE AGREEMENT

This Agreement constitutes the entire Agreement between the Parties with respect to the subject matter herein and supersedes and cancels any prior oral or written agreement, representation, understanding, arrangement, communication or expression of intent relating to the subject matter of this Agreement.

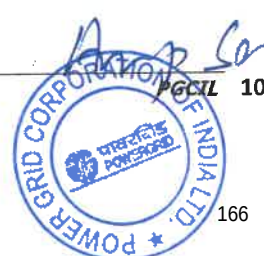
6.11 COSTS

Each of the Parties hereto shall pay their own costs and expenses relating to the negotiation, preparation and execution of this Agreement and the transactions contemplated by this Agreement.

The Selected Bidder shall be liable to bear and pay the stamp duty and other costs in respect of this Agreement and the Share Transfer Forms.

6.12 RELATIONSHIP

None of the provisions of this Agreement shall be deemed to constitute a partnership between the Parties hereto and no Party shall have any authority to bind the other Party



otherwise than under this Agreement or shall be deemed to be the agent of the other in any way.

6.13 GOVERNING LAW AND JURISDICTION

This Agreement shall be governed by and construed in accordance with the laws of India and shall be subject to the exclusive jurisdiction of the courts of Delhi.

6.14 COUNTERPARTS

This Agreement may be executed in counterparts by the Parties and each fully executed counterpart shall be deemed to be original.

6.15 CONFIDENTIALITY

The Parties undertake to hold in confidence and not to disclose the terms and conditions of the transaction contemplated hereby to third parties, except:

- (a) to their professional advisors;
- (b) to their officers, employees, agents or representatives, who need to have access to such information for the proper performance of their activities;
- (c) disclosures required under Law;

Without the prior written consent of the other Parties.

Provided that Central Transmission Utility of India Limited and PFCCCL may at any time, disclose the terms and conditions of transactions contemplated hereby to any person, to the extent stipulated under the law or the Bidding Guidelines.

6.16 INDEMNIFICATION

- The Parties hereby agree that transfer of Sale Shares to the Selected Bidder shall vest all the rights, privileges, licenses, responsibilities, liabilities and other obligations pertaining to the Company in the Selected Bidder.
- The Selected Bidder hereby agrees that the Selected Bidder shall not be entitled to any claims or initiate any legal proceedings, by itself or through the Transmission Service Provider against the Share Sellers, its directors, officers, employees and the subscribers including the members of any committees appointed by them in respect of any actions or decisions taken by any of them up to the Closing Date in furtherance of the Project referred to in recital A of this Agreement.
- Further, the Selected Bidder hereby indemnifies and holds harmless at all times the Share Seller against all losses, damages, charges, and expenses which the Share Seller may sustain or incur towards contractual obligations with respect to the contracts awarded by the Share Seller or any other liability arising with regard to any action/



activity undertaken by the Share Seller for and on behalf of the Company in furtherance of the Project referred to above or otherwise concerning the Company. All such actions shall be defended by the Selected Bidder either itself or through the TSP at its own cost.

- The Parties hereby agree that the provisions of this clause shall survive the termination of this Agreement.

IN WITNESS WHEREOF, THE PARTIES HERETO HAVE CAUSED THIS AGREEMENT TO BE DULY EXECUTED AND DELIVERED AS OF THE DAY AND YEAR FIRST ABOVE WRITTEN


SIGNED AND DELIVERED

BY THE WITHIN NAMED "PFC CONSULTING LIMITED (PFCCL)"

BY THE HAND OF SHRI SACHIN ARORA, COMPANY SECRETARY

PURSUANT TO THE RESOLUTION PASSED BY THE BOARD OF DIRECTORS ON 15TH JULY, 2026

ON THE 03RD DAY OF AUGUST, 2026

IN THE PRESENCE OF:


WITNESS:

NAME, SIGNATURE, DESIGNATION AND ADDRESS:

Suman Kumar
E1, Amar Colony, Lejpat Nagar-4 N.D-24


SIGNED AND DELIVERED

BY THE WITHIN NAMED "KRISHNAGIRI REZ TRANSMISSION LIMITED"

BY THE HAND OF SHRI RAKESH MOHAN, CHAIRMAN

PURSUANT TO THE
RESOLUTION PASSED BY THE BOARD OF DIRECTORS ON 10TH JULY, 2026

ON THE 03RD DAY OF AUGUST, 2026

IN THE PRESENCE OF: 

WITNESS: 

NAME, SIGNATURE, DESIGNATION AND ADDRESS:



SIGNED AND DELIVERED

BY THE WITHIN NAMED "POWER GRID CORPORATION OF INDIA LIMITED"

BY THE HAND OF SHRI ARUP SAMANTA, GENERAL MANAGER, COMPANY SECRETARIAT, POWERGRID

PURSUANT TO THE
RESOLUTION PASSED BY THE BOARD OF DIRECTORS ON 07th APRIL 2026

ON THE 03RD DAY OF AUGUST, 2026

IN THE PRESENCE OF:

WITNESS:

NAME, SIGNATURE, DESIGNATION AND ADDRESS:

Rohit Jain
ROHIT JAIN
Ch. Mgr.
POWERGRID



ANNEXURE A**DESCRIPTION OF THE SALE SHARES**

S. NO.	NAME OF THE SHAREHOLDER	NUMBER OF EQUITY SHARES HELD	PERCENTAGE OF THE TOTAL PAID UP EQUITY CAPITAL
1.	PFC Consulting Limited	9400	94%
2.	Shri Rakesh Mohan *	100	1%
3.	Shri Neeraj Singh *	100	1%
4.	Shri Sanjay Kumar Nayak *	100	1%
5.	Shri Sachin Shukla *	100	1%
6.	Shri Navcen Kumar *	100	1%
7.	Shri Anubhav Kansal *	100	1%
	Total		100%

*Nominee of PFC Consulting Limited



TRANSMISSION SERVICE AGREEMENT

FOR

**DEVELOPMENT AND OPERATION OF INTER-STATE
TRANSMISSION SYSTEM**

**FOR TRANSMISSION OF ELECTRICITY THROUGH TARIFF
BASED COMPETITIVE BIDDING FOR**

**TRANSMISSION SYSTEM FOR INTEGRATION OF
KRISHNAGIRI REZ PHASE-I**

BETWEEN

**CENTRAL TRANSMISSION UTILITY OF INDIA LIMITED
(NODAL AGENCY)**

AND

KRISHNAGIRI REZ TRANSMISSION LIMITED

3rd AUGUST 2026



Handwritten signature



Transmission Service Agreement

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Central Transmission Utility of India Limited

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Krishnagiri REZ Transmission Limited





Certificate No. G0A2026G1608

GRN No. 154527219

Stamp Duty Paid : ₹ 101
(Rs. Only)Penalty : ₹ 0
(Rs. Zero Only)**Deponent**

Name: Central Transmission utility of India Ltd

H.No/Floor : 2

Sector/Ward : 29

Landmark : Na

City/Village : Gurugram

District : Gurugram

State : Haryana

Phone : 98*****10



Purpose : ARTICLE 5 GENERAL AGREEMENT to be submitted at Concerned office

THIS TRANSMISISON SERVICE AGREEMENT (hereinafter referred to as "TSA" or "Agreement" or "the Agreement" or "this Agreement") is made on the [Insert day] of..... [Insert month] of Two Thousand and..... [Insert Year]

BETWEEN:

The **CENTRAL TRANSMISSION UTILITY OF INDIA LIMITED**, a company incorporated under the Companies Act, 2013, having its registered office at **Plot No.2, Sector 29, Gurugram, Haryana 122001, India** & Correspondence address at **Floor No. 5-10, Tower 1, Plot No. 16, IRCON International Tower, Institutional Area, Sector 32, Gurugram, Haryana – 122001, India**, acting as a Nodal Agency (referred to as the "Nodal Agency"), which expression shall unless repugnant to the context or meaning thereof include its successors, and permitted assigns) as Party of the one part;

AND

KRISHNAGIRI REZ TRANSMISSION LIMITED incorporated under the Companies Act, 1956/ Companies Act, 2013 (as the case may be), having its registered office at **1st Floor, Urjanidhi, 1, Barakhamba Lane, Connaught Place, New Delhi-110001** (herein after referred to as "Transmission Service Provider" or "TSP" or "ISTS Licensee", which expression shall unless repugnant to the context or meaning thereof include its successors, and permitted assigns) as Party of the other part;

("Nodal Agency" and "TSP" are individually referred to as "Party" and collectively as the "Parties")



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Central Transmission Utility of India Limited

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Krishnagiri REZ Transmission Limited

Transmission Service Agreement

AND WHEREAS:

- A) In accordance with the Bidding Guidelines, the Bid Process Coordinator (hereinafter referred to as BPC) had initiated a competitive e-reverse bidding process through issue of RFP for selecting a Successful Bidder to build, own, operate and transfer the Project comprising of the Elements mentioned in Schedule 1 (hereinafter referred to as the Project)
- B) Pursuant to the said e-reverse bidding process, the BPC has identified the Successful Bidder, who will be responsible to set up the Project on build, own, operate and transfer basis to provide Transmission Service in accordance with the terms of this Agreement and the Transmission License.
- C) The Selected Bidder have submitted the Contract Performance Guarantee and acquired one hundred percent (100%) of the equity shareholding of **KRISHNAGIRI REZ TRANSMISSION LIMITED**, along with all its related assets and liabilities in terms of the provisions of the Share Purchase Agreement.
- D) The TSP has agreed to make an application for a Transmission License to the Commission for setting up the Project on build, own, operate and transfer basis.
- E) The TSP has further agreed to make an application to the Commission for the adoption of the Transmission Charges under Section 63 of the Electricity Act, 2003, along with a certification from the Bid Evaluation Committee in accordance with the Bidding Guidelines issued by Ministry of Power, Government of India.
- F) The TSP has agreed to execute the agreement(s) required, if any, under Sharing Regulations within fifteen (15) days from the date of grant of Transmission License from the Commission.
- G) The TSP agrees to the terms and conditions laid down under Sharing Regulations, for making available the ISTS and charge the Transmission Charges in accordance with the terms and conditions of Sharing Regulations.
- H) The billing, collection and disbursement of the Transmission Charges by the CTU to the ISTS Licensee shall be governed as per Sharing Regulations.
- I) The terms and conditions stipulated in the Transmission License issued by the Commission to the TSP shall be applicable to this Agreement and the TSP agrees to comply with these terms and conditions. In case of inconsistency between the Transmission License terms & conditions and the conditions of this Agreement, the conditions stipulated in the Transmission License granted by the Commission shall prevail.

NOW, THEREFORE, IN CONSIDERATION OF THE PREMISES AND MUTUAL AGREEMENTS, COVENANTS AND CONDITIONS SET FORTH HEREIN, IT IS HEREBY AGREED BY AND BETWEEN THE PARTIES HERETO AS FOLLOWS:



Central Transmission Utility of India Limited

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Krishnagiri REZ Transmission Limited



ARTICLE: 1

1. DEFINITIONS AND INTERPRETATIONS

1.1 Definitions:

- 1.1.1 The words / expressions used in this Agreement, unless as defined below or repugnant to the context, shall have the same meaning as assigned to them by the Electricity Act, 2003 and the rules or regulations framed there under including those issued / framed by the Commission (as defined hereunder), as amended or re-enacted from time to time or the General Clauses Act, failing which it shall bear its ordinary English meaning.

The words/expressions when used in this Agreement shall have the respective meanings as specified below:

"Acquisition Price" shall have the same meaning as defined in the Share Purchase Agreement;

"Act" or **"Electricity Act"** or **"Electricity Act 2003"** shall mean the Electricity Act, 2003 and any amendments made to the same or any succeeding enactment thereof;

"Affiliate" shall mean a company that either directly or indirectly

- i. controls or
- ii. is controlled by or
- iii. is under common control with

a Bidding Company (in the case of a single company) or a Member (in the case of a Consortium) and **"control"** means ownership by one entity of at least twenty six percent (26%) of the voting rights of the other entity;

"Availability" in relation to the Project or in relation to any Element of the Project, for a given period shall mean the time in hours during that period the Project is capable to transmit electricity at its Rated Voltage and shall be expressed in percentage of total hours in the given period and shall be calculated as per the procedure contained in **Appendix –IV to Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2024**, attached herewith in Schedule 6;

"Bid" shall mean technical bid and financial bid submitted by the Bidder, in response to the RFP, in accordance with the terms and conditions of the RFP;



Transmission Service Agreement

"Bid Deadline" shall mean the last date and time for submission of the Bid in response to RFP, as specified in the RFP;

"Bidding Company" shall refer to such single company that has made a Response to RFP for the Project;

"Bidding Consortium / Consortium" shall refer to a group of companies that has collectively made a Response to RFP for the Project;

"Bid Documents" or "Bidding Documents" shall mean the RFP, along with all attachments thereto or clarifications thereof;

"Bidding Guidelines" shall mean the "Tariff Based Competitive Bidding Guidelines for Transmission Service" and "Guidelines for Encouraging Competition in Development of Transmission Projects" issued by Government of India, Ministry of Power under Section – 63 of the Electricity Act as amended from time to time;

"Bid Process Coordinator" or "BPC" shall mean a person or its authorized representative as notified by the Government of India, responsible for carrying out the process for selection of Bidder who will acquire Transmission Service Provider;

"Bill" shall mean any bill raised by the CTU on the DICs to recover the Transmission Charges pursuant to the Sharing Regulations;

"Business Day" shall mean a day other than Sunday or a statutory holiday, on which the banks remain open for business in the State in which the Nodal Agency's registered office is located and the concerned TSP are located;

"CEA" shall mean the Central Electricity Authority constituted under Section -70 of the Electricity Act;

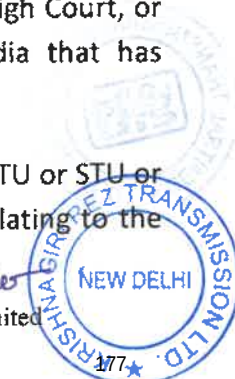
"Change in law" shall have the meaning ascribed thereto in Article 12;

"Commercial Operation Date" or "COD" shall mean the date as per Article 6.2;

"Commission" or "CERC" shall mean the Central Electricity Regulatory Commission referred to in sub-section (1) of Section 76 of the Electricity Act, 2003 or its successors and assigns;

"Competent Court of Law" shall mean the Supreme Court or any High Court, or any tribunal or any similar judicial or quasi-judicial body in India that has jurisdiction to adjudicate upon issues relating to the Project;

"Connection Agreement" shall mean the agreement between the CTU or STU or any other concerned parties and the TSP, setting out the terms relating to the



Transmission Service Agreement

connection of the Project to the Inter-connection Facilities and use of the Inter State Transmission System as per the provisions of the IEGC, as the case may be;

"Consultation Period" shall mean the period of sixty (60) days or such longer period as the Parties may agree, commencing from the date of issue of a TSP's Preliminary Notice or a Nodal Agency's Preliminary Termination Notice, as provided in Article 13 of this Agreement, for consultation between the Parties to mitigate the consequence of the relevant event having regard to all the circumstances;

"Consents, Clearances and Permits" shall mean all authorizations, licenses, approvals, registrations, permits, waivers, privileges, acknowledgements, agreements, or concessions required to be obtained from or provided by any concerned authority for the development, execution and operation of Project including without any limitation for the construction, ownership, operation and maintenance of the Transmission Lines and/or sub-stations;

"Construction Period" shall mean the period from (and including) the Effective Date of the Transmission Service Agreement up to (but not including) the COD of the Element of the Project in relation to an Element and up to (but not including) the COD of the Project in relation to the Project;

"Contractors" shall mean the engineering, procurement, construction, operation & maintenance contractors, surveyors, advisors, consultants, designers, suppliers to the TSP and each of their respective sub-contractors (and each of their respective successors and permitted assigns) in their respective capacities as such;

"Contract Performance Guarantee" shall mean the irrevocable unconditional bank guarantee, or insurance surety bond or Payment on Order Instrument submitted and to be submitted by the TSP or by the Selected Bidder on behalf of the TSP to the Nodal Agency from a bank mentioned in Annexure 17 of the RFP, in the form attached here to as Schedule 8 (for bank guarantee) or Schedule-8A (for insurance surety bond issued by any of the insurance companies authorized by Insurance Regulatory and Development Authority of India), or Schedule-8B (for Payment on Order Instrument issued by PFC/REC/IREDA) in accordance with Article 3 of this Agreement and which shall include the additional bank guarantee or insurance surety bond or Payment on Order Instrument furnished by the TSP under this Agreement;

"Contract Year", for the purpose of payment of Transmission Charges, shall mean the period beginning on the COD, and ending on the immediately succeeding March 31 and thereafter each period of 12 months beginning on April 1 and



Transmission Service Agreement

ending on March 31 provided that the last Contract Year shall end on the last day of the term of the TSA;

"CTU" or **"Central Transmission Utility"** shall have same meaning as defined in the Electricity Act, 2003;

"Day" shall mean a day starting at 0000 hours and ending at 2400 hours;

"D/C" shall mean Double Circuit;

"Designated ISTS Customers" or **"DICs"** shall have the meaning as described in the Sharing Regulations;

"Dispute" shall mean any dispute or difference of any kind between the Parties, in connection with or arising out of this Agreement including any issue on the interpretation and scope of the terms of this Agreement as provided in Article 16;

"Effective Date" for the purposes of this Agreement, shall have the same meaning as per Article 2.1 of this Agreement;

"Electrical Inspector" shall mean a person appointed as such by the Government under sub-section (1) of Section 162 of the Electricity Act 2003 and also includes Chief Electrical Inspector;

"Electricity Rules 2005" shall mean the rules framed pursuant to the Electricity Act 2003 and as amended from time to time;

"Element" shall mean each Transmission Line or each circuit of the Transmission Lines (where there are more than one circuit) or each bay of Sub-station or switching station or HVDC terminal or inverter station of the Project, including ICTs, Reactors, SVC, FSC, etc. forming part of the ISTS, which will be owned, operated and maintained by the concerned ISTS Licensee, and which has a separate Scheduled COD as per Schedule 2 of this Agreement and has a separate percentage for recovery of Transmission Charges on achieving COD as per Schedule 5 of this Agreement;

"Event of Default" shall mean the events as defined in Article 13 of this Agreement;

"Expiry Date" shall be the date which is thirty five (35) years from the COD of the Project;

"Financial Closure" shall mean the first Business Day on which funds are made available to the TSP pursuant to the Financing Agreements;



Central Transmission Utility of India Limited

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Krishnagiri REZ Transmission Limited



Transmission Service Agreement

"Financially Evaluated Entity" shall mean the company which has been evaluated for the satisfaction of the financial requirement set forth in the RFP;

"Financing Agreements" shall mean the agreements pursuant to which the TSP is to finance the Project including the loan agreements, security documents, notes, indentures, security agreements, letters of credit and other documents, as may be amended, modified, or replaced from time to time, but without in anyway increasing the liabilities of the Designated ISTS Customers / Nodal Agency;

"Financial Year" shall mean a period of twelve months at midnight Indian Standard Time (IST) between 1st April & 31st March;

"Force Majeure" and **"Force Majeure Event"** shall have the meaning assigned thereto in Article 11;

"GOI" shall mean Government of India;

"Grid Code" / "IEGC" shall mean the Grid Code specified by the Central Commission under Clause (h) of sub-section (1) of Section 79 of the Electricity Act;

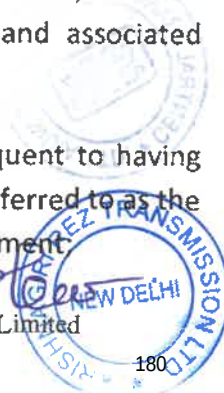
"Independent Engineer" shall mean an agency/ company, appointed by Nodal Agency in accordance with the Guidelines for Encouraging Competition in Development of Transmission Projects.

"Indian Governmental Instrumentality" shall mean Government of India, Government of any State in India or any ministry, department, board, authority, agency, corporation, commission under the direct or indirect control of Government of India or any State Government or both, any political sub-division of any of them including any court or Commission or tribunal or judicial or quasi-judicial body in India but excluding the CTU, TSP and the Designated ISTS Customers;

"Insurances" shall mean the insurance cover to be obtained and maintained by the TSP in accordance with Article 9 of this Agreement;

"Interconnection Facilities" shall mean the facilities as may be set up for transmission of electricity through the use of the Project, on either one or both side of generating station's / CTU's / STU's / ISTS Licensee's / Designated ISTS Customer's substations (as the case may be) which shall include, without limitation, all other transmission lines, gantries, sub-stations and associated equipment's not forming part of the Project;

"ISTS Licensee" shall be the TSP under this Agreement, consequent to having been awarded a Transmission License by the CERC and shall be referred to as the TSP or the ISTS Licensee, as the context may require in this Agreement.



Transmission Service Agreement

"Law" or "Laws" in relation to this Agreement, shall mean all laws including electricity laws in force in India and any statute, ordinance, rule, regulation, notification, order or code, or any interpretation of any of them by an Indian Governmental Instrumentality having force of law and shall include all rules, regulations, decisions and orders of the Commission;

"Lead Member of the Bidding Consortium" or "Lead Member" shall mean a company who commits at least 26% equity stake in the Project, meets the technical requirement as specified in the RFP and so designated by other Member(s) in Bidding Consortium;

"Lenders" means the banks, financial institutions, multilateral funding agencies, non-banking financial companies registered with the Reserve Bank of India (RBI), insurance companies registered with the Insurance Regulatory & Development Authority (IRDA), pension funds regulated by the Pension Fund Regulatory & Development Authority (PFRDA), mutual funds registered with Securities & Exchange Board of India (SEBI), etc., including their successors and assigns, who have agreed on or before COD of the Project to provide the TSP with the debt financing described in the capital structure schedule, and any successor banks or financial institutions to whom their interests under the Financing Agreements may be transferred or assigned;

Provided that, such assignment or transfer shall not relieve the TSP of its obligations to the Nodal Agency under this Agreement in any manner and shall also does not lead to an increase in the liability of the Nodal Agency;

"Lenders Representative" shall mean the person notified by the Lender(s) in writing as being the representative of the Lender(s) or the Security Trustee and such person may from time to time be replaced by the Lender(s) pursuant to the Financing Agreements by written notice to the TSP;

"Letter of Intent" or "LOI" shall have the same meaning as in the RFP;

"Member in a Bidding Consortium / Member" shall mean each company in the Bidding Consortium;

"Month" shall mean a period of thirty (30) days from (and excluding) the date of the event;

"Monthly Transmission Charges" for any Element of the Project, after COD of the Element till COD of the Project, and for the Project after COD of the Project, shall mean the amount of Transmission Charges as specified in Schedule 5 of this Agreement multiplied by no. of days in the relevant month and divided by no. of days in the year;



Transmission Service Agreement

"National Load Despatch Centre" shall mean the centre established as per sub-section (1) of Section 26 of the Electricity Act 2003;

"Nodal Agency" shall mean CTU, which shall execute and implement the Transmission Service Agreement (TSA);

Provided that while taking major decisions, CTU shall consult CEA on technical matters and any other matter it feels necessary.

"Notification" shall mean any notification, issued in the Gazette of India;

"Operating Period" for any Element of the Project shall mean the period from (and including) the COD of such Element of the Project, up to (and including) the Expiry Date and for the Project, shall mean the period from (and including) the COD of the Project, up to (and including) the Expiry Date;

"Parent Company" shall mean an entity that holds at least twenty six percent (26%) of the paid - up equity capital directly or indirectly in the Bidding Company or in the Member in a Bidding Consortium, as the case may be;

"Payment on Order Instrument" shall mean Letter of Undertaking from Indian Renewable Energy Development Agency Limited (IREDA) or Power Finance Corporation Limited (PFC) or REC Limited (REC) [the three non-banking financial institutions under Ministry of New & Renewable Energy (MNRE)/ Ministry of Power (MoP), to pay in case situation of default of Transmission Service Provider (TSP) in terms of tender conditions/Power Purchase Agreement (PPA) arises. Such Letter (s) will have same effect as that of a Bank Guarantee issued by any public any public sector bank. Such "Payment on Order instrument" would have terms and conditions similar to that of any Bank Guarantee given by any public sector bank and would promise to pay the Nodal Agency on demand within stipulated time. TSPs can seek such Letter(s) by offering due security to the above mentioned three non-banking financial institutions mentioned above (IREDA, PFC & REC). Nodal Agency shall not accept the instrument of 'Letter of Undertaking' as described above or in any other form, from any other non-banking financial institutions or bank, except IREDA, PFC & REC.

"Preliminary Termination Notice" shall mean a Nodal Agency's Preliminary Termination Notice as defined in Article 13 of this Agreement;

"Project" shall mean **"Transmission System for integration of Krishnagiri REZ Phase-I"**, as detailed in Schedule 1 of this Agreement;

"Project Assets" shall mean all physical and other assets relating to and forming part of the Project including:



Transmission Service Agreement

- (a) rights over the Site for substations, ROW for transmission lines;
- (b) tangible & intangible assets such as civil works and equipment including foundations, embankments, pavements, electrical systems, communication systems, relief centres, administrative offices, Sub-stations, software, tower and sub-stations designs etc;
- (c) project facilities situated on the Site;
- (d) all rights of the TSP under the project agreements;
- (e) financial assets, such as receivables, security deposits etc;
- (f) insurance proceeds; and
- (g) Applicable Permits and authorisations relating to or in respect of the Transmission System;"

"Project Execution Plan" shall mean the plan referred to in Article 3.1.3(c) hereof;

"Prudent Utility Practices" shall mean the practices, methods and standards that are generally accepted internationally from time to time by electric transmission utilities for the purpose of ensuring the safe, efficient and economic design, construction, commissioning, operation, repair and maintenance of the Project and which practices, methods and standards shall be adjusted as necessary, to take account of:

- (i) operation, repair and maintenance guidelines given by the manufacturers to be incorporated in the Project,
- (ii) the requirements of Law, and
- (iii) the physical conditions at the Site;
- (iv) the safety of operating personnel and human beings;

"Rated Voltage" shall mean voltage at which the Transmission System is designed to operate or such lower voltage at which the line is charged, for the time being, in consultation with the Central Transmission Utility;

"Rebate" shall have the meaning as ascribed to in Article 10.3 of this Agreement;

"RFP" shall mean Request For Proposal dated **January 12, 2026** along with all schedules, annexures and RFP Project Documents attached thereto, issued by the BPC for tariff based competitive bidding process for selection of Bidder as TSP to



Transmission Service Agreement

execute the Project, including any modifications, amendments or alterations thereto;

"RFP Project Documents" shall mean the following documents to be entered into in respect of the Project, by the Parties to the respective agreements:

- a. Transmission Service Agreement,
- b. Share Purchase Agreement,
- c. Agreement(s) required under Sharing Regulations and
- d. Any other agreement as may be required;

"RLDC" shall mean the relevant Regional Load Dispatch Centre as defined in the Electricity Act, 2003, in the region(s) in which the Project is located;

"RPC" shall mean the relevant Regional Power Committee established by the Government of India for the specific Region(s) in accordance with the Electricity Act, 2003 for facilitating integrated operation of the Power System in that Region;

"Scheduled COD" in relation to an Element(s) shall mean the date(s) as mentioned in Schedule 2 as against such Element(s) and in relation to the Project, shall mean the date as mentioned in Schedule 2 as against such Project, subject to the provisions of Article 4.4 of this Agreement, or such date as may be mutually agreed among the Parties;

"Scheduled Outage" shall mean the final outage plan as approved by the RPC as per the provisions of the Grid Code;

"Selected Bid" shall mean the technical Bid and the Final Offer of the Selected Bidder submitted during e-reverse bidding, which shall be downloaded and attached in Schedule 7 on or prior to the Effective Date;

"Share Purchase Agreement" shall mean the agreement amongst **PFC Consulting Limited (PFCCL)**, **KRISHNAGIRI REZ TRANSMISSION LIMITED** and the Successful Bidder for the purchase of one hundred (100%) per cent of the shareholding of the **KRISHNAGIRI REZ TRANSMISSION LIMITED** for the Acquisition Price, by the Successful Bidder on the terms and conditions as contained therein;

"Sharing Regulations" shall mean the Central Electricity Regulatory Commission (Sharing of Inter-State Transmission Charges and Losses) Regulations, 2020 and as amended from time to time;



Transmission Service Agreement

"Site" in relation to a substation, switching station or HVDC terminal or inverter station, shall mean the land and other places upon which such station / terminal is to be established;

"SLDC" shall mean the State Load Despatch Centre established as per sub-section (1) of Section 31 of the Electricity Act 2003;

"STU" or "State Transmission Utility" shall be the Board or the Government company, specified as such by the State Government under sub-section (1) of Section 39 of the Electricity Act 2003;

"Successful Bidder" or "Selected Bidder" shall mean the Bidder selected pursuant to the RFP and who has to acquire one hundred percent (100%) equity shares of **KRISHNAGIRI REZ TRANSMISSION LIMITED**, along with all its related assets and liabilities, which will be responsible as the TSP to establish the Project on build, own, operate and transfer basis as per the terms of the TSA and other RFP Project Documents;

"TSP's Preliminary Notice" shall mean a notice issued by the TSP in pursuant to the provisions of Article 13.3 of this Agreement;

"Target Availability" shall have the meaning as ascribed hereto in Article 8.2 of this Agreement;

"Technically Evaluated Entity" shall mean the company which has been evaluated for the satisfaction of the technical requirement set forth in RFP;

"Termination Notice" shall mean a Nodal Agency's Termination Notice given by the Nodal Agency to the TSP pursuant to the provisions of Articles 3.3.2, 3.3.4, 4.4.2, 5.8, 13.2 and 13.3 of this Agreement for the termination of this Agreement;

"Term of Agreement" for the purposes of this Agreement shall have the meaning ascribed thereto in Article 2.2 of this Agreement;

"Transmission Charges" shall mean the Final Offer of the Selected Bidder during the e-reverse bidding and adopted by the Commission, payable to the TSP as per Sharing Regulations;

"Transmission License" shall mean the license granted by the Commission in terms of the relevant regulations for grant of such license issued under the Electricity Act;

"Transmission Service" shall mean making the Project available as per the terms and conditions of this Agreement and Sharing Regulations;



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"Unscheduled Outage" shall mean an interruption resulting in reduction of the Availability of the Element(s) / Project (as the case may be) that is not a result of a Scheduled Outage or a Force Majeure Event.

"Ultimate Parent Company" shall mean an entity which owns at least twenty six percent (26%) equity in the Bidding Company or Member of a Consortium, (as the case may be) and in the Technically Evaluated Entity and / or Financially Evaluated Entity (as the case may be) and such Bidding Company or Member of a Consortium, (as the case may be) and the Technically Evaluated Entity and / or Financially Evaluated Entity (as the case may be) shall be under the direct control or indirectly under the common control of such entity;

1.2 Interpretation:

Save where the contrary is indicated, any reference in this Agreement to:

"Agreement" shall be construed as including a reference to its Schedules, Appendices and Annexures;

"Rupee", "Rupees" and "Rs." shall denote lawful currency of India;

"crore" shall mean a reference to ten million (10,000,000) and a **"lakh"** shall mean a reference to one tenth of a million (1,00,000);

"encumbrance" shall be construed as a reference to a mortgage, charge, pledge, lien or other encumbrance securing any obligation of any person or any other type of preferential arrangement (including, without limitation, title transfer and retention arrangements) having a similar effect;

"holding company" of a company or corporation shall be construed as a reference to any company or corporation of which the other company or corporation is a subsidiary;

"indebtedness" shall be construed so as to include any obligation (whether incurred as principal or surety) for the payment or repayment of money, whether present or future, actual or contingent;

"person" shall have the meaning as defined in Section 2 (49) of the Act;

"subsidiary" of a company or corporation (the holding company) shall be construed as a reference to any company or corporation:

- (i) which is controlled, directly or indirectly, by the holding company, or
- (ii) more than half of the issued share capital of which is beneficially owned, directly or indirectly, by the holding company, or
- (iii) which is a subsidiary of another subsidiary of the holding company,



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for these purposes, a company or corporation shall be treated as being controlled by another if that other company or corporation is able to direct its affairs and/or to control the composition of its board of directors or equivalent body;

"winding-up", "dissolution", "insolvency", or "reorganization" in the context of a company or corporation shall have the same meaning as defined in the Companies Act, 1956/ Companies Act, 2013 (as the case may be).

- 1.2.1 Words importing the singular shall include the plural and vice versa.
- 1.2.2 This Agreement itself or any other agreement or document shall be construed as a reference to this or to such other agreement or document as it may have been, or may from time to time be, amended, varied, novated, replaced or supplemented.
- 1.2.3 A Law shall be construed as a reference to such Law including its amendments or re-enactments from time to time.
- 1.2.4 A time of day shall, save as otherwise provided in any agreement or document be construed as a reference to Indian Standard Time.
- 1.2.5 Different parts of this Agreement are to be taken as mutually explanatory and supplementary to each other and if there is any inconsistency between or among the parts of this Agreement, they shall be interpreted in a harmonious manner so as to give effect to each part.
- 1.2.6 The tables of contents and any headings or sub-headings in this Agreement have been inserted for ease of reference only and shall not affect the interpretation of this Agreement.
- 1.2.7 All interest payable under this Agreement shall accrue from day to day and be calculated on the basis of a year of three hundred and sixty five (365) days.
- 1.2.8 The words "hereof" or "herein", if and when used in this Agreement shall mean a reference to this Agreement.
- 1.2.9 The contents of Schedule 7 shall be referred to for ascertaining accuracy and correctness of the representations made by the Selected Bidder in Article 17.2.1 hereof.



ARTICLE: 2

2. EFFECTIVENESS AND TERM OF AGREEMENT

2.1 Effective Date:

This Agreement shall be effective from later of the dates of the following events:

- a. The Selected Bidder, on behalf of the TSP, has provided the Contract Performance Guarantee, as per terms of Article 3.1 of this Agreement; and
- b. The Selected Bidder has acquired for the Acquisition Price, one hundred percent (100%) of the equity shareholding of **PFC Consulting Limited in KRISHNAGIRI REZ TRANSMISSION LIMITED** along with all its related assets and liabilities as per the provisions of the Share Purchase Agreement. and
- c. The Agreement is executed and delivered by the Parties;

2.2 Term and Termination:

- 2.2.1 Subject to Article 2.2.3 and Article 2.4, this Agreement shall continue to be effective in relation to the Project until the Expiry Date, when it shall automatically terminate.
- 2.2.2 Post the Expiry Date of this Agreement, the TSP shall ensure transfer of Project Assets to CTU or its successors or an agency as decided by the Central Government at zero cost and free from any encumbrance and liability. The transfer shall be completed within 90 days of expiry of this Agreement failing which CTU shall be entitled to take over the Project Assets Suo moto.
- 2.2.3 This Agreement shall terminate before the Expiry Date in accordance with Article 13 or Article 3.3.2 or Article 3.3.4.

2.3 Conditions prior to the expiry of the Transmission License

In order to continue the Project beyond the expiry of the Transmission License, the TSP shall be obligated to make an application to the Commission at least two (2) years before the date of expiry of the Transmission License, seeking the Commission's approval for the extension of the term of the Transmission License up to the Expiry Date.

- 2.3.1 The TSP shall timely comply with all the requirements that may be laid down by the Commission for extension of the term of the Transmission License beyond the initial term of twenty-five (25) years & upto the Expiry Date and the TSP shall keep the Nodal Agency fully informed about the progress on its application for extension of the term of the Transmission License.



2.4 Survival:

The expiry or termination of this Agreement shall not affect any accrued rights, obligations/ roles and liabilities of the Parties under this Agreement, including the right to receive liquidated damages as per the terms of this Agreement, nor shall it effect the survival of any continuing obligations/ roles for which this Agreement provides, either expressly or by necessary implication, which are to survive after the Expiry Date or termination including those under Articles 3.3.3, 3.3.5, Article 9.3 (Application of Insurance Proceeds), Article 11 (Force Majeure), Article 13 (Events of Default and Termination), Article 14 (Liability & Indemnification), Article 16 (Governing Law & Dispute Resolution), Article 19 (Miscellaneous).

2.5 Applicability of the provisions of this Agreement

2.5.1 For the purpose of Availability, Target Availability and the computation of Availability, Incentive, Penalty, the provisions provided in this Agreement shall apply and any future modifications in the relevant Rules and Regulations shall not be applicable for this Project.

2.5.2 For the purposes of this Agreement for ISTS systems developed under the tariff based competitive bidding framework, the provisions relating to the definitions (Availability and COD), Article 3 (Contract Performance Guarantee and Conditions Subsequent), Article 5 (Construction of the Project), Article 6 (Connection and Commissioning of the Project), Article 8 (Target Availability and calculation of Availability), Article 11 (Force Majeure), Article 12 (Change in Law), Article 13 (Event of Default), Article 14 (Indemnification), Article 15 (Assignment and Charges), Articles 16.1, 16.2 and 16.4 (Governing Laws and Dispute Resolution) and Article 17 (representation and warranties of the ISTS Licensee) of this agreement shall supersede the corresponding provisions under Sharing Regulations.



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ARTICLE: 3

3. CONDITIONS SUBSEQUENT

3.1 Satisfaction of conditions subsequent by the TSP

3.1.1 Within ten (10) days from the date of issue of Letter of Intent, the Selected Bidder, shall:

- a. Provide the Contract Performance Guarantee, and
- b. Acquire, for the Acquisition Price, one hundred percent (100%) equity shareholding of **KRISHNAGIRI REZ TRANSMISSION LIMITED** from **PFC Consulting Limited**, who shall sell to the Selected Bidder, the equity shareholding of **KRISHNAGIRI REZ TRANSMISSION LIMITED**, along with all its related assets and liabilities.
- c. Execute this Agreement;

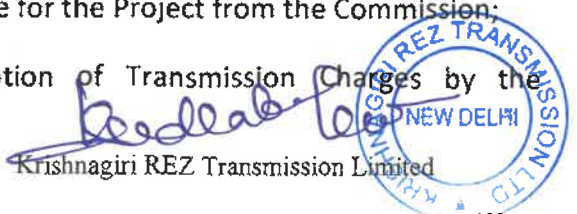
The TSP shall, within five (5) working days from the date of acquisition of SPV by the Selected Bidder, undertake to apply to the Commission for the grant of Transmission License and for the adoption of tariff as required under section-63 of the Electricity Act.

The Selected Bidder, on behalf of the TSP, will provide to the **Central Transmission Utility of India Limited** (being the Nodal Agency) the Contract Performance Guarantee for an amount of **Rs.204.25 Crore (Rupees Two Hundred Four Crore Twenty Five Lakh Only)**.

3.1.2 The Contract Performance Guarantee shall be initially valid for a period up to three (3) months after the Scheduled COD of the Project and shall be extended from time to time to be valid for a period up to three (3) months after the COD of the Project. In case the validity of the Contract Performance Guarantee is expiring before the validity specified in this Article, the TSP shall, at least thirty (30) days before the expiry of the Contract Performance Guarantee, replace the Contract Performance Guarantee with another Contract Performance Guarantee or extend the validity of the existing Contract Performance Guarantee until the validity period specified in this Article.

3.1.3 The TSP agrees and undertakes to duly perform and complete the following activities within six (6) months from the Effective Date (except for c) below), unless such completion is affected due to any Force Majeure Event, or if any of the activities is specifically waived in writing by the Nodal Agency:

- a. To obtain the Transmission License for the Project from the Commission;
- b. To obtain the order for adoption of Transmission Charges by the



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Commission, as required under Section 63 of the Electricity Act 2003;

- c. To submit to the Nodal Agency, CEA & Independent Engineer, the Project Execution Plan, immediately after award of contract(s) and maximum within one hundred and twenty (120) days from the Effective Date. Also, an approved copy each of Manufacturing Quality Plan (MQP) and Field Quality Plan (FQP) would be submitted to Independent Engineer & Nodal Agency in the same time period. The TSP's Project Execution Plan should be in conformity with the Scheduled COD as specified in Schedule 2 of this Agreement, and shall bring out clearly the organization structure, time plan and methodology for executing the Project, award of major contracts, designing, engineering, procurement, shipping, construction, testing and commissioning to commercial operation;
- d. To submit to the Nodal Agency, CEA & Independent Engineer a detailed bar (GANTT) chart of the Project outlining each activity (taking longer than one Month), linkages as well as durations;
- e. To submit to the Nodal Agency, CEA & Independent Engineer detailed specifications of conductor meeting the functional specifications specified in RFP;
- f. To achieve Financial Closure;
- g. To provide an irrevocable letter to the Lenders duly accepting and acknowledging the rights provided to the Lenders under the provisions of Article 15.3 of this Agreement and all other RFP Project Documents;
- h. To award the Engineering, Procurement and Construction contract ("EPC contract") for the design and construction of the Project and shall have given to such Contractor an irrevocable notice to proceed; and
- i. To sign the Agreement(s) required, if any, under Sharing Regulations.

3.2 Recognition of Lenders' Rights by the Nodal Agency

- 3.2.1 The Nodal Agency hereby accepts and acknowledges the rights provided to the Lenders as per Article 15.3 of this Agreement and all other RFP Project Documents.

3.3 Consequences of non-fulfilment of conditions subsequent

- 3.3.1 If any of the conditions specified in Article 3.1.3 is not duly fulfilled by the TSP even within three (3) Months after the time specified therein, then on and from the expiry of such period and until the TSP has satisfied all the conditions specified in Article 3.1.3, the TSP shall, on a monthly basis, be liable to furnish to **Central Transmission Utility of India Limited (being the Nodal Agency)** additional Contract Performance Guarantee of **Rs.20.43 Crore (Rupees Twenty Crore Forty Three Lakh Only)** within two (2) Business Days of expiry of every



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such Month. Such additional Contract Performance Guarantee shall be provided to **Central Transmission Utility of India Limited (being the Nodal Agency)** in the manner provided in Article 3.1.1 and shall become part of the Contract Performance Guarantee and all the provisions of this Agreement shall be construed accordingly. **Central Transmission Utility of India Limited (being the Nodal Agency)** shall be entitled to hold and / or invoke the Contract Performance Guarantee, including such additional Contract Performance Guarantee, in accordance with the provisions of this Agreement.

3.3.2 Subject to Article 3.3.4, if:

- (i) the fulfilment of any of the conditions specified in Article 3.1.3 is delayed beyond nine (9) Months from the Effective Date and the TSP fails to furnish additional Contract Performance Guarantee to the Nodal Agency in accordance with Article 3.3.1 hereof; or
- (ii) the TSP furnishes additional Performance Guarantee to the Nodal Agency in accordance with Article 3.3.1 hereof but fails to fulfil the conditions specified in Article 3.1.3 within a period of twelve (12) months from the Effective Date,

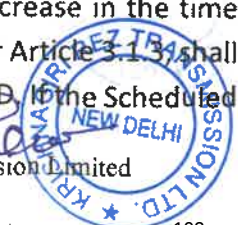
the Nodal Agency shall have the right to terminate this Agreement, by giving a Termination Notice to the TSP, in writing, of at least seven (7) days, with a copy to CEA and the Lenders' Representative in order to enable the Lenders to exercise right of substitution in accordance with Article 15.3 of this Agreement.

3.3.3 If the Nodal Agency elects to terminate this Agreement as per the provisions of Article 3.3.2, the TSP shall be liable to pay to the Nodal Agency an amount of **Rs.204.25 Crore (Rupees Two Hundred Four Crore Twenty Five Lakh Only)** as liquidated damages. The Nodal Agency shall be entitled to recover this amount of damages by invoking the Contract Performance Guarantee to the extent of liquidated damages, which shall be required by the Nodal Agency, and the balance shall be returned to TSP, if any.

It is clarified for removal of doubt that this Article shall survive the termination of this Agreement.

3.3.4 In case of inability of the TSP to fulfil the conditions specified in Article 3.1.3 due to any Force Majeure Event, the time period for fulfilment of the condition subsequent as mentioned in Article 3.1.3, may be extended for a period of such Force Majeure Event. Alternatively, if deemed necessary, this Agreement may be terminated by the Nodal Agency by giving a Termination Notice to the TSP, in writing, of at least seven (7) days, with a copy to CEA and the Lenders' Representative in order to enable the Lenders to exercise right of substitution in accordance with Article 15.3 of this Agreement and the Contract Performance Guarantee shall be returned as per the provisions of Article 6.5.1.

Provided, that due to the provisions of this Article 3.3.4, any increase in the time period for completion of conditions subsequent mentioned under Article 3.1.3 shall lead to an equal increase in the time period for the Scheduled COD, in the Scheduled



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COD is extended beyond a period of one hundred eighty (180) days due to the provisions of this Article 3.3.4, the TSP will be allowed to recover the interest cost during construction corresponding to the period exceeding one hundred eighty (180) days by adjustment in the Transmission Charges in accordance with Schedule 9.

- 3.3.5 Upon termination of this Agreement as per Articles 3.3.2 and 3.3.4, the Nodal Agency may take steps to bid out the Project again.
- 3.3.6 The Nodal agency, on the failure of the TSP to fulfil its obligations, if it considers that there are sufficient grounds for so doing, apart from invoking the Contract Performance Guarantee under para 3.3.3 may also initiate proceedings for blacklisting the TSP as per provisions of Article 13.2 of TSA.

3.4 Progress Reports

The TSP shall notify the Nodal Agency and CEA in writing at least once a Month on the progress made in satisfying the conditions subsequent in Articles 3.1.3.



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ARTICLE: 4

4. DEVELOPMENT OF THE PROJECT

4.1 TSP's obligations in development of the Project:

Subject to the terms and conditions of this Agreement, the TSP at its own cost and expense shall observe, comply with, perform, undertake and be responsible:

- a. for procuring and maintaining in full force and effect all Consents, Clearances and Permits, required in accordance with Law for development of the Project;
- b. for financing, constructing, owning and commissioning each of the Element of the Project for the scope of work set out in Schedule 1 of this Agreement in accordance with:
 - i. the Electricity Act and the Rules made thereof;
 - ii. the Grid Code;
 - iii. the CEA Regulations applicable, and as amended from time to time, for Transmission Lines and sub-stations:
 - the Central Electricity Authority (Technical Standards for Connectivity to the Grid) Regulations, 2007;
 - Central Electricity Authority (Technical Standards for construction of Electrical Plants and Electric Lines) Regulation, 2010;
 - Central Electricity Authority (Grid Standard) Regulations, 2010;
 - Central Electricity Authority (Safety requirements for construction, operation and maintenance of Electrical Plants and Electrical Lines) Regulation, 2011;
 - Central Electricity Authority (Measures relating to Safety and Electricity Supply) Regulation, 2010;
 - Central Electricity Authority (Technical Standards for Communication System in Power System Operation) Regulations, 2020.
 - iv. Safety/ security Guidelines laid down by the Government;
 - v. Prudent Utility Practices, relevant Indian Standards and the Law;



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not later than the Scheduled COD as per Schedule 2 of this Agreement;

- c. for entering into a Connection Agreement with the concerned parties in accordance with the Grid Code.
- d. for owning the Project throughout the term of this Agreement free and clear of any encumbrances except those expressly permitted under Article 15 of this Agreement;
- e. to co-ordinate and liaise with concerned agencies and provide on a timely basis relevant information with regard to the specifications of the Project that may be required for interconnecting the Project with the Interconnection Facilities;
- f. for providing all assistance to the Arbitrators as they may require for the performance of their duties and responsibilities;
- g. to provide to the Nodal Agency and CEA, on a monthly basis, progress reports with regard to the Project and its execution (in accordance with prescribed form) to enable the CEA to monitor and co-ordinate the development of the Project matching with the Interconnection Facilities;
- h. to comply with Ministry of Power Orders No. P45021/2/2017-PP (BE-II)-Part (4) Vol.II dated 19.07.2024 as well as other Guidelines issued by Govt. of India pertaining to this;
- i. to procure the products associated with the Transmission System as per provisions of Public Procurement (Preference to Make in India) orders issued by Ministry of Power vide orders No. P45021/2/2017-PP (BE-II)-Part (4) Vol.II dated 19.07.2024 for transmission sector, as amended from time to time read with Department for Promotion of Industry and Internal Trade (DPIIT) orders in this regard (Procuring Entity as defined in above orders shall deemed to have included Selected Bidder and/ or TSP).

Also, to comply with Department of Expenditure, Ministry of Finance vide OM No. F.7/10/2021-PPD (1) dated 23.02.2023, as amended from time to time, regarding public procurement from a bidder of a country, which shares land border with India;

- j. to submit to Nodal Agency information in the prescribed format [To be devised by Nodal Agency] for ensuring compliance to Article 4.1 i) above.



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- k. to comply with all its obligations undertaken in this Agreement.

4.2 Roles of the Nodal Agency in implementation of the Project:

4.2.1 Subject to the terms and conditions of this Agreement, the Nodal Agency shall be the holder and administrator of this Agreement and shall inter alia:

- a. appoint an Independent Engineer within 90 days of the Effective Date
- b. provide letters of recommendation to the concerned Indian Governmental Instrumentality, as may be requested by the TSP from time to time, for obtaining the Consents, Clearances and Permits required for the Project;
- c. coordinate among TSP and upstream/downstream entities in respect of Interconnection Facilities; and
- d. monitor the implementation of the Agreement and take appropriate action for breach thereof including revocation of guarantees, cancellation of Agreement, blacklisting etc
- e. provide all assistance to the Arbitrators as required for the performance of their duties and responsibilities; and
- f. perform any other responsibility (ies) as specified in this Agreement.

4.3 Time for Commencement and Completion:

- a. The TSP shall take all necessary steps to commence work on the Project from the Effective Date of the Agreement and shall achieve Scheduled COD of the Project in accordance with the time schedule specified in Schedule 2 of this Agreement;
- b. The COD of each Element of the Project shall occur no later than the Scheduled COD or within such extended time to which the TSP shall be entitled under Article 4.4 hereto.

4.4 Extension of time:

4.4.1 In the event that the TSP is unable to perform its obligations for the reasons solely attributable to the Nodal Agency, the Scheduled COD shall be extended, by a 'day to day' basis, subject to the provisions of Article 13.



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- 4.4.2 In the event that an Element or the Project cannot be commissioned by its Scheduled COD on account of any Force Majeure Event as per Article 11, the Scheduled COD shall be extended, by a 'day to day' basis for a period of such Force Majeure Event. Alternatively, if deemed necessary, the Nodal Agency may terminate the Agreement as per the provisions of Article 13.4 by giving a Termination Notice to the TSP, in writing, of at least seven (7) days, with a copy to CEA and the Lenders' Representative in order to enable the Lenders to exercise right of substitution in accordance with Article 15.3 of this Agreement.
- 4.4.3 If the Parties have not agreed, within thirty (30) days after the affected Party's performance has ceased to be affected by the relevant circumstance, on how long the Scheduled COD should be deferred by, any Party may raise the Dispute to be resolved in accordance with Article 16.

4.5 Metering Arrangements:

- 4.5.1 The TSP shall comply with all the provisions of the IEGC and the Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006 as amended from time to time, with regard to the metering arrangements for the Project. The TSP shall fully cooperate with the CTU / STU / RLDC and extend all necessary assistance in taking meter readings.

4.6 Interconnection Facilities:

- 4.6.1 Subject to the terms and conditions of this Agreement, the TSP shall be responsible for connecting the Project with the interconnection point(s) specified in Schedule 1 of this Agreement. The Interconnection Facilities shall be developed as per the scope of work and responsibilities assigned in Schedule 1 of this Agreement. The Nodal Agency shall be responsible for coordinating to make available the Interconnection Facilities.
- 4.6.2 In order to remove any doubts, it is made clear that the obligation of the TSP within the scope of the project is to construct the Project as per Schedule-1 of this Agreement and in particular to connect it to the Interconnection Facilities as specified in this Agreement.



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ARTICLE: 5

5. CONSTRUCTION OF THE PROJECT

5.1 TSP's Construction Responsibilities:

- 5.1.1 The TSP, at its own cost and expense, shall be responsible for designing, constructing, erecting, testing and commissioning each Element of the Project by the Scheduled COD in accordance with the Regulations and other applicable Laws specified in Article 4.1 of this Agreement.
- 5.1.2 The TSP acknowledges and agrees that it shall not be relieved from any of its obligations under this Agreement or be entitled to any extension of time or any compensation whatsoever by reason of the unsuitability of the Site or Transmission Line route(s).
- 5.1.3 The TSP shall be responsible for obtaining all Consents, Clearances and Permits related but not limited to road / rail / river / canal / power line / crossings, Power and Telecom Coordination Committee (PTCC), defence, civil aviation, right of way / way-leaves and environmental & forest clearances from relevant authorities required for developing, financing, constructing, maintaining/ renewing all such Consents, Clearances and Permits in order to carry out its obligations under this Agreement in general and shall furnish to the Nodal Agency such copy/ies of each Consents, Clearances and Permits, on demand. Nodal Agency shall provide letters of recommendation to the concerned Indian Governmental Instrumentality, as may be requested by the TSP from time to time, for obtaining the Consents, Clearances and Permits required for the Project.
- 5.1.4 The TSP shall be responsible for:
- Acquisition of land for location specific substations, switching stations or HVDC terminal or inverter stations. Also, the actual location of Greenfield substations (Switching Stations or HVDC Terminal or Inverter Stations) in the scope of TSP:
 - For Generation Pooling Substation shall not be beyond 3 Km radius of the location proposed by BPC in their survey report.
 - For Load Serving Substation within the scope of TSP shall not be beyond 5 Km radius of the location proposed by the BPC in their Survey Report
 - For an Intermediate Substation shall not be beyond 10 Km radius of the location proposed by the BPC in their Survey Report.
 - final selection of Site including its geo-technical investigation
 - Survey and geo-technical investigation of line route in order to determine the final route of the Transmission Lines;



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- d) Seeking access to the Site and other places where the Project is being executed, at its own risk and costs, including payment of any crop, tree compensation or any other compensation as may be required.

5.1.5 In case the Project involves any resettlement and rehabilitation, the resettlement and rehabilitation package will be implemented by the State Government authorities, for which the costs is to be borne by the TSP and no changes would be allowed in the Transmission Charges on account of any variation in the resettlement and rehabilitation cost. The TSP shall provide assistance on best endeavour basis, in implementation of the resettlement and rehabilitation package, if execution of such package is in the interest of expeditious implementation of the Project and is beneficial to the Project affected persons.

5.2 Appointing Contractors:

5.2.1 The TSP shall conform to the requirements as provided in this Agreement while appointing Contractor(s) for procurement of goods & services.

5.2.2 The appointment of such Contractor(s) shall neither relieve the TSP of any of its obligations under this Agreement nor make the Nodal Agency liable for the performance of such Contractor(s).

5.3 Monthly Progress Reporting:

The TSP shall provide to the CEA, Nodal Agency & Independent Engineer, on a monthly basis, progress reports along with likely completion date of each Element with regard to the Project and its execution (in accordance with prescribed form). The Nodal Agency/ CEA shall monitor the development of the Project for its timely completion for improving and augmenting the electricity system as a part of its statutory responsibility.

5.4 Quality of Workmanship:

The TSP shall ensure that the Project is designed, built and completed in a good workmanship using sound engineering and construction practices, and using only materials and equipment that are new and manufactured as per the MQP and following approved FQP for erection, testing & commissioning and complying with Indian /International Standards such that, the useful life of the Project will be at least thirty five (35) years from the COD of the Project.

The TSP shall ensure that all major substation equipment / component (e.g. transformers, reactors, Circuit Breakers, Instrument Transformers (IT), Surge Arresters (SA), Protection relays, clamps & connectors etc.), equipment in terminal stations of HVDC installations including Thyristor/ IGBT valves, Converter Transformers, smoothing reactors, Transformer bushings and wall bushings, GIS bus



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ducts, towers and gantry structures and transmission towers or poles and line materials (conductors, earthwire, OPGW, insulator, accessories for conductors, OPGW & earthwires, hardware fittings for insulators, aviation lights etc), facilities and system shall be designed, constructed and tested (Type test, Routine tests, Factory Acceptance Test (FAT)) in accordance with relevant CEA Regulations and Indian Standards. In case Indian Standards for any particular equipment/ system/ process is not available, IEC/ IEEE or equivalent International Standards and Codes shall be followed.

5.5 Progress Monitoring & Quality Assurance:

- 5.5.1 The Project Execution Plan submitted by the TSP in accordance with Article 3.1.3 c) shall comprise of detailed schedule of all the equipment/items /materials required for the Project, right from procurement of raw material till the dispatch from works and receipt at the site. Further, it should also include various stages of the construction schedule up to the commissioning of the Project.
- 5.5.2 Nodal Agency, CEA & Independent Engineer shall have access at all reasonable times to the Site and to the Manufacturer's works and to all such places where the Project is being executed.
- 5.5.3 Independent Engineer shall ensure conformity of the conductor specifications with the functional specifications specified in RFP.
- 5.5.4 The Independent Engineer shall monitor the following during construction of the Project:
- a) Quality of equipment, material, foundation, structures and workmanship etc. as laid down in Article 5.4 and 6.1.4 of the TSA. Specifically, quality of Sub-station equipment, transmission line material and workmanship etc. would be checked in accordance with the Article 5.4.
 - b) Progress in the activities specified in Condition Subsequent
 - c) Verification of readiness of the elements including the statutory clearances & completion of civil works, fixing of all components and finalisation of punch points (if any) prior to charging of the elements
 - d) Progress of construction of substation and Transmission Lines
- 5.5.5 The progress shall be reviewed by the Independent Engineer against the Project Execution Plan. The Independent Engineer shall prepare its report on monthly basis and submit the same to Nodal Agency highlighting the progress achieved till the end of respective month vis-à-vis milestone activities, areas of concern, if any, which may result in delay in the timely completion of the Project. Based on the progress, Nodal



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Agency and/ or CEA shall issue written instructions to the TSP to take corrective measures, as may be prudent for the timely completion of the Project. In case of any deficiency, the Nodal Agency would be at liberty to take action in accordance with the procedure of this Agreement.

- 5.5.6 For any delay in commissioning any critical Element(s), as identified in Schedule 1 & Schedule 2 of this Agreement, beyond a period of 45 days shall lead to a sequestration of 10% of the Contract Performance Guarantee.

5.6 Site regulations and Construction Documents

The TSP shall abide by the Safety Rules and Procedures as mentioned in Schedule 3 of this Agreement

The TSP shall retain at the Site and make available for inspection at all reasonable times, copies of the Consents, Clearances and Permits, construction drawings and other documents related to construction.

5.7 Supervision of work:

The TSP shall provide all necessary superintendence for execution of the Project and its supervisory personnel shall be available to provide full-time superintendence for execution of the Project. The TSP shall provide skilled personnel who are experienced in their respective fields.

5.8 Remedial Measures:

The TSP shall take all necessary actions for remedying the shortfall in achievement of timely progress in execution of the Project, if any, as intimated by the Independent Engineer and/ or CEA and/ or the Nodal Agency. However, such intimation by the Independent Engineer and/ or CEA and/ or the Nodal Agency and the subsequent effect of such remedial measures carried out by the TSP shall not relieve the TSP of its obligations in the Agreement. Independent Engineer and/ or CEA and/ or the Nodal Agency may carry out random inspections during the Project execution, as and when deemed necessary by it. If the shortfalls as intimated to the TSP are not remedied to the satisfaction of the CEA and/ or the Nodal Agency, this Agreement may be terminated by the Nodal Agency by giving a Termination Notice to the TSP, in writing, of at least seven (7) days, with a copy to CEA and the Lenders' Representative in order to enable the Lenders to exercise right of substitution in accordance with Article 15.3 of this Agreement.



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ARTICLE: 6

6. CONNECTION AND COMMISSIONING OF THE PROJECT

6.1 Connection with the Inter-Connection Facilities:

6.1.1 The TSP shall give the RLDC(s), CTU, / STU, as the case may be, and any other agencies as required, at least sixty (60) days advance written notice of the date on which it intends to connect an Element of the Project, which date shall not be earlier than its Scheduled COD or Schedule COD extended as per Article 4.4.1 & 4.4.2 of this Agreement, unless mutually agreed to by Parties. Further, any preponing of COD of any element prior to Scheduled COD must be approved by the Nodal Agency.

6.1.2 The RLDC / SLDC (as the case may be) or the CTU / STU (as the case may be), for reasonable cause, including non-availability of Interconnection Facilities as per Article 4.2, can defer the connection for up to fifteen (15) days from the date notified by the TSP pursuant to Article 6.1.1, if it notifies to the TSP in writing, before the date of connection, of the reason for the deferral and when the connection is to be rescheduled. However, no such deferment on one or more occasions would be for more than an aggregate period of thirty (30) days. Further, the Scheduled COD would be extended as required, for all such deferments on "day to day" basis.

6.1.3 Subject to Articles 6.1.1 and 6.1.2, any Element of Project may be connected with the Interconnection Facilities when:

- a. it has been completed in accordance with this Agreement and the Connection Agreement;
- b. it meets the Grid Code, Central Electricity Authority (Technical Standards for Connectivity to the Grid) Regulations, 2007 as amended from time to time and all other Indian legal requirements, and
- c. The TSP has obtained the approval in writing of the Electrical Inspector certifying that the Element is ready from the point of view of safety of supply and can be connected with the Interconnection Facilities.
- d. It has satisfactorily met all the testing requirements as per Articles 6.1.4.

6.1.4 Site Acceptance Test (SAT)/ pre-commissioning tests of all major substation equipment, component, system, facilities shall be successfully carried out before commissioning. The Type tests, FAT and SAT reports should be available at the substation / terminal station of HVDC installations for ready reference of operation and maintenance staff and has to be made available to the Independent Engineer



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appointed for quality monitoring or their authorised representatives, as and when they wish to examine the same.

6.2 Commercial Operation:

- 6.2.1 An Element of the Project shall be declared to have achieved COD twenty four (24) hours following the connection of the Element with the Interconnection Facilities pursuant to Article 6.1 or seven (7) days after the date on which it is declared by the TSP to be ready for charging but is not able to be charged for reasons not attributable to the TSP subject to Article 6.1.2.

Provided that an Element shall be declared to have achieved COD only after all the Element(s), if any, which are pre-required to have achieved COD as defined in Schedule 2 of this Agreement, have been declared to have achieved their respective COD.

- 6.2.2 Once any Element of the Project has been declared to have achieved deemed COD as per Article 6.2.1 above, such Element of the Project shall be deemed to have Availability equal to the Target Availability till the actual charging of the Element and to this extent, TSP shall be eligible for the Monthly Transmission Charges applicable for such Element.

6.3 Compensation for Direct Non Natural Force Majeure Event or Indirect Non Natural Force Majeure Event or Natural Force Majeure Event (affecting the Nodal Agency)

- 6.3.1 If the TSP is otherwise ready to connect the Element(s) of the Project and has given due notice, as per provisions of Article 6.1.1, to the concerned agencies of the date of intention to connect the Element(s) of the Project, where such date is not before the Scheduled COD, but is not able to connect the Element(s) of the Project by the said date specified in the notice, due to Direct Non Natural Force Majeure Event or Indirect Non Natural Force Majeure Event or Natural Force Majeure Event affecting the Nodal Agency, provided such Direct Non Natural Force Majeure Event or Indirect Non Natural Force Majeure Event or Natural Force Majeure Event affecting the Nodal Agency has continued for a period of more than three (3) continuous or non-continuous Months, the TSP shall, until the effects of the Direct Non Natural Force Majeure Event or of Indirect Non Natural Force Majeure Event or Natural Force Majeure Event affecting the Nodal Agency no longer prevent the TSP from connecting the Element(s) of the Project, be deemed to have achieved COD relevant to that date and to this extent, be deemed to have been providing Transmission Service with effect from the date notified, and shall be treated as follows:

- a. In case of delay due to Direct Non Natural Force Majeure Event, TSP is entitled for Transmission Charges calculated on Target Availability for the period of such events in excess of three (3) continuous or non-continuous



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Months in the manner provided in (c) below.

- b. In case of delay due to Indirect Non Natural Force Majeure Event or Natural Force Majeure Event affecting the Nodal Agency, TSP is entitled for payment for debt service which is due under the Financing Agreements, subject to a maximum of Transmission Charges calculated on Target Availability, for the period of such events in excess of three (3) continuous or non-continuous Months in the manner provided in (c) below.
- c. In case of delay due to Direct Non Natural Force Majeure Event or Indirect Non Natural Force Majeure Event or Natural Force Majeure Event affecting the Nodal Agency, the TSP is entitled for payments mentioned in (a) and (b) above, after commencement of Transmission Service, in the form of an increase in Transmission Charges. These amounts shall be paid from the date, being the later of a) the date of cessation of such Indirect Non Natural Force Majeure Event or Natural Force Majeure Event affecting the Nodal Agency and b) the completion of sixty (60) days from the receipt of the Financing Agreements by the Nodal Agency from the TSP.

Provided such increase in Transmission Charges shall be so as to put the TSP in the same economic position as the TSP would have been in case the TSP had been paid amounts mentioned in (a) and (b) above in a situation where the Force Majeure Event had not occurred.

For the avoidance of doubt, it is clarified that the charges payable under this Article 6.3.1 shall be recovered as per Sharing Regulations.

6.4 Liquidated Damages for Delay in achieving COD of Project:

- 6.4.1 If the TSP fails to achieve COD of any Element of the Project or the Project, by the Element's / Project's Scheduled COD or such Scheduled COD as extended under Articles 4.4.1 and 4.4.3, then the TSP shall pay to the Nodal Agency, a sum equivalent to 3.33% of Monthly Transmission Charges applicable for the Element of the Project [in case where no Elements have been defined, to be on the Project as a whole] / Project, for each day of delay up to sixty (60) days of delay and beyond that time limit, at the rate of five percent (5%) of the Monthly Transmission Charges applicable to such Element / Project, as liquidated damages for such delay and not



Transmission Service Agreement

as penalty, without prejudice to any rights of the Nodal Agency under the Agreement.

- 6.4.2 The TSP's maximum liability under this Article 6.4 shall be limited to the amount of liquidated damages calculated in accordance with Article 6.4.1 for and up to six (6) months of delay for the Element or the Project.

Provided that, in case of failure of the TSP to achieve COD of the Element of the Project even after the expiry of six (6) months from its Scheduled COD, the provisions of Article 13 shall apply.

- 6.4.3 The TSP shall make payment to the Nodal Agency of the liquidated damages calculated pursuant to Article 6.4.1 within ten (10) days of the earlier of:

- a. the date on which the applicable Element achieves COD; or
- b. the date of termination of this Agreement.

The payment of such damages shall not relieve the TSP from its obligations to complete the Project or from any other obligation and liabilities under the Agreement.

- 6.4.4 If the TSP fails to pay the amount of liquidated damages to the Nodal Agency within the said period of ten (10) days, the Nodal Agency shall be entitled to recover the said amount of the liquidated damages by invoking the Contract Performance Guarantee. If the then existing Contract Performance Guarantee is for an amount which is less than the amount of the liquidated damages payable by the TSP to the Nodal Agency under this Article 6.3 and the TSP fails to make payment of the balance amount of the liquidated damages not covered by the Contract Performance Guarantee, then such balance amount shall be deducted from the Transmission Charges payable to the TSP. The right of the Nodal Agency to encash the Contract Performance Guarantee is without prejudice to the other rights of the Nodal Agency under this Agreement.

- 6.4.5 For avoidance of doubt, it is clarified that amount payable by TSP under this Article is over and above the penalty payable by TSP under Article 5.5.6 of this Agreement.

6.5 Return of Contract Performance Guarantee

- 6.5.1 The Contract Performance Guarantee as submitted by TSP in accordance with Article 3.1.1 shall be released by the Nodal Agency within three (3) months from the COD of the Project. In the event of delay in achieving Scheduled COD of any of the Elements by the TSP (otherwise than due to reasons as mentioned in Article 3.1.3 or Article 11) and consequent part invocation of the Contract Performance Guarantee by the Nodal Agency, Nodal Agency shall release the Contract Performance



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Guarantee, if any remaining unadjusted, after the satisfactory completion by the TSP of all the requirements regarding achieving the Scheduled COD of the remaining Elements of the Project. It is clarified that the Nodal Agency shall also return / release the Contract Performance Guarantee in the event of (i) applicability of Article 3.3.2 to the extent the Contract Performance Guarantee is valid for an amount in excess of **Rs.204.25 Crore (Rupees Two Hundred Four Crore Twenty Five Lakh Only)**, or (ii) termination of this Agreement by the Nodal Agency as mentioned under Article 3.3.4 of this Agreement.

- 6.5.2 The release of the Contract Performance Guarantee shall be without prejudice to other rights of the Nodal Agency under this Agreement.



ARTICLE: 7

7. OPERATION AND MAINTENANCE OF THE PROJECT

7.1 Operation and Maintenance of the Project:

The TSP shall be responsible for ensuring that the Project is operated and maintained in accordance with the regulations made by the Commission and CEA from time to time and provisions of the Act.



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ARTICLE: 8

8. AVAILABILITY OF THE PROJECT

8.1 Calculation of Availability of the Project:

Calculation of Availability for the Elements and for the Project, as the case may be, shall be as per **Appendix –IV to Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2024**, as applicable on the Bid Deadline and as appended in Schedule 6 of this Agreement.

8.2 Target Availability:

The Target Availability of each Element and the Project shall be **98%**.

Payment of monthly Transmission charges based on actual availability will be calculated as per para 1.2 of Schedule 4 of this Agreement.

If the availability of any Element or the Project is below the Target Availability, for six consecutive months in a Contract Year, the DIC(s) or the Nodal Agency may issue a show cause notice to the TSP, asking them to show cause as to why the Transmission Service Agreement be not terminated, and if no satisfactory cause is shown it may terminate the Agreement. If the Nodal Agency is of the opinion that the transmission system is of critical importance, it may carry out or cause to carry the operation and maintenance of transmission system at the risk and cost of TSP.



ARTICLE: 9

9. INSURANCES

9.1 Insurance:

9.1.1 The TSP shall effect and maintain or cause to be effected and maintained during the Construction Period and the Operating Period, adequate Insurances against such risks, with such deductibles including but not limited to any third party liability and endorsements and co-beneficiary/insured, as may be necessary under

- a. any of the Financing Agreements,
- b. the Laws, and
- c. in accordance with Prudent Utility Practices.

The Insurances shall be taken effective from a date prior to the date of the Financial Closure till the Expiry Date.

9.2 Evidence of Insurance cover:

9.2.1 The TSP shall furnish to the Nodal Agency copies of certificates and policies of the Insurances, as and when the Nodal Agency may seek from the TSP as per the terms of Article 9.1

9.3 Application of Insurance Proceeds:

9.3.1 Save as expressly provided in this Agreement, the policies of Insurances and the Financing Agreements, the proceeds of any insurance claim made due to loss or damage to the Project or any part of the Project shall be first applied to reinstatement, replacement or renewal of such loss or damage.

9.3.2 If a Natural Force Majeure Event renders the Project no longer economically and technically viable and the insurers under the Insurances make payment on a "total loss" or equivalent basis, the portion of the proceeds of such Insurance available to the TSP (after making admissible payments to the Lenders as per the Financing Agreements) shall be allocated only to the TSP. Nodal Agency and / or concerned Designated ISTS Customers shall have no claim on such proceeds of the Insurance.

9.3.3 Subject to the requirements of the Lenders under the Financing Agreements, any dispute or difference between the Parties as to whether the Project is no longer economically and technically viable due to a Force Majeure Event or whether that event was adequately covered in accordance with this Agreement by the Insurances shall be determined in accordance with Article 16.

9.4 Effect on liability of the Nodal Agency / Designated ISTS Customers

9.4.1 The Nodal Agency and / or the Designated ISTS Customers shall have no financial obligations or liability whatsoever towards the TSP in respect of this Article 9.



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ARTICLE: 10

10. BILLING AND PAYMENT OF TRANSMISSION CHARGES

10.1 Subject to provisions of this Article 10, the Monthly Transmission Charges shall be paid to the TSP, in Indian Rupees, on monthly basis as per the provisions of the Sharing Regulations, from the date on which an Element(s) has achieved COD until the Expiry Date of this Agreement, unless terminated earlier and in line with the provisions of Schedule 4 of this Agreement.

10.2 Calculation of Monthly Transmission Charges:

The Monthly Transmission Charges for each Contract Year including Incentive & Penalty payment shall be calculated in accordance with the provisions of Schedule 4 of this Agreement.

10.3 Rebate & Late Payment Surcharge:

The rebate and late payment surcharge shall be governed as per Sharing Regulations.

10.4 Disputed Bills, Default in payment by the Designated ISTS Customers & Annual Reconciliation:

Any Disputed Bill, Default in payment by the Designated ISTS Customers & Annual Reconciliation shall be governed as per Sharing Regulations.



ARTICLE: 11

11. FORCE MAJEURE

11.1 Definitions

11.1.1 The following terms shall have the meanings given hereunder.

11.2 Affected Party

11.2.1 An Affected Party means any Party whose performance has been affected by an event of Force Majeure.

11.2.2 Any event of Force Majeure shall be deemed to be an event of Force Majeure affecting the TSP only if the Force Majeure event affects and results in, late delivery of machinery and equipment for the Project or construction, completion, commissioning of the Project by Scheduled COD and/or operation thereafter;

11.3 Force Majeure

A 'Force Majeure' means any event or circumstance or combination of events and circumstances including those stated below that wholly or partly prevents or unavoidably delays an Affected Party in the performance of its obligations/ roles under this Agreement, but only if and to the extent that such events or circumstances are not within the reasonable control, directly or indirectly, of the Affected Party and could not have been avoided if the Affected Party had taken reasonable care or complied with Prudent Utility Practices:

a) Natural Force Majeure Events:

- i. act of God, including, but not limited to drought, fire and explosion (to the extent originating from a source external to the Site), earthquake, volcanic eruption, landslide, flood, cyclone, typhoon, tornado, or exceptionally adverse weather conditions, which are in excess of the statistical measures for the last hundred (100) years; and
- ii. epidemic/ pandemic notified by Indian Governmental Instrumentality.

b) Non-Natural Force Majeure Events:

i. Direct Non-Natural Force Majeure Events

- Nationalization or compulsory acquisition by any Indian Governmental Instrumentality of any material assets or rights of the Affected Party; or
- the unlawful, unreasonable or discriminatory revocation of, or



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refusal to renew, any Consents, Clearances and Permits required by the Affected Party to perform their obligations/ roles under the RFP Project Documents or any unlawful, unreasonable or discriminatory refusal to grant any other Consents, Clearances and Permits required for the development/ operation of the Project, provided that a Competent Court of Law declares the revocation or refusal to be unlawful, unreasonable and discriminatory and strikes the same down; or

- any other unlawful, unreasonable or discriminatory action on the part of an Indian Governmental Instrumentality which is directed against the Project, provided that a Competent Court of Law declares the action to be unlawful, unreasonable and discriminatory and strikes the same down.

ii. Indirect Non - Natural Force Majeure Events

- act of war (whether declared or undeclared), invasion, armed conflict or act of foreign enemy, blockade, embargo, revolution, riot, insurrection, terrorist or military action; or
- radio active contamination or ionising radiation originating from a source in India or resulting from any other Indirect Non Natural Force Majeure Event mentioned above, excluding circumstances where the source or cause of contamination or radiation is brought or has been brought into or near the Site by the Affected Party or those employed or engaged by the Affected Party; or
- industry-wide strikes and labour disturbances, having a nationwide impact in India.

11.4 Force Majeure Exclusions

11.4.1 Force Majeure shall not include (i) any event or circumstance which is within the reasonable control of the Parties and (ii) the following conditions, except to the extent that they are consequences of an event of Force Majeure:

- (a) Unavailability, late delivery, or changes in cost of the machinery, equipment, materials, spare parts etc. for the Project;
- (b) Delay in the performance of any Contractors or their agents;
- (c) Non-performance resulting from normal wear and tear typically experienced in transmission materials and equipment;



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- (d) Strikes or labour disturbance at the facilities of the Affected Party;
- (e) Insufficiency of finances or funds or the Agreement becoming onerous to perform; and
- (f) Non-performance caused by, or connected with, the Affected Party's:
 - i. negligent or intentional acts, errors or omissions;
 - ii. failure to comply with an Indian Law; or
 - iii. breach of, or default under this Agreement or any Project Documents.
- (g) Any error or omission in the survey report provided by BPC during the bidding process.

11.5 Notification of Force Majeure Event

11.5.1 The Affected Party shall give notice to the other Party of any event of Force Majeure as soon as reasonably practicable, but not later than seven (7) days after the date on which such Party knew or should reasonably have known of the commencement of the event of Force Majeure. If an event of Force Majeure results in a breakdown of communications rendering it unreasonable to give notice within the applicable time limit specified herein, then the Party claiming Force Majeure shall give such notice as soon as reasonably practicable after reinstatement of communications, but not later than one (1) day after such reinstatement.

Provided that, such notice shall be a pre-condition to the Affected Party's entitlement to claim relief under this Agreement. Such notice shall include full particulars of the event of Force Majeure, its effects on the Party claiming relief and the remedial measures proposed. The Affected Party shall give the other Party regular reports on the progress of those remedial measures and such other information as the other Party may reasonably request about the Force Majeure.

11.5.2 The Affected Party shall give notice to the other Party of (i) the cessation of the relevant event of Force Majeure; and (ii) the cessation of the effects of such event of Force Majeure on the performance of its rights or obligations/ roles under this Agreement, as soon as practicable after becoming aware of each of these cessations.

11.6 Duty to perform and duty to mitigate

To the extent not prevented by a Force Majeure Event, the Affected Party shall continue to perform its obligations/ roles as provided in this Agreement. The Affected Party shall use its reasonable efforts to mitigate the effect of any event of Force Majeure as soon as practicable.



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11.7 Available Relief for a Force Majeure Event

Subject to this Article 11,

- (a) no Party shall be in breach of its obligations/ roles pursuant to this Agreement to the extent that the performance of its obligations/ roles was prevented, hindered or delayed due to a Force Majeure Event;
- (b) each Party shall be entitled to claim relief for a Force Majeure Event affecting its performance in relation to its obligations/ roles under Articles 3.3.4, 4.4.2 and 6.3.1 of this Agreement.
- (c) For the avoidance of doubt, it is clarified that the computation of Availability of the Element(s) under outage due to Force Majeure Event, as per Article 11.3 affecting the TSP shall be as per Appendix –IV to Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2024 as on Bid Deadline. For the event(s) for which the Element(s) is/are deemed to be available as per Appendix –IV to Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2024, then the Transmission Charges, as applicable to such Element(s), shall be payable as per Schedule 4, for the duration of such event(s).
- (d) For so long as the TSP is claiming relief due to any Force Majeure Event under this Agreement, the Nodal Agency may, if it so desires, from time to time on one (1) day notice, inspect the Project and the TSP shall provide the Nodal Agency's personnel with access to the Project to carry out such inspections.
- (e) For avoidance of doubt, the TSP acknowledges that for extension of Scheduled COD a period up to one hundred eighty (180) days due to Force Majeure event, no compensation on the grounds such as interest cost, incident expenditure, opportunity cost will be made to the TSP. However, if Scheduled COD is extended beyond a period of one hundred eighty (180) days due to Force Majeure event, the TSP will be allowed to recover the interest cost during construction corresponding to the period exceeding one hundred eighty (180) days by adjustment in the Transmission Charges in accordance with Schedule 9.



ARTICLE: 12

12. CHANGE IN LAW

12.1 Change in Law

12.1.1 Change in Law means the occurrence of any of the following after the Bid Deadline resulting into any additional recurring / non-recurring expenditure by the TSP or any savings of the TSP:

- the enactment, coming into effect, adoption, promulgation, amendment, modification or repeal (without re-enactment or consolidation) in India, of any Law, including rules and regulations framed pursuant to such Law, subject to the provisions under Article 12.1.2;
- a change in the interpretation or application of any Law by any Indian Governmental Instrumentality having the legal power to interpret or apply such Law, or any Competent Court of Law;
- the imposition of a requirement for obtaining any Consents, Clearances and Permits which was not required earlier;
- a change in the terms and conditions prescribed for obtaining any Consents, Clearances and Permits or the inclusion of any new terms or conditions for obtaining such Consents, Clearances and Permits;
- any change in the licensing regulations of the Commission, under which the Transmission License for the Project was granted if made applicable by such Commission to the TSP;
- change in wind zone; or
- any change in tax or introduction of any tax made applicable for providing Transmission Service by the TSP as per the terms of this Agreement.

12.1.2 Notwithstanding anything contained in this Agreement, Change in Law shall not cover any change:

- a) Taxes on corporate income; and
- b) Withholding tax on income or dividends distributed to the shareholders of the TSP.



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12.2 Relief for Change in Law

12.2.1 During Construction Period, the impact of increase/decrease in the cost of the Project on the Transmission Charges shall be governed by the formula given in Schedule 9 of this Agreement.

12.2.2 During the Operation Period:

During the operation period, if as a result of Change in Law, the TSP suffers or is benefited from a change in costs or revenue, the aggregate financial effect of which exceeds 0.30% (zero point three percent) of the Annual Transmission Charges in aggregate for a Contract Year, the TSP may notify so to the Nodal Agency and propose amendments to this Agreement so as to place the TSP in the same financial position as it would have enjoyed had there been no such Change in Law resulting in change in costs or revenue as aforesaid.

12.2.3 For any claims made under Articles 12.2.1 and 12.2.2 above, the TSP shall provide to the Nodal Agency documentary proof of such increase / decrease in cost of the Project / revenue for establishing the impact of such Change in Law.

In cases where Change in Law results in decrease of cost and it comes to the notice of Nodal Agency that TSP has not informed Nodal Agency about such decrease in cost, Nodal Agency may initiate appropriate claim.

12.3 Notification of Change in Law:

12.3.1 If the TSP is affected by a Change in Law in accordance with Article 12.1 and wishes to claim relief for such Change in Law under this Article 12, it shall give notice to Nodal Agency of such Change in Law as soon as reasonably practicable after becoming aware of the same.

12.3.2 The TSP shall also be obliged to serve a notice to the Nodal Agency even when it is beneficially affected by a Change in Law.

12.3.3 Any notice served pursuant to Articles 12.3.1 and 12.3.2 shall provide, amongst other things, precise details of the Change in Law and its estimated impact on the TSP.

12.4 Payment on account of Change in Law

12.4.1 The payment for Change in Law shall be through a separate Bill. However, in case of any change in Monthly Transmission Charges by reason of Change in Law, as determined in accordance with this Agreement, the Bills to be raised by the Nodal Agency after such change in Transmission Charges shall appropriately reflect the changed Monthly Transmission Charges.



ARTICLE: 13

13. EVENTS OF DEFAULT AND TERMINATION

13.1 TSP's Event of Default

The occurrence and continuation of any of the following events shall constitute a TSP Event of Default, unless any such TSP Event of Default occurs as a result of any non-fulfilment of its obligations as prescribed under this Agreement by the Nodal Agency or a Force Majeure Event:

- a. After having taken up the construction of the Project, the abandonment by the TSP or the TSP's Contractors of the construction of the Project for a continuous period of two (2) months and such default is not rectified within thirty (30) days from the receipt of notice from the Nodal Agency in this regard;
- b. The failure to commission any Element of the Project by the date falling six (6) months after its Scheduled COD unless extended by Nodal Agency as per provisions of this Agreement;
- c. If the TSP:
 - i. assigns, mortgages or charges or purports to assign, mortgage or charge any of its assets or rights related to the Project in contravention of the provisions of this Agreement; or
 - ii. transfers or novates any of its obligations pursuant to this Agreement, in a manner contrary to the provisions of this Agreement;

Except where such transfer is in pursuance of a Law and

- it does not affect the ability of the transferee to perform, and such transferee has the financial and technical capability to perform, its obligations under this Agreement;
- is to a transferee who assumes such obligations under the Project and this Agreement remains effective with respect to the transferee;

d. If:

- i. The TSP becomes voluntarily or involuntarily the subject of any bankruptcy or insolvency or winding up proceedings and such



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proceedings remain uncontested for a period of thirty (30) days;
or

- ii. any winding up or bankruptcy or insolvency order is passed against the TSP; or
- iii. the TSP goes into liquidation or dissolution or a receiver or any similar officer is appointed over all or substantially all of its assets or official liquidator is appointed to manage its affairs, pursuant to Law,

Provided that a dissolution or liquidation of the TSP will not be a TSP's Event of Default, where such dissolution or liquidation of the TSP is for the purpose of a merger, consolidation or reorganization with the prior approval of the Commission as per the provisions of Central Electricity Regulatory Commission (Procedure, terms and Conditions for grant of Transmission License and other related matters) Regulations, 2006 or as amended from time to time; or

- e. Failure on the part of the TSP to comply with the provisions of Article 19.1 of this Agreement; or
- f. the TSP repudiates this Agreement and does not rectify such breach even within a period of thirty (30) days from a notice from the Nodal Agency in this regard; or
- g. after Commercial Operation Date of the Project, the TSP fails to achieve monthly Target Availability of 98% for a period of six (6) consecutive months or within a non-consecutive period of six (6) months within any continuous aggregate period of eighteen(18) months except where the Availability is affected by Force Majeure Events as per Article 11; or
- h. any of the representations and warranties made by the TSP in Article 17 of this Agreement being found to be untrue or inaccurate. Further, in addition to the above, any of the undertakings submitted by the Selected Bidder at the time of submission of the Bid being found to be breached or inaccurate, including but not limited to undertakings from its Parent Company / Affiliates related to the minimum equity obligation; or
- i. the TSP fails to complete / fulfil all the activities / conditions within the specified period as per Article 3; or



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- j. except for the reasons solely attributable to Nodal Agency, the TSP is in material breach of any of its obligations under this Agreement and such material breach is not rectified by the TSP within thirty (30) days of receipt of notice in this regard from the Nodal Agency; or
- k. the TSP fails to take the possession of the land required for location specific substations, switching stations or HVDC terminal or inverter stations and / or fails to pay the requisite price to the parties and / or any State Government authority from whom the land is acquired, within twelve (12) months from the Effective Date.

13.2 Termination Procedure for TSP Event of Default

- a. Upon the occurrence and continuance of any TSP's Event of Default under Article 13.1 the Nodal Agency may serve notice on the TSP, with a copy to the CEA and the Lenders' Representative, of their intention to terminate this Agreement (a "Nodal Agency's Preliminary Termination Notice"), which shall specify in reasonable detail, the circumstances giving rise to such Nodal Agency's Preliminary Termination Notice.
- b. Following the issue of a Nodal Agency's Preliminary Termination Notice, the Consultation Period shall apply and would be for the Parties to discuss as to what steps shall be taken with a view to mitigate the consequences of the relevant Event of Default having regard to all the circumstances.
- c. During the Consultation Period, the Parties shall, save as otherwise provided in this Agreement, continue to perform their respective obligations/ roles under this Agreement, and the TSP shall not remove any material, equipment or any part of the Project, without prior consent of the Nodal Agency.

Following the expiry of the Consultation Period, unless the Parties shall have otherwise agreed to the contrary or the circumstances giving rise to Nodal Agency's Preliminary Termination Notice shall have ceased to exist or shall have been remedied, this Agreement may be terminated by the Nodal Agency by giving a Termination Notice to the TSP, in writing, of at least seven (7) days, with a copy to CEA and the Lenders' Representative in order to enable the Lenders to exercise right of substitution in accordance with Article 15.3 of this Agreement.

Further, the Nodal Agency may also initiate proceedings to blacklist the TSP & its Affiliates from participation in any RFP issued by BPCs for a period of 5 years.



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13.3 Procedure for Nodal Agency's non-fulfilment of Role

- a. Upon the Nodal Agency not being able to fulfil its role under Article 4.2, the TSP may serve notice on the Nodal Agency, with a copy to CEA and the Lenders' Representative (a "TSP's Preliminary Notice"), which notice shall specify in reasonable detail the circumstances giving rise to such non-fulfilment of role by the Nodal Agency.
- b. Following the issue of a TSP's Preliminary Notice, the Consultation Period shall apply.
- c. The Consultation Period would be for the Parties to discuss as to what steps shall be taken with a view to mitigate the consequences of the relevant non-fulfilment of role by the Nodal Agency including giving time extension to TSP, having regard to all the circumstances.
- d. During the Consultation Period, both Parties shall, save as otherwise provided in this Agreement, continue to perform their respective obligations/ roles under this Agreement.

13.4 Termination due to Force Majeure

13.4.1 In case the Parties could not reach an agreement pursuant to Articles 3.3.4 and 4.4.2 of this Agreement and the Force Majeure Event or its effects continue to be present, the Nodal Agency shall have the right to cause termination of the Agreement. In case of such termination, the Contract Performance Guarantee shall be returned to the TSP as per the provisions of Article 6.5.1.

13.4.2 In case of termination of this Agreement, the TSP shall provide to the Nodal Agency the full names and addresses of its Contractors as well as complete designs, design drawings, manufacturing drawings, material specifications and technical information, as required by the Nodal Agency within thirty (30) days of Termination Notice.

13.5 Termination or amendment due to non-requirement of any Element or Project during construction

13.5.1 In case any Element or Project, which is under construction, is no longer required due to any reason whatsoever, the Nodal Agency may issue a notice to this effect to the TSP.

13.5.2 Nodal agency may also issue notice to the TSP seeking their response to the proposed termination/ amendment (as the case may be) of the Agreement. The Nodal Agency shall issue copy of such notice to Lenders. In the notice, Nodal Agency



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shall also include an assessment of the physical progress made by TSP in the Element/ Project (as the case may be) that is no longer required.

13.5.3 The TSP shall neither carry out further investment nor carry out any work on the Element/ Project (as the case may be) that is no longer required after delivery of the notice.

13.5.4 After taking into account the comments of the TSP, the Nodal Agency may terminate the Agreement or amend it if both Parties agree to the amendment.

13.6 Revocation of the Transmission License

13.6.1 The Commission may, as per the provisions of the Electricity Act, 2003, revoke the Transmission License of the ISTS Licensee. Further, in such a case, the Agreement shall be deemed to have been terminated.

13.7 Termination Payment

13.7.1 If Agreement is terminated on account of Force Majeure Events, non-requirement of any Element or Project during Construction, Nodal Agency's non-fulfilment of Role & TSP's Event of Default, the TSP shall be entitled for Termination Payment equivalent to valuation of Project Assets. Upon payment, the Nodal Agency shall take over the Project Assets.



ARTICLE: 14

14. LIABILITY AND INDEMNIFICATION

14.1 Indemnity

14.1.1 The TSP shall indemnify, defend and hold the Nodal Agency harmless against:

- (a) any and all third party claims, actions, suits or proceedings against the Nodal Agency for any loss of or damage to property of such third party, or death or injury to such third party, arising out of a breach by the TSP of any of its obligations under this Agreement, except to the extent that any such claim, action, suit or proceeding has arisen due to a negligent act or omission, breach of this Agreement or non-fulfilment of statutory duty on the part of Nodal Agency; and
- (b) any and all losses, damages, costs and expenses including legal costs, fines, penalties and interest actually suffered or incurred by the Nodal Agency from third party claims arising by reason of:
 - i. a breach by the TSP of any of its obligations under this Agreement, (provided that this Article 14 shall not apply to such breaches by the TSP, for which specific remedies have been provided for under this Agreement) except to the extent that any such losses, damages, costs and expenses including legal costs, fines, penalties and interest (together to constitute "Indemnifiable Losses") has arisen due to a negligent act or omission, breach of this Agreement or non-fulfilment of statutory duty on the part of the Nodal Agency, or
 - ii. any of the representations and warranties of the TSP under this Agreement being found to be inaccurate or untrue.

14.1.2 The Nodal Agency shall, in accordance with the Regulations framed by CERC in this regard, indemnify, defend and hold the TSP harmless against:

- (a) any and all third party claims, actions, suits or proceedings against the TSP, for any loss of or damage to property of such third party, or death or injury to such third party, arising out of any material breach by the Nodal Agency of any of their roles under this Agreement, except to the extent that any such claim, action, suit or proceeding has arisen due to a negligent act or omission, breach of this Agreement or breach of statutory duty on the part of the TSP, its Contractors, servants or agents; and
- (b) any and all losses, damages, costs and expenses including legal costs, fines, penalties and interest ('Indemnifiable Losses') actually suffered or incurred



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by the TSP from third party claims arising by reason of:

- i. any material breach by the Nodal Agency of any of its roles under this Agreement (provided that, this Article 14 shall not apply to such breaches by the Nodal Agency, for which specific remedies have been provided for under this Agreement), except to the extent that any such Indemnifiable Losses have arisen due to a negligent act or omission, breach of this Agreement or breach of statutory duty on the part of the TSP, its Contractors, servants or agents or
- ii. any of the representations and warranties of the Nodal Agency under this Agreement being found to be inaccurate or untrue.

14.2 Patent Indemnity:

14.2.1

- (a) The TSP shall, subject to the Nodal Agency's compliance with Article 14.2.1 (b), indemnify and hold harmless the Nodal Agency and its employees and officers from and against any and all suits, actions or administrative proceedings, claims, demands, losses, damages, costs, and expenses of whatsoever nature, including attorney's fees and expenses, which the Nodal Agency may suffer as a result of any infringement or alleged infringement of any patent, utility model, registered design, trademark, copyright or other intellectual property right registered or otherwise existing at the date of the Agreement by reason of the setting up of the Project by the TSP.

Such indemnity shall not cover any use of the Project or any part thereof other than for the purpose indicated by or to be reasonably inferred from the Agreement, any infringement resulting from the misuse of the Project or any part thereof, or any products produced in association or combination with any other equipment, plant or materials not supplied by the TSP, pursuant to the Agreement.

- (b) If any proceedings are brought or any claim is made against the Nodal Agency arising out of the matters referred to in Article 14.2.1(a), the Nodal Agency shall promptly give the TSP a notice thereof, and the TSP shall at its own expense take necessary steps and attend such proceedings or claim and any negotiations for the settlement of any such proceedings or claim. The TSP shall promptly notify the Nodal Agency of all actions taken in such proceedings or claims.

If the TSP fails to notify the Nodal Agency within twenty-eight (28) days after receipt of such notice from the Nodal Agency under Article 14.2.1(b) above,



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that it intends to attend any such proceedings or claim, then the Nodal Agency shall be free to attend the same on their own behalf at the cost of the TSP. Unless the TSP has so failed to notify the Nodal Agency within the twenty eight (28) days period, the Nodal Agency shall make no admission that may be prejudicial to the defence of any such proceedings or claims.

- (d) The Nodal Agency shall, at the TSP's request, afford all available assistance to the TSP in attending to such proceedings or claim, and shall be reimbursed by the TSP for all reasonable expenses incurred in so doing.

14.2.2

- (a) The Nodal Agency, in accordance with the Regulations framed by CERC in this regard, subject to the TSP's compliance with Article 14.2.2(b) shall indemnify and hold harmless the TSP and its employees, officers from and against any and all suits, actions or administrative proceedings, claims, demands, losses, damages, costs and expenses of whatsoever nature, including attorney's fees and expenses, which the TSP may suffer as a result of any infringement or alleged infringement of any patent, utility model, registered design, trademark, copyright or other intellectual property right registered or otherwise existing at the date of the Agreement by reason of the setting up of the Project by the TSP.
- (b) If any proceedings are brought or any claim is made against the TSP arising out of the matters referred to in Article 14.2.2 (a) the TSP shall promptly give the Nodal Agency a notice thereof, and the Nodal Agency shall at its own expense take necessary steps and attend such proceedings or claim and any negotiations for the settlement of any such proceedings or claim. The Nodal Agency shall promptly notify the TSP of all actions taken in such proceedings or claims.
- (c) If the Nodal Agency fails to notify the TSP within twenty-eight (28) days after receipt of such notice from the TSP under Article 14.2.2(b) above, that it intends to attend any such proceedings or claim, then the TSP shall be free to attend the same on its own behalf at the cost of the Nodal Agency. Unless the Nodal Agency has so failed to notify the TSP within the twenty (28) days period, the TSP shall make no admission that may be prejudicial to the defence of any such proceedings or claim.
- (d) The TSP shall, at the Nodal Agency request, afford all available assistance to the Nodal Agency in attending to such proceedings or claim, and shall be reimbursed by the Nodal Agency for all reasonable expenses incurred in so doing.



14.3 Monetary Limitation of liability

14.3.1 A Party ("Indemnifying Party") shall be liable to indemnify the other Party ("Indemnified Party") under this Article 14 for any indemnity claims made in a Contract Year only up to an amount of **Rs.13.62 Crore (Rupees Thirteen Crore Sixty Two Lakh Only)**.

14.4 Procedure for claiming indemnity

14.4.1 Where the Indemnified Party is entitled to indemnification from the Indemnifying Party pursuant to Articles 14.1 or 14.2 the Indemnified Party shall promptly notify the Indemnifying Party of such claim, proceeding, action or suit referred to in Articles 14.1 or 14.2 in respect of which it is entitled to be indemnified. Such notice shall be given as soon as reasonably practicable after the Indemnified Party becomes aware of such claim, proceeding, action or suit. The Indemnifying Party shall be liable to settle the indemnification claim within thirty (30) days of receipt of the above notice.

Provided however that, if:

- i. the Parties choose to contest, defend or litigate such claim, action, suit or proceedings in accordance with Article 14.4.3 below; and
- ii. the claim amount is not required to be paid/deposited to such third party pending the resolution of the Dispute,

the Indemnifying Party shall become liable to pay the claim amount to the Indemnified Party or to the third party, as the case may be, promptly following the resolution of the Dispute, if such Dispute is not settled in favour of the Indemnified Party.

14.4.2 The Indemnified Party may contest, defend and litigate a claim, action, suit or proceeding for which it is entitled to be indemnified under Articles 14.1 or 14.2 and the Indemnifying Party shall reimburse to the Indemnified Party all reasonable costs and expenses incurred by the Indemnified Party. However, such Indemnified Party shall not settle or compromise such claim, action, suit or proceedings without first getting the consent of the Indemnifying Party, which consent shall not be unreasonably withheld or delayed.

14.4.3 An Indemnifying Party may, at its own expense, assume control of the defence of any proceedings brought against the Indemnified Party if it acknowledges its obligation to indemnify such Indemnified Party, gives such Indemnified Party prompt notice of its intention to assume control of the defence, and employs an independent legal counsel at its own cost that is reasonably satisfactory to the Indemnified Party.

14.5 Limitation on Liability

14.5.1 Except as expressly provided in this Agreement, neither the TSP nor the Nodal

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Agency nor their respective officers, directors, agents, employees or Affiliates (including, officers, directors, agents or employees of such Affiliates), shall be liable or responsible to the other Party or its Affiliates including its officers, directors, agents, employees, successors, insurers or permitted assigns for incidental, indirect or consequential, punitive or exemplary damages, connected with or resulting from performance or non-performance of this Agreement, or anything done in connection herewith, including claims in the nature of lost revenues, income or profits (other than payments expressly required and properly due under this Agreement), any increased expense of, reduction in or loss of transmission capacity or equipment used therefore, irrespective of whether such claims are based upon breach of warranty, tort (including negligence, whether of the Nodal Agency, the TSP or others), strict liability, contract, breach of statutory duty, operation of law or otherwise.

14.5.2 The Nodal Agency shall have no recourse against any officer, director or shareholder of the TSP or any Affiliate of the TSP or any of its officers, directors or shareholders for such claims excluded under this Article. The TSP shall also have no recourse against any officer, director or shareholder of the Nodal Agency, or any Affiliate of the Nodal Agency or any of its officers, directors or shareholders for such claims excluded under this Article.

14.6 Duty to Mitigate

The party entitled to the benefit of an indemnity under this Article 14 shall take all reasonable measures to mitigate any loss or damage which has occurred. If the Party fails to take such measures, the other Party's liabilities shall be correspondingly reduced.



ARTICLE: 15

15. ASSIGNMENTS AND CHARGES

15.1 Assignments:

15.1.1 This Agreement shall be binding upon, and inure to the benefit of the Parties and their respective successors and permitted assigns. This Agreement shall not be assigned by any Party, except as provided in Article 15.3.

15.2 Permitted Charges:

15.2.1 Neither Party shall create or permit to subsist any encumbrance over all or any of its rights and benefits under this Agreement.

15.2.2 However, the TSP may create any encumbrance over all or part of the receivables, or the Project Assets of the Project in favour of the Lenders or the Lenders' Representative on their behalf, as security for amounts payable under the Financing Agreements and any other amounts agreed by the Parties.

Provided that:

- i. the Lenders or the Lenders' Representative on their behalf shall have entered into the Financing Agreements and agreed in writing to the provisions of this Agreement; and
- ii. any encumbrance granted by the TSP in accordance with this Article 15.2.2 shall contain provisions pursuant to which the Lenders or the Lender's Representative on their behalf agrees unconditionally with the TSP to release from such encumbrances upon payment by the TSP to the Lenders of all amounts due under the Financing Agreements.

15.2.3 Article 15.2.1 does not apply to:

- a. liens arising by operation of law (or by an agreement evidencing the same) in the ordinary course of the TSP developing and operating the Project;
- b. pledges of goods, the related documents of title and / or other related documents, arising or created in the ordinary course of the TSP developing and operating the Project; or
- c. security arising out of retention of title provisions in relation to goods acquired in the ordinary course of the TSP developing and operating the Project.



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[Signature]

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[Signature]

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15.3 Substitution Rights of the Lenders

- 15.3.1 The TSP would need to operate and maintain the Project under the provisions of this Agreement and cannot assign the Transmission License or transfer the Project or part thereof to any person by sale, lease, exchange or otherwise, without the prior approval of the Nodal Agency.
- 15.3.2 However, in the case of default by the TSP in debt repayments or in the case of default by the TSP as per Article 13 of this Agreement during the debt repayments, the Commission may, on an application from the Lenders, assign the Transmission License to the nominee of the Lenders subject to the fulfilment of the qualification requirements and provisions of the Central Electricity Regulatory Commission (Procedure, terms and Conditions for grant of Transmission License and other related matters) Regulations, 2006 and as amended from time to time.



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ARTICLE: 16

16. GOVERNING LAW AND DISPUTE RESOLUTION

16.1 Governing Law:

This Agreement shall be governed by and construed in accordance with the Laws of India. Any legal proceedings in respect of any matters, claims or disputes under this Agreement shall be under the jurisdiction of appropriate courts in Delhi.

16.2 Amicable Settlement:

16.2.1 Either Party is entitled to raise any claim, dispute or difference of whatever nature arising under, out of or in connection with this Agreement, including its existence or validity or termination or whether during the execution of the Project or after its completion and whether prior to or after the abandonment of the Project or termination or breach of the Agreement by giving a written notice to the other Party, which shall contain:

- (i) a description of the Dispute;
- (ii) the grounds for such Dispute; and
- (iii) all written material in support of its claim.

16.2.2 The other Party shall, within thirty (30) days of issue of notice issued under Article 16.2.1, furnish:

- (i) counter-claim and defences, if any, regarding the Dispute; and
- (ii) all written material in support of its defences and counter-claim.

16.2.3 Within thirty (30) days of issue of notice by the Party pursuant to Article 16.2.1, if the other Party does not furnish any counter claim or defense under Article 16.2.2, or thirty (30) days from the date of furnishing counter claims or defence by the other Party, both the Parties to the Dispute shall meet to settle such Dispute amicably. If the Parties fail to resolve the Dispute amicably within thirty (30) days from the later of the dates mentioned in this Article 16.2.3, the Dispute shall be referred for dispute resolution in accordance with Article 16.3.

16.3 Dispute Resolution:

All Disputes shall be adjudicated by the Commission.



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16.4 Parties to Perform Obligations:

Notwithstanding the existence of any Dispute and difference referred to the Commission as provided in Article 16.3 and save as the Commission may otherwise direct by a final or interim order, the Parties hereto shall continue to perform their respective obligations/ roles (which are not in dispute) under this Agreement.



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ARTICLE: 17

17. REPRESENTATION AND WARRANTIES

17.1 Representation and warranties of the Nodal Agency

17.1.1 The Nodal Agency hereby represents and warrants to and agrees with the TSP as follows and acknowledges and confirms that the TSP is relying on such representations and warranties in connection with the transactions described in this Agreement:

- a. It has all requisite powers and authority to execute and consummate this Agreement;
- b. This Agreement is enforceable against the Nodal Agency in accordance with its terms;
- c. The consummation of the transactions contemplated by this Agreement on the part of Nodal Agency will not violate any provision of nor constitute a default under, nor give rise to a power to cancel any charter, mortgage, deed of trust or lien, lease, agreement, license, permit, evidence of indebtedness, restriction, or other contract to which the Nodal Agency is a Party or to which the Nodal Agency is bound, which violation, default or power has not been waived;

17.2 Representation and Warranties of the TSP:

17.2.1 The TSP hereby represents and warrants to and agrees with the Nodal Agency as follows and acknowledges and confirms that the Nodal Agency is relying on such representations and warranties in connection with the transactions described in this Agreement:

- a. It has all requisite powers and has been duly authorized to execute and consummate this Agreement;
- b. This Agreement is enforceable against it, in accordance with its terms;
- c. The consummation of the transactions contemplated by this Agreement on the part of the TSP will not violate any provision of nor constitute a default under, nor give rise to a power to cancel any charter, mortgage, deed of trust or lien, lease, agreement, license, permit, evidence of indebtedness, restriction, or other contract to which the TSP is a Party or to which the TSP is bound which violation, default or power has not been waived;



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- d. The TSP is not insolvent and no insolvency proceedings have been instituted, nor threatened or pending by or against the TSP;
- e. There are no actions, suits, claims, proceedings or investigations pending or, to the best of the TSP's knowledge, threatened in writing against the TSP at law, in equity, or otherwise, and whether civil or criminal in nature, before or by, any court, commission, arbitrator or governmental agency or authority, and there are no outstanding judgments, decrees or orders of any such courts, commission, arbitrator or governmental agencies or authorities, which materially adversely affect its ability to execute the Project or to comply with its obligations under this Agreement.

17.2.2 The TSP makes all the representations and warranties above to be valid as on the Effective Date of this Agreement.



ARTICLE: 18

18. INDEPENDENT ENGINEER

18.1 Appointment of Independent Engineer

The Nodal Agency shall appoint an agency/ company as Independent Engineer as per framework provided in the Guidelines for Encouraging Competition in Development of Transmission Projects for selection of Independent Engineer.

18.2 Roles and functions of Independent Engineer

The role and functions of the Independent Engineer shall include the following:

- a. Progress Monitoring as required under this Agreement;
- b. Ensuring Quality as required under this Agreement;
- c. determining, as required under the Agreement, the costs of any works or services and/or their reasonableness during construction phase;
- d. determining, as required under the Agreement, the period or any extension thereof, for performing any duty or obligation during construction phase;
- e. determining, as required under the Agreement, the valuation of the Project Assets.
- f. Assisting the Parties in resolution of Disputes and
- g. Undertaking all other duties and functions in accordance with the Agreement.

18.3 Remuneration of Independent Engineer

The fee and charges of the Independent Engineer shall be paid by the Nodal Agency as per terms & conditions of appointment.

18.4 Termination of appointment

18.4.1 The Nodal Agency may, in its discretion, terminate the appointment of the Independent Engineer at any time, but only after appointment of another Independent Engineer.

18.4.2 If the TSP has reason to believe that the Independent Engineer is not discharging its duties and functions in a fair, efficient and diligent manner, it may make a written representation to the Nodal Agency and seek termination of the appointment of the Independent Engineer. Upon receipt of such representation, the Nodal Agency shall



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hold a tripartite meeting with the TSP and Independent Engineer for an amicable resolution, and the decision of Nodal agency is final. In the event that the appointment of the Independent Engineer is terminated hereunder, the Nodal Agency shall appoint forthwith another Independent Engineer.

18.5 Authorised signatories

The Nodal Agency shall require the Independent Engineer to designate and notify to the Nodal Agency up to 2 (two) persons employed in its firm to sign for and on behalf of the Independent Engineer, and any communication or document required to be signed by the Independent Engineer shall be valid and effective only if signed by any of the designated persons; provided that the Independent Engineer may, by notice in writing, substitute any of the designated persons by any of its employees.



ARTICLE: 19

19. MISCELLANEOUS PROVISIONS

19.1 Equity Lock-in Commitment:

19.1.1 The aggregate equity share holding of the Selected Bidder in the issued and paid up equity share capital of **KRISHNAGIRI REZ TRANSMISSION LIMITED** shall not be less than Fifty one percent (51%) up to a period of one (1) year after COD of the Project.

Provided that, in case the Lead Member or Bidding Company is holding equity through Affiliate/s, Ultimate Parent Company or Parent Company, such restriction as specified above shall apply to such entities.

Provided further, that in case the Selected Bidder is a Bidding Consortium, the Lead Member shall continue to hold equity of at least twenty six percent (26%) upto a period of one (1) year after COD of the Project and any Member of such Bidding Consortium shall be allowed to divest its equity as long as the other remaining Members (which shall always include the Lead Member) hold the minimum equity specified above.

19.1.2 If equity is held by the Affiliates, Parent Company or Ultimate Parent Company of the Selected Bidder, then, subject to the second proviso to Article 19.1.1, such Affiliate, Parent Company or Ultimate Parent Company shall be eligible to transfer its shareholding in **KRISHNAGIRI REZ TRANSMISSION LIMITED** to another Affiliate or to the Parent Company / Ultimate Parent Company of the Selected Bidder. If any such shareholding entity, qualifying as an Affiliate / Parent Company / Ultimate Parent Company, is likely to cease to meet the criteria to qualify as an Affiliate / Parent Company / Ultimate Parent Company, the shares held by such entity shall be transferred to another Affiliate / Parent Company / Ultimate Parent Company of the Selected Bidder.

19.1.3 Subject to Article 19.1.1, all transfer(s) of shareholding of **KRISHNAGIRI REZ TRANSMISSION LIMITED** by any of the entities referred to in Article 19.1.1 and 19.1.2 above, shall be after prior written intimation to the Nodal Agency.

19.1.4 For computation of effective Equity holding, the Equity holding of the Selected Bidder or its Ultimate Parent Company in such Affiliate(s) or Parent Company and the equity holding of such Affiliate(s) or Ultimate Parent Company in **KRISHNAGIRI REZ TRANSMISSION LIMITED** shall be computed in accordance with the example given below:

If the Parent Company or the Ultimate Parent Company of the Selected Bidder is



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directly holds thirty percent (30%) of the equity in **KRISHNAGIRI REZ TRANSMISSION LIMITED**, then holding of Selected Bidder A in **KRISHNAGIRI REZ TRANSMISSION LIMITED** shall be thirty percent (30%);

If Selected Bidder A holds thirty percent (30%) equity of the Affiliate and the Affiliate holds fifty percent (50%) equity in **KRISHNAGIRI REZ TRANSMISSION LIMITED**, then, for the purposes of ascertaining the minimum equity/equity lock-in requirements specified above, the effective holding of Bidder A in **KRISHNAGIRI REZ TRANSMISSION LIMITED** shall be fifteen percent (15%), (i.e., $30\% \times 50\%$)

19.1.5 The provisions as contained in this Article 19.1 shall override the terms of the consortium agreement submitted as part of the Bid.

19.1.6 The TSP shall be responsible to report to Nodal Agency, within thirty (30) days from the occurrence of any event that would result in any change in its equity holding structure from that which existed as on the date of signing of the Share Purchase Agreement. In such cases, the Nodal Agency would reserve the right to ascertain the equity holding structure and to call for all such required documents / information / clarifications as may be required.

19.2 Commitment of maintaining Qualification Requirement

19.2.1 The Selected Bidder will be required to continue to maintain compliance with the Qualification Requirements, as stipulated in RFP Document, till the COD of the Project. Where the Technically Evaluated Entity and/or the Financially Evaluated Entity is not the Bidding Company or a Member in a Bidding Consortium, as the case may be, the Bidding Company or Member shall continue to be an Affiliate of the Technically Evaluated Entity and/or Financially Evaluated Entity till the COD of the Project.

19.2.2 Failure to comply with the aforesaid provisions shall be dealt in the same manner as TSP's Event of Default as under Article 13 of this Agreement.

19.3 Language:

19.3.1 All agreements, correspondence and communications between the Parties relating to this Agreement and all other documentation to be prepared and supplied under the Agreement shall be written in English, and the Agreement shall be construed and interpreted in accordance with English language.

19.3.2 If any of the agreements, correspondence, communications or documents are prepared in any language other than English, the English translation of such agreements, correspondence, communications or documents shall prevail in



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matters of interpretation.

19.4 Affirmation

The TSP and the Nodal Agency, each affirm that:

1. neither it nor its respective directors, employees, or agents has paid or undertaken to pay or shall in the future pay any unlawful commission, bribe, pay-off or kick-back; and
2. it has not in any other manner paid any sums, whether in Indian currency or foreign currency and whether in India or abroad to the other Party to procure this Agreement, and the TSP and the Nodal Agency hereby undertake not to engage in any similar acts during the Term of Agreement.

19.5 Severability

The invalidity or enforceability, for any reason, of any part of this Agreement shall not prejudice or affect the validity or enforceability of the remainder of this Agreement, unless the part held invalid or unenforceable is fundamental to this Agreement.

19.6 Counterparts

This Agreement may be executed in one or more counterparts, each of which shall be deemed an original and all of which collectively shall be deemed one and the same Agreement.

19.7 Breach of Obligations/ Roles

The Parties acknowledge that a breach of any of the obligations/ roles contained herein would result in injuries. The Parties further acknowledge that the amount of the liquidated damages or the method of calculating the liquidated damages specified in this Agreement is a genuine and reasonable pre-estimate of the damages that may be suffered by the non-defaulting Party in each case specified under this Agreement

19.8 Restriction of Shareholders / Owners Liability

19.8.1 Parties expressly agree and acknowledge that none of the shareholders of the Parties hereto shall be liable to the other Parties for any of the contractual obligations of the concerned Party under this Agreement.

19.8.2 Further, the financial liabilities of the shareholder(s) of each Party to this Agreement shall be restricted to the extent provided in the Indian Companies Act, 1956 / Companies Act, 2013 (as the case may be).



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19.9 Taxes and Duties:

19.9.1 The TSP shall bear and promptly pay all statutory taxes, duties, levies and cess, assessed/levied on the TSP, its Contractors or their employees that are required to be paid by the TSP as per the Law in relation to the execution of the Project and for providing Transmission Service as per the terms of this Agreement.

19.9.2 The Nodal Agency shall be indemnified and held harmless by the TSP against any claims that may be made against the Nodal Agency in relation to the matters set out in Article 19.9.1.

19.9.3 The Nodal Agency shall not be liable for any payment of, taxes, duties, levies, cess whatsoever for discharging any obligation of the TSP by the Nodal Agency on behalf of TSP or its personnel, provided the TSP has consented in writing to the Nodal Agency for such work, for which consent shall not be unreasonably withheld.

19.10 No Consequential or Indirect Losses

The liability of the TSP shall be limited to that explicitly provided in this Agreement.

Provided that, notwithstanding anything contained in this Agreement, under no event shall the Nodal Agency or the TSP claim from one another any indirect or consequential losses or damages.

19.11 Discretion:

Except where this Agreement expressly requires a Party to act fairly or reasonably, a Party may exercise any discretion given to it under this Agreement in any way it deems fit.

19.12 Confidentiality

19.12.1 The Parties undertake to hold in confidence this Agreement and RFP Project Documents and not to disclose the terms and conditions of the transaction contemplated hereby to third parties, except:

- (a) to their professional advisors;
- (b) to their officers, contractors, employees, agents or representatives, financiers, who need to have access to such information for the proper performance of their activities; or
- (c) disclosures required under Law,

without the prior written consent of the other Parties.



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Provided that, the TSP agrees and acknowledges that the Nodal Agency, may, at any time, disclose the terms and conditions of the Agreement and the RFP Project Documents to any person, to the extent stipulated under the Law and the Competitive Bidding Guidelines.

19.13 Order of priority in application:

Save as provided in Article 2.5, in case of inconsistencies between the terms and conditions stipulated in Transmission License issued by the Commission to the TSP, agreement(s) executed between the Parties, applicable Law including rules and regulations framed thereunder, the order of priority as between them shall be the order in which they are placed below:

- terms and conditions of Transmission License;
- applicable Law, rules and regulations framed thereunder;
- this Agreement;
- Agreement(s), if any, under Sharing Regulations.

19.14 Independent Entity:

19.14.1 The TSP shall be an independent entity performing its obligations pursuant to the Agreement.

19.14.2 Subject to the provisions of the Agreement, the TSP shall be solely responsible for the manner in which its obligations under this Agreement are to be performed. All employees and representatives of the TSP or Contractors engaged by the TSP in connection with the performance of the Agreement shall be under the complete control of the TSP and shall not be deemed to be employees, representatives, Contractors of the Nodal Agency and nothing contained in the Agreement or in any agreement or contract awarded by the TSP shall be construed to create any contractual relationship between any such employees, representatives or Contractors and the Nodal Agency.

19.15 Amendments:

19.15.1 This Agreement may only be amended or supplemented by a written agreement between the Parties.

19.16 Waiver:

19.16.1 No waiver by either Party of any default or breach by the other Party in the performance of any of the provisions of this Agreement shall be effective unless in

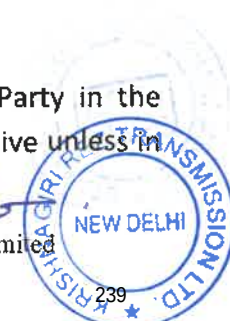


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Krishnagiri REZ Transmission Limited



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writing duly executed by an authorised representative of such Party.

- 19.16.2 Neither the failure by either Party to insist on any occasion upon the performance of the terms, conditions and provisions of this Agreement nor time or other indulgence granted by one Party to the other Parties shall act as a waiver of such breach or acceptance of any variation or the relinquishment of any such right or any other right under this Agreement, which shall remain in full force and effect.

19.17 Relationship of the Parties:

This Agreement shall not be interpreted or construed to create an association, joint venture, or partnership or agency or any such other relationship between the Parties or to impose any partnership obligation or liability upon either Party and neither Party shall have any right, power or authority to enter into any agreement or undertaking for, or act on behalf of, or to act as or be an agent or representative of, or to otherwise bind, the other Party.

19.18 Entirety:

- 19.18.1 This Agreement along with its sections, schedules and appendices is intended by the Parties as the final expression of their agreement and is intended also as a complete and exclusive statement of the terms of their agreement.
- 19.18.2 Except as provided in this Agreement, all prior written or oral understandings, offers or other communications of every kind pertaining to this Agreement or the provision of Transmission Service under this Agreement to the Nodal Agency by the TSP shall stand superseded and abrogated.

19.19 Notices:

- 19.19.1 All notices or other communications which are required to be given under this Agreement shall be in writing and in the English language
- 19.19.2 If to the TSP, all notices or communications must be delivered personally or by registered post or facsimile or any other mode duly acknowledged to the addressee below:

(i) **Powergrid Corporation of India Limited (Selected Bidder)**

Address : Plot No. 2, Sandamini,
Sec-29, Gurugram, HR (122001)
Attention : ED (T&CB)
Email : ttcb@powergrid.in
Fax. No. : -
Telephone No. : 0124-2822123

BUSINESS
SR-IRHQ, Kavadi Guda Main
Road, Secunderabad 500080
Sh. K. Sudhakar Rao (PIC)
krr@powergrid.in



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19.19.3 If to the Nodal Agency, all notices or communications must be delivered personally or by registered post or facsimile or any other mode duly acknowledged to the addresses below:

(i) **Central Transmission Utility of India Limited (Nodal Agency)**

Address : 5th to 10th Floor, IRCON International Tower,
Tower No-1, Plot No-16, Sector-32, Gurugram
Haryana: 122003
Attention : Ramachandra, Sr GM
Email : ramachand@powergrid.in
Fax. No. :
Telephone No. : 9910378128

19.19.4 All notices or communications given by facsimile shall be confirmed by sending a copy of the same via post office in an envelope properly addressed to the appropriate Party for delivery by registered mail. All notices shall be deemed validly delivered upon receipt evidenced by an acknowledgement of the recipient, unless the Party delivering the notice can prove in case of delivery through the registered post that the recipient refused to acknowledge the receipt of the notice despite efforts of the postal authorities.

19.19.5 Any Party may by notice of at least fifteen (15) days to the other Party change the address and/or addresses to which such notices and communications to it are to be delivered or mailed.

19.20 Fraudulent and Corrupt Practices

19.20.1 The TSP and its respective officers, employees, agents and advisers shall observe the highest standard of ethics during the subsistence of this Agreement. Notwithstanding anything to the contrary contained in the Agreement, the Nodal Agency may terminate the Agreement without being liable in any manner whatsoever to the TSP, if it determines that the TSP has, directly or indirectly or through an agent, engaged in corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice in the Bid process. In such an event, the Nodal Agency shall forfeit the Contract Performance Guarantee of the TSP, without prejudice to any other right or remedy that may be available to the Nodal Agency hereunder or subsistence otherwise.

19.20.2 Without prejudice to the rights of the Nodal Agency under Clause 19.20.1 hereinabove and the rights and remedies which the Nodal Agency may have under this Agreement, if a TSP is found by the Nodal Agency to have directly or indirectly



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or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice during the Bid process, or after the issue of Letter of Intent (hereinafter referred to as Lol) or after the execution of the agreement(s) required under Sharing Regulations, the Nodal Agency may terminate the Agreement without being liable in any manner whatsoever to the TSP. Further, the TSP & its Affiliates shall not be eligible to participate in any tender or RFP issued by any BPC for an indefinite period from the date such TSP is found by the Nodal Agency to have directly or indirectly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practices, as the case may be.

19.20.3 For the purposes of this Clause 19.20, the following terms shall have the meaning hereinafter respectively assigned to them:

(a) **"corrupt practice"** means (i) the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the actions of any person connected with the Bid process (for avoidance of doubt, offering of employment to or employing or engaging in any manner whatsoever, directly or indirectly, any official of the BPC who is or has been associated or dealt in any manner, directly or indirectly with the Bid process or the Lol or has dealt with matters concerning the RFP Project Documents or arising there from, before or after the execution thereof, at any time prior to the expiry of one year from the date such official resigns or retires from or otherwise ceases to be in the service of the BPC, shall be deemed to constitute influencing the actions of a person connected with the Bid Process); or (ii) engaging in any manner whatsoever, whether during the Bid Process or after the issue of the Lol or after the execution of the RFP Project Documents, as the case may be, any person in respect of any matter relating to the Project or the Lol or the RFP Project Documents, who at any time has been or is a legal, financial or technical adviser of the BPC in relation to any matter concerning the Project;

(b) **"fraudulent practice"** means a misrepresentation or omission of facts or suppression of facts or disclosure of incomplete facts, in order to influence the Bid process;

(c) **"coercive practice"** means impairing or harming, or threatening to impair or harm, directly or indirectly, any person or property to influence any person's participation or action in the Bid process;

(d) **"undesirable practice"** means (i) establishing contact with any person connected with or employed or engaged by the BPC with the objective of canvassing, lobbying or in any manner influencing or attempting to influence the Bid process; or (ii) having a Conflict of Interest; and



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(e) “**restrictive practice**” means forming a cartel or arriving at any understanding or arrangement among Bidders with the objective of restricting or manipulating a full and fair competition in the Bid process;

19.21 Compliance with Law:

Despite anything contained in this Agreement but without prejudice to Article 12, if any provision of this Agreement shall be in deviation or inconsistent with or repugnant to the provisions contained in the Electricity Act, 2003, or any rules and regulations made there under, such provision shall be deemed to be amended to the extent required to bring it into compliance with the aforesaid relevant provisions as amended from time to time.



DEPUTY MANAGER
CENTRAL TRANSMISSION UTILITY OF INDIA LTD.
NEW DELHI

Central Transmission Utility of India Limited

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[Signature]

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IN WITNESS WHEREOF, THE PARTIES HAVE CAUSED THIS AGREEMENT TO BE EXECUTED BY THEIR DULY AUTHORISED REPRESENTATIVES AS OF THE DATE AND PLACE SET FORTH ABOVE.

1. For and on behalf of TSP



.....

[Signature, Name, Designation and Address]

2. For and on behalf of **Central Transmission Utility of India Limited (Nodal Agency)**



.....
DEEPAK KRISHNAN
Chief Manager
[Signature, Name, Designation and Address]
CENTRAL TRANSMISSION UTILITY OF INDIA LIMITED
(पॉवर ग्रिड कॉर्पोरेशन ऑफ इंडिया लिमिटेड की पूर्ण स्वामित्व कंपनी)
(A wholly owned subsidiary of POWERGRID)
5th-10th Floor, Icon International Tower-1, Plot No.-16, Sector-32, Gurgaon-122003

WITNESSES:

1. For and on behalf of

: BPC


Suman Kumar
E-1 Amar Colony, Lajpat
Nagar-4, New Delhi-11
consultant

.....
[Signature]

.....
[Insert, Name, Designation and Address of the Witness]

2. For and on behalf of

: Nodal Agency



.....
[Signature]

.....
TOWSIF AHMED
Deputy Manager
[Insert Name, Designation and Address of the Witness]
CENTRAL TRANSMISSION UTILITY OF INDIA LIMITED
(पॉवर ग्रिड कॉर्पोरेशन ऑफ इंडिया लिमिटेड की पूर्ण स्वामित्व कंपनी)
(A wholly owned subsidiary of POWERGRID)
5th-10th Floor, Icon International Tower-1, Plot No.-16, Sector-32, Gurgaon-122003

SCHEDULES




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Schedule: 1

Project Description and Scope of Project

A. Description of the Transmission Scheme

Govt. of India has set a target of 500 GW generation capacity from non-fossil fuel resources by 2030. In this direction, MNRE has identified addition of 86 GW RE Potential in the State of Andhra Pradesh, Telangana, Karnataka and Tamil Nadu (Offshore) in Southern Region. Out of the identified (86 GW) RE Potential in Southern Region, 51 GW has been identified in the State of Andhra Pradesh (Ananthapur – 20 GW, Kurnool – 23 GW & Kadapa – 8 GW).

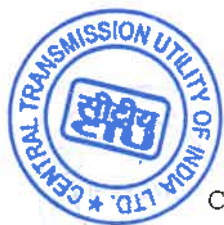
The “Transmission System for integration of Krishnagiri REZ Phase-I” shall facilitate immediate integration & evacuation of power from RE generation projects for about 4.5 GW of RE potential in Kurnool area out of the identified total potential of 23 GW in Kurnool, Andhra Pradesh.

The Transmission System was discussed and agreed in the 38th CMETS-SR held on 02.06.2025. The scheme was further discussed and agreed in the 55th SRPC meeting held on 26.07.2025.

The National Committee on Transmission in its 32nd meeting held on 12.08.2025 has recommended the implementation of the subject transmission scheme through TBCB route and has identified the PFC Consulting Limited as BPC for bidding of the transmission scheme.

Subsequently, the Scheme was discussed in the 33rd NCT meeting held on 16.09.2025 wherein it was informed that in order to ensure optimum utilization of the transmission lines, RE power from Krishnagiri REZ-Phase-1 (4.5 GW) and of Ananthapuram-III REZ-Phase-I (4.5GW) may be evacuated through the already identified Transmission System in Kurnool and Ananthapuram areas respectively during non-solar hours with implementation of co-located BESS. NCT opined that possibility may be explored for grant of additional connectivity for optimal utilization of the Transmission System during non-solar hours.

The scheme was again discussed in the 35th NCT meeting held on 19.11.2025 wherein it was deliberated that holding up of implementation of Krishnagiri PS may lead to non-development of RE generation in that area and after detailed deliberations, NCT recommended that Transmission Scheme for Krishnagiri may be taken up for implementation. Ministry of Power vide Gazette notification dated 26.12.2025 has notified the transmission scheme for implementation through TBCB route.



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B. Detailed Scope of Work

Transmission System for integration of Krishnagiri REZ Phase-I		
S. No.	Name of Transmission Element	Scheduled COD in months from Effective Date
1.	Establishment of 4x1500 MVA, 765/400 kV and 5x500 MVA, 400/220kV Krishnagiri Pooling Station near Kodumur in Kurnool district along with 2x330 MVar (765 kV) bus reactors at Krishnagiri PS with provision of two (2) sections of 4500 MVA each at 400kV level 765/400kV, 1500 MVA, ICTs – 4 Nos. (13x500 MVA incl. 1 spare unit) 765kV ICT bays – 4 Nos. 400kV ICT bays – 4 Nos. 765kV line bays – 6 Nos. (at Krishnagiri PS for termination of Krishnagiri – Doma, Krishnagiri – Raichur New and Krishnagiri – Sagar 765kV D/c lines) 765 kV, 330 MVar Bus Reactor – 2 Nos. (7x110 MVar inc. 1 switchable spare unit for both bus reactor and line reactor) 765 kV Bus Reactor bays – 2 Nos. 400/220kV, 500 MVA, ICTs – 5 Nos. 400kV ICT bays – 5 Nos. 220kV ICT bays – 5 Nos. 220kV line bays – 6 Nos. 220kV Bus Sectionalizer : 1 set 220 kV Bus Coupler (BC) Bay – 2 Nos. 220 kV Transfer Bus Coupler (TBC) Bay – 2 Nos. Future Space Provisions: 765/400kV, 1500 MVA, ICTs – 2 Nos. 765kV ICT bays – 2 Nos. 400kV ICT bays – 2 Nos. 400/220kV, 500 MVA, ICTs – 13 Nos. 400kV ICT bays – 13 Nos. 220kV ICT bays – 13 Nos. 765kV line bays – 8 Nos. (with provision for SLR) 400kV line bays – 12 Nos. (with provision for SLR) 220kV line bays – 19 Nos. 220kV Bus Sectionalizer : 2 sets 220 kV Bus Coupler (BC) Bay – 2 Nos. 220 kV Transfer Bus Coupler (TBC) Bay – 2 Nos.	36 Months (03.08.2029)



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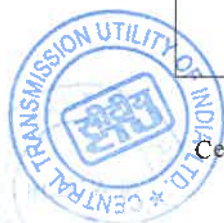
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Transmission System for integration of Krishnagiri REZ Phase-I		
S. No.	Name of Transmission Element	Scheduled COD in months from Effective Date
	400kV Bus Sectionalizer : 1 set	
2.	$\pm$ 300 MVar STATCOM at Krishnagiri PS 400kV bay – 1 no. $\pm$ 300 MVar STATCOM – 1 set	
3.	Krishnagiri – Doma 765 kV D/c line with 240 MVar SLR (convertible) at both ends on both circuits 765 kV line bays – 2 Nos. (at Doma) 765 kV, 240 MVar SLR at Krishnagiri PS – 2 Nos. (7x80 MVar inc. 1 switchable spare unit) - Switching Equipment for 765 kV SLR at Krishnagiri PS – 2 Nos. 765 kV, 240 MVar SLR at Doma PS – 2 Nos. (7x80 MVar inc. 1 switchable spare unit) - Switching Equipment for 765 kV SLR at Doma PS – 2 Nos.	
4.	Krishnagiri – Raichur New 765 kV D/c line with 240 MVar SLR (convertible) at Raichur New end on both circuits	
5.	Establishment of 3x1500 MVA, 765/400 kV Sagar substation with 2x330 MVar (765 kV) bus reactors with space provision for establishment of 220 kV switchyard 765/400kV, 1500 MVA, ICTs – 3 Nos. (10x500 MVA incl. 1 spare unit) 765kV ICT bay – 3 Nos. 400kV ICT bay – 3 Nos. 765kV line bays – 2 Nos. (at Sagar for termination of Krishnagiri – Sagar 765 kV D/c line) 765 kV, 330 MVar Bus Reactors – 2 Nos. (7x110 MVar inc. 1 switchable spare unit) 765 kV Bus Reactor bays – 2 Nos. 400kV line bays – 2 Nos. (at Sagar for termination of Sagar – Nagarjunasagar 400 kV quad D/c line) Future Space Provisions: 765/400kV, 1500 MVA, ICTs – 3 Nos. 765kV ICT bays – 3 Nos. 400kV ICT bays – 3 Nos. 765kV line bays – 12 Nos. (with provision for SLR) 400kV line bays – 10 Nos. (with provision for SLR) 400kV Bus Sectionalizer : 1 set	



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Transmission System for integration of Krishnagiri REZ Phase-I		
S. No.	Name of Transmission Element	Scheduled COD in months from Effective Date
	Future Space Provisions for 220kV switchyard: • 400/220kV, 500 MVA, ICTs – 10 Nos. • 400kV ICT bays – 10 Nos. • 220kV ICT bays – 10 Nos. • 220kV line bays – 16 Nos. • 220kV Bus Sectionalizer: 3 set • 220 kV Bus Coupler (BC) Bay – 4 Nos. • 220 kV Transfer Bus Coupler (TBC) Bay – 4 Nos.	
6.	Krishnagiri – Sagar 765 kV D/c line with 240 MVar SLR (convertible) at both ends on both circuits • 765 kV, 240 MVar SLR at Krishnagiri PS – 2 Nos. (6x80 MVar switchable units) • Switching Equipment for 765 kV SLR at Krishnagiri PS – 2 Nos. • 765 kV, 240 MVar SLR at Sagar – 2 Nos. (7x80 MVar inc. 1 switchable spare unit) • Switching Equipment for 765 kV SLR at Sagar – 2 Nos.	
7.	Sagar – Nagarjunasagar 400 kV quad D/c line	
Notes: - The Krishnagiri – Raichur New 765kV D/c line is to be terminated in the existing 240 MVar bus reactor bays. Conversion of existing 765 kV Bus Reactor bays to 765 kV SLR Line bays at Raichur New for termination of Krishnagiri – Raichur New 765kV D/c line is in the scope of POWERGRID. 2 No. of 400kV line bays at Nagarjunasagar for termination of Sagar – Nagarjunasagar 400 kV quad D/c line is in the scope of POWERGRID. Line termination shall be in the scope of TSP. - TSP of Doma S/s to provide space (free of cost) for 2 Nos. of 765kV line bays with provision of SLR at Doma S/s for termination of Krishnagiri – Doma 765 kV D/c line.		



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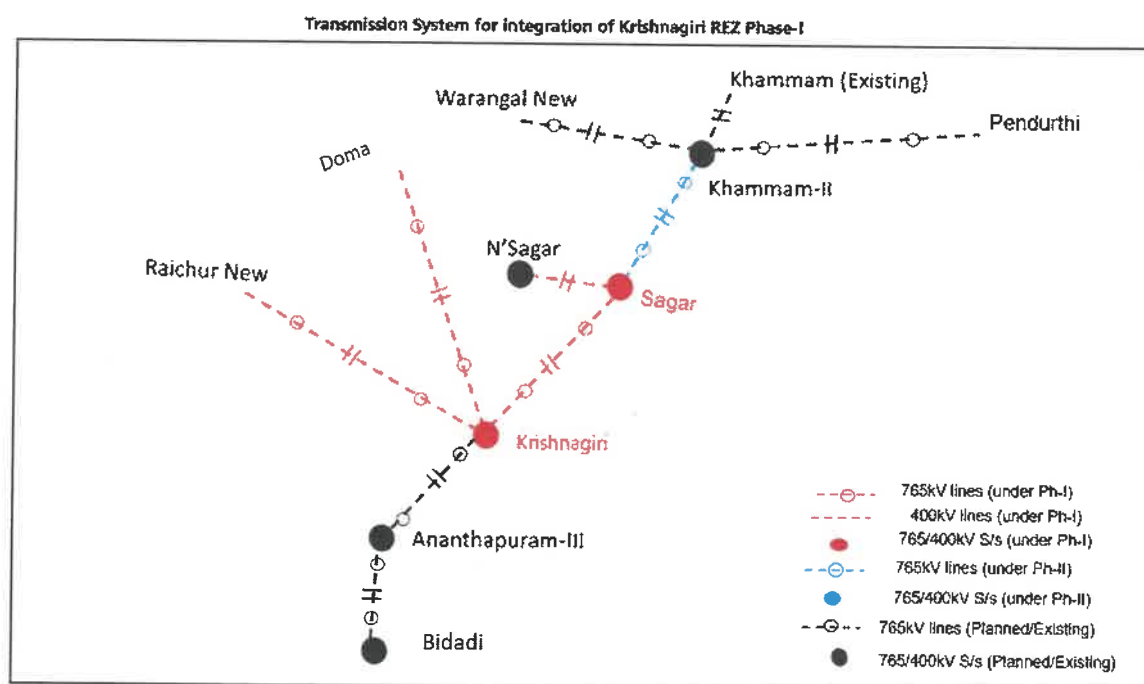
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C. Transmission Grid Map

Transmission Grid Map indicating the location of the Project is as below.



D. Transmission Grid Map

Transmission Grid Map indicating the location of the Project is as below.

a) Krishnagiri 765/400/220 kV PS:

New substation which is to be implemented under present scheme

b) Sagar 765/400 kV S/s:

New substation which is to be implemented under present scheme

c) Nagarjuna Sagar 400/220 kV S/s: 16° 30.644'N, 79° 23.209'E

d) Raichur New 765/400 kV S/s: 16°12'6.47"N, 77°17'16.50"E

e) Doma 765/400 kV S/s: New substation which is presently under bidding.

Note: The above coordinates/location of substation indicated is approximate in the substation area. Exact coordinates for the corresponding bays/gantry for termination of the respective line may be verified & finalized in coordination with actual site.



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SPECIFIC TECHNICAL REQUIREMENTS FOR TRANSMISSION LINE

The design, routing and construction of transmission lines shall be in accordance with Chapter V, Part A of CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations 2022, as amended from time to time. Other CEA Regulations/ guidelines as amended up to date and Ministry of Power (MoP) guidelines, as applicable, shall also be followed.

- A.1.0 Selection of tower type shall be made as per CEA Regulations, however, in case lattice type towers are used, the following shall also be applicable:
- A.2.0 Steel section of grade E 250 and/or grade E 350 as per IS 2062, only are permitted for use in towers, extensions, gantry structures and stub setting templates. For towers in snowbound areas, steel sections shall conform to Grade-C of IS-2062.
- A.3.0 Towers shall be designed as per IS-802:2015, however the drag coefficient of the tower shall be as follows: -

Solidity Ratio	Drag Coefficient
Up to 0.05	3.6
0.1	3.4
0.2	2.9
0.3	2.5
0.4	2.2
0.5 and above	2.0

- A.4.0 Transmission Service Provider (TSP) shall adopt any additional loading/ design criteria for ensuring reliability of the line, if so desired and /or deemed necessary.
- A.5.0 Transmission line shall be designed considering wind zones as specified in wind map given in National Building Code 2016, Vol.1. The developer shall also make his own assessment of local wind conditions and frequent occurrences of High Intensity Winds (HIW) due to thunderstorms, dust storms, downburst etc. along the line route and wherever required, higher wind zone than that given in wind map shall be considered for tower design for ensuring reliability of line. Further, for transmission line sections passing within a distance of 50 km from the boundary of two wind zones, higher of the two wind zones shall be considered for design of towers located in such sections.
- A.6.0 Selection of reliability level for design of tower shall be as per CEA Regulation (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations 2022, as amended from time to time.

A.7.0

a) In case of construction of transmission line of Voltage level 400 kV and above, under crossing of the existing transmission line shall not be allowed. In the case



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where it is inevitable to under-cross the existing transmission line then TSP shall seek prior approval from Chief Electrical Inspector, CEA with detailed study ensuring that all statutory electrical clearances and Electric Field limit of 10 kV/m at 1 m and 1.8 m from ground level is not violated.

- b) For power line crossing of 400 kV or above voltage level, large angle and dead end towers (i.e. D/DD/QD) shall be used on either side of power line crossing.
- c) For power line crossing of 132 kV and 220 kV (or 230 kV) voltage level, angle towers (B/C/D/DB/DC/DD/ QB/QC/QD) shall be used on either side of power line crossing depending upon the merit of the prevailing site condition and line deviation requirement.
- d) For power line crossing of 66 kV and below voltage level, suspension/tension towers shall be provided on either side of power line crossing depending upon the merit of the prevailing site condition and line deviation requirement.
- e) For crossing of railway tracks, national highways and state highways, the rules/regulations of appropriate authorities shall be followed.

A.8.0

The relevant conductor configuration shall be as follows: -

A. For the following 765 kV lines under the scheme:

- i. Krishnagiri – Doma 765 kV D/C line
- ii. Krishnagiri – Raichur New 765 kV D/C line
- iii. Krishnagiri – Sagar 765 kV D/C line

Type of conductor: ACSR / AAAC / AL59

Basic Parameters:

Transmission line	ACSR Conductor specified	Equivalent AAAC conductor based on 53.5% conductivity of Al Alloy	Equivalent minimum size of AL59 conductor based on 59% conductivity of AL Alloy*	Sub-conductor Spacing
765 kV D/C (Hexa Bundle) Transmission Lines	Zebra : Stranding 54/3.18 mm-Al + 7/3.18 mm-Steel, 428.9 mm ² , Aluminium area,	Stranding details: 61/3.19 mm, 487.5 mm ² Aluminium alloy area	Stranding details: 61/3.08 mm,	



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Transmission line	ACSR Conductor specified	Equivalent AAAC conductor based on 53.5% conductivity of Al Alloy	Equivalent minimum size of AL59 conductor based on 59% conductivity of AL Alloy*	Sub-conductor Spacing
	28.62 mm diameter Maximum DC Resistance at 20°C (Ω/km): 0.0677 Minimum UTS: 131.44 kN	28.71 mm diameter Maximum DC Resistance at 20°C (Ω/km): 0.06815 Minimum UTS: 135.6 kN	454 mm ² Aluminium alloy area 27.72 mm diameter Maximum DC Resistance at 20°C (Ω/km): 0.0653 Minimum UTS: 108 kN	457 mm

B. For Sagar – Nagarjunasagar 400 kV quad D/C line

Type of conductor: ACSR / AAAC / AL59

Basic Parameters:

Transmission line	ACSR Conductor specified	Equivalent AAAC conductor based on 53% conductivity of Al Alloy	Equivalent minimum size of AL59 conductor based on 59% conductivity of AL Alloy*	Sub-conductor Spacing
400 kV D/C (Quad Bundle) Transmission Lines	Moose: Stranding 54/3.53mm-Al + 7/3.53 mm- Steel, 31.77 mm diameter 528.5 mm ² , Aluminium area,	Stranding details: 61/3.55 mm 31.95 mm diameter; 604 mm ² Aluminium alloy area	Stranding details: 61/3.31 mm 29.79 mm diameter; 525 mm ² Aluminium alloy area	457 mm



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Transmission line	ACSR Conductor specified	Equivalent AAAC conductor based on 53% conductivity of Al Alloy	Equivalent minimum size of AL59 conductor based on 59% conductivity of AL Alloy*	Sub-conductor Spacing
	Maximum DC Resistance at 20°C (Ω/km): 0.0549 Minimum UTS: 159.60 kN	Maximum DC Resistance at 20°C (Ω/km): 0.05506 Minimum UTS: 159.80 kN	Maximum DC Resistance at 20°C (Ω/km): 0.0566 Minimum UTS: 124.70 kN	

Note:

1. **To select any size above the minimum, the sizes mentioned in the Indian standard IS-398 (part-6) shall be followed.*
2. *The transmission lines shall have to be designed for a maximum operating conductor temperature of 85 °C.*

A.9.0 The required phase to phase spacing and horizontal spacing for 765 kV and 400 kV line(s) shall be governed by the tower design as well as minimum live metal clearances for 765 kV and 400 kV voltage level under different insulator swing angles. However, the phase to phase spacing for 765 kV line shall not be less than 15 m and for 400 kV line shall not be less than 8 m.

A.10.0 All electrical clearances including minimum live metal clearance, ground clearance and minimum mid span separation between earth wire and conductor as given below shall be considered:

I. Minimum live metal clearances for 765 kV line:

a) (i) Under stationary conditions

From tower body: For 765 kV D/C: 6.1 m

For 765 kV S/C: 5.6 m

(ii) Under swing conditions

Wind Pressure Condition	Minimum Electrical Clearance
a) Swing angle (25°)	4.4 m
b) Swing angle (55°)	1.3 m

(iii) Minimum ground clearance for 765 kV line: 18 m



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- (iv) Minimum mid span separation between earth-wire and conductor for 765 kV line: 9.0 m

II. Minimum live metal clearances for 400 kV line:

- (i) Under Stationary Conditions

From tower body: 3.05 m

- (ii) Under Swing Conditions

Wind pressure Condition	Minimum electrical clearance
a) Swing angle (22°)	3.05 m
b) Swing angle (44°)	1.86 m

- (iii) Minimum ground clearance for 400 kV line: 8.84 m

- (iv) Minimum mid span separation between earth-wire and conductor for 400 kV line: 9.0 m

- A.11.0 The Shielding angle shall not exceed 10 deg for 765 kV D/C and 20 deg for 400 kV D/C Line transmission line.
- A.12.0 The Fault current for design of line shall be 50 kA for 1 sec for 765 kV and 63 kA for 1 sec for 400 kV.
- A.13.0 In case of 400 kV and above voltage class lines, at least one out of two earth wires shall be OPGW and second earth wire, if not OPGW, shall be either of Galvanized Stranded Steel (GSS) or Aluminum Alloy Conductor Steel Reinforced (AACSR) conductor type or any other suitable conductor type depending upon span length and other technical consideration.
- A.14.0 Each tower shall be earthed such that tower footing impedance does not exceed 10 ohms. Pipe type or Counterpoise type earthing shall be provided in accordance with relevant IS. Additional earthing shall be provided on every 7 to 8 km distance for direct earthing of both shield wires. If site condition demands, multiple earthing or use of earthing enhancement compound shall be used.
- A.15.0 Pile type foundation shall be used for towers located in river or creek bed or on bank of river having scourable strata or in areas where river flow or change in river course is anticipated, based on detailed soil investigation and previous years' maximum flood discharge of the river, maximum velocity of water, highest flood level, scour depth and anticipated change in course of river based on river morphology data of at least past 20 years to ensure availability and reliability of the transmission line.
- A.16.0 Transmission line route shall be finalized, in consultation with appropriate authorities so as to avoid the habitant zones of endangered species and other protected species. Bird diverters, wherever required, shall be provided on the



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transmission line. In order to optimize the route, use of GATISHAKTI platform shall also be made.

A.17.0 Wherever, transmission lines are passing through cyclone prone areas i.e., areas up to 60 km from coast following shall also be applicable:

- a) Terrain category-I, with terrain roughness factor (K2) of 1.08 shall be considered for tower design for exposed open terrain with few or no obstruction, which also includes open sea coasts, open stretch of water, desert and flat treeless plains.
- b) Importance factor for cyclonic region (K4) of 1.3 shall be considered for tower design.
- c) The number of consecutive spans between the section points/ angle point shall not exceed 10 spans or 3 km instead of conventional practice of 15 spans or 5 km, in order to reduce the failure of such towers in coastal areas due to cascading effect. The section shall be terminated with tension tower/ angle tower and angle of deviation should be based on the site requirement.

A.18.0 Wherever, transmission lines are passing through cyclone prone areas (i.e. areas up to 60 km from coast)/ creek regions/ aggressive soil areas following shall also be applicable:

- a) The fabricated tower parts and stubs shall have a minimum overall zinc coating of 900 g/m² of surface area except for plates and sections below 5 mm which shall have a minimum overall zinc coating of 610 g/m² of surface area. The average zinc coating for all sections and plates 5 mm and above shall be maintained as 127 microns and that for plates and sections below 5 mm shall be maintained as 87 microns.
- b) Ready mix concrete of M30 Grade shall be used to avoid use of locally available saline water. However, design mix concrete of M30 Grade conforming to IS 456 with potable water can be used at locations where transportation of ready-mix concrete is not feasible. Minimum cement content in any case shall not be less than 330 kg/m³.
- c) The surface of the reinforced steel shall be treated with epoxy-based coating to enhance corrosion performance of foundation. Use of epoxy coated reinforcement in foundation shall be as per IS 13620. In addition, two (2) coats of bituminous painting of minimum 1.6 kg/m² per coat shall be applied on all exposed faces of foundation (i.e. pedestal and base slab).
- d) Double coat 20 mm thick cement plaster shall be provided on all exposed concrete surface as well up to 300 mm below ground level to give protection to concrete surface from environmental and saline effect.



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- e) Before coping of chimney top portion, three coats of anti-corrosive paint of minimum 30-35 microns dry film thickness each shall be applied on the stub in the 50 mm coping portion as well as up to 350 mm above CL portion.

A.19.0 The raised chimney foundation is to be provided in areas prone to flooding/water stagnation like paddy field /agricultural field and undulated areas to avoid direct contact of water with steel part of tower. The top of the chimney of foundation should be at least above High Flood Level (HFL) or the historical water stagnation/ logging level (based on locally available data) or above High Tide Level or 500 mm above Natural Ground level (whichever is higher).

A.20.(a) Routing of transmission line through protected areas of India shall be avoided to the extent possible. In case, it is not possible to avoid protected areas, the towers of the transmission line up to 765 kV level, which are installed in protected areas, shall be designed for Multi-circuit (4-circuits) configuration of same voltage level considering the Reliability Level and Design Span as per CEA (Technical standards for construction of Electrical Plants and Electric Lines) Regulations, 2022, as amended from time to time. The top two circuits of these multi-circuit towers shall be used for stringing of the transmission line under present scope and the bottom two circuits shall be made available for stringing of any future transmission line of any transmission service providers/ State transmission utilities/Central transmission utilities passing through the same protected area. Further, the configuration and coordinates of such transmission towers shall be submitted to CEA, CTU and BPC by the TSP.

It shall be ensured that Minimum ground clearance is maintained such that statutory Electrical Clearances and Electric Field limit of 10 kV/m at 1 m and 1.8 m from ground level are not violated.

A.20.(b) Routing of transmission lines through all Metropolitan areas, Municipal Corporations, Municipalities, Nagar Panchayats, and all Urban Planning areas notified by State Governments and Forest areas notified by the Ministry of Environment, Forest and Climate Change (MoEFCC), shall be avoided to the extent possible. However, if it is not possible to avoid these areas, then, in order to optimize Right of Way (RoW) in all Metropolitan areas, Municipal Corporations, Municipalities, Nagar Panchayats, and all Urban Planning areas notified by State Governments, for up to 400 kV transmission lines, Double Circuit Pole Structures designed with a Reliability Level and Design Span as per CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2022 as amended from time to time) (preferably with insulated cross arms) shall be implemented.

It shall also be ensured that Minimum ground clearance is maintained such that statutory Electrical Clearances and Electric Field limit of 10 kV/m at 1 m and 1.8 m from ground level are not violated.

In case of more than TWO parallel Circuits up to 400 kV, the same shall be accommodated using Pole Structures designed for so many Circuits.



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- A.21.0 The TSP shall abide by the Guidelines of CEA w.r.t. shifting of transmission lines for NHAI projects and other projects.
- A.22.0 Safety precautions in regards to gas/oil pipelines in vicinity of Transmission lines shall be taken in coordination with gas/ petroleum authorities.
- A.23.0 The stringing of the transmission line in forest area shall be carried out through drones.
- A.24.0 The tower shall be designed considering the porcelain Insulators with creepage factor of 31 mm/ kV irrespective of type of insulator used.
- A.25.0 RoW width and Span in different terrain shall be as per Schedule VII of CEA (Technical Standards for Construction of Electrical plants and Electric Lines) Regulations 2022, as amended from time to time.



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SPECIFIC TECHNICAL REQUIREMENTS FOR SUBSTATION

The proposed Krishnagiri PS and Sagar S/s shall be conventional Air Insulated Substation (AIS) type conforming to the requirements of CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2022, as amended from time to time.

Extension of proposed Raichur New S/s, Doma S/s and Nagarjunasagar S/s shall be conventional AIS type conforming to the requirements of CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations 2022, as amended from time to time.

Other CEA Regulations/guidelines as amended up to date and MoP guidelines, as applicable, shall also be followed.

B.1.0 Salient features of Substation Equipment and Facilities

The design and specification of substation equipment are to be governed by the following factors:

B.1.1 Insulation Coordination

The system design parameters for substations/switchyards shall be as given below:

Sl. No.	Description of parameters	765/400/220 kV Krishnagiri PS (AIS)			Raichur New (AIS)
		765 kV System	400 kV System	220 kV System	765 kV System
1.	System Operating Voltage	765 kV	400 kV	220 kV	765 kV
2.	Maximum voltage of the system (rms)	800 kV	420 kV	245 kV	800 kV
3.	Rated Frequency	50 Hz	50 Hz	50 Hz	50 Hz
4.	No. of Phases	3	3	3	3
5.	Rated Insulation Levels				
i)	Lightning Impulse withstand voltage for (1.2/50 micro sec.)				
	- for Equipment other than Transformer and Reactor	2100 kVp	1425 kVp	1050 kVp	2100 kVp
	- for Insulator String	2100 kVp	1550 kVp	1050 kVp	2100 kVp



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ii)	Switching Impulse withstand voltage (250/2500 micro sec.) dry and wet	1550 kVp	1050 kVp	--	1550 kVp
iii)	One minute power frequency dry withstand voltage (rms)	830 kV	630 kV	--	830 kV
iv)	One minute power frequency dry and wet withstand voltage (rms)	---	--	460 kV	---
6.	Corona Extinction Voltage	508 kV	320 kV	--	508 kV
7.	Max. radio interference voltage for frequency between 0.5 MHz and 2 MHz	2500 micro-volts at 508 kV rms	1000 micro-volts at 266 kV rms	1000 micro-volts at 156 kV rms	2500 micro-volts at 508 kV rms
8.	Minimum creepage distance for insulator string/ longrod insulators/ outdoor bushings	24800 mm (31mm/kV)	13020 mm (31 mm/kV)	7595 mm (31 mm/kV)	24800 mm (31mm/kV)
9.	Minimum creepage distance for switchyard equipment	20000 mm (25 mm/kV)	10500 mm (25 mm/kV)	6125 mm (25 mm/kV)	20000 mm (25 mm/kV)
10.	Max. Fault Current	50 kA	63 kA	50 kA	50 kA
11.	Duration of Fault	1 sec	1 sec	1 sec	1 sec

Sl. No.	Description of parameters	Sagar S/s (AIS)		Doma S/s (AIS) Extn.	Nagarjunasagar S/s (AIS) Extn.
		765 kV System	400 kV System	765 kV System	400 kV System
1.	System Operating Voltage	765 kV	400 kV	765 kV	400 kV
2.	Maximum voltage of the system (rms)	800 kV	420 kV	800 kV	420 kV
3.	Rated Frequency	50 Hz	50 Hz	50 Hz	50 Hz
4.	No. of Phases	3	3	3	3
5.	Rated Insulation Levels				
i)	Lightning Impulse withstand voltage for (1.2/50 micro sec.)				
	- for Equipment other than Transformer and Reactor	2100 kVp	1425 kVp	2100 kVp	1425 kVp
		2100 kVp	1550 kVp	2100 kVp	1550 kVp



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	- for Insulator String				
ii)	Switching Impulse withstand voltage (250/2500 micro sec.) dry and wet	1550 kVp	1050 kVp	1550 kVp	1050 kVp
iii)	One minute power frequency dry withstand voltage (rms)	830 kV	630 kV	830 kV	630 kV
6.	Corona Extinction Voltage	508 kV	320 kV	508 kV	320 kV
7.	Max. radio interference voltage for frequency between 0.5 MHz and 2 MHz	2500 micro-volts at 508 kV rms	1000 micro-volts at 266 kV rms	2500 micro-volts at 508 kV rms	1000 micro-volts at 266 kV rms
8.	Minimum creepage distance for insulator string/ longrod insulators/ outdoor bushings	24800 mm (31 mm/kV)	13020 mm (31 mm/kV)	24800 mm (31 mm/kV)	13020 mm (31 mm/kV)
9.	Minimum creepage distance for switchyard equipment	20000 mm (25 mm/kV)	10500 mm (25 mm/kV)	20000 mm (25 mm/kV)	10500 mm (25 mm/kV)
10.	Max. Fault Current	50 kA	63 kA	50 kA	63 kA
11.	Duration of Fault	1 sec	1 sec	1 sec	1 sec

B.1.2 Switching Scheme

The switching schemes, as mentioned below, shall be adopted at various voltage levels of substation/switchyard:

Substation	765 kV side	400 kV side	220 kV side
765/400/220 kV Krishnagiri PS (AIS)	One and Half breaker	One and Half breaker	Double Main and Transfer
765/400 kV Sagar S/s (AIS)	One and Half breaker	One and Half breaker	-----
Doma S/s (AIS) Extn.	One and Half breaker	-----	-----
Raichur New (AIS) Extn.	One and Half breaker	-----	-----
Nagarjunasagar S/s (AIS) Extn.	-----	One and Half breaker	-----

Notes: -

For one and half breaker switching scheme, any double circuit line consisting of two numbers of feeders and originating from the same transmission or



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generating switchyard shall not be terminated in one diameter.

- ii) Two transformers of same HV rating shall not be connected in the same diameter and similarly two bus reactors of same HV rating shall also not be connected in the same diameter.
- iii) A diameter in one and half breaker scheme is a set of 3 circuit breakers with associated isolators, earth switches, current transformers etc. for controlling 2 (two) numbers of feeders.
- iv) Connection arrangement of Switchable Line reactors shall be such that it can be used as Line reactor as well as Bus reactor with suitable NGR bypass arrangement.
- v) Space for 765 kV and 400 kV future line bays shall be kept considering provision of switchable line reactors.
- vi) **Provision for Bus sectionalizer:**
Space/provision for One (1) set of bus sectionalizer for 400 kV shall comprise Two (2) Nos. of bus sectionalizer bays with associated Circuit Breakers, Isolators and Current Transformers for both buses.
Space/provision for One (1) set of bus sectionalizer for 220 kV shall comprise Two (2) Nos. of bus sectionalizer bays with associated Circuit Breakers, Isolators and Current Transformers for both buses.
- vii) TSP shall plan connectivity of line and transformer feeders to bus bar in such a way that all power can be evacuated successfully without crossing thermal limit at any point of bus-bar.
- viii) For AIS type substation, TSP shall keep space provisions for future elements such that interconnection arrangement to the corresponding future bays can be done with overhead AIS type connection without any cable/ GIS duct.
- ix) **765/400/220 kV Krishnagiri PS:**

400 kV Bus Sectionalization shall be with the following feeder distribution.

400 kV Bus Section-1	400 kV Bus Section-2 (Future)
a) 3 Nos. of Present 765/400 kV ICT	a) 1 Nos. of Present 765/400 kV ICT
b) 5 Nos. of Present 400/220 kV ICT	b) 2 Nos. of Future 765/400 kV ICT
c) 1 No. of Present $\pm$ 300 MVar STATCOM	c) 9 Nos. of Future 400/220 kV ICT
d) 4 Nos. of Future 400/220 kV ICT	d) 6 Nos. of Future 400 kV Lines (with provision for Switchable line reactor)
e) 6 Nos. of Future 400 kV Lines (with provision for Switchable line reactor)	



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TSP shall implement 400 kV bays keeping the space provision for providing 400 kV Bus Sectionalizer in future meeting the requirements of feeder distribution as mentioned above.

220 kV Bus Sectionalization shall be with the following feeder distribution.

220 kV Bus Section-1	220 kV Bus Section-2
a) 4 Nos. of Present 400/220 kV ICT b) 5 Nos. of Present 220 kV Lines c) 1 No. future 220 kV Line.	a) 1 No. of Present 400/220 kV ICT b) 1 Nos. of Present 220 kV Line c) 3 Nos. future 400/220 kV ICT d) 5 Nos. future 220 kV Line.
220 kV Bus Section-3 (Future)	220 kV Bus Section-4 (Future)
a) 5 Nos. future 400/220 kV ICT. b) 7 Nos. future 220 kV Lines.	a) 5 Nos. future 400/220 kV ICT. b) 6 Nos. future 220 kV Lines.

Line bays shall be complete along with line side equipment (such as LA, CVT, Wave Trap), gantry, protection panel etc. for termination of 220 kV lines for interconnection of RE Generation Projects.

x) 765/400 Sagar S/s (AIS)

Provision of 400 kV Bus Sectionalization (Future) and space provision shall be with the following feeder distribution.

400 kV Bus Section-1	400 kV Bus Section-2 (Future)
a) 3 Nos. of Present 765/400 kV ICT b) 2 Nos. of Present 400 kV Lines c) 5 Nos. of Future 400/220 kV ICT d) 4 Nos. of Future 400 kV Lines (with provision for Switchable line reactor)	a) 3 Nos. of Future 765/400 kV ICT b) 5 Nos. of Future 400/220 kV ICT c) 6 Nos. of Future 400 kV Lines (with provision for Switchable line reactor)

xi) 400 kV Nagarjunasagar S/s: Sagar – Nagarjunasagar 400 kV D/C line shall be terminated in the line bays being constructed by POWERGRID.

xii) 765 kV Doma S/s: Krishnagiri – Doma 765 kV D/C line shall be terminated in 2 Nos. of existing diameters (under implementation in separate scheme "Transmission System for Kurnool-IV REZ - Phase-II (3 GW)") for which Main bays shall be constructed under present scope.

xiii) 765 kV Raichur S/s: Refer SLD: C.ENG/TBCB/KOPPAL-II PART-B/RAICHUR



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/SLD/01 and GA Drawing: C/ENGG/RTM/ KURNOOL-V UPGRAD /RAICHUR /GA /01 Rev 0 attached, Krishnagiri – Raichur 765 kV D/C line is to be terminated in the existing bays (Main Bay Nos. 709 and 718) including the following scope:

- 765 kV 1-Ph GIS bus duct (approx. 1130 mtrs) along with associated SF6 to Air Bushings and Line termination gantry (for bay no. 709).

Additional Requirements related to GIS (as applicable):

765 kV GIS equipment:

GIS (Gas Insulated Substation) shall be in accordance to IEC: 62271-203. The switchgear shall be designed and specified to withstand operating conditions and duty requirements. The GIS assembly shall consist of separate modular compartments filled with SF₆ Gas and separated by gas tight partitions so as to minimize risk to human life, allow ease of maintenance and limit the effects of gas leaks failures and internal arcs etc. These compartments shall be designed to minimize the risk of damage to adjacent sections and protection of personnel in the event of a failure occurring within the compartments. Rupture diaphragms with suitable deflectors shall be provided to prevent uncontrolled bursting pressures developing within the enclosures under worst operating conditions, thus providing controlled pressure relief in the affected compartment.

The layout of Gas Insulated Bus Ducts shall be properly planned to optimize the length of bus ducts and for easy accessibility for maintenance.

Each section shall have plug-in or easily removable connection pieces to allow for easy replacement of any component with the minimum disturbance to the remainder of the equipment.

The material and thickness of the enclosures shall be such as to withstand an internal flashover without burns through for a period of 300 ms at rated short time withstand current. The material shall be such that it has no effect of environment as well as from the by-products of SF₆ breakdown under arcing conditions. This shall be validated with Type Test.

UHF sensors in GIS for PD (Partial Discharge) detection:

The adequate number of Ultra High Frequency (UHF) sensors shall be provided in the offered GIS along with suitable portable type Partial Discharge (PD) measuring instrument for detection of Partial discharge (of 5 pC and above as per IEC 60270). The number and location of these sensors shall be based on laboratory tests on the typical design of GIS as per recommendations of CIGRE Document No. 654 (Application Guide for sensitivity verification for UHF Partial discharge detection system for GIS).



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SF6 to Air Bushing

The Outdoor bushings, for the connection of conventional external conductors to the SF6 metal enclosed switchgear, shall be provided. Bushings shall generally be in accordance with the requirements of IEC-60137. The creepage distance over the external surface of outdoor bushings shall not be less than 31 mm/ kV. SF6 to air Bushing shall be of Polymer/ composite type and shall be robust and designed for adequate cantilever strength to meet the requirement of seismic conditions. The electrical and mechanical characteristics of bushings shall be in accordance with IEC-60137. Polymer/composite insulator shall be seamless sheath of silicon rubber compound. The housing and weather sheds should have silicon content of minimum 32% by weight. It should protect the bushing against environmental influences, external pollution and humidity. The hollow silicon composite insulators shall comply with the requirements of IEC- 61462 and the relevant parts of IEC-62217

- xiv) In one and half breaker scheme, both main bay and tie bay shall be completed for controlling a feeder. Further, all associated interconnection work shall also be in the present scope of TSP.

B.2.0 Substation Equipment and Facilities (Voltage level as applicable):

The switchgear shall be designed and specified to withstand operating conditions and duty requirements. All equipment shall be designed considering the following capacity.

Sl. No	Description of Bay	765/400/220 kV Krishnagiri PS		
		765 kV	400 kV	220 kV
1.	Bus Bar	4000 A	4000 A	3000 A
2.	Line bay	3150 A	N/A	1600 A
3.	ICT bay	3150 A	3150 A	1600 A
4.	Reactor bay	3150 A	N/A	N/A
5.	Bus Sectionalizer bay	N/A	N/A	3000 A
6.	Bus Coupler Bay	N/A	N/A	3000 A
7.	Transfer Bus coupler bay	N/A	N/A	1600 A
8.	STATCOM Bay	N/A	3150 A	N/A

Sl. No	Description of Bay	765/400 kV Sagar S/s		Doma S/s	Raichur New S/s	Nagarjunasagar S/s
		765 kV	400 kV	765 kV	765 kV	400 kV



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1.	Bus Bar	4000 A	4000 A	4000 A	4000 A	4000 A
2.	Line bay	3150 A	3150 A	3150 A	3150 A	3150 A
3.	ICT bay	3150 A	3150 A	N/A	N/A	N/A
4.	Reactor bay	3150 A	N/A	N/A	N/A	N/A

B.2.1 (765/√3)/(400/√3)/33 kV, Single Phase Autotransformer

500 MVA, (765/√3)/(400/√3)/ 33 kV, 1-phase Autotransformer (including arrangement for 3-phase bank formation of 1500 MVA) shall conform to CEA's "Standard Specifications and Technical Parameters for Transformers and Reactors (66 kV and above Voltage Class)" as amended up to date available on CEA's website.

Spare 1-phase Transformer unit shall be placed and connected in such a way that the spare unit can be utilized to replace in case of fault in any unit of any of the transformer banks (including for future transformer banks) without physically moving it.

B.2.2 400/220/33 kV, 3-phase Autotransformer

500 MVA, 400/220/33 kV, 3-phase autotransformer shall conform to CEA's "Standard Specifications and Technical Parameters for Transformers and Reactors (66 kV and above Voltage Class)" as amended up to date available on CEA's website.

B.2.3 (765/√3) kV, Single Phase Shunt Reactor

80 MVAR and 110 MVAR, 765/√3 kV, 1-Phase Reactor (including arrangement for 3-phase bank formation of 240 MVAR and 330 MVAR, respectively) shall conform to CEA's "Standard Specifications and Technical Parameters for Transformers and Reactors (66 kV and above voltage class)" as amended up to date available on CEA's website..

Spare 1-phase Shunt Reactor unit shall be placed and connected in such a way that the spare unit can be utilized for all the bus and switchable line reactor banks (including for future reactor banks) without its physical movement.

Neutral Grounding Reactor and Surge Arrester for 765 kV Switchable Line Reactors (as applicable):

The neutral of the switchable line reactors (wherever provided) shall be grounded through adequately rated Neutral Grounding Reactors (NGR) to facilitate single phase auto-reclosure, provided that the NGR shall be provided with suitable bypass arrangement so that the switchable line reactor can be used as bus reactor as and when required. The neutral of bus reactor shall be solidly grounded.

NGR shall be oil filled or dry type air core for outdoor application. NGR shall conform to CEA's "Standard Specifications and Technical Parameters of Transformers and Reactors (66 kV and above Voltage Class)", as amended up to date. Technical



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parameters of NGR shall be as specified in Annexure-A of above-mentioned document.

The surge arresters (rated voltage of arrester in co-ordination with ohmic value of NGR shall be decided by the TSP) shall be provided and physically located between the neutral of shunt reactor (brought out at 145 kV class bushing) and neutral grounding reactor. The surge arresters shall be of Station Medium (SM) class duty gapless Metal Oxide (ZnO) type conforming in general to IEC-60099-4. Arresters shall be hermetically sealed units, of self-supporting construction, suitable for mounting on structures.

The Ohmic value of NGR for Line Reactors shall be as follows:

Sl. No.	Line Name	Substation Name	NGR value (Ohm)
1.	Krishnagiri – Doma 765 kV D/C line with 240 MVAR SLR (convertible) at both end on both circuits	Krishnagiri	500
		Doma	500
2.	Krishnagiri – Raichur New 765 kV D/C line with 240 MVAR SLR (convertible) at Raichur New end on both circuits	Raichur New	500
3.	Krishnagiri – Sagar 765 kV D/C line with 240 MVAR SLR (convertible) at both end on both circuits	Krishnagiri	500
		Sagar	500

B.2.4 765 kV, 400 kV and 220 kV AIS Substation equipment (as applicable)

B.2.4.1 Circuit Breakers (AIS)

The circuit breakers and accessories shall conform to IEC: 62271-100, IEC: 62271-1 and shall be of SF₆ Type. The circuit breakers shall be of class C2-M2 (as per IEC) with regard to restrike probability during capacitive current breaking and mechanical endurance. The rated break time shall not exceed 40 ms for 765 kV and 400 kV circuit breakers and 60 ms for 220 kV circuit breakers. The 765 kV, 400 kV and 220 kV circuit breakers shall be provided with single phase and three phase auto reclosing. Each breaker would have two sets of trip circuits, which would be connected to separate DC supplies for greater reliability. The circuit breakers controlling 765 kV lines shall be provided with either pre-insertion closing resistor of about 450 ohm maximum with 9 ms insertion time or with Controlled Switching Device. The Circuit breakers controlling 400 kV lines shall be provided with either pre insertion closing resistor of



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about 400 ohm with 8 ms insertion time or with Controlled Switching Device (CSD) for lines longer than 200 km length. The short line fault capacity shall be same as the rated capacity and this is proposed to be achieved without use of opening resistors. The Controlled Switching Device shall be provided in circuit breakers of switchable line reactor bay and in Main and Tie bay circuit breakers of line with non-switchable line reactors, Bus Reactors and Transformers of 400 kV and above voltage class.

B.2.4.2 Isolators (AIS)

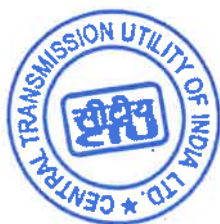
The Isolators shall comply with IEC 62271-102 in general. 765 kV Isolator design shall be double break or vertical break or knee-type. 400 kV and 220 kV Isolators shall be double break type. All Isolators and earth switches shall be motor operated. Earth switches shall be provided at various locations to facilitate maintenance. Isolator rated for 400 kV and 220 kV shall be of extended mechanical endurance class – M2 as per IEC-62271-102. Isolator rated for 220 kV shall be suitable for bus transfer current switching duty as per IEC-62271-102. Main blades and earth blades shall be interlocked and interlock shall be fail safe type. The 765 kV, 400 kV and 220 kV earth switch for line isolator shall be suitable for induced current switching duty as defined for Class-B.

B.2.4.3 Current Transformers (AIS)

Current Transformers shall comply with IEC 61869 in general. All ratios shall be obtained by secondary taps only. Generally, Current Transformers (CT) for 765 kV and 400 kV shall have six cores (four for protection and two for metering) and 220 kV Current Transformers shall have five cores (four for protection and one for metering). The burden and knee point voltage shall be in accordance with the requirements of the system including possible feeds for telemetry. The accuracy class for the protection core shall be PX and for the metering core it shall be 0.25. The rated burden of cores shall be closer to the maximum burden requirement of the metering and protection system (not more than 20 VA for metering core) for better sensitivity and accuracy. The instrument security factor shall be less than five (5) for CTs up to 400 kV and less than ten (10) for CTs of 765 kV voltage class.

B.2.4.4 Capacitive Voltage Transformers (AIS)

Capacitive Voltage Transformers shall comply with IEC 61869 in general. These shall have three secondaries out of which two shall be used for protection and one for metering. The accuracy class for protection cores shall be 3P and for metering core shall be 0.2. The Capacitive Voltage Transformers on lines shall be suitable for Carrier Coupling. The Capacitance of CVT for 400 kV and 220 kV shall be of 4400/8800 pF depending on PLCC requirements whereas the Capacitance of CVT for 765 kV shall be 8800 pF. The rated burden of cores shall be closer to the maximum burden



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requirement of metering and protection system (not more than 50 VA for metering core) for better sensitivity and accuracy.

B.2.4.5 Surge Arresters (AIS)

624 kV, 336 kV Station High (SH) duty and 216 kV Station Medium (SM) duty gapless type Surge Arresters with thermal energy (W_{th}) of minimum 13 kJ/kV, 12 kJ/kV and 7 kJ/kV conforming to IEC 60099-4 in general shall be provided for 800 kV, 420 kV and 245 kV systems respectively. Other characteristics of Surge Arrester shall be chosen in accordance with system requirements. Surge Arresters shall be provided at line entrances, near transformers and reactors so as to achieve proper insulation coordination. Surge Arresters shall be provided with porcelain/ polymer housing fitted with pressure relief devices. A leakage current monitor with surge counter shall be provided with each surge arrester.

B.2.5 Protection Relaying and Control System

The protective relaying system proposed to be provided for transmission lines, auto-transformers, reactors and bus bars to minimize the damage to the equipment in the events of faults and abnormal conditions, is dealt in this section. All main protective relays shall be numerical type with IEC 61850 communication interface and should have interoperability during integration of numerical relays to communicate over IEC 61850 protocol with RTU/SAS/IEDs of different OEMs. All numerical relays shall have built in disturbance recording feature.

The protection circuits and relays of the transformer and reactor shall be electrically and physically segregated into two groups each being independent and capable of providing uninterrupted protection even in the event of one of the protection groups failing, to obtain redundancy, and to take protection systems out for maintenance while the equipment remains in service.

a) Transmission Lines Protection

765 kV, 400 kV and 220 kV lines shall have Main-I numerical three zone distance protection scheme with carrier aided inter-tripping feature. 765 kV, 400 kV and 220 kV lines shall also have Main-II numerical distance protection scheme like Main-I but from different make that of Main-I. The Main-I and Main-II protection relays of same make may be provided only if they are of different hardware and manufacturing platform or different principle of operation.

However, Line Current Differential Relay (with back up distance protection feature) as Main-I and Main-II shall be considered at both ends for short lines (line length below 30 km) having Fiber Optic Communication Link. Differential relay at remote



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end shall be provided by the TSP. The associated power and control cabling and integration with SAS at remote end shall be provided by respective bay owners.

In case of 220 kV line bays for RE Generators, Line Current differential relay (with back up distance protection feature) as Main-I and Main-II shall be provided. Further, in such cases, the matching line current differential relay for remote end shall be provided by the TSP as loose supply.

In case of loop in loop out of transmission lines, the existing protection scheme shall be studied and suitable up-gradation (if required) shall be carried out.

Further, all 765 kV, 400 kV and 220 kV lines shall be provided with single and three phase auto- reclosing facility to allow reclosing of circuit breakers in case of transient faults. These lines shall also be provided with distance to fault locators to identify the location of fault on transmission lines.

All 765 kV, 400 kV and 220 kV lines shall also be provided with two stage over voltage protection. The over voltage protection and distance to fault locator may be provided as in-built feature of Main-I and Main-II protection relays. Auto reclose as built-in function of Bay Control Unit (BCU) is also acceptable.

The Main-I and Main-II protection relays shall be fed from separate DC sources and shall be mounted in separate panels.

For 765 kV, 400 kV and 220 kV transmission lines, directional IDMT earth fault relay should be provided as standalone unit or in-built feature of Main-I and Main -II feature.

b) Auto Transformer Protection

These shall have the following protections:

- i) Numerical Differential Protection
- ii) Numerical Restricted Earth Fault Protection
- iii) Numerical Back-up Over-Current and Earth Fault Protection on High Voltage (HV) and Intermediate Voltage (IV) side
- iv) Numerical Over Fluxing Protection on HV and IV side
- v) Numerical Overload Alarm

Further, Numerical Back-up Over-current and earth fault protection on HV and IV side of Autotransformer shall not be combined with other protective functions in the main relays and shall be independent relays. Besides these, power transformers shall also be provided with Buchholz relay, Magnetic Oil Gauge (MOG) with low oil level alarm, protection against high oil and winding temperature and pressure relief device etc.



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Suitable monitoring, control (operation of associated circuit breaker and isolator) and protection for LT auxiliary transformer connected to tertiary winding of auto-transformer for the purpose of auxiliary supply shall be provided. The over current and other necessary protection shall be provided for the auxiliary transformer. These protection and control may be provided as built-in feature either in the bay controller to be provided for the auxiliary system or in the control and protection IEDs to be provided for autotransformer.

c) 765 kV Reactor Protection

Reactor shall be provided with the following protections:

- i) Numerical Differential Protection.
- ii) Numerical Restricted Earth Fault Protection
- iii) Numerical Back-up Impedance Protection

Besides these, reactors shall also be provided with Buchholz relay, Magnetic Oil Gauge (MOG) with low oil level alarm, protection against oil and winding temperatures and pressure relief device, etc.

d) Bus Bar Protection

The high-speed low impedance type bus bar differential protection, which is essential to minimize the damage and maintain system stability at the time of bus bar faults, shall be provided for 765 kV, 400 kV and 220 kV buses. Duplicated bus bar protection is envisaged for 765 kV and 400 kV bus-bar protection. Bus bar protection scheme shall be such that it operates selectively for each bus and incorporate necessary features required for ensuring security. The scheme shall have complete bus bar protection for present as well as envisaged future bays i.e. input / output modules for future bays for the bus section under present scope shall also be provided.

Bus Bar protection system for new substation shall be de-centralized (distributed) type.

In case, the bus section is provided, then each side of bus section shall have separate set of bus bar protection schemes.

Peripheral Units (PUs) shall be provided by the respective bay owners.

For existing substations, the existing bus bar protection shall be augmented as per requirement. Separate set of bus bar protection schemes including necessary modification with respect to feeder distribution shall be provided where new bus sectionaliser is being implemented.

e) Local Breaker Back up Protection

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This shall be provided for each 765 kV, 400 kV and 220 kV circuit breakers and will be connected to de-energize the affected stuck breaker from both sides.

Notes:

1. LBB and REF relays shall be provided separately from transformer differential relay.
2. LBB relay may also be provided as built-in protection function of distributed bus bar protection scheme; however in such case separate LBB relay shall be provided for tie bays (in case of One and Half breaker scheme).
3. Over fluxing and overload protection can be provided as built-in feature of differential relay.
4. In 765 kV and 400 kV switchyard, if spare bay of half diameter is identified as future, Tie CB relay panel shall be with Auto-reclosure feature.

B.2.6 Substation Automation System

- a) For all the new substations, state of art Substation Automation System (SAS) conforming to IEC-61850 shall be provided. The distributed architecture shall be used for Substation Automation System, where the controls shall be provided through Bay Control Units. The Bay Control Unit is to be provided bay wise for voltage level 220 kV and above. All Bay Control Units as well as protection units are normally connected through an Optical fibre high speed network. The control and monitoring of circuit breaker, dis-connector, re-setting of relays etc. can be done from Human Machine Interface (HMI) from the Control Room.

The functions of control, annunciation, disturbance recording, event logging and measurement of electrical parameters shall be integrated in the Substation Automation System.

At the new substations, the Substation Automation System (SAS) shall be suitable for the operation and monitoring of the complete substation including proposed future bays/elements.

In the existing substations with a Substation Automation System (SAS), augmentation of existing SAS shall be done for bays under the present scope.

In the existing Substations where Substation automation is not provided, control functions shall be done through control panels.

Necessary gateway and modems (as required) shall be provided to send data to RLDC/SLDC as per their requirement and shall be provisioned with 2+2 redundancy i.e. 2 channels for Main Control Centre and 2 channels for Backup Control Centre. In order to meet this requirement, suitable redundancy at port and card level need to be ensured by the TSP to avoid any single point of failure which may lead to interruption in real-time grid operation. Accordingly, all the hardware for communication services of station as stated above shall support dual redundancy for



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data transmission of station to respective main and backup RLDCs. Any augmentation work at RLDC/SLDC is excluded from TSP's scope. However, all the configuration work at substation end required to send data to RLDC/SLDC shall be in the scope of TSP.

b) Time Synchronization Equipment

Time Synchronization Equipment complete in all respect including antenna, cable and processing equipment required to receive time signal through GPS/NavIC or from National Physical Laboratory (NPL) through INSAT shall be provided at new substations. This equipment shall be used to synchronize SAS and IEDs etc.

B.3.0 Substation Support Facilities

Certain facilities required for the operation and maintenance of substations as described below shall be provided at the new substation. In existing substation, these facilities have already been provided and will be extended/ augmented as per requirement.

B.3.1 AC and DC power supplies

For catering the requirements of three phase and single phase AC supply and DC supply for various substation equipment (for present and future scope), the following arrangement is envisaged:

i) For LT Supply at each new Substation, two (2) Nos. of LT Transformers (minimum 800 kVA for substations with highest voltage rating as 765 kV) shall be provided which shall be fed from two independent sources as per the CEA (Technical Standards for Connectivity to the Grid) Regulations, 2007.

Metering arrangement with Special Energy Meters (SEMs) shall be provided by TSP at 33 kV tertiary of Transformer for drawing auxiliary supply at new substation. Such SEMs shall be provided by CTU at the cost of the TSP. Accounting of such energy drawn by the TSP shall be done by RLDC/RPC as part of Regional Energy Accounting. Additionally, Active Energy Meters may be provided at the same point in the 33 kV tertiary of Transformer by local SEB/DISCOM for energy accounting.

ii) 2 sets of 220 V battery banks for control and protection and 2 sets of 48 V battery banks for PLCC/ communication equipment shall be provided at each new Substation. Each battery bank shall have a float-cum-boost charger.

At new substation, sizing of 220 V battery and battery charger shall be done based on the number of bays specified (including future bays) as per CEA Regulations and relevant IS. 2 sets of 48 V battery banks for PLCC and communication equipment for present and future scope shall be provided at each new Substation with at least 10-hour battery backup and extended backup, if required.



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iii) Suitable AC and DC distribution boards and associated LT Switchgear shall be provided at new substation.

For new substation, following switch boards shall be considered with duplicate supply with bus coupler/ sectionalizer and duplicate outgoing feeders except for Emergency lighting distribution board which shall have only one incoming feeder:

- (a) 415 V Main Switchboard – 1 No.
- (b) AC distribution board – 1 No.
- (c) Main lighting distribution board – 1 No.
- (d) Emergency lighting distribution board – 1 No.
- (e) 220 Volt DC distribution board – 2 Nos.
- (f) 48 Volt DC distribution board – 2 Nos.

Sizing of LT Switchgear shall be suitable to cater the requirement for all present and future bays. AC and DC distribution boards shall have modules for all the feeders (including future as specified).

iv) At new Substation, one No. of DG set (minimum 500 kVA for substations with highest voltage rating as 765 kV) shall be provided for emergency applications.

v) At new substation, sizing of battery and battery chargers shall be done based on the number of bays specified (including future bays).

vi) For substation extensions, existing facilities shall be augmented as required.

B.3.2 Fire Fighting System

Fire-fighting system for substation including Transformer and Reactor shall conform to CEA (Measures Relating to Safety and Electric Supply) Regulations, 2023 as amended from time to time.

Further, adequate water hydrants and portable fire extinguishers shall be provided in the substations. The main header of the firefighting system shall be suitable for extension to bays covered under the future scope; necessary piping interface in this regard shall be provided.

At existing substations, the fire-fighting systems as available shall be extended to meet the additional requirements.

B.3.3 Oil evacuating, Filtering, Testing and Filling apparatus

To monitor the quality of oil for satisfactory performance of Transformers, Shunt Reactors and for periodical maintenance necessary oil evacuating, filtering, testing and filling apparatus would be provided at new substations. Oil storage tanks of adequate capacities for storage of transformer oil would be provided.



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Online Transformer Oil Drying Out System shall be provided in line with the provisions of Standard Specification and Technical Parameters for Transformers and Reactors (66 kV and above Voltage Class) as amended up to date available on CEA website.

B.3.4 Illumination

Normal and emergency AC and DC illumination shall be provided adequately in the control room and other buildings of the substation. The switchyard shall also be provided with adequate illumination.

The lighting of the entire control room building, fire-fighting pump house, other building (if any) and switchyard shall be done by LED based low power consumption luminaries.

B.3.5 Control Room

For the new substation, substation control room shall be provided to house substation work stations for station level control (SAS) along with its peripheral and recording equipment, AC and DC distribution boards, DC batteries and associated battery chargers, Fire Protection panels, Telecommunication panels and other panels as per requirements. Air conditioning shall be provided in the building as functional requirements. Main cable trenches from the control room shall have adequate space provision for laying of cables from the control room for all the future bays.

At existing substations, the adequacy of size of control room shall be ascertained and the same shall be augmented as per requirement.

B.3.6 Control Concept

All the EHV circuit breakers in substation/switching stations shall be controlled and synchronized from the switchyard control room/remote control center. All the isolators shall have control from remote/local whereas the earth switches shall have local control only.

B.3.7 Visual Monitoring System (VMS) for watch and ward of substation premises:

Visual Monitoring System for effective watch and ward of substation premises shall cover all the transformers and reactors, all other major AIS Equipment (such as CB, isolators, CT, CVT, SA etc. as applicable), panel room, all the gates of switchyard and all entry and exit points of control room building and accordingly the location of cameras shall be decided. In addition to the gates of the switchyard, the cameras



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shall also be located around the boundaries at suitable locations. The camera shall be high-definition color CCD camera with night vision feature. The VMS data partly/completely shall be recorded (minimum for 15 days) at least @25fps (or better) and stored on network video recorder. The system shall use video signals from various cameras installed at different locations, process them for viewing on workstations/monitors in the control room and simultaneously record all the cameras. The VMS data should go only to the intended personnel/facility and not to the remote server of the Camera (VMS supplier).

Mouse/keyboard controllers shall be used for pan, tilt, zoom and other functions of the desired camera. The Visual Monitoring System shall have provision of WAN connectivity for remote monitoring.

All camera recordings shall have Camera ID and location/area of recording as well as date/time stamp. The equipment should generally conform to Electromagnetic compatibility requirement for outdoor equipment in EHV substation.

Advisory on deployment of CCTV issued by Ministry of Electronics and Information Technology (MEITY) shall be followed.

At existing substations, the Visual Monitoring System if available shall be augmented as per existing or better specification as required.

B.4 General Facilities

- a) Line Gantry/Towers are envisaged for bays under the present scope only. However, for adjacent future line bay, gantry/tower shall be designed for extension (considering Hexa conductors for 765 kV and Quad conductors for 400 kV and Twin conductor for 220 kV future lines) wherever applicable.
- b) Bay extension works at existing substation shall be executed by TSP in accordance with the requirements/provisions mentioned above. However, interface points shall be considered keeping in view the existing design/arrangement at the substation.
- c) TSP has to arrange for construction power and water on its own.
- d) All outdoor steel structures including anchor/foundation bolts shall be fully galvanized. The weight of the zinc coating shall be at least 610 g/m², however, for coastal/creek regions it shall be at least 900 g/m². (if applicable)
- e) In 765 kV and 400 kV switchyard, if spare bay of half diameter is identified as future, all the equipment for Tie and Future Bay shall be designed considering the current rating of line bay i.e. 3150 A.
- f) Boundary wall shall be brick masonry wall with RCC frame or Stone masonry wall or Precast RCC wall under present scope along the property line of complete substation area including future switchyard area to prevent encroachment and unauthorized access. Minimum height of the boundary



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wall shall be of 1.8 m from Finished Ground Level (FGL).

- g) All electrical equipment shall be installed above the Highest Flood Level (HFL) and where such equipment is not possible to be installed above Highest Flood Level, it shall be ensured that there is no seepage or leakage or logging of water.
- h) As per CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations 2022 and CEA Manual on Transmissions Planning criteria 2023, line approaching substation shall normally be perpendicular to the substation boundary for a stretch of 2-3 km. Accordingly, TSP shall ensure that line terminations at substations are arranged in a manner to avoid hindrance to future line terminations at the substations.
- i) TSP shall finalize the substation site/layout such that the corridor for the termination of lines, including future lines at the substation, can be accommodated without any constraints. Accordingly, forests, large water bodies, or hills adjacent to the substation boundary should be avoided.

B.5 EXTENSION OF EXISTING SUBSTATION

The following drawings/details of existing substation are attached with the RfP documents for further engineering by the bidder.

Sl. No.	Drawing Title	Drawing No./Details	Rev. No.
A.	765 kV Doma S/s		
1.0	Single Line Diagram	<i>New substation which is presently under bidding.</i>	
2.0	General Arrangement		
3.0	Earthmat Layout		
4.0	Visual Monitoring System		
5.0	Bus Bar Protection		
6.0	Substation Automation System (SAS)		
B.	765 kV Raichur New		
1.0	Single Line Diagram	<i>C.ENG/TCB/KOPPAL-II PART-B/RAICHUR/SLD/01</i>	0
2.0	General Arrangement		
3.0	Earthmat Layout		
4.0	Visual Monitoring System		
5.0	Bus Bar Protection		
6.0	Substation Automation System (SAS)		
C.	400 kV Nagarjunasaagr S/s		
1.0	Single Line Diagram	<i>NAGARJUNASAGAR/SLD</i>	
2.0	General Arrangement		
3.0	Earthmat Layout		



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4.0	Visual Monitoring System		
5.0	Bus Bar Protection		
6.0	Substation Automation System (SAS)		

B.5.1 The existing drawings provided above and in subsequent amendments to the RfP are as received from the developer of existing substation and provided only for reference. Bidders shall follow the RfP for scope of work. Actual site conditions may be different due to other schemes being executed or subsequent revisions by the developer. Thus, Bidders are advised to visit the substation sites and acquaint themselves for details such as:

- i. Actual site conditions, Layout, Topography
- ii. Infrastructure such as roads, cable trench, drainage
- iii. Space availability in existing control room and LT panel room
- iv. Soil Investigation
- v. Fire Hydrant Layout
- vi. SAS architecture and IO list
- vii. Boundary

Design philosophy etc.



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SPECIFIC TECHNICAL REQUIREMENTS FOR STATCOM

The proposed STATCOMs shall be conforming to the requirements of CEA (Technical Standards for Connectivity to Grid) Regulations, 2007 including amendments and CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations 2022, as amended from time to time. Other CEA Regulations and MoP guidelines, as applicable, shall also be followed and complied with.

C.1 Introduction:

This technical specification for a STATCOM Station consists of STATCOM (to be installed at MV bus) including associated coupling Transformer (rated 400/xx kV) and other equipment connected to the 400 kV bus. MV voltage level (xx kV) of the coupling Transformer can be chosen by the TSP to optimize the offered solution which meets functional requirement of this Technical Specification.

The STATCOM station shall operate asymmetrically in the leading and lagging MVAR regions as applicable to reach the dynamic range specified. The purpose of the STATCOM station is to regulate the voltage of 400 kV Bus Point of Common Coupling (PCC). The Configuration and the nominal rating of the STATCOM station is specified in this document.

The main building block of the STATCOM should be single phase Voltage Source Converter (VSC) based convertor valve (multi-level) operating in a way to eliminate or minimize AC filter requirement to High pass filter only and connected to the xx kV bus through air core reactors.

C.1.1 Definitions and Abbreviations

For the purpose of this specification, the following definitions / abbreviations are used:

PCC: Point of Common Coupling (herein also called as Point of Interconnection (POI). The connection point between the STATCOM and the ISTS at which performance requirements are defined.

Reference Voltage (V_{ref}): The Point on the voltage/current (V/I) characteristics where the static synchronous compensator (STATCOM) is at zero output (i.e. where no reactive power is absorbed from, or supplied to, the transmission system where the voltage is controlled)

MV: Medium Voltage.

STATCOM Unit: Static Synchronous Compensator based on Multi-Module technology and including air cored reactors as needed, Valve cooling, switchgear and its control and protection.



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STATCOM: Static Synchronous Compensator consisting of STATCOM Unit(s) connected to a common Coupling Transformer. A static synchronous generator operated as a shunt connected compensator, whose capacitive or inductive output current can be controlled independently of the AC system voltage.

Sub Module: Basic single power module of a Multi Module STATCOM unit Valve. It is a Part of a STATCOM unit valve comprising controllable switches and diodes connected in full bridge arrangement, together with their immediate auxiliaries, and storage capacitor, if any, where each controllable switch consists of one or more switched valve device(s) connected in series.

Valve: Electrically and mechanically combined assembly comprising of forced commutated devices [for example insulated-gate bipolar transistor(IGBT)] assembled in levels, complete with all connections, auxiliary components, and mechanical structures, which can be connected in series with each phase of the reactor of a STATCOM unit.

Valve Section: Electrical assembly defined for test purposes, comprising one of several sub-modules.

Valve Structure: Physical structure holding valve(s), which is insulated to the full system voltage above earth potential.

STATCOM Station: STATCOM Station includes 400 kV Switchgear, Coupling Transformer, STATCOM along with its switchgear and complete integrated control and protection whose outputs are coordinated. (Complete turnkey delivery at site).

CT: Current Transformer.

VT: Voltage Transformer.

SAS: Substation Automation System.

Response Time: the duration from a step change in control signal until the voltage changes by 90% of its final change, before any overshoot.

Settling Time: The duration from a step change in control signal input until the STATCOM output settles to within $\pm 5\%$ of the required control output.

Slope: The ratio of the voltage change to the current change over a defined controlled range of the STATCOM, normally the full (inductive plus capacitive) range at nominal voltage, expressed as a percentage.

VSC: Voltage Source Converter, A forced commutated device (for example, IGBT) based self-commutated convertor that is capable of generating AC voltage from DC capacitor.



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Voltage/Current (V/I) Characteristic: The relationship between the current of the STATCOM and the voltage at the point of connection.

Lagging Operation: Inductive operation or reactive power absorption of the STATCOM similar to a shunt reactor.

Leading Operation: Capacitive operation or reactive power generation of the STATCOM similar to a shunt Capacitor.

TSP: Transmission Service Provider

C.2 Relevant Standard:

STATCOM Station shall comply with the following standards (latest edition):

Sl. No.	Description	Standards
1	Voltage source converter (VSC) valves for STATCOM	IEC- 62927 IEEE- 1052 IEC-60747
2	Control, protection and monitoring	IEC-61000 IEC-60255
3	Valve Hall for housing the equipment as above comprising of: - wall bushings for connection between converter phases and decoupling reactors, - piping and tubing connections of the cooling system to converter - connection of the control cabinet with the converter through optical fibers - internal lighting, auxiliary power supply (AC and DC) and power socket system - internal HVAC system	IEC-60071 IEC-60270 IEC-60137
4	X kV, dry insulated, air core and air self-cooled decoupling reactors., half-reactors stacked on above the other, Outdoor installation, Complete with supporting structures	IEC- 60076
5	Power Capacitors	IEC-60871-1
6	400 kV Power transformer (Coupling Transformer)	IEC-60076 IEC-60354
7	CT's and VT's	IEC- 61869
8	Dis-connectors and Earthing Switches	IEC- 62271
9	HV and MV Circuit Breakers	IEC- 62271
10	Surge Arresters	IEC- 60099



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Sl. No.	Description	Standards
11	Auxiliary and grounding transformer	IEC- 60076 IEEE C57.32 IS- 5553 (Part 6)
12	Neutral Grounding Resistor, charging resistor	IEEE- C57.32
13	UPS, SMPS and Other Power supply units	IEC- 62040 IEC- 61558
14	Cyber Security	IEC-62243

C.3 Scope of work for STATCOM

The scope of work with regard to the works associated with the STATCOM shall comprise ± 300 MVar Modular Multi-level Voltage Source Converter (MMC-VSC) based STATCOM

STATCOM can either be Single/ multiple units. The minimum size of a unit allowed is 150 – 200 MVar. TSP shall ensure that there are no coordination issues between multiple STATCOM branches of STATCOM station. MV bus voltage rating is to be decided by OEMs.

The TSP shall be responsible for the complete installation of STATCOM station along with the substation works as specified in the complete scope of work.

The TSP shall also perform the system studies (steady state and dynamic) according to the requirement mentioned and documentation of the same shall be preserved by TSP and to be submitted to CEA/CTU/GRID-INDIA, as per their request.

TSP shall carry out a detailed study on prevailing system conditions before interconnection of the STATCOM to assess the performance of the STATCOM. Parameters tuning to avoid any adverse impact on the grid with integration of the STATCOM shall also be identified and implemented at this stage. TSP shall carry out tuning of Power Oscillation Damping (POD) along with an interaction study with nearby HVDC/FACTS controllers.

TSP shall ensure interconnection study at the time of commissioning and shall also be responsible for tuning the POD during the license period as per relevant standards (e.g. IEEE 1052).

The switchgear for connection of STATCOM units, provided on the secondary side of the coupling transformer shall be of standard voltage rating as per relevant IEC. The switchgear, structure, control, protection and substation automation on the 400 kV side shall be as per applicable Technical Specification of the substation equipment.

Generally, the purpose of STATCOM is to improve system stability, provide damping, and smooth out the step voltage change and external compensating



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equipment (i.e. any existing capacitor and reactor banks) switching and provide steady state VARs as needed to support the 400 kV bus voltage.

In order to get optimum control of MVAR, as well as reactor banks connected on the 400 kV HV side, may be integrated along with STATCOM control to provide steady state 400 kV bus voltage control in a smooth manner.

The operating functions of the STATCOM Station shall include:

- Steady state voltage control of 400 kV bus,
- Balance steady state voltage at 400 kV bus,
- Dynamic over-voltage control,
- Transient and Dynamic stability control
- Damping of Power Oscillations

It is assumed that the arresters will limit any transient and switching surge over voltages and may also, by design, limit dynamic over voltages.

The requirement of reactive power compensation guaranteed by the TSP shall not be less than the levels specified considering following.

- The total cumulative Capacitive (+) and Inductive (-) MVAR rated Capacity of STATCOM Station as defined above comprising of STATCOM, coupling transformer, coupling reactor or any filter (if applicable) shall be rated at 1 p.u. voltage, for the frequency range of 48.5 Hz-50.5 Hz and 50 ° C (Celsius) ambient temperature at 400 kV Bus (Referred to as "Point of Common Coupling" or PCC).
- The rated capability of STATCOM, shall be at 400 kV (Referred to as "Point of Common Coupling" or PCC) and in the steady state frequency range of 48.5 Hz-50.5 Hz.
- The STATCOM Station including STATCOM Units, shall be designed to operate continuously under the worst possible combination of steady state voltage range of 360-440 kV and frequency range of 47.5 Hz – 52.5 Hz respectively and transient and temporary over voltages defined in Clause C.6.1-f).
- The AC voltage unbalance at fundamental frequency shall be assumed equivalent to a negative phase sequence component of 1.5% for equipment rating purposes.
- The reactive power compensation levels shall be determined by manufacturing tolerances of the components and measurements carried out using metering accuracy instrumentation at the 400 kV feed points to the STATCOM Station.
- The reactive power capability shall also be determined by calculations based on test values of appropriate quantities at the discretion of the owner.



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- In calculations of capability and availability, the owner shall assume the most unfavorable combinations of control, manufacturing and measurement tolerances.
- In case more than one STATCOM Station are installed in a particular substation, each STATCOM Station shall be connected to 400 kV bus individually with complete separate downstream system. Each individual STATCOM station shall have complete independent yet coordinated control system to avoid simultaneous tripping of both STATCOM Stations. The system shall be designed in such a way that single common contingency (other than loss of 400 kV voltage, abnormal system events) will not cause tripping of both STATCOM Stations.
- Operation of STATCOM Station shall not excite any resonance condition in connected Power System.
- Control of STATCOM Station shall be designed to prevent hunting.

C.3.1 STATCOM building

The STATCOM station shall have an independent building including a separate control room different from the main control room building of the 765/400 kV Substation.

The STATCOM Building shall comprise of following facilities:

1. Control and Relay Panel room
2. ACDB and DCDB room
3. Battery room
4. Service Room cum workshop
5. Conference room
6. Valve hall
7. Cooling system room
8. Lobby
9. Corridor with minimum width of 1600 mm
10. Portico
11. Common Toilet
12. Provision of shaft for electrical, sanitary, water supply facilities
13. Other facilities as per functional requirement of building
14. AHU Room

Ambient Condition

STATCOM Station should be designed to perform at 50 °C ambient temperature.



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C.5 Power System Characteristic

The following AC power system characteristics apply at the point of connection i.e. point of common coupling in this case (PCC). STATCOM station operation is required within the parameter value and duration given in following table:

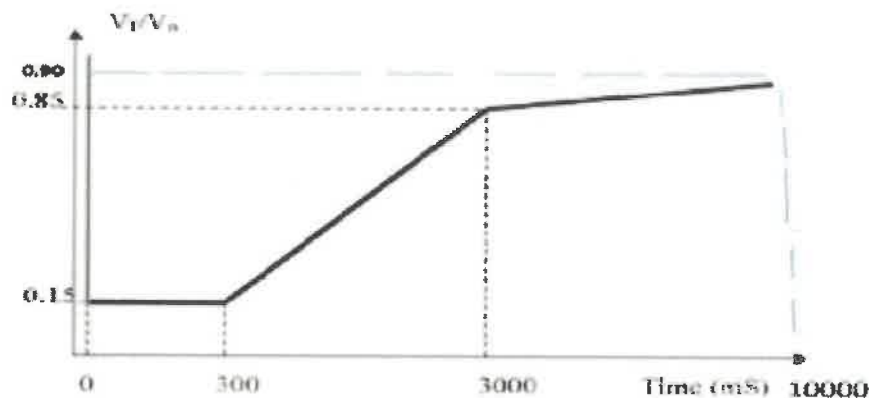
S. No	Power System Characteristic	Value	unit
1.	Nominal ac system voltage, line-to-line	400	kV
2.	Maximum continuous ac system voltage, line-to-line	420	kV
3.	Minimum continuous ac system voltage, line-to-line	380	kV
4.	Maximum short-term ac system voltage, line-to-line	448	kV
5.	Maximum duration of item 4	10	s
6.	Continuous negative-sequence voltage component (used for performance calculation)	1	%
7.	Continuous negative-sequence voltage component (used for rating calculation)	1.5	%
8.	Continuous zero-sequence voltage component	1	%
9.	Nominal ac system frequency	50	Hz
10.	Maximum continuous ac system frequency (for rated output)	50.5	Hz
11.	Minimum continuous ac system frequency (for rated output)	48.5	Hz
12.	Maximum short-term ac system frequency	52.5	Hz
13.	Minimum short-term ac system frequency	47.5	Hz
14.	Basic Insulation Level (BIL)	1550	kV peak
15.	Switching impulse level (SIL)	1050	kV peak
16.	Power Frequency Withstand voltage	630	kV
17.	Maximum three-phase fault current a) for performance requirements b) for rating of STATCOM X/R (Positive/Negative Seq)* X/R (Zero Seq)* Clearing time - normal Clearing time -- backup	a) 63 b) 63 22.5 33 0.1 0.75	kA kA for 1s s s
18.	Maximum three-phase fault current	63	kA
19.	Minimum three-phase fault current # -for performance requirements -for safe operation	24 24	kA kA
20.	Maximum single-phase fault current	63	kA

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S. No	Power System Characteristic	Value	unit
21.	Minimum single-phase fault current#	11	kA
22.	Harmonic impedance sectors for each harmonic number up to the 49th harmonic or system impedance data as R-X values with frequency steps not larger than 1 Hz (for performance and/or STATCOM system component rating)	Chapter 7.3 of CIGRE Publication 139	
23.	Background harmonic voltage (or current) spectrum (for STATCOM components rating) (Distortion up to 15th Harmonic)	5th Harmonic 1.5% 7th Harmonic 1.0% Other Harmonics 0.5% (each)	
24.	Power System Phase Rotation	CCW	

The STATCOMs shall remain connected to the grid and shall be able to operate at rated reactive power capability when voltage at the interconnection point, on single phase or three phases dips up to the level depicted by the thick lines in the following curve (for specified time) and up to at least 0.3 p.u. in case of two phase faults :

VT : Actual Voltage; Vn: Nominal Voltage



C.6 STATCOM Station Characteristics

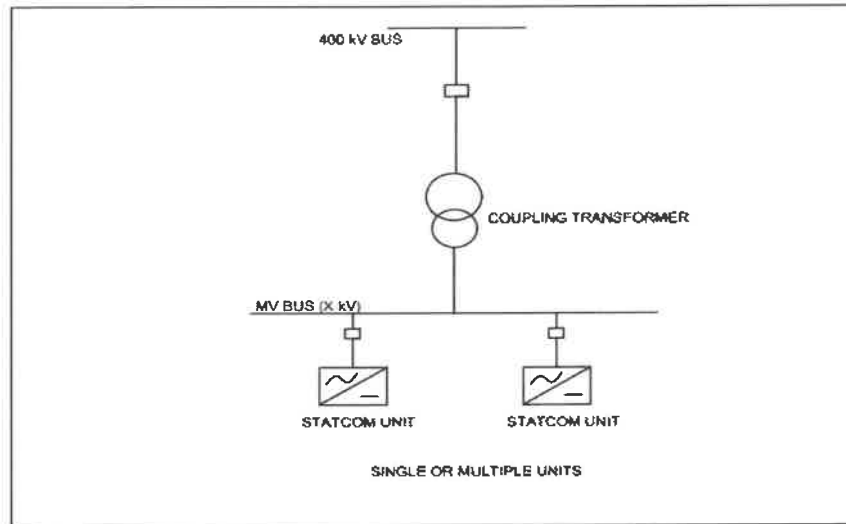


Figure-1: Conceptual Indicative Schematic diagram of STATCOM Station

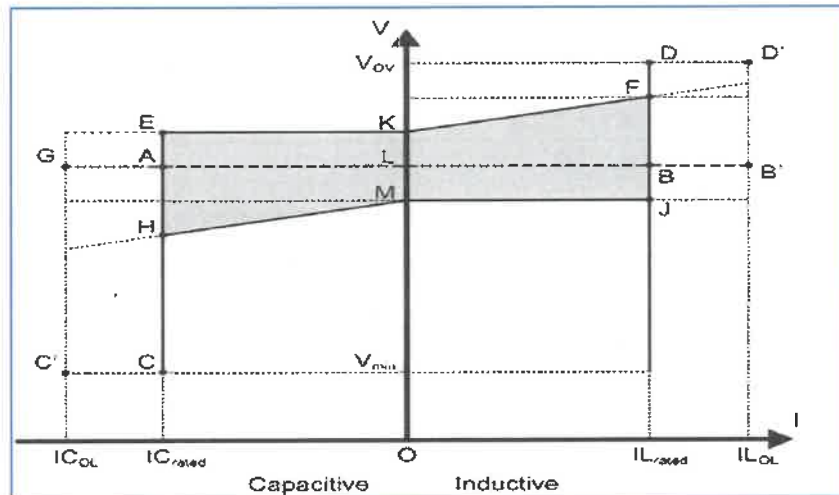


Figure-2: VI Curve of the VSC Portion

C.6.1 STATCOM Station Ratings

The output of a STATCOM Station shall be adjusted continuously over the range illustrated in Figure-2.

The following items define the ratings of the STATCOM station equipment.

- The STATCOM Station should regulate the voltage of 400 kV bus to a reference voltage of 400 kV (1.0 per unit, Point L Figure-2), continuously adjustable between 0.95 per unit and 1.05 per unit.
- The nominal capacitive and inductive reactive power output of the STATCOM should be as defined in the scope, at 1.0 p.u. AC bus voltage and



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nominal system frequency (f), and 50°C ambient temperature (Point A and point B of figure-2).

- c) The slope of the STATCOM Station characteristic should be adjustable in steps of not greater than 0.5% between 1% and 8%, on a basis of cumulative MVA capacity of STATCOM Station (A+B in Figure-2).
- d) The STATCOM Stations shall continue to inject reactive power during temporary under voltage down to 60 kV (0.15 p.u.) for the duration 0.3 sec (Point C) and STATCOM behavior for voltages above 0.15 p.u. shall be as specified under section C.5 above. The STATCOM system may be blocked if the under voltage persists for time beyond limits specified under section C.5 above.
- e) The STATCOM shall continue to absorb reactive power during HVRT Conditions in a controlled manner as per the following.

Nominal Voltage (pu)	Minimum time for remaining connected to the Grid
$V > 1.50$	Instantaneous trip
$1.50 \geq V > 1.30$	100 milli seconds
$1.30 \geq V > 1.10$	10 seconds
$V \leq 1.10$	Continuous

STATCOM Station may be tripped if the respective temporary over voltages as mentioned above persists for more than its respective mentioned duration.

- f) The STATCOM Station should be capable of repeating temporary operation as defined in any one of item (d) and (e) as above for at least 3 charging cycles in 60 mins.
- g) The coupling transformer and all bus equipment, such as filter branches (if applicable), etc. and the MV Bus should be rated to withstand the specified continuous and short-term operation, and to withstand or be protected against voltage and current stresses that exceed these conditions.
- h) All equipment in the STATCOM Station should be capable of sustaining, without damage, any fault limited by the maximum design short circuit level of the system and the Coupling transformer impedance.
- i) The TSP shall assume the negative sequence voltage of 1% at rated short circuit level and provide control to reduce this unbalance.
- j) The injected harmonics by STATCOM Station under the full operating range measured at 400 kV Bus (PCC) in accordance with IEEE Standard.
- k) The STATCOM controls should be designed to correct negative sequence voltage during steady state operation.



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- l) The switching module design should include an appropriate allowance for stray capacitance and component tolerances.
- m) The STATCOM should be designed to prevent, or alternatively to withstand, false firing events, i.e., the firing of any valve at an incorrect time in the cycle or when not ordered.

C.6.2 Control Objectives

The control system shall control the STATCOM required under this specification, as well as all bus reactors on the 400 kV HV bus of the substation.

Operation logic for the breakers, disconnectors and earth-switches in the STATCOM Station shall also be incorporated in the control system. The control shall be programmable and shall have sufficient scope and flexibility (software programming margin of at least 20%) to permit re-programming according to future changes/addition in the power system. The operator interface must be integrated in a latest version of Windows environment.

C.6.2.1 STATCOM Station Functions and Applications

C.6.2.1.1 Voltage Control mode (Automatic and Manual)

Control of the positive sequence component of the fundamental frequency voltage in steady state at POI shall be, with slope in the range as specified at clause 6.1 c) above.

There shall be following provisions in STATCOM System to operate in Voltage Control Mode:

- a) To adjust the reference voltage for changes by Grid Operator.
- b) To adjust the value of reactive power droop in p.u. to provide a stable, coordinated and dynamic response.
- c) To adjust the voltage dead band with a minimum magnitude of ± 0.05 p.u.

C.6.2.1.2 Fixed Reactive Power Mode

In this mode, the STATCOM system shall maintain a specified constant reactive power output at the POI under continuous / steady state operating region. The target reactive power level and mode (injection or absorption) shall be specified by the Grid operator. There shall be a provision to adjust the reactive power set point. The dynamic response of the STATCOM system to any changes in reactive power shall be positively damped with a damping ratio of 0.3 or better.



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C.6.2.1.3 Steady State Condition

The STATCOM Station shall provide necessary reactive power support to the 400 kV bus (PCC) to compensate for voltage variation under steady state.

C.6.2.1.4 Dynamic Over-voltage Control Performance

The STATCOM shall be required to provide necessary reactive power support with fast and smooth variation so that over-voltages under dynamic conditions are controlled.

The operation of each STATCOM over its range of MVar from full capacitive to full Inductive capacity and vice-versa shall be on the basis of smooth variation.

C.6.2.1.5 Transient and Dynamic Stability Performances

The STATCOM Station shall provide necessary reactive power so that the transient and dynamic stability of the Owner's system is enhanced.

C.6.2.1.6 Damping of Power Oscillations

The STATCOM shall provide necessary damping to power oscillations by modulating its output in its entire range based on the measured rate of change of power/frequency at the 400 kV bus. The damping controller would track local area oscillations as well as wide area oscillations and control would include several loops each focused on different frequencies.

TSP shall ensure the damping of oscillation during the entire license period including the pre-commissioning period as per relevant standards. (e.g. IEEE 1052).

C.6.2.1.7 Facility for compensation of phase imbalance

Provide negative phase sequence voltage control to minimize the presence of negative sequence content of the 400 kV bus voltage.

C.6.2.1.8 Start up and Initial Switching

The operation of STATCOM Station during start-up/initial switching on should not create significant energizing transients causing voltage drop, voltage distortion and swinging of transmission voltage angle at the PCC bus by more than $\pm 5\%$. TSP shall have to ensure this analytically during the design phase and also in the field after the commissioning of the facility. TSP shall prepare the design documentation and the same shall be preserved by TSP and to be submitted to CEA/CTU/GRID-INDIA, as per their requirement.



C.6.2.1.9 Gain Supervision and Control

To control the regulator gain in order to prevent oscillations and excessive overshoot in the STATCOM response, a gain supervision function shall be implemented. This shall be an essential function for the supervision of stability of closed-loop voltage control. The function of this controller is that when the supervision of the gain in the voltage regulator detects oscillations in the voltage controller output, the gain shall gradually be reduced until stability is reached. Normally it is a changed condition in the transmission system contribution to the closed loop gain that results in instability. The reduction in the voltage regulator gain shall only balance the external change. The control should be adaptive in order to maximize its effectiveness. Gain reductions should be indicated and the reduction of the gain shall be able to be reset to nominal value by means of commands from the operator interface or automatically. A relative gain factor shall also be able to be changed from a gain optimizer.

C.6.2.1.10 Coordinated reactive power control of external devices

To optimize the use of dynamic VARs versus steady state VARs, control of externally connected shunt capacitor or reactor banks shall be implemented. Such banks will be connected locally to a HV bus or/and at MV bus. For simultaneous control with the supplementary VSC current controller, coordination for the two functions shall be provided.

C.6.2.1.11 Supplementary VSC current controller

To optimize the use of dynamic VARs versus steady state VARs, a control function that slowly reduces or offsets the STATCOM point of operation shall be implemented. By deliberately adjusting the voltage reference setting within a narrow window the STATCOM system output is pushed towards either a specific point or towards a window to preserve dynamic range. This slow operating function is meant to provide for slower controllers, such as externally connected shunt banks to operate and meet the slower long term voltage variations caused by daily or weekly load variations. Rapid changes in the system voltage that call for dynamic compensation will have priority over this type of controller.

C.6.2.1.12 Gain optimization

To provide operation at optimal regulator gain, a fully automatic optimizing function shall be implemented. This function operates by inducing a small change in the STATCOM output. The gain is adjusted based on the network response signal.



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C.6.2.1.13 Control of Direct Current

During STATCOM operations, any flow of direct current to the transformer's MV side must be less than 25% of the transformer magnetizing current. DC current flow in the transformer should be minimized by an independent control function that minimizes DC current. For presence of up to 0.2% second harmonic in 400 kV system, the STATCOM control should minimize DC current flow in the transformer.

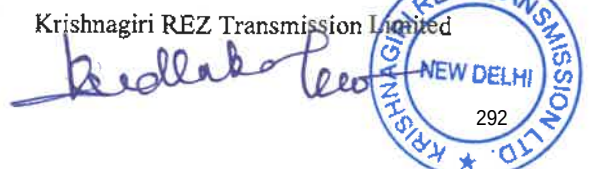
C.6.2.2 Under Voltage Strategy

It is essential that the STATCOM Station operates in a robust manner when transmission system under voltages appears. In case of single phase or three phase faults, the STATCOM units must operate unrestricted, producing its rated capacitive current for transmission system voltages down to 0.15 p.u. In case of two phase fault, the STATCOM shall be capable to produce rated capacitive current atleast down to 0.3 p.u., however, it shall be designed to operate upto 0.15 p.u. The STATCOM must be designed to operate at transmission system under voltage, even considering that severe voltage unbalances can appear. The STATCOM must not be restricted by short term negative sequence voltages up to 1.5%, appearing in conjunction with under voltages.

Transmission system under voltages below 0.15 p.u. will appear in conjunction with transmission system faults. The STATCOM must ride through during faults and post fault under voltages. The minimum trip delay for the STATCOM Station, upon complete loss of the transmission system voltage shall not be less than 5 seconds. If station AC auxiliary power distribution is affected, critical loads must be fed from DC station batteries, Uninterrupted Power Supply (UPS) without tripping the STATCOM Station. Adequate capacity must be kept in DC station batteries, UPS to feed critical loads for the smooth operation of the STATCOM Station facility. There must be redundant station battery system with each station battery system capable of delivering 100% load.

At under voltage conditions for the transmission system voltage, special control strategies are activated which override the normal control modes presented above. Normally if the voltage is low, the output from the STATCOM will be capacitive. If the voltage in all three phases goes below a level, but not greater than 0.15 p.u., a special under voltage strategy may be activated that controls the STATCOM output to 0 MVar. As soon as the voltage goes higher than 0.15 p.u., the under voltage strategy is deactivated and the normal control will be in operation (for the specified duration).

The STATCOM Station must not be tripped or shut down automatically due to under voltages appearing for specified duration as specified under section C.5 above. STATCOM Station must continue to operate when AC system Voltage on



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any or all phases dips down to 0.15 p.u. voltage as per the characteristic given at section C.5.

C.6.2.3 Over Voltage Strategy

C.6.2.3.1 The TSP shall carry out dynamic stability study upfront in order to assess the dynamic overvoltage requirements. These studies shall include conditions with maximum and minimum short circuit system MVA conditions, single phase and three phase faults as well as stuck breaker, outage of the nearby generator and also with the outage of parts of the STATCOM Station. It is important that the STATCOM Station rides through temporary over voltages and not trip when it is needed the most.

C.6.2.3.2 The system should be able to withstand any 3 phase, 5 cycle (100 ms) and single phase 10 cycles (200 ms) fault with consequent loss of a 400 kV double circuit line and loss of a 500 MW generator. The fault duration mentioned above corresponds to time assumed for the persistence of fault. For other system parameters refer clause 5 above (Power System Characteristics). In addition to above requirement, system contingency cases as provided in Annexure-I need to be considered and satisfied.

C.6.2.3.3 The 400 kV system and equipment to which the STATCOM Station is connected is designed to withstand switching surge overvoltage up to 2.5 p.u. and power frequency over voltages up to 1.5 pu with initial value of the temporary overvoltage up to 2.0 p.u. for 1-2 cycles. Based on arrester coordination and under the worst case scenario the 400 kV system phase to ground peak over voltages may be expected as follows

- i) 650 kVp for 3 peaks
 - ii) 575 kVp up to 5 cycles
 - iii) 530 kVp up to 1 second
 - iv) 475 kVp up to 10 seconds
- a) The STATCOM Station shall be designed to withstand these sequential over voltages.
 - b) If the over voltages greater than 1.1 p.u. are exceeded in magnitude and duration due to any system contingencies, suitable control action shall be taken by STATCOM Station to bear this kind of contingency.
 - c) The TSP shall evolve the insulation co-ordination of the components of the STATCOM Station after studies have been conducted to determine the over-voltage profile with the STATCOM connected to the system.



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- d) The TSP shall ensure that STATCOM Station will not excite ferro-resonance and sub-synchronous oscillation in the AC system. The study report in this regard shall be preserved and to be submitted to CEA/CTU/GRID-INDIA, if required.
- e) It may also be noted that the tripping action for 400 kV lines is initiated if the overvoltage exceeds 1.1 p.u. for 10 seconds. The tripping of 400 kV lines is initiated if 1.5 p.u. voltage persists for more than 100 milli seconds. The over voltage strategy shall be coordinated with these settings such that the STATCOM Station rides through up to these levels.

C.6.2.4 STATCOM Station Over load / Over Current

The overvoltage cycles mentioned in clause 6.2.3.3 above create a corresponding current overload in the STATCOM Station components; the STATCOM Station and its components shall be designed to withstand these.

In addition to the above the STATCOM Station and its components shall be designed to withstand overloading caused due to the following eventualities.

- i) Short circuits and ground faults in the 400 kV system especially those occurring near the STATCOM Station and medium voltage bus of the STATCOM Station.
- ii) Transient overvoltage due to switching operations and atmospheric effects.
- iii) Temporary over voltages.
- iv) Short circuits in the transformer secondary circuit such as:
 - Bushing terminal fault
 - Flashover across a reactor, Bus Bar and other connected components/switchgear etc.
- v) Protection system faults.

If the rated overvoltage is exceeded as a result of prolonged stressing or for other reasons, the protection specified elsewhere in the specification shall come into effect to prevent damage.

C.6.2.5 Dynamic Performance Controls of STATCOM Station

The TSP must describe in detail, the dynamic reactive power controls for enhancing stability margin and also damp oscillations of any critical frequencies. The dead band for continuous damping control must be very small so that there are no discernible sustained oscillations.

C.6.2.6 Protective Control Functions



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TSP shall provide all necessary protections including Main and Back-up protections for all protective zones and equipment like transformers, STATCOM Units, MV Bus Bar etc. TSP shall provide any protective control functions to meet the performance requirement of STATCOM under the scope of the TSP.

a) Overvoltage Protection

TSP shall provide adequate overvoltage protection as a result of any normal operation, mal-operation or system event.

b) Over current Protection

TSP shall provide adequate over-current protection for the STATCOM Station as a result of any abnormal operation, mal-operation or system event.

c) Gate level control Supervision

TSP shall provide adequate Sub module Gate level control supervision.

C.6.2.7 STATCOM Station Response

STATCOM station response shall be such that the change in measured system voltage to small disturbance should reach 90% of the desired total change within 30 ms of initiating a 5% step change of voltage reference. The maximum overshoot should not exceed 120% of the total change and the settling time should not exceed 100 ms, after which the voltage should be within $\pm 5\%$ of the final value. This response characteristic within these limits must be respected when the system's three-phase fault MVA is between the minimum and maximum value defined in clause-5. The response of the system voltage using the actual controller should be validated on a real time simulator during the Factory Acceptance Test (FAT) at the manufacturer's premises. For the purpose of STATCOM Station, response time measurement and signal conversion of the voltage, the error should not exceed 0.3%. The voltage response acquisition circuit should have a response time of no longer than 10 ms. However, time longer than 10 ms can be allowed provided the requirement of STATCOM response time is met.



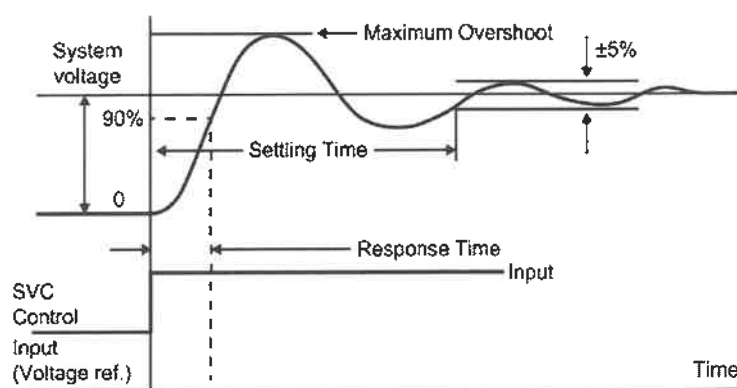


Figure-4 Response and Settling time

C.6.3 Harmonic performance and AC harmonic filter design

It is likely that with multi-level VSC based technology, no filters or only a small high-pass filter will be needed. The STATCOM shall be operable without AC filters. The STATCOM Station should be designed to eliminate the effects of any harmonic resonance between its, filter branches, and the AC system. To limit the harmonic distortion imposed on the 400 kV transmission system, the additional contribution of harmonic distortion from the STATCOM Station to 400 kV system (PCC) should not exceed 1% for the total and 0.5% for any specific harmonic.

C.6.3.1 Filter performance

The distortion levels as specified should be met for the following:

- The continuous range of all system and environmental conditions.
- Variation in total filter capacitance due to manufacturing tolerance, ambient temperature, aging, and changes in capacitance up to alarm level.
- Variation in tolerance for STATCOM parameters, such as transformer winding unbalances, valve firing variations.
- System frequency in the range of 48.5 Hz to 50.5 Hz. Calculation should take into account all possible combinations of STATCOMs,

C.6.3.2 Filter component rating

The harmonic filter components (and other STATCOM components) should be rated to carry continuously the harmonic currents caused by the background harmonic distortion of the system and the harmonic currents produced by the STATCOM itself. Unless otherwise specified, harmonic currents from the system and the STATCOM of the same order should be added arithmetically. All filter



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harmonic currents of different order should be added quadratically (root sum of squares).

The rated voltage of capacitors should be derived from the largest arithmetic sum of the power-frequency and individual harmonic voltages obtained from stress calculations in continuous operating conditions (Note: Maximum fundamental voltage and maximum harmonic contributions may not exist at the same time for STATCOM configurations).

For filter capacitor voltage rating, the loss of capacitor unit or elements should be considered up to the trip level.

The rated voltage of so-called "low voltage" capacitors (e.g. in double or triple tuned filters) should be chosen such as to also withstand imposed transient stresses from faults, energization, or other switching events.

C.6.3.3 Harmonic at PCC

The STATCOM Station's contribution to the harmonic distortion levels at the STATCOM Station connection point (PCC) to the transmission system shall not exceed the limits defined in IEEE-2800 standard.

C.6.3.4 Harmonic calculation:

Chapter 7.3 of CIGRE Publication 139 together with information in PSSE network files given shall be used for the Network harmonic impedance.

C.6.4 MV Switchyard

- Medium Voltage (MV) delta bus shall be grounded through a Grounding Transformer (i.e. zig-zag winding Transformer) along with a suitable resistor in the neutral.
- MV Switchyard of different STATCOM Station branches shall be fenced with a fence height of three (3) meter. To minimize the probability of electrical fault suitable arrangement i.e. electrified fence shall be done to prevent the encroachment of unwanted animals or other to minimize the probability of electrical faults (Ph-E, Ph-Ph). Further bus bar arrangements shall be made in a way to minimize the probability of electrical faults.
- Secondary side of the Coupling Transformer shall be provided with suitable surge capacitors to mitigate transfer surges.



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- For MV bus bar, an Aluminum conductor (Tube, Rectangular Hollow Section or C Section) may be used, however, a suitable bus bar end cover/cap shall be provided to avoid any animal/bird entering the hollow space.

C.6.5 Broadband Interference

C.6.5.1 Radio Interference

The TSP shall take necessary precautions in the form of shielding of valve hall and building or Containers to meet its own requirement together with any requirements that may be specified in Section-Project. Further, the following requirements shall also be met:

- a) With the STATCOM Station operating at any load up to rated value and within the design range of firing angle, the radio interference level from electromagnetic or electrostatic inductions generated by the STATCOM station shall not exceed 100 micro-volts/m, under fair weather conditions, at 500 m away from STATCOM fence or boundary of the substation whichever is higher. The Radio Interference Level (RIL) criteria shall be achieved at all frequencies within the range of 150 kHz to 300 MHz and with the STATCOM operation at any level up to and including rated value, The design shall provide correcting measures, in case the specified design is not being realized in the final installation. In case of any third-party complaints about the radio interference, suitable measures shall be implemented by the TSP.
- b) Measurements of actual RI at STATCOM Station shall be made by the TSP, at points along the above defined contour and at other critical points.
- c) RIV (Radio Interference voltage) measured at a phase to ground voltage (266 kV rms) in accordance to NEMA-107 shall not be more than 500 micro-volts for 400 kV system. For other system voltages, IEC/NEMA in the order of preference shall be applicable.

C.6.5.2 Interference with Power Line carrier and open wire carrier system

The TSP shall take the necessary precautions in the form of noise suppression techniques and filtering devices to prevent harmful interferences from STATCOM Station to the power line carrier communication (PLCC) system operating on connected AC transmission network.

The frequency spectra to be protected are:

System	Frequency spectrum
Power Line Carrier	30 kHz to 500 kHz
Open Wire Carrier	5 kHz to 30 kHz

C.6.6 Audible Noise

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The TSP shall limit the audible noise in various areas of the STATCOM Station buildings and containers to the following values.

Valve hall (Inside)	90 dBA
Mechanical equipment areas indoor (measured at 2 meter distance)	75 dBA
Mechanical equipment outdoor (Measured at 15 m distance)	75 dBA
Control Room Building*	60 dBA
At the limits of the STATCOM STATION perimeter fence	80 dBA

**This is the background noise from the ventilation system in adjacent rooms, control cubicles etc. Printers, recorders may be switched off during the measurement.*

C.6.7 Loss Requirements

C.6.7.1 The TSP must guarantee the total losses of STATCOM Station, be less than **1.5%** of the reactive power output individually at its inductive limit and capacitive limit for the cumulative highest reactive power output of STATCOM Station at PCC with the worse combination of manufacturing tolerances. For the purpose of total loss measurements, it should be assumed that the ambient temperature is 20 °C, the PCC voltage is 1 per unit, and the slope setting is 1%. The STATCOM system may not operate under these conditions, but they provide a common base.

C.6.7.2 The total losses shall include all components, as well as different parts or subsystems of the complete STATCOM Station such as coupling transformer, All VSC systems and components, Control and protection systems, including ancillary devices such as HMI, fault recorders, and SCADA, Auxiliary Power supply systems, cooling systems, Building ancillary services such as lighting, air conditioning, heating, and ventilation. It may be noted that for the redundant VSC valve levels and dual/redundant control and protection systems, the losses of redundant VSC valve levels and dual control and protection systems shall be considered during loss measurement.

C.6.7.3 For the dual or redundant systems design of STATCOM Station, such as dual pumps or redundant fans, dual systems losses are to be excluded, if the dual system is not in service during the normal operation of the STATCOM Station. However, dual systems should be included if they are required to be in service under the defined operating conditions. The same methodology shall be applied for HVAC (heating ventilation and air conditioning systems).

C.6.7.4 The TSP is required to prepare documentation for the detailed calculation of total losses based on measurement during Factory Acceptance Tests of major equipment and systems mentioned above as per relevant IS/IEC/IEEE standards



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and the same shall be preserved and to be submitted to CEA/CTU/GRID-INDIA, as per their requirement. Further for equipment/systems, whose loss measurement cannot be done during Factory Acceptance Test, the same can be measured at the site, and a combination of calculation and measurement shall be used to derive the total losses as specified above. During Loss measurement, all fans, and pumps; valve room and control room air-conditioning system shall be switched on. However, redundant fans, pumps and air-conditioners shall be kept off during loss measurement.

- C.6.7.5** During the factory tests the losses for the following equipment shall be measured/assessed as detailed below:

Coupling transformer:

Losses shall be measured at factory/lab at the maximum rating, at power frequency as per relevant IEC/IS under below mentioned conditions:

- i. No load loss (Iron loss) at rated voltage and fundamental frequency.
- ii. Load loss (copper loss) at rating corresponding to maximum continuous current and at 75 °C.
- iii. Transformer cooling equipment's loss (Auxiliary loss) at rated voltage and fundamental frequency.

Reactors:

The losses shall be measured at the factory/lab at the maximum rating at power frequency as per relevant IEC/IS.

VSC Valves:

Converter losses comprise the losses in power electronic switches [insulated gate bipolar transistor (IGBT) or equivalent], made up of conduction and switching losses, and the losses in DC capacitors, resistors, and inductors used within the converter system. Refer IEEE-1052 for calculating VSC losses.

Capacitor:

The capacitor losses shall be measured at the manufacturer's works at power frequency as well as calculated to obtain the losses in the complete bank on the basis of factory measurement.

Auxiliary System:

Auxiliary power losses shall be calculated from the kW and efficiency of all motors (name plate rating) of the cooling system, air conditioning, ventilation etc. The



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higher of the total losses for the entire auxiliary systems occurring at full capacitive capacity MVar or full Inductive MVar as the case may be shall be considered for arriving at the total losses.

Harmonic Filters, if any:

The losses shall be calculated at the maximum STATCOM Station loading at 400 kV and 50 Hz.

The calculations shall be on the basis of the tested results of the components.

C.6.8 Selection of Insulation Levels

C.6.8.1 Arresters:

Protective levels of arresters connected to the 400 kV AC Bus Bars of the STATCOM Station shall be coordinated with the insulation and surge arrester Characteristics of the 400 kV AC systems to which the STATCOM Station is to be connected. The specification and characteristics of the surge arresters installed in 400 kV AC system is given in the Substation specifications. The front of wave (FWWL), lightning impulse (LIWL) and switching impulse withstand levels (SIWL) shall be determined by the following margins:

- A SIWL at least 1.15 times the switching impulse protection level.
- A LIWL which is an IEC standard level corresponding to the SIWL and shall be at least 1.25 times the lightning impulse protection level.
- A FWWL which is at least 1.25 times the front of wave protection level.

In addition to the above minimum basic requirement, the various insulation levels of 400 kV equipment shall be as below. The STATCOM Station equipment, coupling transformers etc. shall be co-ordinated accordingly.

Description	SIWL	LIWL
All equipment other than Transformer Bushing and winding	1050 kVp	1425 kVp
Transformer Winding	1175 kVp	1425 kVp
Transformer Bushing	1175 kVp	1550 kVp

C.6.8.2 Valves

The requirement of insulation levels of the valves shall be as per the design requirement.



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C.6.8.3 Air clearances

The air clearances shall be determined by the TSP based on the required withstand levels for all waveforms in order to limit the probability of flashover within the STATCOM Station to a target value of one flashover in 15 years.

C.6.8.4 Switchyard

The air clearances for switchyard equipment shall be equal to or greater than the minimum values as specified in IEC-60071. Altitude correction factor (if any) shall also be considered as per IEC.

C.6.8.5 Leakage distances

The Creepage/leakage distance across insulation shall be determined by the TSP and shall be adequate to ensure that under conditions of heavy pollution, the probability of a flashover of an insulator does not exceed one in 15 years. However, the leakage distance for all AC insulators for outdoor installation shall not be less than 31 mm/kV of the maximum operating phase to earth rms voltage at the insulator. The leakage distance of equipment connected to 400 kV systems shall not be less than 13020 mm.

Specific creepage distance for outdoor bushings, insulator strings and long rod insulators shall be a minimum 31 mm/kV.

C.6.9 STATCOM Station availability and reliability

The following definitions apply:

C.6.9.1 Outage terms:

a) Outage

The stage in which equipment is unavailable for normal operation due to an event directly related to the equipment which results in a reduction in STATCOM Station capacity.

b) Scheduled Outage

An outage that can be scheduled at least one week in advance.

c) Forced outage

The stage in which the equipment is unavailable for normal operation but is not in the scheduled outage stage and which results in a reduction in STATCOM Station capacity i.e. an outage which is not scheduled outage.

C.6.9.2 Capacity terms



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Maximum Continuous Capacity (Pm)

The maximum STATCOM Station capacity (MVA_r) for which continuous operation under normal conditions is possible.

C.6.9.3 Outage duration terms

Actual Outage Duration (AOD)

The time elapsed in hours between the start and end of an outage.

C.6.9.4 Time Categories

a) The number of hours in the reporting period in a full year, the period year is 8760 hours. If the equipment is commissioned, part way through a year, the period hours will be proportionately less than 8760 hours.

b) Total Outage Hour (TOH)

The sum of all outage duration within the reporting period. TOH = AOD

C.6.9.5 Availability and Reliability Terms

Unavailability:

Unavailability is the duration for which the STATCOM Station is not available with a specified rating due to forced outages per year. If part of the station is unavailable, then the unavailability duration shall be counted proportionally. However, if STATCOM is out then its duration shall count as a fully unavailable STATCOM Station. However, if the STATCOM unit is out then the STATCOM Station unavailability shall be counted proportionally to STATCOM capacity. STATCOM Station Control system outage shall count as full STATCOM Station unavailability.

'OF' is the Outage Frequency which will be the number of forced outages per year.

The period basis for availability and reliability calculations shall be 12 months. The TSP shall ensure that the design will meet the specified guaranteed and design target value of availability and reliability.

Outage times for repair, maintenance and replacement of components shall be based on the premise that all items in the list of recommended spare parts are on hand, and that all maintenance schedules of recommended maintenance are adhered to. Reliability calculations shall be made and shall be presented as the expected frequency of unscheduled loss of STATCOM Station capacity. For simultaneous occurrence of events, for either of which a loss of capacity would result, the longer repair time shall be counted.



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The facilities shall be assumed to be utilized 100% of the time at 100% load, regardless of the actual reactive power generated/absorbed by the STATCOM Station. Hence the availability and reliability assessment will be based on the capability of STATCOM Station to generate/absorb the rated reactive power regardless of whether, it is in service or not.

C.6.9.6 Availability Requirement

The calculated availability of the system considered on an annual basis shall be equal to or exceed the following target values.

Minimum availability requirement of each complete STATCOM Station

- Guaranteed for STATCOM Station - 98%

The outages of STATCOM Station capacity caused by the failure of equipment outside the scope of the TSP shall not be considered for the calculation of availability and reliability guarantee. However, such outages shall be restricted to

- 1) Complete loss to 400 kV supply (at PCC)
- 2) Human Error.

Circumstances causing curtailment of STATCOM Station capacity that will be included in reliability and availability assessment and which can lead to forced outages shall include but not be limited to the following:

- a) Failure of equipment
- b) Mal-operation of control and protection system
- c) Failure to start
- d) Reduction in capacity.

C.6.9.7 Reliability Requirement

- a) Reliability

In the assessment of reliability, the following events shall also be considered to constitute a STATCOM Station outage:

- i) A STATCOM Station shut down.
- ii) A reduction of STATCOM Station capacity due to an outage of any component of STATCOM Station

The calculated reliability of the complete STATCOM Station shall be equal to or exceed the following design target values.



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The average outage frequency per year for each STATCOM Station shall not exceed the following values:

	Design target for STATCOM Station	Max acceptable Guaranteed value for STATCOM Station
Total Number of Forced Outages	3 x Nos. of STATCOM Station	5 x Nos. of STATCOM Station

C.6.9.8 GUARANTEED FAILURE RATE OF Sub-modules. (Including all components and electronic). The maximum annual guaranteed failure rate of sub module (including all components and electronic) shall not exceed 1.0% per STATCOM. The failure rate shall not include failures directly attributable to operation and maintenance errors.

C.6.9.9 GUARANTEED VALUE OF FAILURE RATE OF AC POWER CAPACITOR

The maximum guaranteed annual capacitor failure rate shall not exceed 0.15% except for first unit failure. The capacitor shall be considered as failed if its Capacitance value varies more than $\pm 5\%$ of the (actually measured) name plate value. Leakage of oil from the capacitor and the deformation of the capacitor unit shall be considered as a failure even if the capacitance value is within the tolerance limits.

C.7 Design Principles

The objective for the design of the STATCOM Station shall be to achieve a high level of availability and reliability as specified. Special attention shall be given to designing the STATCOM Station to avoid forced outages. The TSP shall conduct thorough design reviews to ensure the minimum risk of such outages. The TSP shall give careful attention to related factors affecting STATCOM Station performance such as subsystem and system testing, protective relays co-ordination and proper setting of relays.

Except where greater reliability requirements are specified in these specifications, the design basis for STATCOM Station shall be such that no single contingency downstream from the medium voltage bus shall cause a total outage of the STATCOM Station. The following general criteria shall be followed for the design of the control system:

- a) Use of components similar to those whose reliability has already been proved in use.



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- b) Use of good design practices, surge protection, filtering, and interference buffers to assure immunity to sensitive components and circuits against damage and interference by induced voltages and currents in the external cabling and cubicle wiring.
- c) Use of fail-safe and self-checking design features.
- d) Use of component and equipment redundancy, by means of either duplication or triplication with automatic transfer facilities wherever necessary to meet the requirement of these specifications.
- e) Design which in the event of component failures, provides for transfer to a less complex operating mode.
- f) Provision of alarm, fault diagnosis and indication

C.8 STATCOM Station Main Components

C.8.1 STATCOM Unit

The main electrical data of the STATCOM Units are the following:

- o Rated voltage 20 kV Minimum
- o Rated frequency 50 Hz
- o Redundancy (Sub Module) 2 Nos. or 5% whichever is higher
- o Rated Power of each STATCOM unit/Branch ± 50 MVar Minimum
- o Valve Cooling Deionized/Demineralized water

In general, the STATCOM units shall equally share the load however under contingency conditions it should be possible to run the units with unequal load. Charging of the DC capacitors of Sub module during the initial start-up shall be achieved by means of Resistors and bypass breaker arrangement. The charging resistor for DC capacitor of the STATCOM Sub module should be designed for three charges per hour followed by the appropriate cooling time. Power for the gate level control shall be derived internally from Sub module. The offered STATCOM Units with their Control system shall be suitably located inside the STATCOM Station Building.

C.8.1.1 STATCOM Valve

The valve shall be designed to meet the performance requirements described in this specification and as described below.



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In order to ensure a modern low loss and reliable solution, the STATCOM valve assembly shall use the multi-module (including redundant sub-modules) approach.

The valves shall be designed to ensure satisfactory operation according to the overall performance requirements and include all necessary auxiliary equipment required for smooth and reliable operation. The valves shall be indoor air-insulated and cooled by de-mineralized water. The valves shall be of modular design and have removable Sub-Module for ease of maintenance. The valves shall be mounted to allow easy access for visual inspection, routine maintenance and replacement, and facilities shall be provided to enable easy access.

C.8.1.2 Semiconductor Switches

The electronic switches should be designed with the aim to achieve operation according to the overall performance requirements of the STATCOM Station. The valve shall be designed with individual semiconductor switches applied in a conservative manner with regard to their basic design parameters. The semiconductor switch shall meet the requirements of IEC 60747 except where otherwise specified herein.

The semiconductor switches shall be designed to withstand all stresses expected under steady state, transient and temporary overvoltage conditions. Basic semiconductor devices shall be of the Press Pack type, or packaged to provide short circuit means in case of device failure such that the STATCOM can continue to operate without interruption. The adjacent sub-module should be protected against the possible explosion of the semiconductor switch.

Under the restriction of redundancy (minimum two or 5% whichever is higher) i.e. the failure of any semiconductor switch or sub module or monitoring device etc shall not prevent continued system operation. In the event of any of the above failures, the STATCOM shall annunciate and identify the specific location of the failed device and continue operation until such time as repairs can be scheduled. During such time till the next shutdown can be availed, the STATCOM must continue to operate without downgrading STATCOM capability.

The switching device's design should include an appropriate allowance for unequal voltage distribution across individual devices in the valve due to the stray capacitor and component tolerances.

Each switching device should be able to operate within component ratings, generally with at least two failed sub-module or levels. The number of possible failed sub-modules or levels as specified shall be consistent with the availability requirements of the STATCOM system.



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C.8.1.3 Sub module for Multi-Module Topology

The key element of the multi-module topology shall be the sub-module. By increasing the number of these sub-modules, it is possible to obtain high voltage with extremely low harmonic distortion and very low dv/dt using a low switching frequency that reduces power losses. Sub-module shall have the following characteristics:

VSC sub-modules should be protected against over voltages with appropriate strategies. A description of the failure mode of the switching device and the strategies used for failure should be provided.

In each fiber optic cable (having multiple fiber cores) used for control/communication purposes of sub-module at least two fiber cores shall remain available as spare for future use.

- C.8.1.4** The STATCOM sub-module has DC capacitors that require a charge to allow full functionality and performance. At the startup of the STATCOM Station, the capacitors are discharged. During the energization sequence of the STATCOM, Capacitors are charged from the main power grid via resistor operated in series to the main connection circuits. Once the desired charging voltages are reached, the charging resistor circuit is bypassed using a bypass switch/breaker.

The Type and Rating of the charging resistor and associated bypass switch shall be designed with the aim to achieve operation according to the overall performance requirements of the STATCOM Station and shall conform to the relevant Standard.

C.8.1.5 STATCOM Valve Cooling system

A closed-loop recirculating system shall be provided with full heat rejection capacity with redundancy for pumps, heat exchangers, and fans, appropriate to the STATCOM Station availability requirements. The cooling system should be able to maintain full capacity at maximum ambient temperature and maximum STATCOM reactive power output. The cooling system should be able to operate at the lowest ambient temperature and zero output specified. The Valve cooling system shall have black start capability and necessary Uninterruptible Power Supply (UPS)/ Uninterruptible Motor Drives (UMD) shall be provided separately for each STATCOM Unit.

The valve cooling system shall be designed to meet the performance requirements described in this specification and as described below.

- a) Each STATCOM Unit shall have its own de-ionized water valve cooling system with redundant pumps.



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- b) For cooling the STATCOM valves, a deionized re-circulating (closed loop) water system shall be used.
- c) Water to air heat exchanger shall be used for cooling of this de-ionized water. Water to water heat exchanger shall not be employed.
- d) System shall be designed such that no shut down of STATCOM be resorted to for making up the deionized water in the system. The make-up water should comply with the recommended pH and purity.
- e) Cooling water shall have a constant flow rate irrespective of loading. The flow rate shall be decided on the basis of extreme operating conditions.
- f) The control system for the cooling system shall be redundant type including the provision of redundant control supply and main power supply. However, in place of the redundant control system for the cooling system, suitable alternate mode is also acceptable meeting the requirement of fulfilling cooling system operation even if failure of cooling control system.
- g) 2x100% pumps with one as standby shall be provided for the primary. In case a pump failure occur, the second pump shall automatically switch in without shutting down the STATCOM. An alarm shall be displayed at the control panel for the failure of the first pump and standby pump in operation.
- h) Each cooling system shall be provided with an independent/dedicated UMD supply however common battery for both UMD power supply may be accepted. An UMD system will provide an extended capability of the STATCOM Station to deliver reactive power without any interruption, adding a buffer against the system faults or during events such as delayed voltage recovery or Transient Over Voltage (TOV).
- i) The secondary cooling system shall be a redundant type such that it shall be possible to take out 10% (minimum one number) of the cooler module (fan unit) of secondary cooling system without affecting the rated performance of STATCOM).
- j) Normally no make-up water shall be required however in case of expansion vessel level going low; the same shall be replenished automatically by means the of make-up water tank and make up water pump to be supplied with the system.
- k) TSP shall provide a water treatment plant of sufficient capacity. The purification (treatment) system shall be designed to maintain conductivity below 1 micro Siemens. A resistivity cell in the outgoing water from the deionizer should detect the depletion of ionized material. Filters and deionizers shall be designed to allow replacement during operation. Normal replacement shall not be required more than once every year.



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- l) Filters and deionizer/deoxidizer material shall be designed to allow replacement within minutes without shutdown of the cooling unit. (Normal replacement should not be required more than once/year).
- m) Primary cooling system shall monitor its own operation and condition of cooling water.
- n) The protection system of the cooling cycle shall have minimum following alarms:
 - i) Depleted deionizing cell
 - ii) Low water resistivity
 - iii) High water temperature
 - iv) Primary pump stopped
 - v) Fan stopped
 - vi) Primary pump or fan interlock circuits faulty
 - vii) Primary cycle (Make-up water) tank level low
 - viii) Failure of control supply.
 - ix) UMD/UPS fault.
- o) Following shutdown alarms / TRIP shall be provided with cooling system protection. Excessive low water resistivity excessive high water temperature, complete loss of auxiliary supply to primary pumps, low flow, low pressure etc.
- p) The dissipative components of the converter are cooled with deionized water.
- q) The power losses are transferred to the external ambient by means of a deionized water /air heat exchanger. All the piping and other components shall be provided. Complete instrumentation set including following shall be mounted on board in order to check the status of the cooling system:
 - Conductivity gauge system.
 - Flow meter equipped with two set points (alarm and trip).
 - Pressure meter
 - Two thermometers for the inlet and two thermometers for the outlet (two set points for alarm and trip)
 - Thermostat
- r) The status of the cooling system shall be monitored by means of the control system.
- s) Replacement of certain cooling equipment (e.g. pumps, fans, cooler unit etc.), if defective, shall be possible while the cooling system still operates.



C.8.1.6 Tests on STATCOM Unit Valve

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All applicable tests i.e. Operational Type Tests, Dielectric Type Tests and Test for valve insensitivity to electromagnetic disturbance and Production tests shall be done as per the latest edition of IEC 62927.

C.8.2 STATCOM Station Control equipment and operator interface

C.8.2.1 Control Equipment

The control systems should achieve the functional objectives given in 6.2. The accuracy of voltage should be within $\pm 1\%$ of the reference voltage. The accuracy of the gradient and linearity of the slope delivered by the STATCOM Station should be defined in relation to the current deviation from the theoretical slope defined in 3.1. The maximum deviation should be less than $\pm 5\%$ of the nominal current.

The control system design shall be based on a single fail criterion i.e. failure of any one component in the system should not result into outage of the complete system. As a minimum, a dual (hot standby) digital programmable controller shall be supplied for each STATCOM unit/branch and STATCOM Station to control the STATCOM, completely including the functions listed as mentioned below:

- a. The controller shall have diagnostic and self-checking features for both itself and for valves, gate firing and drive circuits, interface hardware, and software. This is required to reduce outage times and to facilitate fault finding.
- b. The Controller shall be reprogrammable. The Owner shall have at least the following possibility for changing the following reference and limit values via HMI:
- c. Closed loop Controllers:

The STATCOM Station controller shall have the means to modify the reference set points. This refers to the functionality that will allow all the control parameters to be adjustable within selectable limits and is inclusive of, but not limited to following:

- o Voltage controller
- o Q controller (reactive power controller).
- o Supplementary VSC current controller.
- o Other supplementary control functions.

- d. Sequence Controllers:

The sequence control and open-loop controllers shall include the control of all switchgears and associated control gear and external devices.



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- e. The Controller shall have at least 10% excess I/O capacity to allow future program upgrades to satisfy the changing requirements of the power systems or future extensions to the STATCOM Stations. As a minimum, a control of up to 4 future HV shunt devices (reactors or capacitors) shall be included in the offer.
- f. All control signals available for remote control must also be available locally so as to ensure that a local operator can operate the STATCOM Station if the communications link between STATCOM Station and remote control centers is lost.
- g. A changeover switch shall be provided for control of the selection of local or remote control.
- h. TSP shall provide the equipment necessary for the purpose of control, protection and interlocking of all equipment within the scope of supply.
- i. TSP shall be responsible for the design and coordination of control, protection and interlocking system and switching sequences within the STATCOM Station. All necessary interfacing required between AC switchyard equipment and STATCOM Station for the above purpose shall also be included in the scope of TSP.
- j. It is proposed to control STATCOM through a Supervisory Control and Monitoring System (SCADA). All the data shall be acquired through suitable means from the field and various components and control is executed through the redundant HMI. The local STATCOM Station Control system shall consist of a redundant STATCOM Station controller, redundant HMI workstation, Gateway, STATCOM Station Control System Engineering cum Disturbance Recorder (DR), PC which can also be used as standby HMI workstations in case of emergency with associated peripheral equipment such as color laser log Printers, Color laser jet fault record printer, GPS System, Inverter / UPS etc. all interconnected via redundant Ethernet based Station LAN Network. Each work-stations and PCs at STATCOM Station shall have at least 19" LED display.
- k. In addition to the above, HMI workstation (identical to HMI Workstation provided in the STATCOM Station control room) should also be provided in the control room of the main 400 kV substation. This HMI workstation should be powered from an independent UPS system adequate enough to provide power to the HMI workstation for a minimum two hours in case of auxiliary power failure.
- l. The control equipment shall satisfy the reliability and availability requirements specified in this specification



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- m. All necessary measures shall be taken to ensure satisfactory operation in the presence of harmonic current and voltage, noise and radio interference signals. The equipment shall be designed to operate in the environmental conditions specified in the specification.

C.8.2.2 Operator Interface

- a) Each STATCOM Station shall have a SCADA consisting of an HMI which shall provide a Centralized (local) operator control of the STATCOM Station functions. All human interface operations necessary for the control and monitoring of the STATCOM shall be provided at this point.
- b) Any abnormal condition requiring operator action or intervention or maintenance on any of the STATCOM Station subsystems shall be annunciated at the STATCOM Station control room and the Substation control room.
- c) The local HMI shall include the following diagrams as different screens in the display system:
- Complete STATCOM Units and STATCOM Station single line diagram including EHV and MV busses
 - AC Auxiliary supply and distribution
 - DC Auxiliary supply and distribution
 - STATCOM Valve cooling systems
 - Interlocking system.
- d) These diagrams shall indicate status, alarms, voltages, currents, etc. The HMI shall provide complete diagnostics on alarm and trip indications as required and discussed in this specification, including SER information.
- e) A facility shall be provided whereby the local HMI features and functions shall be accessible from remote. A remote user shall be able to view screens and change STATCOM Station parameter settings.
- f) As the substation where STATCOM Station shall be installed, will be equipped with Sub-station Automation System (SAS) conforming to IEC 61850, it is required that STATCOM Station control and monitoring shall be integrated with SAS at the main Sub-station by the TSP. It is proposed to connect STATCOM Station's SCADA with SAS through a Gateway and the database, configuration etc of the main substation SAS shall be upgraded to incorporate STATCOM Station events, alarms, Controls (both switchgear and control



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functions of STATCOM Station like the setting of parameters etc.) so that STATCOM Station can be effectively monitored and controlled from main substation SAS and shall be monitored from Load Dispatch Center (RLDC).

C.8.3 STATCOM Station Protection System

C.8.3.1 Protection system Design

- a) To ensure that faults are cleared within stability critical clearing time, to minimize damage to the plant, and to avoid voltage collapse, loss of load, or load limitations, TSP shall provide a high speed main protection scheme. An independent (having a separate measurement system) back-up protection scheme shall be provided in the event of the main protection scheme failing or taken out for maintenance.
- b) The STATCOM Station shall be completely self-protecting (unit protection). STATCOM Station shall be protected from damage for all conditions of over-current, overvoltage, excessive reactive power loading, unbalance due to loss of capacitor elements, phase-to-phase and phase-to-ground faults, three phase faults, loss of cooling, semiconductor valve or control malfunction, faults (STATCOM, MV system) in individual primary connected components of the STATCOM, HV system faults, etc. The STATCOM Station shall withstand the maximum fault current for a period of the maximum fault clearing time as specified, considering second contingency cases due to the previously mentioned conditions.
- c) All protection equipment and systems should be properly co-ordinated to prevent incorrect operations of the protection equipment or systems during normal STATCOM Station operation, including anticipated abnormal conditions on the transmission system, as specified. Fail-safe principles should be applied throughout.

C.8.3.2 The basic principle and order of precedence for the control and protection shall be, to take care of the following:

- Correctly identify a fault, problem or error condition,
- Only if necessary, isolate the minimum number of components, subsystems whenever possible,
- Utilize degraded modes to the maximum extent possible either directly (no interruption of the STATCOM Station operation) or indirectly (by tripping the STATCOM Station momentarily in order to isolate the branch and re-energization of the STATCOM Station).



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- Trip STATCOM Station and Block.
 - a) Failure of the STATCOM Station Interface (SCADA interface) shall not result in a Protection trip of the STATCOM Station. A fail-safe philosophy shall be implemented to allow the STATCOM Station to operate safely and independently from the STATCOM Station Interface (SCADA interface).
 - b) Protection equipment shall be designed and applied to provide maximum discrimination between faulty and healthy circuits.
 - c) The Protection shall be sufficiently sensitive to cater to the full range from maximum to minimum fault level conditions. The Protection shall also be suitable for a system fault level equal to the maximum short circuit capacity of the substation. All current transformer designs shall be based on these fault levels.
 - d) All required protective, control devices, etc including auxiliary instrument transformers and panels, relays, cabling, wiring, indication, and all other associated plant and material necessary for the effective operation of the protection systems shall be supplied and installed by TSP.
 - e) The protective relays shall be microprocessor based. Relays shall have approved characteristics and be mounted in dust and moisture-proof cases. The protective relays shall be provided with visual indications for starting, tripping and failure of the protective function. The LEDs shall be reset without opening the covers. The protection relays shall also be equipped with HMI facilities suitable for manual parameter settings and viewing of the settings. Relays with provision for manual operation from outside the case, other than for resetting, are not acceptable. Relay settings shall be visible and readable without having to remove the relay cover. Relays shall be of approved construction and shall be arranged so that adjustments, testing and replacement can be effected with the minimum of time and labor. Auxiliary Relays of the hand reset type, if provided shall be capable of being reset without opening the case. Electrically reset tripping relays shall be provided as necessitated by the system of control, such as for those circuits subject to remote supervisory control.
 - f) Relay contacts shall be suitable for making and breaking the maximum currents which, they may be required to control in normal service but where contacts of the protective relays are unable to deal directly with the tripping currents, approved Auxiliary tripping relays shall be



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provided. In such cases, the number of auxiliary tripping relays operating in tandem shall be kept to a minimum in order to achieve fast and reliable fault clearance times. Separate contacts shall be provided for alarm and tripping functions. Relay contacts shall make firmly without bounce and the whole of the relay mechanisms shall be as far as possible unaffected by vibration or external magnetic fields

- g) Steps shall be taken to protect the circuitry from externally impressed transient voltages which could reach the circuitry via connections to instrument transformers or the station battery. The routing of cables should be such as to limit interference to a minimum. Any auxiliary supplies necessary to power solid-state circuits shall be derived from the main station battery and not from batteries internal to the protection.

h) **Relay communication**

The Relays shall also have a communication port provided on the front of the relay for configuration and parameter settings as well as downloading of data. A direct port suitable for remote communication shall also be provided at the back of the Relay. This port shall conform to IEC - 61850.

i) **Tripping schemes**

- Tripping of MV circuit breakers shall be done by means of two-separated trip signals.
- Duplicate high security tripping circuits for MV Circuit Breaker shall comprise two independent high speed (less than 10 ms) high burden (greater than 150 W) tripping relays for each circuit, each with its own independent DC supply. The trip circuits for all circuit breakers need to be equipped with a "lockout" function and it shall be possible for this to be reset manually and remotely by the operator.

- j) The protection for the power system is based on a normal switching state and an occurrence of a single fault. This means that faults resulting from maintenance as well as the simultaneous occurrence of two or more faults are not taken into account.

- k) The input circuits of the digital protections shall be monitored by means of a plausibility check. If any incorrect information is found, the protection function shall be blocked by the protection system. All protection relays shall have facilities for monitoring trip circuits. Detection of an interruption in the case of a switched on circuit breaker shall be signaled.

l) **Test facilities**



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- It shall be possible to test the protective device during operation without causing trips. Links shall be provided for the isolation of individual protection trip circuits and the common protection trip circuit to each circuit breaker trip coil.
 - Separate test facilities shall be provided for each current and voltage transformer secondary circuit so as to give access for testing of protection relays and associated circuits. The Test facility to be supplied shall have two selectable positions, a Service and a Test position. In the service Position, the test switch connects CTs and VTs signals to the Relays and trip commands to the circuit breaker trip coils. In the Test Position, the test switch applies a short-circuit to the Current Transformer (CT) secondary windings and open circuits the VT secondary cores and allow injection of secondary current and voltage into the relay. At the same time, the Trip commands to the Circuit Breaker Trip Coils are isolated. The test switch supplied shall be to the Approval of the Owner.
- m) The protection of the electrical system shall be designed and installed in such a way that the failed equipment is disconnected selectively and automatically. All equipment have to remain operative during transient phenomena, which may arise during switching or other disturbances to the system.
- n) **Auxiliary DC Supplies**
- The protection concept has to be designed in a way so that back-up protection is provided at all times. All protection relays shall be configured in a way that failure of one Auxiliary DC system will not affect the relay. If all DC supplies to the controllers are lost, the STATCOM Station breaker must be tripped via the protection panel.
- o) **Electromagnetic Compatibility**
- Electronic Relays and other electronic devices and the ancillary circuits connected to them, such as power supplies, current and voltage transformer secondaries, status or tripping or alarm circuits shall be designed to ensure that they are compatible for use in the hostile electrical environment found in an MV or HV substation.
 - Adequate steps by means of suitable design, shall be taken to prevent Electromagnetic Interference (EMI), (generated by sources such as circuit breakers, disconnectors, lightning, radio or radar emissions, switching contactors in DC circuits etc) or Electrostatic Discharges (ESD) from affecting relay performance or causing damage to components.



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- All relays offered shall therefore have been type-tested to meet the current requirements of IEC Standards with respect to High Frequency disturbance, Fast Transients, Electrostatic Discharge, Radio Frequency Interference testing etc.
- p) List of Protection functions for STATCOM Station

Coupling Transformer Protection:

- i) Biased Differential protection (87T)
- ii) REF protection (64T)
- iii) Overcurrent protection (50, 51)
- iv) Ground Overcurrent (51N)
- v) Over flux protection (HV and MV)
- vi) Transformer mechanical trips

STATCOM MV Bus Protection:

- i) Bus Differential protection (87)
- ii) Ground over current protection (51N), used with a neutral Grounding Transformer
- iii) Under / Over Voltage (59 Ph-Ph) protection
- iv) Over voltage (Open Delta) protection

STATCOM Branch Protection:

- i) Differential protection (87)
 - ii) Overload protection (49)
 - iii) Overcurrent protection inside delta (50, 51)
 - iv) Negative phase sequence protection (46)
 - v) STATCOM branch overcurrent protection (50, 51, 50N, 51N)
- The protection functions listed above are the minimum set of function to be provided, any additional protection required to fulfill the requirement of the protection system shall also be provided.
 - Further protection functions of individual branch (STATCOM) shall trip the respective branch MV CB (Circuit Breaker).
 - All CBs shall be provided with individual Breaker Failure protection relays. Breaker Failure relay shall have the logic based on the current signal or CB close open status.
 - Any fault on MV bus will trip the 400 kV breaker. However, any branch fault shall be cleared by the respective MV branch Circuit Breaker.



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- Protection System for the STATCOM valve portion of the STATCOM station shall be provided in the redundant controllers to isolate the STATCOM valve during internal overload/overvoltage, ground fault etc.

C.8.4 STATCOM Station Fault Recording System

An integrated Transient Fault Recording (TFR) System shall be supplied, installed and commissioned. This shall include trigger level settings for analog signal, etc. subject to review and comment. Disturbance and event recording facilities are required for local monitoring of the STATCOM following a disturbance on the power system or the STATCOM System. The TFR shall be GPS/NavIC synchronized.

The following inputs are required:

- All analog signals (output signals) including 3-ph and sequence values of voltage, control.
- All digital signals (control outputs, status indications, commands, alarms, and trip indications). Internal STATCOM Station control signals/variables to be selectable.
- The accuracy of the TFR for event inputs shall be at least 100 μ s (sampling rate of minimum 10 kHz).
- The TFR shall have provision for remote access and retrieval of recorded information onto a PC. For this purpose, a communication link to the substation LAN shall be implemented.
- The remote software application for data retrieval shall be included.
- There shall be multiple channels to view 3-ph and sequence values of voltage, current.
- TFR file shall be viewable in any open source software.

C.8.5 Air Core Reactors (as applicable)

- a) Reactors shall be air core, dry type, be suitable for outdoor installation and there shall be no tapping on the reactors. The insulation level shall be adequate and TSP has to ensure proper insulation coordination.
- b) The insulation of the reactor shall be class F and hot spot temperature rise shall not exceed 105 °C above ambient temperature. Winding temperature rise shall not exceed 80 °C above ambient temperature.
- c) The reactor shall be designed to withstand thermal dynamic shocks and mechanical shocks while in service and during erection.
- d) The reactor shall fully conform to the relevant IEC standard.



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- e) The reactor shall be designed to withstand overloading due to over voltage as specified and shall also be subjected to excitation by harmonics; the reactor must be able to withstand such events without deterioration in normal life.
- f) The reactors shall be subjected to type and routine tests in accordance with the latest issue of IEC-60076 as appropriate to the type of reactor provided.
- g) Tests on Reactors: The reactors shall be subjected to type and routine tests in accordance with the latest issue of IEC-60076 as appropriate to the type of reactor provided.

C.8.6 AC POWER CAPACITORS (as applicable)

i) General

- a) The capacitor banks shall comprise capacitor units, discharge devices, protection equipment, series reactor as required, earthing switches, suitably connected in series and parallel, mounted at ground level with protected fencing all around. The number, arrangement and connection of capacitor banks shall be designed to suit the requirement of the compensator as a whole. If convenient, the capacitor banks may be used in conjunction with reactors. In this event, the rating of the capacitor shall be adequate to cope up with the harmonic loading. The frequency variations shall also be considered. To limit the peak inrush current for switching in the capacitors, current limiting reactors with parallel connected damping resistors, if required shall be connected in series with shunt capacitor banks.
- b) The capacitors shall be provided with internal-type fuses. Alternatively, the fuse less capacitor is also acceptable.
- c) Fuses shall not melt nor shall deteriorate when subjected to the inrush current during the life of the capacitor bank.
- d) With the capacitor charged to a peak voltage, the fuses associated with the healthy elements shall not melt when carrying the discharge current resulting from a breakdown of an element or from an external short circuit.
- e) Fuses shall be capable of disconnecting a faulty element over a range of voltage across the unit terminals from $0.9 U_n$ to $2.0 U_n$. In addition, if all the elements in the same row of an internally fused capacitor were to fail as a result of a cascading action, the last fuse element to melt shall be capable of successful disconnection with a voltage of not less than 1.5 times.
- f) After fuse operation the fuse assembly shall be able to withstand continuously at least 1.5 times the rated unit voltage U_n across the gap for 10 Seconds.



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- g) Fuses shall preferably be of the current limiting type but fuse system shall in any event be designed to ensure that energy released into a faulty capacitor unit is less than the value that will cause rupture or bursting of the container.
- h) The capacitor units shall be the outdoor type. The container of the capacitor shall be of stainless steel.
- i) Each capacitor unit shall be readily accessible and replaceable without disturbing any other unit. The supporting frames shall be designed to provide adequate ventilation to the units.
- j) The dielectric fluid used in the capacitor unit shall be environmentally safe and bio-degradable, non-toxic. Polychlorinated Biphenyle (PCB) type dielectric or any of its derivatives shall not be acceptable.

ii) Construction and Design Requirement

- a) The capacitors shall conform to IEC-60871. The capacitors shall be provided with internally mounted discharge resistors with characteristics in accordance with IEC-60871.
- b) The current limiting reactors (as required) shall be dry type and connected in series with the capacitor bank. Suitable lifting lugs shall be provided.
- c) The capacitor enclosure shall have sufficient strength to withstand without damage or loss of life, mechanical load, both in operation and during erection. The loads shall include electromagnetic forces including those during faults external or internal to the capacitor bank, wind loading, forces due to expansion and contraction caused by ambient temperature and load variation, and seismic effects all as specified.
- d) The capacitor units shall be interchangeable in order to reduce the spare requirements and simplify maintenance procedures.
- e) The capacitor stack shall be vibration free. The stack shall have a fixed potential, which is connected to one electrical point in the bank. The stack shall be of galvanized structural steel.
- f) The capacitor racks shall be supplied complete with all capacitor units, insulators, and connections and shall be equipped with lifting lugs/eyes to facilitate assembly into the stacks. The racks shall be constructed of galvanized structural steel. No drilling of galvanized steel shall be allowed. Each rack shall be labeled with the weight of the fully equipped racks, the phase, and the bank of which it forms a part. The maximum and minimum capacitor unit capacitance which may be substituted into the racks as spares shall be suitably identified. Suitable warning labels shall be affixed.
- g) The capacitor shall be specially designed to be suitable for intermittent duty.



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- h) The capacitors should comply with the overload capacity as per NEMA Standard.
- i) The capacitor elements shall be vacuum dried inside the case prior to impregnation with dielectric fluid. After impregnation, the capacitor unit shall be sealed immediately upon removal of the impregnated reservoir.
- j) The discharge resister shall discharge the unit from peak operating voltage to less than 75 Volts within 10 minutes.
- k) The capacitor case shall be made from type 409 stainless steel or equivalent stainless steel with all joints welded and tested for leaks.
- l) All racks and bus insulators as well as the insulators used to insulate each stack of capacitor from ground level shall be pincap or post type. The minimum voltage rating shall be 15 kV and low frequency wet withstand voltage of all insulators used to insulate within or between the capacitor rack of a stack shall not be less than three times the actual voltage stress across the insulators. The insulator shall be outdoor type manufactured from wet porcelain. The insulators shall be bolted to the top members of the frame to support electric-grade aluminum buses.
- m) The size and groupings of the individual capacitor units shall be such that a single blown fuse will not cause the voltage across the parallel group to rise by more than 10%.
- n) The redundancy to be provided, shall be as per the requirement specified regarding reliability and availability in the clause mentioned elsewhere.

iii) Capacitor Unit Failure Detection

The stages of capacitor units or element failure detection shall be provided as below:

- a) A three-step unbalanced current protection shall be provided in each capacitor bank to initially generate an alarm when the unbalance limit is reached and finally to trip the bank in case of the limit is exceeded.
- b) The first stage shall generate an alarm and the capacitor unit shall continue in service. It may be assumed that the bank shall be disconnected for maintenance within 2 weeks.
- c) The second stage shall generate a separate alarm and a delayed trip signal which will disconnect the bank after two hours.
- d) The third stage shall cause immediate disconnection of the Capacitor Bank.

iv) Tests on Capacitors



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All the tests on capacitor units shall be in accordance with the latest issue of IEC 60871.

C.8.7 Coupling Transformer

The TSP shall provide single phase coupling transformers to operate as 3- phase bank with one unit as a common spare with necessary auxiliary arrangements for stepping down the voltage from 400 kV system to a suitable medium voltage value as required for replacing any one of the faulty phase units without physically shifting the transformer. The Medium Voltage side of the coupling transformer to couple with the STATCOM shall not be less than 20 kV to ensure optimum power transformation.

The Coupling Transformer shall be designed with the aim to achieve operation according to the overall performance requirements of the STATCOM Station. The transformer should be designed and rated to carry complete capacitive and inductive reactive loading as specified for STATCOM Station, as well as harmonic currents associated with the most onerous operating conditions of STATCOM Station, without loss of life.

The coupling transformer shall be designed in accordance with the most up-to-date experience in STATCOM application and shall incorporate the latest improvements of design currently employed in the industry. The Comprehensive design review of the Coupling Transformer of STATCOM Station shall be carried out by the TSP.

C.8.7.1 General Requirements

The coupling transformer shall be designed electrically and mechanically for operating conditions peculiar to STATCOM Station operation, which shall include, but not be limited to the following:

- a) Electrical insulation problems resulting from the transformer being subjected to voltages of distorted sinusoidal wave shape because of saturation, harmonics, trapped charges in capacitors etc.
- b) The cumulative effect of electro-dynamic forces produced during valve commutation or other short circuit conditions imposed by valve design limitation and valve group operation.
- c) Harmonic currents due to STATCOM operation, with reference to additional stray losses resulting from these harmonic currents.
- d) No generation of uncharacteristic harmonics by the transformers.



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- e) Stresses due to normal control operation and other onerous operations such as blocking and de-blocking.
- f) Stress due to the fast response requirement of STATCOM for loading from 100% inductive to 100% capacitive and vice-versa.
- g) Overvoltage stresses for which STATCOM shall be designed as per specification would apply to the transformer also.
- h) All other stresses for which STATCOM Station shall be designed as per specification would apply to the transformer also.
- i) The transformer and all its accessories like Bushings, CTs etc shall be designed to withstand without damage, the thermal and mechanical effects of any external short circuit to earth and of a short circuit across the terminals of any winding for a period of 3 seconds. The short circuit level of the 400 kV system to which the transformer shall be connected, will be as per the maximum short circuit level of the main substation. Short Circuit level of the Coupling Transformer shall be as per the Short Circuit level of the respective Substation. Short circuit level for HV bushing shall be 63 kA for 1 Sec.
- j) The transformer shall be capable of being loaded in accordance with IEC 60076 or the overload conditions as specified whichever is the worst. There shall be no limitation imposed by bushings during its terminal fault.
- k) The transformer shall be capable of withstanding the mechanical stresses caused by symmetrical or asymmetrical faults on any winding.
- l) The transformer should be designed to carry a certain level of direct current consistent with the STATCOM design. To ensure minimum harmonics generation, the saturation flux density of the transformer should be higher than the maximum flux density reached over the full steady state (continuous operating) range; this margin shall be at least 10%. This maximum flux density (over the full steady-state range) is obtained at the highest secondary voltage during any reactive power generation, highest reference voltage, minimum slope, and minimum continuous frequency. The flux density at the highest secondary voltage shall lie in the linear portion of the BH curve of the core. Any harmonic generated by the transformer should be considered for the design of the STATCOM.
- m) All protection class Current Transformers in the coupling transformer shall be of PX/PS type. Other details of these Current Transformers shall be as per protection/metering requirements and shall be decided during detailed engineering. However, the parameters of the Winding Temperature Indicator (WTI) of Current Transformer for each winding shall be as per the Coupling Transformer manufacturer.



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- n) Transformers shall be capable of operating under natural cooled conditions up to the specified load. The forced cooling equipment shall come into operation by pre-set contacts of winding temperature indicator and the transformer shall operate as a forced cooling unit initially as Oil Natural Air Forced (ONAF) up to a specified load and then as Oil Forced Air Forced (OFAF). Cooling shall be so designed that during total failure of power supply to cooling fans and oil pumps, the transformer shall be able to operate at full load for at least ten (10) minutes without the calculated winding hot spot temperature exceeding 140 ° (degree) Celsius. Transformers fitted with two coolers, each capable of dissipating 50 percent of the heat due to losses at the continuous maximum rating, shall be capable of operating for 20 minutes in the event of failure of the oil circulating pump or blowers associated with one cooler without the calculated winding hot spot temperature exceeding 140 ° degree Celsius at continuous maximum rating.
- o) The transformer shall be free from any electrostatic charging tendency (ECT) under all operating conditions when all oil circulation systems are in operation. In general, the oil flow speed shall not exceed 1.0 m/sec within winding in the oil flow system of the transformers. The manufacturer shall ensure that there is no electrostatic charging tendency in the design.

The Technical Parameters of the Transformer shall be as below

Sl. No.	Description	Unit	Technical Parameters
1.1	Rated Capacity		
	HV	MVA	To meet the performance requirement and ratings of STATCOM. The transformer shall be suitable for 100% reactive loading
	MV	MVA	
1.2	Voltage ratio (Line to Line)		400 / XX (*)
1.3	Single / Three Phase Design		Single phase
1.4	Applicable Standard		IEC 60076
1.5	Rated Frequency	Hz	50
1.6	Cooling and Percentage Rating at different coolings		ONAN/ONAF/(OFAF or ODAF): 60% / 80%/100% OR ONAN/ONAF1/ONAF2: 60% /80%/100% OR OFAF (with 5 x 25% unit cooler if required)



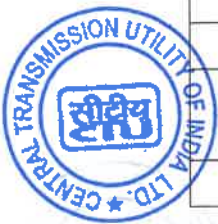
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Sl. No.	Description	Unit	Technical Parameters
1.7	Impedance at 75 °C (in percentage)		
	HV-MV		To suit the design requirements.
1.8	Tolerance on Impedance (HV-MV)	%	As per IEC
1.9	Service		Outdoor
1.10	Duty		Continuous Reactive loading
1.11	Overload Capacity		IEC-60076-7
1.12	Temperature rise over 50 °C ambient Temp		
i)	Top oil measured by thermometer	°C	50
ii)	Average winding measured by resistance Method	°C	55
1.13	Windings		
i)	System Fault level		
	HV	kA	63
	MV	kA	To suit the design requirements.
ii)	Lightning Impulse withstand Voltage		
	HV	kVp	1425
	MV	kVp	*
	Neutral	kVp	170
iii)	Switching Impulse withstand Voltage		
	HV	kVp	1175
iv)	One Minute Power Frequency withstand Voltage		
	HV	kVrms	570
	MV	kVrms	*
	Neutral	kVrms	70
v)	Neutral Grounding		Solidly grounded
vi)	Insulation		
	HV		Graded
	MV		Uniform
vii)	Tan delta of winding	%	< 0.5



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Sl. No.	Description	Unit	Technical Parameters
1.14	Vector Group (3 – ph) (unless specified differently elsewhere)		YNd*
1.15	Tap Changer		Not Applicable
1.16	Bushing		
i)	Rated voltage		
	HV	kV	420
	MV	kV	*
	Neutral	kV	36
ii)	Rated current (Min.)		
	HV	A	*
	MV	A	*
	Neutral	A	*
iii)	Lightning Impulse withstand Voltage		
	HV	kVp	1550
	MV	kVp	*
	Neutral	kVp	170
iv)	Switching Impulse withstand Voltage		
	HV	kVp	1175
v)	One Minute Power Frequency withstand Voltage		
	HV	kVrms	695
	MV	kVrms	*
	Neutral	kVrms	77
vi)	Minimum total creepage distances		
	HV	mm/kV	31
	MV	mm/kV	31
	Neutral	mm/kV	31
vii)	Tan delta of bushings*		
	HV	%	≤ 0.5
	MV	%	
viii)	Max Partial discharge level at Um		
	HV	pC	10



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Sl. No.	Description	Unit	Technical Parameters
	MV	pC	10
	Neutral		-
1.17	Max Partial discharge level at $1.58 * U_r / \sqrt{3}$	pC	100
1.18	Max Noise level at rated voltage and at principal tap at no load and all cooling Active	dB	80
1.19	Maximum Permissible Losses of		
	Transformers		
i)	Max. No Load Loss at rated voltage and Frequency	kW	To suit the design requirements.
ii)	Max. Load Loss at maximum continuous current and at 75 ⁰ C	kW	To suit the design requirements.
iii)	Max. Auxiliary Loss at rated voltage and Frequency	kW	To suit the design requirements.

Notes:

1. No external or internal Transformers / Reactors are to be used to achieve the specified HV/MV impedances.
2. The criteria for Transformer losses shall be "Copper Loss (Load Loss) > Iron Loss (No Load Loss) > Cooler Loss (Auxiliary Loss)".
3. (*) marked parameters shall be decided based on STATCOM manufacturer's requirement.

Tan δ value of OIP/RIP/RIS condenser bushing shall be 0.005 (max.) in the temperature range of 10 °C to 40 °C. If tan delta is measured at a temperature beyond above mentioned limit, necessary correction factor as per IEEE shall be applicable. The measured Tan δ value at site should not exceed by 0.001 w.r.t. factory results (measured at approx. similar temperature conditions) during warranty period.

C.8.8 STATCOM Station MV Switchgear

The MV Switchgear shall be designed with the aim to achieve operation according to the overall performance requirements of the STATCOM Station.

C.8.8.1 MV Circuit Breaker



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The MV Circuit Breaker shall comply with the relevant IEC standard and all other relevant Standards, and as specified in this specification. They shall satisfy the General Technical Requirements and shall be designed to operate in the environmental conditions specified in this specification.

The Circuit Breaker offered should be of SF6 type/Vacuum type only and of class C2, M2 as per IEC

- i) The circuit breaker shall be complete with terminal connectors, operating mechanism, control cabinets, piping, interpole cable, cable accessories like glands, terminal blocks, marking ferrules, lugs, pressure gauges, density monitors (with graduated scale), galvanised support structure for CB and control cabinets, their foundation bolts and all other circuit breaker accessories required for carrying out all the functions the CB is required to perform.
- ii) All necessary parts to provide a complete and operable circuit breaker installation such as main equipment, terminals, control parts, connectors and other devices whether specifically called for herein or not shall be provided.
- iii) The support structure of the circuit breaker shall be hot dip galvanized. Exposed hardware items shall be hot dip galvanized or Electro-galvanized.
- iv) MV Circuit Breaker shall be equipped with controlled switching with consequent optimization of switching behavior, when used in:
 - Switching of Capacitor Bank
 - Switching of shunt Reactor Bank
- v) Reactor Switching Duty test shall be conducted on MV Circuit Breaker in line with latest edition of IEC 62271-110.
- vi) Type Tested for Back-to-Back Capacitor Bank Switching as per latest edition of IEC 62271-100.
- vii) Routine tests as per IEC: 62271-100 shall be performed on all circuit breakers.
- viii) The medium voltage circuit breakers in any of the branches shall be designed to switch off metallic three phase short circuits only limited by the transformer impedance of the STATCOM System (Coupling transformer) with the initial short circuit current and DC component according to IEC 60909-0. Thereby the worst case time constant where the maximum short circuit peak and DC component occur shall be considered. The network shall be considered to deliver the maximum short circuit power of the substation.



C.8.8.2 MV Isolator and Earth Switch

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The isolators and earth switches shall comply with the IEC and all other relevant Standards, and as specified in this specification. They shall satisfy the General Technical Requirements and shall be designed to operate in the environmental conditions specified in this specification.

- i) The isolators and accessories shall conform in general to IEC-62271 series as per relevance (or IS:9921) except to the extent explicitly modified in specification.
- ii) Earth switches shall be provided on isolators wherever called for.
- iii) Switches shall be motor operated with local and remote operation features and local manual operation features. Remote operation of Earth Switch is not required.
- iv) Disconnections and earth switches shall electrically and mechanically be interlocked. Castle Key interlocking facilities shall be provided to mechanically interlock the earth switch and Isolator to the doors of valve rooms.

C.8.8.3 Instrument Transformers for STATCOM Station

The instrument transformers shall comply with the relevant IEC Standards. They shall satisfy the general Technical Requirement specified in the specification and shall be designed to operate in the environmental conditions specified in this Specification. The instrument transformers provided for control, metering and protective relaying functions shall have voltage and current ratings, accuracy ratings and burden capabilities adequate to provide their designated functions within the overall accuracy requirement of the systems.

Voltage Transformers

Voltage transformers shall comply with the relevant IEC standards IEC 61869 (Part-1, Part-3 and Part-5).

Current Transformers

Current transformers shall comply with IEC 61869 (Part-1 and Part-2). Type tests and routine tests as per relevant IEC.

C.8.8.4 Surge Arrester

TSP shall install the surge arresters necessary for the protection of the equipment associated with the STATCOM Station in accordance with the requirements as per the insulation coordination study. The surge arresters shall give consistent protection to their associated equipment against overvoltage produced by



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lightning or switching surges, internal or external station faults, and other system disturbances.

The surge arresters shall be rated such that they are able to discharge a specified maximum energy due to the application of lightning, switching surges, temporary over voltages and faults as determined by insulation coordination studies, without coming into the temperature region where thermal runaway could result upon subsequent application of maximum transient and steady state voltage conditions.

The arrester housing shall be porcelain/composite type. The end fittings shall be made of non-magnetic and corrosion proof material.

Internal components shall be designed to eliminate internal corona and also to ensure minimal capacitive coupling with any conducting layer of pollutant on the outside of the porcelain housing. Particular attention shall be given to the high discharge currents which some of the arresters may experience in service due to discharge of stored energy of the AC filter and reactive compensating equipment, tripping of STATCOM etc.

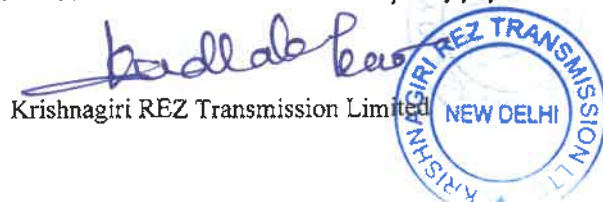
C.8.9 STATCOM Station Auxiliary Power Supply

The auxiliary supply of STATCOM Station shall conform with the system requirements relating to reliability, availability, and redundancy, performing continuously to help ensure that the complete STATCOM Station operates as per the requirements. STATCOM station Auxiliary supply including all necessary switchgear (viz. AC/DC, lighting boards etc.) shall be completely separate from the main 765/400/220 kV substation auxiliary supply, all loads of STATCOM station shall be fed from this supply. The auxiliary supply provides power to the controllers, cooling system, station supplies, and various other essential and non-essential loads. With the exception of the cooling system, all other essential loads are also connected to the DC system of the STATCOM Station which is also to be provided separately from the DC system of the main 765/400/220 kV substation.

The auxiliary supply system shall be able to provide a stable supply for the STATCOM Station during system faults such as single-phase faults, phase-to-phase faults, and three-phase faults and LVRT (Low Voltage Ride Through) to allow continuous operation of the STATCOM Station during these transient events.

Auxiliary Supply System of each STATCOM Station shall be fed from two independent sources as per CEA (Technical Standards for Connectivity to the Grid) Regulations, 2007. Additionally, there shall be one emergency incomer from the DG set.

Wherever the Voltage variation on the incomer is very high, a solid state AVR (Automatic Voltage Regulator) shall be provided to control the auxiliary supply voltage.



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All MV incomers shall be provided with suitable CB, disconnector, instrument Transformer etc along with necessary protection system.

C.8.10 Fire Protection System for STATCOM Station:

Necessary fire protection for STATCOM units, Coupling Transformer, and Harmonic filter (if any) shall be required. The main features of these protections are as under.

Fire Detection and Alarm System:

Suitable fire detection system using smoke detectors and/or heat detectors shall be provided in STATCOM Station for all room and areas. These smoke fire detection systems shall be connected to a separate Fire annunciation system clearly identifying the zone.

Hydrant System:

The hydrant system shall be extended from fire -fighting system of the substation in the yard. Suitable number of hydrants shall be provided for protection of STATCOM Station equipment in the yard namely Coupling Transformer, and Harmonic Filter (if required) etc as applicable for the station. Further suitable number of hydrants shall also be provided for STATCOM Station building

HVW System:

HVW (High Velocity Water) Spray system shall be provided for coupling transformer. The tapping for HVW system shall be done from nearby transformer/Reactor or any other suitable point of the main substation fire-fighting line.

Fire protection system shall be provided in accordance with the Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2023.

C.8.11 Air-conditioning and ventilation system for STATCOM station

The STATCOM Station shall be provided with Air conditioning system as per requirement.

1) AC System (Except Valve Hall):

Air condition system shall be provided for the following rooms in the STATCOM Building:

- a. Control and Relay room
- b. Battery room
- c. Conference Room



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- d. Store cum workshop
- e. Cooling system room
- f. Lobby

Capacity and quantity of the AC units shall be decided based on heat load calculation and redundancy requirement.

2) Air-Conditioning System for Valve hall:

Air-Conditioning shall be provided for each Valve room for maintaining the following inside conditions round the year:

DBT - 35 °C (Maximum) Relative Humidity (RH) - 60% (Maximum)

The system shall be designed for an outside ambient temperature of 50 °C. Based on the above system design and parameters for valve room the AC system shall comprise "AHU and Air-cooled DX Condensing units" with one Main and one Standby unit for each room. The system shall be designed for 24 Hours, 365 Days of the year operation to maintain the inside temperatures of the Valve Hall for proper operation of the critical equipment. The air-cooled condensing unit shall be designed for continuous duty.

C.9 Engineering studies

The TSP shall carry out studies as brought out in this section with a model of the STATCOM in PSSE and PSCAD and documentation of the same shall be preserved and to be submitted to CEA/CTU, as per their requirement. The objective of these studies is to verify the steady state requirement of reactive power under normal and contingent operating conditions for peak and light loads conditions in the network.

The studies shall have to be carried out for

- Peak Load
- Light Load
- Contingency Conditions

The load flow and dynamic file available with CTU shall be provided to the TSP in PSSE version 34 format. If data is not available typical data shall be assumed by TSP.

The studies should demonstrate that the STATCOM system meets all system and equipment specified performance criteria as per the specification. Engineering studies should include, but not be limited to, the studies described in subsequent subsections.



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C.9.1 System dynamic performance studies

Dynamic performance studies should verify that the STATCOM system controls the system's dynamic performance during system disturbances. Dynamic performance studies include the following:

- a. Studies verifying that the STATCOM provides adequate dynamic control to meet the system and STATCOM system performance criteria for the system conditions.
- b. Study of response time and of the STATCOM system's behavior and contribution to the system's recovery from faults.
- c. Studies to verify the operation of any supplementary controls designed to damp power oscillations following system disturbances.
- d. Studies to evaluate the interaction of the STATCOM controls with the other nearby control systems, including high-voltage direct current (HVDC) controls, generator controls, and controls of other flexible AC transmission systems (FACTS) devices

In addition to the above, relevant studies shall include the cases stated as mentioned in Annexure-I

C.9.2 Harmonic performance

The studies should evaluate resultant maximum harmonic levels at the STATCOM system point of common coupling (PCC), and determine maximum stresses on all STATCOM system components. The study report should include the following:

- a. Evaluation of specified system and operating conditions (refer to Clause 5) under all possible STATCOM operating conditions.
- b. Evaluation within maximum ranges of STATCOM system component tolerances (worst performance values may not occur at detuning extremes).
- c. Evaluation with maximum system voltage unbalance (refers to item 8 and item 9 in Table 3 of Clause 5).
- d. Evaluation of the worst case resonance condition between STATCOM system and overall system.
- e. Evaluation of possible resonant over voltages.
- f. Transformer saturation induced harmonics for component rating calculation only.
- g. Evaluation of impact considering single phase auto reclose deadtime.

C.9.3 Electromagnetic transients, control performance, and overvoltage studies



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Transient overvoltage studies should be performed with the actual control modeled to verify that the STATCOM system equipment is adequately protected against over voltages and over currents (including excessive valve recovery voltages) from power system transients resulting from switching, fault clearing events, and credible STATCOM system maloperations. Evaluation shall include the following:

- a. Study of start-up, including transformer energization, shutdown, switching coordination, and other local area network switching events
- b. Study of STATCOM system protection and protection coordination
- c. Faults on the high-voltage (HV) and MV bus (single line-to-ground, phase-to-phase, and three-phase)
- d. Faults across the VSC, capacitors, and other equipment if used.
- e. Control interaction

C.9.4 Insulation coordination study

Overall insulation coordination should be verified by considering the results of 8.4 (dynamic over voltages, and fault and switching transients), including the impacts of lightning surges on the STATCOM equipment. This study should determine and verify insulation levels, clearances, and arrester placement and ratings.

C.9.5 Other Studies

- a) Grounding Study
- b) Protection coordination
- c) PLC/radio interference
- d) Magnetic field strength
- e) Other studies as applicable

C.9.6 Software simulation models

The TSP shall provide the latest following PSCAD and PSSE simulation model(s) and parameters to CEA/CTU/GRID-INDIA alongwith detailed documentation for the purpose of future simulation to adequately represent and model the proposed STATCOM system in the respective software:

- a. **Stability model.** TSP should provide a detailed STATCOM system dynamics model for use in (PSCAD and PSSE) power flow and stability simulation software. The model detail should be appropriate and complete for positive-sequence power system simulation and analysis that is typically performed with power flow and transient stability programs. All appropriate control features for such analysis will be modeled, and necessary documentation on the theory and use of model should



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be provided. Further, a generic model, benchmarked to detailed STATCOM stability model, shall also be furnished for distribution.

- b. **Transient model.** TSP should provide a detailed STATCOM transients model for use in PSCAD. The model detail should be appropriate and complete for the transient response calculation of the STATCOM system. All appropriate control features for such analysis will be modeled, and necessary documentation on the theory and use of model should be provided. Further, a generic model, benchmarked to detailed STATCOM transient model, shall also be furnished for distribution.

PSS/E files may be used for developing RTDS files/ models. For simulation of STATCOM in PSS/E file (load flow and dynamic) and PSCAD (Transient) model for STATCOM is required for study. TSP will share STATCOM models with CEA, CTU and Grid-India along with detailed documentation for above study purposes and simulations. For PSS/E, both Generic and User-defined models shall be shared by the TSP with the CEA, CTU and Grid-India. Generic model (**PSS/E**) response shall be benchmarked with user-defined model (**PSS/E and PSCAD**) to the extent possible by the TSP. Generic models can be shared by the CEA, CTU and Grid-India with the concerned stakeholders/external party(ies) e. g. STUs etc. on need basis. For User Defined model, confidentiality shall be maintained by the CEA, CTU and Grid-India. For PSCAD, User Defined model shall be provided by the TSP for which confidentiality shall be maintained by the CEA, CTU and Grid-India.

Both UDM (PSCAD and PSS/E) and Generic model (PSSE) shall be provided by OEMs to CEA/CTU/GRID-INDIA without any NDA (Non-Disclosure Agreement)

C.9.7 Factory tests of controls

The integrated nature of the performance of the STATCOM in an electrical grid requires the following tests:

- a. The TSP should perform factory simulator system tests for integrated control and protection system to ensure the proper operation of the same. The control system should be connected to a digital simulator with adequate representation of the electrical network for various conditions. The STATCOM system controller needs to be representative of control functions, including basic controllers but inclusive of supplementary controls, firing controls, and protective functions integrated into the controllers. TSP shall submit the FAT (Factory Acceptance Test) reports of STATCOM controls to CTU/RLDC.
- b. The simulator should provide an accurate network representation including network harmonic behavior, as well as synchronous condensers, power stations, generators (with AVRs), and pump storage schemes, existing HVDC, SVCs and



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STATCOMs, future SVCs and STATCOMs, FSC (fixed series capacitors), and shunt reactors/capacitors/filters.

STATCOM system control function type tests on a simulator should include the following:

- Verification of each control function.
- Verification of control linearity.
- Verification of control redundancy.
- Verification of the monitoring system.
- Verification of the protection system with reference to integrated protective functions included in the Controllers and firing controllers.
- Verification of overall system performance for minor and major system disturbances.
- Verification of processor loading of all digital controllers.
- Verification of STATCOM system parallel operation with other controls in the system and control Stability.
- Verification of control equipment performance for auxiliary power supply voltage (AC and DC) and frequency variations (AC).
- Routine production tests of all control functions, and separately of all protection functions.

C.10.0 VISUAL MONITORING SYSTEM FOR WATCH AND WARD OF STATCOM STATION

Visual monitoring system (VMS) for effective watch and ward of STATCOM station premises covering the areas of entire switchyard, STATCOM building, Coupling Transformer, Cooling Towers and main gate, shall be provided. The TSP shall design, supply, erect, test and commission the complete system including cameras, Digital video recorder system, mounting arrangement for cameras, cables, LAN Switches, UPS and any other items/accessories required to complete the system.

Features of VMS system shall be as those specified for main substation. The number of cameras and their locations shall be decided in such a way that any location covered in the area can be scanned. The cameras shall be located in such a way to monitor at least:

- a) Coupling Transformer, AC filter banks (if any).
- b) STATCOM Valve Hall, Cooling System, Electrical and Mechanical Auxiliary area.
- c) Entrance to STATCOM Station.
- d) All other Major Equipment (such as CB, CT, VT, SA etc.)



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The cameras can be mounted on structures, buildings or any other suitable mounting arrangement.

C.11.0 Spares, Special Tools and Tackles

Considering STATCOM as high technology proprietary equipment of the OEM, the TSP shall ensure necessary spares are procured to maintain the necessary reliability and availability of STATCOM station. Further all necessary special tools and tackles required for erection, testing, commissioning, and maintenance of equipment shall also be taken.



Contingency Cases for STATCOM**A) N-1 Contingency**Contingency at 765 kV level

1. Three Phase Fault close to 765 kV bus of Krishnagiri PS followed by tripping of one circuit of Krishnagiri PS – Raichur New 765 kV D/C line (fault persisted for 100 ms)
2. Single Phase to Ground Fault close to 765 kV bus of Krishnagiri PS followed by single pole opening (100 ms) of the faulted phase and unsuccessful re-closure (dead time 1 second) followed by 3-pole opening (100 ms) of the faulted line i.e. tripping one circuit of Krishnagiri PS – Raichur New 765 kV D/C line
3. Three Phase Fault close to 765 kV bus of Krishnagiri PS followed by tripping of one circuit of Krishnagiri PS – Doma 765 kV D/C line (fault persisted for 100 ms)
4. Single Phase to Ground Fault close to 765 kV bus of Krishnagiri PS followed by single pole opening (100 ms) of the faulted phase and unsuccessful re-closure (dead time 1 second) followed by 3-pole opening (100 ms) of the faulted line i.e. tripping one circuit of Krishnagiri PS – Doma 765 kV D/C line
5. Three Phase Fault close to 765 kV bus of Krishnagiri PS followed by tripping of one circuit of Krishnagiri PS – Sagar 765 kV D/C line (fault persisted for 100 ms)
6. Single Phase to Ground Fault close to 765 kV bus of Krishnagiri PS followed by single pole opening (100 ms) of the faulted phase and unsuccessful re-closure (dead time 1 second) followed by 3-pole opening (100 ms) of the faulted line i.e. tripping one circuit of Krishnagiri PS – Sagar 765 kV D/C line
7. Three Phase Fault close to 765 kV bus of Ananthapuram-III PS followed by tripping of one circuit of Ananthapuram-III PS – Krishnagiri PS 765 kV D/C line (fault persisted for 100 ms)
8. Single Phase to Ground Fault close to 765 kV bus of Ananthapuram-III PS followed by single pole opening (100 ms) of the faulted phase and unsuccessful re-closure (dead time 1 second) followed by 3-pole opening (100 ms) of the faulted line i.e. tripping one circuit of Ananthapuram-III PS – Krishnagiri PS 765 kV D/C line
9. Three Phase Fault close to 765 kV bus of Ananthapuram-III PS followed by tripping of one circuit of Ananthapuram-III PS – Bidadi 765 kV D/C line (fault persisted for 100 ms)
10. Single Phase to Ground Fault close to 765 kV bus of Ananthapuram-III PS followed by single pole opening (100 ms) of the faulted phase and unsuccessful re-closure (dead time 1 second) followed by 3-pole opening (100 ms) of the faulted line i.e. tripping one circuit of Ananthapuram-III PS – Bidadi 765 kV D/C line
11. Three Phase Fault close to 765 kV bus of Raichur New S/s followed by tripping of one circuit of Raichur New – Solapur 765 kV 2x5/C lines (fault persisted for 100 ms)
12. Single Phase to Ground Fault close to 765 kV bus of Raichur New S/s followed by single



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pole opening (100 ms) of the faulted phase and unsuccessful re-closure (dead time 1 second) followed by 3-pole opening (100 ms) of the faulted line i.e. tripping one circuit of Raichur New – Solapur 765 kV 2xS/C lines

13. Three Phase Fault close to 765 kV bus of Raichur New S/s followed by tripping of one circuit of Raichur New – Kurnool New 765 kV 2xS/c lines (fault persisted for 100 ms)
14. Single Phase to Ground Fault close to 765 kV bus of Raichur New S/s followed by single pole opening (100 ms) of the faulted phase and unsuccessful re-closure (dead time 1 second) followed by 3-pole opening (100 ms) of the faulted line i.e. tripping one circuit of Raichur New – Kurnool New 765 kV 2xS/c lines
15. Three Phase Fault close to 765 kV bus of Raichur New S/s followed by tripping of one circuit of Raichur New – Koppal-II PS 765 kV D/C line (fault persisted for 100 ms)
16. Single Phase to Ground Fault close to 765 kV bus of Raichur New followed by single pole opening (100 ms) of the faulted phase and unsuccessful re-closure (dead time 1 second) followed by 3-pole opening (100 ms) of the faulted line i.e. tripping one circuit of Raichur New – Koppal-II PS 765 kV D/C line
17. Three Phase Fault close to 765 kV bus of Doma S/s followed by tripping of one circuit of Doma – Bidar PS 765 kV D/C line (fault persisted for 100 ms)
18. Single Phase to Ground Fault close to 765 kV bus of Doma S/s followed by single pole opening (100 ms) of the faulted phase and unsuccessful re-closure (dead time 1 second) followed by 3-pole opening (100 ms) of the faulted line i.e. tripping one circuit of Doma – Bidar PS 765 kV D/C line
19. Three Phase Fault close to 765 kV bus of Doma S/s followed by tripping of one circuit of Doma – Kurnool-IV PS 765 kV D/C line (fault persisted for 100 ms)
20. Single Phase to Ground Fault close to 765 kV bus of Doma S/s followed by single pole opening (100 ms) of the faulted phase and unsuccessful re-closure (dead time 1 second) followed by 3-pole opening (100 ms) of the faulted line i.e. tripping one circuit of Doma – Kurnool-IV PS 765 kV D/C line

Contingency at 400 kV level

21. Three Phase Fault close to 400 kV bus of Krishnagiri PS followed by tripping of one 765/400 kV ICT at Krishnagiri PS (fault persisted for 100 ms)
22. Three Phase Fault close to 400 kV bus of Krishnagiri PS followed by tripping of one 400/220 kV ICT at Krishnagiri PS (fault persisted for 100 ms)
23. Three Phase Fault close to 400 kV bus of Krishnagiri PS followed by tripping of 1 GW generation at Krishnagiri PS (fault persisted for 100 ms) – **Generation outage case**

B) N-1-1 Contingency

Contingency at 765 kV level

24. Case 1 & 2 (consider as separate cases) + Single Phase Fault close to 765 kV bus of Krishnagiri PS followed by single pole opening (100 ms) of the faulted phase (2nd ckt of Krishnagiri PS – Raichur New 765 kV D/C line) and successful re-closure (dead time



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1 second)

25. Case 3 & 4 (consider as separate cases) + Single Phase Fault close to 765 kV bus of Krishnagiri PS followed by single pole opening (100 ms) of the faulted phase (2nd ckt of Krishnagiri PS – Doma 765 kV D/C line) and successful re-closure (dead time 1 second)
26. Case 5 & 6 (consider as separate cases) + Single Phase Fault close to 765 kV bus of Krishnagiri PS followed by single pole opening (100 ms) of the faulted phase (2nd ckt of Krishnagiri PS – Sagar 765 kV D/C line) and successful re-closure (dead time 1 second)
27. Case 7 & 8 (consider as separate cases) + Single Phase Fault close to 765 kV bus of Ananthapuram-III PS followed by single pole opening (100 ms) of the faulted phase (2nd ckt of Ananthapuram-III PS – Krishnagiri PS 765 kV D/C line) and successful re-closure (dead time 1 second)
28. Case 9 & 10 (consider as separate cases) + Single Phase Fault close to 765 kV bus of Ananthapuram-III PS followed by single pole opening (100 ms) of the faulted phase (2nd ckt of Ananthapuram-III PS – Bidadi 765 kV D/C line) and successful re-closure (dead time 1 second)
29. Case 11 & 12 (consider as separate cases) + Single Phase Fault close to 765 kV bus of Raichur New S/s followed by single pole opening (100 ms) of the faulted phase (2nd ckt of Raichur New – Kurnool New 765 kV 2xS/C lines) and successful re-closure (dead time 1 second)
30. Case 13 & 14 (consider as separate cases) + Single Phase Fault close to 765 kV bus of Raichur New S/s followed by single pole opening (100 ms) of the faulted phase (2nd ckt of Raichur New – Kurnool New 765 kV 2xS/C lines) and successful re-closure (dead time 1 second)
31. Case 15 & 16 (consider as separate cases) + Single Phase Fault close to 765 kV bus of Raichur New S/s followed by single pole opening (100 ms) of the faulted phase (2nd ckt of Raichur New – Koppal-II PS 765 kV D/C line) and successful re-closure (dead time 1 second)
32. Case 17 & 18 (consider as separate cases) + Single Phase Fault close to 765 kV bus of Doma S/s followed by single pole opening (100 ms) of the faulted phase (2nd ckt of Doma – Bidar PS 765 kV D/C line) and successful re-closure (dead time 1 second)
33. Case 19 & 20 (consider as separate cases) + Single Phase Fault close to 765 kV bus of Doma S/s followed by single pole opening (100 ms) of the faulted phase (2nd ckt of Doma – Kurnool-IV PS 765 kV D/C line) and successful re-closure (dead time 1 second)



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SPECIFIC TECHNICAL REQUIREMENTS FOR COMMUNICATION

The communication requirement shall be in accordance to CEA (Technical Standards for Communication System in Power System Operations) Regulations, 2020, CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2022, CERC (Communication System for inter-State transmission of electricity) Regulations, 2017, CEA (Cyber Security in Power Sector) Guidelines, 2021, CEA Guidelines on Unified Philosophy for placement of PMUs in Indian Grid, March 2025 and all above documents as amended from time to time.

The communication services viz. SCADA, AGC (wherever applicable), VoIP, AMR and PMU have been identified as critical services and therefore shall be provisioned with 2+2 redundancy i.e. 2 channels for Main Control Centre and 2 channels for Backup Control Centre. In order to meet this requirement, suitable redundancy at port and card level need to be ensured by the TSP to avoid any single point of failure which may lead to interruption in real-time grid operation.

PMU to PDC communication (wherever required) shall be through 2 channels to the PDC (main) as there is no backup PDC at present.

Accordingly, all the hardware for communication services of station as stated above shall support dual redundancy for data transmission of station to respective main and backup RLDCs

The complete ISTS communication system commissioned by TSP under the RFP shall be the asset of ISTS and shall be available for usage of ISTS requirements as suggested by CTU from time to time.

TSP shall deploy Cyber Security System in compliance with CEA (Cyber Security in Power Sector) Guidelines, 2021 and CEA (Cyber Security in Power Sector) Regulation, from its date of publication/ notification and their amendments thereof.

In order to meet the requirement for grid management and operation of substations, Transmission Service Provider (TSP) shall provide the following:

C.1.0 FOTE Requirement for line bays at Krishnagiri PS

- (i) TSP shall supply install & commission FODP with minimum 528 Fiber capacity along with panel and approach Cable (48F each) with all associated hardware fittings from gantry tower to Control Room for all the incoming lines envisaged under the present scope.
- (ii) TSP shall supply, install & commission One or more STM-16 (FOTE) equipment alongwith panel/s supporting minimum eleven (11) directions with MSP (Multiplex Section Protection – 1+1). These directions shall exclude protected (1+1) local patching among equipment (if any). Communication Equipment shall be provided with necessary interfaces to meet the voice and



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data communication requirement among 6 no of 220 kV line bays, Krishnagiri, Sagar S/s, Raichur New S/s and Doma S/s. Necessary directions shall be provided in the FOTE for 220 kV Line bays, however required optical interfaces shall be provided by respective entity at the time of connectivity. The suitable DC Power Supply and backup to be provided for communication equipment.

- (iii) FOTE & FODP Eq can be accommodated in same panel to optimize space.
- (iv) The maintenance of all the communication equipment and software thereof including FOTE, FODP, PMU, approach cable, DCPS alongwith Battery Bank & Cyber Security System shall be the responsibility of TSP.

C.2.0 FOTE Requirement for line bays at Doma S/s

- (i) TSP shall supply install & commission FODP with minimum 144 Fiber capacity along with panel and approach Cable (48F each) with all associated hardware fittings from gantry tower to Control Room for all the incoming lines envisaged under the present scope.
- (ii) TSP shall supply, install & commission One or more STM-16 (FOTE) equipment alongwith panel/s supporting minimum three (3) directions with MSP (Multiplex Section Protection – 1+1). Communication Equipment shall be provided with necessary interfaces to meet the voice and data communication requirement between Krishnagiri PS, Doma, and local patching with control room FOTE. The suitable DC Power Supply and backup to be provided for communication equipment.
- (iii) FOTE/FODP panel shall be installed in the new Bay Kiosk/Switchyard Panel Room (SPR)/Relay panel Room. The FOTE under present scope shall be integrated by TSP with the existing FOTE at control room of Doma S/s which shall be communicating with respective control center. TSP to provide necessary FODP sub rack / Splice trays/ Patch cords etc. and optical interfaces/equipment in the existing FOTE/FODP panels in control room for integration with the existing FOTE for onwards data transmission.

In case spare optical direction is not available in the existing FOTE at the control room, the TSP shall coordinate with station owner to reconfigure the directions in existing FOTE at control room. Alternatively, The TSP may integrate the FOTE under the present scope with existing FOTE in the nearby Kiosk connected to the control room FOTE (if available with spare direction). For this purpose, TSP shall provide necessary FODP sub rack / Splice trays/ Patch cords etc. and suitable optical interfaces/ equipment in the existing FOTE/FODP panels in another Kiosk (SPR).

- (iv) FOTE & FODP Eq can be accommodated in same panel to optimize space.



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- (v) The maintenance of all the communication equipment and software thereof including FOTE, FODP, PMU, approach cable, DCPS alongwith Battery Bank & Cyber Security System shall be the responsibility of TSP.

C.3.0 FOTE Requirement for line bays at Raichur New S/s

- (i) TSP shall supply install & commission FODP with minimum 144 Fiber capacity along with panel and approach Cable (48F each) with all associated hardware fittings from gantry tower to Control Room for all the incoming lines envisaged under the present scope.
- (ii) TSP shall supply, install & commission One or more STM-16 (FOTE) equipment alongwith panel/s supporting minimum three (3) directions with MSP (Multiplex Section Protection – 1+1). Communication Equipment shall be provided with necessary interfaces to meet the voice and data communication requirement between Krishnagiri PS and Raichur New S/s and local patching with control room FOTE. The suitable DC Power Supply and backup to be provided for communication equipment.
- (iii) FOTE/FODP panel shall be installed in the new Bay Kiosk/Switchyard Panel Room (SPR)/Relay panel Room. The FOTE under present scope shall be integrated by TSP with the existing FOTE at control room of Raichur New S/s which shall be communicating with respective control center. TSP to provide necessary FODP sub rack / Splice trays/ Patch cords etc. and optical interfaces/equipment in the existing FOTE/FODP panels in control room for integration with the existing FOTE for onwards data transmission.

In case spare optical direction is not available in the existing FOTE at the control room, the TSP shall coordinate with station owner to reconfigure the directions in existing FOTE at control room. Alternatively, The TSP may integrate the FOTE under the present scope with existing FOTE in the nearby Kiosk connected to the control room FOTE (if available with spare direction). For this purpose, TSP shall provide necessary FODP sub rack / Splice trays/ Patch cords etc. and suitable optical interfaces/ equipment in the existing FOTE/FODP panels in another Kiosk (SPR).

- (iv) FOTE & FODP Eq can be accommodated in same panel to optimize space.
- (v) The maintenance of all the communication equipment and software thereof including FOTE, FODP, PMU, approach cable, DCPS alongwith Battery Bank & Cyber Security System shall be the responsibility of TSP

C.4.0 FOTE Requirement for line bays at Sagar S/s

- (i) TSP shall supply install & commission FODP with minimum 192 Fiber capacity along with panel and approach Cable (48F each) with all associated hardware fittings from gantry tower to Control Room for all the incoming lines envisaged under the present scope.



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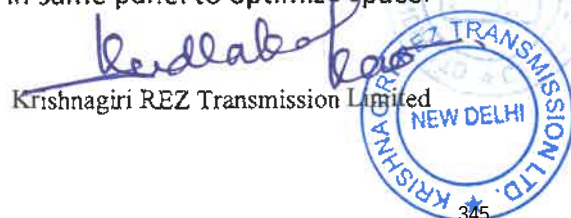
- (ii) TSP shall supply, install & commission One or more STM-16 (FOTE) equipment alongwith panel/s supporting minimum four (4) directions with MSP (Multiplex Section Protection – 1+1). Communication Equipment shall be provided with necessary interfaces to meet the voice and data communication requirement among Sagar S/s, Krishnagiri PS and Nagarjunasagar S/s. The suitable DC Power Supply and backup to be provided for communication equipment.
- (iii) FOTE & FODP Eq can be accommodated in same panel to optimize space.
- (iv) The maintenance of all the communication equipment and software thereof including FOTE, FODP, PMU, approach cable, DCPS alongwith Battery Bank & Cyber Security System shall be the responsibility of TSP

C.5.0 FOTE Requirement for line bays at Nagarjunasagar S/s

- (i) TSP shall supply install & commission FODP with minimum 144 Fiber capacity along with panel and approach Cable (48F each) with all associated hardware fittings from gantry tower to Control Room for all the incoming lines envisaged under the present scope.
- (ii) TSP shall supply, install & commission One or more STM-16 (FOTE) equipment alongwith panel/s supporting minimum three (3) directions with MSP (Multiplex Section Protection – 1+1). Communication Equipment shall be provided with necessary interfaces to meet the voice and data communication requirement between Nagarjunasagar S/s and Sagar S/s and local patching with control room FOTE. The suitable DC Power Supply and backup to be provided for communication equipment.
- (iii) FOTE/FODP panel shall be installed in the new Bay Kiosk/Switchyard Panel Room (SPR)/Relay panel Room. The FOTE under present scope shall be integrated by TSP with the existing FOTE at control room of Nagarjunasagar S/s which shall be communicating with respective control center. TSP to provide necessary FODP sub rack / Splice trays/ Patch cords etc. and optical interfaces/equipment in the existing FOTE/FODP panels in control room for integration with the existing FOTE for onwards data transmission.

In case spare optical direction is not available in the existing FOTE at the control room, the TSP shall coordinate with station owner to reconfigure the directions in existing FOTE at control room. Alternatively, The TSP may integrate the FOTE under the present scope with existing FOTE in the nearby Kiosk connected to the control room FOTE (if available with spare direction). For this purpose, TSP shall provide necessary FODP sub rack / Splice trays/ Patch cords etc. and suitable optical interfaces/ equipment in the existing FOTE/FODP panels in another Kiosk (SPR).

- (iv) FOTE & FODP Eq can be accommodated in same panel to optimize space.



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- (v) The maintenance of all the communication equipment and software thereof including FOTE, FODP, PMU, approach cable, DCPS alongwith Battery Bank & Cyber Security System shall be the responsibility of TSP

C.6.0 Krishnagiri – Doma 765 kV D/C line

- (i) On Krishnagiri – Doma 765 kV D/C line, TSP shall supply, install & commission One (1) no. OPGW cable containing 48 Fibres (48F) on one E/W peak and conventional earth wire on other E/W peak.
- (ii) The TSP shall install this OPGW from gantry of Krishnagiri PS up to the gantry of Doma S/s with all associated hardware including Vibration Dampers, mid-way & gantry Joint Boxes (called **OPGW Hardware** hereafter) and finally terminate in Joint Boxes at end Substations. The transmission line length is **240 kms (approx.)**, where repeater may be required to meet the link budget requirement of Krishnagiri – Doma link. The same shall be provided by TSP.
- (iii) TSP shall finalize the location of repeater station depending upon the actual site conditions. Further TSP shall comply to the requirements mentioned as per **Appendix-F.1**
- (iv) Maintenance of OPGW Cable & OPGW Hardware shall be responsibility of TSP.

C.7.0 Krishnagiri – Raichur New 765 kV D/C line

- (i) On Krishnagiri – Raichur New 765 kV D/C line, TSP shall supply, install & commission One (1) no. OPGW cable containing 48 Fibres (48F) on one E/W peak and conventional earth wire on other E/W peak.
- (ii) The TSP shall install this OPGW from gantry of Krishnagiri PS up to the gantry of Raichur New S/s with all associated hardware including Vibration Dampers, mid-way & gantry Joint Boxes (called **OPGW Hardware** hereafter) and finally terminate in Joint Boxes at end Substations. The transmission line length is **150 kms (approx.)**, where repeater may not be required to meet the link budget requirement of Krishnagiri – Raichur New link.
- (iii) Maintenance of OPGW Cable & OPGW Hardware shall be responsibility of TSP.

C.8.0 Krishnagiri – Sagar 765 kV D/C line

- (i) On Krishnagiri – Sagar 765 kV D/C line, TSP shall supply, install & commission One (1) no. OPGW cable containing 48 Fibres (48F) on one E/W peak and conventional earth wire on other E/W peak.
- (ii) The TSP shall install this OPGW from gantry of Krishnagiri PS up to the gantry of Sagar S/s with all associated hardware including Vibration Dampers, mid-



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way & gantry Joint Boxes (called **OPGW Hardware** hereafter) and finally terminate in Joint Boxes at end Substations. The transmission line length is **240 kms (approx.)**, where repeater may be required to meet the link budget requirement of Krishnagiri – Sagar link. The same shall be provided by TSP.

- (iii) TSP shall finalize the location of repeater station depending upon the actual site conditions. Further TSP shall comply to the requirements mentioned as per **Appendix-F.1**
- (iv) Maintenance of OPGW Cable & OPGW Hardware shall be responsibility of TSP.

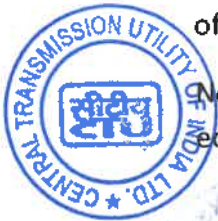
C.9.0 Sagar – Nagarjunasagar 400 kV D/C line

- (i) On Sagar – Nagarjunasagar 400 kV D/C line, TSP shall supply, install & commission One (1) no. OPGW cable containing 48 Fibres (48F) on one E/W peak and conventional earth wire on other E/W peak.
- (ii) The TSP shall install this OPGW from gantry of Sagar S/s up to the gantry of Nagarjunasagar S/s with all associated hardware including Vibration Dampers, mid-way & gantry Joint Boxes (called **OPGW Hardware** hereafter) and finally terminate in Joint Boxes at end Substations. The transmission line length is **25 kms (approx.)**, where repeater may not be required to meet the link budget requirement of Sagar – Nagarjunasagar link.
- (iii) Maintenance of OPGW Cable & OPGW Hardware shall be responsibility of TSP.

C.10.0 Specific Requirement for Phasor Measurement Units (PMUs)

TSP shall supply, install and commission required No. of Phasor Measurement Units (PMUs) as per the "Guidelines on Unified Philosophy for placement of PMUs in Indian Grid" issued vide CEA letter No. CEA-PS-14-12/9/2024-PSETD Division dated 19.03.2025 for the scope of this RFP. The PMUs shall be provided with LAN switch and shall connect with LAN switch of control room of respective substations/generating stations with Fibre Optic cable. The PMUs shall be connected with the FOTE at Substation/ generating stations for onwards data transmission to the PDC (Phasor Data Concentrator) located at respective RLDC. Configuration work in existing PDC at RLDC for new PMU integration shall be done by respective RLDC, however all the necessary support in this regard shall be ensured by TSP. The maintenance of all the PMUs and associated equipment shall be the responsibility of TSP.

Note: Existing Station owner/s to provide necessary support to integrate different equipment and applications of new extended bays with the existing substation e.g.



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Communication (through FOTE), Voice etc. for smooth operation and monitoring of new added grid elements.

C.11.0 Specific Requirement for UNMS Integration of FOTE

Communication system integration in UNMS/CSMS

TSP is to ensure integration of communication system into UNMS/CSMS as per following:

“The new communication equipment/ system under the present scope shall be compatible for integration with existing regional level NMS system/ Centralized Supervision & Monitoring System (CSMS) i.e. Regional UNMS. The local configuration of the new communication equipment/ system at the station end shall be the responsibility of TSP as per followings. The configuration work in the existing centralized NMS/ UNMS at Control center end, for integration of new Communication equipment/ system shall be done by Regional ULDC Team/ NMT, however all the necessary support in this regard shall be ensured by TSP.

Requirement for integration of Communication Equipment/ system with Regional UNMS:

1. TSP shall ensure that NMS/EMS/NE supplied by them is NBI compliant and all FCAPS functionality is supported in the NBI such as NE Inventory, Hardware Inventory– Shelf/Slot/Card/SFP/Port, Topology, Protections, Alarms, Performance-real time & periodic, Performance KPI parameters (E-1, STM, Ethernet), Remote Configuration, Cross Connects, Trails & Circuits, Services Provisioning (NE), E-1, STM, Ethernet, TX & RX Trace, loop back and details are published in the NBI guide for the configuration parameters.
2. TSP shall be obliged to provide/share all necessary documentations such as NBI Guide/MIB/IDL/WSDL/API files etc. for onward integration of their NMS/EMS/NE with regional UNMS.
3. The following support shall be provided by TSP for integration of their supplied equipment with regional UNMS:
 - Enabling & activating NBI license in their EMS/NMS and providing NBI login access along with User credentials
 - Assist in verifying NBI Connectivity with UNMS vendor for the successful communication and retrieval of data.
 - Assist in troubleshooting (if required) for NBI connectivity along with UNMS vendor for the communication and retrieval of data.



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4. For standalone NE which is not integrated with any EMS/NMS, TSP shall provide modality of complete FCAPS data acquisition as above through industry standard programmatic methods and provide the CLI command manual."



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Repeater Requirements

- If the repeater location is finalized in the Control Room of a nearby substation, TSP shall provide OPGW to accommodate all the fibers in main transmission line on a single Earthwire peak with OPGW Hardware & mid-way Joint Boxes etc. of the line crossing the main line and required approach Cable to accommodate all the OPGW fibers with all associated hardware fittings, to establish connectivity between crossing point of main transmission line up to the repeater equipment in substation control room.

TSP shall co-ordinate for Space & DC power supply sharing for repeater equipment.

TSP shall provide FODP, FOTE (with STM-16 capacity) with suitable interfaces required for link budget of respective link.

OR

- If the repeater location is finalized in the nearby substation premises, the TSP shall identify the Space for repeater shelter in consultation with station owner. Further TSP shall provide OPGW to accommodate all the fibers in main transmission line on a single Earthwire peak with OPGW Hardware & mid-way Joint Boxes etc. of the line crossing the main line and required approach Cable/UGFO to accommodate all the OPGW fibers with all associated hardware fittings, to establish connectivity between crossing point of main transmission line up to the substation where the repeater shelter is to be housed.

TSP shall provide repeater shelter along with FODP, FOTE (with STM-16 capacity) with suitable interfaces require for link budget of respective link, reliable power supply provisioning for AC and DC supply, battery bank, Air Conditioner and other associated systems.

OR

- If the repeater location is finalized on land near the transmission tower. TSP shall make the provisions for Land at nearby tower for repeater shelter. Further TSP shall provide required approach Cable to accommodate all the OPGW fibers with all associated hardware fittings to establish connectivity up to the location of repeater shelter.

TSP shall provide repeater shelter along with FODP, FOTE (with STM-16 capacity) with suitable interfaces require for link budget of respective link, reliable power supply provisioning for AC and DC supply, battery bank, Air Conditioner and other associated systems.



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Maintenance of OPGW Cable and **OPGW Hardware**, repeater equipment & items associated with repeater shelter shall be the responsibility of TSP.

Transmission System for integration of Krishnagiri REZ Phase-I

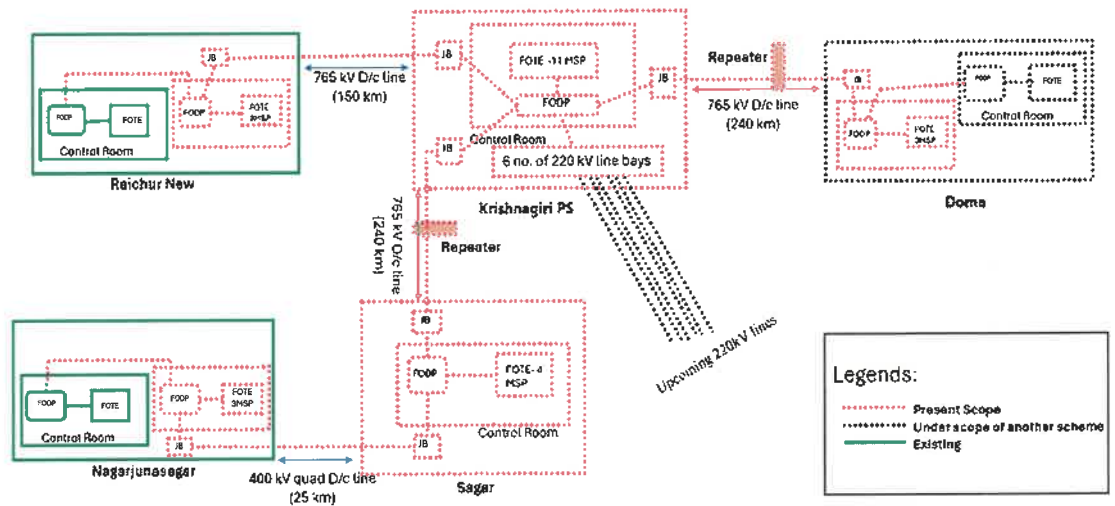


Figure F.1



Transmission Service Agreement

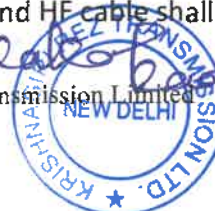
C.12.0 PLCC and PABX:

Power line carrier communication (PLCC) equipment complete for speech, tele-protection commands and data channels shall be provided on each transmission line. The PLCC equipment shall in brief include the following: -

- Coupling device, Coupling filters line traps, carrier terminals, protection couplers, HF cables, PABX (if applicable) and maintenance and testing instruments.
- At new substation, a telephone exchange (PABX) of 24 lines shall be provided at as means of effective communication among various buildings of the substation, remote end substations and with control centres (RLDC/ SLDC) etc.
- Coupling devices shall be suitable for phase-to-phase coupling for 400 kV Transmission lines. The pass band of coupling devices shall have sufficient margin for adding communication channel in future if required. Necessary protection devices for safety of personnel and low voltage part against power frequency voltages and transient over voltage shall also be provided.
- The line traps shall be broad band tuned suitable for blocking the complete range of carrier frequencies. Line Trap shall have necessary protective devices such as lightning arresters for the protection of tuning device. Decoupling network consisting of line traps and coupling capacitors may also be required at certain substation in case of extreme frequency congestion.
- The carrier terminals shall be of single side-band (SSB) amplitude modulation (AM) type and shall have 4 kHz band width. PLCC Carrier terminals and Protection couplers shall be considered for both ends of the line.
- **PLCC equipment for all the transmission lines covered under the scheme shall be provided by TSP. PLCC to be provided for following lines under present scope:**

Sl. No	Line name	PLCC configuration
1.	Krishnagiri – Doma 765 kV D/C line	1 set Analog PLCC + 1 set Digital Protection Coupler for each circuit at both ends.
2.	Krishnagiri – Raichur New 765 kV D/C line	1 set Analog PLCC + 1 set Digital Protection Coupler for each circuit at both ends.
3.	Krishnagiri – Sagar 765 kV D/C line	1 set Analog PLCC + 1 set Digital Protection Coupler for each circuit at both ends.
4.	Sagar-Nagarjunasagar 400 kV D/C line	1 set Analog PLCC + 1 set Digital Protection Coupler for each circuit at both ends.

- Further, CVT and Wave trap for all 765 kV, 400 kV and 220 kV line bays under present scope shall be provided by TSP.
- All other associated equipment like cabling, coupling device and HF cable shall also



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be provided by the TSP.

- Two (2) sets of 48 V battery banks for PLCC and communication equipment shall be provided at each new Substation with at least 10-hour battery backup and extended backup, if required.



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Transmission Service Agreement

Schedule: 2

Scheduled COD

[Note: As referred to in the definition of "Element", "Scheduled COD", and in Articles 3.1.3 (c), 4.1 (b) and 4.3 (a) of this Agreement]

S. No.	Name of the Transmission Element	Scheduled COD as per Gazette Notification	% of Quoted Transmission Charges recoverable on Scheduled COD of the Element of the Project	Element(s) which are pre-required for declaring the commercial operation (COD) of the respective Element
1.	Establishment of 4x1500 MVA, 765/400 kV and 5x500 MVA, 400/220kV Krishnagiri Pooling Station near Kodumur in Kurnool district along with 2x330 MVAR (765 kV) bus reactors at Krishnagiri PS with provision of two (2) sections of 4500 MVA each at 400kV level	36 months (03.08.2029)	15.8	Element at Sl. No. 2, 3, 4, 5, 6 & 7
2.	± 300 MVAR STATCOM at Krishnagiri PS		4	Element at Sl. No. 1, 3, 4, 5, 6 & 7
3.	Krishnagiri – Doma 765 kV D/c line with 240 MVAR SLR (convertible) at both ends on both circuits		28.2	Element at Sl. No. 1, 2, 4, 5, 6 & 7
4.	Krishnagiri – Raichur New 765 kV D/c line with 240 MVAR SLR (convertible) at Raichur New end on both circuits		14.8	Element at Sl. No. 1, 2, 3, 5, 6 & 7
5.	Establishment of 3x1500 MVA, 765/400 kV Sagar substation with 2x330 MVAR (765 kV) bus reactors with space provision for establishment of 220 kV switchyard		8.8	Element at Sl. No. 1, 2, 3, 4, 6 & 7
6.	Krishnagiri – Sagar 765 kV D/c line with 240 MVAR SLR (convertible) at both ends on both circuits		26.7	Element at Sl. No. 1, 2, 3, 4, 5 & 7
7.	Sagar – Nagarjunasagar 400 kV quad D/c line (about 25 km)		1.7	Element at Sl. No. 1, 2, 3, 4, 5 & 6



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Schedule: 3

Safety Rules and Procedures

[Note: As referred to in Articles 5.6 of this Agreement]

1. Site Regulations and Safety:

The TSP shall establish Site regulations within sixty (60) days from fulfilment of conditions subsequent, as per Prudent Utility Practices setting out the rules to be observed till expiry of the Agreement at the Site and shall comply therewith.

Such Site regulations shall include, but shall not be limited to, rules in respect of security, safety of the Project, gate control, sanitation, medical care, and fire prevention, public health, environment protection, security of public life, etc.

Copies of such Site regulations shall be provided to the Nodal Agency and the CEA for the purpose of monitoring of the Project.

2. Emergency Work:

In cases of any emergency, the TSP shall carry out all necessary remedial work as may be necessary.

If the work done or caused to be done by any entity, other than the TSP, the TSP shall, reimburse the actual costs incurred, to the other Party carrying out such remedial works.

3. Site Clearance:

In the course of execution of the Agreement, the TSP shall keep the Site reasonably free from all unnecessary obstruction, storage, remove any surplus materials, clear away any wreckage, rubbish and temporary works from the Site, and remove any equipment no longer required for execution of the Agreement. After completion of all Elements of the Project, the TSP shall clear away and remove all wreckage, rubbish and debris of any kind from the Site, and shall leave the Site clean and safe.

4. Watching and Lighting:

The TSP shall provide and maintain at its own expense all lighting, fencing, and watching when and where necessary for the proper construction, operation, maintenance / repair of any of the Elements of the Project, or for the safety of the owners and occupiers of adjacent property and for the safety of the public, during such maintenance / repair.



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Transmission Service Agreement

Schedule: 4

Computation of Transmission Charges

1.1 General

The Monthly Transmission Charges to be paid to the TSP for providing Transmission Service for any Contract Year during the term of the Agreement shall be computed in accordance with this Schedule and paid as per Sharing Regulations.

Illustration regarding payment of Transmission Charges under various scenarios (considering definitions of Contract Year, Expiry Date & Monthly Transmission Charges above) is as below: -

Illustration-1: In case the Project Elements achieve COD as per Schedule

Quoted Transmission Charges: **Rs. 140 Million**

Completion Schedule:

Element No.	Completion Schedule in Months	Scheduled CoD of the Element	Actual CoD of the Element	% Charges recoverable on Scheduled CoD of the Element
Element 1	28	1-Feb-2018	1-Feb-2018	25%
Element 2	38	1-Dec-2018	1-Dec-2018	75%

Tariff Payable as follows:

Transmission Charges for Element 1			Transmission Charges for Element 2		
1-Feb-18 to 31-Mar-18	$140 \times 25\% \times ((28+31)/365)$	5.65		--	0.00
1-Apr-18 to 30-Nov-18	$140 \times 25\% \times (244/365)$	23.39		--	0.00
1-Dec-18 to 31-Mar-19	$140 \times 100\% \times (121/365)$				46.41
2	$140 \times 100\% \times 1$				140
3	$140 \times 100\% \times 1$				140
4	$140 \times 100\% \times 1$				140
5	$140 \times 100\% \times 1$				140
.....					
.....					
36 (1-Apr to 30-Nov)	$140 \times 100\% \times (244/365)$				93.59



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Illustration-2: In case of extension of Scheduled COD as per Article 4.4.1 & 4.4.2 of this Agreement

Quoted Transmission Charges: **Rs. 140 Million**

Completion Schedule:

Element No.	Completion Schedule in Months	Scheduled CoD of the Element	Actual CoD of the Element	% Charges recoverable on Scheduled CoD of the Element
Element 1	20	1-Feb-2018	1-Jul-2018	25%
Element 2	28	1-Oct-2018	1-Dec-2018	75%

Tariff Payable as follows:

Transmission Charges for Element 1			Transmission Charges for Element 2		
1-Feb-18 to 31-Mar-18	--	0.00		--	0.00
1-Apr-18 to 30-Jun-18	--	0.00		--	0.00
1-Jul-18 to 30-Nov-18	140 X 25% X (153/365)	14.67		--	0.00
1-Dec-18 to 31-Mar-19	140 X 100% X (121/365)				46.41
2	140 X 100% X 1				140
3	140 X 100% X 1				140
4	140 X 100% X 1				140
5	140 X 100% X 1				140
.....					
.....					
36 (1-Apr to 30-Nov)	140 X 100% X (244/365)				93.59

Illustration-3: In case of delay in achieving COD of Project & all individual Elements (COD of the Project achieved in Contract Year 1)

Quoted Transmission Charges: **Rs. 140 Million**

Completion Schedule:



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Element No.	Completion Schedule in Months	Scheduled CoD of the Element	Actual CoD of the Element	% Charges recoverable on Scheduled CoD of the Element
Element 1	20	1-Feb-2018	1-Dec-2018	25%
Element 2	28	1-Oct-2018	1-Dec-2018	75%

Tariff Payable as follows:

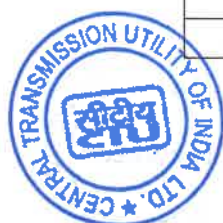
Transmission Charges for Element 1			Transmission Charges for Element 2		
1-Feb-18 to 31-Mar-18	--	0.00		--	0.00
1-Apr-18 to 30-Sept-18	--	0.00		--	0.00
1-Oct-18 to 30-Nov-18	--	0.00	1-Oct-18 to 30-Nov-18	--	0.00
1-Dec-18 to 31-Mar-19	140 X 100% X (121/365)				46.41
2	140 X 100% X 1				140
3	140 X 100% X 1				140
4	140 X 100% X 1				140
5	140 X 100% X 1				140
.....					
.....					
36 (1-Apr to 30-Nov)	140 X 100% X (244/365)				93.59

Illustration-4: In case of delay in achieving COD of Project & all individual Elements (COD of the Project achieved in Contract Year other than Contract Year 1)

Quoted Transmission Charges: Rs. 140 Million

Completion Schedule:

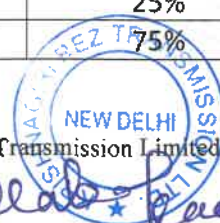
Element No.	Completion Schedule in Months	Scheduled CoD of the Element	Actual CoD of the Element	% Charges recoverable on Scheduled CoD of the Element
Element 1	38	1-Oct-2019	1-May-2020	25%
Element 2	38	1-Oct-2019	1-May-2020	75%



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Tariff Payment to be paid as:

Transmission Charges for Element 1			Transmission Charges for Element 2		
1-Oct-19 to 31-Mar-20	--	0.00	1-Oct-19 to 31-Mar-20	--	0.00
1-Apr-20 to 30-Apr-20	-	0.00	1-Apr-20 to 30-Apr-20	-	0.00
1-May-20 to 31-Mar-21	140 X 100% X (335/365)				128.49
2	140 X 100% X 1				140
3	140 X 100% X 1				140
4	140 X 100% X 1				140
5	140 X 100% X 1				140
.....					
.....					
36 (1-Apr to 30-Apr)	140 X 100% X (30/ 365)				11.51

Illustration5: In case of delay in achieving COD of Element but Project COD achieved on time

Quoted Transmission Charges: **Rs. 140 Million**

Completion Schedule:

Element No.	Completion Schedule in Months	Scheduled CoD of the Element	Actual CoD of the Element	% Charges recoverable on Scheduled CoD of the Element
Element 1	20	1-Feb-2018	1-Jul-2018	25%
Element 2	30	1-Dec-2018	1-Dec-2018	75%

Tariff Payable as follows:

Transmission Charges for Element 1			Transmission Charges for Element 2		
1-Feb-18 to 31-Mar-18	--	0.00		--	0.00
1-Apr-18 to 30-Jun-18	--	0.00		--	0.00
1-Jul-18 to 30-Nov-18	140 X 25% X (153/365)	14.67		--	0.00



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1-Dec-18 to 31-Mar-19	140 X 100% X (121/365)	46.41
2	140 X 100% X 1	140
3	140 X 100% X 1	140
4	140 X 100% X 1	140
5	140 X 100% X 1	140
.....		
.....		
36 (1-Apr to 30- Nov)	140 X 100% X (244/365)	93.59

Illustration-6: In case of early commissioning of Project

Quoted Transmission Charges: **Rs. 140 Million**

Completion Schedule:

Element No.	Completion Schedule in Months	Scheduled CoD of the Element	Actual CoD of the Element	% Charges recoverable on Scheduled CoD of the Element
Element 1	38	1-Oct-2019	1-Jul-2019	25%
Element 2	38	1-Oct-2019	1-Jul-2019	75%

Tariff Payment to be paid as:

Transmission Charges for Element 1		Transmission Charges for Element 2
1-July-19 to 31-Mar-20	140 X 100% X (274/365)	105.09
2	140 X 100% X 1	140
3	140 X 100% X 1	140
4	140 X 100% X 1	140
5	140 X 100% X 1	140
.....		
.....		
36 (1-Apr to 30- Jun)	140 X 100% X (91/365)	34.91

Illustration-7: In case of early commissioning of an element

Quoted Transmission Charges: **Rs. 140 Million**



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Completion Schedule:

Element No.	Completion Schedule in Months	Scheduled CoD of the Element	Actual CoD of the Element	% Charges recoverable on Scheduled CoD of the Element
Element 1	38	1-Oct-2019	1-Apr-2019	25%
Element 2	38	1-Jul-2019	1-Jul-2019	75%

Tariff Payment to be paid as:

Transmission Charges for Element 1			Transmission Charges for Element 2		
1-Apr-2019 to 30-Jun-19	140 X 25% X (91/365)	8.72	1-Apr-2019 to 30-Jun-19	--	0.00
1-July-19 to 31-Mar-20	140 X 100% X (274/ 365)				105.09
2	140 X 100% X 1				140
3	140 X 100% X 1				140
4	140 X 100% X 1				140
5	140 X 100% X 1				140
.....					
.....					
36 (1-Apr-30-Jun)	140 X 100% X (91/365)				34.91

The Transmission Charges shall be payable on monthly basis as computed above.

1.2 Computation of Monthly Transmission Charges

The Monthly Transmission Charges for any month m in a Contract Year n shall be calculated as below:

For AC System:

- a. If Actual Transmission System Availability for the month m of contract year n is greater than or equal to 98% and less than or equal to 98.5%;

$$\text{Monthly Transmission Charges MTC}(m) = T_{mn} * 1$$

- a. If Actual Transmission System Availability for the month m of contract year n exceeds 98.5% and less than or equal to 99.75%;

$$\text{Monthly Transmission Charges MTC}(m) = T_{mn} * (AA / 98.5\%)$$

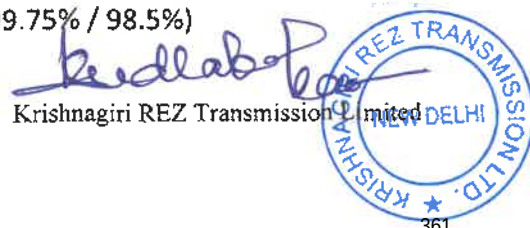
If Actual Transmission System Availability for the month m of contract year n is greater than 99.75%;

$$\text{Monthly Transmission Charges MTC}(m) = T_{mn} * (99.75\% / 98.5\%)$$



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- d. If Actual Transmission System Availability for the month m of contract year n is less than 98% and greater than or equal to 95.00%;
Monthly Transmission Charges $MTC(m) = Tmn * (AA / 98\%)$
- e. If Actual Transmission System Availability for the month m of contract year falls below 95%;
Monthly Transmission Charges $MTC(m) = Tmn * (AA / 98\%) - 0.02 * (Tmn * (AA / 95\%))$

For DC System:

- a. If Actual Transmission System Availability for the month m of contract year n is greater than or equal to 95% and less than or equal to 96%;
Monthly Transmission Charges $MTC(m) = Tmn * 1$
- b. If Actual Transmission System Availability for the month m of contract year n exceeds 96% and less than or equal to 99.75%;
Monthly Transmission Charges $MTC(m) = Tmn * (AA / 96\%)$
- c. If Actual Transmission System Availability for the month m of contract year n is greater than 99.75%;
Monthly Transmission Charges $MTC(m) = Tmn * (99.75\% / 96\%)$
- d. If Actual Transmission System Availability for the month m of contract year n is less than 95% and greater than or equal to 92.00%;
Monthly Transmission Charges $MTC(m) = Tmn * (AA / 95\%)$
- e. If Actual Transmission System Availability for the month m of contract year falls below 92%;
Monthly Transmission Charges $MTC(m) = Tmn * (AA / 95\%) - 0.02 * (Tmn * (AA / 92\%))$

where:

- AA is the actual Availability, as certified by RPC, as per procedure provided in Schedule 6.
- m is the month in Contract Year 'n'
- $Tmn = \text{Transmission Charges for the month 'm' in Contract Year 'n'} = (\text{Transmission Charge} / \text{no. of days in the Year n}) * \text{no. of days in month m}$

Provided, no Transmission Charges shall be paid during the period for which the RLDC has not allowed the operation of the Element/Project due to the failure of the TSP to operate it as per the provisions of the Grid Code.

1.3 RLDC Fee & Charges

The payment of RLDC fee & charges, in accordance with relevant regulations of CERC, shall be the responsibility of the TSP.



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Schedule: 5

Quoted Transmission Charges

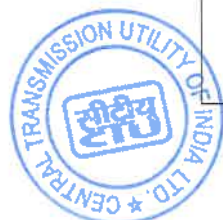
[Quoted Transmission Charges from Annexure - 21 of the RFP of the Selected Bidder to be inserted here]

[To be incorporated from the Bid of the Selected Bidder submitted during the e-reverse auction after its selection]

Quoted Annual Transmission Charges: Rs. 8,209.60 Million

Proportionate Transmission Charges payable for each Element of the Project:

S. No.	Name of the Transmission Element	Scheduled COD as per Gazette Notification	% of Quoted Transmission Charges recoverable on Scheduled COD of the Element of the Project	Element(s) which are pre-required for declaring the commercial operation (COD) of the respective Element
1.	Establishment of 4x1500 MVA, 765/400 kV and 5x500 MVA, 400/220kV Krishnagiri Pooling Station near Kodumur in Kurnool district along with 2x330 MVAR (765 kV) bus reactors at Krishnagiri PS with provision of two (2) sections of 4500 MVA each at 400kV level	36 months (03.08.2029)	15.8	Element at Sl. No. 2, 3, 4, 5, 6 & 7
2.	± 300 MVAR STATCOM at Krishnagiri PS		4	Element at Sl. No. 1, 3, 4, 5, 6 & 7
3.	Krishnagiri – Doma 765 kV D/c line with 240 MVAR SLR (convertible) at both ends on both circuits		28.2	Element at Sl. No. 1, 2, 4, 5, 6 & 7
4.	Krishnagiri – Raichur New 765 kV D/c line with 240 MVAR SLR (convertible) at Raichur New end on both circuits		14.8	Element at Sl. No. 1, 2, 3, 5, 6 & 7
5.	Establishment of 3x1500 MVA, 765/400 kV Sagar substation with 2x330 MVAR (765 kV) bus reactors with space provision for establishment of 220 kV switchyard		8.8	Element at Sl. No. 1, 2, 3, 4, 6 & 7



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S. No.	Name of the Transmission Element	Scheduled COD as per Gazette Notification	% of Quoted Transmission Charges recoverable on Scheduled COD of the Element of the Project	Element(s) which are pre-required for declaring the commercial operation (COD) of the respective Element
6.	Krishnagiri – Sagar 765 kV D/c line with 240 MVAR SLR (convertible) at both ends on both circuits		26.7	Element at Sl. No. 1, 2, 3, 4, 5 & 7
7.	Sagar – Nagarjunasagar 400 kV quad D/c line (about 25 km)		1.7	Element at Sl. No. 1, 2, 3, 4, 5 & 6




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Schedule: 6

Appendix –IV to Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2024

Procedure for Calculation of Transmission System Availability Factor for a Month

1. Transmission system availability factor for nth calendar month ("TAF_{Pn}") shall be calculated by the respective transmission licensee, verified by the concerned Regional Load Dispatch Centre (RLDC) and certified by the Member-Secretary, Regional Power Committee of the region concerned, separately for each AC and HVDC transmission system and grouped according to sharing of transmission charges. In the case of the AC system, transmission System Availability shall be calculated separately for each Regional Transmission System and inter-regional transmission system. In the case of the HVDC system, transmission System Availability shall be calculated on a consolidated basis for all inter-state HVDC systems.
2. Transmission system availability factor for nth calendar month ("TAF_{Pn}") shall be calculated by considering the following:
 - i) **AC transmission lines:** Each circuit of AC transmission line shall be considered as one element;
 - ii) **Inter-Connecting Transformers (ICTs):** Each ICT bank (three single- phase transformers together) shall form one element;
 - iii) **Static VAR Compensator (SVC):** SVC, along with SVC transformer, shall form one element;
 - iv) **Bus Reactors or Switchable line reactors:** Each Bus Reactors or Switchable line reactors shall be considered as one element;
 - v) **HVDC Bi-pole links:** Each pole of the HVDC link, along with associated equipment at both ends, shall be considered as one element;
 - vi) **HVDC back-to-back station:** Each block of the HVDC back-to-back station shall be considered as one element. If the associated AC line (necessary for the transfer of inter-regional power through the HVDC back-to-back station) is not available, the HVDC back-to-back station block shall also be considered unavailable;
 - vii) **Static Synchronous Compensation ("STATCOM"):** Each STATCOM shall be considered as a separate element.



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3. The Availability of the AC and HVDC portion of the Transmission system shall be calculated by considering each category of transmission elements as under:

TAFPN (in %) for AC system:

$$= \frac{(o \times AV_o) + (p \times AV_p) + (q \times AV_q) + (r \times AV_r) + (u \times AV_u)}{(o + p + q + r + u)} \times 100$$

Where,

o	=	Total number of AC lines.
AV _o	=	Availability of o number of AC lines
p	=	Total number of bus reactors/switchable line reactors
AV _p	=	Availability of p number of bus reactors/switchable line reactors
q	=	Total number of ICTs
AV _q	=	Availability of q number of ICTs
r	=	Total number of SVCs
AV _r	=	Availability of r number of SVCs
u	=	Total number of STATCOM
AV _u	=	Availability of u number of STATCOM

TAFMN (in %) for HVDC System:

$$= \frac{\sum_{x=1}^s C_{xpb}(\text{act}) \times AV_{xpb} + \sum_{y=1}^t C_{ybtb}(\text{act}) \times AV_{ybtb}}{\sum_{x=1}^s C_{xpb} + \sum_{y=1}^t C_{ybtb}} \times 100$$

Where

C _{xpb} (act)	=	Total actual operated capacity of x th HVDC pole
C _{xpb}	=	Total rated capacity of x th HVDC pole
AV _{xpb}	=	Availability of x th HVDC pole
C _{ybtb} (act)	=	Total actual operated capacity of y th HVDC back-to-back station block
C _{ybtb}	=	Total rated capacity of y th HVDC back-to-back station block
AV _{ybtb}	=	Availability of y th HVDC back-to-back station block
s	=	Total no of HVDC poles
t	=	Total no of HVDC Back to Back blocks



Central Transmission Utility of India Limited

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Transmission Service Agreement

4. The availability for each category of transmission elements shall be calculated based on the weightage factor, total hours under consideration and non-available hours for each element of that category. The formulae for calculation of the Availability of each category of the transmission elements are as per **Appendix-V**. The weightage factor for each category of transmission elements shall be considered as under:
- (a) For each circuit of the AC line – The number of sub-conductors in the line multiplied by ckt-km;
 - (b) For each HVDC pole- The rated MW capacity x ckt-km;
 - (c) For each ICT bank – The rated MVA capacity;
 - (d) For SVC- The rated MVar capacity (inductive and capacitive);
 - (e) For Bus Reactor/switchable line reactors – The rated MVar capacity;
 - (f) For HVDC back-to-back stations connecting two Regional grids- Rated MW capacity of each block; and
 - (g) For STATCOM – Total rated MVar Capacity.
5. The transmission elements under outage due to the following reasons shall be deemed to be available:
- i. Shut down availed for maintenance of another transmission scheme or construction of new element or renovation/upgradation/additional capitalization in an existing system approved by the Commission. If the other transmission scheme belongs to the transmission licensee, the Member Secretary, RPC may restrict the deemed availability period to that considered reasonable by him for the work involved. In case of a dispute regarding deemed availability, the matter may be referred to the Chairperson, CEA, within 30 days.
 - ii. Switching off of a transmission line to restrict over-voltage and manual tripping of switched reactors as per the directions of the concerned RLDC.
 - iii. Shut down of a transmission line due to the Project(s) of NHAI, Railways and Border Road Organization, including for shifting or modification of such transmission line or any other infrastructure project approved by Ministry of Power. Member Secretary, RPC may restrict the deemed availability period to that considered reasonable by him for the work involved; Provided that apart from the deemed availability, any other costs involved in the process of such shutdown of transmission line shall not be borne by the DICs.
- Provided that such deemed availability shall be considered only for the period for which DICs are not affected by the shutdown of such transmission line.



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6. For the following contingencies, the outage period of transmission elements, as certified by the Member Secretary, RPC, shall be excluded from the total time of the element under the period of consideration for the following contingencies:

- i) Outage of elements due to force majeure events beyond the control of the transmission licensee. However, whether the same outage is due to force majeure (not design failure) will be verified by the Member Secretary, RPC. A reasonable restoration time for the element shall be considered by the Member Secretary, RPC, and any additional time taken by the transmission licensee for restoration of the element beyond the reasonable time shall be treated as outage time attributable to the transmission licensee. Member Secretary, RPC may consult the transmission licensee or any expert for estimation of reasonable restoration time. Circuits restored through ERS (Emergency Restoration System) shall be considered as available;
- ii) Outage caused by grid incident/disturbance not attributable to the transmission licensee, e.g. faults in a substation or bays owned by another agency causing an outage of the transmission licensee's elements, and tripping of lines, ICTs, HVDC, etc., due to grid disturbance. However, if the element is not restored on receipt of direction from RLDC while normalizing the system following grid incident/disturbance within reasonable time, the element will be considered not available for the period of outage after issuance of RLDC's direction for restoration;
- iii) The outage period which can be excluded for the purpose of sub-clause (i) and (ii) of this clause shall be declared as under:
 - a. Maximum up to one month by the Member Secretary, RPC;
 - b. Beyond one month and up to three months after the decision at RPC;
 - c. Beyond three months by the Commission for which the transmission license shall approach the Commission along with reasons and steps taken to mitigate the outage and restoration timeline.

7. Time frame for certification of transmission system availability: (1) The following schedule shall be followed for certification of availability by the Member Secretary of the concerned RPC:

- Submission of outage data along with documentary proof (if any) and TAFpN calculation by Transmission Licensees to RLDC/ constituents
– By the 5th of the following month;
- Review of the outage data by RLDC / constituents and forward the same to respective

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Transmission Service Agreement

- RPC – by 20th of the month;
- Issue of availability certificate by respective RPC – by the 3rd of the next month.

Appendix-V

FORMULAE FOR CALCULATION OF AVAILABILITY OF EACH CATEGORY OF TRANSMISSION ELEMENTS

For AC transmission system

$$AV_o(\text{Availability of } o \text{ no. of AC lines}) = \frac{\sum_{i=1}^o W_i(T_i - TN_{Ai})/T_i}{\sum_{i=1}^o W_i}$$

$$AV_q(\text{Availability of } q \text{ no. of ICTs}) = \frac{\sum_{k=1}^q W_k(T_k - TN_{Ak})/T_k}{\sum_{k=1}^q W_k}$$

$$AV_r(\text{Availability of } r \text{ no. of SVCs}) = \frac{\sum_{i=1}^{r-1} W_i(T_i - TN_{Ai})/T_i}{\sum_{i=1}^r W_i}$$

$$AV_p(\text{Availability of } p \text{ no. of Switched Bus reactors}) = \frac{\sum_{m=1}^p W_m(T_m - TN_{Am})/T_m}{\sum_{m=1}^p W_m}$$

$$AV_u(\text{Availability of } u \text{ no. of STATCOMs}) = \frac{\sum_{n=1}^u W_n(T_n - TN_{An})/T_n}{\sum_{n=1}^u W_n}$$

$$AV_{xp}(\text{Availability of an individual HVDC pole}) = \frac{(T_x - TN)}{T_x}$$

$$AV_{yrb}(\text{Availability of an individual HVDC$$

$$\text{Back-to-back Blocks}) = \frac{(T_y - TN_y)}{T_y}$$



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Transmission Service Agreement

For the HVDC transmission system

For the new HVDC commissioned but not completed twelve months;

For first 12 months: $[(AV_{xtp} \text{ or } AV_{yrb}) \times 95\%/85\%]$, subject to a ceiling of 95%.

Where,

o	=	Total number of AC lines;
AV_o	=	Availability of o number of AC lines;
p	=	Total number of bus reactors/switchable line reactors;
AV_p	=	Availability of p number of bus reactors/switchable line reactors;
q	=	Total number of ICTs;
AV_q	=	Availability of q number of ICTs;
r	=	Total number of SVCs;
AV_r	=	Availability of r number of SVCs;
U	=	Total number of STATCOM;
AV_u	=	Availability of u number of STATCOMs;
W_i	=	Weightage factor for i th transmission line;
W_k	=	Weightage factor for k th ICT;
W_l	=	Weightage factors for inductive & capacitive operation of l th SVC;
W_m	=	Weightage factor for m th bus reactor;
W_n	=	Weightage factor for n th STATCOM
$T_i, T_k, T_l,$, $T_m, T_n, T_x,$ T_y	=	The total hours of i th AC line, k th ICT, l th SVC, m th Switched Bus Reactor & n th STATCOM, x th HVDC pole, y th HVDC back-to-back blocks during the period under consideration (excluding time period for outages not attributed to transmission licensee for the reasons given in Para 5 of the procedure)
T_{NAi}, T_{NAk}	=	The non-availability hours (excluding the time period for outages not attributable to transmission licensee taken as deemed availability as $T_{NAi}, T_{NAk}, T_{NAx}, T_{NAY}$ per Para 5 of the procedure) for i th AC line, k th ICT, l th SVC, m th Switched Bus Reactor, n th STATCOM, x th HVDC pole and y th HVDC back-to-back block.



Transmission Service Agreement

Schedule: 7

Entire Bid (both financial bid and technical bid) of the Selected Bidder to be attached here

Bid dated 17.06.2026 and 02.07.2026 shall be an integral part of this Agreement.



Transmission Service Agreement

Schedule: 8

Contract Performance Guarantee

(To be on non-judicial stamp paper of appropriate value as per Stamp Act relevant to place of execution. Foreign entities submitting Bids are required to follow the applicable law in their country.)

In consideration of the KRISHNAGIRI REZ TRANSMISSION LIMITED, Urjanidhi, First Floor, Barakhamba Lane- 1, Connaught Place, New Delhi, Central Delhi- 110001, Delhi agreeing to undertake the obligations under the Transmission Service Agreement dated and the other RFP Project Documents and the Nodal Agency and the PFC Consulting Limited, agreeing to execute the *RFP Project Documents* with the Selected Bidder, regarding setting up the Project, the
[Insert name and address of the bank issuing the guarantee and address of the head office] (hereinafter referred to as "Guarantor Bank") hereby agrees unequivocally, irrevocably and unconditionally to pay to (being the Nodal Agency) at [Insert the Place from the address of the Nodal Agency indicated in the TSA] forthwith on demand in writing from the Nodal Agency or any Officer authorized by it in this behalf, any amount up to and not exceeding Rupees Crores (Rs.) only [Insert the amount of the bank guarantee] on behalf of KRISHNAGIRI REZ TRANSMISSION LIMITED.

This guarantee shall be valid and binding on the Guarantor Bank up to and including and shall not be terminable by notice or any change in the constitution of the Bank or the term of the Transmission Service Agreement or by any other reasons whatsoever and our liability hereunder shall not be impaired or discharged by any extension of time or variations or alternations made, given, or agreed with or without our knowledge or consent, by or between parties to the respective agreement.

Our liability under this Guarantee is restricted to Rs. Crores (Rs.) only. Our Guarantee shall remain in force until [Insert the date of validity of the Guarantee as per Article 3.1.2 of this Agreement]. The Nodal Agency, shall be entitled to invoke this Guarantee up to three hundred sixty five (365) days of the last date of the validity of this Guarantee.

The Guarantor Bank hereby expressly agrees that it shall not require any proof in addition to the written demand from (in its roles as the Nodal Agency), made in any format, raised at the above mentioned address of the Guarantor Bank, in order to make the said payment to Nodal Agency.

The Guarantor Bank shall make payment hereunder on first demand without restriction or conditions and notwithstanding any objection by [Insert name of the Selected Bidder]



Transmission Service Agreement

[Insert name of the TSP] and / or any other person. The Guarantor Bank shall not require Nodal Agency to justify the invocation of this BANK GUARANTEE, nor shall the Guarantor Bank have any recourse against Nodal Agency in respect of any payment made hereunder.

THIS BANK GUARANTEE shall be interpreted in accordance with the laws of India.

The Guarantor Bank represents that this BANK GUARANTEE has been established in such form and with such content that it is fully enforceable in accordance with its terms as against the Guarantor Bank in the manner provided herein.

THIS BANK GUARANTEE shall not be affected in any manner by reason of merger, amalgamation, restructuring, liquidation, winding up, dissolution or any other change in the constitution of the Guarantor Bank.

THIS BANK GUARANTEE shall be a primary obligation of the Guarantor Bank and accordingly Nodal Agency shall not be obliged before enforcing this BANK GUARANTEE to take any action in any court or arbitral proceedings against **KRISHNAGIRI REZ TRANSMISSION LIMITED** or the Selected Bidder, as the case may be, to make any claim against or any demand on **KRISHNAGIRI REZ TRANSMISSION LIMITED** or the Selected Bidder, as the case may be, or to give any notice to **KRISHNAGIRI REZ TRANSMISSION LIMITED** or the Selected Bidder, as the case may be, or to enforce any security held by the Nodal Agency or to exercise, levy or enforce any distress, diligence or other process against **KRISHNAGIRI REZ TRANSMISSION LIMITED** or the Selected Bidder, as the case may be.

The Guarantor Bank acknowledges that this BANK GUARANTEE is not personal to Nodal Agency and may be assigned, in whole or in part, (whether absolutely or by way of security) by Nodal Agency to any entity to whom the Nodal Agency is entitled to assign its rights and obligations under the Transmission Service Agreement.

The Guarantor Bank hereby agrees and acknowledges that Nodal Agency shall have a right to invoke this Bank Guarantee either in part or in full, as it may deem fit.

Notwithstanding anything contained hereinabove, our liability under this Guarantee is restricted to Rs. Crores (Rs.) only and it shall remain in force until[Date to be inserted on the basis of Article 3.1.2 of the Transmission Service Agreement], with an additional claim period of three hundred sixty five (365) days thereafter. This BANK GUARANTEE shall be extended from time to time for such period, as may be desired by **KRISHNAGIRI REZ TRANSMISSION LIMITED**. We are liable to pay the guaranteed amount or any part thereof under this Bank Guarantee only if Nodal Agency serves upon us a written claim or demand.

In witness where of:



Central Transmission Utility of India Limited

[Handwritten signature]

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Krishnagiri REZ Transmission Limited

Transmission Service Agreement

Signature

Name:

Power of attorney No.:

For:

..... [Insert Name of the Bank]

Banker's Seal and Full Address, including mailing address of the Head Office



Transmission Service Agreement

SCHEDULE 8A: FORMAT FOR SURETY INSURANCE CONTRACT

(To be on non-judicial stamp paper of appropriate value as per Stamp Act relevant to place of execution.

Foreign entities submitting Bids are required to follow the applicable law of India)

In consideration of the.....[Insert name of the SPV or Selected Bidder on behalf of SPV or Lead Member in case of the Consortium, with address] (hereinafter referred to as the 'Principal Debtor' for the purposes of this Surety Insurance Contract as provided in Section 126 of the Indian Contract Act, 1872) having been selected to undertake the Transmission Project on the terms and conditions contained in the Transmission Service Agreement dated/ to be executed as per the Model Transmission Service Agreement provided along with the Request for Proposal ('RFP') and other RFP Project Documents, subject to the condition of providing a Performance Bank Guarantee or a Surety Insurance Contract guaranteeing/insuring the due performance of the obligations under the Transmission Service Agreement, to the Central Transmission Utility of India Limited ('CTUIL') [herein after referred to as the Nodal Agency], the [Insert name and address of the Insurance Company issuing the Surety Insurance Contract and address of the head office] (hereinafter referred to as "Surety") hereby agrees unequivocally, irrevocably, absolutely and unconditionally, without demur, to pay to the Nodal Agency at [Insert Place and Address of the Nodal Agency indicated in Transmission Service Agreement, or to the designated Bank Account of the Nodal Agency, namely.....] forthwith on demand in writing from the Nodal Agency, or any Officer authorized by it in this behalf, intimated to the Surety at the address mentioned above, any amount as may be decided by the Nodal Agency not exceeding RupeesCrores (Rs.....) only [Insert the amount of the Surety Insurance Contract]

The Surety hereby acknowledges, accepts and confirms that the Surety has received from the Principal Debtor, by way of premium the entire consideration for the Surety to execute, in favour of the Nodal Agency, this Surety Insurance Contract, as extended by the Surety from time to time and assuming the obligation to pay to the Nodal Agency the amount in terms hereof, without any requirement for payment of any other consideration to the Surety by the Principal Debtor, or otherwise.

This Surety Insurance Contract shall be valid and binding on the Surety, as the principal obligation of the Surety to pay on demand by the Nodal Agency, and shall not be terminable by notice or any change in the constitution of the Surety or the term of the Transmission Service Agreement or by any other reasons whatsoever and the liability hereunder of the Surety shall not be impaired or discharged by any extension of time or variations or alternations made, given, or agreed (with or without the knowledge or consent of the Surety) by or between the Principal Debtor and the Nodal Agency.

The liability of the Surety under this Surety Insurance Contract is restricted to Rupees Crores (Rs) only. The Surety Insurance Contract shall remain in force until [Insert the date of validity of the Surety Insurance Contract]. The Nodal Agency shall be entitled to invoke this Surety Insurance Contract up to three hundred sixty five (365) days after the last date of the validity of this Surety Insurance Contract.



Transmission Service Agreement

The Surety hereby expressly agrees that it shall not require any proof except for the written demand from the Nodal Agency, containing the statement that the contractor has failed to meet its contractual obligations raised at the above mentioned address of the Surety (address of Surety office should be a place in NCR only) and the Surety shall pay the amount without reference to the Principal Debtor.

Any such demand made by the Nodal Agency on the Surety shall be conclusive and binding notwithstanding any difference between the Nodal Agency and the Principal Debtor or any dispute pending before any Court, Tribunal, Arbitrator or any other authority. The Surety undertakes not to revoke this guarantee during its currency without previous consent of the Nodal Agency and further agrees that the Surety Insurance Contract herein contained shall continue to be enforceable till the Nodal Agency discharges this contract or till the expiry of tenor(including Claim period) whichever is earlier.

The Surety shall make payment hereunder within two (02) working days on first demand without restriction or conditions and notwithstanding any objection by the Principal Debtor, namely, [Insert name of SPV], or [Insert name of the Selected Bidder], or [Insert name of the TSP] and/or any other person. The Surety shall not require the Nodal Agency to justify the invocation of this Surety Insurance Contract, nor shall the Surety have any recourse against the Nodal Agency in respect of any payment made hereunder.

This SURETY INSURANCE CONTRACT shall be interpreted in accordance with the laws of India.

This SURETY INSURANCE CONTRACT is being executed by the Surety in terms of the IRDAI (Surety Insurance Contract) Guidelines, 2022 and the Surety hereby acknowledges, accepts and confirms that this Surety Insurance Contract shall be a Contract of Guarantee as provided under Section 126 of the Indian Contract Act, 1872 and further shall be covered by Section 14(3) (b) of the Insolvency and Bankruptcy Code, 2016 (as amended) shall be enforceable as such.

The Surety represents that this Surety Insurance Contract has been established in such form and with such content that it is fully enforceable in accordance with its terms as against the Surety in the manner provided herein.

This SURETY INSURANCE CONTRACT shall not be affected in any manner by reason of merger, amalgamation, restructuring, liquidation, winding up, dissolution or any other change in the constitution of the Surety.

In order to give effect to this surety Bond, the Nodal Agency shall be entitled to act as if the surety insurer were the principal debtor and any change in the constitution of the contractor and/or the surety insurer, whether by their absorption with any other body or corporation or otherwise, shall not in any way or manner affect the liability or obligation of the surety insurer under this surety Bond.

This SURETY INSURANCE CONTRACT shall be a primary obligation of the Surety as a Principal to pay on demand by the Nodal Agency and the Nodal Agency shall not be obliged before enforcing this Surety Insurance Contract to take any action in any court or arbitral proceedings against the Principal Debtor, namely, [Insert name of SPV], or



Transmission Service Agreement

..... [Insert
t name of the Selected Bidder], or
..... [Insert
t name of the TSP] and/or any other person, as the case may be, to make any claim
against or any demand on the Principal Debtor, namely,
..... [Insert
t name of SPV], or [Insert name of the Selected Bidder], or
..... [Insert
t name of the TSP] and/or any other person, as the case may be, or to give any notice to
Principal Debtor, namely..... [Insert name of SPV], or [Insert name of the
Selected Bidder], or
..... [Insert
t name of the TSP] and/or any other person, as the case may be, or to enforce any security
held by the Nodal Agency or to exercise, levy or enforce any distress, diligence or other
process against the Principal Debtor, namely, [Insert name of SPV], or
[Insert name of the Selected Bidder], or [Insert name of the TSP] and/or any
other person, as the case may be.

The Surety acknowledges that this Surety Insurance Contract is not personal to the Nodal Agency and may be assigned, in whole or in part, (whether absolutely or by way of security) by Nodal Agency to any entity to whom the Nodal Agency is entitled to assign its rights and obligations under the Transmission Service Agreement Provided that any such assignment shall be in compliance with the relevant provisions of the Insurance Act 1938

The Surety hereby agrees and acknowledges that the Nodal Agency shall have a right to invoke this Surety Insurance Contract either in part or in full, as it may deem fit. In case of invocation of this Surety Insurance Contract in part, besides making payment for the part of Surety Insurance Contract invoked, surety at the request of nodal agency shall amend the value of Surety Insurance Contract to the extent of balance amount.

The Surety undertakes not to revoke this Surety Contract during its currency, except with the previous express consent of the Nodal Agency in writing and declares and warrants that it has the power to issue this Surety Contract and the undersigned has full powers to do so on behalf of the Surety

In witness where of:

Signature.....

Name:

Power of attorney No/ Employee No. as applicable. :.....

For:

..... [Insert Name of the Surety- Insurance Company]

Banker's Seal and Full Address, including mailing address of the Head Office

Notes:

1. The Stamp Paper should be in the name of the Executing Insurance Company.



Transmission Service Agreement

SCHEDULE 8B: FORMAT FOR ISSUANCE OF PAYMENT ON ORDER INSTRUMENT

Dear Sir,

1. Indian Renewable Energy Development Agency Limited ("IREDA")/PFC/REC has sanctioned a non-fund based limit loan of Rs. (Rupees.....) Only) to M/s. [Insert name of SPV or selected Bidder] under the Loan Agreement executed on to execute Transmission System Projects.
2. In consideration of the [Insert name of the SPV or Selected Bidder on behalf of SPV or Lead Member in case of the Consortium, with address] for the purposes of this Payment on Order Instrument ("POI") having been selected to undertake the Transmission Project on the terms and conditions contained in the Transmission Service Agreement dated/ to be executed as per the draft of the Model Transmission Service Agreement provided along with the Request for Proposal („RFP") and other RFP Project Documents, subject to the condition of providing a POI guaranteeing the due performance of the obligations under the Transmission Service Agreement to the Nodal Agency/Central Transmission Utility of India Limited („CTUIL"), the.....[Insert name and address of the non-banking financial institutions(IREDA/PFC/REC) issuing the POI and address of the head office] (hereinafter referred to as "Guarantor") hereby agrees unequivocally, irrevocably, absolutely and unconditionally, without demur, to pay to the Nodal Agency at [Insert Place and Address of the Nodal Agency indicated in Transmission Service Agreement, or to the designated Bank Account of the Nodal Agency, namely.....] forthwith on demand in writing from the Nodal Agency, or any Officer authorized by it in this behalf, intimated to the Guarantor at the address mentioned above, any amount as may be decided by the Nodal Agency not exceeding Rupees Crores (Rs) only [Insert the amount of Payment on Order Instrument]
3. At the request ofand on behalf of M/s., [Insert name of SPV or selected Bidder] this Payment on Order Instrument (POI) for an amount of Rs (Rupees) is being issued with IREDA/PFC/REC assuming the obligations to remit such amount to CTUIL from the sanctioned loan.
4. This Payment on Order Instrument comes into force immediately and IREDA/PFC/REC confirms that it has sufficient amount out of the sanctioned loan and shall maintain the required amount to pay under this Payment on Order Instrument, during the validity and claim period of this Payment on Order Instrument.
5. This POI has been issued by IREDA/PFC/REC utilizing the credit limit of M/s.....[Insert name of SPV or selected Bidder] IREDA/PFC/REC confirms that its liability to pay under this Payment on Order Instrument shall be primary and independent of whether at the time of



Transmission Service Agreement

invocation of Payment on Order Instrument, the sanctioned funds are available or not and notwithstanding, the status of M/s. [Insert name of SPV or selected Bidder] at the relevant time and to whether IREDA/PFC/REC is able to recover the amount advanced by it to the said developer.

6. IREDA/PFC/REC and M/s. [Insert name of SPV or selected Bidder] hereby acknowledges, accepts and confirms that this Payment on Order Instrument shall be a Contract of Guarantee as provided under Section 126 of the Indian Contract Act, 1872 and further shall be covered by Section 14(3) (b) of the Insolvency and Bankruptcy Code, 2016 (as amended) shall be enforceable as such.
7. IREDA/PFC/REC liability under this POI is restricted to Rupees Crores (Rs.....) only. This POI shall remain in force until..... [Insert the date of validity of the POI]. The Nodal Agency shall be entitled to invoke this POI up to three hundred sixty-five (365) days after the last date of the validity of this POI. This POI shall be extended from time to time for such period, as may be desired by the TSP.
8. The Guarantor hereby expressly agrees that it shall not require any proof except for the written demand from the Nodal Agency, raised at the above-mentioned address of the Guarantor (address of Guarantor office should be in NCR only) and the Guarantor shall pay the amount to the Nodal Agency without reference to the TSP.
9. Any such demand made by the Nodal Agency on the Guarantor shall be conclusive and binding notwithstanding any difference between the Nodal Agency and the TSP or any dispute pending before any Court, Tribunal, Arbitrator or any other authority. The Guarantor undertakes not to revoke this guarantee during its currency without previous consent of the Nodal Agency and further agrees that the POI herein contained shall continue to be enforceable till the Nodal Agency discharges this contract or till the expiry of tenure or (including Claim period) whichever is earlier.
10. The Guarantor shall make payment hereunder within two (02) working days on first demand without restriction or conditions and notwithstanding any objection or disputes raised by the TSP, namely, [Insert name of SPV], or [Insert name of the Selected Bidder], or [Insert name of the TSP] and/or any other person. The Guarantor shall not require the Nodal Agency to justify the invocation of this POI, nor shall the Guarantor have any recourse against the Nodal Agency in respect of any payment made hereunder.
11. This POI shall be interpreted in accordance with the laws of India.
12. The Guarantor represents that this POI Contract has been established in such form and with such content that it is fully enforceable in accordance with its terms as against the Guarantor in the manner provided herein.



Transmission Service Agreement

13. This POI shall not be affected in any manner by reason of merger, amalgamation, restructuring, liquidation, winding up, dissolution or any other change in the constitution of the Guarantor.
14. This POI Contract shall be a primary obligation of the Guarantor as a Principal to pay on demand by the Nodal Agency and the Nodal Agency shall not be obliged before enforcing this POI Contract to take any action in any court or arbitral proceedings against the TSP, namely, [Insert name of SPV], or [Insert name of the Selected Bidder], or [Insert name of the TSP] and/or any other person, as the case may be to make any claim against or any demand on the TSP, namely, [Insert name of SPV], or [Insert name of the Selected Bidder], or [Insert name of the TSP] and/or any other person, as the case may be, or to give any notice to TSP, namely, [Insert name of SPV], or [Insert name of the Selected Bidder], or [Insert name of the TSP] and/or any other person, as the case may be, or to enforce any security held by the Nodal Agency or to exercise, levy or enforce any distress, diligence or other process against the TSP, namely, [Insert name of SPV], or [Insert name of the Selected Bidder], or [Insert name of the TSP] and/or any other person, as the case may be.
15. The Guarantor acknowledges that this POI Contract is not personal to the Nodal Agency and may be assigned, in whole or in part, (whether absolutely or by way of security) by Nodal Agency to any entity to whom the Nodal Agency is entitled to assign its rights and obligations under the Transmission Service Agreement.
16. The Guarantor hereby agrees and acknowledges that the Nodal Agency shall have a right to invoke this POI Contract either in part or in full, as it may deem fit. In case of invocation of this POI Contract in part, besides making payment for the part of POI Contract invoked, Guarantor at the request of Nodal Agency shall amend the value of POI Contract to the extent of balance amount.

IN WITNESS WHERE OF the non- banking financial institutions through its authorized officer, has set its hand and stamp on this..... day of.....at.....

Signature..... Name:

..... Power of

attorney No.: For:

.....[Insert Name of the non- banking financial institutions Company]

Seal and Full Address, including mailing address of the Head Office



Central Transmission Utility of India Limited

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Krishnagiri REZ Transmission Limited

Transmission Service Agreement

Schedule: 9

Methodology for determining the Relief Under Force Majeure Event & Change in Law during Construction Period

The relief in the form of revision in tariff due to Force Majeure Event leading to extension of Scheduled COD for a period beyond one hundred eighty (180) days and/ or Change in Law during the construction period shall be as under:

$$\Delta T = [(P \times d)] \div [1 - (1 + d)^{-n}]$$

Where,

ΔT = Change in Transmission Charges for each year

P = Sum of cumulative increase or decrease in the cost of the Project due to Change in Law and interest cost during construction corresponding to the period exceeding one hundred eighty (180) due to Force Majeure Event leading to extension of Scheduled COD for a period beyond one hundred eighty (180) days

n = number of years over which the Transmission Charges has to be paid

d = Discount rate as notified by the CERC, applicable on the Bid Deadline

The increase in Transmission Charges as stated above shall be applicable only if the value of increase in Transmission Charges as calculated above exceeds 0.30% (zero point three percent) of the quoted Transmission Charges of the TSP.







सत्यमेव जयते

INDIA NON JUDICIAL

Government of National Capital Territory of Delhi

₹100

e-Stamp

Certificate No.

IN-DL62592446958309Y

Certificate Issued Date

27-Jul-2026 03:34 PM

Account Reference

IMPACC (IV) 01074803/ DELHI/ DL-SWD

Unique Doc. Reference

SUBIN-DL DL107480330980970566434Y

Purchased by

KRISHNAGIRI REZ TRANSMISSION LIMITED

Description of Document

Article, Others

Property Description

Not Applicable

Consideration Price (Rs.)

0

(Zero)

First Party

KRISHNAGIRI REZ TRANSMISSION LIMITED

Second Party

Not Applicable

Stamp Duty Paid By

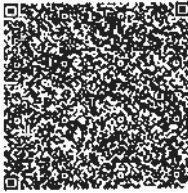
KRISHNAGIRI REZ TRANSMISSION LIMITED

Stamp Duty Amount(Rs.)

100

(One Hundred only)

सत्यमेव जयते



₹100

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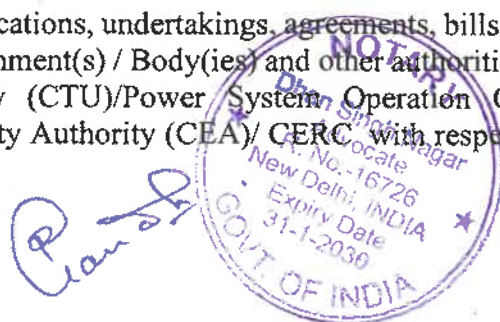
General Power of Attorney

Know all men by these presents, we **Krishnagiri REZ Transmission Limited** (hereinafter referred to as KREZTL which expression shall unless repugnant to the context or meaning thereof, include its successors, administrators, and assigns) having its Registered Office at B-9, Qutab Institutional Area, Katwaria Sarai, New Delhi – 110 016 do hereby constitute, appoint and authorize Shri K. Sudhakar Rao, Project Incharge of KREZTL residing at Q. No. D-8, 4th Floor, POWERGRID Township, No. 6-6-8/32 & 395E, Kavadiguda Main Road, Secunderabad - 500080 as our true and lawful attorney, to do in our name and our behalf, all of the acts or things hereinafter mentioned, that is to say:-

Statutory Alert:

1. The authenticity of this Stamp certificate should be verified at 'www.shoilestamp.com' or using e-Stamp Mobile App of Stock Holding. Any discrepancy in the details on this Certificate and as available on the website / Mobile App renders it invalid.
2. The onus of checking the legitimacy is on the users of the certificate.
3. In case of any discrepancy please inform the Competent Authority.

1. To constitute, and defend legal cases, sign and verify plaints, written statements, petitions and objections, memorandum of appeal, claims, affidavits, applications, re-applications and pleadings of all kinds and to file them in Central Electricity Regulatory Commission (CERC), State Electricity Regulatory Commissions (SERCs), Appellate Tribunal for Electricity (ATE), Civil, Criminal or Revenue courts, Arbitration, Labour Court, Industrial Tribunal, High Court and Supreme Court, whether having original or appellate jurisdiction and before Government or Local Authorities or Registration Authorities, Tax Authorities, Tribunals, etc.
2. To appear, before various Courts / Tribunals / CERC / SERCs / Appellate Tribunal for Electricity.
3. To appoint any Advocate, Vakil, Pleader, Solicitor or any other legal practitioner as Attorney to appear and conduct case proceedings on behalf of the company and to sign Vakalatnama.
4. To compromise, compound or withdraw cases from any Court / Tribunal / CERC / SERCs / Appellate Tribunal for Electricity.
5. To file petitions/applications or affidavits before the Supreme Court / High Court / CERC / SERCs / Appellate Tribunal for Electricity and to obtain the copies of documents, papers, records etc.
6. To file and receive back documents, to deposit and withdraw money from Courts, Tribunal, Registrar's Office and other Government or Local Authorities and to issue valid receipts thereof.
7. To apply for and obtain refund of stamp duty or court fee, etc.
8. To issue notices and accept service of any summons, notices or orders issued by any Court / Tribunal / CERC / SERCs / Appellate Tribunal for Electricity on behalf of the Company.
9. To execute deeds, agreements, bonds and other documents and returns in connection with the affairs of the company and file them or cause to be filed for Registration, whenever necessary.
10. To issue Project Authority Certificate(s) in respect of contracts for Load Despatch & Communication Systems, Transmission Systems etc. and to lodge claims with the Railways, Transporters, Shipping Agents and Clearing Agents and to settle/compromise such claims.
11. To lodge claims with the Insurance companies, to settle/compromise such claims and on satisfactory settlement thereof, to issue letters of subrogation/power of attorney in favour of Insurance companies.
12. To execute, sign and file applications, undertakings, agreements etc. to or with the Central / State Government(s) / Body(ies) to obtain 'right of way' or any of other Right(s) / Privilege(s) etc.
13. To execute, sign and file applications, undertakings, agreements, bills, documents etc. to or with the Central / State Government(s) / Body(ies) and other authorities / entities including Central Transmission Utility (CTU)/Power System Operation Corporation Limited (POSOCO) / Central Electricity Authority (CEA)/ CERC with respect to Commissioning



of the Project, realization of Transmission charges, to obtain 'right of way' or any of other Right(s) / Privilege(s) etc.

14. To execute Transmission Service Agreement (TSA) with Central Transmission Utility of India Limited (CTUIL)
15. To execute Consultancy, Funding and other Agreements.
16. To act as administrator for e-filing process with CERC and other Statutory authorities.
17. Generally to do all lawful acts, necessary for the above mentioned purposes.

The Company hereby agrees to ratify and confirm all and whatsoever the said Attorney shall lawfully do execute or perform or cause to be done, executed or performed in exercise of the power or authority conferred under and by virtue of this Power of Attorney.

.....
Signed by the within named

Krishnagiri REZ Transmission Limited

through the hand of

Duly authorized by the Board to issue such Power of Attorney

Dated this 03rd day of August, 2026

Accepted

.....
Signature of Attorney

Name: Shri K. Sudhakar Rao

Designation: Project Incharge, Krishnagiri REZ Transmission Limited

Address: Q. No. D-8, 4th Floor, POWERGRID Township, No. 6-6-8/32 & 395E,
Kavadiguda Main Road, Secunderabad - 500080

.....
Attested

.....
(Signature of the Executant)

Name: RAJIV GANDHI

Designation: DIRECTOR

Address: B-9, Qutab Institutional Area, Katwaria Sarai, New Delhi - 110 016

.....
Signature and Stamp of Notary of the place of execution

WITNESS

KOLTHURU
SUDHAKA
R RAO

Digitally signed
by KOLTHURU
SUDHAKAR RAO
Date: 2026.08.09
20:09:52 +05'30'

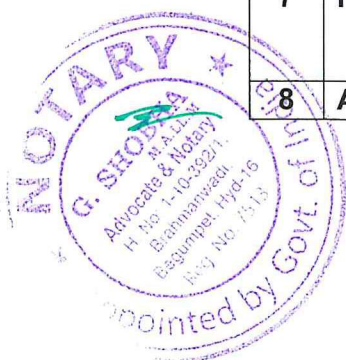
ATTESTED
NOTARY PUBLIC
DELHI

03 AUG 2026



Form-I (as per Payment of Fee Regulation, 2012)

	Particulars	
1	Name of the Petitioner/ Applicant	KRISHNAGIRI REZ TRANSMISSION LTD. (A 100% wholly owned subsidiary of Power Grid Corporation of India Limited)
2	Address of the Petitioner/Applicant	Regd. Address: B-9, Qutab Institutional Area, Katwaria Sarai, New Delhi 110 016 Address for correspondence: ED (Commercial & RC), Power Grid Corporation of India Limited, Floor No. 02, Tower-01, IRCON International Tower, Plot No. 16, Institutional Area, Sector-32, Gurgaon-122003
3	Subject Matter	Petition under Section 14, 15, 79(1)(e) of the Electricity Act, 2003 read with Central Electricity Regulatory Commission (Procedure, Terms and Conditions for Grant of Transmission License and other related matters) Regulations, 2024 with respect to Transmission License to Krishnagiri REZ Transmission Ltd. (a 100% wholly owned subsidiary of Power Grid Corporation of India Limited)
4	Petition No., if any	Not yet received Ref. No.
5	Details of generation assets (a) Generating station/units (b) Capacity in MW (c) Date of Commercial operation (d) Period for which fee paid (e) Amount of fee paid (f) Surcharge, if any transmission line/sub-station/	Not Applicable
6	Details of Transmission Assets (a) Transmission line and sub-stations (b) Date of commercial operation (c) Period for which fee paid (d) Amount of fee paid (e) Surcharge, if any	Assets under implementation by Krishnagiri REZ Transmission Ltd.
7	Fee paid for Adoption of tariff for (a) Generation asset (b) Transmission asset	No No
8	Application Fee for License	



	(a) Trading License (b) Transmission License (c) Period for which paid (d) Amount of fee paid	No Yes -- Rs 1,00,000/-
9	Fees paid for Miscellaneous Application	Not Applicable
10	Fees paid for Interlocutory Application	Not Applicable
11	Fee paid for Regulatory Compliance	Not Applicable
12	Fee paid for Review Application	Not Applicable
13	Licence fee for Inter-State Trading (a) Category (b) Period (c) Amount of fee paid (d) Surcharge, if any	Not Applicable
14	Licence fee for Inter-State Transmission (a) Expected/ Actual transmission Charge (b) Period (c) Amount of fee calculated as a percentage of transmission charge (d) Surcharge, if any	
15	Annual Registration Charge for Power Exchange (a) Period (b) Amount of turnover (c) Fee paid (d) Surcharge, if any	Not Applicable
16	Details of fee remitted (a) UTR No (b) Date of remittance (c) Amount remitted	 07-08-2026 Rs1,00,000/-
Note: While S. No 1 to 3 are compulsory, the rest may be filled up as applicable		
Signature of the authorized Signatory with date		

KOLTHURU
SUDHAKA
R RAO

Digitally signed
by KOLTHURU
SUDHAKAR RAO
Date: 2026.08.09
20:10:36 +05'30'

