BEFORE

THE CENTRAL ELECTRICITY REGULATORY COMMISSION,

NEW DELHI

PETITION NO. _____ OF 2025

IN THE MATTER OF

Application 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 Grant of Transmission License to Rajasthan Part I Power Transmission Limited

AND IN THE MATTER OF

Rajasthan Part I Power Transmission Limited

....Petitioner

Versus

Central Transmission Utility of India Limited and Ors.

....Respondents

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Rajasthan Part I Power Transmission Limited

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Rajasthan Part I Power Transmission Limited

Petitioner

Place: Ahmedabad

Date: 20.01.2025

BEFORE

THE CENTRAL ELECTRICITY REGULATORY COMMISSION,

NEW DELHI

PETITION NO. _____ OF 2025

IN THE MATTER OF

Application 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 Grant of Transmission License to Rajasthan Part I Power Transmission Limited

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Versus

Central Transmission Utility of India Limited and Ors.

....Respondents

MEMO OF PARTIES

Rajasthan Part I Power Transmission Limited

Having its office at;

C-105, Anand Niketan, New Delhi 110021 .....Petitioner

Rajasthan Part I Power Transmission Limited

Versus

1. Central Transmission Utility of India Limited

   Saudamini, Plot No.2, Sector-29,

   Gurgaon-122 001

2. REC Power Development and Consultancy Limited

   Core-4, Scope Complex,

   7, Lodhi Road, Central Delhi -110003

3. Power Grid Corporation of India Limited

   Saudamini, Plot No.2, Sector 29,

   Gurgaon, Haryana – 122001

4. Chandigarh Electricity Department

   UT-Chandigarh, Div-11, Opposite, Transport Nagar,

   Industrial Area Phase-I, Chandigarh.

5. BSES Rajdhani Power Limited

   2nd Floor, B-Block, BSES Bhavan,

   Nehru Place, New Delhi-110019

6. BSES Yamuna Power Ltd.

   Shakti Kiran Building,

   Karkardooma, Delhi – 110032

7. New Delhi Municipal Council,

   AAO (Commercial), 19th Floor, NDMC,

Rajasthan Part I Power Transmission Limited

Palika Kendra,

Sansad Marg, New Delhi-110001

8. Delhi Transco Limited

I.P. Estate, ITO,

New Delhi, Delhi – 110002

9. Haryana Power Purchase Centre

UHBVN, IP 3 & 4, 4th floor, Sector 14,

Panchkula, Haryana – 134113

10. Jammu And Kashmir State Power

Development Corporation Limited

Exhibition Ground, Opposite J&K High Court,

Srinagar, Jammu and Kashmir -190009

11. Himachal Pradesh State Electricity Board Limited

Vidyut Bhawan, Shimla,

Himachal Pradesh – 171004

12. Punjab State Power Corporation limited

Shed T-1A, shakti vihar, PSPCL,

Patiala, Punjab – 147001

13. Rajasthan Urja Vikas Nigam Limited

Vidyut Bhawan, Janpath Jyoti Nagar,

Jaipur, Rajasthan – 302005

14. Tata Power Delhi Distribution Limited

    NDPL House, Hudson Lines,

    Kingsway Camp, Delhi-110 009

15. Uttarakhand Power Corporation Limited

    V.C.V. Gabar Singh Urja Bhawan,

    Kanwali Road, Dehradun,

    Uttarakhand – 248001

16. Uttar Pradesh Power Corporation Limited

    10th Floor Shakti Bhawan Extn., 14 Ashok Marg,

    Lucknow, Uttar Pradesh – 226001

.....Respondents

Rajasthan Part I Power Transmission Limited

Petitioner

Place: Ahmedabad
Date: 20.01.2025

S. No. 505 1/2025

VIJAY C. SHAH
NOTARY
GOVT. OF INDIA

20 JAN 2025

BEFORE

THE CENTRAL ELECTRICITY REGULATORY COMMISSION,

NEW DELHI

PETITION NO. _____ OF 2025

IN THE MATTER OF

Application 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 Grant of Transmission License to Rajasthan Part I Power Transmission Limited

AND IN THE MATTER OF

Rajasthan Part I Power Transmission Limited ....Petitioner

NOTARY VIJAY C. SHAH AHMEDABAD GUJARAT STATE REGD. 2260/02 EXPIRY DATE 7/10/2027 GOVT. OF INDIA

Versus

Central Transmission Utility of India Limited & Ors

....Respondents

AFFIDAVIT

I, **Prashant Kumar**, son of Sh. Jagdish Prasad, aged about 47 years, R/o B-101, Sanskar Apartments, Satellite, Ahmedabad do hereby solemnly affirm and state on oath as under:

Rajasthan Part I Power Transmission Limited

1. That I am the Authorised Representative, of the Petitioner, Rajasthan Part I Power Transmission Limited, and I am fully conversant with the facts and circumstances of the case and I have been duly authorized and am, therefore, competent to affirm this affidavit.

2. That I have read the accompanying submissions being submitted on behalf of Rajasthan Part I Power Transmission Limited and have understood the contents thereof and that the contents therein are true and correct to the best of my knowledge and belief

Rajasthan Part I Power Transmission Limited

Prashant Kumar

DEPONENT

VERIFICATION

I, **Prashant Kumar**, the above named deponent do hereby verify that the contents of this affidavit are true and correct to the best of my knowledge and belief, no part of it is false and nothing material has been concealed therefrom.

Verified by me on this 20th January, 2025 at Ahmedabad

Rajasthan Part I Power Transmission Limited

Prashant Kumar

DEPONENT

SOLEMNLY AFFIRMED
BEFORE ME

VIJAY C. SHAH
NOTARY
GOVT. OF INDIA

BEFORE

THE CENTRAL ELECTRICITY REGULATORY COMMISSION,

NEW DELHI

PETITION NO. _____ OF 2025

IN THE MATTER OF

Application 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 Grant of Transmission License to Rajasthan Part I Power Transmission Limited

AND IN THE MATTER OF

Rajasthan Part I Power Transmission Limited

....Petitioner

Versus

Central Transmission Utility of India Limited & Ors

....Respondents

PETITION / APPLICATION UNDER SECTION 14, 15, 79 (1) (e) OF THE ELECTRICITY ACT, 2003 FOR GRANT OF TRANSMISSION LICENSE

Rajasthan Part I Power Transmission Limited

MOST RESPECTFULLY SHOWETH:

1. It is most respectfully submitted that Rajasthan Part I Power Transmission Limited (herein after referred to as "Petitioner") is filing the present Application under Section-14 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 (hereinafter referred to as "Transmission Licence Regulations") for grant of Transmission Licence to establish transmission project for "**Transmission System For Evacuation Of Power From REZ In Rajasthan (20 GW) Under Phase-III Part I**" on build, own, operate and transfer basis (hereinafter referred to as "***the project***") consisting of following elements:

Sl. No.	Scope of the Transmission Scheme	Scheduled COD in months from Effective Date
1	Establishment of 6000 MW, ±800 kV Bhadla (HVDC) [LCC] terminal station (4x1500 MW) at a suitable location near Bhadla-3 substation • 400/33 kV, 2x50 MVA transformers for exclusively supplying auxiliary power to HVDC terminal. • 400 kV bus sectionaliser-2 nos. (1 Set) at Bhadla (HVDC) station Future provisions: Space for • 400 kV line bays along with switchable line reactor: 4 Nos. • 400 kV Bus Reactor along with bay: 1 no • 400 kV Sectionalisation bay: 1 set	48 months for Bipole-1 (20/01/2029) and 54 months for Bipole-2 (20/07/2029)

Rajasthan Part I Power Transmission Limited

Sl. No.	Scope of the Transmission Scheme	Scheduled COD in months from Effective Date
2	Establishment of 6000 MW, ±800 kV Fatehpur (HVDC) [LCC] terminal station (4x1500 MW) at suitable location near Fatehpur (UP)	
3	Bhadla-3 – Bhadla (HVDC) 400 kV 2xD/c quad moose line along with the line bays at both substations • 400 kV line bays -8 nos.	48 months (20/01/2029)
4	±800 kV HVDC line (Hexa lapwing) between Bhadla (HVDC) & Fatehpur (HVDC) (with Dedicated Metallic Return)	
5	Establishment of 5x1500 MVA, 765/400 kV ICTs at Fatehpur (HVDC) along with 2x330 MVAr (765 kV) bus reactor • 765/400 kV 1500 MVA ICTs: 5 nos. (16x500 MVA, including one spare unit) • 765 kV ICT bays – 5 nos. • 400 kV ICT bays – 5 nos. • 400 kV Bus sectionaliser-2 nos. [1 Set] • 765 kV line bays – 4 nos. • 330MVAr, 765 kV Bus Reactor -2 nos. (7x110 MVAr, including one spare unit) • 765 kV reactor bays- 2 nos. Future provisions: Space for • 765/400 kV ICT along with bay: 1 no. • 765 kV line bay along with switchable line reactor: 4nos. • 765 kV Bus Reactor along with bays: 2 nos. • 400/220 kV ICTs along with bays: 4nos. • 400 kV line bays along with switchable line reactor: 4 nos. • 400 kV Bus Reactor along with bay: 1 no. • 220 kV line bays: 6 nos.	
6	LILO of both ckts of 765 kV Varanasi – Kanpur (GIS) D/c line at Fatehpur	

Note:

(i) Developer of Bhadla-III PS to provide space for 4 nos. of 400 kV bays at their substation

(ii) HVDC terminals will be implemented with 100% power reversal capability

Rajasthan Part I Power Transmission Limited

2. It is most respectfully submitted that Ministry of Power, Government of India, vide Gazette Notification dated 13.01.2023 has notified REC Power Development and Consultancy Limited to be the Bid Process Coordinator (Hereinafter referred as "BPC") for the purpose of selection of Bidder as Transmission Service Provider (Hereinafter referred as "TSP") to establish Transmission System for **"Transmission System For Evacuation Of Power From REZ In Rajasthan (20 GW) Under Phase-III Part I"** through tariff based competitive bidding process.

   A copy of the Government of India, Ministry of Power's Gazette Notification is enclosed herewith and marked as ***ANNEXURE A1.***

3. Further a Company under the Companies Act 2013 by the name "Rajasthan Part I Power Transmission Limited" having its office at C-105, Anand Niketan, New Delhi 110021 has been incorporated on 30.04.2023 by REC Power Development and Consultancy Limited (Bid Process Coordinator) as its 100% wholly owned subsidiary to initiate the activities for execution of the Project and subsequently to act as Transmission Service Provider after being acquired by the successful bidder selected through Tariff Based Competitive Bidding process. A copy of the Certificate of Registration of the Petitioner Company is enclosed herewith and marked as ***ANNEXURE A2*** and a copy of the Memorandum of Association and Articles of

Association of the Petitioner Company is enclosed herewith and marked as ***ANNEXURE A3***.

4. It is further submitted that BPC had initiated the selection of successful bidder to acquire the TSP 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. BPC has published Global Invitation for Qualification in Financial Times (22.08.2024), The Time of India (17.08.2024), Navbharat Times (17.08.2024 & 18.08.2024) and Maharashtra Times (17.08.2024). Copy of the Global Invitation for Qualification as published in the newspapers is enclosed herewith and marked as ***ANNEXURE A4***.

5. It is most respectfully submitted that pursuant to the process of competitive bidding conducted by the BPC, M/s. Adani Energy Solutions Limited has been declared as the successful bidder. Copy of the Certificate by Bid Evaluation Committee is enclosed herewith and marked as ***ANNEXURE A5***.

6. Further, on 03.12.2024 the BPC issued a Letter of Intent (hereinafter referred to as "***LoI***") to M/s Adani Energy Solutions Limited. A copy of the

Rajasthan Part I Power Transmission Limited

Letter of Intent (LoI) along with the details of Annual Transmission Charges is enclosed herewith and marked as ***ANNEXURE A6***.

7. It is humbly submitted that as per the Clause 2.15.4 of Request for Proposal (RFP), the TSP/Petitioner is required to apply for Grant of Transmission Licence within 5 working days from the date of acquisition of SPV.

8. It is humbly submitted that in accordance with the LoI, Adani Energy Solutions Limited on 18.01.2025 has furnished the Contract Performance Guarantees (CPG) for an aggregate value of **Rs. 6,685,000,000/- (Rupees Six Hundred and Sixty Eight Crore Fifty Lakh)** separately in favour of Central Transmission Utility of India Limited. Copy of the CPG dated 18.01.2025 is enclosed herewith and marked as ***ANNEXURE A7***.

9. M/s Adani Energy Solutions Limited has acquired Rajasthan Part I Power Transmission Limited on 20.01.2025 after execution of the Share Purchase Agreement and completing all procedural requirements as specified in the bid documents. A copy of the Share Purchase Agreement is enclosed herewith and marked as ***ANNEXURE A8***.

10. Further the Transmission Service Agreement (TSA) dated 20.01.2025 entered between the Central Transmission Utility of India Limited (Nodal Agency) and "Rajasthan Part I Power Transmission Limited" was provided

Rajasthan Part I Power Transmission Limited

by the BPC and the same is enclosed herewith and marked as ***ANNEXURE A9***.

11. It is humbly submitted that Section-14 of the Electricity Act, 2003 provides that the Appropriate Commission may, on an application made under Section-15 of the Electricity Act, 2003, grant Licence to any person to transmit electricity as a transmission licensee in any area as may be specified in the Licence. The word 'person' has been defined in Section 2(49) of the Act to include any company or body corporate or association or body of individuals, whether incorporated or not, or artificial juridical person. Therefore, the Petitioner in accordance with the TSA and under Section 14 of the Electricity Act, 2003 is filing the present Petition/Application inter-alia seeking grant of Transmission Licence for the Project explained above.

12. Further, it is most respectfully submitted that Section 15(1) of the Act provides that every application under Section 14 shall be made in such manner and in such form as may be specified by the Appropriate Commission and shall be accompanied with such fees as may be prescribed. Central Electricity Regulatory Commission (Procedure, Terms and Conditions for Grant of Transmission License and other related matters) Regulations, 2024 and as per Regulation-4 of the aforementioned

Regulations, a person selected through the process under the guidelines for competitive bidding is eligible for grant of licence for which the Petitioner is constrained to approach this Commission.

13. That the Petitioner, Rajasthan Part I Power Transmission Limited, incorporated under the Companies Act, 2013 is a 100% wholly owned subsidiary of Adani Energy Solutions Limited who has been selected through Tariff Based Competitive Bidding as per the Tariff Based Bidding Guidelines for Transmission Service issued by the Government of India, Ministry of Power and thus eligible for issuance of transmission licence.

14. It is submitted that the grant of transmission license is a condition of Transmission Service Agreement and is also a requirement in law without which the Petitioner cannot proceed with the establishment of the Transmission System.

15. The Hon'ble Commission in its CERC (Procedure, Terms & Conditions for grant of Transmission Licence and other related matters) Regulations, 2024 had prescribed the form of Application and also the amount of fee for making an Application for a Transmission Licence and the Petitioner is submitting herewith the Application in such prescribed format along with the fees as per Regulation 5(1) of the said Regulation. Copy of duly filled Form-I along with the Resolution passed by the Board of Directors of Adani

Rajasthan Part I Power Transmission Limited

Energy Solutions Limited is enclosed herewith and marked as ***ANNEXURE A10*** and ***ANNEXURE A11*** respectively.

16. It is most respectfully submitted that the copy of the Application for grant of Transmission Licence is being forwarded to each of the Respondents as per Regulation 5(3) of CERC (Procedure, Terms and Conditions of Transmission Licence and other related matters) Regulations, 2024.

17. It is further submitted that the Petitioner is submitting/furnishing a copy of the instant Application to Central Transmission Utility, as required under Section 15 (3) of the Act and Regulation 5(3) of CERC (Procedure, Terms and Conditions of Transmission Licence and other related matters) Regulations, 2024 for the recommendation, if any, in accordance with Section 15 (4) simultaneously along with submission of this petition to Hon'ble Commission.

18. The Petitioner has posted the Application for grant of Transmission Licence on the website www.adanienergysolutions.com as per Regulation 5(4) of CERC (Procedure, Terms and Conditions of Transmission Licence and other related matters) Regulations, 2024 so as to facilitate the access to the Application by any person through internet. The petitioner shall publish a notice of its application in Form 2 prescribed under Regulation 5(5) of

CERC (Procedure, Terms and Conditions of Transmission Licence and other related matters) Regulations, 2024 for inviting comments from general public. This notice shall also be uploaded on website of petitioner.

19. Keeping in view the above, the Petitioner fulfils the eligibility criteria for grant of transmission licence as stipulated in Central Electricity Regulatory Commission (Procedure, Terms and Conditions for grant of Transmission Licence and other related matters) Regulations, 2024 and therefore the Hon'ble Commission may grant the prayer as prayed for.

20. It is submitted that as per Request for Proposal ('RFP') under the bidding process the definition of "RFP Project Documents" shall mean the Transmission Service Agreement and the Share Purchase Agreement ('SPA'). It is submitted that the TSA has been executed between the Transmission Service Provider ('TSP') and Central Transmission Utility of India Limited (CTUIL) which is part of RfP Project Documents. The terms of the said TSA are binding on the parties to the said agreement. It is submitted that claims, if any, made by the applicant shall be in accordance with the provisions of the RFP project documents.

21. It is most respectfully submitted that the above right is without any prejudice to the rights of the Applicant/Transmission license as provided

for in the Electricity Act, TSA including the laws governing the TSA and Regulations etc.

22. It is humbly submitted that the bidding process was governed by the Tariff Based Competitive Bidding Guidelines for the Transmission Services and Standard Bidding Documents issued by the Ministry of Power. The tariff quoted inter alia takes into consideration the rights and obligations of the developer including the provisions available to claim time and cost variations as allowed in the TSA.

23. The terms of the TSA are binding on the parties (TSP & CTUIL) to the said agreement and any claim for escalation of transmission charges or for extension of time in pursuance of such competitive bidding process need to be dealt with in accordance with the terms contained in the bidding documents including the TSA. Post selection of the successful bidder and the decision to award the project, there cannot be a review of the bidding terms including in regard to the scope of the implications of the clauses such as force majeure, change in law etc. stipulated in the TSA. Further there are provisions in law such as Section 56 of the Indian Contract Act, 1872, which deals with the frustration of contract, impossibility of Performance etc. giving statutory remedies to the contracting parties. The Hon'ble Commission and other judicial forums have provided reliefs in the past in various cases as per the terms of the contract or as per the provisions

Rajasthan Part I Power Transmission Limited

of law where events occurrence during implementation are not attributable to the developers. Also, in terms of Section 28 of the Indian Contract Act, 1872, no restraint in taking legal proceedings in future can be validly placed.

24. It is further stated that in terms of the TSA the Applicant would implement the project as per the provisions of the Article 16.4 of the Transmission Service Agreement ('TSA'), which reads as under: -

"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."

25. It is submitted that in facts and circumstances mentioned hereinabove, it is humbly submitted that claims, if any, made by the Applicant shall be in accordance with the provisions of the RFP projects Documents.

26. With reference to ensure the compliance of the requirements stipulated in Article 5.1.1 and Article 5.4 of the TSA, the Petitioner is making the following submission in the subsequent paragraphs.

27. That according to the terms of the TSA, there are three external agencies viz. CEA, CTU and Independent Engineer, which monitor the quality of the

construction of the Transmission Project being constructed by the Applicant. Further, the Applicant under the TSA is entrusted with the obligation of providing on a monthly basis, a progress report to the Nodal Agency and Central Electricity Authority ("CEA"), with regard to the project and its execution, to enable them to monitor and co-ordinate the development of the Project. Further, it is most respectfully submitted that in terms of the TSA the Nodal Agency shall appoint Independent Engineer for the purpose of inspecting the progress of the Project. In addition, the CEA may carry out random inspections during the Project execution, as and when deemed necessary by it. The relevant provisions of the TSA are extracted as below:

> *"**Clause 4.1 (g) – TSP's obligation in development of the Project:***
> *Subject to the terms and conditions of this Agreement, the TSP at its own cost and expenses shall observe, comply with, perform, undertake and be responsible:*
> *(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."*

> ***"Clause 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*

equipments/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 equipments, 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 equipments, 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

Rajasthan Part I Power Transmission Limited

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 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."

*"**Clause 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."

28. That the TSA further provides that the TSP i.e. the Applicant must ensure that the design and construction of the project is in accordance with Indian Standards and Codes issued by the Bureau of Indian Standards and in case they are not applicable, other equivalent internationally recognized Standards and Codes shall be followed. Further, in terms of the TSA the Applicant is also responsible for constructing and commissioning the Project in accordance with the norms prescribed in various Regulations issued by the CEA, Prudent Utility Practices and other applicable Laws. The relevant provisions of the TSA are extracted as below:

*"**Clause 5.1.1 of the TSA -TSP's Construction Responsibilities:***
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."

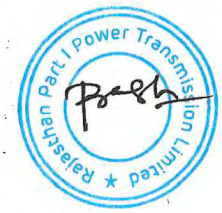
*"**Clause 5.4 of the TSA - Quality of Workmanship**:*
The TSP shall ensure that the Project is designed, built and completed in a good workmanship using sound engineering and construction

Rajasthan Part I Power Transmission Limited

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.9. 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 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."

29. It is most respectfully submitted that in terms of the above quoted provisions of the TSA there are sufficient checks and balances and the quality control mechanism is already available whereby, CEA, Nodal Agency and Independent Engineer will monitor the overall quality of



construction of the Project by the Applicant to ensure that the Applicant is complying with Article 5.1.1 and 5.4 of the TSA.

30. In addition to the above the Applicant would also like to refer to the provisions of the RFP Document, which are stated as below:

"2.5.7.2 In their own interest, the Bidders are requested to familiarize themselves with all relevant laws of India, including without limitation, the Electricity Act 2003, the Income Tax Act 1961, the Companies Act, 1956 / Companies Act, 2013 (as the case may be), Environment Protection Act 1986 and Forest (Conservation) Act, 1980, the Customs Act, the Foreign Exchange Management Act, Land Acquisition Act, 1894, the Indian Telegraph Act 1885, Labour & Employment Laws of India, [Insurance Act] the regulations/standards framed by the Commissions and CEA, all other related acts, laws, rules and regulations prevalent in India, as amended from time to time.

In addition to the above, the Bidders are required to familiarize themselves with all relevant technical codes and standards, including but not limited to the Grid Code / State Grid Code, Central Electricity Authority (Installation and Operations of Meters) Regulations, 2006, Central Electricity Authority (Technical Standards for Connectivity to the Grid) Regulations, 2007, Central Electricity Regulatory Commission Grant of Connectivity, Long-term Access and Medium - Term Open Access in Inter-State Transmission and related matters) Regulations, 2009, Central Electricity Authority (Technical Standards for construction of Electrical Plants and Electric Lines) Regulation, 2010, Central Electricity Authority (Technical Standards for

Rajasthan Part I Power Transmission Limited

Communication System in Power System Operation) Regulations, 2020, Central Electricity Regulatory Commission (Sharing of Inter-State Transmission Charges and Losses) Regulations, 2020 and other relevant Rules/ Regulations/ Guidelines issued by the Central Government, the CERC and the CEA and amendments thereof.

The BPC shall not entertain any request for clarifications from the Bidders regarding the above laws / acts / rules / regulations / standards. Non-awareness of the same shall not be a reason for the Bidder to request for extension in Bid Deadline. The Bidders undertake and agree that, before submission of their Bid, all such factors as generally brought out above, have been fully investigated and considered while submitting their Bids."

31. It is further submitted that the Applicant being an experienced entity will ensure that the project is constructed by following the required quality standard and prudent utility practices by putting in place the following: -

    i. At the procurement stage, the Qualification Requirement for shortlisting's of a supplier/contractor is done on the basis of the technical specifications as mentioned on the TSA. The purchase Order/contract mentions the technical standards and the testing requirements. Material dispatch is allowed after the conformance report is validated.

ii. For tower material, a Manufacturing Quality Plan (MQP) in line with the applicable technical standards and the one followed by CTU is followed.

iii. For ensuring construction quality, a Field Quality Plan (in line with the standards mentioned in TSA and that followed by CTU) is specified to the contractors in advance. The conformance report to the said document is also maintained at site.

iv. The construction and material supply quality is also validated with respect to the TSA by the Lenders Independent Engineer during its quarterly construction review.

32. That the above statement is without any prejudice to the rights of the Applicant/Transmission License as provided in the Electricity Act, TSA and the Laws.

33. The Petitioner shall also comply with all the other requirements as provided in the Transmission License Regulations including publication of notices in newspapers, service on the beneficiaries of the Petitioner's Transmission System. The Petitioner shall place the compliance report on record before the Hon'ble Commission.

34. PRAYER

The Petitioner hereby humbly prays the Hon'ble Commission to:

a) Issue / Grant the Transmission License to the Petitioner for establishing, operating and maintaining the Transmission System as provided for in the Transmission Service Agreement;

b) Allow the "**Transmission System For Evacuation Of Power From REZ In Rajasthan (20 GW) Under Phase-III Part I**" to be part of PoC Pool as per Hon'ble CERC (Sharing of Inter-State Transmission Charges and Losses) Regulations, 2020 and any other amendments thereon issued from time to time by Hon'ble Commission.

c) Condone any inadvertent errors omissions/ errors / shortcomings and permit the Petitioner to add/change/modify/alter these filings and make further submissions as may be required at a future date.

d) Pass any such other order / orders, as may be deemed fit and proper in the facts and circumstances of the case.

Rajasthan Part I Power Transmission Limited

Petitioner

Place: Ahmedabad

Date: 20.01.2025

Annexure A1

रजिस्ट्री सं. डी.एल.- 33004/99 REGD. No. D. L.-33004/99

भारत का राजपत्र
The Gazette of India

सी.जी.-डी.एल.-अ.-14012023-241990
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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, 13 जनवरी, 2023

का.आ. 234(अ).—निम्नलिखित पारेषण स्कीम को नीचे तालिका में वर्णित राजपत्र अधिसूचना द्वारा टैरिफ आधारित प्रतिस्पर्धी बोली (टीबीसीबी) के अंतर्गत कार्यान्वयन के लिए अधिसूचित किया गया था:

क्रम सं.	स्कीम का नाम	राजपत्र अधिसूचना जिसके द्वारा यह स्कीम अधिसूचित की गई थी
1	चरण-II भाग घ के अंतर्गत खावड़ा पीएस में 4.5 गीगावाट आरई अंतःक्षेपण की निकासी के लिए पारेषण स्कीम	सां.आ.3313(अ) दिनांक 25.9.2020 (फा.सं.15/3/2018-पारेषण-पार्ट(2))

2. पारेषण संबंधी राष्ट्रीय समिति की 9वीं बैठक में विद्युत मंत्रालय सेउपर्युक्त वर्णित स्कीम को अन-अधिसूचित करने की सिफारिश की गई थी। अतएव, एतदद्वारा उक्त स्कीम को इसके कार्यक्षेत्र सहित अन-अधिसूचित किया जाता है।

[फा. सं. 15/3/2018-पारेषण-पार्ट (1)]
मोहम्मद अफजल, संयुक्त सचिव (पारेषण)

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MINISTRY OF POWER

NOTIFICATION

New Delhi, the 13th January, 2023

S.O. 234(E).— The following transmission scheme was notified for implementation under Tariff Based Competitive Bidding (TBCB) vide Gazette Notification mentioned in below table:

Sl. No.	Name of the Scheme	Gazette Notification by which Scheme was notified
1	Transmission scheme for evacuation of 4.5 GW RE injection at Khavda P.S. under Phase-II – Part D	S.O. 3313(E). Dated 25.9.2020 (F.No.15/3/2018-Trans-Pt(2))

2. Above mentioned scheme was recommended to Ministry of Power for de-notification in the 9th meeting of National Committee on Transmission. As such, above scheme including its scope is hereby de-notified.

[F. No. 15/3/2018-Trans-Pt(1)]

MOHAMMAD AFZAL, Jt. Secy. (Trans)

अधिसूचना

नई दिल्ली, 13 जनवरी, 2023

का.आ. 235(अ).–केंद्र सरकार,विद्युत अधिनियम, 2003 (2003 की संख्या 36) की धारा 63 के अंतर्गत परिचालित दिशा-निर्देशों के पैरा 3 के उप-पैरा 3.2 द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए, पारेषण स्कीमों के नाम के सामने दर्शाए अनुसार, पारेषण स्कीमों के लिए एतद्वारा निम्नलिखित बोली-प्रक्रिया समन्वयकों (बीपीसी) को नियुक्त करती है:

क्र.सं.	**पारेषण स्कीमों के नाम एवं कार्यक्षेत्र**	**बोली प्रक्रिया समन्वयकर्ता**
1	**राजस्थान आरईजेड फेज-IV (भाग-1) (बीकानेर कॉम्प्लेक्स)- से विद्युत की निकासी के लिए पारेषण प्रणाली - भाग-क** **कार्यक्षेत्र:**	**पीएफसी कंसल्टिंग लिमिटेड**

क्र.सं.	**पारेषण स्कीम का कार्यक्षेत्र**	**क्षमता/किमी**
1	बीकानेर के निकट उपयुक्त स्थान पर 2x330 एमवीएआर (765 केवी) बस रिएक्टर (110 एमवीएआर की एक अतिरिक्त इकाई के साथ) और 2x125 एमवीएआर (420 केवी) बस रिएक्टर सहित 6x1500 एमवीए (500 एमवीए की एक अतिरिक्त इकाई के साथ) 765/400 केवी और 5x500 एमवीए 400/220 केवी बीकानेर-III पूलिंग स्टेशन की संस्थापना **भावी प्रावधान: निम्नलिखित के लिए स्थान**	• 765/400 केवी 1500 एमवीए आईसीटी: 6 (एक अतिरिक्त इकाई सहित 19x500 एमवीए) • 765 केवी आईसीटी बे-6 • 765 केवी लाइन बे- 2 • 330 एमवीएआर बस रिएक्टर-2 (एक अतिरिक्त इकाई सहित, 7x110 एमवीएआर) • 765 केवी रिएक्टर बे-2 • 400/220 केवी, 500 एमवीए आईसीटी- 5 • 400 केवी आईसीटी बे-11

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		• स्विचेवल लाइन रिएक्टर सहित 765 केवी लाइन बे-6 • बे सहित 765 केवी बस रिएक्टर-1 • स्विचेवल लाइन रिएक्टर सहित 400 केवी लाइन बे-4 • 400 केवी लाइन बे-4 • बे सहित 400/220 केवी आईसीटी - 5 • बे सहित 400 केवी बस रिएक्टर-1 • 400 केवी सेक्शनलाइजेशन बे- 2 सेट • आरई अनुप्रयोगों की कनेक्टिविटी के लिए 220 केवी लाइन बे- 8 • 220 केवी सेक्शनलाइजेशन बे: 2 सेट • 220 केवी बीसी (2) तथा 220 केवी टीबीसी (2) • एमएससी (4x125 एमवीएआर) तथा एमएसआर (2x125 एमवीएआर) सहित स्टेटकॉम (2x±300 एमवीएआर)	• 420 केवी रिएक्टर बे- 2 • 125 एमवीएआर, 420 केवी वस रिएक्टर-2 • 400 केवी लाइन बे - 6 (बीकानेर-बीकानेर-द्वितीय डी/सी लाइन के लिलो के लिए 4 और बीकानेर-द्वितीय डी/सी लाइन के लिए 2) • 220 केवी आईसीटी बे-5 • 220 केवी लाइन बे-6 (आरई कनेक्टिविटी के लिए) • 220 केवी बीसी (2) तथा 220 केवी टीबीसी (2) • 220 केवी सेक्शनलाइजेशन बे: 1 सेट	
	2	बीकानेर-III पीएस पर 400 केवी बीकानेर (पीजी)-बीकानेर-II डी/सी लाइन (क्वाड) के दोनों सर्किटों का लीलो	लंबाई: 20 किमी	
	3	बीकानेर-II पीएस – बीकानेर-III पीएस 400 केवी डी/सी लाइन (क्वाड)	लंबाई: 30 किमी	
	4	बीकानेर-II पर 400 केवी की 2 लाइन बे	400 केवी लाइन बे-2	
	5	प्रत्येक सर्किट के लिए प्रत्येक छोर पर 330 एमवीएआर स्विचेबल लाइन रिएक्टर सहित बीकानेर-III - नीमराना-II 765 केवी डी/सी लाइन	लंबाई: 350 किमी • बीकानेर-III पीएस पर 765 केवी, 330 एमवीएआर स्विचेबल लाइन रिएक्टर-2 • नीमराना-II सब/स्टेशन पर 765 केवी, 330 एमवीएआर स्विचेबल लाइन रिएक्टर -2 • बीकानेर-III पीएस पर 765 केवी, 330 एमवीएआर स्विचेबल लाइन रिएक्टरों के लिए स्विचिंग उपकरण-2	

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			• नीमराना-II सब/स्टेशन पर 765 केवी, 330 एमवीएआर स्विचेबल लाइन रिएक्टरों के लिए स्विचिंग उपकरण -2
	6	नीमराना-II सब/स्टेशन में 765 केवी की 2 लाइन बे	• नीमराना-II सब/स्टेशन पर765 केवी लाइन बे-2

टिप्पणी:

1) उक्तवर्णित लाइनों की लंबाईयां अनुमानित है क्योंकि सटीक लंबाई विस्तृत सर्वेक्षण के बाद प्राप्त की जाएगी।
2) पावरग्रिड को बीकानेर-द्वितीय पीएस पर 400 केवी की 2 लाइन बे के लिए स्थान उपलब्ध कराना है।
3) नीमराना-II सब/स्टेशन के विकासकर्ता को बीकानेर-III-नीमराना-II 765 केवी डी/सी लाइन को समापन के लिए नीमराना-II सब/स्टेशन पर स्विचेवल लाइन रिएक्टर के लिए स्थान सहित 765 केवी की 2 लाइन बे के लिए स्थान उपलब्ध कराना है।
4) बीकानेर-III पीएस पर शॉर्ट सर्किट स्तर को सीमित करने के लिए 400 केवी और 220 केवी स्तर पर उपयुक्त सेक्शनलाइजेशन का प्रावधान रखा जाएगा।

कार्यान्वयन समय-सीमा: सफल बोलीदाता को एसपीवी के अंतरण की तारीख से 24 माह।

2 — **राजस्थान आरईजेड फेज-IV (भाग-1) (बीकानेर कॉम्प्लेक्स) –से विद्युत की निकासी के लिए पारेषण प्रणाली - भाग-ख** — **पीएफसी कंसल्टिंग लिमिटेड**

क्र.सं.	पारेषण स्कीम का कार्यक्षेत्र	क्षमता/किमी
1	नीमराना के निकट उपयुक्त स्थान पर 2x330 एमवीएआर (765 केवी) बस रिएक्टर (110 एमवीएआर की एक अतिरिक्त इकाई सहित) और 2x125 एमवीएआर (420 केवी) बस रिएक्टर के साथ 765/400 केवी, 4x1500 एमवीए (500 एमवीए की एक अतिरिक्त इकाई सहित) नीमराना-II सब-स्टेशन की स्थापना **भावी प्रावधान:निम्नलिखित के लिए स्थान** • बे सहित 765/400 केवी आईसीटी-2 • स्विचेबल लाइन रिएक्टर सहित 765 केवी लाइन बे-12 • बे सहित 765 केवी बस रिएक्टर: 1 • स्विचेबल लाइन रिएक्टर सहित	• 765/400 केवी 1500 एमवीए आईसीटी- 4 (13x500 एक अतिरिक्तइकाई सहित) • 330 एमवीएआर बस रिएक्टर- 2 (7x110 एमवीएआर, एक अतिरिक्त इकाई सहित) • 765 केवी रिएक्टर बे- 2 • 125 एमवीएआर, 420 केवी बस रिएक्टर - 2 • 420 केवी रिएक्टर बे - 2 • 765 केवी आईसीटी बे- 4 • 400 केवी आईसीटी बे- 4 • 400 केवी लाइन बे – 6 (गुडगांव-सोहना रोड डी/सी लाइन के लिलो के लिए 4 और कोटपुतली डी/सी लाइन के लिए 2)

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		400 केवी लाइन बे-6 • बे सहित 400 केवी बस रिएक्टर: 1 • 400 केवी सेक्शनलाइजेशन बे- 2 सेट	
	2	नीमराना-II-कोटपुतली 400 केवी डी/सी लाइन (क्वाड)	लंबाई: 70 किमी
	3	कोटपुतली पर 400 केवी की 2 लाइन बे	कोटपुतली पर400 केवी लाइन बे- 2
	4	नीमराना-II सब/स्टेशन पर 400 केवी गुड़गांव (पीजी) - सोहना रोड (जीपीटीएल) डी/सी लाइन (क्वाड) के दोनों सर्किटों का लिलो	लंबाई: 85 किमी

टिप्पणी:

1) उक्तवर्णित लाइनों की लंबाईयां अनुमानित है क्योंकि सटीक लंबाई विस्तृत सर्वेक्षण के बाद प्राप्त की जाएगी।
2) नीमराना-II सब/स्टेशनपर शॉर्ट सर्किट स्तर को सीमित करने के लिए 400 केवी स्तर पर उपयुक्त सेक्शनलाइजेशन का प्रावधान रखा जाएगा।
3) पावरग्रिड को कोटपुतली सब/स्टेशन पर 400 केवी की 2 लाइन बे के लिए स्थान उपलब्ध कराना है।
4) इस पैकेज का कार्यान्वयन पैकेज 'क' के अनुरूप आरंभ किया जाएगा।

कार्यान्वयन समय-सीमा: सफल बोलीदाता को एसपीवी के अंतरण की तारीख से 24 महीने।

3 **राजस्थान आरईजेड फेज-IV (भाग-1) (बीकानेर कॉम्प्लेक्स) - से विद्युत की निकासी के लिए पारेषण प्रणाली - भाग-ग**

पीएफसी कंसल्टिंग लिमिटेड

क्र.सं.	**पारेषण स्कीम का कार्यक्षेत्र**	**क्षमता/किमी**
1	प्रत्येक सर्किट के लिएप्रत्येक छोर पर 330 एमवीएआर स्विचेबल लाइन रिएक्टर सहित बीकानेर-III - नीमराना-II 765 केवी डी/सी लाइन (द्वितीय)	लंबाई: 350 किमी • बीकानेर-III पीएस पर 765 केवी, 330 एमवीएआर स्विचेबल लाइन रिएक्टर-2 • नीमराना-II पर765 केवी, 330 एमवीएआर स्विचेबल लाइन रिएक्टर-2 • बीकानेर-III पीएस पर 765 केवी 330 एमवीएआर स्विचेबल लाइन रिएक्टरों के लिए स्विचिंग उपकरण-2 • नीमराना-II सब/स्टेशन पर 765 केवी 330 एमवीएआर स्विचेबल लाइन रिएक्टरों के लिए स्विचिंग उपकरण-2
2	बीकानेर-III पीएस और नीमराना-II सब/स्टेशन, प्रत्येक पर 765 केवी लाइन बे 2	765 केवी लाइन बे-4 (बीकानेर-III पीएस और नीमराना-II सब/स्टेशन पर प्रत्येक के लिए 2)

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टिप्पणी:

1. उक्तवर्णित लाइनों की लंबाईयां अनुमानित है क्योंकि सटीक लंबाई विस्तृत सर्वेक्षण के बाद प्राप्त की जाएगी।
2. बीकानेर-II पीएस तथा नीमराना-II सब/स्टेशन के विकासकर्ता को बीकानेर-III-नीमराना-II 765 केवी डी/सी लाइन (द्वितीय) के समापन के लिए बीकानेर-III पीएस तथा नीमराना-II सब/स्टेशन पर प्रत्येक के लिए स्विचेवल लाइन रिएक्टर के लिए स्थानसहित 765 केवी की 2 लाइन बे के लिए स्थान उपलब्ध कराना है।

कार्यान्वयन समय-सीमा: सफल बोलीदाता को एसपीवी के अंतरण की तारीख से 24 महीने।

4 **राजस्थान आरईजेड फेज-IV (भाग-1) (बीकानेर कॉम्प्लेक्स)- से विद्युत की निकासी के लिए पारेषण प्रणाली - भाग-घ** — **पीएफसी कंसल्टिंग लिमिटेड**

क्र.सं.	पारेषण स्कीम का कार्यक्षेत्र	क्षमता/किमी
1	प्रत्येक सर्किट के लिए प्रत्येक छोर पर 330 एमवीएआर स्विचेबल लाइन रिएक्टर सहित नीमराना-II- बरेली (पीजी) 765 केवी डी/सी लाइन	लंबाई: 350 किमी • नीरमाना-II सब/स्टेशन पर765 केवी, 330 एमवीएआर स्विचेबल लाइन रिएक्टर-2 • बरेली (पीजी) पर765 केवी, 330 एमवीएआर स्विचेबल लाइन रिएक्टर-2 • नीमराना-II सब/स्टेशन पर 765 केवी 330 एमवीएआर स्विचेबल लाइन रिएक्टरों के लिए स्विचिंग उपकरण-2 • बरेली (पीजी) सब/स्टेशन पर 765 केवी 330 एमवीएआर स्विचेबल लाइन रिएक्टरों के लिए स्विचिंग उपकरण-2
2	नीमराना-द्वितीय और बरेली (पीजी) सब/स्टेशन पर प्रत्येक के लिए 765 केवी लाइन बे 2	765 केवी लाइन बे– 4 (नीमराना-द्वितीय और बरेली (पीजी) सब/स्टेशन पर प्रत्येक के लिए 2)

टिप्पणी:

1) इस पैकेज का कार्यान्वयन पैकेज 'ग' के अनुरूप आरंभ किया जाएगा।
2) उक्तवर्णित लाइनों की लंबाईयां अनुमानित है क्योंकि सटीक लंबाई विस्तृत सर्वेक्षण के बाद प्राप्त की जाएगी।
3) नीमरान-II सब/स्टेशन के विकासकर्ता को नीमराना-II- बरेली (पीजी) 765 केवी डी/सी लाइन के समापन के लिएनीमराना-IIसब/स्टेशन पर स्विचेवल लाइन रिएक्टर के लिए स्थानसहित 765 केवी की 2 लाइन बे के लिए स्थान उपलब्ध कराना है।
4) पावरग्रिड को बरेली (पीजी) सब/स्टेशनपर स्विचेबल लाइन रिएक्टर के लिए स्थान सहित 765 केवी की 2 लाइन बे के लिए स्थान उपलब्ध कराना है।

कार्यान्वयन समय-सीमा: सफल बोलीदाता को एसपीवी के हस्तांतरण की तारीख से 24 महीने।

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5	**राजस्थान में चरण-III भाग I के अंतर्गतआरईजेड में विद्युत(20 जीडब्ल्यू) की निकासी के लिए पारेषण प्रणाली**	**आरईसी पावर डवलपमेंट एवं कंसल्टेंसी लिमिटेड**

क्र.सं.	पारेषण स्कीम का कार्यक्षेत्र	क्षमता/किमी
1	भादला-3 सबस्टेशन के निकट किसी उपयुक्त स्थान पर 6000 मेगावाट, ± 800 केवी भादला (एचवीडीसी) [एलसीसी] टर्मिनल स्टेशन (4x1500 मेगावाट) की स्थापना	• एचवीडीसी टर्मिनल को आनुषंगिक विद्युत की विशिष्ट आपूर्ति के लिए 400/33 केवी, 2x50 एमवीए ट्रांसफार्मर। • भादला (एचवीडीसी) स्टेशन पर 400 केवी बस सेक्शनलाइजर-2(1 सेट)
2	फतेहपुर (यूपी) के निकट किसी उपयुक्त स्थान पर 6000 मेगावाट, ±800 केवी फतेहपुर (एचवीडीसी) [एलसीसी] टर्मिनल स्टेशन (4x1500 मेगावाट) की स्थापना	
3	भादला-3 - भादला (एचवीडीसी) 400 केवी 2xडी/सी क्वाड मूज लाइन के साथ-साथ दोनों सबस्टेशनों पर लाइन बे	• लाइन की लंबाई- 2 किमी • 400 केवी लाइन बे -8
4	भादला (एचवीडीसी) और फतेहपुर (एचवीडीसी) के बीच ±800 केवी एचवीडीसी लाइन (हेक्सा लैपविंग) (डेडिकेटेड मैटेलिक रिटर्न के साथ)	• लाइन की लंबाई- 950 किमी
5	फतेहपुर (एचवीडीसी) में 2x330 एमवीएआर (765केवी) बस रिएक्टर के साथ 5x1500 एमवीए, 765/400 केवी आईसीटी की स्थापना **भावी प्रावधान:निम्नलिखिति के लिए स्थान-** • बे सहित 765/400 केवी आईसीटी: 1 • स्विचेबल लाइन रिएक्टर सहित 765 केवी लाइन बे: 4 • बे सहित 765 केवी बस रिएक्टर: 2 • बे सहित 400/220 केवी आईसीटी: 4 • स्विचेबल लाइन रिएक्टर सहित 400 केवी लाइन बे: 4 • बे सहित 400 केवी बस रिएक्टर: 1 • 220 केवी लाइन बे: 6	• 765/400 केवी 1500 एमवीए आईसीटी: 5 (16x500 एमवीए, एक अतिरिक्त इकाई सहित) • 765 केवी आईसीटी बे- 5 • 400 केवी आईसीटी बे- 5 • 400 केवी बस सेक्शनलाइजर-2 (1 सेट) • 765 केवी लाइन बे-4 • 330 एमवीएआर, 765 केवी बस रिएक्टर-2 (7x110 एमवीएआर, एक अतिरिक्त इकाई सहित • 765 केवी रिएक्टर बे-2
6	फतेहपुर में 765 केवी वाराणसी-	

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	कानपुर (जीआईएस) डी/सी लाइन के दोनों सर्किट का लीलो - (30 किमी)		

टिप्पणी:

1. भदला-III सब/स्टेशन के विकासकर्ता को अपने सबस्टेशन पर 400 केवी के 4 बे के लिए स्थान उपलब्ध कराना है।
2. उक्तवर्णित लाइनों की लंबाईयां अनुमानित है क्योंकि सटीक लंबाई विस्तृत सर्वेक्षण के बाद प्राप्त की जाएगी।

कार्यान्वयन समय-सीमा: सफल बोलीदाता को एसपीवी के हस्तांतरण की तारीख से 42महीने।

2. बोली-प्रक्रिया समन्वयकों की नियुक्ति इस संबंध में विद्युत मंत्रालय द्वारा, समय-समय पर यथा संशोधित दिशा-निर्देशों में निर्धारित शर्तों के अधीन है।

[फा. सं. 15/3/2018-ट्रांस-भाग(1)]

मोहम्मद अफजल, संयुक्त सचिव (ट्रांस)

NOTIFICATION

New Delhi, the 13th January, 2023

S.O. 235(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 hereby appoints the following Bid-Process Coordinators (BPCs) for the Transmission Schemes, as shown against the name of the Transmission Schemes: -

<table>
<tr><th>Sl. No.</th><th>Name & Scope of the Transmission Scheme</th><th>Bid Process Coordinator</th></tr>
<tr><td>1</td><td>Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part-1) (Bikaner Complex)- Part-A

Scope:
<table>
<tr><th>Sl. No.</th><th>Scope of Transmission Scheme</th><th>Capacity /km</th></tr>
<tr><td>1</td><td>Establishment of 6x1500 MVA (along with one spare unit of 500 MVA), 765/400 kV &5x500 MVA 400/220 kV Bikaner-III Pooling Station along with 2x330 MVAr (765kV) Bus Reactor (along with one spare unit of 110 MVAr) & 2x125 MVAr (420kV) Bus Reactor at a suitable location near Bikaner

Future provisions: Space for
• 765 kV line bays along with switchable line reactors – 6 nos.
• 765kV Bus Reactor along with bay: 1 no.
• 400 kV line bays along with switchable line reactor –4 nos.
• 400 kV line bays–4 nos.
• 400/220kV ICT along with bays -5 nos.
• 400 kV Bus Reactor along with</td><td>• 765/400kV 1500 MVA ICTs: 6 nos (19x500 MVA including one spare unit)
• 765kV ICT bays – 6 nos.
• 765kV line bays- 2 nos.
• 330 MVAr Bus Reactor-2 nos. (7x110 MVAr, including one spare unit)
• 765kV reactor bays- 2 nos.
• 400/220 kV, 500 MVA ICTs – 5 nos
• 400 kV ICT bays – 11 nos.
• 420 kV reactor bays - 2 nos.
• 125 MVAr, 420kV bus reactor - 2 nos.
• 400 kV line bays - 6 nos.(4 nos. for LILO of Bikaner-Bikaner-II D/c line & 2 nos. for Bikaner-II D/c line)
• 220 kV ICT bays - 5 nos.</td></tr>
</table></td><td>PFC Consulting Ltd.</td></tr>
</table>

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		bay: 1 no. • 400kV Sectionalization bay: 2 sets • 220 kV line bays for connectivity of RE Applications -8 nos. • 220kV Sectionalization bay: 2 sets • 220 kV BC (2 no.) and 220 kV TBC (2 no.) • STATCOM (2x±300MVAr) along with MSC (4x125 MVAr) & MSR (2x125 MVAr)	• 220 kV line bays – 6 nos (for RE connectivity) • 220 kV BC (2 no.) and 220 kV TBC (2 no.) • 220kV Sectionalisation bay: 1 set	
	2	LILO of both ckts of 400kV Bikaner (PG)-Bikaner-II D/c line(Quad) at Bikaner-III PS	Length: 20 km	
	3	Bikaner-II PS – Bikaner-III PS 400 kV D/c line (Quad)	Length: 30 km	
	4	2 no. of 400 kV line bays at Bikaner-II	400 kV line bays - 2 nos.	
	5	Bikaner-III - Neemrana-II 765 kV D/c line along with 330 MVAr switchable line reactor for each circuit at each end	Length: 350 km • 765 kV, 330 MVAr switchable line reactors at Bikaner-III PS – 2 nos. • 765 kV, 330 MVAr Switchable line reactors at Neemrana-II S/s – 2 nos. • Switching equipment for 765kV 330 MVAr switchable line reactors at Bikaner-III PS – 2 nos. • Switching equipment for 765kV 330 MVAr switchable line reactors at Neemrana-II S/s – 2 nos.	
	6	2 no. of 765 kV line bays at Neemrana-II S/s	• 765 kV line bays at Neemrana-II S/s- 2nos.	

Note:

1) The line lengths mentioned above are approximate as the exact length shall be obtained after the detailed survey

2) POWERGRID to provide space for 2 nos. of 400 kV line bays at Bikaner-II PS

3) Developer of Neemrana-II S/s to provide space for 2 nos. of 765 kV line bays alongwith space for Switchable line reactor at Neemrana-II S/s for termination of Bikaner-III - Neemrana-II 765 kV D/c line

4) Provision of suitable sectionalization shall be kept at Bikaner-III PS at 400kV & 220kV level to limit short circuit level

Implementation timeframe: 24 months from the date of transfer of SPV to the successful bidder.

2	**Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part-1) (Bikaner Complex)- Part-B**	**PFC Consulting Ltd.**

Sl.No.	Scope of Transmission Scheme	Capacity /km
1	Establishment of 765/400 kV, 4x1500 MVA (along with one spare unit of 500MVA)	• 765/400kV 1500 MVA ICTs – 4 nos (13x500 MVA including one spare unit)

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		Neemrana-II S/s along with 2x330 MVAr (765kV) Bus Reactor (along with one spare unit of 110 MVAr) & 2x125 MVAr (420kV) Bus Reactor at a suitable location near Neemrana **Future provisions: Space for** • 765/400kV ICT along with bays- 2 • 765 kV line bays along with switchable line reactors – 12 • 765kV Bus Reactor along with bay: 1 nos. • 400 kV line bays along with switchable line reactor –6 • 400 kV Bus Reactor along with bays: 1 no. • 400kV Sectionalization bay: 2 sets	• 330 MVAr Bus Reactor-2 nos (7x110 MVAr, including one spare unit) • 765kV reactor bays- 2 nos. • 125 MVAr, 420kV bus reactor - 2 nos. • 420 kV reactor bays - 2 nos. • 765kV ICT bays – 4 nos. • 400 kV ICT bays – 4 nos. • 400 kV line bays - 6 nos (4 nos. for LILO of Gurgaon -Sohna Road D/c line & 2 nos. for Kotputli D/c line)	
	2	Neemrana-II -Kotputli 400 kV D/c line (Quad)	Length: 70 km	
	3	2 no. of 400 kV line bays at Kotputli	400 kV line bays at Kotputli - 2 nos.	
	4	LILO of both ckts of 400 kV Gurgaon (PG) - Sohna Road (GPTL) D/c line (Quad) at Neemrana-II S/s	Length: 85 km	
	Note: 1) The line lengths mentioned above are approximate as the exact length shall be obtained after the detailed survey 2) Provision of suitable sectionalization shall be kept at Neemrana-II S/s at 400kV level to limit short circuit level 3) POWERGRID to provide space for 2 nos. of 400 kV line bays at Kotputli S/s 4) The implementation of package shall be taken up matching with Package A **Implementation timeframe**: 24 months from the date of transfer of SPV to the successful bidder.			
3	**Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part-1) (Bikaner Complex)- Part-C**			**PFC Consulting Ltd.**
	Sl.No.	**Scope of Transmission Scheme**	**Capacity /km**	
	1	Bikaner-III - Neemrana-II 765 kV D/c line (2nd) along with 330 MVAr switchable line reactor for each circuit at each end	Length: 350 km • 765 kV, 330 MVAr Switchable line reactors at Bikaner-III PS – 2 nos. • 765 kV, 330 MVAr Switchable line reactors at Neemrana-II – 2 nos. • Switching equipment for 765 kV 330 MVAr switchable line reactors at Bikaner-III PS – 2 nos. • Switching equipment for 765 kV	

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		330 MVAr switchable line reactors at Neemrana-II S/s – 2 nos.	
	2	2 no. of 765 kV line bays each at Bikaner-III PS & Neemrana-II S/s	765kV line bays - 4 nos (2 nos. each at Bikaner-III PS & Neemrana-II S/s)	

Note:

1. The line lengths mentioned above are approximate as the exact length shall be obtained after the detailed survey
2. Developer of Bikaner-III PS & Neemrana-II S/s to provide space for 2 nos. of 765 kV line bays alongwith space for Switchable line reactor each at Bikaner-III PS & Neemrana-II S/s for termination of Bikaner-III - Neemrana-II 765 kV D/c line (2nd)

Implementation timeframe: 24 months from the date of transfer of SPVto the successful bidder.

4 — **Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part-1) (Bikaner Complex)- Part-D** — **PFC Consulting Ltd.**

Sl.No.	Scope of Transmission Scheme	Capacity /km
1	Neemrana-II- Bareilly (PG) 765 kV D/c line along with 330 MVAr switchable line reactor for each circuit at each end	Length: 350 km • 765 kV, 330 MVAr switchable line reactors at Neermana-II S/s– 2 nos. • 765 kV, 330 MVAr Switchable line reactors at Bareilly(PG) – 2 nos. • Switching equipment for 765kV 330 MVAr switchable line reactors at Neermana-II S/s – 2 nos. • Switching equipment for 765kV 330 MVAr switchable line reactors at Bareilly(PG) S/s – 2 nos.
2	2 no. of 765 kV line bays each at Neemrana-II & Bareilly (PG) S/s	765kV line bays - 4 nos (2 nos. each at Neemrana-II & Bareilly (PG) S/s)

Note:

1) The implementation of package shall be taken up matching with Package C.
2) The line lengths mentioned above are approximate as the exact length shall be obtained after the detailed survey.
3) Developer of Neemrana-II S/s to provide space for 2 nos. of 765 kV line bays along with space for Switchable line reactor at Neemrana-II S/s for termination of Neemrana-II- Bareilly (PG) 765 kV D/c line
4) POWERGRID to provide space for 2 nos. of 765 kV line bays alongwith space for Switchable line reactor at Bareilly (PG) S/s

Implementation timeframe: 24 months from the date of transfer of SPV to the successful bidder.

5 — **Transmission system for evacuation of power from REZ in Rajasthan (20 GW) under Phase-III Part I** — **REC Power Development and Consultancy Limited**

Sl.No.	Scope of Transmission Scheme	Capacity /km

1	Establishment of 6000 MW, ± 800 kV Bhadla (HVDC) [LCC] terminal station (4x1500 MW) at a suitable location near Bhadla-3 substation	• 400/33 kV, 2x50 MVA transformers for exclusively supplying auxiliary power to HVDC terminal. • 400kV bus sectionaliser -2 nos (1 Set) at Bhadla (HVDC) station	
2	Establishment of 6000 MW, ±800 kV Fatehpur (HVDC) [LCC] terminal station (4x1500 MW) at suitable location near Fatehpur (UP)		
3	Bhadla-3 – Bhadla (HVDC) 400 kV 2xD/c quad moose line along with the line bays at both substations	• Line length- 2 km • 400 kV line bays -8 nos	
4	±800 kV HVDC line (Hexa lapwing) between Bhadla (HVDC) & Fatehpur (HVDC) (with Dedicated Metallic Return)	• Line length- 950 km	
5	Establishment of 5x1500 MVA, 765/400 kV ICTs at Fatehpur (HVDC) along with 2x330 MVAr (765kV) bus reactor **Future provisions: Space for-** • 765/400 kV ICT along with bay: 1 no. • 765 kV line bay along with switchable line reactor: 4nos. • 765 kV Bus Reactor along with bays: 2 nos. • 400/220 kV ICTs along with bays: 4nos. • 400 kV line bays along with switchable line reactor: 4 nos. • 400 kV Bus Reactor along with bay: 1 no. • 220 kV line bays: 6 nos.	• 765/400kV 1500 MVA ICTs: 5 nos (16x500 MVA, including one spare unit) • 765 kV ICT bays – 5 nos. • 400 kV ICT bays – 5 nos. • 400 kV Bus sectionaliser-2 nos [1 Set] • 765 kV line bays – 4 nos. • 330 MVAr, 765kV Bus Reactor -2 nos. (7x110 MVAr, including one spare unit) • 765 kV reactor bays- 2 nos.	
6	LILO of both ckts of 765 kV Varanasi – Kanpur (GIS) D/c line at Fatehpur - (30 km)		

Note:

1. Developer of Bhadla-III S/s to provide space for 4 nos. of 400kV bays at their substation
2. The line lengths mentioned above are approximate as the exact length shall be obtained after the detailed survey

Implementation timeframe: 42 months from the date of transfer of SPV to the successful bidder.

2. The appointment of the Bid-Process Coordinators is subject to the conditions laid down in the Guidelines issued by Ministry of Power in this regard, as amended from time to time.

[F. No. 15/3/2018-Trans-Pt(1)]

MOHAMMAD AFZAL, Jt. Secy. (Trans)

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Rajasthan Part I Power Transmission Ltn

सत्यमेव जयते

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 RAJASTHAN PART I POWER TRANSMISSION LIMITED is incorporated on this THIRTY day of APRIL TWO THOUSAND TWENTY THREE 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 **U42202DL2023GOI413445**

The Permanent Account Number (PAN) of the company is **AAMCR6400N***

The Tax Deduction and Collection Account Number (TAN) of the company is **DELR45934A***

Given under my hand at Manesar this THIRTY day of APRIL TWO THOUSAND TWENTY THREE

Certification signature by DS MINISTRY OF CORPORATE AFFAIRS 10 <roc.crc@mca.gov.in> Validity Unknown
Digitally signed by DS MINISTRY OF CORPORATE AFFAIRS 10
Date: 2023.04.30 12:46:27 IST

Pankaj Srivastava

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:

RAJASTHAN PART I POWER TRANSMISSION LIMITED

CORE-4, SCOPE COMPLEX,7, LODHI ROAD,Lodi Road,Delhi,Central Delhi-110003,Delhi

*as issued by Income tax Department

Rajasthan Part I Power Transmission Limited

Annexure A3

Form No. INC-33

e-MOA (e-Memorandum of Association)
[Pursuant to Schedule I (see Sections 4 and 5) to the Companies Act, 2013)]

सत्यमेव जयते

Form language

(•) English ( ) Hindi

Refer instruction kit for filing the form

*All fields marked in * are mandatory*

*** Table applicable to company as notified under schedule I of the Companies Act, 2013**

(A - MEMORANDUM OF ASSOCIATION OF A COMPANY LIMITED BY SHARES
B - MEMORANDUM OF ASSOCIATION OF A COMPANY LIMITED BY GUARANTEE AND NOT HAVING A SHARE CAPITAL
C - MEMORANDUM OF ASSOCIATION OF A COMPANY LIMITED BY GUARANTEE AND HAVING A SHARE CAPITAL
D - MEMORANDUM OF ASSOCIATION OF AN UNLIMITED COMPANY AND NOT HAVING SHARE CAPITAL
E - MEMORANDUM OF ASSOCIATION OF AN UNLIMITED COMPANY AND HAVING SHARE CAPITAL)

A - MEMORANDUM OF ASSOCIATION OF A COMPANY LIMITED BY SHARES

Table A/B/C/D/E

1 The name of the company is	RAJASTHAN PART I POWER TRANSMISSION LIMITED
2 The registered office of the company will be situated in the State of	Delhi
3 (a) The objects to be pursued by the company on its incorporation are:	1.To plan, promote and develop an integrated and efficient power transmission system network in all its aspects including planning, investigation, research, design and engineering, preparation of preliminary, feasibility and definite project reports, construction, operation and maintenance of transmission lines, sub-stations, load dispatch stations and communication facilities and appurtenant works, coordination of integrated operation of regional and national grid system, execution of turn-key jobs for other utilities/organizations and wheeling of power in accordance with the policies, guidelines and objectives laid down by the Central Government from time to time. 2. To study, investigate, collect information and data, review operation, plan, research, design and prepare Report, diagnose operational difficulties and weaknesses and advise on the remedial measures to improve,

Rajasthan Part I Power Transmission Limited

undertake development of new and innovative product connected with business of the Company as well as modernize existing EHV, HV lines and Sub-Stations.

3.To act as consultants, technical advisors, surveyors and providers of technical and other services to Public or Private Sector enterprises engaged in the planning, investigation, research, design and preparations of preliminary, feasibility and definite project reports, manufacture of power plant and equipment, construction, generation, operation and maintenance of power transmission system from power generating stations and projects, transmission and distribution of power.

4.To plan, promote, develop, erect and maintain, operate and otherwise deal in Telecommunication networks and services in all its aspects including planning, investigation, research, design and engineering, preparation of preliminary, feasibility and definite project reports: to purchase, sell, import, export, assemble, manufacture, install, commission, maintain, operate commercially whether on own or along with other, on lease or otherwise. These networks and for such purposes to set up and/ or install all requisite communications facilities and other facilities including fibre optic links, digital microwave links, communication cables, other telecommunication means, telephone and other exchanges, co-axial stations, microwave stations, repeater stations, security system databases, billing systems, subscriber management systems and other communication systems whether consisting of sound, visual impulse, or otherwise, existing or that may be developed or invented in the future and to manufacture, purchase, sell, import, export, assemble, take or give on lease/rental/subscription

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	basis or by similar means or otherwise deal in all components and other support and ancillary hardware and software systems, accessories, parts and equipments etc. used in or in connection with the operation of the above communication systems and networks including to deal with telecommunication operations or directly with the general public, commercial companies or otherwise.
(b) *Matters which are necessary for furtherance of the objects specified in clause 3(a) are	manufacture, purchase, sell, import, export, assemble, take or give on lease/rental/subscription basis or by similar means or otherwise deal in all components and other support and ancillary hardware and software systems, accessories, parts and equipments etc. used in or in connection with the operation of the above communication systems and networks including to deal with telecommunication operations or directly with the general public, commercial companies or otherwise.Generation Companies, Licensees, Statutory bodies, other organizations (whether in Private, Public or Joint Sector Undertaking) and bulk consumers of power etc. 4.To secure the payments of money, receivables on transmission and distribution of electricity and sale of fuel, as the case may be, to the State Electricity Boards, Vidyut Boards, Transmission Utilities, Generating Companies, Transmission Companies, Distribution Companies, State Governments, Licensees, statutory bodies, other organizations (whether in Private, Public or Joint Sector Undertaking) and bulk consumers of power etc. through Letter of Credits/ESCROW and other security documents. 5.To coordinate with the Central Transmission Utility of electricity generated by it under the relevant provisions of Electricity Act 2003 and any amendments

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thereto.

6.Subject to provisions of Sections 73, 74, 179, 180 & 186 and other applicable provisions of the Companies Act, 2013 and rules made thereunder and subject to other laws or directives, if any, of SEBI/RBI, to borrow money in Indian rupees or foreign currencies and obtain foreign lines of credits/ grants/ aids etc. or to receive money or deposits from public for the purpose of the Company's business in such manner and on such terms and with such rights, privileges and obligations as the Company may think fit. The Company may issue bonds/ debentures whether secured or unsecured; bills of exchange, promissory notes or other securities, mortgage or charge on all or any of the immovable and movable properties, present or future and all or any of the uncalled capital for the time being of the Company as the Company may deem fit and to repay, redeem or pay off any such securities or charges.

7.To lend money on property or on mortgage of immovable properties or against Bank guarantee and to make advances of money against future supply of goods and services on such terms as the Directors may consider necessary and to invest money of the Company in such manner as the Directors may think fit and to sell, transfer or to deal with the same.

8.To own, possess, acquire by purchase, lease or otherwise rights, title and interests in and to, exchange or hire real estate, equipment, Transmission lines, lands, buildings, apartments, plants, equipment, machinery, fuel blocks and hereditaments of any tenure or descriptions situated in India or abroad or any estate or interest therein and any right over or connected with land so situated and turn the same to account in any manner as may seem necessary or convenient for the purpose of business of the Company and to

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hold, improve, exploit, reorganize, manage, lease, sell, exchange or otherwise dispose of the whole or any part thereof.

9.Subject to applicable provisions of Companies Act, 2013, to subscribe for, underwrite, or otherwise acquire, hold, dispose of and deal with the shares, stocks, debentures or other securities and titles of indebtedness or the right to participate in profits or other similar documents issued by any Government authority, Corporation or body or by any company or body of persons and any option or right in respect thereof.

10.To create any depreciation fund, reserve fund, sinking fund, insurance fund, gratuity, provident fund or any other fund, for depreciation or for repairing, improving extending or maintaining any of the properties of the Company or for any other purposes whatsoever conducive to the interests of the Company.

11.To acquire shares, stocks, debentures or securities of any company carrying on any business which this Company is entitled to carry on or acquisition of undertaking itself which may seem likely or calculated to promote or advance the interests of the Company and to sell or dispose of or transfer any such shares, stocks or securities and the acquired undertaking.

12.To enter into partnership or into any agreement for joint working, sharing or pooling profits, joint venture, amalgamation, union of interests, co-operation, reciprocal concessions or otherwise or amalgamate with any person or company carrying on or engaged in or about to carry on or engaged in any business or transaction in India or abroad which the Company is authorized to carry on or engage in any business undertaking having objects identical or similar to, as are being carried on

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by this Company.
13.To establish and maintain agencies, branch offices and local agencies, to procure business in any part of India and world and to take such steps as may be necessary to give the Company such rights and privileges in any part of the world as deemed proper in the interest of the Company.
14.To promote and undertake the formation of any institution or Company or subsidiary company or for any aforesaid objects intended to benefit the Company directly or indirectly and to coordinate, control and guide their activities.
15(a).To negotiate and enter into agreements and contracts with domestic and foreign companies, persons or other organizations, banks and financial institutions, in relation to the business of the Company including that of technical know-how, import, export, purchase or sale of plant, machinery, equipment, tools, accessories and consumables, financial assistance and for carrying out all or any of the objects of the Company.
15(b).To negotiate and enter into agreements and contracts for execution of turnkey jobs, works, supplies and export of plant, machinery, tools and accessories etc.
16.Upon and for the purpose of any issue of shares, debentures or any other securities of the Company, to enter into agreement with intermediaries including brokers, managers of issue/commission agents and underwriters and to provide for the remuneration of such persons for their services by way of payment in cash or issue of shares, debentures or other securities of the Company or by granting options to take the same or in any other manner as permissible under the law.
17.To enter into contracts of indemnity and get guarantee and allocations for the business of the Company.
18.To make arrangements for

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training of all categories of employees and to employ or otherwise engage experts, advisors, consultants etc. in the interest of achieving the Company's objects.

19.To promote conservation and protection of electricity from theft, safety of life and to protect environments including air, land and water etc.

20.To pay and provide for the remuneration, amelioration and welfare of persons employed or formerly employed by the Company and their families providing for pension, allowances, bonuses, other payments or by creating for the purpose from time to time the Provident Fund, Gratuity and other Funds or Trusts. Further to undertake building or contributing to the building or houses, dwellings or chawls by grants of money, or by helping persons employed by the Company to effect or maintain insurance on their lives by contributing to the payment of premium or otherwise and by providing or subscribing or contributing towards educational institutions, recreation, hospitals and dispensaries, medical and other assistance as the Company may deem fit.

21.To ensure any rights, properties, undertakings, contracts, guarantees or obligations or profits of the Company of every nature and kind in any manner with any person, firm, association, institution or company.

22.To distribute among members of the Company dividend including bonus shares out of profits, accumulated profits or funds and resources of the Company in any manner permissible under law.

23.To institute, conduct, defend, compound or abandon any legal proceedings by or against the Company or its officers or otherwise concerning the affairs of the Company and also to compound and to allow time for

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payment or satisfaction of any debts or recovery due, claims or demands by or against the Company and to refer any claims or demands by or against the Company or any differences arising in execution of contracts to conciliation and arbitration and to observe, comply with and/or challenge any awards preliminary, interim or final made in any such arbitration.24.To pay out of the funds of the Company all costs, charges, expenses and preliminary and incidental to the promotion, formation, establishment and registration of the Company or other expenses incurred in this regard.
25.Subject to provisions of Sections 181, 182 & 183 of Companies Act, 2013 to contribute money or otherwise assist to charitable, benevolent, religious, scientific national, defense, public or other institutions or objects or purposes.
26.To open an account or accounts with any individual, firm or company or with any bank bankers or shroofs and to pay into and withdraw money from such account or accounts.
27.To accept gifts, bequests, devises and donations from members and others and to make gifts to members and others of money, assets and properties of any kind.
28.To carry out all or any of the objects of the company and do all or any of the above things in any part of the world and either as principal, agent, contractor or trustee or otherwise and either alone or in conjunction with others.
29.To negotiate and/or enter into agreement and contract with individuals, companies, corporations, foreign or Indian, for obtaining or providing technical, financial or any other assistance for carrying on all or any of the objects of the Company and also for the purpose of activating, research, development of projects on the

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basis of know-how and/or financial participation and for technical collaboration, and to acquire or provide necessary formulate and patent rights for furthering the objects of the company.

30.To aid peculiarly or otherwise, any association, body or movement having for its object the solution, settlement or surmounting of industrial or labour problems or trouble or the promotion of industry or trade.

31.Subject to the provisions of Companies Act, 2013 or any amendment or re-enactment thereof in the event of winding up to distribute among the members in specie any property of the Company or any proceeds of sale on disposal of any property in accordance with the provisions of the Act.

32.To do all such other things as may be deemed incidental or conducive to the attainment of the above Objects or any of them and to carry on any business which may seem to the Company capable of being conveniently carried in connection with any of the Company's Objects or calculated directly or indirectly to enhance the value of or render profitable any of the Company's property or rights.

33.To establish, provide, maintain and conduct or otherwise subsidies research laboratories and experimental workshops for scientific, technical or researches, experiments and to undertake and carry on directly or in collaboration with other agencies scientific and technical research experiments and tests of all kinds and to process, improve and invent new products and their techniques of manufacture and to promote, encourage, reward in every manner studies and research, scientific and technical investigations and inventions of any kind that may be considered likely to assist, encourage and promote rapid advances in

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technology, economies, import substitution or any business which the Company is authorized to carry on.
34.Subject to provisions of the Companies Act, 2013, to evolve scheme for restructuring or arrangement, to amalgamate or merge or to enter into partnership or into any consortium or arrangement for sharing of profits, union of interests, co-operation, joint venture with any Person or Persons, partnership firm/firms, or company or companies carrying on or engaged in any operation capable of being conducted so conveniently in cooperation with the business of the Company or to benefit the Company or to the activities for which the Company has been established.
35.To apply for purchase, or otherwise acquire any trade marks, patents, brevets, inventions, licenses, concessions and the like, conferring any exclusive or nonexclusive or limited rights to use, or any secret or other information as to any invention which may be capable of being used for any of the purposes of the Company, or the acquisition of which may benefit the Company and to use, exercise, develop or grant licenses in respect of or otherwise turn to account the property, rights or information so acquired.
36.To sell, dispose or hive off an undertaking of the Company or any part thereof for such consideration as the Company may think fit and in particular for shares, debentures or securities of any other association, corporation or company.
37.To sell, improve, manage, develop, exchange, loan, lease or let, under-lease, sub - let, mortgage, dispose of, deal with in any manner, turn to account or otherwise deal with any rights or property of the Company.

4 The liability of the member(s) is limited, and this liability is limited to the amount unpaid if any, on the shares held by them.

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The liability of the member(s) is limited
The liability of the member(s) is Unlimited

5 Every member of the company undertakes to contribute:

(i) to the assets of the company in the event of its being wound up while he is a member, or within one year after he ceases to be a member, for payment of the debts and liabilities of the company or of such debts and liabilities as may have been contracted before he ceases to be a member; and

(ii) to the costs, charges and expenses of winding up (and for the adjustment of the rights of the contributories among themselves), such amount as may be required, not exceeding * [ ] rupees.

(iii) The share capital of the company is [500000] rupees, divided into

Equity Share	Shares of	10	Rupees each		50000

6

☐ We, the several persons, whose names and address are subscribed, are desirous of being formed into a company in pursuance of this memorandum of association, and we respectively agree to take the number of shares in the capital of the company set against our respective names:

☐ I, whose name and address is given below, am desirous of forming a company in pursuance of this memorandum of association and agree to take all the shares in the capital of the company:

☐ We, the several persons, whose names and addresses are subscribed, are desirous of being formed into a company in pursuance of this memorandum of association:

Subscriber Details

S. No.	*Name, Address, Description and Occupation	DIN / PAN / Passport number	No. of shares taken	DSC	Dated
1	REC POWER DEVELOPMENT AND CONSULTANCY LIMITED, CORE-4, SCOPE COMPLEX, 7, LODHI ROAD, NEW DELHI-110003, THROUGH ITS CEO RAHUL DWIVEDI S/O RAM MURTI DWIVEDI R/O 640, ASIAD GAMES VILLAGE, MARUTI MANE BLOCK, SADIQ NAGAR, NEW DELHI-110049, OCCUPATION-SERVICES	AHWPD5068L	49994 Equity,0 Preferenc	Rahul Dwivedi	27/04/2023
2	THANGARAJAN BOSH S/O SHRI SITHAN THANGARAJAN NOMINEE OF REC POWER DEVELOPMENT AND CONSULTANCY LIMITED R/O APARTMENT NO S-2,	02772316	1 Equity,0 Preference		27/04/2023

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	MIDDLE PORTION 2-B, JANGPURA, MATHURA ROAD, NEW DELHI-110014, OCCUPATION-SERVICE				
3	PUTHIYARKATTU SHIVARAMAN HARIHARAN S/O SHRI PUTHIYARAKAT VELAYUDHAN SIVARAMAN NOMINEE OF REC POWER DEVELOPMENT AND CONSULTANCY LIMITED FLAT NO.104, SADAR APARTMENT, MAYUR VIHAR EXTENTION, PHASE-1, PLOT NO.9, NEW DELHI-110091, OCCUPATION-SERVICE	08657652	1 Equity,0 Preference	P S HARIHARAN	27/04/2023
4	SHAMBHU SHANKER GUPTA S/O KESHAWA GUPTA PRASAD NOMINEE OF REC POWER DEVELOPMENT AND CONSULTANCY LIMITED, R/0 8/927, VIKAS NAGAR, LUCKNOW-226022, UTTAR PRADESH, OCCUPATION-SERVICE	09816600	1 Equity,0 Preference	Shambhu Shankar Gupta	27/04/2023
5	MOHAN LAL KUMAWAT S/O SHRI RAMU RAM KUMAWAT NOMINEE OF REC POWER DEVELOPMENT AND CONSULTANCY LIMITED FLAT NO 142 TOWER -1 GC EMERALD, RAMPRASTHA GREENS VAISHALI SECTOR-7, GHAZIABAD-201010, UTTAR PRADESH, OCCUPATION-SERVICE	07682898	1 Equity,0 Preference	Mohan Lal Kumawat	27/04/2023
6	SAHAB NARAIN S/O HARI NARAIN NOMINEE OF REC POWER DEVELOPMENT AND CONSULTANCY LIMITED R/O A-1, FLAT NO 103, SOAMI NAGAR, MALVIYA NAGAR, DELHI-110017, OCCUPATION-SERVICE	03641879	1 Equity,0 Preference	SAHAB NARAIN	27/04/2023
7	RAJENDRA KUMAR GUPTA S/O LALLU RAM GUPTA NOMINEE OF REC POWER DEVELOPMENT AND CONSULTANCY LIMITED, R/0 204, MILLENIA HEIGHTS, RAMPRASHTA GREENS, SECTOR-7, VAISHALI , I.E.SAHIBABAD, GHAZIABAD-201010, UTTAR PRADESH, OCCUPATION-SERVICE	06949686	1 Equity,0 Preference	Rajendra Kumar Gupta	27/04/2023
Total shares taken			50000 Equity,0 Preference		

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Signed before me

Membership type of the witness *(ACA/FCA/ACS/FCS/ ACMA/FCMA)*	*Name of the witness	*Address, Description and Occupation	DIN / PAN / Passport number / Membership number	DSC	Dated
	VINAY KUMAR	1803, TOWER-9, LA RESIDENTIA, TECH ZONE-4, GREATER NOIDA WEST-201306	402996	Vinay Kumar	27/04/2023

7 Shri / Smt _____ Of _____ resident of _____ aged _____ years shall be the nominee in the event of death of the sole member.

Rajasthan Part Power Transmission Limited

Form No. INC-34

e-AOA (e-Articles of Association)

[Pursuant to Section 5 of the Companies Act, 2013 and rules made thereunder read with Schedule I]

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Form language

(•) English ( ) Hindi

Refer instruction kit for filing the form.

*All fields marked in * are mandatory*

Table applicable to company as notified under schedule I of the Companies Act, 2013 *(F, G, H)*	F
Table F / G / H (basis on the selection of above-mentioned field) as notified under schedule I of the companies Act, 2013 is applicable to *(F – a company limited by shares G– a company limited by guarantee and having a share capital H – a company limited by guarantee and not having share capital)*	F - A COMPANY LIMITED BY SHARES
The name of the company is	RAJASTHAN PART I POWER TRANSMISSION LIMITED

Check if not applicable	Check if altered	Article No.	Description
			Interpretation
☐	☑	I	• (1) In these regulations- (a) "the Act" means the Companies Act,2013, (b) "the seal" means the common seal of the company. (2)Unless the context otherwise requires, words or expressionscontained in these regulations shall bear the same meaning as inthe Act or any statutory modification thereof in force at the date atwhich these regulations become binding on the company.(3)"Public company means a company which-(a) is not a privatecompany;(b) has a minimum paid-up share capital as may beprescribed:Provided that a company which is a subsidiary of acompany, not being a private company, shall be deemed to bepublic company for the purposes of this Act even where suchsubsidiary company continues to be a private company in itsarticles.
			Share Capital and Variation of rights
☐	☐	II 1	• Subject to the provisions of the Act and these Articles, the shares in the capital of the company shall be under the control of the Directors who may issue, allot or otherwise dispose of the same or any of them to such persons, in such proportion and on such terms and conditions and either at a premium or at par and at such time as they may from time to time think fit.

Rajasthan Part I Power Transmission Limited

☐	☑	2
		• Every person whose name is entered as a member in the register of members shall be entitled to receive within two months after incorporation, in case of subscribers to the memorandum or after allotment or within one month after the application for the registration of transfer or transmission or within such other period as the conditions of issue shall be provided,? one certificate for all his shares without payment of any charges; or several certificates,each for one or more of his shares,upon payment of twenty rupees for each certificate after the first. Every certificate shall be under the seal and shall specify the shares to which it relates and the amount paid - up thereon. In respect of any share or shares held jointly by several persons, the company shall not be bound to issue more than one certificate, and delivery of a certificate for a share to one of several joint holders shall be sufficient delivery to all such holders
☐	☐	3
		i. If any share certificate be worn out, defaced, mutilated or torn or if there be no further space on the back for endorsement of transfer, then upon production and surrender thereof to the company, a new certificate may be issued in lieu thereof, and if any certificate is lost or destroyed then upon proof thereof to the satisfaction of the company and on execution of such indemnity as the company deem adequate, a new certificate in lieu thereof shall be given. Every certificate under this Article shall be issued on payment of twenty rupees for each certificate. ii. The provisions of Articles(2) and(3) shall mutatis mutandis apply to debentures of the company.
☐	☐	4
		Except as required by law, no person shall be recognised by the company as holding any share upon any trust, and the company shall not be bound by, or be compelled in any way to recognise (even when having notice thereof) any equitable, contingent, future or partial interest in any share, or any interest in any fractional part of a share, or (except only as by these regulations or by law otherwise provided) any other rights in respect of any share except an absolute right to the entirety thereof in the registered holder.
☐	☐	5
		i. The company may exercise the powers of paying commissions conferred by sub-section (6) of section 40, provided that the rate per cent or the amount of the commission paid or agreed to be paid shall be disclosed in the manner required by that section and rules made thereunder. ii. The rate or amount of the commission shall not exceed the rate or amount prescribed in rules made under sub-section (6) of section 40. iii. The commission may be satisfied by the payment of cash or the allotment of fully or partly paid shares or partly in the one way and partly in the other.
☐	☐	6
		i. If at any time the share capital is divided into different classes of shares, the rights attached to any class (unless otherwise provided by the terms of issue of the shares of that class) may, subject to the provisions of section 48, and whether or not the company is being wound up, be varied with the consent in writing of the holders of three-fourths of the issued shares of that class, or with the sanction of a special resolution passed at a separate meeting of the holders of the shares of that class. ii. To every such separate meeting, the provisions of these regulations

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		relating to general meetings shall mutatis mutandis apply, but so that the necessary quorum shall be at least two persons holding at least one-third of the issued shares of the class in question.
	7	The rights conferred upon the holders of the shares of any class issued with preferred or other rights shall not, unless otherwise expressly provided by the terms of issue of the shares of that class, be deemed to be varied by the creation or issue of further shares ranking pari passu therewith.
	8	Subject to the provisions of section 55, any preference shares may, with the sanction of an ordinary resolution, be issued on the terms that they are to be redeemed on such terms and in such manner as the company before the issue of the shares may, by special resolution, determine.
		Lien
	9	i. The company shall have a first and paramount lien? a. on every share (not being a fully paid share), for all monies (whether presently payable or not) called, or payable at a fixed time, in respect of that share; and b. on all shares (not being fully paid shares) standing registered in the name of a single person, for all monies presently payable by him or his estate to the company: Provided that the Board of directors may at any time declare any share to be wholly or in part exempt from the provisions of this clause. ii. The company?s lien, if any, on a share shall extend to all dividends payable and bonuses declared from time to time in respect of such shares.
	10	• The company may sell, in such manner as the Board thinks fit, any shares on which the company has a lien:Provided that no sale shall be made? • a unless a sum in respect of which the lien exists is presently payable; or • b until the expiration of fourteen days after a notice in writing stating and demanding payment of such part of the amount in respect of which the lien exists as is presently payable, has been given to the registered holder for the time being of the share or the person entitled thereto by reason of his death or insolvency.
	11	i. To give effect to any such sale, the Board may authorise some person to transfer the shares sold to the purchaser thereof ii. The purchaser shall be registered as the holder of the shares comprised in any such transfer. iii. The purchaser shall not be bound to see to the application of the purchase money, nor shall his title to the shares be affected by any irregularity or invalidity in the proceedings in reference to the sale.
	12	i. The proceeds of the sale shall be received by the company and applied in payment of such part of the amount in respect of which the lien exists as is presently payable. ii. The residue, if any, shall, subject to a like lien for sums not presently payable as existed upon the shares before the sale, be paid to the person entitled to the shares at the date of the sale.
		Calls on shares

		13	i. The Board may, from time to time, make calls upon the members in respect of any monies unpaid on their shares (whether on account of the nominal value of the shares or by way of premium) and not by the conditions of allotment thereof made payable at fixed times: Provided that no call shall exceed one-fourth of the nominal value of the share or be payable at less than one month from the date fixed for the payment of the last preceding call. ii. Each member shall, subject to receiving at least fourteen days? notice specifying the time or times and place of payment, pay to the company, at the time or times and place so specified, the amount called on his shares. iii. A call may be revoked or postponed at the discretion of the Board.
		14	A call shall be deemed to have been made at the time when the resolution of the Board authorizing the call was passed and may be required to be paid by instalments.
		15	The joint holders of a share shall be jointly and severally liable to pay all calls in respect thereof.
		16	• If a sum called in respect of a share is not paid before or on the day appointed for payment thereof, the person from whom the sum is due shall pay interest thereon from the day appointed for payment thereof to the time of actual payment at ten per cent per annum or at such lower rate, if any, as the Board may determine. • The Board shall be at liberty to waive payment of any such interest wholly or in part.
		17	i. Any sum which by the terms of issue of a share becomes payable on allotment or at any fixed date, whether on account of the nominal value of the share or by way of premium, shall, for the purposes of these regulations, be deemed to be a call duly made and payable on the date on which by the terms of issue such sum becomes payable. ii. In case of non-payment of such sum, all the relevant provisions of these regulations as to payment of interest and expenses, forfeiture or otherwise shall apply as if such sum had become payable by virtue of a call duly made and notified.
		18	• The Board - • a. may, if it thinks fit, receive from any member willing to advance the same, all or any part of the monies uncalled and unpaid upon any shares held by him and • b. upon all or any of the monies so advanced, may (until the same would, but for such advance, become presently payable) pay interest at such rate not exceeding, unless the company in general meeting shall otherwise direct, twelve per cent per annum, as may be agreed upon between the Board and the member paying the sum in advance.
			Transfer of shares
		19	i. The instrument of transfer of any share in the company shall be executed by or on behalf of both the transferor and transferee. ii. The transferor shall be deemed to remain a holder of the share until the name of the transferee is entered in the register of members in respect thereof.

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	20	i. The Board may, subject to the right of appeal conferred by section 58 decline to register? ii. the transfer of a share, not being a fully paid share, to a person of whom they do not approve; or iii. any transfer of shares on which the company has a lien.
	21	• The Board may decline to recognise any instrument of transfer unless? • a. the instrument of transfer is in the form as prescribed in rules made under sub-section (1) of section 56; • b. the instrument of transfer is accompanied by the certificate of the shares to which it relates, and such other evidence as the Board may reasonably require to show the right of the transferor to make the transfer; and • c. the instrument of transfer is in respect of only one class of shares.
	22	• On giving not less than seven days? previous notice in accordance with section 91 and rules made thereunder, the registration of transfers may be suspended at such times and for such periods as the Board may from time to time determine: • Provided that such registration shall not be suspended for more than thirty days at any one time or for more than forty-five days in the aggregate in any year.
		Transmission of shares
	23	i. On the death of a member, the survivor or survivors where the member was a joint holder, and his nominee or nominees or legal representatives where he was a sole holder, shall be the only persons recognised by the company as having any title to his interest in the shares ii. Nothing in clause (i) shall release the estate of a deceased joint holder from any liability in respect of any share which had been jointly held by him with other persons.
	24	i. Any person becoming entitled to a share in consequence of the death or insolvency of a member may, upon such evidence being produced as may from time to time properly be required by the Board and subject as hereinafter provided, elect, either? a. to be registered himself as holder of the share; or b. to make such transfer of the share as the deceased or insolvent member could have made. ii. The Board shall, in either case, have the same right to decline or suspend registration as it would have had, if the deceased or insolvent member had transferred the share before his death or insolvency.
	25	i. If the person so becoming entitled shall elect to be registered as holder of the share himself, he shall deliver or send to the company a notice in writing signed by him stating that he so elects. ii. If the person aforesaid shall elect to transfer the share, he shall testify his election by executing a transfer of the share. iii. All the limitations, restrictions and provisions of these regulations relating to the right to transfer and the registration of transfers of shares shall be applicable to any such notice or transfer as aforesaid as if the death or insolvency of the member had not occurred and

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		the notice or transfer were a transfer signed by that member.
	26	• A person becoming entitled to a share by reason of the death or insolvency of the holder shall be entitled to the same dividends and other advantages to which he would be entitled if he were the registered holder of the share, except that he shall not, before being registered as a member in respect of the share, be entitled in respect of it to exercise any right conferred by membership in relation to meetings of the company: • Provided that the Board may, at any time, give notice requiring any such person to elect either to be registered himself or to transfer the share, and if the notice is not complied with within ninety days, the Board may thereafter withhold payment of all dividends, bonuses or other monies payable in respect of the share, until the requirements of the notice have been complied with.
	27	In case of a One Person Company?
		Forfeiture of shares
	28	If a member fails to pay any call, or instalment of a call, on the day appointed for payment thereof, the Board may, at any time thereafter during such time as any part of the call or instalment remains unpaid, serve a notice on him requiring payment of so much of the call or instalment as is unpaid, together with any interest which may have accrued.
	29	• The notice aforesaid shall? • name a further day (not being earlier than the expiry of fourteen days from the date of service of the notice) on or before which the payment required by the notice is to be made; and • state that, in the event of non-payment on or before the day so named, the shares in respect of which the call was made shall be liable to be forfeited.
	30	If the requirements of any such notice as aforesaid are not complied with, any share in respect of which the notice has been given may, at any time thereafter, before the payment required by the notice has been made, be forfeited by a resolution of the Board to that effect.
	31	i. A forfeited share may be sold or otherwise disposed of on such terms and in such manner as the Board thinks fit. ii. At any time before a sale or disposal as aforesaid, the Board may cancel the forfeiture on such terms as it thinks fit.
	32	i. A person whose shares have been forfeited shall cease to be a member in respect of the forfeited shares, but shall, notwithstanding the forfeiture, remain liable to pay to the company all monies which, at the date of forfeiture, were presently payable by him to the company in respect of the shares. ii. The liability of such person shall cease if and when the company shall have received payment in full of all such monies in respect of the shares.
		i. A duly verified declaration in writing that the declarant is a director, the manager or the secretary, of the company, and that a share in the company has been duly forfeited on a date stated in the declaration, shall be conclusive evidence of the facts therein stated as against all persons claiming to be entitled to the share;

	33	ii. The company may receive the consideration, if any, given for the share on any sale or disposal thereof and may execute a transfer of the share in favour of the person to whom the share is sold or disposed of; iii. The transferee shall thereupon be registered as the holder of the share; and iv. The transferee shall not be bound to see to the application of the purchase money, if any, nor shall his title to the share be affected by any irregularity or invalidity in the proceedings in reference to the forfeiture, sale or disposal of the share.
	34	The provisions of these regulations as to forfeiture shall apply in the case of non-payment of any sum which, by the terms of issue of a share, becomes payable at a fixed time, whether on account of the nominal value of the share or by way of premium, as if the same had been payable by virtue of a call duly made and notified.
		Alteration of capital
	35	The company may, from time to time, by ordinary resolution increase the share capital by such sum, to be divided into shares of such amount, as may be specified in the resolution.
	36	• Subject to the provisions of section 61, the company may, by ordinary resolution,? • consolidate and divide all or any of its share capital into shares of larger amount than its existing shares; • convert all or any of its fully paid-up shares into stock, and reconvert that stock into fully paid-up shares of any denomination; • sub-divide its existing shares or any of them into shares of smaller amount than is fixed by the memorandum; • cancel any shares which, at the date of the passing of the resolution, have not been taken or agreed to be taken by any person.
	37	• Where shares are converted into stock,? • the holders of stock may transfer the same or any part thereof in the same manner as, and subject to the same regulations under which, the shares from which the stock arose might before the conversion have been transferred, or as near thereto as circumstances admit: • Provided that the Board may, from time to time, fix the minimum amount of stock transferable, so, however, that such minimum shall not exceed the nominal amount of the shares from which the stock arose. • the holders of stock shall, according to the amount of stock held by them, have the same rights, privileges and advantages as regards dividends, voting at meetings of the company,and other matters, as if they held the shares from which the stock arose; but no such privilege or advantage (except participation in the dividends and profits of the company and in the assets on winding up) shall be conferred by an amount of stock which would not, if existing in shares, have conferred that privilege or advantage. • such of the regulations of the company as are applicable to paid-up shares shall apply to stock and the words ?share? and ?shareholder? in those regulations shall include ?stock? and ?stock-holder? respectively.
		• The company may, by special resolution, reduce in any manner and

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		38	with, and subject to, any incident authorised and consent required by law, ? • it share capital; • any capital redemption reserve account; or • any share premium account.
			Capitalisation of profits
⌜	⌜	39	• The company in general meeting may, upon the recommendation of the Board, resolve? • that it is desirable to capitalise any part of the amount for the time being standing to the credit of any of the company?s reserve accounts, or to the credit of the, profit and loss account,or otherwise available for distribution; and • that such sum be accordingly set free for distribution in the manner specified in clause (ii) amongst the members who would have been entitled thereto, if distributed by way of dividend and in the same proportions. • The sum aforesaid shall not be paid in cash but shall be applied, subject to the provision contained in clause (iii), either in or towards? • paying up any amounts for the time being unpaid on any shares held by such members respectively; • paying up in full, unissued shares of the company to be allotted and distributed, credited as fully paid-up, to and amongst such members in the proportions aforesaid; • partly in the way specified in sub-clause (A) and partly in that specified in sub-clause (B); • A securities premium account and a capital redemption reserve account may, for the purposes of this regulation, be applied in the paying up of unissued shares to be issued to members of the company as fully paid bonus shares; • The Board shall give effect to the resolution passed by the company in pursuance of this regulation.
⌜	⌜	40	i. Whenever such a resolution as aforesaid shall have been passed, the Board shall? a. make all appropriations and applications of the undivided profits resolved to be capitalised thereby, and all allotments and issues of fully paid shares if any; and b. generally do all acts and things required to give effect thereto. ii. The Board shall have power? a. to make such provisions, by the issue of fractional certificates or by payment in cash or otherwise as it thinks fit, for the case of shares becoming distributable in fractions; and b. to authorise any person to enter, on behalf of all the members entitled thereto, into an agreement with the company providing for the allotment to them respectively, credited as fully paid-up, of any further shares to which they may be entitled upon such capitalisation, or as the case may require, for the payment by the company on their behalf, by the application thereto of their respective proportions of profits resolved to be capitalised, of the amount or any part of the amounts remaining unpaid on their existing shares;

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		iii. Any agreement made under such authority shall be effective and binding on such members
		Buy-back of shares
	41	Notwithstanding anything contained in these articles but subject to the provisions of sections 68 to 70 and any other applicable provision of the Act or any other law for the time being in force, the company may purchase its own shares or other specified securities.
		General meetings
	42	All general meetings other than annual general meeting shall be called extraordinary general meeting.
	43	i. The Board may, whenever it thinks fit, call an extraordinary general meeting. ii. If at any time directors capable of acting who are sufficient in number to form a quorum are not within India, any director or any two members of the company may call an extraordinary general meeting in the same manner, as nearly as possible, as that in which such a meeting may be called by the Board.
		Proceedings at general meetings
	44	i. No business shall be transacted at any general meeting unless a quorum of members is present at the time when the meeting proceeds to business. ii. Save as otherwise provided herein, the quorum for the general meetings shall be as provided in section 103.
	45	The chairperson, if any, of the Board shall preside as Chairperson at every general meeting of the company.
	46	If there is no such Chairperson, or if he is not present within fifteen minutes after the time appointed for holding the meeting or is unwilling to act as chairperson of the meeting, the directors present shall elect one of their members to be Chairperson of the meeting.
	47	If at any meeting no director is willing to act as Chairperson or if no director is present within fifteen minutes after the time appointed for holding the meeting, the members present shall choose one of their members to be Chairperson of the meeting.
	48	In case of a One Person Company?
		Adjournment of meeting
	49	i. The Chairperson may, with the consent of any meeting at which a quorum is present, and shall, if so directed by the meeting, adjourn the meeting from time to time and from place to place. ii. No business shall be transacted at any adjourned meeting other than the business left unfinished at the meeting from which the adjournment took place. iii. When a meeting is adjourned for thirty days or more, notice of the adjourned meeting shall be given as in the case of an original meeting. iv. Save as aforesaid, and as provided in section 103 of the Act, it shall not be necessary to give any notice of an adjournment or of the

		business to be transacted at an adjourned meeting.
		Voting rights
	50	• Subject to any rights or restrictions for the time being attached to any class or classes of shares,? • on a show of hands, every member present in person shall have one vote; and • on a poll, the voting rights of members shall be in proportion to his share in the paid-up equity share capital of the company.
	51	A member may exercise his vote at a meeting by electronic means in accordance with section 108 and shall vote only once.
	52	i. In the case of joint holders, the vote of the senior who tenders a vote, whether in person or by proxy, shall be accepted to the exclusion of the votes of the other joint holders. ii. For this purpose, seniority shall be determined by the order in which the names stand in the register of members.
	53	A member of unsound mind, or in respect of whom an order has been made by any court having jurisdiction in lunacy, may vote, whether on a show of hands or on a poll, by his committee or other legal guardian, and any such committee or guardian may, on a poll, vote by proxy.
	54	Any business other than that upon which a poll has been demanded maybe proceeded with, pending the taking of the poll.
	55	No member shall be entitled to vote at any general meeting unless all calls or other sums presently payable by him in respect of shares in the company have been paid
	56	i. No objection shall be raised to the qualification of any voter except at the meeting or adjourned meeting at which the vote objected to is given or tendered, and every vote not disallowed at such meeting shall be valid for all purposes. ii. Any such objection made in due time shall be referred to the Chairperson of the meeting, whose decision shall be final and conclusive.
		Proxy
	57	The instrument appointing a proxy and the power-of-attorney or other authority, if any, under which it is signed or a notarised copy of that power or authority, shall be deposited at the registered office of the company not less than 48 hours before the time for holding the meeting or adjourned meeting at which the person named in the instrument proposes to vote, or, in the case of a poll, not less than 24 hours before the time appointed for the taking of the poll; and in default the instrument of proxy shall not be treated as valid.
	58	An instrument appointing a proxy shall be in the form as prescribed in the rules made under section 105
	59	• A vote given in accordance with the terms of an instrument of proxy shall be valid, notwithstanding the previous death or insanity of the principal or the revocation of the proxy or of the authority under which the proxy was executed, or the transfer of the shares in respect of which the proxy is given: • Provided that no intimation in writing of such death, insanity, revocation or transfer shall have been received by the company at

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			its office before the commencement of the meeting or adjourned meeting at which the proxy is used.
			Board of Directors
☐	☑	60	• The day to day management of the business of the Company shallbe vested with the Board of Directors of the Company or suchperson(s), as may be authorized by the Board from time to time. TheBoard may exercise all such powers of the Company and do all suchacts, deeds and things as are not prohibited by the Act or any otherlaw for the time being in force or by the Memorandum ofAssociation of the Company and without prejudice to theforegoing, shall be responsible for all policy matters and thesupervision, direction and control of the conduct of the businessaffairs and operations of the Company.(i) The first Directors of theCompany shall be:-1. KULDEEP RAI2. RAJESH KUMAR3. JATINKUMAR NAYAK(ii) At every annual general meeting, one-third ofsuch of the directors for the time being as are liable to retire byrotation, or if their number is neither three nor a multiple of threethen, the number nearest to one-third, shall retire from office. (iii)The directors to retire by rotation at every annual general meetingshall be those who have been longest in office since their lastappointment, but as between persons who became directors onthe same day, those who are to retire shall, in default of and subjectto any subject to any agreement among themselves, be determinedby lot.(iv) At annual general meeting at which a director retires asaforesaid, the company may fill up the vacancy by appointing theretiring director or some other person thereto.The Board ofDirectors of the Company shall consist of not less than 3 but notmore than 15 Directors.The appointment of Directors including theChairman, Managing Director, Whole time Director, Part-timeDirector shall be done in the General Meetings in accordance withthe provisions of the Companies Act, 2013 and Rules madethereunder and shall be eligible for reappointment.However, till theCompany is a Government Company, REC Power Development andConsultancy Limited (RECPDCL)- the holding company shall havethe full powers to recommend / nominate the name of anyDirectors to be appointed on the Board of the Company.Further,RECPDCL shall also have the power to remove any director fromoffice at any time in its absolute discretion. RECPDCL shall also havethe right to fill any vacancies in the office of director caused byremoval, resignation, death or otherwise.Subject to provisions ofthe Act, the Company may by passing the resolution in GeneralMeeting increase/decrease the maximum number of Directors, andmay alter their qualification.Further the Company may, subject tothe provisions of the Act, remove any Director before the expirationof his period of office and appoint another person in place ofhim.The Board may appoint any person to act as alternate directorfor a Director during the later's absence for a period of not less thanthree months from India and such appointment shall have effectand such appointee, whilst he holds office as an alternate director,shall be entitled to notice of meeting of the Board and to attendand vote there at accordingly; but he shall not require anyqualification and shall ipso facto vacate office if and when theabsent Director returns to India.Casual vacancies among Directors may be filled by the Board of Directors, at their meeting and anyperson so appointed shall hold the office as per the provision ofsection 161 of the Act.Subject

		to the provisions of Section 161 andother applicable provisions (if any) of the Act, the Board shall havepower at any time and from time to time, to appoint a person as anAdditional Director but so that the total number of Directors shallnot at any time exceed the maximum number fixed by theseArticles. The Additional Director so appointed shall retire fromOffice at next annual General Meeting but shall be eligible forelection by the company at that meeting as a Director.
	61	• The remuneration of the directors shall, in so far as it consists of a monthly payment, be deemed to accrue from day-to-day. • In addition to the remuneration payable to them in pursuance of the Act, the directors may be paid all travelling, hotel and other expenses properly incurred by them? • in attending and returning from meetings of the Board of Directors or any committee thereof or general meetings of the company; or • in connection with the business of the company.
	62	The Board may pay all expenses incurred in getting up and registering the company.
	63	The company may exercise the powers conferred on it by section 88 with regard to the keeping of a foreign register; and the Board may (subject to the provisions of that section) make and vary such regulations as it may think fit respecting the keeping of any such register.
	64	All cheques, promissory notes, drafts, hundis, bills of exchange and other negotiable instruments, and all receipts for monies paid to the company, shall be signed, drawn, accepted, endorsed, or otherwise executed, as the case may be, by such person and in such manner as the Board shall from time to time by resolution determine
	65	Every director present at any meeting of the Board or of a committee thereof shall sign his name in a book to be kept for that purpose.
	66	i. Subject to the provisions of section 149, the Board shall have power at any time, and from time to time, to appoint a person as an additional director, provided the number of the directors and additional directors together shall not at any time exceed the maximum strength fixed for the Board by the articles. ii. Such person shall hold office only up to the date of the next annual general meeting of the company but shall be eligible for appointment by the company as a director at that meeting subject to the provisions of the Act.
		Proceedings of the Board
	67	• The Board of Directors may meet for the conduct of business, adjourn and otherwise regulate its meetings, as it thinks fit. • A director may, and the manager or secretary on the requisition of a director shall, at any time, summon a meeting of the Board.
	68	i. Save as otherwise expressly provided in the Act, questions arising at any meeting of the Board shall be decided by a majority of votes. ii. In case of an equality of votes, the Chairperson of the Board, if any, shall have a second or casting vote.
		The continuing directors may act notwithstanding any vacancy in the Board; but, if and so long as their number is reduced below the quorum fixed by

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	69	the Act for a meeting of the Board, the continuing directors or director may act for the purpose of increasing the number of directors to that fixed for the quorum, or of summoning a general meeting of the company, but for no other purpose.
☐ ☐	70	i. The Board may elect a Chairperson of its meetings and determine the period for which he is to hold office. ii. If no such Chairperson is elected, or if at any meeting the Chairperson is not present within five minutes after the time appointed for holding the meeting, the directors present may choose one of their number to be Chairperson of the meeting.
☐ ☐	71	i. The Board may, subject to the provisions of the Act, delegate any of its powers to committees consisting of such member or members of its body as it thinks fit. ii. Any committee so formed shall, in the exercise of the powers so delegated, conform to any regulations that may be imposed on it by the Board.
☐ ☐	72	i. A committee may elect a Chairperson of its meetings. ii. If no such Chairperson is elected, or if at any meeting the Chairperson is not present within five minutes after the time appointed for holding the meeting, the memberspresent may choose one of their members to be Chairperson of the meeting.
☐ ☐	73	i. A committee may meet and adjourn as it thinks fit. ii. Questions arising at any meeting of a committee shall be determined by a majority of votes of the members present, and in case of an equality of votes, the Chairperson shall have a second or casting vote.
☐ ☐	74	All acts done in any meeting of the Board or of a committee thereof or by any person acting as a director, shall, notwithstanding that it may be afterwards discovered that there was some defect in the appointment of any one or more of such directors or of any person acting as aforesaid, or that they or any of them were disqualified, be as valid as if every such director or such person had been duly appointed and was qualified to be a director.
☐ ☐	75	Save as otherwise expressly provided in the Act, a resolution in writing, signed by all the members of the Board or of a committee thereof, for the time being entitled to receive notice of a meeting of the Board or committee, shall be valid and effective as if it had been passed at a meeting of the Board or committee, duly convened and held.
☑ ☐	76	i. In case of a One Person Company? ii. where the company is having only one director, all the businesses to be transacted at the meeting of the Board shall be entered into minutes book maintained under section 118; iii. such minutes book shall be signed and dated by the director; iv. the resolution shall become effective from the date of signing such minutes by the director.
		Chief Executive Officer, Manager, Company Secretary or Chief Financial Officer
☐ ☐		• Subject to the provisions of the Act,? • A chief executive officer, manager, company secretary or chief financial officer may be appointed by the Board for such term, at such remuneration and upon such conditions as it may think fit; and any chief executive officer, manager, company secretary or

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	77	chief financial officer so appointed may be removed by means of a resolution of the Board; • A director may be appointed as chief executive officer, manager, company secretary or chief financial officer
	78	A provision of the Act or these regulations requiring or authorising a thing to be done by or to a director and chief executive officer, manager, company secretary or chief financial officer shall not be satisfied by its being done by or to the same person acting both as director and as, or in place of, chief executive officer, manager, company secretary or chief financial officer.
		The Seal
	79	i. The Board shall provide for the safe custody of the seal. ii. The seal of the company shall not be affixed to any instrument except by the authority of a resolution of the Board or of a committee of the Board authorised by it in that behalf, and except in the presence of at least two directors and of the secretary or such other person as the Board may appoint for the purpose; and those two directors and the secretary or other person aforesaid shall sign every instrument to which the seal of the company is so affixed in their presence.
		Dividends and Reserve
	80	The company in general meeting may declare dividends, but no dividend shall exceed the amount recommended by the Board.
	81	Subject to the provisions of section 123, the Board may from time to time pay to the members such interim dividends as appear to it to be justified by the profits of the company.
	82	i. The Board may, before recommending any dividend, set aside out of the profits of the company such sums as it thinks fit as a reserve or reserves which shall, at the discretion of the Board, be applicable for any purpose to which the profits of the company may be properly applied, including provision for meeting contingencies or for equalizing dividends; and pending such application, may, at the like discretion, either be employed in the business of the company or be invested in such investments (other than shares of the company) as the Board may, from time to time, thinks fit. ii. The Board may also carry forward any profits which it may consider necessary not to divide, without setting them aside as a reserve
	83	i. Subject to the rights of persons, if any, entitled to shares with special rights as to dividends, all dividends shall be declared and paid according to the amounts paid or credited as paid on the shares in respect whereof the dividend is paid, but if and so long as nothing is paid upon any of the shares in the company, dividends may be declared and paid according to the amounts of the shares. ii. No amount paid or credited as paid on a share in advance of calls shall be treated for the purposes of this regulation as paid on the share. iii. All dividends shall be apportioned and paid proportionately to the amounts paid or credited as paid on the shares during any portion or portions of the period in respect of which the dividend is paid; but if any share is issued on terms providing that it shall rank for dividend as from a particular date such share shall rank for dividend

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		accordingly.
	84	The Board may deduct from any dividend payable to any member all sums of money, if any, presently payable by him to the company on account of calls or otherwise in relation to the shares of the company.
	85	i. Any dividend, interest or other monies payable in cash in respect of shares may be paid by cheque or warrant sent through the post directed to the registered address of the holder or, in the case of joint holders, to the registered address of that one of the joint holders who is first named on the register of members, or to such person and to such address as the holder or joint holders may in writing direct. ii. Every such cheque or warrant shall be made payable to the order of the person to whom it is sent.
	86	Any one of two or more joint holders of a share may give effective receipts for any dividends, bonuses or other monies payable in respect of such share.
	87	Notice of any dividend that may have been declared shall be given to the persons entitled to share therein in the manner mentioned in the Act.
	88	No dividend shall bear interest against the company.
		Accounts
	89	i. The Board shall from time to time determine whether and to what extent and at what times and places and under what conditions or regulations, the accounts and books of the company, or any of them, shall be open to the inspection of members not being directors. ii. No member (not being a director) shall have any right of inspecting any account or book or document of the company except as conferred by law or authorised by the Board or by the company in general meeting.
		Winding up
	90	• Subject to the provisions of Chapter XX of the Act and rules made thereunder? • If the company shall be wound up, the liquidator may, with the sanction of a special resolution of the company and any other sanction required by the Act, divide amongst the members, in specie or kind, the whole or any part of the assets of the company, whether they shall consist of property of the same kind or not. • For the purpose aforesaid, the liquidator may set such value as he deems fair upon any property to be divided as aforesaid and may determine how such division shall be carried out as between the members or different classes of members. • The liquidator may, with the like sanction, vest the whole or any part of such assets in trustees upon such trusts for the benefit of the contributories if he considers necessary, but so that no member shall be compelled to accept any shares or other securities whereon there is any liability.
		Indemnity
		Every officer of the company shall be indemnified out of the assets of the

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☐	☐	91	company against any liability incurred by him in defending any proceedings, whether civil or criminal, in which judgment is given in his favour or in which he is acquitted or in which relief is granted to him by the court or the Tribunal.
			Others
☐	☐	92	

Subscriber Details

S. No.	Subscriber Details				
	***Name, Address, Description and Occupation**	**DIN / PAN / Passport number**	***Place**	**DSC**	**Dated**
1	REC POWER DEVELOPMENT AND CONSULTANCY LIMITED, CORE-4, SCOPE COMPLEX, 7, LODHI ROAD, NEW DELHI-110003, THROUGH ITS CEO RAHUL DWIVEDI S/O RAM MURTI DWIVEDI R/O 640, ASIAD GAMES VILLAGE, MARUTI MANE BLOCK, SADIQ NAGAR, NEW DELHI-110049, OCCUPATIONSERVICES	AHWPD5068L	NEW DELHI	Rahul Dwivedi	27/04/2023
2	THANGARAJAN BOSH S/O SHRI SITHAN THANGARAJAN NOMINEE OF REC POWER DEVELOPMENT AND CONSULTANCY LIMITED R/O APARTMENT NO S-2, MIDDLE PORTION 2-B, JANGPURA, MATHURA ROAD, NEW DELHI-110014, OCCUPATION-SERVICE	02772316	NEW DELHI	Thangarajan Subash Chandra Bosh	27/04/2023
3	PUTHIYARKATTU SHIVARAMAN HARIHARAN S/O SHRI PUTHIYARAKAT VELAYUDHAN SIVARAMAN NOMINEE OF REC POWER DEVELOPMENT AND CONSULTANCY LIMITED FLAT NO.104, SADAR APARTMENT, MAYUR VIHAR EXTENTION, PHASE-1, PLOT NO.9, NEW DELHI-110091, OCCUPATION-SERVICE	08657652	NEW DELHI	P S HARIHARAN	27/04/2023
4	SHAMBHU SHANKER GUPTA S/O KESHAWA GUPTA PRASAD NOMINEE OF REC POWER DEVELOPMENT AND CONSULTANCY LIMITED, R/O 8/927, VIKAS NAGAR, LUCKNOW-226022, UTTAR PRADESH, OCCUPATION-SERVICE	09816600	NEW DELHI	Shambhu Shanker Gupta	27/04/2023
5	MOHAN LAL KUMAWAT S/O SHRI RAMU RAM KUMAWAT NOMINEE OF REC POWER DEVELOPMENT AND CONSULTANCY LIMITED FLAT NO 142 TOWER -1 GC EMERALD, RAMPRASTHA GREENS VAISHALI SECTOR-7, GHAZIABAD-201010, UTTAR PRADESH, OCCUPATION-SERVICE	07682898	NEW DELHI	Mohan Lal Kumawat	27/04/2023
				SARAB NARAIN	

Rajasthan Power Transmission Limited Part I

6	SAHAB NARAIN S/O HARI NARAIN NOMINEE OF REC POWER DEVELOPMENT AND CONSULTANCY LIMITED R/O A-1, FLAT NO 103, SOAMI NAGAR, MALVIYA NAGAR, DELHI-110017, OCCUPATION-SERVICE	03641879	NEW DELHI		27/04/2023
7	RAJENDRA KUMAR GUPTA S/O LALLU RAM GUPTA NOMINEE OF REC POWER DEVELOPMENT AND CONSULTANCY LIMITED, R/0 204, MILLENIA HEIGHTS, RAMPRASHTA GREENS, SECTOR-7, VAISHALI , I.E.SAHIBABAD, GHAZIABAD-201010, UTTAR PRADESH, OCCUPATION-SERVICE	06949686	NEW DELHI	Rajendra Kumar Gupta	27/04/2023

Signed before me

Name Prefix *(ACA/FCA/ACS/ FCS/ACMA/ FCMA)*	***Name of the witness**	***Address, Description and Occupation**	***DIN / PAN / Passport number / Membership**		**DSC**	**Dated**
	VINAY KUMAR	1803, TOWER-9, LA RESIDENTIA, TECH ZONE-4, GREATER NOIDA WEST-201306	402996	NEW DELHI	Vinay Kumar DIN#: 402996	27/04/2023

Rajasthan Part I Power Transmission Limited

potential of the islands, the majority of the units remain powered by fossil fuels.

"You have the sea and plenty of water but making it potable requires massive energy," said Laspidou. "If the energy comes from fossil fuels, you end up with large emissions. Desalination also produces significant amounts of brine, which harms marine ecosystems. I would suggest desalination only if it's the last resort."

The cost of desalinated water, including energy and distribution, often exceeds the price charged to consumers, resulting in a shortfall to the municipality of between 40 and 70 per cent. This financial gap forces the Hellenic Association of Municipal Water and Sewerage Utilities to subsidise the service, leading to a vicious cycle of greater deficits, further impeding infrastructure upgrades.

The chronic lack of centralised water management planning means that maintenance and investment have been haphazard, with each municipality doing whatever it thought best. The Greek national regulator is preparing its first map of water resources this year to manage and plan for future needs including listing desalination units, water drilling sites and required staffing.

"We need to decide our strategy," said Dimitris Paichogios, vice-chair of the Regulatory Authority for Energy, Waste and Water. "Do we want more desalination plants, or do we need to merge facilities on the islands? These are political decisions that need to be made."

As tourist visits continue to increase across southern Europe, governments face an urgent need to develop a water management strategy to preserve resources and support their economies.

Recently, Nadali lifted Sifnos out of emergency status. Water levels were less perilous as warnings were heeded. "The situation is under control at the moment, and we hope to continue this way, but we are in constant agony."

Additional reporting by Amy Kazmin

enforcement of [the US-Mexico-Canada Agreement] will come under additional strain," the groups wrote in a letter to Antony Blinken, US secretary of state, made public yesterday.

López Obrador's party strengthened its majority in congress in June elections and he has vowed to push through the changes before Claudia Sheinbaum, his successor, takes office in October.

The president, who has 60 per cent approval ratings, has transformed Mexican politics in his nearly six years in office. He has slashed spending on the civil service and redirected it to mega-projects and social programmes, while seeking to weaken checks on his power.

López Obrador frequently criticises judges by name and has said elections will bring them closer to the people. On Tuesday, he shrugged off the strike and repeated his message that the judiciary was corrupt. "Most Mexicans won't care . . . it will even help us that the judges and magistrates and ministers are not here — we have at least the guarantee that they will not free criminals."

The judicial reform is one of 18 constitutional changes López Obrador has proposed in an effort to cement his legacy. Others include eliminating some regulators, putting the National Guard under military control and removing proportional representation in congress.

Mexicans have long criticised their justice system as slow, ineffective and riddled with corruption but the parts that citizens rate as the worst, such as police and prosecutors' offices, will not be touched by the proposed changes.

ble' 2025 budget

downgrade by S&P Global Ratings and triggered a sanctions procedure by the European Commission in June.

Macron will meet party leaders and other politicians at the Elysée tomorrow before announcing his choice for premier. The Nouveau Front Populaire, an alliance of leftist parties that won the largest number of seats in the poll but is short of a majority, has pressed him to appoint its candidate Lucie Castets.

While Castets, a civil servant, has signalled some openness to compromise in order to govern, the NFP's tax-and-spend economic agenda diverges from the one proposed by the Macronists.

"Carrying out an austerity policy in the current context seems inappropriate and irresponsible to me," Castets said in an interview with French newspaper Libération yesterday. "This is more dogma than economic logic."

Contracts & Tenders

REC POWER DEVELOPMENT AND CONSULTANCY LIMITED

GLOBAL INVITATION (Through e-bidding Only)
FOR SELECTION OF TRANSMISSION SERVICE PROVIDER THROUGH TARIFF BASED COMPETITIVE BIDDING (TBCB) PROCESS ON BUILD, OWN, OPERATE AND TRANSFER (BOOT) BASIS FOR ONE (1) INTER - STATE TRANSMISSION PROJECT

REC Power Development and Consultancy Limited, New Delhi, India (a wholly owned subsidiary of REC Limited, a Maharatna Central Public Sector Undertaking) invites proposal for setting up of the below mentioned transmission project through TBCB process 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 Request for Proposal (RFP) notifications and RFP documents available on our website www.recpdcl.in & www.recindia.nic.in w.e.f. 17.09.2024.

The bidders may obtain the RFP documents on all working days between 1030 hours (IST) to 1900 hours (IST) from 17.09.2024 to one day prior to bid submission date on payment of non-refundable fee of ₹ 5,00,000/-(Rupees Five Lakh Only) or US$ 7000 (US Dollars Seven Thousand Only) + 18% GST as per details provided in the RFP documents available on the websites www.recpdcl.in & www.recindia.nic.in. The bidders who have earlier purchased RFP documents vide NIT dated 11.07.2023, are not required to pay the above fee.

The Request for Proposal (RFP) documents can also be downloaded from our websites www.recpdcl.in & www.recindia.nic.in, however, in such cases interested parties can submit Response to RFP only on submission of non-refundable fee of ₹ 5,00,000/-(Rupees Five Lakh Only) or US$ 7000 (US Dollars Seven Thousand Only) + 18% GST as per details provided in the RFP documents. The survey report & clarifications to RFP documents shall be issued to those bidders, who have obtained/purchased RFP document by paying requisite fee. The important timelines in this regard are as follows:

Sr. No.	Name of Project	Last Date for submission of the same as RFP	Details of Op of Re...
1.	Transmission system for evacuation of power from REZ in Rajasthan (20 GW) under Phase-III Part I	17.09.2024 up to 1500 Hrs (IST)	17.09.2024 at 1530 Hrs (IST)

All corrigenda, addenda, amendments, time extensions, etc. to the RFP will be hosted on our websites www.recpdcl.in & www.recindia.nic.in. Bidders should regularly visit our websites to keep themselves updated.

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

Chief Executive Officer
REC Power Development and Consultancy Ltd.
Core-4, SCOPE Complex, 7, Lodhi Road, New Delhi-110003, India

Bid Process Coordinator
REC Power Development and Consultancy Ltd.

An Initiative of
Ministry of Power, Government of India

Initiative Partner
Central Electricity Authority

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Financial Times
24/09/2024

Rajasthan Part I Power Transmission Limited

MUMBAI SLUM IMPROVEMENT BOARD
A REGIONAL UNIT OF
(MAHARASHTRA HOUSING AND AREA DEVELOPMENT AUTHORITY)
Tel no. - 022-66405484. E-mail - eecityslum@gmail.com

e-TENDER NOTICE

Executive Engineer (City) Division, Mumbai Slum Improvement Board, (Unit of MHADA) **Room No. 539, 4th floor,** Griha Nirman Bhavan, Bandra (East), Mumbai 400 051 Phone Number (022) 66405484 is inviting Open / Regular e-Tender for the 1 number of works in the form of B-1 (Percentage Rate) from the Registered contractors in the corresponding appropriate class of contractor or any Govt. / Semi Govt. organization, via online e-tendering system. The detailed tender notice and Tender Documents shall be available & can be downloaded from Government of Maharashtra portal **https://mahatenders.gov.in**, Bidding documents can be loaded on the website. The tender Document sale start on **dated 20.08.2024, 10.00 AM** to Document sale end date **27.08.2024, 5.35 pm.** Corrigendum / Amendments if any could be published only on the **https://mahatenders.gov.in** website. The Competent Authority reserves the right to reject any or all the tenders without assigning any reason there of Conditional offers will not be accepted.

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आम नीलामी द्वारा स्क्रेप की बिक्री

मेसर्स सेन्चुरी रेयॉन

ग्रासिम इंडस्ट्रीज लिमिटेड

बी. के. बिड़ला मार्ग, शाहाड़-421103, जि.थाना
फोन: (0251) 2733670-79 (10 लाईनें)

के आदेशानुसार

मेसर्स तिरुपति एण्ड कम्पनी (नीलामकर्ता)
28/डी, एच.एम. रोड, कोलकत्ता 700025 फोन- 9433137826

द्वारा

दि. 22 अगस्त 2024 गुरूवार को सुबह ठीक 9.00 बजे स्क्रेप व निम्नलिखित अन्य सामानों की पब्लिक नीलामी की जायेगी । स्थान-विश्राम भवन, बिरला मन्दिर के पास, शाहाड, कल्याण बिला थाना । एम.एस हल्का व भारी स्क्रेप / स्टेनलेस स्टील / अल्युमिनियम / कापर / बिजली की वस्तुएं / प्लास्टिक की वस्तुएं / तार / पेपर / पम्प / बालबियरिंग / कलपुरजे / मशीनरी इत्यादि.

स्क्रेप लिस्ट एवं नीलामी के नियम और शर्तें सेन्चुरी रेयॉन की वेबसाईट **www.centuryrayon.co.in (https://www.centuryrayon.co.in/homenew.aspx - News & Events)** पर भी उपलब्ध है ।

निरीक्षण

शाहाड स्थित फैक्ट्री पर 20 से 21 अगस्त 2024 को सुबह 8.30 बजे से दोपहर 12 बजे तक और दोपहर 1.30 से सायं 4 बजे तक। विवरण पत्रिकाएं केटलॉग्स व प्रवेश पत्र नीलामकर्ता व कम्पनी के पास उपरोक्त समय पर सेन्चुरी रेयॉन में उपलब्ध रहेंगे । निरीक्षण के समय कम्पनी परिसर में सेफ्टी शूज पहनना आवश्यक है । निलामी हॉल में प्रवेश पाने के लिए ₹ 5000 का IMPS/NEFT, GRASIM INDUSTRIES LIMITED (UNIT CENTURY RAYON) के नाम से करना होगा । पैन नंबर, जी.एस.टी. नंबर की सही पहचान होने पर ही प्रवेश दिया जायेगा ।

कोंकण रेलवे कॉर्पोरेशन लिमिटेड
(भारत सरकार का उपक्रम)

ई-निविदा आमंत्रण सूचना

कोंकण रेलवे कॉर्पोरेशन लिमिटेड की ओर से मुख्य वाणिज्य प्रबंधक द्वारा "कोलाड और सुरतकल स्टेशनों के बीच कोंकण रेलवे में रोल-ऑन-रोल-ऑफ (रो-रो) सेवा के विपणन और परिचालन के लिए सक्षम और वित्तीय रूप से सक्षम पार्टियों से आईआरईपीएस पोर्टल पर ई-निविदा के माध्यम से दो-लिफाफा प्रणाली के अंतर्गत खुली निविदा आमंत्रित की जा रही है। निविदा एक वर्ष की अवधि के लिए है जिसे अगले एक वर्ष तक बढ़ाया जा सकता है। **निविदा सूचना क्र. सीओ-16011-3-2023-सीओएमएम-II, दिनांक : 16.08.2024. ऑनलाइन प्रस्ताव जमा करना बंद होने की तिथि एवं समय : 09.09.2024 को 15:00 बजे तक.** मैन्युअल प्रस्ताव स्वीकार नहीं किये जायेंगे. विवरणों/सहभागिता हेतु कृपया वेबसाइट **www.ireps.gov.in** का अवलोकन करें. शुद्धिपत्र/परिशिष्ट, यदि कोई होगा तो उसे केवल उक्त वेबसाइट पर ही प्रदर्शित किया जायेगा.

आरईसी पावर डेवलपमेंट एंड कंसल्टेंसी लिमिटेड

वैश्विक आमंत्रण (इलेक्ट्रॉनिक बोली के माध्यम से)

टैरिफ के जरिये प्रतियोगिता बोली प्रक्रिया (टी बी सी. बी.) के अंतर्गत "एक (1) अंतर राज्यीय पारेषण परियोजना" के निर्माण, स्वामित्व, प्रचालन और स्थानांतरण (बूट) आधारित पारेषण सेवा प्रदाता के चयन हेतु

आरईसी पावर डेवलपमेंट एंड कंसल्टेंसी लिमिटेड, नई दिल्ली, भारत (आरई पीसीएलिमिटेड के पूर्ण स्वामित्व की सहायक कंपनी -- एक महारत्न केंद्रीय सार्वजनिक उपक्रम) नीचे उल्लिखित पारेषण परियोजना की स्थापना हेतु टी. बी. सी. बी. के अंतर्गत निर्माण, स्वामित्व, प्रचालन और स्थानांतरण (बूट) के आधार पर प्रस्ताव हेतु अनुरोध (आरएफपी) एक चरण दो लिफाफे वाली प्रक्रिया के तहत प्रस्ताव आमंत्रित करता है। इच्छुक बोलीदाता कृपया हमारी वेबसाइट्स www.recindia.nic.in तथा www.recpdcl.in पर 17.08.2024 से उपलब्ध "प्रस्ताव हेतु अनुरोध (आरएफपी)" अभिसूचना तथा आरएफपी दस्तावेज का अवलोकन करें।

बोलीदाता, आरएफपी दस्तावेज सभी कार्य दिवसों में 10.30 बजे (भा.मा.स) से 16.00 बजे (भा.मा.स) के बीच (17.08.2024 से प्रस्ताव जमा करने की तिथि से एक दिन पहले तक) हमारी www.recindia.nic.in और www.recpdcl.in पर उपलब्ध संबंधित परियोजना के आरएफपी दस्तावेज में दिए गए विवरण के अनुसार अप्रतिदेय गैर-वापसी योग्य शुल्क (₹5,00,000/- (पांच लाख रुपए केवल) या $7000 (यूएस डालर सात हजार केवल) + 18% जीएसटी) के भुगतान पर प्राप्त कर सकती है। जिन बोलीदाताओं ने पहले NIT दिनांक 11.07.2023 के माध्यम से आरएफपी दस्तावेज खरीदे हैं, उन्हें उपरोक्त शुल्क का भुगतान करने की आवश्यकता नहीं है।

आरएफपी दस्तावेज हमारी वेबसाइट्स www.recindia.nic.in तथा www.recpdcl.in से भी डाउनलोड किया जा सकता है; तथापि, ऐसे मामले में इच्छुक पार्टी संबंधित आरएफपी दस्तावेज में दिए गए विवरण के अनुसार अप्रतिदेय गैर-वापसी योग्य शुल्क (₹5,00,000/- (पांच लाख रुपए केवल) या $7000 (यूएस डालर सात हजार केवल) + 18% जीएसटी) का अलग से भुगतान करने पर ही आरएफपी के उत्तर में प्रस्ताव जमा कर सकती हैं। सभी रिपोर्ट एवं आरएफपी दस्तावेजों के स्पष्टीकरण उन्हीं बोलीदाताओं को जारी किया जाएगा, जिन्होंने अपेक्षित शुल्क का भुगतान करके आरएफपी दस्तावेज प्राप्त किया या खरीदा है। इस सन्दर्भ में महत्वपूर्ण समय-सीमा इस प्रकार है

क्र. सं.	परियोजना का नाम	आरएफपी के उत्तर में प्रस्ताव जमा की अंतिम तिथि	आरएफपी प्रस्ताव खोलने का विवरण
1	राजस्थान में चरण- III भाग I के अंतर्गत आरईजेड में विद्युत (20 जीडब्ल्यू) की निकासी के लिए पारेषण प्रणाली	17.09.2024,1500 बजे तक (भा.मा.स.)	17.09.2024, को 1530 बजे (भा.मा.स.)

बोली में सभी शुद्धिपत्र, अनुरोध, संशोधन, समय बढ़ाना आदि हमारी वेबसाइट्स www.recindia.nic.in तथा www.recpdcl.in पर होस्ट किए जाएंगे। नवीनतम जानकारी के लिए हमारी वेबसाइट का नियमित रूप से अवलोकन करते रहें।

नोट: आरईसीपीडीसीएल के पास बिना कोई कारण बताए तथा बिना किसी बाध्यता के बोली प्रक्रिया को रद्द या संशोधित करने का अधिकार सुरक्षित है। यह कोई पेशकश नहीं है।

मुख्य कार्यपालक अधिकारी
आरईसी पावर डेवलपमेंट एंड कंसल्टेंसी लिमिटेड
कोर – 4, स्कोप कॉम्प्लेक्स, लोधी रोड, नई दिल्ली – 110003, भारत

बोली प्रक्रिया समन्वयक: आरईसी पावर डेवलपमेंट एंड कंसल्टेंसी लिमिटेड | पहलकर्ता: विद्युत मंत्रालय भारत सरकार | पहलकर्ता भागीदार: केंद्रीय विद्युत प्राधिकरण

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एलपीएससी – वेलियामाला / LPSC – VALIAMALA निर्माण एवं अनुरक्षण खण्ड / CONSTR

फोन / PH: 0471-2567445, 7326 & 7577, फैक्स / FAX: 047

ई–निविदा आमंत्रित करने की संक्षिप्त सूचना / BRIEF NOTICE

भारत के राष्ट्रपति की ओर से निम्नलिखित कार्यों हेतु ई–निविदा द्वारा मद–दर निविदाएं आमंत्रित हैं / Item rate tenders are invited through e-tendering for the following works:

1.e-NIT No: LPSC-V/CMD/CS/02/6140/C/TE-037/2024-25 dated 13.08.2024. एल पी एस सी वेलियामाला प्रयोगशाला के नवीकरण कार्य I / Revamping of stratification lab near PRS Facility at LPSC Valiamala

2. e-NIT No: LPSC-V/CMD/CS/02/ 6042/ELE/TE-024/2024-25 dated 13.08.2024. एल पी एस सी वेलियामाला यू पी एस एवं बैटरी कक्ष के लिए विद्युत कार्य I / Electrical works for UPS & Battery room at LPSC Valiamala (₹12.49 Lakhs).

डाउनलोड करने की अवधि / Period for downloading: से/ From 17.08.2024, 17:31 बजे

इच्छुक निविदाकार, योग्यता मानदंड एवं अन्य विवरण के लिए कृपया आमंत्रित ई–निविदा (ई–प्रोक्योरमेंट) दस्तावेज देखें। किया जा सकता है I / Interested tenderers may please refer detailed Notice inviting E-Tender (E-Procurement) documents which can be downloaded from website www.tenderwizard.com/ISRO / www.isro.gov.in / www.lpsc.gov.in

प्रधान. सीए

NIT 17/08/2024 Mumbai

Rajasthan Part I Power Transmission Limited ★ Pune

Film Providing Whole
ne Entertain[illegible] also
nt to a non-Bolly[illegible]od film.
Kannada blockbuster
ntara', which explores the
ricate connection between
manity and nature through
folklore-based storytelling.
habh Shetty played the
al roles of a father and son
his film.
The top honour, the best
ture film 'Aattam: The Play',
ected by Anand Ekarshi, re-
ves around a theatre troupe
the changing dynamics af-
its only woman member al-
es she has been groped by
of the men.

ned off
nistration

g 9 rape-murder took place
had be[illegible]ffected by some
k going on there, the bench
ght to know the reason for
"urgency" in starting the
ject to build washrooms for
men doctors.
"I take your word (for it)
t the place of occurrence re-
ins intact," the CJ said. "Let
authorities submit a report
h photographs before the
t hearing.
The report should include
true state of affairs and all
tters relating to the hospi-
" Earlier this week, the
ch ordered police to trans-
the probe into the rape-
rder to CBI.

R MUNICIPAL
ORATION

nterest Notice No. 33

tion [illegible]es Expression Of
ts as [illegible]nsultant for the work
velopment & Conservation of
eshavrao Bhosale Natyagruh
lan at Kolhapur. Detail Notice
rcorporation.gov.in
l is 26.08.2024 upto 4:00 pm
8.2024 at 4:00 pm

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City Engineer
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contested seat in the state, a WhatsApp screenshot began the conspirators behind the aimed

My govt took over as result of student moveme

▶ From P 1

The Chief Adviser said his govt is committed to making all state apparatus fully functional and effective and ensuring human rights for every citizen of the country.

While the situation for minority communities seems to have improved a bit in the past few days, Hindu groups have continued to voice fears about the threat of violence. This was the third time Modi had spoken about the need to protect Hindus since the interim govt took over.

"During the call, the PM reaffirmed India's support for a democratic, stable, peaceful and progressive Bangladesh," said the Indian govt, adding that the leaders also discussed ways to take the bilateral relationship forward in line with the respective national priorities.

Modi also invited Yunus to join the Third 'Voice of Global South Summit to be hosted virtually by New Del-

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TAMIL NADU CIVIL SUPPLIES CORPORATION

HEAD OFFICE: CMRL OFFICE CAMPUS,
POONAMALLEE HIGH ROAD,
KOYAMBEDU, CHENNAI - 600 107.

E-TENDER NOTICE

NIT No. QC3/028227/2024 Dated : 15.08.2024

Tamil Nadu Civil Supplies Corporation invites online electronic tenders for the **"Supply of 250 Nos. of Universal Digital Moisture Meters with Printer."**

Complete E-Tender document can be viewed, downloaded and uploaded through **https://tntenders.gov.in/nicgep/app** from **17.08.2024 to 02.09.2024.**

The bidders have to participate in online bidding only with Digital Signature Certificate (DSC) of Class-III.

Last Date for Online Submission : 02.09.2024 up to 11.00 AM
Tender Opening Date and Time : 03.09.2024 at 11.30 AM

DIPR/3067/Tender/2024 Managing Director

REC POWER DEVELOPMENT AND CONSULTANCY LIMITED

GLOBAL INVITATION (Through e-bidding Only)

FOR SELECTION OF TRANSMISSION SERVICE PROVIDER THROUGH TARIFF BASED COMPETITIVE BIDDING (TBCB) PROCESS FOR BUILD, OWN, OPERATE AND TRANSFER (BOOT) BASIS FOR ONE (1) INTER - STATE TRANSMISSION PROJECT

REC Power Development and Consultancy Limited, New Delhi, India (a wholly owned subsidiary of REC Limited, a Maharatna Central Public Sector Undertaking) invites proposal for setting up of the below mentioned transmission project through TBCB process 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 Request for Proposal (RFP) notifications and RFP documents available on our website www.recpdcl.in & www.recindia.nic.in w.e.f.17.08.2024.

The bidders may obtain the RFP documents on all working days between 1030 hours (IST) to 1600 hours (IST) from 17.08.2024 to one day prior to bid submission date on payment of non-refundable fee of ₹5,00,000/-(Rupees Five Lakh Only) or US$ 7000 (US Dollars Seven Thousand Only) + 18% GST as per details provided in the RFP documents available on the websites www.recpdcl.in & www.recindia.nic.in. The bidders who have earlier purchased RFP documents vide NIT dated 11.07.2023, are not required to pay the above fee.

The Request for Proposal (RFP) documents can also be downloaded from our websites www.recpdcl.in & www.recindia.nic.in, however, in such cases interested parties can submit Response to RFP only on submission of non-refundable fee of ₹5,00,000/-(Rupees Five Lakh Only) or US$ 7000 (US Dollars Seven Thousand Only) + 18% GST as per details provided in the RFP documents. The survey report & clarifications to RFP documents shall be issued to those bidders, who have obtained/purchased RFP document by paying requisite fee. The important timelines in this regard are as follows:

Sr. No.	Name of Project	Last Date for submission of Response to RFP	Details of Opening of Response to RFP
1.	Transmission system for evacuation of power from REZ in Rajasthan (20 GW) under Phase-III Part I	17.09.2024 up to 1500 Hrs (IST)	17.09.2024 at 1530 Hrs (IST)

All corrigenda, addenda, amendments, time extensions, etc. to the RFP will be hosted on our websites www.recpdcl.in & www.recindia.nic.in. Bidders should regularly visit our websites to keep themselves updated.

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

Chief Executive Officer
REC Power Development and Consultancy Limited
Core-4, SCOPE Complex, 7, Lodhi Road, New Delhi-110003, India

Bid Process Coordinator: REC Power Development and Consultancy Ltd.
An Initiative of: Ministry of Power, Government of India
Initiative Partner: Central Electricity Authority

Give a missed call on toll free number 18002003004 to get our Apps

MUNICIPAL

Sr. No.	Name of Wor
EXECUTIVE ENGINEER - Horticulture	
1.	Operation and watch and ward of toilet and parks at various locations in Sectc 23, 24, 36, 40, 56, Maloya and the jurisdiction of Horticulture Divisi (Ch. to : Revenue Head) DNIT Amount : Rs. 1,49,20,157/- Ea Tender Fee : Rs. 3,000/- Tir

Note :- 1) Tender Notice alongwith detailed term or etenders.chd.nic.in

Elect. Division,

इसरो ISRO — भारत सरकार GOVER
निर्माण एवं
THIRUVANANTH

ई-निविदा आमंत्रित करते हुए

भारत के राष्ट्रपति की ओर से, निम्नलिखित कार्यों के लिए President of India, online item-rate tenders are

1. टर्ल्स, वीएसएससी, तुंबा में स्थैतिक परीक्षण सुविधा (आरटीसीसी) तथा जुड़नार भंडारण भवन का निर्माण (सिवि Fixture Storage building in connection with the Thumba (Civil & PH works) / NIT No. VSSC/CM डाउनलोड करने की अवधि/Period for downloadin

2. टर्ल्स, वीएसएससी की नगनयान सीईएम मोटर सुविधा के VSSC / NIT No. VSSC/CMG/E01/15/2024-25 D डाउनलोड करने की अवधि/Period for downloadin

योग्यता मानदंड तथा अन्य ब्यौरों को पाने के लिए इच्छुक नि www.tenderwizard.in/isro या www.isro.gov.in Notice Inviting E-Tender (E-NIT) for eligibili www.tenderwizard.in/isro or www.isro.gov.in.

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SPOT ROUND - I

Applications are invit
admission to the Ma
2024-25 as a special

The last date for recei
is 20th August, 2024
School's website - ww
2024-25".

Rajasthan Part I Power Transmission Limited

KOLHAPUR MUNICIPAL CORPORATION

Expression Of Interest Notice No. 33

Kolhapur Municipal Corporation invites Expression Of Interest for appointment of Architects as consultant for the work of Renovation, Restoration, Redevelopment & Conservation of Heritage Building of Sangitsurya Keshavrao Bhosale Natyagruh and Rajarshi Shahu Khasbag Maidan at Kolhapur. Detail Notice available on Website www.kolhapurcorporation.gov.in

Last Date of Submission of EOI is 26.08.2024 upto 4:00 pm and Date of opening of Bid is 27.08.2024 at 4:00 pm

sd/-
City Engineer
Kolhapur Municipal Corporation

REC POWER DEVELOPMENT AND CONSULTANCY LIMITED

GLOBAL INVITATION (Through e-bidding Only)

FOR SELECTION OF TRANSMISSION SERVICE PROVIDER THROUGH TARIFF BASED COMPETITIVE BIDDING (TBCB) PROCESS ON BUILD, OWN, OPERATE AND TRANSFER (BOOT) BASIS FOR ONE (1) INTER - STATE TRANSMISSION PROJECT

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The bidders may obtain the RFP documents on all working days between 1030 hours (IST) to 1600 hours (IST) from 17.08.2024 to one day prior to bid submission date on payment of non-refundable fee of ₹ 5,00,000/-(Rupees Five Lakh Only) or US$ 7000 (US Dollars Seven Thousand Only) + 18% GST as per details provided in the RFP documents available on the websites www.recpdcl.in & www.recindia.nic.in. The bidders who have earlier purchased RFP documents vide NIT dated 11.07.2023, are not required to pay the above fee.

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All corrigenda, addenda, amendments, time extensions, etc. to the RFP will be hosted on our websites www.recpdcl.in & www.recindia.nic.in. Bidders should regularly visit our websites to keep themselves updated.

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

Chief Executive Officer
REC Power Development and Consultancy Limited
Core-4, SCOPE Complex, 7, Lodhi Road, New Delhi-110003, India

Bid Process Coordinator: REC Power Development and Consultancy Ltd.
An Initiative of: Ministry of Power Government of India
Initiative Partner: Central Electricity Authority

सभी की जीवन में इसे बचाये
Give a missed call on toll free number 18002003004 to get our App

PUBLIC NOTICE

NOTICE is hereby given to public at large that **KVR Industrial Park Private Limited ("Company")** is unable to trace the original documents **("Documents")** mentioned herein below i.e.

1.Deed of Assignment dated 7th September 2004 executed by and between Apollo of the One Part and Michelin of the Other Part;

2.Deed of Confirmation dated 15th December 2005 executed by and between Apollo of the One Part and Michelin of the Other Part which is registered in the office of Sub-Registrar of Assurance at Talegaon-Dhamdhere at Sr. No. 577 of 2005;

3. Deed of Transfer and Assignment dated 17th October 2011 executed by and between Michelin of the One Part and KVR of the Other Part which is registered in the office of Sub Registrar of Assurance at Shirur at Sr. No. 4488 of 2011;

'Toxic' allopathic have killed millions: Ramdev

Haridwar: Yoga guru Baba **Ramdev** has once again reiterated his stance against allopathy, claiming that "millions have perished due to the use of allopathic medicine.".

Speaking at a press conference at Patanjali Yogpeeth in Haridwar on Thursday, Ramdev emphasised the need for medical autonomy and reaffirmed his commitment to a "swadeshi revolution through Patanjali, aimed at achieving economic, social, and medical freedom in India."

Ramdev accused foreign pharmaceutical companies of perpetuating a cycle of dependency on synthetic drugs, which he described as "toxic."

CHITTARANJAN LOCOMOTIVE WORKS

OPEN E-TENDER

The following e-Tenders can be accessed under the link www.ireps.gov.in. Offers for such e-Tender can be submitted only electronically by accessing the link www.ireps.gov.in →login→ E-Tender Stores/Supply. Vendors may also contact the following officials to obtain clarification regarding particular tender or IREPS related information if any. Dy.CMM / HQ/ CLW/Chittaranjan, 0341-2525594 or SMM/CON/HQ, 0341-2535631. Office address: Office of the PCMM / CLW/Chittaranjan. Sl. No. ; Tender No.; Brief Description of Items; Quantity ; Earnest Money Deposit (Rupees) ; Tender Closing Date & Time(IST) are as follows : [A] No. COS/CRJ/PUB/e-Tender/19/0162 Date: 07/08/ 2024. [1] : 70241755: Modified Cow Catcher Assly for WAG-9HC Loco as per Specification No. CLW/MS/3/107 ALT-8, Drg. No. 1209-02.140-032 ALT-9. [Warranty Period: 30 Months after the date of delivery]; 331.00 Set. ; ₹ 382760.00 , 05/09/2024 at 11:00 AM. [B] No. COS/CRJ/PUB/e-Tender/19/0162 Date: 07 /08/2024. [1]; 70245011: Supply, installation, testing and commissioning of On-board KAVACH equipment as per RDSO Spec no. RDSO/SPN/196/2020, Ver 4.0 or latest. The scope of supply will also include: (a) Supply and installation of LTE Router as per TS No. ST-54/2023/LTE Router Ver 2.0 P dated 20.05.2024 or latest. (b) Supply and installation of Cab Roof Top Antenna as per TS no. ST-54/2023/CRA Ver 1.0 P dated 20.05.2024 or latest. (c) Complete wiring, harnessing, cabling and connection with Loco KAVACH System and LTE router with Cab Roof top Antennas. Defect liability and long term annual maintenance for a period of 15 years] ; 10,000.00 Set. ; ₹ 5000000.00; 04/09/2024 at 11:00 AM.

PR8/576 PCMM/CLW/Chittaranjan

Like us on www.facebook.com/clwajmer

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Last Electi Were In 20 Says Faro

Saleem.Pandit
@timesofindia.co

Srinagar: Political ties in J&K applaude day the announceme assembly elections, c it a big leap towards r ing democracy afte years of central rul abrogation of specia tus in 2019.

Former CM Oma dullah of the Nationa ference (NC) describe announcement of three-phased polls Sept 18 as the end of a wait. "Better late tha er," Omar said.

Omar's father an president Farooq A lah echoed the senti "I thank God. This

Poll date

TIMES NEWS NETWOR

New Delhi: The anno ment of elections in J unlikely to have any in on India-Pakistan ties w remain in a deep freeze India revoked the specia tus of the erstwhile sta even well before that.

With the Supreme C having upheld the repe the special status, Indi lieves the question a whether Pakistan has a l standi in how the Indian chooses to run the inte affairs of what is no Union Territory is alr settled. On the limited i

Govt. of Jharkhand

Jharkhand Combined Entrance Competit

Science & Technology Campus, Sirkha Toli, Na Namkum, Ranchi – 834010 Website : https://je e-mail : jceceboard@gmail.c

Advt. No. :–JCECEB/54/24 - 34

Indicative Information Regarding Submission of Online App Merit List on the basis of NEET(UG)-2024 Result & conduct o of online counselling for admission to M.B.B.S. course in Laxm

पंतप्रधानांनी ऑलिम्पिकमधील पदक विजेत्यांचे कौतुक केले. लाल किल्ल्यावरील स्वातंत्र्यदिनाच्या मुख्य कार्यक्रमास दोन पदके जिंकलेली मनू भाकर, सांगता ऑलिम्पिकमध्ये ब्रॉझ पदक जिंकलेला हॉकी गोलरक्षक श्रीजेश हेही उपस्थित होते. दरम्यान, पंतप्रधानानी पॅरालिम्पिकमध्ये सहभागी होणाऱ्या भारतीय पथकास शुभेच्छा दिल्या. पॅरालिम्पिक पॅरिसला २८ ऑगस्टपासून सुरू होत आहे: टोकियो पॅरालिम्पिकमध्ये भारताने पाच सुवर्ण, आठ रौप्य आणि सहा ब्रॉझसह एकूण १९ पदके जिंकली होती. यावेळी भारतीय पथकात ८४ खेळाडू आहेत.

ऑलिम्पिक संयोजनाची तयारी दाखवली होती. त्यावेळी त्यास आंतरराष्ट्रीय ऑलिम्पिक समितीचे अध्यक्ष थॉमस बाख यांनी साथ दिली होती. भारताने २०१०मध्ये राष्ट्रकुल क्रीडा स्पर्धेचे संयोजन केले होते. त्यानंतर भारतात एकही बहुविध आंतरराष्ट्रीय स्पर्धा झालेली नाही.

पॅरिसला १६ क्रीडा प्रकारांसाठी भारताचे ११७ खेळाडू पात्र ठरले होते. त्यांनी एका रौप्य आणि पाच ब्रॉझ अशी एकूण सहा पदके जिंकली.

'ऑलिम्पिक पदक विजेत्यांचे अभिनंदन. आपली काही पदके थोडक्यात हुकली. आपल्याला सहा प्रकारांत चौथ्या क्रमांकावर समाधान मानावे लागले. त्याचबरोबर काही खेळाडूंनी अंतिम टप्प्यातही प्रवेश केला होता. ही कामगिरी नक्कीच चांगली आहे; मात्र त्याच वेळी यातून शिकायला हवे. पदक दूर ठेवलेले अंतर पार करण्याकडे लक्ष द्यायला हवे,' असे नारंग यांनी सांगितले. 'ऑलिम्पिकसाठी जास्तीत जास्त भारतीय

- जिल्हा, राज्य आणि राष्ट्रीय क्रीडा संघटनांत नोकरीची संधी निर्माण करण्याची गरज
- या संघटनांना प्रशासक; तसेच प्रशिक्षकांची गरज

खेळाडू कसे पात्र ठरतील, याकडे लक्ष द्यायला हवे. त्याचबरोबर त्यांना पदक कसे जिंकावे हे शिकवायला हवे; तसेच पराभव स्वीकारणेही आत्मसात करायला हवे. क्रीडा विज्ञानाची साथ लाभत असल्यामुळे आपण अमेरिका आणि चीनला नक्कीच आव्हान देऊ शकतो,' असेही ते म्हणाले.

An Unitary State Public University

LAXMINARAYAN INNOVATION TECHNOLOGICAL UNIVERSITY

Opp. Bharat Nagar, Amravati Road, Nagpur.

APPOINTMENT OF STATUTORY AUDITOR FOR FINANCIAL YEAR 2023-2024 & 2024-2025

LIT University invites proposals (Expression of Interest) from the firms of Chartered Accountants, for formation of panel of Auditors.

The interested firms should submit their proposals along with the details of bio-data / profile, experience of similar assignments during last 3 years, availability of skilled personnel etc. on or before Monday, 2nd September, 2024 by 17:00 hours.

The details are available on LIT University's website http://www.litu.edu.in

Dr. N.T. Khaty (Registrar)

सोलापूर महानगरपालिका, सोलापूर

इंद्रभवन ' डॉ. आंबेडकर चौक, रेल्वे लाईन सोलापूर - ४१३००१

विद्युत विभाग, भ्रमणध्वनी क्रं. : ९४२२४५७९२४.

Mail Id : smcasstlight@gmail.com

द्वितीय मुदतवाढ

विद्युत विभाग, सो.म.पा. कडुन Tender ID- 2024_SMC_1055054_1 सोलापूर महानगरपालिका परिवहन उपक्रमास केंद्र शासन पुरस्कृत पीएम ई - बस सेवा योजने अंतर्गत टी. पी. २, बुधवार पेठ सोलापूर येथील EV Charging Station करीता विद्युत पुरवठा ची व्यवस्था करणेबाबत कामाचे दि. १९/७/२०२४ रोजी महाराष्ट्र शासन संकेतस्थळ http://www.mahatenders.gov.in वरून ई निविदा मागविण्यात आलेले होते. सदर ई निविदेस दि. १६/८/२०२४ पर्यंत प्रथम मुदतवाढ देण्यात आलेले होते. सदर ई निविदेस मा. आयुक्त,सो.म.पा. यांचे आदेशानुसार खालील प्रमाणे द्वितीय मुदतवाढ देण्यात येत आहे.

निविदा भरण्याची अंतिम तारीख : 22/08/2024

निविदा उघडण्याची तारीख : 23/08/2024

सही/-

कार्यकारी अभियंता (विद्युत)

सोलापूर महानगरपालिका, सोलापूर

कोल्हापूर महानगरपालिका,

(सार्वजनिक बांधकाम विभाग)

जाहिर निविदा नोटिस क्र. 32

सर्व कॉन्ट्रॅक्टर यांना कळविणेत येते की, डांबरी पॅचवर्क करणे या कामांसाठी निविदा मागविण्यात येत आहेत. या कामाची सविस्तर यादी वेबसाईटवर पाहण्यास मिळेल.

- निविदा फॉर्म प्राप्त करणेचा व बयाणा रक्कम भरणेचा तसेच निविदा फॉर्म सादर करणेचा कालावधी दिनांक १९/०८/२०२४ पासून सकाळी ९.३० पासून दिनांक २६/०८/२०२४ रोजी अखेर दुपारी ३.३० वाजेपर्यंत.
- निविदा उघडणेचा दिनांक २७/०८/२०२४ रोजी दुपारी ४.०० वाजता
- निविदा फॉर्म https://mahatenders.gov.in या वेबसाईटव्दारे प्राप्त करावा व भरावा लागेल.

सविस्तर टेंडर नोटीस, अटी, शर्ती वगैरे माहिती ऑफिस वेळेत सकाळी ११ ते ५ कार्यालयात तसेच वरील वेबसाईटवर पाहण्यास मिळेल. क. ता. १६/०८/२०२४

सही/-

शहर अभियंता

कोल्हापूर महानगरपालिका

REC POWER DEVELOPMENT AND CONSULTANCY LIMITED

GLOBAL INVITATION (Through e-bidding Only)

FOR SELECTION OF TRANSMISSION SERVICE PROVIDER THROUGH TARIFF BASED COMPETITIVE BIDDING (TBCB) PROCESS ON BUILD, OWN, OPERATE AND TRANSFER (BOOT) BASIS FOR ONE (1) INTER - STATE TRANSMISSION PROJECT

REC Power Development and Consultancy Limited, New Delhi, India (a wholly owned subsidiary of REC Limited, a Maharatna Central Public Sector Undertaking) invites proposal for setting up of the below mentioned transmission project through TBCB process 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 Request for Proposal (RFP) notifications and RFP documents available on our website www.recpdcl.in & www.recindia.nic.in w.e.f.17.08.2024.

The bidders may obtain the RFP documents on all working days between 1030 hours (IST) to 1600 hours (IST) from 17.08.2024 to one day prior to bid submission date on payment of non-refundable fee of ₹ 5,00,000/-(Rupees Five Lakh Only) or US$ 7000 (US Dollars Seven Thousand Only) + 18% GST as per details provided in the RFP documents available on the websites www.recpdcl.in & www.recindia.nic.in. The bidders who have earlier purchased RFP documents vide NIT dated 11.07.2023, are not required to pay the above fee.

The Request for Proposal (RFP) documents can also be downloaded from our websites www.recpdcl.in & www.recindia.nic.in, however, in such cases interested parties can submit Response to RFP only on submission of non-refundable fee of ₹ 5,00,000/-(Rupees Five Lakh Only) or US$ 7000 (US Dollars Seven Thousand Only) + 18% GST as per details provided in the RFP documents. The survey report & clarifications to RFP documents shall be issued to those bidders, who have obtained/purchased RFP document by paying requisite fee. The important timelines in this regard are as follows:

Sr. No.	Name of Project	Last Date for submission of Response to RFP	Details of Opening of Response to RFP
1.	Transmission system for evacuation of power from REZ in Rajasthan (20 GW) under Phase-III Part I	17.09.2024 up to 1500 Hrs (IST)	17.09.2024 at 1530 Hrs (IST)

All corrigenda, addenda, amendments, time extensions, etc. to the RFP will be hosted on our websites www.recpdcl.in & www.recindia.nic.in. Bidders should regularly visit our websites to keep themselves updated.

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

Chief Executive Officer

REC Power Development and Consultancy Limited

Core-4, SCOPE Complex, 7, Lodhi Road, New Delhi-110003, India

Bid Process Coordinator: REC Power Development and Consultancy Ltd.

An Initiative of: Ministry of Power, Government of India

Initiative Partner: Central Electricity Authority

Give a missed call to this free number [illegible]

SRM E-TENDER NOTICE

MAHA Transco

Maharashtra State Electricity Transmission Co. Ltd.

MSETCL invites digitally signed online bids for following tender through SRM E-tender process in two bid system from registered contractor on website http://srmetender.mahatransco.in for following work

S.N	Tender No. & Description
1	Rfx No 7000032786, Rfx Name: Renovation & Modernization of Conference Hall at ALDC, Ambazari, Nagpur. Tender Spec. No. SE/ALDC/NGP/T/M-07/24-25 Estd Cost : Rs. 24,01,935.69 EMD : Rs. 24,019.35 Tender Fees: 500.00 (GST EXTRA)

Contact person: Superintending Engineer, Area Load Dispatch Centre, Ambazari, MSETCL, 8th mile, Amravati road, Wadi, Nagpur – 440023 Tel No. 8554993676 Email: sealdc8100@mahatransco.in

Superintending Engineer

Area Load Despatch Centre, MSETCL, Ambazari, Nagpur.

Rajasthan Part I Power Transmission Limited

AURANGABAD SMART CITY DEVELOPMENT CORPORATION LIMITED (ASCDCL)

REQUEST FOR PROPOSAL

ASCDCL invites firms possessing relevant capabilities to respond to this RFP for following :

Sr.No.	Title and Tender ID No.	Bid Due Date
1	Construction of PM E Bus Sewa Workshop Building 2024_ASCDC_1070875_1	23 Aug. 2024 06:00 PM

The tender documents can be downloaded from

Sd/-
Chief Executive Officer
Aurangabad Smart City Development Corporation Limited

JHARKHAND URBAN INFRASTRUCTURE DEVELOPMENT COMPANY LIMITED

(Govt. of Jharkhand Undertaking)
JUIDCO Bhawan, Kutchery Chowk, Ranchi-834001, Jharkhand.
Ph No.: +91-651-2225878; e-mail Id-
CIN: U45200JH2013SGC001752

NIT No: - JUIDCO/NIT/Jamtara/UWSS/24/623 Date: 17/08/2024
Tender ID: - 2024_UDD_88969_1 PR No.: 331046

Corrigendum- 2

All bidders are hereby announced that Corrigendum- 2 is released for tender having details as mentioned above for the project of **"Jamtara Urban Water Supply Scheme with 5 years of O ation and Maintenance"**. The bidders are advised to e der the same before submission of their bids against the tender.

Note: Corrigendum- 02 can be referred from the e-tender site of Govt. of Jharkhand i.e., (https://jharkhandtenders.gov.in)

Sd/-
Project Director (Technical)
JUIDCO Ltd., Ranchi

PR 333082 (Urban Development and Housing) 24-25 (D)

आरईसी पावर डेवलपमेंट एंड कंसल्टेंसी लिमिटेड

वैश्विक आमंत्रण (इलेक्ट्रॉनिक बोली के माध्यम से)

टैरिफ के जरिये प्रतियोगिता बोली प्रक्रिया (टी. बी. सी. बी.) के अंतर्गत "एक (1) अंतर राज्यीय पारेषण परियोजना" के निर्माण स्वामित्व प्रचालन और स्थानांतरण (बूट) आधारित पारेषण सेवा प्रदाता के चयन हेतु

आरईसी पावर डेवलपमेंट एंड कंसल्टेंसी लिमिटेड, नई दिल्ली, भारत (आरई सीलिमिटेड के पूर्ण स्वामित्व की सहायक कंपनी – एक महारत्न केंद्रीय सार्वजनिक उपक्रम) नीचे उल्लिखित पारेषण परियोजना की स्थापना हेतु टी. बी. सी. बी के अंतर्गत निर्माण, स्वामित्व, प्रचालन और स्थानांतरण (बूट) के आधार पर प्रस्ताव हेतु अनुरोध (आरएफपी) एक चरण दो लिफाफे वाली प्रक्रिया के तहत प्रस्ताव आमंत्रित करता है। इच्छुक बोलीदाता कृपया हमारी वेबसाइट्स www.recindia.nic.in तथा www.recpdcl.in पर 17.08.2024 से उपलब्ध "प्रस्ताव हेतु अनुरोध (आरएफपी)" अधिसूचना तथा आरएफपी दस्तावेज का अवलोकन करें।

बोलीदाता, आरएफपी दस्तावेज सभी कार्य दिवसों में 10.30 बजे (भा.मा.स) से 16.00 बजे (भा.मा.स) के बीच (17.08.2024 से प्रस्ताव जमा करने की तिथि से एक दिन पहले तक) हमारी www.recindia.nic.in और www.recpdcl.in पर उपलब्ध संबंधित परियोजना के आरएफपी दस्तावेज में दिए गए विवरण के अनुसार [illegible]ए गैर–वापसी योग्य शुल्क (₹5,00,000/– (पांच लाख रुपए केवल) या $7000 (यूएस डालर सात [illegible] केवल) + 18% जीएसटी) के भुगतान पर प्राप्त कर सकते हैं। जिन बोलीदाताओं ने पहले NIT दिनांक 11.07.2023 के माध्यम से आरएफपी दस्तावेज खरीदे हैं, उन्हें उपरोक्त शुल्क का भुगतान करने की आवश्यकता नहीं है।

आरएफपी दस्तावेज हमारी वेबसाइट्स www.recindia.nic.in तथा www.recpdcl.in से भी डाउनलोड किया जा सकता है। तथापि, ऐसे मामले में इच्छुक पार्टी संबंधित आरएफपी दस्तावेज में दिए गए विवरण के अनुसार आवेदित गैर–वापसी योग्य शुल्क (₹5,00,000/– (पांच लाख रुपए केवल) या $7000 (यूएस डालर सात हजार कंवल) + 18% जीएसटी) का अलग से भुगतान करने पर ही आरएफपी के उत्तर में प्रस्ताव जमा कर सकते हैं। सभी रिपोर्ट एवं आरएफपी दस्तावेजों के स्पष्टीकरण उन्हीं बोलीदाताओं को जारी किया जाएगा, जिन्होंने अपेक्षित शुल्क का भुगतान करके आरएफपी दस्तावेज प्राप्त किया या खरीदा है। इस सन्दर्भ में महत्वपूर्ण समय–सीमा इस प्रकार है:

क्र सं	परियोजना का नाम	आरएफपी के उत्तर में प्रस्ताव जमा की अंतिम तिथि	आरएफपी प्रस्ताव खोलने का विवरण
1	राजस्थान में चरण– III भाग I के अंतर्गत आरई जेंज में सिंहुत (20 गीगावाट) की निकासी के लिए पारेषण प्रणाली	17.09.2024,1500 बजे तक (भा.मा.स.)	17.09.2024, को 1530 बजे (भा.मा.स.)

बोली में सभी शुद्धिपत्र, अनुरोध, संशोधन, समय बढ़ाना आदि हमारी वेबसाइट्स www.recindia.nic.in तथा www.recpdcl.in पर होस्ट किए जाएंगे। नवीनतम जानकारी के लिए हमारी वेबसाइट का नियमित रूप से अवलोकन करते रहें।

नोट: आरईसीपीडीसीएल के पास बिना कोई कारण बताए तथा बिना किसी बाध्यता के बोली प्रक्रिया को रद्द या संशोधित करने का अधिकार सुरक्षित है। यह कोई पैकअप नहीं है।

मुख्य कार्यपालक अधिकारी
आरईसी पावर डेवलपमेंट एंड कंसल्टेंसी लिमिटेड
कोर – 4, स्कोप कॉम्प्लेक्स, लोधी रोड, नई दिल्ली – 110003, भारत

बोली प्रक्रिया समन्वयक: REC Power Development — आरईसी पावर डेवलपमेंट एंड कंसल्टेंसी लिमिटेड
पहलकर्ता: विद्युत मंत्रालय भारत सरकार
पहलकर्ता भागीदार: केंद्रीय विद्युत प्राधिकरण

उर्जा ही जीवन है इसे बचाये — Give a missed call on toll free number 1800200 3004 to get our Apps

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इस दौरान कोंडली से विधायक कुलदीप कुमार ने कहा कि दिल्ली की जनता ने चुनावी बिगुल बजा दिया है। मनीष सिसोदिया को बाहर आने के बाद कार्यकर्ताओं को नई ऊर्जा मिली है और बीजेपी का झूठा बेनकाब हुआ है। सुप्रीम कोर्ट ने जमानत देते हुए साफ कहा है कि मनीष के कीमती 17 महीने कौन वापस लौटाएगा? बीजेपी ने झूठा केस लगाकर मनीष को जनता से दूर रखने का काम किया। अब उनका नेता जनता के बीच है। सिसोदिया जनता के बीच जा रहे हैं और लोगों से मिल रहे हैं। जनता में गजब का उत्साह है।

से शुरू हुई पदयात्रा वेस्ट विनोद नगर पहुंची

इस दौरान मनीष सिसोदिया को कई बहनों ने राखी बांधी और उनके लिए अच्छे स्वास्थ्य और लंबी उम्र की कामना की। सिसोदिया ने भी उनका हालचाल पूछा और किसी भी तरह की समस्या होने पर अपने भाई को याद करने की अपील की। इस दौरान बहनों ने उनका आरती कर स्वागत के तहत [illegible] किया गया था। पार्टी का दावा है कि इस दौरान एक महिला ने कहा कि मनीष सिसोदिया व्यक्तिगत रूप से लोगों से मिलकर केजरीवाल सरकार की उपलब्धियों के बारे में बता रहे हैं और दिल्ली में अच्छा काम कर रहे हैं।

सिसोदिया की इस पदयात्रा पर पलटवार करते हुए साउथ दिल्ली के सांसद रामवीर सिंह बिधूड़ी ने निशाना साधा है। उनका कहना है कि AAP नेताओं ने जो भी गड़बड़ी और घोटाले किए हैं, उसे छिपाने के लिए पदयात्रा करें या ऑटो संवाद करें, उससे न तो सच्चाई को झुठलाया जा सकता है और न ही लोगों को गुमराह किया जा सकता है। आरोपी होने के बाद भी आप नेता अपने आप को मसीहा की तरह पेश कर रहे हैं। बिधूड़ी ने कहा कि जिस मामले में सिसोदिया आरोपी हैं, उसमें अंतिम फैसला आना अभी बाकी है। जमानत मिलने भर से ही AAP नेता यह मान चुके हैं कि मनीष सिसोदिया निर्दोष है।

TIMES inter act

टेंडर एवं नोटिस

सार्वजनिक सूचना (नोटिस)

Jain Co-operative Bank Ltd.

ADDENDUM

जैन को–ऑपरेटिव बैंक लि. की वार्षिक आम सभा जो दिनांक 18.08.2024 को जैन भवन, शहीद भगत सिंह मार्ग, नियर शिवाजी स्टेडियम एवं गोल मार्किट, नई दिल्ली–110001 पर होनी है उसमें अन्य विषय में CBI से प्राप्त रिपोर्ट पर Prosecution Sanction पर चर्चा होगी।

मुख्य कार्यकारी अधिकारी

PUBLIC NOTICE

This is to inform the public at large that our client Rahul Agarwal S/o Late Sh. Surinder Kumar Aggarwal, presently R/o Mantri Espana, Kari Yammana Agrahara, Bellandur, Bengaluru, Karnataka- 560103 is the Joint/Co-owner in possession (having 50% undivided share) of the Entire built-up property being House no. D-9, Satyawati Nagar, Ashok Vihar, Delhi-110052 area admeasuring 150 sq. yards. Our Client has already filed a Partition suit for partition of this property being CS(OS) no. 278/2023 titled "Rahul Agarwal vs Gaurav Aggarwal" which is pending before the Hon'ble High Court of Delhi. The public at large is hereby cautioned and put to Notice against entering into any transaction for creation/transfer of any interest in this property in any manner, either partially or fully with any person, without the consent of our Client, which will be illegal and non-binding on our Client and the parties entering into such transaction(s) shall be entirely responsible for all costs, risks and consequences arising thereto.

Mayank Aggarwal
(Advocate of Record - Supreme Court of India)
A-378, LGF, Defence Colony, New Delhi-110024 | Ph: 8588857704

NOTICE TO GENERAL PUBLIC

This is for the information of all concerned that Fortis Hospital, A Block Shalimar Bagh, New Delhi-110088, is going to destroy its In-patient records pertaining to the year of 2017. Any patient / next of kin desirous of preserving the records for future reference are requested to contact the Medical Record Department of the hospital for the same within 30 working days from the date of this notification.

You may also write to us at:
Email: mrd.sb@fortishealthcare.com

Fortis HOSPITAL
Shalimar Bagh
A Block, Shalimar Bagh, New Delhi-110088
Ph: +91-11 4530 2222

व्यक्तिगत

नाम परिवर्तन

I, Sonal, D/o Arun Kumar Shrivastava and Kumkum Shrivastava, W/o Vivek Kumar, Permanent Address - G96, Second Floor, Oriental Villas, Sector 57, Gurgaon 122003, Present Address- 3203 170th PL SE Bothell WA 98012, have changed my name to Sonal Verma vide affidavit number N24-00187 dated 23.08.2024 sworn in Snohomish County District Court, USA.

Readers are recommended to make appropriate enquires and seek appropriate advice before sending money, incurring any expenses, acting on medical recommendations or entering into any commitment in relation to any advertisement published in this publication. The Times of India Group doesn't vouch for any claims made by the Advertisers of products and services. The Printer, Publisher, Editor, and Owners of The Times Of India Group publications shall not be held liable for any consequences, in the event such claims are not honoured by the Advertisers.

NBT 18/08/2024 Delhi NCR

Rajasthan Part I Power Transmission Limited

Annexure A5

Date: 02.12.2024

CERTIFICATE BY BID EVALUATION COMMITTEE

Subject: **Selection of Successful Bidder as Transmission Service Provider to establish "Transmission system for evacuation of power from REZ in Rajasthan (20 GW) under Phase-III Part I" through tariff based competitive bidding process.**

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 Projects" 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 Adani Energy Solutions Limited, with the lowest annual transmission charges of Rs. 35,570.00 million, emerged as the successful Bidder after the conclusion of electronic reverse auction.

c. The transmission charges of Rs. 35,570.00 million discovered after electronic reverse auction is acceptable.

(Rajesh Kumar Singh) General Manager, CCGRO-II, SBI Chairman, BEC	(Bhagwan Sahay Bairwa) Chief Engineer (I/C) PSPA-II, CEA Member, BEC	(Bhanwar Singh Meena) Director (PSETD), CEA Member, BEC
(V A Kale) Superintending Engineer, RVPN, Member, BEC	(D. K. Meena) SE (Operations), NRPC Member, BEC	(Kuldeep Rai) Chairman – SPV Convener – Member, BEC

Rajasthan Power Transmission Part I Limited

REC Power Development and Consultancy Limited
(Formerly known as REC Power Distribution Company Limited,
A wholly owned subsidiary of REC Limited, a 'Maharatna CPSE'
under Ministry of Power, Govt. of India)

REC Power Development

Ref No.: RECPDCL/TBCB/Raj Ph-III Part I/2024-25/2989 Date: 03.12.2024

M/s Adani Energy Solutions Limited
(Formerly known as Adani Transmission Ltd.),
12th Floor, South Wing, KP Epitome – B Block,
Makarba, S G Highway, Ahmedabad – 380051.

Kind Attention: Sh. Sanjay Johari, VP

"Establishment of Transmission System for Evacuation of Power from REZ in Rajasthan (20 GW) under Phase-III Part I" through Tariff Based Competitive Bidding Process (TBCB) – **Letter of Intent**

Dear Sir,

We refer to:

1. The Request for Proposal (RfP) dated 17.08.2024 comprising RfP, Draft Transmission Service Agreement, Share Purchase Agreement and Survey Report dated 17.08.2024 issued to M/s Adani Energy Solutions Limited, as regards participation in the Global Invitation for Bids for establishment of "Transmission system for evacuation of power from REZ in Rajasthan (20 GW) under Phase-III Part I" through Tariff Based Competitive Bidding process including all correspondence/ clarifications/ amendments/errata/corrigendum issued by REC Power Development and Consultancy Limited in regard thereto (hereinafter collectively referred to as the 'Final RFP') till the submission Bid Deadline and as listed below:

   (i) Clarifications dated 17.08.2024
   (ii) Amendment-I dated 06.09.2024,
   (iii) Amendment-II dated 13.09.2024,
   (iv) Amendment-III dated 17.09.2024,
   (v) Amendment-IV dated 30.09.2024,

2. The offer of M/s Adani Energy Solutions Limited by way of a Technical Bid pursuant to (1) above submitted on 08.10.2024 in response to the Final RFP.

3. The Initial Price Offer of M/s Adani Energy Solutions Limited as submitted on 08.10.2024 in response to the Final RFP.

4. The Final Offer (which is same as Initial Price Offer) of M/s Adani Energy Solutions Limited, discovered during e-Reverse Auction, conducted on 28.11.2024 in response to the Final RFP.

5. The Technical Bid as in (2) above, the Initial Price Offer as in (3) above and the Final Offer as in (4) above hereinafter collectively referred to as the 'Bid'.

We are pleased to inform you that your proposal and offer received by way of the 'Bid' has been accepted and M/s Adani Energy Solutions Limited is here by declared as 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 in 2 copies, One original plus One copy.

Rajasthan Part I Power Transmission Limited

REC Power Development and Consultancy Limited Gurugram

D- Block, REC Headquarter, Plot No. I-4, Sector-29, Gurugram, (Haryana) -122001,
E-mail: co@recpdcl.in | Tel.: 01224-4441300 | www.recpdcl.in | CIN No. RECPDCL-U40101DL2007GOI165779 | GST No. 06AADCR7399K1ZP

This LoI is based on the Final RFP and is further contingent upon you satisfying the following conditions:

(a) Acknowledging its issuance and unconditionally accepting its contents and recording 'Accepted unconditionally' under the signature and stamp of your authorized signatory on each page of the duplicate copy of this letter attached herewith and returning the same to REC Power Development and Consultancy Limited within 7 (Seven) days from the date of issuance of LoI.

(b) Completion of various activities as stipulated in the 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.

(c) Provide the Contract Performance Guarantee of Rs. 668.50 Crore (Rupees Six Hundred Sixty-Eight Crore Fifty Lakhs Only) within 10 (Ten) days from issue of this LoI, in favour of the Central Transmission Utility of India Limited, as per the provisions of Clause 2.12.

It may be noted that REC Power Development and Consultancy Limited has the rights available to them under the Final RFP, including rights under clause 2.15.5 and 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 transmission elements as agreed by you in your Bid, as per Annexure 21 and Format-1 of Annexure-8 respectively of the Final RFP is enclosed herewith as Schedule-A and incorporated herein by way of reference.

Further, please note that relationship of M/s Adani Energy Solutions Limited with the REC Power Development and Consultancy Limited & Central Transmission Utility of India Limited will be governed solely on the basis of the Final RFP.

You are requested to unconditionally accept the LoI, and record on one copy of the LoI, 'Accepted unconditionally', under the signature of the authorized signatory of your Company and return such copy to us within 7 (Seven) days of issue of LoI.

Yours faithfully

03/12/2024

(t.s.c. bosh)
Chief Executive Officer

Enclosures:

1. Schedule A: Quoted Transmission Charges and the scheduled COD of transmission element submitted in your Bid, as per Annexure 21 and Format-1 of Annexure-8 respectively of the Final RfP.

REC Power Development and Consultancy Limited Gurugram

Rajasthan Part I Power Transmission Limited

Copy for kind information to:

1. **The Secretary,**
   Central Electricity Regulatory Commission,
   6th Floor, Tower B, World Trade Centre,
   Nauroji Nagar, New Delhi-110029

2. **The Chairperson,**
   Central Electricity Authority,
   Sewa Bhawan, R K Puram,
   New Delhi-110086.

3. **The Joint Secretary (Transmission),**
   Ministry of Power,
   Shram Shakti Bhawan,
   Rafi Marg, New Delhi- 110 004.

4. **The Director (Transmission),**
   Ministry of Power, Govt, of India,
   Shram Shakti Bhawan, Rafi Marg,
   New Delhi 110001.

5. **The Chief Engineer (PSP & PA -I)**
   Central Electricity Authority,
   Sewa Bhawan, R.K. Puram,
   New Delhi – 110066.

6. **The Chief Operating Officer**
   Central Transmission Utility of India Limited,
   5th to 10th Floor, Ircon International Tower,
   Tower No.-1, Plot No. 16, Sector 32,
   Gurugram, Haryana – 122003.

REC Power Development and Consultancy Limited Gurugram

Rajasthan Part I Power Transmission Limited

ANNEXURE 21 - FORMAT FOR FINANCIAL BID

Quoted Annual Transmission Charges: Rs. 35,570.00 Million

Notes:

1. The Bidders are required to ensure compliance with the provisions of Clause 2.5.3 of this RFP.
2. Quotes to be in Rupees Millions and shall be up to two (2) decimal points.
3. The contents of this format shall be clearly typed.
4. The Financial Bid shall be digitally signed by the authorized signatory in whose name power of attorney as per Clause 2.5.2 is issued.
5. Ensure only one value for annual Transmission Charges is quoted. The same charge shall be payable every year to TSP for the term of TSA.

03/12/2024

REC Power Development and Consultancy Limited Gurugram

Rajasthan Part I Power Transmission Limited

REC Power Development and Consultancy Limited
(Formerly known as REC Power Distribution Company Limited,
A wholly owned subsidiary of REC Limited, a 'Maharatna CPSE'
under Ministry of Power, Govt. of India)

REC Power Development

संदर्भ संख्या: आरईसीपीडीसीएल/टीबीसीबी /Raj Ph-III Part I/2024-25/ 3548 Date: 20.01.2025

मेसर्स अदानी एनर्जी सॉल्यूशंस लिमिटेड
12वीं मंजिल, साउथ विंग, केपी एपिटोम – बी ब्लॉक
मकरबा, एस.जी. हाईवे, अहमदाबाद – 380051

M/s Adani Energy Solutions Limited
12th Floor, South Wing, KP Epitome – B Block,
Makarba, S G Highway, Ahmedabad – 380051.

(सादर ध्यानाकर्षण: श्री संजय जौहरी, उपाध्यक्ष)

विषय: Establishment of "Transmission system for evacuation of power from REZ in Rajasthan (20 GW) under Phase-III Part I" through tariff based competitive bidding process – Extension of LoI- regarding.

संदर्भ: RECPDCL/TBCB/Raj Ph-III Part I/2024-25/2989, Dated 03.12.2024

महोदय,

This is in reference to above referred Letter of Intent dated 03rd December, 2024 issued to M/s Adani Energy Solutions Limited for **Transmission system for evacuation of power from REZ in Rajasthan (20 GW) under Phase-III Part I.**

To complete the activities mentioned under Clause 2.15.2, Clause no. 2.15.3 and Clause no. 2.15.4 of Request for Proposal (RFP) document, the last date for completion of various activities, is extended till 27th January, 2025.

धन्यवाद।

भवदीय,

सत्यबान 20/01/25
(सत्यबान साहू)
महाप्रबंधक (तकनीकी)

Rajasthan Part I Power Transmission Limited

Annexure A7

STATE BANK OF INDIA
CORPORATE ACCOUNT
GROUP, AHMEDABAD
58 SHRIMALI SOCIETY,
NAVRANGPURA
AHMEDABAD ,INDIA -
380009

Tel No. :
Fax No. 91-79-26561178
SWIFT No. : SBININBB219
PIN Code : 380009

18-01-2025

To,

CENTRAL TRANSMISSION UTILITY OF
INDIA LIMITED, 5TH TO 10TH FLOOR, IRCON INTERNATIONAL TOWER, TOWER NO 1, PLOT NO 16, SECTOR 32, GURGAON, HARYANA 122003

Dear Sir(s),

Guarantee Number	:	0415225BG0B00048
Date of Issue	:	17-01-2025
New Guarantee Amount	:	INR 6,685,000,000.00
New Date of Expiry	:	31-12-2029
New Date of Claim	:	31-12-2030
Applicant Name	:	ADANI ENERGY SOLUTIONS LIMITED
E Stamp Certificate No.	:	
E Stamp Issuance Date & Time	:	
State of Execution	:	
Stamp Duty Type/Article No.		
Bank Guarantee Amount	:	INR 6,685,000,000.00
Amount of Stamp duty Paid	:	INR 0.00
Issuing Bank Branch	:	
Bank Guarantee Beneficiary	:	CENTRAL TRANSMISSION UTILITY OF

We confirm having Issued / Extended the captioned Bank Guarantee in your favour on Behalf of our above named Constituent and the same signed by the officers of the Bank.

Yours Faithfully,

Authorized signature

RAHUL SAPRA
S.S. No. AR8928
PF. ID. : 7666691

The Beneficiaries are advised in their own interest to verify the genuineness of the Guarantee with the BG issuing Branch.

PLEASE CONTACT BRANCH FOR eTradeSBI FACILITY-INTERNET ACCESS TO TRADE FINANCE

Jan 18, 2025 1:09 PM

Rajasthan Part I Power Transmission Limited

STATE BANK OF INDIA
CORPORATE ACCOUNT
GROUP, AHMEDABAD
58 SHRIMALI SOCIETY,
NAVRANGPURA
AHMEDABAD ,INDIA -
380009

Tel No. :
Fax No. : 91-79-26561178
SWIFT No. : SBININBB219
PIN Code : 380009

18-01-2025

To,
CENTRAL TRANSMISSION UTILITY OF
INDIA LIMITED, 5TH TO 10TH FLOOR, IRCON INTERNATIONAL TOWER, TOWER NO 1, PLOT NO 16, SECTOR 32, GURGAON, HARYANA 122003

DEAR SIRs,

ORIGINAL GUARANTEE NUMBER	:	0415225BG0B00048
AMOUNT OF GUARANTEE	:	6,685,000,000.00
GUARANTEE COVER FROM	:	17-01-2025 to 31-12-2028
LAST DATE OF LODGEMENT CLAIM	:	31-12-2029
APPLICANT	:	ADANI ENERGY SOLUTIONS LIMITED

1. We hereby inform you that at the request of the above applicant, the captioned Guarantee No. 0415225BG0B00048 issued by us on 17-01-2025 and renewed till 31-12-2028 for an amount of INR 6,685,000,000.00 has now been extended for further period upto 31-12-2029 for an amount of INR 6,685,000,000.00

2. The last date for the receipt of claims under this extended guarantee will be 31-12-2030

3. All other terms and conditions as appearing in the Original Guarantee shall apply to this Extension guarantee and shall be read with the Original guarantee for STATE BANK OF INDIA

कृते भारतीय स्टेट बैंक
For, STATE BANK OF INDIA
प्रबंधक (ग्राहक सेवा वि.)
वाणिज्यिक ग्राहक समूह शाखा, अहमदाबाद
COMMERCIAL CLIENTS GROUP BR., A'BAD.
AUTHORISED SIGNATORY
RAHUL SAPRA
S.S. No. AR8928

कृते भारतीय स्टेट बैंक
For, STATE BANK OF INDIA
प्रबंधक (ग्राहक सेवा वि.)
COMMERCIAL CLIENTS GROUP BR., A'BAD.
AUTHORISED SIGNATORY
BHUMIKA VAGHU
S.S. No. V4231

PLEASE CONTACT BRANCH FOR eTradeSBI FACILITY-INTERNET ACCESS TO TRADE FINANCE

Jan 18, 2025 1:09 PM

Rajasthan Part I Power Transmission Limited

Eximbills Enterprise SWIFT

View RAW

Main Reference NO:	0415225BG0B00048	**Transaction Reference NO:**	1
Unit Code:	04152	**Operator:**	1002416
Module Name:	BGIF	**Function Name:**	Inland_Amendment BG
Transaction Date:	18-01-2025	**Transaction Time:**	13:09:00
Event Time:	2	**Release by**	
Release Date		**Release Time:**	

MT767COV AckFlag : NotifyFlag :

B1: **Outgoing SWIFT Header 1**

F01SBIN00041525000000000

B2: **Receiver's BIC Code**

I767SBIN0017313N

7020: **Transaction reference Number (Issuing Bank Guarantee Amendment Number)**

0415225BG0B00048

7021: **Related Reference (Original Bank Guarantee Number)**

0415225BG0B00048

7055: **Further Identification**

AMENDMENT

7056: **Amendment Date**

20250118

7057: **Number of Amendment**

1

7058: **Date of Issue or Request to Issue**

20250117

7059: **Amendment Details**

WE HEREBY ADVISED YOU OF AMENDMENTS MADE TO THE REFERENCED GUARANTEE:
EXPIRY DATE CHANGED TO 31.12.2029.
DATE OF CLAIM CHANGED TO 31.12.2030.

7031: **Issuing Branch IFSC**

SBIN0004152

7032: **Issuing branch name and address**

STATE BANK OF INDIA
58 SHRIMALI SOCIETY, NAVRANGPURA
AHMEDABAD ,INDIA - 380009

7033: **Name of applicant and his details**

ADANI ENERGY SOLUTIONS LIMITED

7034: **Name of Counter party and his details**

CENTRAL TRANSMISSION UTILITY OF

7035: **Beneficiary IFSC**

SBIN0017313

7036: **Beneficiary branch name and address**

STATE BANK OF INDIA

7046: **Date of Payment**

भारतीय स्टेट बैंक
For, STATE BANK OF INDIA
MANAGER (CUSTOMER SERVICE DIVISION)
COMMERCIAL CLIENTS GROUP BR., A'BAD.
RAHUL SAPRA
S.S. No. AR8928
PF ID. : 7668691

भारतीय स्टेट बैंक
For, STATE BANK OF INDIA
BHUMIKA VAGHU
S.S. No. V4231

Rajasthan Part I Power Transmission Limited

20250118

7047: Place of Payment

CORPORATE ACCOUNT GROUP, AHMEDABAD

7048: e-Bank Guarantee to be held in Demat Form (Y/N)

N

20Z: Transaction Reference Number

NON-REGULAR

90

IN-GJ230483931O5055W

INDIA NON JUDICIAL

Government of Gujarat

Certificate of Stamp Duty

सत्यमेव जयते

Certificate No.	:	IN-GJ230483931O5055W
Certificate Issued Date	:	23-Dec-2024 10:47 AM
Account Reference	:	IMPACC (SV)/ gj13334504/ GULBAI TEKRA/ GJ-AH
Unique Doc. Reference	:	SUBIN-GJGJ13334504588183320424 81W
Purchased by	:	STATE BANK OF INDIA
Description of Document	:	Article 32 Letter of Guarantee
Description	:	BANK GUARANTEE
Consideration Price (Rs.)	:	0 (Zero)
First Party	:	STATE BANK OF INDIA
Second Party	:	Not Applicable
Stamp Duty Paid By	:	STATE BANK OF INDIA
Stamp Duty Amount(Rs.)	:	300 (Three Hundred only)

0415225B40B000 48

18/01/2025

HF 0028[illegible]14

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

STATE BANK OF INDIA
CORPORATE ACCOUNT
GROUP, AHMEDABAD
58 SHRIMALI SOCIETY,
NAVRANGPURA
AHMEDABAD ,INDIA -
380009

Tel No. :
Fax No. : 91-79-26561178
SWIFT No : SBININBB219
PIN Code : 380009

17-01-2025

To,
CENTRAL TRANSMISSION UTILITY OF
INDIA LIMITED, 5TH TO 10TH FLOOR, IRCON INTERNATIONAL TOWER, TOWER NO 1, PLOT NO 16, SECTOR 32, GURGAON, HARYANA 122003

DEAR SIR(S),

Guarantee Number	:	0415225BG0B00048
Date of Issue	:	17-01-2025
Guarantee Amount	:	INR 6,685,000,000.00
Date of Expiry	:	31-12-2028
Date of Claim	:	31-12-2029
Applicant Name	:	ADANI ENERGY SOLUTIONS LIMITED
E Stamp Certificate No.	:	
E Stamp Issuance Date & Time	:	
State of Execution	:	
Stamp Duty Type/Article No.	:	
Bank Guarantee Amount	:	INR 6,685,000,000.00
Amount of Stamp duty Paid	:	0.00
Issuing Bank Branch	:	
Bank Guarantee Beneficiary	:	CENTRAL TRANSMISSION UTILITY OF

We confirm having Issued / Extended the captioned Bank Guarantee in your favour on behalf of our above named Constituent and the same signed by the officers of the Bank.

For, STATE BANK OF INDIA

YOURS FAITHFULLY

MANAGER (CUSTOMER SERVICE DIVISION)
COMMERCIAL CLIENTS GROUP BR., A'BAD.

AUTHORISED SIGNATORY - 1

RAHUL SAPRA
S.S. No. AR8928
PF. ID. : 7666691

Jan 17, 2025 10:53 AM

For, STATE BANK OF INDIA

*AUTHORISED SIGNATORY - 2
(*2nd signatory required, if BG is for Rs. 50000/- and above)

BHUMIKA VAGHU
S.S. No. V4231

Rajasthan Part I Power Transmission Limited

Eximbills Enterprise SWIFT

View RAW

Main Reference NO:	0415225BG0B00048	**Transaction Reference NO:**	0415225BG0B00048
Unit Code:	04152	**Operator:**	1002416
Module Name:	BGIF	**Function Name:**	Inland Issue_Bank_Guarantee
Transaction Date:	17-01-2025	**Transaction Time:**	10:53:32
Event Time:	1	**Release by**	
Release Date		**Release Time:**	

MT760COV AckFlag : NotifyFlag :

B1: **Outgoing SWIFT Header 1**

F01SBIN00041525000000000

B2: **Receiver's BIC Code**

I760SBIN0017313N

7020: **Transaction Referance Number (Issuing Bank Guarantee Number)**

0415225BG0B00048

7024: **Type of Bank Guarantee : Performance, Financial, Others**

PERFORMANCE

7025: **Amount of Guarantee Currency Code Amount**

INR6685000000,

7026: **Guarantee Validity Guarantee From Date Guarantee To Date**

2025011720281231

7027: **Guarantee Effective Date**

20250117

7029: **End date for lodgement of claim**

20291231

7030: **Place of lodgement of claim**

CCG AHMEDABAD

7031: **Issuing Branch IFSC**

SBIN0004152

7032: **Issuing branch name and address**

STATE BANK OF INDIA
58 SHRIMALI SOCIETY, NAVRANGPURA
AHMEDABAD ,INDIA - 380009

7033: **Name of applicant and his details**

ADANI ENERGY SOLUTIONS LIMITED
ADANI CORPORATE HOUSE
SHANTIGRAM,NR VAISHNODEVI CIRCLE
S G HIGHWAY AHMEDABAD

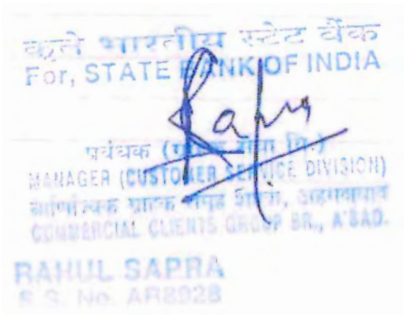
7034: **Name of Beneficiary and his details**

CENTRAL TRANSMISSION UTILITY OF INDIA LIMITED, 5TH TO 10TH FLOOR, IRCON INTERNATIONAL TOWER, TOWER NO 1, PLOT NO 16, SECTOR 32, GURGAON, HARYANA 122003

7035: **Beneficiary IFSC**

SBIN0017313

7036: **Beneficiary branch name and address**



STATE BANK OF INDIA
4TH AND 5TH FLR RED FORT CAPITAL
PARSVNATH TOWER GOLE MARKET
NEW DELHI

7040: Stamp Duty Electronically Paid (Y/N)

N

7046: Date of Payment

20250117

7047: Place of Payment

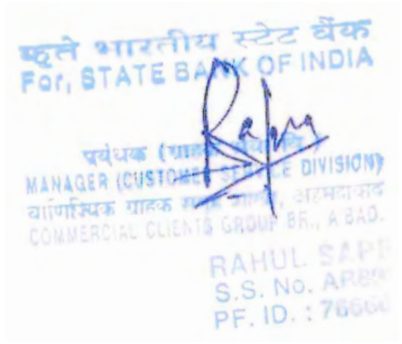
CORPORATE ACCOUNT GROUP, AHMEDABAD

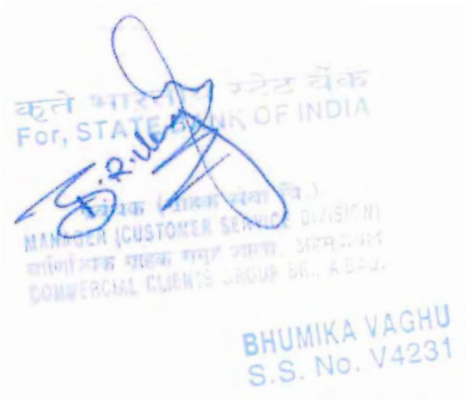
7048: e-Bank Guarantee to be held in Demat Form(Y/N)

N

20Z: Transaction Reference Number

NON-REGULAR





IN-GJ230472692232257W

INDIA NON JUDICIAL

Government of Gujarat

Certificate of Stamp Duty

सत्यमेव जयते

Certificate No.	:	**IN-GJ230472692232257W**
Certificate Issued Date	:	23-Dec-2024 10:46 AM
Account Reference	:	IMPACC (SV)/ gj13334504/ GULBAI TEKRA/ GJ-AH
Unique Doc. Reference	:	SUBIN-GJGJ13334504588206520616O7W
Purchased by	:	STATE BANK OF INDIA
Description of Document	:	Article 32 Letter of Guarantee
Description	:	BANK GUARANTEE
Consideration Price (Rs.)	:	0 (Zero)
First Party	:	STATE BANK OF INDIA
Second Party	:	Not Applicable
Stamp Duty Paid By	:	STATE BANK OF INDIA
Stamp Duty Amount(Rs.)	:	300 (Three Hundred only)

This Stamp Certificate is an integral part of Bank Guarantee Bank Guarantee Agreement

0415225B40B.0004

17/01/2025

HAILESH V THIVEGIN
ACC
Ghatlodia
Ahmedabad

STAMP VENDOR

EHF 00295846

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

BG NO: 0415225BG0B00048 DATE: 17.01.2025

CONTRACT PERFORMANCE GUARANTEE

To,
ED (BCD And Regulatory),
Central Transmission Utility of India Limited,
5th to 10th Floor,
Ircon International Tower, Tower no-1,
Plot no -16 , Sector-32, Gurugram,
Haryana-122003

In consideration of the **M/s Adani Energy Solutions Limited having its registered office at Adani Corporate House, Shantigram, Nr. Vaishnodevi Circle, SG Highway, Ahmedabad -382421** agreeing to undertake the obligations under the Transmission Service Agreement to be executed on dated **20.01.2025** and the other RFP Project Documents and **the Central Transmission Utility of India Limited** and REC Power Development and Consultancy Limited, agreeing to execute the RFP Project Documents with the Selected Bidder, regarding setting up the Project, the **State Bank of India,** constituted under the State Bank of India Act 1955 and having its Registered office at Nariman Point, Mumbai and having one of its branches at State Bank of India, Commercial Clients Group Branch, 58, Shrimali Society, Near Mithakhali Six Roads, Navrangpura, Ahmedabad, Gujarat – 380009(hereinafter referred to as "Guarantor Bank") hereby agrees unequivocally, irrevocably and unconditionally to pay to Central Transmission Utility of India Limited (being the Nodal Agency) having address at 5th to 10th Floor, Ircon International Tower, Tower no-1, Plot no -16 , Sector-32, Gurugram, Haryana-122003, 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 Six Hundred Sixty Eight Crore and Fifty Lakh (Rs. 668.50 Crore)** only on behalf of M/s **Adani Energy Solutions 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 **Rupees Six Hundred Sixty Eight Crore and Fifty Lakh (Rs. 668.50 Crore)** only. Our Guarantee shall remain in force until **31.12.2028** 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 the Central Transmission Utility of India Limited, made in any format , raised at the above mentioned address of the Guarantor Bank, in order to make the said payment to the Nodal Agency.

The Guarantor Bank shall make payment hereunder on first demand without restriction or conditions and notwithstanding any objection by **Adani Energy Solutions Limited, Rajasthan Part I Power Transmission Limited,** and/or any other person. The Guarantor Bank shall not require the Nodal Agency to justify the invocation of this BANK GUARANTEE, nor shall the Guarantor Bank have any recourse against the Nodal Agency in respect of any payment made hereunder.

This BANK GUARANTEE shall be interpreted in accordance with the laws of India.

For, STATE BANK OF INDIA
प्रबंधक (ADVANCED (CUSTOMER SERVICE DIVISION)
HUL SAPRA

Rajasthan Part I Power Transmission Limited
BHUMIKA PARMAR
S.S. No. V4231

BG NO: 0415225BG0B00048 DATE: 17.01.2025

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 the Nodal Agency shall not be obliged before enforcing this BANK GUARANTEE to take any action in any court or arbitral proceedings against **Rajasthan Part I Power Transmission Limited** or **Adani Energy Solutions Limited**, as the case may be, to make any claim against or any demand on **Rajasthan Part I Power Transmission Limited** or **Adani Energy Solutions Limited**, as the case may be, or to give any notice to **Rajasthan Part I Power Transmission Limited** or **Adani Energy Solutions Limited**, 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 **Rajasthan Part I Power Transmission Limited** or **Adani Energy Solutions Limited**, 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 the 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 **Rupees Six Hundred Sixty Eight Crore and Fifty Lakh (Rs. 668.50 Crore)** only and it shall remain in force until **31.12.2028**, 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 **M/s Adani Energy Solutions Limited.** We are liable to pay the guaranteed amount or any part thereof under this Bank Guarantee only if the Nodal Agency serves upon us a written claim or demand.

Notwithstanding anything to the contrary contained herein
a) Our liability under this Guarantee shall not exceed **Rupees Six Hundred Sixty Eight Crore and Fifty Lakh (Rs. 668.50 Crore).**
b) This Bank Guarantee shall be valid up to **31.12.2028** (being the date of expiry of the guarantee)
c) We are liable to pay the guarantee amount only and only if we receive from you a written demand on or before **31.12.2029** (date, inclusive of claim period, if any)

बहने भारतीय स्टेट बैंक
For, STATE BANK OF INDIA
MANAGER (CUSTOMER SERVICE DIVISION)
COMMERCIAL CLIENTS GROUP BR., A'BAD.
MANU SAPRA

बहने भारतीय स्टेट बैंक
For, STATE BANK OF INDIA
MANAGER (CUSTOMER SERVICE DIVISION)
COMMERCIAL CLIENTS GROUP BR., A'BAD.
BHUMIKA VAGHU
S.S. No. V4231

Rajasthan Part I Power Transmission Limited

Annexure A8

SHARE PURCHASE AGREEMENT

BETWEEN

REC POWER DEVELOPMENT AND CONSULTANCY LIMITED

AND

RAJASTHAN PART I POWER TRANSMISSION LIMITED

AND

ADANI ENERGY SOLUTIONS LIMITED

Dated: 20th January, 2025

सत्यमेव जयते

INDIA NON JUDICIAL

Government of National Capital Territory of Delhi

₹500

e-Stamp

Certificate No.	:	IN-DL19741035646080X
Certificate Issued Date	:	17-Jan-2025 11:27 AM
Account Reference	:	SELFPRINT (PU)/ dl-self/ NEHRU/ DL-DLH
Unique Doc. Reference	:	SUBIN-DLDL-SELF84666039473531X
Purchased by	:	REC POWER DEVELOPMENT AND CONSULTANCY
Description of Document	:	Article 5 General Agreement
Property Description	:	CORE-4,SCOPE COMPLEX, 7, LODHI ROAD, NEW DELHI-110003
Consideration Price (Rs.)	:	0 (Zero)
First Party	:	RAJASTHAN PART I POWER TRANSMISSION LIMITED
Second Party	:	ADANI ENERGY SOLUTIONS LIMITED
Stamp Duty Paid By	:	RAJASTHAN PART I POWER TRANSMISSION LIMITED
Stamp Duty Amount(Rs.)	:	500 (Five Hundred only)

₹500

SELF PRINTED CERTIFICATE TO BE VERIFIED BY THE RECIPIENT AT WWW.SHCILESTAMP.COM

IN-DL19741035646080X

Please write or type below this line

SHARE PURCHASE AGREEMENT

This **SHARE PURCHASE AGREEMENT** ('**Agreement**') made on the 20th day of January, 2025 at New Delhi by and between:

REC POWER DEVELOPMENT AND CONSULTANCY LIMITED, a company incorporated under the Companies Act, 1956, vide CIN-U40101DL2007GOI165779 having its registered office at Core 4, SCOPE Complex, 7, Lodhi Road, New Delhi 110 003, India (hereinafter referred to as "**REC PDCL**", 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**;

REC Power Development and Consultancy Limited Gurugram RECPDCL

Rajasthan Part I Power Transmission Limited New Delhi 110003 Core-4, Scope Complex, 7, Lodhi Road RPTL-I

Adani Energy Solutions Limited AESL

Rajasthan Part I Power Transmission 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. 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.

17-Jan-2025 11:27 AM 17-Jan-2025 11:27 AM 17-Jan-2025 11:27 AM 17-Jan-2025 11:27 AM 17-Jan-2025 11:27 AM 17-Jan-2025 11:27 AM 17-Jan-2025 11:27 AM

RAJASTHAN PART I POWER TRANSMISSION LIMITED RAJASTHAN PART I POWER TRANSMISSION LIMITED RAJASTHAN PART I POWER TRANSMISSION LIMITED

सत्यमेव जयते

INDIA NON JUDICIAL

Government of National Capital Territory of Delhi

e-Stamp

Certificate No.	:	IN-DL19704458913820X
Certificate Issued Date	:	17-Jan-2025 10:47 AM
Account Reference	:	SELFPRINT (PU)/ dl-self/ NEHRU/ DL-DLH
Unique Doc. Reference	:	SUBIN-DLDL-SELF84587375165150X
Purchased by	:	REC POWER DEVELOPMENT AND CONSULTANCY
Description of Document	:	Article 5 General Agreement
Property Description	:	CORE-4,SCOPE COMPLEX, 7, LODHI ROAD, NEW DELHI-110003
Consideration Price (Rs.)	:	0 (Zero)
First Party	:	RAJASTHAN PART I POWER TRANSMISSION LIMITED
Second Party	:	ADANI ENERGY SOLUTIONS LIMITED
Stamp Duty Paid By	:	RAJASTHAN PART I POWER TRANSMISSION LIMITED
Stamp Duty Amount(Rs.)	:	500 (Five Hundred only)

SELF PRINTED CERTIFICATE TO BE VERIFIED BY THE RECIPIENT AT WWW.SHCILESTAMP.COM

IN-DL19704458913820X

Please write or type below this line

AND

RAJASTHAN PART I POWER TRANSMISSION LIMITED a company incorporated under the Companies Act, 2013 vide CIN – U42202DL2023GOI413445, having its registered office at Core 4, SCOPE Complex, 7, Lodhi Road, New Delhi 110003, India (herein after referred to as "**Company**" which expression shall, unless repugnant to the context, mean and include its successors in interest) of the **SECOND PART**;

REC Power Development and Consultancy Limited Gurugram

RECPDCL

RPTL-I

New Delhi 110003

AESL

Rajasthan Part I Power Transmission 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. 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

e-Stamp

Certificate No.	:	IN-DL19687709826164X
Certificate Issued Date	:	17-Jan-2025 10:21 AM
Account Reference	:	SELFPRINT (PU)/ dl-self/ NEHRU/ DL-DLH
Unique Doc. Reference	:	SUBIN-DLDL-SELF84554171703153X
Purchased by	:	REC POWER DEVELOPMENT AND CONSULTANCY
Description of Document	:	Article 5 General Agreement
Property Description	:	CORE-4,SCOPE COMPLEX, 7, LODHI ROAD, NEW DELHI-110003
Consideration Price (Rs.)	:	0 (Zero)
First Party	:	RAJASTHAN PART I POWER TRANSMISSION LIMITED
Second Party	:	ADANI ENERGY SOLUTIONS LIMITED
Stamp Duty Paid By	:	RAJASTHAN PART I POWER TRANSMISSION LIMITED
Stamp Duty Amount(Rs.)	:	200 (Two Hundred only)

SELF PRINTED CERTIFICATE TO BE VERIFIED BY THE RECIPIENT AT WWW.SHCILESTAMP.COM

IN-DL19687709826164X

Please write or type below this line

AND

ADANI ENERGY SOLUTIONS LIMITED, a company incorporated under the Companies Act, 1956 vide CIN-L40300GJ2013PLC077803 and having its registered office at **Adani Corporate House, Shantigram, Near Vaishno Devi Circle, S. G. Highway, Khodiyar, Ahmedabad, Gujarat, India - 382421** (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.**

REC Power Development and Consultancy Limited Gurugram

RECPDCL

RPTL-I

New Delhi 110003

AESL

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.

Rajasthan Part I Power Transmission Limited

17-Jan-2025 10:21 AM 17-Jan-2025 10:21 AM 17-Jan-2025 10:21 AM 17-Jan-2025 10:21 AM 17-Jan-2025 10:21 AM 17-Jan-2025 10:21 AM 17-Jan-2025 10:21 AM

RAJASTHAN PART I POWER TRANSMISSION LIMITED RAJASTHAN PART I POWER TRANSMISSION LIMITED RAJASTHAN PART POWER TRANSMISSION LIMITED RAJASTHAN PART I PO

WHEREAS:

A. The Ministry of Power, Government of India, vide its notification no. 221 [F. No. 15/3/2018-Trans-Pt(1)] dated 13.01.2023 has appointed REC Power Development and Consultancy Limited to be the Bid Process Coordinator (BPC) for the purpose of selection of Bidder as Transmission Service Provider (TSP) to establish transmission system for "**Transmission system for evacuation of power from REZ in Rajasthan (20 GW) under Phase-III Part I**" through tariff based competitive bidding process (hereinafter referred to as the "Project").

B. In accordance with the Bidding Guidelines, the BPC had initiated a competitive 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 2** of the TSA. BPC had initiated this process in accordance with and on the terms and conditions mentioned in the RFP Project Documents (as defined hereinafter).

C. BPC has incorporated the Company and has undertaken the preliminary studies, obtained certain approvals, etc. regarding the Project on behalf of the Company.

D. REC PDCL along with the Nominees hold one hundred per cent (100%) of the total issued and paid up equity share capital of the Company.

E. Pursuant to the said Bid Process, Adani Energy Solutions Limited has been identified as the Selected Bidder vide Letter of Intent dated 03rd December 2024 issued by the BPC in favour 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:

REC Power Development and Consultancy Limited Gurugram
RECPDCL

Rajasthan Part I Power Transmission Limited New Delhi 110003 Form-4, Scope Complex, 7, Lodhi Road
RPTL-I

Adani Energy Solutions Limited
AESL

1. DEFINITIONS

1.1 Capitalised 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 TSA.

1.2 Additionally, the following terms shall have the meaning hereinafter respectively assigned to them herein below:

(i) **"Acquisition Price"** shall mean INR 19,54,04,036/- (Rupees Ninteen Crore Fifty Four Lakh Four Thousand Thirty Six Only), which is the aggregate consideration payable by the Selected Bidder towards purchase of the Sale Shares at par and for taking over of all 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 the Parties in writing;

(iii) **"Bid Process"** shall mean the competitive bidding process initiated by the BPC, by issuance of RFP 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 2.15.2 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) "**Encumbrance**" shall mean any mortgage, pledge, lien, charge, security assignment, hypothecation, trust, encumbrance or any other agreement having the effect of creating security interest;

(vii) "**Letter of Intent**" shall have the meaning ascribed thereto under the Bid Documents;

(viii) "**Nominees**" shall mean the Persons, who are named in Annexure A of this Agreement, holding the Sale Shares as nominees of REC PDCL;

(ix) "**Party**" shall mean REC PDCL, Company and the Selected Bidder, referred to individually, and "Parties" shall mean REC PDCL, Company and the Selected Bidder collectively referred to, as relevant;

(x) "**Person**" shall include an individual, an association, a corporation, a partnership, a joint venture, a trust, an unincorporated organisation, a joint stock company or other entity or organisation, including a government or political subdivision, or an agency or instrumentality thereof, and/or any other legal entity;

(xi) "**RFP Project Documents**" shall mean the following documents, referred to collectively:

a. Transmission Service Agreement; and
b. this Agreement.

(xii) "**Representations and Warranties**" shall mean the representations and warranties mentioned in Clause 4 hereto;

(xiii) "**RoC**" shall mean the Registrar of Companies;

(xiv) "**Sale Shares**" shall mean 50,000 shares, representing one hundred percent (100%) 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 REC PDCL; and

(xvii) "**Transmission Service Agreement**" or "**TSA**" means the agreement titled 'Transmission Service Agreement' to be executed on 20th January, 2025 between Central Transmission Utility of India Limited (CTUIL) and Rajasthan Part I Power Transmission Limited, pursuant to which the TSP shall build, own, operate and transfer the Project and make available the assets of the Project on a commercial basis.

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.

REC Power Development and Consultancy Limited Gurugram
RECPDCL
Rajasthan Part I Power Transmission Limited New Delhi 110003
RPTL-I
Rajasthan Part I Power Transmission Limited
AESL
Adani Energy Solutions Limited

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 free from Encumbrances together with all assets and liabilities of the Company 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 Nominees of 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 duly stamped with requisite amount of stamp duty payable on the transfer of the Sale Shares ("**Share Transfer Forms**").

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**") executed by the Shares Seller and the Nominees, simultaneously against the Selected Bidder handing over to the Shares Seller, demand drafts drawn in favour of the Shares Seller or by confirmation of RTGS transfer 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 REC PDCL that on the Closing Date, the Selected Bidder has furnished the Contract Performance Guarantee to Central Transmission Utility of India Limited (CTUIL) and is in a position to comply with all other requirements of Clause 2.15.2 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 Share Certificates with the Company along with the names of its nominees to be appointed on the Board of the Company and the address within the jurisdiction of the RoC of New Delhi and Haryana, 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 **Adani Energy Solutions Limited** and its nominees and transfer of all assets and liabilities of the Company as on Closing Date;

(b) approving the **Adani Energy Solutions Limited** and its nominees as the members of the Company and entering the name of the **Adani Energy Solutions Limited** and its nominees in the register of members.

(c) changing the address of the registered office of the Company to the new address as provided by the Selected Bidder as per clause 3.3 above.

(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.

Immediately pursuant to the acceptance of resignation of the existing Directors and appointment of new Chairman, the newly constituted Board of Directors shall continue with the meeting and pass the following resolution:

(e) 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

(f) 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 **Adani Energy Solutions 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 **Adani Energy Solutions 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 **Adani Energy Solutions Limited** and its nominees, to the **Adani Energy Solutions 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 (i) (f) of Clause 3.3 (i) to the Central Transmission Utility of India Limited (CTUIL).

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 Shares of the Company by the Selected Bidder as per Clause 3.3, (a) the authority of the BPC in respect of the Bid Process shall forthwith cease and any actions to be taken thereafter regarding the Bid Process will be undertaken by the Central Transmission Utility of India Limited (CTUIL) themselves, (b) all rights and obligations of the BPC shall cease forthwith, (c) all other rights and obligations of the Company shall be of the TSP and (d) any decisions taken by the BPC on behalf of the Company prior to the date of acquisition, shall continue to be binding on the Company and/or Central Transmission Utility of India Limited (CTUIL)as the case may be.

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 is 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 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 a period of 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 the 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 certified mail or by recognised courier to the addresses below:

Selected Bidder: **Adani Energy Solutions Limited**
12th Floor - South Wing, KP Epitome – B Block, Makarba, S G Highway, Ahmedabad, Gujarat - 380051

REC PDCL: **REC Power Development and Consultancy Limited**
Core-4, SCOPE Complex, 7, Lodhi Road, New Delhi-110003

Company: **Rajasthan Part I Power Transmission Limited**
Core-4, SCOPE Complex, 7, Lodhi Road, New Delhi-110003

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 sixty (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 thirty (30) days after expiry of the aforesaid period, refer the Dispute to the Chief Executive Officer/Director of REC PDCL 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 thirty (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 thirty (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 Mr. Sanjay Arvind Johari, pursuant to an authorization granted to Mr. Sanjay Arvind Johari through necessary Board resolutions. Further, Mr. Sanjay Arvind Johari 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 Mr. Sanjay Arvind Johari 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 the Central Transmission Utility of India Limited (CTUIL) in accordance with Article 3.3.2 or Article 13 of the TSA thereof, REC PDCL 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 costs in respect of this Agreement and transfer of Sale Shares.

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 the Central Transmission Utility of India Limited (CTUIL) and REC PDCL 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 Shares Seller, 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 Shares Seller against all past, present and future third party claims and liabilities arising out of actions or decisions taken by any of the persons or bodies referred to in Clause 6.3 up to the Closing Date 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.

6.17 SURVIVAL

The provisions of Clause 1 (Definitions and Interpretation), Clause 4 (Representations and Warranties), Clause 6.2 (Resolution of Disputes), Clause 6.7 (Termination), Clause 6.15 (Confidentiality), Clause 6.16 (Indemnification) and other representations, warranties, covenants and provisions contained herein that by their nature are intended to survive, shall survive the termination of this Agreement

6.18 FORCE MAJEURE

No party shall be liable for its inability or delay in performing any of its obligations hereunder if such delay is caused by circumstances beyond the reasonable control of the party including delay caused through flood, riot, Act of God, lighting civil commotion, storm, tempest and earthquake.

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

REC Power Development and Consultancy Limited Gurugram

RECPDCL

Rajasthan Part I Power Transmission Limited New Delhi 110003 Core-4, Scope Complex, 7, Lodhi Road

RPTL-I

Rajasthan Part I Power Transmission Limited

Adani Energy Solutions Limited

AESL

SIGNED AND DELIVERED by the within named **REC POWER DEVELOPMENT AND CONSULTANCY LIMITED** by the hand of Sh. TSC Bosh, CEO

(Authorised pursuant to the resolution passed by its Board of Directors in its meeting held on 05 December, 2024)

REC Power Development and Consultancy Limited Gurugram

IN THE PRESENCE OF:

WITNESS:
(Name and address)

1. SATYABAN SAHOO
GH (ENGG)

(Core-4, SCOPE Complex, 7, Lodhi Road, New Delhi-110003)

2. SAROJ KUMAR
GM (ENGG.)

(Core-4, SCOPE Complex, 7, Lodhi Road, New Delhi-110003)

SIGNED AND DELIVERED by the within named **RAJASTHAN PART I POWER TRANSMISSION LIMITED** by the hand of Sh. Kuldeep Rai, Chairman

(Authorised pursuant to the resolution passed by its Board of Directors in its meeting held on 20th January, 2025)

Rajasthan Part I Power Transmission Limited New Delhi 110003 Core-4, Scope Complex, 7, Lodhi Road

WITNESS:
(Name and address)

1. Amit Kumar Purala
Chief Manager (Engg)

(Core-4, SCOPE Complex, 7, Lodhi Road, New Delhi-110003)

2. RITAM BISWAS
Asst. Manager (Engg)

(Core-4, SCOPE Complex, 7, Lodhi Road, New Delhi-110003)

Rajasthan Part I Power Transmission Limited

SIGNED AND DELIVERED by the within named **ADANI ENERGY SOLUTIONS LIMITED** by the hand of Mr. Sanjay Arvind Johari

(Authorised pursuant to the resolution passed by its Board of Directors in its meeting held on 22nd October,2024)

WITNESS:
(Name and address)

SHASHANK SHARMA
Head Business Development

12th Floor - South Wing, KP Epitome – B Block, Makarba, S G Highway, Ahmedabad, Gujarat - 380051,

NARENDRA KUMAR OJHA
Manager

12th Floor - South Wing, KP Epitome – B Block, Makarba, S G Highway, Ahmedabad, Gujarat - 380051

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.	REC POWER DEVELOPMENT AND CONSULTANCY LIMITED	49,994	99.988
2.	Shri Thangarajan Subash Chandira Bosh*	1	0.002
3.	Shri Satyaban Sahoo*	1	0.002
4.	Shri Arvind Kumar*	1	0.002
5.	Shri Mohan Lal Kumawat*	1	0.002
6.	Shri Sahab Narain *	1	0.002
7.	Shri Rajendra Kumar Gupta*	1	0.002
	Total	50,000	100.000

*** Held as nominee of REC PDCL.**

Annexure A9

STANDARD

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 EVACUATION OF POWER FROM REZ IN RAJASTHAN (20 GW) UNDER PHASE-III PART I

BETWEEN THE

CENTRAL TRANSMISSION UTILITY OF INDIA LIMITED

(NODAL AGENCY)

AND

RAJASTHAN PART I POWER TRANSMISSION LIMITED

20th Jan, 2025

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Bond

Indian-Non Judicial Stamp
Haryana Government
Transmission Service Agreement

119
Date :16/07/2024

Certificate No. G0P2024G3567
GRN No. 118957940

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 ..20th..... [Insert day] of...January [Insert month] of Two Thousand and Twenty Five.

BETWEEN:

The Central Transmission Utility of India Limited, having its registered address at "Saudamini",1st Floor, Plot No. 2, Sector-29, Gurugram-122001, Haryana and correspondence address at 5th to10th Floor, Ircon International Tower, Tower no-1, Plot no -16 , Sector-32, Gurugram, Haryana-122003, 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

Rajasthan Part I Power Transmission Limited, incorporated under the Companies Act, 2013, having its registered office at Core-4, Scope Complex 7, Lodhi Road Delhi, South Delhi, Delhi 110003 (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;

Rajasthan Part I Power Transmission Limited

Rajasthan Part I Power Transmission Limited
New Delhi
110003

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

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 Rajasthan Part I Power Transmission, 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.

l) 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:

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;

"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 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, 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, in accordance with Article 3 of this Agreement and which shall include the additional bank guarantee 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 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 ascribed 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;

"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 equipments 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;

"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;

"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;

"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 evacuation of Power from REZ in Rajasthan (20 GW) under Phase-III Part 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:

(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 17.08.2024 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 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 REC Power Development and Consultancy Limited, Rajasthan Part I Power Transmission and the Successful Bidder for the purchase of one hundred (100%) per cent of the shareholding of the Rajasthan Part I Power 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;

"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 Rajasthan Part I Power 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;

"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,

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 REC Power Development and Consultancy Limited in Rajasthan Part I Power Transmission 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

2.3.1 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.

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2.3.2 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.

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 Rajasthan Part I Power Transmission from REC Power Development and Consultancy Limited, who shall sell to the Selected Bidder, the equity shareholding of Rajasthan Part I Power Transmission, 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. 668.50 Crore (Rupees Six Hundred Sixty Eight Crore and Fifty 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 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 Rupees Sixty Six Crore and Eighty Five Lakh Only (Rs. 66.85 Crore) within two (2) Business Days of expiry of every 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

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Agency an amount of Rs. 668.50 Crore (Rupees Six Hundred Sixty Eight Crore and Fifty 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. If the Scheduled 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.

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.

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iv. Safety/ security Guidelines laid down by the Government;

v. Prudent Utility Practices, relevant Indian Standards and the Law;

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 order no. 25-11/6/2018 – PG dated 02.07.2020 as well as other Guidelines issued by Govt. of India pertaining to this;

i. to procure the products associated with the Transmission System (except for HVDC system)as per provisions of Public Procurement (Preference to Make in India) orders issued by Ministry of Power vide orders No. 11/5/2018 - Coord. dated 28.07.2020 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). However, TSP may also take necessary efforts to increase the Minimum Local Content in HVDC system.

Also, to comply with Department of Expenditure, Ministry of Finance vide Order (Public Procurement No 1) bearing File No. 6/18/2019-PPD dated 23.07.2020, Order (Public Procurement No 2) bearing File No. 6/18/2019-PPD dated 23.07.2020 and Order (Public Procurement No. 3) bearing File No. 6/18/2019-PPD, dated 24.07.2020, 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.

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.

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 Article16.

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.

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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.

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:

(a) 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) for a generation pooling substation and for load serving substations in the scope of TSP shall not be beyond 3 Km radius of the location proposed by the BPC in the survey report. However, actual location of any Greenfield Intermediate Substations in the scope of TSP shall not be beyond 10 Km radius of the location proposed by the BPC in the Survey Report.

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(b) final selection of Site including its geo-technical investigation;

(c) survey and geo-technical investigation of line route in order to determine the final route of the Transmission Lines;

(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 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.

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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 equipments/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 equipments, 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 equipments, 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 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 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

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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 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 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 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. 668.50 Crore (Rupees Six Hundred Sixty Eight Crore and Fifty 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 95%.

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.

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

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- 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 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

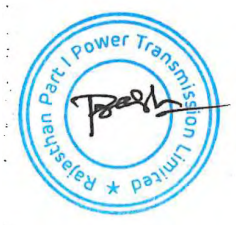
- act of war (whether declared or undeclared), invasion, armed conflict or act of foreign enemy, blockade, embargo, revolution, riot, insurrection, terrorist or military action; or

- 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;

(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.

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

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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.

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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:

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i. The TSP becomes voluntarily or involuntarily the subject of any bankruptcy or insolvency or winding up proceedings and such 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 95%, 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

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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

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.

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

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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 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

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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 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.

(c) 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, 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

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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 Rupees Forty Four Crore and Fifty Seven Lakh only (Rs. 44.57 Crore).

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,

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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 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

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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

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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.

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.

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.

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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 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 Rajasthan Part I Power 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 Rajasthan Part I Power 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 Rajasthan Part I Power 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 Rajasthan Part I Power 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 A directly holds thirty percent (30%) of the equity in Rajasthan Part I Power Transmission Limited then holding of Selected Bidder A in Rajasthan Part I Power 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 Rajasthan Part I Power Transmission Limited, then, for the purposes of ascertaining the minimum equity/equity lock-in requirements specified above, the effective holding of Bidder A in Rajasthan Part I Power Transmission shall be fifteen percent (15%), (i.e., 30% x 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 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).

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.

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

CENTRAL TRANSMISSION UTILITY OF INDIA LTD.
Rajasthan Part I Power Transmission Limited
New Delhi 110003

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 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:

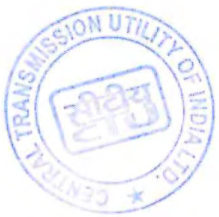
19.18.1 This Agreement along with its sections, schedules and appendices is intended by the Parties as the final expression of their agreement and is intended also as a complete and exclusive statement of the terms of their agreement.

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:

Address	:	Adani Energy Solutions Limited South wing, KP Ebitome - B Block Makarba, SG Highway, Ahmedabad - 380051
Attention	:	Mr. Rahul Mathur,
Email	:	rahul.mathur@adani.com
Fax. No.	:	
Telephone No.	:	6359965956

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	: Sh. 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

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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 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 LoI) 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 LoI 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 LoI 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 LoI 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

(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.

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 .....[Insert name of the Nodal Agency]

.....

KAMAL KUMAR JAIN
Senior General Manager
CENTRAL TRANSMISSION UTILITY OF INDIA LTD.
(A Wholly Owned Subsidiary of
Power Grid Corporation of India Ltd)
(A Government of India Enterprises)
Plot No.-2, Sector-29, Gurgaon- 122 001 (Haryana)

[Signature, Name, Designation and Address]

WITNESSES:

1. For and on behalf of

: BPC

.....

[Signature]

(RITAM BISWAS)
AM (Engg.), RBCPDCL

.....

[Insert, Name, Designation and Address of the Witness]

2. For and on behalf of

: Nodal Agency

.....

[Signature]

Deepak Krishnan, Manager, CTUIL

.....

[Insert Name, Designation and Address of the Witness]

Central Transmission Utility of India Limited 81 Rajasthan Part I Power Transmission Limited

CENTRAL TRANSMISSION UTILITY OF INDIA LTD.

Rajasthan Part I Power Transmission Limited

New Delhi 110003

SCHEDULES

Schedule: 1

Project Description and Scope of Project

Scope of the Project:

Sl. No.	Scope of the Transmission Scheme	Scheduled COD in months from Effective Date
1	Establishment of 6000 MW, ±800 kV Bhadla (HVDC) [LCC] terminal station (4x1500 MW) at a suitable location near Bhadla-3 substation • 400/33 kV, 2x50 MVA transformers for exclusively supplying auxiliary power to HVDC terminal. • 400 kV bus sectionaliser-2 nos. (1 Set) at Bhadla (HVDC) station Future provisions: Space for • 400 kV line bays along with switchable line reactor: 4 Nos. • 400 kV Bus Reactor along with bay :1 no. • 400 kV Sectionalisation bay: 1 set	48 months for Bipole-1 (20/01/2029) and 54 months for Bipole-2 (20/07/2029)
2	Establishment of 6000 MW, ±800 kV Fatehpur (HVDC) [LCC] terminal station (4x1500 MW) at suitable location near Fatehpur (UP)	
3	Bhadla-3 – Bhadla (HVDC) 400 kV 2xD/c quad moose line along with the line bays at both substations • 400 kV line bays -8 nos.	48 months (20/01/2029)
4	±800 kV HVDC line (Hexa lapwing) between Bhadla (HVDC) & Fatehpur (HVDC) (with Dedicated Metallic Return)	
5	Establishment of 5x1500 MVA, 765/400 kV ICTs at Fatehpur (HVDC) along with 2x330 MVAr (765 kV) bus reactor • 765/400 kV 1500 MVA ICTs: 5 nos. (16x500 MVA, including one spare unit) • 765 kV ICT bays – 5 nos.	

Sl. No.	Scope of the Transmission Scheme	Scheduled COD in months from Effective Date
	• 400 kV ICT bays – 5 nos. • 400 kV Bus sectionaliser-2 nos. [1 Set] • 765 kV line bays – 4 nos. • 330 MVAr, 765 kV Bus Reactor -2 nos. (7x110 MVAr, including one spare unit) • 765 kV reactor bays- 2 nos. Future provisions: Space for • 765/400 kV ICT along with bay: 1 no. • 765 kV line bay along with switchable line reactor: 4nos. • 765 kV Bus Reactor along with bays: 2 nos. • 400/220 kV ICTs along with bays: 4nos. • 400 kV line bays along with switchable line reactor: 4 nos. • 400 kV Bus Reactor along with bay: 1 no. • 220 kV line bays: 6 nos.	
6	LILO of both ckts of 765 kV Varanasi – Kanpur (GIS) D/c line at Fatehpur	

Note:

(i) Developer of Bhadla-III PS to provide space for 4 nos. of 400 kV bays at their substation

(ii) HVDC terminals will be implemented with 100% power reversal capability

Project Description

In order to integrate and evacuate power from envisaged additional RE potential (20 GW) in various renewable energy zones in Rajasthan [Fatehgarh: 9.1 GW, Bhadla: 8 GW, Ramgarh: 2.9 GW] as indicated by SECI, various transmission alternatives were evolved and deliberated in 3rd NRPC-TP meeting held on 19.02.2021. Based on deliberations in above meeting, hybrid (EHVAC & HVDC) transmission system was agreed for evacuation of power from additional 20 GW RE Potential in Rajasthan (Phase-III). EHVAC transmission system (Ph-III transmission scheme) for 14 GW RE potential is already under bidding. For evacuation of additional 6 GW RE potential, HVDC transmission scheme has been agreed in 9th NCT meeting

As part of Phase-III system, Bhadla-III PS is to be established which shall be integrated with Sikar-II S/s through 765 kV D/c line. Further, Ramgarh PS shall also be connected with Bhadla-3 for evacuation of RE power from Ramgarh Complex. In

order to facilitate evacuation of additional RE power (6GW) from Bhadla-III and Ramgarh PS (beyond Bhadla-III) under phase III, HVDC corridor to be implemented as part of subject scheme.

The subject transmission scheme involves implementation of Bhadla-III – Bhadla (HVDC) 400 kV 2xD/c (Quad) line, establishment of Bhadla (HVDC) [LCC] and Fatehpur (HVDC) [LCC] terminal station & ±800 kV HVDC line (Hexa lapwing) between Bhadla (HVDC) & Fatehpur. For onward dispersal of power from Fatehpur, LILO of both ckts of 765 kV Varanasi – Kanpur (GIS) D/c line at Fatehpur is also part of the subject scheme.

Above part transmission system for evacuation of power from REZ in Rajasthan (20 GW) under Phase III was also agreed in 49th Northern Region Power Committee (NRPC) meeting held on 27.09.2021 & 9th National Committee on Transmission (NCT) held on 28.09.22. Ministry of Power, Government of India, vide its Gazette Notification dated 13.01.2023 declared Transmission system for evacuation of power from REZ in Rajasthan under Phase III Part I through tariff based competitive bidding process route as part of "Transmission system for evacuation of power from REZ in Rajasthan (20 GW) under Phase III". Subsequent to above notification, future space provisions at Bhadla (HVDC) [LCC] terminal station were agreed in 12th NCT meeting held on 24.03.2023. Further, revised commissioning schedule of 48 months for Bipole-I and 54 months for Bipole-2 was recommended in 15th NCT meeting held on 25.08.2023. Revised commissioning schedule was also notified by Ministry of Power, Government of India, vide its Gazette Notification dated 07.11.2023.

Specific Technical Requirement of 6000 MW (4x1500 MW), ±800 kV HVDC [Type: Line Commutated Converter (LCC)]

1. General

The proposed HVDC link shall be ±800 kV , 6000MW HVDC line between Bhadla (Rajasthan) and Fatehpur (Uttar Pradesh) using Dedicated metallic return and consist of Bipole-1 (3000 MW) & Bipole-2 (3000 MW). Bipole-1 shall consist of Pole-1 (1500 MW) & Pole-2 (1500 MW) and Bipole-2 shall consist of Pole-3 (1500MW) & Pole-4 (1500 MW). **The HVDC terminals shall be implemented with 100% power reversal capability.**

The system shall generally conform to the requirements of CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations 2022, CEA (Safety requirements for construction, operation and maintenance of electrical plants and electric lines) Regulations, as amended from time to time and any other Rule/Regulations/ Standard/Guidelines as mentioned in the Transmission Service Agreement.

2. Abbreviations

The following terminology shall apply at various places of this specification:

DMR:	Dedicated Metallic Return
DMRTB:	Dedicated Metallic Return Transfer Breaker
DPS:	Dynamic Performance Studies
ESCR:	Effective Short Circuit Ratio
FAT:	Factory Acceptance Tests
HMI:	Human Machine Interface
HVAC:	High Voltage Alternating Current
HVDC:	High Voltage Direct Current
HVRT:	High Voltage Ride Through
IBR:	Inverter Based Resources
Id:	Direct current (any defined value)
LCC:	Line Commutated Converter
LI/SI:	Lightning Impulse/Switching Impulse
LVRT:	Low Voltage Ride Through
MTDC:	Multi-terminal HVDC transmission system
MVU:	Multiple Valve Unit
NBS:	Neutral Bus Switch
NGBS:	Neutral Ground Bus Switch
PCC:	Point of Common Coupling
PMR:	Pole Metallic Return

PMRTB:	Pole Metallic Return Transfer Breaker
RPC:	Reactive Power Control
SAS:	Substation Automation System
SCADA:	Supervisory Control and Data Acquisition
SCR:	Short Circuit Ratio
SSTI:	Sub-synchronous Torsional Interaction
TSP:	Transmission Service Provider
Ud:	Direct voltage (any defined value)
VDCOL:	Voltage Dependent Current Order Limit

3. Definitions

Bipole: A pair of 2 poles which are connected to opposite polarities (positive and negative).For power transmission in one Bipole, two such pairs (consisting of 4 converters) are required.

Forward Power flow direction: Active power transmission from Bhadla HVDC to Fatehpur HVDC.

Inverter: HVDC terminal which is receiving the power.

MVU (Multiple Valve Unit): An assembly of a number of valves mounted into a single structure (these include components mounted on the valve structure, e.g., saturable reactor, surge arrester) which may be considered part of the valve.

PCC (Point of Common Coupling): The connection point between the HVDC and the power system at which performance requirements are defined.

Rectifier: HVDC terminal which is sending the power.

Reverse Power flow direction: Active power transmission from Fatehpur HVDC to Bhadla HVDC.

Thyristor level: 'Thyristor level' comprises a single thyristor, control, protection, monitoring, auxiliary power and voltage grading components which make up a single voltage level within the valve.

Valve: Complete operative controllable or non-controllable valve device assembly, normally conducting in only one direction (the forward direction), which can function as a converter arm in a converter bridge

Valve Module: 'valve module' is the smallest assembly, comprising a number of thyristor levels, voltage grading and damping components, valve reactors, etc. from

which the valve is built up and which exhibits the same electrical properties as the complete valve, but only a portion of the full voltage capability of the valve.

4. Design Consideration

The salient technical features for HVDC terminals shall be as follows (Table 1):

Table 1

Sl. No.	Item Description	Parameters
1.	Rectifier station location (Forward direction power)	Bhadla HVDC (Rajasthan) [If the power direction is reversed, Bhadla will become inverter]
2.	Inverter station location (Forward direction power)	Fatehpur (Uttar Pradesh) [If the power direction is reversed, Fatehpur will become rectifier]
3.	Rated DC voltage (1.0 pu)	±800 kV DC at Rectifier HVDC Pole Bus
4.	Rated power (1.0 pu)	6000MW at Rectifier DC Bus
5.	Minimum DC Power	150 MW
6.	AC system frequency	Nominal 50 Hz
7.	Fault Current level AC system	63 kA for 1 sec for Bhadla 63 kA for 1 sec for Fatehpur
8.	Minimum Short circuit level (MVA) at 400 kV Bhadla (both rectifier and inverter operation)	24600 (with IBR) 17200 (without IBR)
9.	Minimum Short circuit level (MVA) at 400 kV Fatehpur (both rectifier and inverter operation)	16600
10.	Overload requirement	1.2 pu for half hour 1.1 pu for 2 hours 1.33 pu for 5 seconds
11.	Reverse power rating	100% of rated Forward direction power transfer rating[$] (with 1.33 pu

Sl. No.	Item Description	Parameters
		overload for 5 second only)
12.	Reduced voltage	80% of rated DC voltage [Applicable for both power flow directions
13.	Converter transformer	Single phase two winding design
14.	Thyristor valve	Water cooled
15.	Valve cooling system	Dry type design
16.	HVDC control system*	Main + hot standby
17.	HVDC protection system*	Duplicated Protection
18.	Auxiliary supply source	Supply sources tapped from 33 kV side of 2 nos. of 400/33 kV transformer (50 MVA) at Bhadla HVDC and 33 kV tertiary of 2 Nos. 765/400/33 kV ICT at Fatehpur. Each auxiliary power shall be fetched from both separate sources of the 33 kV auxiliary supply in station
19.	DC Harmonic filter	Minimum One DC filter for each pole at each HVDC terminal station
20.	AC Network Impedance	Relevant CIGRE/IEC document shall be used for the Network harmonic impedance together with information in PSSE network files provided by CTU.
21.	Negative sequence voltage (fundamental frequency)	1% for Design of equipment 1.5% for rating of equipment
22.	HVDC line online fault locator for pole lines	One No. per pole at each terminal station [when not integrated with Control & Protection System]

Sl. No.	Item Description	Parameters
23.	HVDC paralleling and de-paralleling switch	As per Requirement
24.	Smoothing reactor on DC bus	As per requirement but not less than 33% of total milli Henry (mH) required for each pole, shall be provided on DC pole bus
25.	Blocking filter	As per requirement
26.	Reliability and Availability Design Targets	As per Table 10
27.	Station Loss evaluation criteria	Methodology as per IEC 61803 and Target figures stated in Table 10
28.	System Grounding	Solidly grounded

*TSP can provide integrated Control and Protection system as well, meeting functional requirements.

$The power reversal in HVDC links shall be possible from the maximum active power transmission capacity from Bhadla HVDC to Fatehpur HVDC to the maximum active power transmission capacity from Fatehpur HVDC to Bhadla HVDC within 60 minutes. HVDC System shall be capable of at least three Power reversals in every 24 hours.

The criteria for the design and control of the network shall be as follows:

- 400 kV AC bus voltages shall normally be within ±5.0% of nominal voltage (400 kV). Bus voltages outside this range may occur from time to time and may exist for long periods due to abnormal loads and/or contingencies. Unless otherwise stated, all equipment shall be rated to operate safely for AC voltages between 360 kV -440 kV at the converter stations.

- AC system frequency shall normally be within 48.5 Hz to 51 Hz and the HVDC system shall operate without any restrictions on power transfer. However, equipment shall be rated for 47.5 Hz to 52.5 Hz band.

- For calculating reactive power exchange and filter performance, the 400 kV AC voltage variations to be taken shall be from 380 kV to 420 kV and the frequency shall be from 49.0 Hz to 50.5 Hz. Frequency range for AC/DC filter

rating shall be 48.5 Hz to 51 Hz.

5. Environmental Data

The following environmental data shall be considered (Table-2):

Table 2

Sr. No.	System data	Bhadla	Fatehpur
1	Max/min Ambient temperature (dry bulb one-hour average) Max dry bulb 24 hr average	50 deg C max 0 deg C min 40 deg C	50 deg C max 0 deg C min 40 deg C
2	Relative Humidity (%, max)	100	100
3	Average annual rainfall	As per rainfall map of IMD	As per rainfall map of IMD
4	Iso-keraunic level	As applicable	As applicable
5	Wind Zone	As per National Building Code 2016	As per National Building Code 2016
6	Seismic Level	As per Seismic zone of the site	As per Seismic zone of the site
7	Altitude above sea level	<1000 m	<1000 m
8	Pollution level (IEC 60815)	Heavy	Heavy

6. System Performance

The HVDC system shall be designed to meet all performance requirements and shall be compatible to existing system. The HVDC system shall not cause instability to the AC existing Network. Also, it shall not cause adverse effects to other HVDC system in vicinity, solar based generation plants (near Bhadla) as well as Generating Units. This shall be verified by stability, multi infeed and Sub Synchronous Resonance (SSR) studies and any other Study required, if applicable. Steady State, dynamic, HVRT, LVRT, Harmonic and flicker performance requirements as per applicable Rule/Regulations/Standards/Guidelines as per TSA shall be applicable.

monic and flicker performance requirements as per applicable Rule/Regulations/Standards/Guidelines as per TSA shall be applicable.

The rated power transmission capacity shall be defined and guaranteed at Rectifier DC Bus and rated transmission voltage shall be defined at the rectifier DC bus.

7. **Overload Requirements**

Table 3

Rectifier DC bus Bhadla for Bipole	**Duration**	**Redundant cooling**	**Converter bus voltage**
1.1 pu	2 hours	Available	380 kV - 420 kV
1.2 pu	0.5 hour	Available	380 kV - 420 kV
1.33 pu	5 seconds	Not available	380 kV - 420 kV

These overloads would be available for bipole mode of operation in forward power direction. For monopolar mode of operation or unbalanced mode of operation, equipment need not be uprated due to additional voltage drop in DMR path, instead TSP will indicate available power rating.

(a) **Two Hour Over Load**

The HVDC system shall be capable of operating for two hours at transmitted power levels at least 10% (ten percent) higher than the maximum continuous ratings for the specified nominal system conditions and environmental conditions;

If the AC bus voltage at Rectifier or Inverter is below 380 kV , the overload transmitted power capability may be progressively reduced to maintain the direct current at the maximum value obtained with the AC bus voltage at 380 kV .

It shall be permissible to apply the two-hour overload power at least once in every 12 hours period. The overload capability may be for an extended duration upto a maximum of twelve hours, in one or more intervals, in which case the product of power and time shall not exceed (i) 6600 MW-Hrs for each Bipole and (ii) 13200 MW-Hrs for both Bipoles in a 12-hour period and with the maximum limit of power maintained at 1.1 pu in every converter.

(i) 6600 MW-Hrs for each Bipole and (ii) 13200 MW-Hrs for both Bipoles in a 12-hour period and with the maximum limit of power maintained at 1.1 pu in every converter.

(b) **Half an Hour Overload**

The HVDC system shall be capable of operating for half an hour at transmitted power levels of at least 20% (twenty percent) higher than the maximum continuous

ratings and immediately following the five seconds overload conditions.

(c) Five Seconds Overload

The HVDC system shall be capable of operating at least for five seconds at transmitted power levels 33% greater than the maximum continuous ratings and at specified nominal system and environmental condition. It shall be assumed that the AC bus voltages do not change when this overload is applied.

The five second overload rating shall be achieved without tap changer operation, and the pole voltage may be reduced during the period of this overload.

It shall be permissible to apply the five second overload power once in any five-minute period. This five second overload shall also be permitted during operation at the two-hour overload rating with redundant coolers and heat exchangers available for service. Power greater than the two-hour overload shall form the start of five second overload period.

(d) It may be noted that 1.2 pu and 1.1 pu overload ratings are for power compensation following loss of a healthy converter. However, the purpose of 33% overload is for system stability, power modulation and dynamic ride through of the system as a whole and can be initiated with the initial system conditions of 1.0 pu Bipolar or 1.1 pu overload Operation.

(e) oad is for system stability, power modulation and dynamic ride through of the system as a whole and can be initiated with the initial system conditions of 1.0 pu Bipolar or 1.1 pu overload Operation.

8. DC Voltage:

The nominal direct voltage at the Rectifier converter station DC line terminal shall be ± 800 kV relative to neutral. This voltage shall be maintained within ± 20 kV by tap changer and Firing angle control for all power flows (i.e. minimum to overload [1.1p.u power rating]) with balanced current between the poles/converters for all AC bus bar voltages between 380 kV and 420 kV and for all AC system frequencies between 49.0 Hz and 50.5 Hz.

In any monopolar operation, or three converter operation (unbalance operation of one Bipole in parallel with a monopole) the Pole Voltage to Ground may be decreased by equivalent Voltage drop in DMR line.

nbalance operation of one Bipole in parallel with a monopole) the Pole Voltage to Ground may be decreased by equivalent Voltage drop in DMR line.

In the event that the AC system voltage is below 380 kV down to 360 kV , the DC line voltage may be correspondingly reduced.

If the AC system voltage at Rectifier or Inverter is above 420 kV but not exceeding 440 kV , the DC line voltage to ground may be increased but shall not exceed 820 kV at Rectifier. Higher than normal firing angles can be utilized to restrict the DC

line voltage under these conditions and the equipment should be adequately rated.

The above references to DC pole voltages shall be interpreted as extremes and shall not be exceeded due to measurement error, tap changer control dead band, tolerances in the manufacture or in the control system, or for any other reason.

manufacture or in the control system, or for any other reason.

9. Reduced DC Line Voltage

The HVDC system shall be capable of operating continuously at a nominal pole voltage of 640 kV relative to neutral at rectifier DC bus in bipolar as well as in monopole modes. Rectifier station shall be capable of transmitting not less than 4800 MW in bipolar link and 2400 MW in each Bipole. Redundant cooling may be in service. The pole voltage shall be within 20 kV of the above provided that the AC bus voltage is below 400 kV . Each Bipole shall have the capability for 10% overload over the power rating as specified above during reduced DC line voltage operation.

ng as specified above during reduced DC line voltage operation.

It shall also be possible to set DC voltage reference between 640 kV to 800 kV in either pole in the steps of 10 kV by the operator action.

Power levels in this voltage range shall be as permitted by the main circuit rating of the equipment. However, reduced voltage attempt by DC line protection shall directly first achieve 640 kV . The reduced voltage may be achieved by a combination of tap changer and firing angle control. Reduced voltage operation shall be possible to be ordered by operator from either station even with telecom out of service. The change from normal to reduced voltage operation and vice versa shall not require a valve group shutdown or reduction in power below that achievable with the reduced voltage. It shall be possible to start the transmission in reduced voltage mode.

shutdown or reduction in power below that achievable with the reduced voltage. It shall be possible to start the transmission in reduced voltage mode.

10. Converters Operating modes

The HVDC equipment at both Converter Stations shall be designed and rated to operate with different DC current orders. Necessary facilities shall be provided to permit these modes of operation and to allow the individual Pole power and/or current orders and/or voltage to be set as per below.

Each Pole/Bipole shall be capable of transmitting power including overloads and for the system short circuit levels specified in this specification. The minimum operating

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modes are as follows:

(a) Balanced/ unbalanced bipolar operation
(b) Monopolar operation with Pole Metallic Return (PMR):
(c) Monopolar operation with Dedicated Metallic Return (DMR) [DMR1 or DMR2 or DMR1+DMR 2] mode or DMR [DMR1 or DMR2 or DMR1+DMR 2] in parallel with PMR.
(d) Three converter operation at each HVDC terminal end: These 3 converters could be any 3 out of 4 converters at terminal station.
(e) Any converter of one polarity at one HVDC terminal can operate with any converter of same polarity at the other end (upto the overload capacity of converters).

All above operating modes shall also be available for reverse power and reduced voltage operation.

11. System Studies

The TSP shall be responsible for overall system engineering and detailed design of all elements, systems, facilities and equipment. The TSP shall have to carry out following studies for this purpose for both directions of power flow. The TSP may note that the following list is only indicative and if any other studies, calculations etc. are required the same shall have to be done by TSP.

(a) Main circuit parameters
(b) Transient Current Requirement and Short circuit studies
(c) Thermal Rating Study for Key Equipment
(d) Studies for Overvoltage Protection and Insulation co-ordination for AC and DC systems
(e) AC, DC Harmonics and Power Line Carrier (PLC)/Radio Interference (RI) filter design, rating and performance;
(f) Temporary overvoltage (Fundamental Frequency Temporary Over Voltage-FFTOV) and Ferro Resonance Overvoltage Studies;
(g) AC and DC Transient overvoltage Study, surge arrester stress;
(h) Runback and run up studies;
(i) AC breaker Transient Recovery Voltage (TRV) and rate of rise of recovery voltage (RRRV) studies;
(j) DC High Speed Switch Requirement Study
(k) Overload study;
(l) AC equivalent study;

The equivalents to be prepared for peak load, light load and extremely weak (minimum SCR) network scenarios. The dynamic network equivalent shall be prepared with full machine models having exciters, governor- turbine, generators, stabilizer models instead of voltage source models, upto a minimum of two buses away. These dynamic equivalent networks shall be used in PSCAD DPS, Real Time Digital Simulator (RTDS) DPS, with actual control & Protection panels.

(m) DC Commutation switch requirements;

(n) Load flow, stability, modulation and frequency controller design study;

(o) Electrical interference study (RI and PLC);

(p) Reliability and availability study;

(q) Audible noise study;

(r) Loss calculations/study

(s) Studies for deciding the operational logic & sequences considering Dedicated Metallic Return Conductor (DMR) operation and Metallic return with pole conductor, in case of monopolar Operation

(t) Impact of parallel AC lines

(u) Real Time Simulator-based studies for testing of actual HVDC Controls (Factory Acceptance Test or Factory System Test)

(v) AC/DC system interaction studies.

(w) Interaction studies between HVDC and nearby Inverter Based Resources (IBR)

(x) Studies to determine the requirements for communication between the converter stations and remote Load Despatch Centres (LDCs).

(y) Studies for designing the Equipment for Dedicated Metallic Return Conductor (DMR) operation and metallic return with pole conductor, in case of monopolar operation up to rated power (including overload).

(z) Sub synchronous Resonance & Self Excitation Studies

These studies to demonstrate that the HVDC system does not excite the torsional modes of oscillations and self-excitation of the generators and Sub-synchronous Resonance in thermal/gas turbine generators near Converter Stations under all defined system operating conditions. The study shall demonstrate that the HVDC system has positive damping for all sub synchronous torsional modes of the generators.

(aa) Studies of DC Current flowing through Windings of Converter Transformers

(bb) Studies for the Control, Protection and Communication Systems

The study reports shall include the following study results:

(i) Dynamic Performance Study including the RE Resources near Converter Stations

(ii) Hierarchical Structure of the Control and Protection

(iii) Redundancy of the Control and Protection Systems

(iv) DC Power and Current Control Modes and Features

(v) Switching Sequences and interlocking

(vi) AC & DC System Protections

For each protection, the report shall include the following:

a) Purpose of the protection

b) Principle of protection operation

c) Required accuracy of measuring signals

d) Fault detection and coordination between the DC controls and the protection and AC protection.

e) Consequences of protection operation, such as DC control and sequence control initiated at both converter stations

f) Redundancy of protection and operation of backup protection

g) Detailed calculations of the protection settings together with limiting fault cases and/or criteria that determines these settings.

h) Description of the applicable protection in case of loss of telecommunication.

(vii) Reactive Power Control

The study shall include at least the following:

a) Reactive power control principles for converter operation during steady state and transient conditions

b) Reference variable control criteria

c) Criteria for switching of reactive power sub banks

d) Operator operation, including control and monitoring features

e) Equipment description, emphasizing reliability/availability and maintenance features

f) Validity checking of signals

g) Switchover and control feature between AC voltage/reactive power controls

(viii) Telecommunication Interface Requirements

(ix) Station Control and SCADA System

(x) Control for Converter Transformer Tap changer

(xi) Additional Control Study

The report, as applicable shall include the studies of the following control modes with the AC network condition of Bhadla and Fatehpur and actual performance of converter equipment and possible fault condition being taken into account,:

a) Power ramp down

b) Power ramp up

c) Damping of sub-synchronous oscillations

d) Abnormal AC voltage and frequency control

e) Supplementary modulation signals

(xii) Multi Infeed Interaction Study with nearby HVDC System

(xiii) Commutation failure performance study

Impact of the commutation failure & cascading commutation failure (if expected) on the inverter based resources (IBR) & associated AC network shall also be included in this study.

(cc) Any other studies as deemed necessary by TSP

The load flow and dynamic file shall be provided to the TSP in PSS/E 34 or newer version format. PSS/E files are provided based on the data available at the time of issuance of RfP. TSP is required to validate the data before carrying out simulation. However, clarification, if any, may be sought before the bid submission. CEA/CTU shall endeavour to give clarification to the extent possible. In case of any discrepancy observed/non-availability of data for any of the machines and other control devices, typical values may be used in the studies with the intimation to CEA/CTU.
I values may be used in the studies with the intimation to CEA/CTU.

12. Digital Models

TSP shall provide to the CTU the following models of all supplied circuit components and control and protection of the HVDC Systems. The models shall be up to date with all the design features implemented in the Project.

(a) PSCAD
(b) PSS/E

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Data sharing requirements as per Procedure for First Time Charging/Energization (FTC) and Integration of New or Modified Power System Element of Grid Controller of India Ltd. (GRID-INDIA) shall also be done by the TSP. All the requisite data/reports/models including User defined models/documents as required as per the CEA/CTU/Grid India Standards/ Guidelines shall be provided by the TSP.

13. **DC power circuit switching requirement:**

The TSP shall provide all DC switching devices as per the requirements of this Specification to enable the smooth and efficient operation of the HVDC system.

All disconnectors or isolators which are used to provide isolation for maintenance on any equipment shall have visible breaks. If a visible break is not inherent then an additional separate isolator having a visible break shall be provided.

The equipment arrangement shall be designed to ensure that no single contingency, fault or loss of any piece of equipment can cause or result in a bipolar shutdown or transient reduction in power transfer to less than the rating of one Pole.

High speed switches (paralleling & de-paralleling switches) for converters shall be provided with disconnectors on both sides.

The DC power circuit arrangement shall provide at least the following functions:

(a) Isolating and grounding Converter Station Pole for maintenance.

(b) Isolating and grounding either or both DC transmission line Poles for maintenance.

(c) Isolating and grounding the DMR conductor at the Converter Station for maintenance when operating in bipolar mode with balanced DC currents. All primary equipment, control, protection and measuring equipment necessary to achieve this function shall be provided. All the studies and design engineering necessary for the HVDC System to operate in such modes shall be performed.

(d) Clearing of a Pole for maintenance without affecting the power flow on the other Pole.

(e) Switching from DMR to "DMR in parallel with PMR" mode of operation during monopolar operation.

(f) Grounding of the neutral bus through a high-speed switch (NBGS) during bipolar operation balanced current mode.

(g) Clearing neutral bus fault on one Pole.

14. **Insulation co-ordination**

(a) HVDC System shall be suitably protected against Impulses and disturbances external and internal to the system such as switching impulses, lighting impulses, steep front impulses, dynamic over voltages and load rejection (1.2 pu power). The insulation of all equipment shall be properly protected and coordinated with surge arresters and/or surge capacitors. Insulation coordination shall be done keeping in mind the minimum electrical clearances, safety clearances and maintenance clearances as per Switching Impulse Withstand Level (SIWL). Insulation coordination shall be done as per relevant IS/IEC Standards.

(b) ulse Withstand Level (SIWL). Insulation coordination shall be done as per relevant IS/IEC Standards.

(c) The insulation of the equipment and protection levels of Surge Arresters connected to the converter AC bus bars of the converter stations at both rectifiers and inverter shall be coordinated with the insulation and surge arrester characteristics of the connected AC systems to which the converter stations are to be connected without exceeding the discharge duty of these arresters so as not to overload these existing arresters of the network. Only 336 kV surge arrester (rated voltage) shall be used on AC incoming line side.

(d) coming line side.

(e) The tripping action for lines shall be initiated if the fundamental frequency over voltage exceeds 1.1 pu for 5 seconds and if 1.5 pu fundamental frequency voltage persists for more than 100 milliseconds. The HVDC over voltage strategy shall be coordinated with such setting.

(f) The minimum **insulation levels** for 800 kV DC to ground shall be as follows:

Table 4

HV Transformer LIWL/SIWL (kV)	Smoothing reactor LIWL/SIWL (kV)	Thyristor Valve Structure LIWL/SIWL (kV)	DC Busbar LIWL/SIWL (kV)
1800/1600	1800/1600	1800/1600	1900/1600

LIWL- Lightning Impulse Withstand Voltage;

SIWL- Switching Impulse Withstand Voltage

(g) The ratio of **impulse withstand voltage** to impulse protective level shall be in line with Table 3 of IEC-60071-11.

(h) The TSP shall carryout insulation coordination studies for the Project. The TSP shall perform all necessary HVDC digital simulator studies and shall keep detailed report(s) on insulation coordination in its record. The TSP shall carry out insulation coordination studies for rating of all arresters supplied for the project, establishing the required insulation level for supplied equipment and the clearances between energized parts and between energized parts and ground. The arrester arrangement and protective levels shall be selected such that, generally, the overvoltages on the AC side are protected by arresters on the AC side, and overvoltages on the DC side are adequately limited by an arrangement of arresters on the DC side. Critical components of the supplied converter equipment shall be directly protected by arresters connected closest to them. The arresters installed shall be rated such that these arresters are not overstressed for all operating modes and configurations. The studies must show that any existing 420 kV equipment including any existing surge arrestors will not be overstressed for all modes of operation and configurations of either Converter Station when HVDC station is extension of an existing AC station.

(i) xisting 420 kV equipment including any existing surge arrestors will not be overstressed for all modes of operation and configurations of either Converter Station when HVDC station is extension of an existing AC station.

The report(s) shall detail the characteristics of the surge arresters, energy ratings and shall demonstrate that the selected insulation protective and withstand levels, discharge and coordinating currents, and arrester ratings and discharge capabilities are adequately coordinated and comply with the requirements of this Specification. It shall also detail all insulation and air clearances and leakage distances and shall justify the selected values based on the present Specifications. The report(s) shall include all assumptions made for the study parameters and describe the types of events modeled (i.e. AC and DC faults, valve hall faults, converter valve or control mis-operations, etc.) and identify the decisive cases that establish the insulation design.
clude all assumptions made for the study parameters and describe the types of events modeled (i.e. AC and DC faults, valve hall faults, converter valve or control mis-operations, etc.) and identify the decisive cases that establish the insulation design.

(j) **Temporary Overvoltages**

The converter valves shall be capable of continuing to operate under the temporary overvoltage conditions specified below, which could occur with the valves deblocked and also that the valves are capable of deblocking under the highest temporary over voltage conditions within 5 (five) cycles of the initiation of a fault or disturbance. Equipment shall be designed for the applicable short circuit ratio and overvoltage arising thereby.

Temporary Overvoltage caused by Bipole link HVDC transmission shall be controlled to 1.4 pu or below. Events caused by other equipment in the AC network shall be controlled within the limits of the capability of the deblocked converter. In case the converter is tripped, and not possible to restart within seconds, filter tripping shall be allowed to limit overvoltages.

The actual temporary over voltage shall be determined by the TSP but equipment shall be designed for temporary over voltage not less than the values given above. In addition, so as to prevent operation and overstressing of the arresters, the TSP shall limit the temporary over voltages including harmonic, resonant, and ferro-resonant effects on the 400 kV AC bus bars so that:

- **705 kV** crest phase to ground is not exceeded by more than 3 peaks;
- **565 kV** crest phase to ground is not exceeded by more than 10 cycles;
- **510 kV** crest phase to ground is not exceeded by more than 20 cycles.

In the calculation of temporary over voltages on the AC side the TSP shall allow for blocking of the complete Bipole(s) from up to the highest steady state transmission capability of the installation. On the DC side the TSP shall allow for the maximum load rejection which could occur and which leaves converter deblocked.

The converter Equipment shall be designed to withstand temporary over voltages corresponding to AC Side which are not less than 1.4 times 400 kV at converter stations with the converter blocked.

The TSP shall provide and commission all equipment necessary to limit the temporary 50 Hz overvoltages on the AC bus bars to the levels specified above. The actual temporary overvoltage shall be determined by the TSP but AC equipment shall be designed for temporary overvoltage not less than the values given above.

The connected AC harmonic filter shall be assumed to be that with the highest MVAr applicable to the mode of operation which does not exceed the maximum reactive power exchange with the AC system as specified in this specification.

The converter equipment shall be rated for continued operation under the maximum over voltage conditions to be defined by the TSP taking into consideration the dynamic over voltage profiles as determined by the design studies to be performed by the TSP. Irrespective of the over voltage profile

derived by the TSP, the equipment shall be rated to withstand an over voltage according to above figures following deblocking.

Any switching equipment within the scope of supply of the TSP which may be called upon to operate at this voltage in either a main or backup role shall have the appropriate capability.

(k) **Transient overvoltages**

In the calculation of transient over voltages the TSP shall consider at least:

(i) Lightning surges propagating down the AC and DC overhead lines, including direct strike to line conductors and back flashover;

(ii) Lightning surges due to direct strike within the converter station in the event of shielding failure;

(iii) Steep fronted waves resulting from flashovers or faults, including those within the valve hall and to ground from the valve windings of the converter transformers;

(iv) over voltages due to switching of converter transformers, AC filters and shunt capacitors, shunt reactors, 765 kV and 400 kV transmission lines, 765 kV and 400 kV class transformers or other equipment;

(v) For re-closure of AC filters and capacitor banks, residual voltage on the capacitors shall be considered.

(vi) The saturation effects of converter transformer due to presence of remnant flux shall also be considered.

(vii) Application and clearing of single phase and three-phase to ground faults which may be cleared by AC circuit breakers; Possibilities of breaker re-strikes shall also be considered although the breaker should be designed as restrike free.

(viii) Faults within converter equipment, including control and telecommunication malfunctions;

(ix) Over-voltages due to blocking of 6 pulse or 12 pulse valve groups with and without bypass pair firing;

(x) Over-voltages due to DC and DMR line resonance.

(xi) Uneven distribution of over-voltages, particularly within the converter valves;

(xii) Commutation overshoot, particularly when operating at higher than normal firing or extinction angles coupled with dynamic over voltage conditions;

(xiii) Arrester location relative to protected equipment and arrester

characteristics.

(xiv) For determination of maximum transient overvoltages at converter bus with a sequence of clearance of three phase /single phase AC bus fault along with blocking of one pole running at overload with appropriate AC filters remaining connected and subsequent protection actions.

(xv) Continuous commutation failure at the inverter and rectifier valve misfire.

(xvi) Earth faults and short circuits within the valve halls and on DC filter bus.

(l) **Limitation of Overvoltage**

Blocking of the converter valves to protect them and other DC side equipment from sustained over voltages appearing on the AC system shall not be permitted. The use of converter valve group controls to limit temporary (dynamic) over voltages shall be permitted provided that the valves and other converter equipment are adequately rated.

(m) **Determination of Overvoltage**

The TSP shall determine the highest transient and temporary over voltages, which can occur with the equipment parameters selected and with the AC system and DC line as defined in this Specification.

(n) **Arrester Protective Levels**

The transient overvoltages imposed across insulation shall be limited by surge arresters. Dynamic over voltages may also be limited by surge arresters but only if the arresters are adequately rated for such duty.

The discharge current (coordinating current) shall be determined by the TSP appropriate to the arrester location and line & equipment parameters. For arresters connected to the 400 kV AC bus bars, the 8/20 microsecond wave coordinating discharge current shall be 10 kA, 15 kA or 20 kA as appropriate. Where multicolumn arresters are used or where arresters in separate housings are connected in parallel, unequal sharing of the discharge current shall be considered.

The TSP shall design the converter equipment to withstand a maximum continuous AC system voltage of 440 kV . The calculations for determination of arrester energy requirement shall be based on a maximum pre-fault voltage of 440 kV .

(o) **Lightning shield**

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The TSP is responsible for the design of the lightning shield. The system shall also be designed to provide "effective shielding" to ensure that almost no insulation flashover can result from atmospheric discharges striking the overhead shielding.

Effective and adequate lightning protection shall be provided to protect all converter equipment including wall bushings and the Converter Station buildings from damage due to atmospheric discharges and shall ensure that any lightning strikes shall not cause flashover or mal-operation of any equipment which can affect the power transmission capability of the Converter Station.

15. **Radio Interference (RI), Acoustic Noise (AN) and DC field**

(a) All the necessary precautions shall be made during HVDC design to ensure that there shall be no mal-operation, damage or danger to any equipment, system or personnel due to electromagnetic or electrostatic interference effects. The converter terminal(s) shall neither damage nor cause mal-operation of the DC control and protection system or the DC tele-control system.

(b) All the necessary precautions shall be taken in the form of noise suppression techniques, shielding and filtering devices to prevent harmful interference, which may be generated by the converter terminals, with the Power Line Carrier (PLC) systems, Radio communication systems, Television systems, VHF, UHF & microwave radio systems.

(c) The audible noise shall be limited to the following values for various areas of the converter station and buildings. It is to be demonstrated by calculation and site measurement that the specified sound pressure levels are not be exceeded.

Table 5

Valve hall (in places where long term access is required during normal operation) Mechanical equipment indoor areas requiring long term access (measured at 2 meter distance)	90 dBA
Equipment in outdoor areas (measured at 15 meter distance) except converter transformers	75 dBA
Office area*	45 dBA
Control rooms*	45 dBA

Diesel generator (Operating area)	75 dBA
Compressor areas (measured at 2 meter distance)	90 dBA
At the station boundary (Outside wall or fence)	70 dBA

* *"Background" noise from the ventilation system.*

(d) For area with permanent access, the total calculated electric field at ground level shall not exceed 20 kV/m in the DC outdoor yard. For area with permanent access in DC outdoor yard, calculated Ion current density shall be less than 20 nA/m^2 at ground level.

(e) Radio Interference (RI)

The TSP shall take the necessary precautions in the form of valve hall and building shielding to meet his own requirements plus the following:

(i) With the Bipole operating at any of the specified operating modes and power levels and within the design range of firing angles, the Radio Interference Level (RIL) from electromagnetic radiation generated by the converter shall not exceed 100 micro volt/m under fair weather conditions at any point outside station fence which are:

500 meters or more from the nearest bus connecting the valve to the converter transformers within the station.

and

at a lateral distance of 30 m for the conductors of any outgoing AC line, HVDC line and electrode line.

This RIL criterion shall be achieved at all frequencies within the range of 150 kHz to 300 MHz.

(ii) The valve hall design shall incorporate the screening requirements. The use of a mesh screen external to the building, covering all or part of the switchyard shall not be permitted.

(iii) The shielding shall be designed so that the specified radio interference levels shall not be exceeded assuming any earth resistivity between 10 and 1000 ohm-meter.

(iv) Maximum radio interference voltage for frequency between 0.5 MHz to 2 MHz at 1.1 times of maximum DC voltage for 800 kV DC system, 266 kV RMS for 400 kV system and 156 kV RMS for 220 kV system and 92 kV RMS for 132 kV system shall be 2500, 1000, 1000

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and 500 micro-Volt respectively.

(f) Television Interference (TVI)

The Television Interference Level (TVIL) shall not exceed 10 micro volts/m at the locations/contour line specified above.

(g) Interference with Power-Line Carrier Systems

The TSP shall take the necessary precautions in the form of noise suppression techniques and filtering devices to prevent harmful interference from the converter stations to Power Line Carrier (PLC) systems operating on the HVAC transmission line networks connected to each station and also to other power line carrier systems located adjacent to the HVDC bipolar line such that PLC systems shall operate reliably in fair weather conditions. The frequency spectra to be protected for PLC system is 40 kHz to 500 kHz.
Hz.

16. Dynamic Performance

(a) The purpose of dynamic performance design is to determine the control parameters for HVDC system and to ensure that the HVDC system shall have smooth, stable and fast operation for both steady state and transient conditions without adversely affecting the connected AC grid.

(b) The HVDC system shall recover to 90% of the pre-fault DC power transfer level consistently within 120 ms from the instant of fault clearing, without subsequent commutation failure or sustained oscillation for all inverter AC system fault conditions. For all rectifiers AC system fault conditions, the recovery time, to 90% pre-fault power level, shall be within 100 ms from the instant of fault clearing. The TSP shall verify that such response time does not give rise for any risk of AC system instability in any system configuration. If it is in the interest of the overall improved recovery of the AC/ DC system, in such cases the recovery times other than those specified shall also be acceptable, subject to review.

(c) y system configuration. If it is in the interest of the overall improved recovery of the AC/ DC system, in such cases the recovery times other than those specified shall also be acceptable, subject to review.

(d) HVDC should continue operation at reduced power if conditions get outside the voltage, frequency and short circuit capacity ranges specified in system data as much as possible with its inherent capability.

(e) HVDC terminal Characteristic and Step responses: The control behavior at rectifier and inverter end for a typical HVDC Pole should broadly follow the following characteristics. It may be noted that minor justified variation from

the below characteristics due to Parallel operation of Bipoles depending in the Control Strategy shall be acceptable.

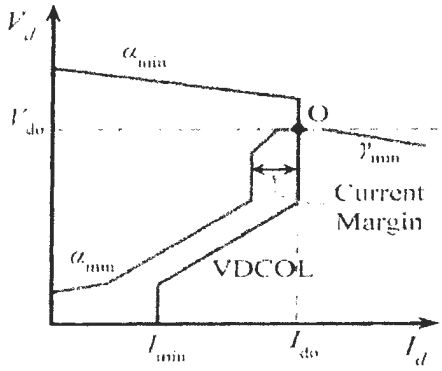
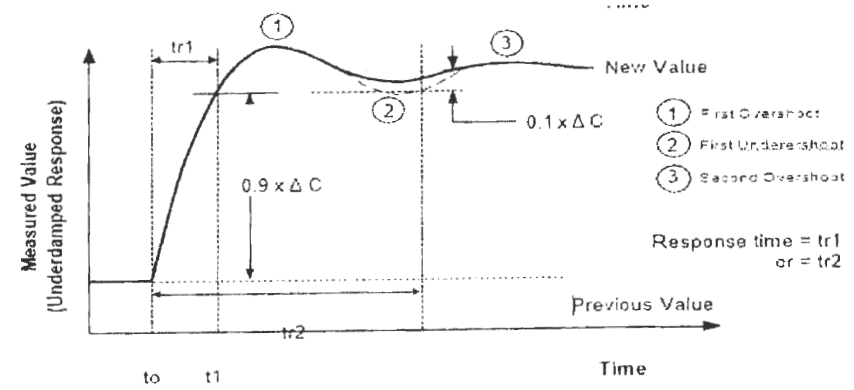


Fig-1- Current margin between rectifier and inverter

The response time (tr1) is defined as the time from the initiation of the order change to the time when 90% of the ordered change has been accomplished, subject to the condition that the measured value remains at the new order within a tolerance of +10% of the ordered change at rectifiers DC terminal after the first overshoot. If the measured value exceeds the tolerance of +10% of the ordered change after the first overshoot, then the response time (tr2) shall be defined to be the interval from the initiation of the order change to the time when the measured value returns to and thereafter remains at the new order within a tolerance of +10% of the ordered change. The first overshoot shall not exceed 30% of the ordered change and the measured value shall settle at the new order within a tolerance of +2% by the second overshoot. For an over damped system, the response times (tr3) is defined as the time from initiation of the order change to the time when 90% of the ordered change has been accomplished. The measured value shall settle at the new order within a tolerance of +2% by four times tr3. Step response to changes in power (current) order shall be executed in the following manner:
ges in power (current) order shall be executed in the following manner:
When the ordered change is *positive*:



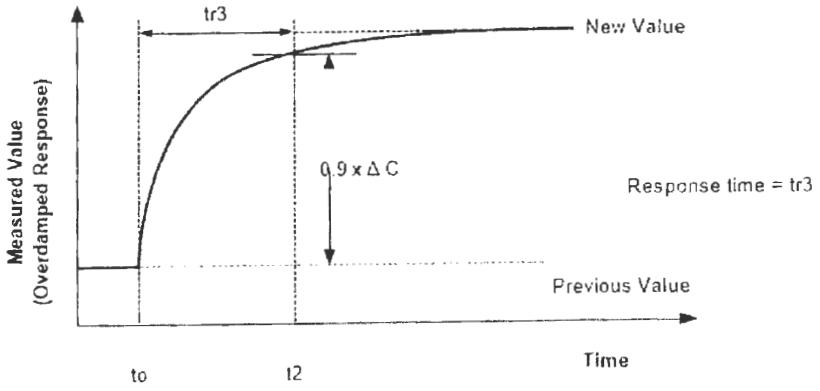
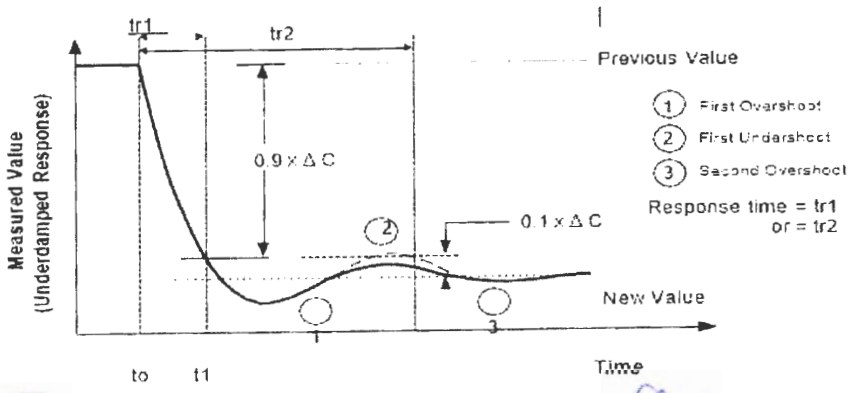


Fig 2- Definition of response to positive step change

When the ordered change is *negative*:



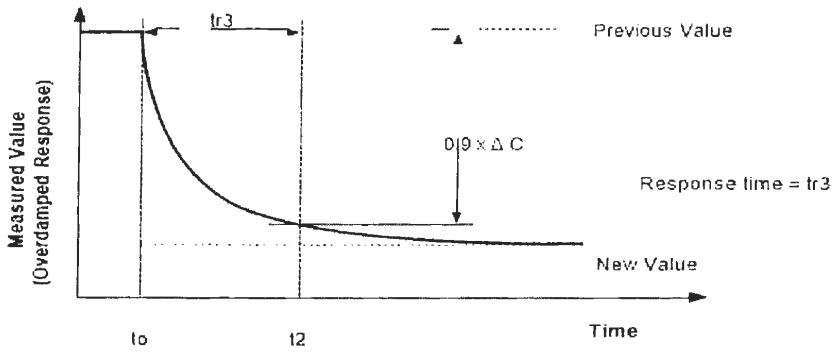


Fig 3- *Definition of response to negative step change*

(f) Power Order Step Response

The HVDC controls, when in power control mode or any other mode where the DC power transfer is controlled, shall respond to maintain the power transfer of the Poles at the ordered or desired level at any power level between minimum and the 30 minutes overload rating of the HVDC system.

When operating at any power order between the minimum and rated power transfer, the DC power controller shall respond to either a step increase or a step decrease in DC power order such that 90% of the ordered change is achieved within 150 milliseconds of the power order change at the rectifier. The TSP shall verify that such response time does not give rise for any risk of AC system instability in any system configuration. If it is in the interest of the overall improved recovery of the AC/ DC system, in such cases the recovery times other than those specified above shall also be acceptable.

uch cases the recovery times other than those specified above shall also be acceptable.

(g) Response to AC Bus Voltage Change

The TSP shall demonstrate the response of the power controls to sudden changes in AC bus voltages of -5.0% to + 2.0% from its nominal value and ensure that it is stable.

(h) Power Voltage Instability

HVDC links operating in constant DC power control and weak AC system conditions can lead to power voltage instability under certain disturbances. To prevent such power voltage instability, the TSP shall provide control measures to prevent AC system collapse during AC system disturbance due to the action of the HVDC control. The TSP may adopt a power reduction or

a dynamic gain supervision function in the control system to avoid such instability if the short circuit MVA changes during a particular power transmission level.
smission level.

17. Main Circuit Design

The purpose of Main Circuit design is mainly to determine the operating characteristics and rating of thyristor valves and converter transformers (MVA, tap changer range etc.) It also forms the input for AC Filter and Reactive compensation design. The main circuit arrangement and circuit shall depend on type of HVDC system, Power Transmission requirements, DC Voltage Levels, connected AC voltage levels, Reactive Power requirements and AC & DC Harmonic requirements. The system shall meet various harmonic performance parameters, as specified elsewhere in this specification, on both AC Side and DC side. This requirement along with those given in Table-2, shall be met simultaneously by the AC/DC filters.

18. HVDC Station Equipment

The function blocks of converter station are Converter area (converter valves, converter transformer, smoothing reactor), DC yard (DC filters, DCCT, DC Voltage Divider, PLC filters of DC side, DC pole arresters, Disconnectors and ground switches), AC filter yard, AC yard and auxiliaries. A typical LCC based HVDC station shall consist of the following main equipment:

(a) Thyristor valves and its accessories e.g. damping and grading circuits, converter cooling system, etc.;
(b) Converter transformers;
(c) Smoothing reactors;
(d) DC filters;
(e) AC filters (Harmonic filters and PLC filters) and shunt compensation;
(f) Control and protection of AC and DC side;
(g) Electrical and mechanical auxiliaries;
(h) Dedicated Metallic Return (DMR);
(i) AC switchyard equipment;
(j) DC switchyard equipment;
(k) AC & DC Surge arresters;
(l) AC & DC Measuring instruments;
(m) Communication system between converter stations (OPGW)
(n) DC wall bushings
(o) AC wall bushings (if applicable)
(p) Auxiliary Power System
(q) Key interlocking system for valve hall, DC filters, AC filter
(r) Fundamental frequency blocking filter, if required

19. **Converter Station AC Yard, Transformer yard and valve hall**

(a) **AC commutating bus equipment**

The AC circuit breakers, disconnectors, instrument transformers and other switchyard equipment shall be similar to that of the equipment specified under Regulation 46 of Central Electricity Authority (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2022. The bus rating shall be adopted according to the calculation considering single bus outage. The switching duties of the AC circuit breakers will be decided based on transient over voltage study, insulation co-ordination, AC filters and protection studies.

(b) **Dynamic over voltage limiter devices**

Converters connected to relatively weak AC systems may cause dynamic over voltages (DOVs) during load rejection / disturbance. The DOV limiter shall consist of parallel arrester elements connected phase to phase or phase to ground and designed to absorb the desired amount of energy during a system disturbance. The DOV limiter shall be coordinated with recovery of DC system following a disturbance. The requirements of surge arresters shall be based on the insulation co-ordination study in line with relevant standards. The arresters used shall be metal oxide (ZnO) type conforming to relevant standards.
standards. The arresters used shall be metal oxide (ZnO) type conforming to relevant standards.

(c) **AC harmonic filters and shunt compensation**

(i) The HVDC converter generates harmonics during the Conversion process and AC harmonic filters shall be used to limit AC voltage distortion due to harmonics to acceptable levels and also to meet the reactive power exchange requirements based on the studies carried out.

(ii) The AC harmonic filters shall be switched in and out by sub-bank circuit breakers in First-in First-out (FIFO) logic to increase lifetime of switchgear. Based on the studies, the reactive power requirement for the terminal and bank or sub-bank size shall be determined such that reactive power exchange with the AC bus shall remain within specified limits.

(iii) size shall be determined such that reactive power exchange with the AC bus shall remain within specified limits.

The permissible limit of voltage fluctuation for step changes which may

occur repetitively is 1.5 percent; for occasional fluctuations other than step changes the maximum permissible limit is 3 percent.

(iv) The main filter equipment namely capacitors, reactors and resistors shall comply with the requirements of following IEC.

A. Capacitors-IEC 60871;
B. Reactors - IEC 60076-6;
C. Resistors - IEC 62001/As per owner's specification.
D. Only air-core reactors shall be used in AC and DC filters for harmonic filtration.

(v) **Performance Requirement**

The AC filter performance shall be better or equal to as defined by following performance parameters:

A. The individual harmonic distortion, D_n, shall not exceed 1.5% individual harmonic distortion, Dn, = Vn/V1
B. The total effective distortion, D_{eff}, shall not exceed 3.0%.
Total effective distortion, Eff = $\sqrt{(\Sigma (Vn*100/V1)^2)}$
C. The Telephone Influence Factor (TIF) shall not exceed 50.
Telephone Influence Factor, TIF = $\sqrt{(\Sigma (Vn*Fn/V1)^2)}$

Where Fn: Weighting factor for nth harmonic according to EEI publication -60-68(1960) corrected to 50HZ operation by graphical interpolation.

D. The Total Harmonic Distortion, V_{THD}, as defined below shall not exceed 2%:

$$V_{THD} = \sqrt{\sum_{n=2}^{n=40} \frac{V_n^2}{V_1^2}} X100$$

'1' refers to fundamental frequency (50 Hz)

'n' refers to the harmonic of n^{th} order (corresponding frequency is 50 x n Hz)

The performance of the AC harmonic filters shall be determined by calculation and shall be based on either as-tested parameters of components or the extreme values of manufacturing tolerances if as-tested values are not available. Performance requirements are to be met for all operating modes. In all Modes of operation, except the reduced DC line voltage modes, the performance requirement shall be met up to

rated power with one larger size filter sub-bank and one characteristic harmonic sub-bank (largest) being out of service. All filter banks, sub-banks and branches shall be rated such that the remaining filter components are not overloaded due to detuning or resonance within the filters or between the filters, the generators, and the AC system for any combination of AC system voltage and/or frequency and configuration, or for any operating condition of the converters, or combination thereof, for which the converter valves are capable of continuous operation, or switching time between de-energized and energized states and there is no restriction on the operating power level for any operating conditions with one filter bank outage for power level up to 1.0 pu Short-time and transient conditions as well as operation with discontinuous DC current must be fully taken into account.

(iv) (a) SYSTEM CONTRIBUTION

Bidder may suitably model nearby different RE generators as all these generators are required to meet harmonics requirement under "CEA Technical standards for Connectivity to the grid" regulations. Models provided by RE developers will be shared with selected TSP.

At Converter station ac bus, combined converter and static compensator (if used) harmonic currents as calculated for rating purposes shall be increased to allow for harmonic currents from the ac system in following manner:

a) At 3rd and 5th Harmonics the increase in current to be allowed shall be calculated based on the assumption that the existing distortion shall be considered as 2% with respect to nominal voltage at converter Bus. This is to be considered for 3rd and 5th harmonic Filter component rating.

b) e in current to be allowed shall be calculated based on the assumption that the existing distortion shall be considered as 2% with respect to nominal voltage at converter Bus. This is to be considered for 3rd and 5th harmonic Filter component rating.

c) At all even order harmonics and at all other non-characteristic or theoretically cancelled harmonics the increase in current to be allowed shall be not less than 50 (fifty) percent provided that the contribution of the harmonic in question to any rating parameter, in the absence of the above increase, is not greater then 10 (ten) percent of the total harmonic rating.

d) er, in the absence of the above increase, is not greater then 10 (ten) percent of the total harmonic rating.

e) At all characteristic harmonics or at any other harmonic which is effectively filtered (i.e. the harmonic contributes more than 10% of the total harmonic rating of a component in the absence of the increase) the increase in current to be allowed shall not be below 20 (twenty) percent.

(vi) **Shunt Reactor Banks**

Shunt reactors, if required, of suitable size shall be provided to meet reactive power exchange requirements derived from the studies. The shunt reactor must be switched in or out by a circuit breaker. The shunt reactor shall conform to CEA's Standard Specifications and Technical Parameters for Transformers and Reactors (66 kV and above). The shunt reactor shall be covered under automatic switching under the reactive power control strategy.

(d) Power Line Carrier (PLC) filtering

PLC filters shall be installed close to converter transformers to mitigate high frequency harmonic currents generated during thyristor switching.

(e) Converter transformers

(i) The converter transformer shall be designed in accordance with IEC-60076-57-129. The converter transformers shall be single phase two winding units. The maximum flux density in any part of the core and yoke at the rated MVA, voltage and frequency shall be such that under 10% continuous over voltage condition it does not exceed 1.9 Tesla. The Converter transformer shall be capable of withstanding minimum DC current of 10 A per single phase transformer entering through the neutral.

(ii) The insulation level for the transformer AC (line side) windings and bushings shall be as given at Regulation 45 of Central Electricity Authority (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2022 and insulation levels of the valve side windings shall be determined in accordance with studies. The impedance of the transformer shall be determined as in accordance with studies and variations in impedance shall be as per the requirement of relevant standards.

(iii) the transformer AC (line side) windings and bushings shall be as given at Regulation 45 of Central Electricity Authority (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2022 and insulation levels of the valve side windings shall be determined in accordance with studies. The impedance of the transformer shall be determined as in accordance with studies and variations in impedance shall be as per the requirement of relevant standards.

(iv) Converter transformers shall be equipped with On Load Tap Changer (OLTC) and Metal Oxide Varistor (MOV) devices shall be provided between tap leads of the OLTC. The OLTC tap steps shall be determined in accordance with the operating strategy of both the converters. The OLTC shall be designed for a minimum 2,50,000 operations without repair or change of any part including oil. The OLTC shall be designed for a contact life of minimum 6,00,000 operations.

(v) equipped with On Load Tap Changer (OLTC) and Metal Oxide Varistor (MOV) devices shall be provided between tap leads of the OLTC. The OLTC tap steps shall be determined in accordance with the operating strategy of both the converters. The OLTC shall be designed for a minimum 2,50,000 operations without repair or change of any part including oil. The OLTC shall be designed for a contact life of minimum 6,00,000 operations.

(vi) The requirements of soak pits and firewalls shall be in line with Regulation 46 of Central Electricity Authority (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2022.

(vii) ntral Electricity Authority (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2022.

(viii) The converter transformer bushing shall be designed in accordance with IEC-60137/ IEC-65700, as applicable.

20. Thyristor valves and valve cooling system

(a) The thyristor valve assembly shall be designed and tested as per relevant IEC/IS. The valve shall be designed and protected during operating conditions for various over voltage and over current stresses to which it may be subjected to due to faults occurring in various parts of the station.

(b) The thyristor valve modules, used for converting AC to DC or vice versa, shall be complete with associated electronic firing system; protection, monitoring & damping system, auxiliaries and cooling system. Twelve pulse scheme shall be used.

(c) cheme shall be used.

(d) In case of two series converter configuration, a bypass switch shall be provided to bypass any faulty converter and use the remaining series converter at lower DC voltage.

(e) The thyristor valves shall be water cooled, air insulated and indoor type. The valves shall be either suspended type or floor mounted type depending upon the operating DC voltage and seismic requirements. The Double or Quadruple valve design shall be used depending on voltage level.

(f) Necessary control and monitoring including tripping of the HVDC system in case of cooling system failure shall be provided.

(g) The valves shall be placed in the valve hall which shall have a positive pressure over atmospheric pressure and humidity control feature. The pressurization will be maintained by ventilation system.

(h) No oil immersed part is permitted to be used inside the valve as well as valve hall. The electronic components located within the valve shall be designed to eliminate overheat and arcing. Only components of low flammability, high reliability and adequate ratings in margins can be used. All thyristor including spare thyristors shall be identical and interchangeable between the converter stations.

(i) pare thyristors shall be identical and interchangeable between the converter stations.

(j) Requisite redundancy shall be kept through a provision of suitable number of spare thyristors in valve modules. The number of redundant thyristors shall not be less than 3.0% of the total number of thyristors in the valve. Status of each thyristor level on the valve while the equipment is in service shall be monitored.

(k) Description of Valve Cooling System:

(i) Fine Water Circuit

The fine water circuit shall consist of a main circuit and a water treatment circuit. The cooling medium in the fine water circuit shall be deionised water with low conductivity.

(ii) Main Water Circuit

The main cooling circuit shall consist of water within the thyristor valves, a de-aeration vessel /venting, pumps and filters.

The main circuit shall be provided with an expansion vessel with level transducers and pressurised with nitrogen, as per requirement of OEM design. The level transducers shall be used for control of the make up water for the system, if applicable, and for detection of leakages.

There shall be two water pumps. One of the two water pumps shall circulate the 100% water through the main cooling circuit and the water treatment circuit. The other pump shall be included for redundancy purpose. The operation shall be automated and arranged into alternative weeks between these two pumps. Upon failure of the unit in service, the redundant shall be automatically activated.

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(iii) Water Treatment Circuit

A part of the main flow shall be circulated in the water treatment circuit.

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The water treatment circuit shall consist of oxygen removers (if required), ion exchangers and mechanical filter. Sensors shall be provided for measuring conductivity of the water, both in the main cooling circuit and in the treatment circuit at the exit side of the ion-exchanger. The water treatment circuit shall have provision to connect makeup pump and associated valves and strainers. The water pipe for fine water make up shall be connected to main fine water circuit through the water treatment circuit.

be connected to main fine water circuit through the water treatment circuit.

(iv) **Air Cooled Liquid Coolers**

The air-cooled liquid coolers shall cool the water from the thyristor valves. One redundant unit shall be provided by the TSP over and above the quantity required to achieve the operating temperatures for rated power.

All the stations shall have dry type coolers. Each cooler shall consist of cooling fans with separated air channels.

Suitable protection against corrosion, oxidation etc. shall be provided for all cooling equipment.

(v) **Mechanical Design**

The cooling system shall be pre-fabricated. There shall be three main parts:

- fine water pump unit;
- air cooled liquid coolers;
- piping.

The fine water pump unit shall be mounted on a frame and shall be placed in the valve cooling room. The air-cooled liquid coolers shall be placed outdoors, near to the valve cooling rooms. The piping shall be especially designed stainless steel and adapted to the station building.

(vi) **Control Equipment**

The valve cooling control equipment shall be specially designed for application to the cooling system for thyristor valves. There shall be two computer-based control systems such that either both are in ACTIVE mode, or when one system is in ACTIVE mode the other system shall be in ACTIVE STANDBY mode. Each computer-based system shall be self-checking and an automatic changeover to the other system shall take place in the case of failure of the active system.

(vii) **Design Criteria for the Cooling System**

Features to ensure high reliability, proper function and prolonged life time for the cooling system and thyristor valves shall be included. The following main components shall be supplied with redundancy in order to increase the availability:

- main circulation water pump

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- air cooled liquid cooler (with one additional standby cooler)
- bypass valves
- transducers
- nitrogen bottles, if applicable

(viii) **Design Cooling Requirements**

Separate cooling system shall be designed to cool the heat generated in each 12-pulse group of thyristor valves for converter stations.

Cooling system shall be capable to operate and guarantee the design temperature specified steady state and overload conditions, up to max specified design dry bulb ambient temperature. Redundant Uninterrupted Power System/drive for valve cooling for each pole shall be rated for 2 minutes.

(ix) **Ambient conditions**

Ambient Conditions are specified in Table 2 of the specification.

(x) **Materials**

The materials in contact with the cooling water as well as for manufacturing of the air-cooled liquid cooler shall be selected in order to minimize the risk of corrosion.

(xi) **Measure Against Water Leakage**

The design of the valve cooling system shall be made to minimise leakages. The following precautions shall be taken to minimize the risk of water leakage from the system:

- choice of water pipe joint
- number of water pipe joints in the system shall be kept as low as possible, particularly in the thyristor valves;
- velocity of de-ionized water in the pipes and in the thyristor heat sinks shall be kept low
- water circulation within the pipes shall be free from trapped air bubbles

(xii) **Valve Cooling Control and Monitoring**

The valve cooling control systems shall be redundant and be equipped with an integrated data collecting unit that is connected to the station sequential event recorder system.

(xiii) **Cooling Capacity Control**

The water temperature to and from the thyristor valves are used as an input to the cooling capacity control.

In order to avoid condensation at the pipe lines within the thyristor valves the inlet fine water temperature shall be kept in an appropriate range.

(xiv) **Protections**

The following protections/monitoring shall be included:

- Temperature of the water from the valves
- Temperature of the water to the valves
- Water flow through the valves
- Water level in the expansion vessel
- Conductivity of the water from the water processing unit
- Conductivity of the water in the main circuit
- Pressure in the expansion vessel, if required
- Pressure in the nitrogen bottle, if required.

(xv) **Leakage Detection**

There shall be three leakage detection methods used in parallel by the cooling control system. These methods can, depending on the nature of the leakage, generate trip of the converter and cooling system. However, one of the methods of leakage detection shall generate a leakage alarm if volume of leakage exceeds the reference volume, during the last 24 hours.

Besides these detection methods alarms for frequent make up and for long make up when automatic make-up of cooling water is used, generated by the cooling control programme shall be provided. The total schematic of valve cooling system with valve position, flow, temperature, make up details, conductivity, pump running etc shall be made available to the SCADA system of HVDC terminal.

oling control programme shall be provided. The total schematic of valve cooling system with valve position, flow, temperature, make up details, conductivity, pump running etc shall be made available to the SCADA system of HVDC terminal.

21. Converter Station DC Outdoor Yard

(a) The DC yard shall comprise of equipment such as HVDC bushings, smoothing reactors, DC filters, DC current and voltage measuring instruments and switchgear, surge arrester, insulators, clamps and connectors.

(b) The specific creepage distance (corresponding to highest DC voltage) for DC yard and other areas shall be maintained as follows:

Table 6

Insulator type	Under light and medium pollution	Under heavy and very heavy pollution
Indoor porcelain or composite insulators for valve hall (other than valves) and indoor smoothing reactor area (if any)	20 mm/ kV	

Insulator type	Under light and medium pollution	Under heavy and very heavy pollution
Thyristor Valves	14 mm/ kV	
Outdoor porcelain insulators or bushings with RTV coating	50 mm/ kV	60 mm/ kV
Outdoor composite insulators or bushings	50 mm/ kV	

Note: Specific creepage distances less than 50 mm/ kV but not less than 45mm/ kV can be accepted for outdoor silicone rubber bushings due to manufacturing limitations and for HVDC equipment requiring necessary internal/ external insulation co-ordination. However, specific creepage distance less than 50 mm/ kV and flash distance less than 12 mm/ kV shall not be acceptable for outdoor jointed bushing.

The base voltage applicable for calculation of valve arrester creepage distance shall be:

$$U_{creepage} = \sqrt{\left(\frac{1}{3} \div \frac{\sqrt{3}}{8\pi}\right)} \cdot CCOV$$

Where, CCOV: Crest value of Continuous Operating Voltage

(c) **DC wall bushing**

DC wall bushing shall be designed as per IEC-65700. DC wall bushings, used for electrical connection between the equipment inside the valve hall and the outdoor DC yard shall be of polymer housing as per relevant standards. All bushings inside the valve hall including HVDC wall bushing shall be dry type/SF_6 gas filled or combination of both. There shall be no oil filled component inside valve hall.

(d) **Smoothing Reactor**

The smoothing reactor shall be designed as per IEC-60076-6. The smoothing reactor shall be of air core type. The reactors shall comply with relevant standards and shall have successfully passed DC tests as per their application. The smoothing reactor may be divided between pole and neutral for DC voltage above 500 kV. Each converter station shall be provided with one spare coil of smoothing reactor with all fitments, hardware & accessories. Minimum. four

nos. of insulators of each type for smoothing reactors shall be provided as spare.

ors shall be provided as spare.

For the design of smoothing reactor, the Si factor has to be within the limits (0.22 <Si< 1) where Si factor is defined as

Si = U_{dn}/ L_d*I_{dn}

U_{dn} = Nominal HVDC Voltage level per pole

I_{dn} = Nominal HVDC Current

L_d = Total DC side inductance = L_{dr} + 3.5 L_{tr};

L_{dr} = Smoothing Reactor inductance

L_{tr} = Converter transformer inductance

The smoothing reactor shall be designed for Class H for inter turn insulation as per IEC 60085, however, the maximum allowed hot-spot temperature rise shall be limited to one class lower i.e. Class F insulation.

(e) **DC Voltage and Current Measuring Devices**

The DC voltage and DC Current measuring equipment shall be installed at each pole. These equipment can be optical type or conventional type. The DC measuring equipment at pole and neutral bus shall be suitably located based on the control philosophy and different protection zones such that complete pole and neutral equipment are protected. The details of DC Measuring Equipment shall be as per '***Appendix C.1***'.

(f) **DC Filters**

Adequate numbers of DC harmonic filters shall be provided in DC yard to limit harmonic voltages present on the DC lines (pole lines and DMR line). However, minimum one No. DC filter per pole per station shall be provided. Common DC Filter for parallel poles are not acceptable.

The design shall be based on passive DC filters. The DC Filters shall consist of Low order filters, Harmonic Filters and High Frequency Filters as per the requirement of project specific studies. The main filter equipment like capacitors, reactors and resistors shall comply with the requirements of relevant IS/IEC standards/ CIGRE documents. A fundamental frequency series blocking filter shall be provided, as per requirement. The required switches shall be provided. It shall be possible to connect and isolate a single DC filter arm without causing any reduction in transmitted power on the affected Pole.

te a single DC filter arm without causing any reduction in transmitted power on the affected Pole.

The calculation of DC filter performance and rating shall be based on values of components, detuning, and harmonic voltages and currents. The TSP shall use "Three Pulse Model" or EMTDC model or equivalent for calculating performance and rating of DC filters.

There shall be no limitation on the energization of the DC filter arms by reason of either ambient temperature, frequency, initial mistuning or DC voltage within

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the ranges defined in this Specification. The DC filter components shall not become overloaded due to detuning or resonance within the DC filter or between the DC filter arms and the HVDC circuit, or the DMR, for any combination of conditions for which the converters are capable of continued operation.

TSP shall ensure that fundamental and 2nd harmonic resonance and adverse amplification does not occur on DC side. A parallel low order (2nd Harmonic) DC Filter shall be provided across each converter of each station. Earth resistivity along the DC line route will be considered as 250 ohm-m.

DC filter Performance:

The individual harmonic current (In) at any harmonic shall not exceed the value which could cause mal-operation of the HVDC system control and protection equipment supplied. The maximum equivalent disturbing current (Ieq), up to rated power in forward power direction, without any filter outage, for balanced bipolar and monopolar mode with metallic return or Dedicated Metallic Return (DMR) modes of operation shall be as follows:

Table 7

Operating Mode	Ieq
Balanced bipolar operation	1500 mA
Monopolar mode with metallic or DMR mode	2200 mA

The equivalent disturbing current includes not only the harmonics which flow in the DC Pole conductors and DMR lines but also the harmonics which are induced into the ground wires of the DC transmission line.

Mutual impedance calculation algorithms require that the ground wires be "eliminated" for this configuration; however, as specified herein, the current flow in the ground wires must be eventually taken into account in the calculation of equivalent disturbing current.

In Bipolar operation, the equivalent disturbing current shall be the psophometric weighted residual current of all harmonics of fundamental frequency from the 2nd to the 60th (i.e. 100-3000 Hz) according to the following formula:

$$Ieq(x) = \sqrt{[IeC(x)^2 + IeS(x)^2]}$$

Where,

Ieq(x) is the equivalent disturbing current in milliamps (mA)

psophometrically weighted at any point along the transmission corridors specified herein

$IeC\ (x)$ is the magnitude of the RSS equivalent disturbing current component due to harmonic voltage sources at Bhadla (mA)

$IeS(x)$ is the magnitude of the RSS equivalent disturbing current component due to harmonic voltage sources at Fatehpur Converter Station (mA)

x denotes the relative location along the transmission corridors.

The equivalent disturbing current at any point along the corridor due to harmonics from either Bhadla or Fatehpur Converter Stations shall be calculated as follows:

$$Ie(x) = \sqrt{\sum_{n=1}^{n=60} \{Ir(n,x) \cdot P(n) \cdot Hf\}^2}$$

Where,

$Ir\ (n, x)$ is the magnitude of the equivalent residual rms current at each harmonic in milliamps

(n) is the psophometric weighting at harmonic "n" as per Consultative Committee for International Telephony and Telegraphy (CCITT)

n denotes the harmonic number.

Hf is the coupling factor which represents the normalized frequency dependent effects of typical coupling impedances to open wire circuits. The coupling factor Hf will be assumed as per table below:

Table 8

Frequency (Hz)	Coupling Factor (Hf)
40-500	0.70
600	0.80
800	1.00
1200	1.30
1800	1.75

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Frequency (Hz)	Coupling Factor (Hf)
2400	2.15
3000	2.55
3600	2.80

As defined above, all harmonics up to the 60th shall be included in the calculation of equivalent disturbing current. The equivalent disturbing current shall be based on a "worst consistent set" of harmonic voltages at either end of the line.

The "worst consistent set" is defined as that set of harmonic driving voltages which could occur at any particular operating condition which results in the highest value of equivalent disturbing current that could occur for a period of longer than ten minutes.

A particular operating condition is defined in terms of:

a) The mode of operation, i.e. bipolar or monopolar in any specified mode of operation.

b) The DC voltage anywhere within the normal range for the mode of operation.

c) Reduced DC voltage operation on both Poles and reduced DC voltage on one Pole with the other Pole at nominal DC voltage.

d) The commutating reactance anywhere within the guaranteed range.

e) The firing angle anywhere within the range applicable to the mode of operation as defined above which shall include firing angles associated with reactive power control and AC filter and reactive power bank switching.

f) Worst case induced voltage from any parallel lines.

g) The converter AC bus voltages anywhere within the normal range specified.

h) The maximum 50 Hz negative phase sequence voltage of 1.5% for achievement of performance limits.

i) The DC current anywhere within the range applicable to the mode of operation.

j) Ambient temperature as defined in Table 2.

k) Differences in the smoothing reactor harmonic impedances of the Poles

DC filter rating

The rating of the DC filter components shall be based on the assumption that the per pole harmonic voltage is individually maximized at each harmonic for

any particular operating mode, and the filter component currents due to the harmonic voltages at the terminals shall be assumed to add as RSS (Root Sum Squared) at each harmonic.

For the rating of the DC filter components, it shall be assumed that any one DC filter arm can be out of service in any converter Pole. The DC filters shall be rated for any loading up to the inherent continuous overload capability and short-time overload capability for all operating modes. The possible impact of reduced voltage operation and increased reactive absorption on the ratings of the DC filters shall also be considered.

Short time and transient conditions as well as operation with discontinuous DC current must be fully taken into account. Due allowances shall be made for possible current amplification resulting from resonances between the arms of the DC filters. In the calculation of the impedance of the DC transmission system when used for calculation of DC filter component rating, ±10% tolerance in the respective line length shall be included. AC system voltage and frequency variations as functions of duration specified in Table 2 shall be allowed in the calculation of harmonic voltages and DC filter detuning. In addition, capacitor unit or element failures appropriate to the duration for which the DC filter has to remain connected, shall be allowed for in the calculation of DC filter detuning.

(g) **Surge Arrester**

Surge arresters shall be gapless Metal Oxide arresters and shall be designed and tested as per relevant IS/IEC. The arresters shall be designed to absorb the desired amount of energy during a system disturbance and shall be coordinated with recovery of DC system following a disturbance as applicable.

Arresters at appropriate places may be provided as per requirement. However, the HVDC main arresters typically found in a HVDC System are as follows:

(i) Valve Arrester

(ii) Bridge Arrester

(iii) DC Line Arrester

(iv) DC Neutral and DC Filter Arrester

(v) Converter Transformer and AC Filter Bus Arrester

(vi) DMR line arresters

(vii) Smoothing Reactor Arrester (if applicable)

(viii) DC Neutral Switch Arresters

(ix) DC pole bus arrester

(x) Converter transformer primary neutral arrester

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(h) **Fundamental frequency blocking filter:**

(i) **r:**

A fundamental frequency blocking filter may be installed, if found necessary, to block the 50 Hz induced current in DC line in order to minimize the risk of converter transformer saturation due to possible induced fundamental frequency current from parallel AC lines

This induced current usually results from AC side second harmonic positive sequence voltage and from AC lines running parallel to DC line.

For design purpose, 50 km of parallel un-transposed 765KV AC Double Circuit line and 50 km of parallel un-transposed 400KV AC Double circuit line within a radial distance of 70 m to be considered by the TSP to consider any possible inductive and capacitive coupling between the lines. The parallel section of AC lines shall be considered to be located at a point that results in maximum fundamental frequency current at each converter station.

The TSP shall consider any possible inductive and capacitive coupling between these lines.

Such a filter is formed of capacitor, reactor, resistor and arrester. Internal arrangement of these components is left to designer but the overall filter should offer significant impedance to 50 Hz current flowing in DC circuit. Blocking filter reactor shall be designed for Class H for inter turn insulation as per IEC 60085, however, the maximum allowed hot-spot temperature rise shall be limited to one class lower i.e. Class F insulation. The reactor may preferably have similar design as smoothing reactor to share common spare. The AC/DC/PLC/RI reactor shall be designed for Class F insulation as per IEC 60085, however, the maximum allowed hot-spot temperature rise shall be limited to one class lower i.e. Class B insulation.

mperature rise shall be limited to one class lower i.e. Class B insulation.

(j) **DC commutation switches:**

These switches are required for commutating the DC current from one path to the other. They comprise of Dedicated Metallic Return Transfer Breaker (DMRTB), Pole Metallic Return Transfer Breaker (PMRTB), Neutral Bus Grounding Switch (NBGS). High Voltage High Speed (HVHS) switch and Neutral Bus Switch (NBS) shall also be provided suitably at both ends in all the poles.

22. Dedicated Metallic Return (DMR)

The neutral current return path for bipolar configuration or monopolar configuration shall be via a Dedicated Metallic Return (DMR) conductor connecting both converter terminals.

23. **Control and Protection System**

It shall be demonstrated that the HVDC control system is stable under all operating conditions and cannot excite oscillations, such as sub-synchronous oscillations, between the HVDC and AC system. The control system shall be tuned for optimal overall performance for all conditions and configurations of the AC system. The details of operator Control and Monitoring are mentioned in ***'Appendix C.2'.***

It shall also be demonstrated, by applying system faults and step responses in current order and power order during the factory acceptance testing (FAT), that the as-built control system does not excite low order harmonic resonance(s) in the AC system and/or between HVDC and AC systems for any system configuration.

The performance of the integrated DC and AC systems shall also be demonstrated using an EMT-type program (such as PSCAD) in order to validate the system performance requirements.

Software based controls and protection shall be used to permit flexibility in effecting modifications. Protection and controls shall be duplicated for reliability. The control & protection shall provide fast controllability of the HVDC system.

(a) Control System:

(i) The control system shall have redundancy with hot standby. Transfer of controls from Active Control system to Hot standby control system shall be seamless and there shall be no power interruption during this transition. Outage of one control system or part thereof, shall not result in any power reduction.

(ii) **The** control shall be designed to give fast, stable and proper response to normal controlactions as well as during disturbances such as AC & DC faults.

(iii) DC converter terminals shall be either manned by operator or controlled by remote operation of SCADA system. The control system hierarchy shall be as follows:

1. Master Control
2. Station/Bipole Control
3. Pole/ Converter Control
4. Valve Control

(iv) The HVDC Station/Bipole shall have control features (as and when established by system design) including but not limited to the following:

1. Reactive power controller
2. Current and power controller

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3. Frequency controller
4. Power modulator, pole power compensation. The modulator, if required, shall have feature which shall provide positive damping of AC network oscillations over the range of frequencies considered during system studies.
5. Sub Synchronous Resonance (SSR) Damping Controller (if required) based on studies.

   All necessary studies shall be carried out to ensure that the DC system shall not excite the mechanical, electromechanical or other natural frequencies of the nearby region generators and turbines under any operating mode. It shall be demonstrated by studies that the nearby generators shall not be adversely affected by the HVDC system, particularly with regard to Sub Synchronous Oscillation (SSO)/Sub Synchronous Resonance (SSR) and harmonic injection and self-excitation. Sub Synchronous Damping (SSD) Controller shall be provided for converter stations near Generating stations.
6. Run back/Run up controller (10 points) with provision to be linked to Special protection Scheme (SPS) of System Operator
7. AC system stability function, such as power swing damping function

Any other Controller as deemed required for stable HVDC system operation with connected AC network

(b) Protection System

The protection system shall be designed in Main-I and Main-II set up.

(i) HVDC system protection shall consist of two parts:

(A) **AC side protection**

AC side protection function shall cover the zone for converter transformer, AC filters, shunt capacitors, shunt reactors, and busbars. These protections shall generally follow the same philosophy as in a typical AC substation i.e. detection of fault by relay and tripping of circuit breaker or may be dealt in similar way as described for DC side protection.

(B) **DC side protection**

DC side protection shall cover the zones consisting of the valve hall, DC switchyard including smoothing reactor and DC filters, DC line, and DMR line. The protection equipment shall be designed to be fail safe and shall ensure high security to avoid mal-operation/ unwanted shutdown due to protection equipment failures. 'Main-I and Main-II' or 'Main and Standby' protection philosophy shall be

adopted for HVDC equipment and system.

(ii) Following a DC Line fault, the HVDC System shall have the facility to restart. The DC transmission system shall be capable of recovery in a controlled and stable manner without commutation failures during recovery following AC and DC system faults. The post fault power order shall be equal to the pre-fault power order unless AC/ DC systems dictate otherwise.

(iii) rt. The DC transmission system shall be capable of recovery in a controlled and stable manner without commutation failures during recovery following AC and DC system faults. The post fault power order shall be equal to the pre-fault power order unless AC/ DC systems dictate otherwise.

(iv) Protection system shall have two redundant systems with following protections (Some protection can be combined).

a) Converter differential protection
b) DC over current/under current protection
c) DC bus differential protection
d) AC conductor ground fault protection
e) Commutation failure protection
f) DC filter protection
g) Converter transformer valve winding protection
h) DC line differential protection
i) DC under voltage/ over voltage protection
j) DC line ground fault protection with restarts
k) Dedicated Metallic Return (DMR) protection
l) AC filter protections
m) Thyristor failure monitoring

24. DC Line fault locator

DC online fault locators shall be provided to monitor the entire DC line length and give location of the fault with good accuracy in the range of + 1000 meters for pole conductors. DC line Fault Locators shall utilize a method of measurement of time of arrival at each end of the HVDC line of the steep wave fronts, resulting from a fault on the HVDC, affected by the accuracy of the time measurements. Since the wave fronts shall propagate along the lines at $3x10^8$ m/sec (or 300 metres per microsecond), the time measurements must be in microseconds with an accuracy of ±3 microseconds in order to achieve a location accuracy of approximately ±1 km. Greater precision of fault location would be desirable. The DC online Fault Locator equipment at each station shall be time synchronized to the master clock system at the station in order to facilitate analysis of system disturbances recorded on the DC

Line Fault Locators, the transient fault recorders and the alarm monitoring and recording system. Manually re-settable fault counter shall be provided as part of the equipment.

ELECTRIC CHARACTERISTICS

1) Control Panels

Identical control panels shall be provided for each DC Line Fault Locator within its own cubicle(s). The control panel shall include, but not be limited to the following facilities.

- Equipment on/ off control and indication;
- Equipment alarm or failure indications;
- Fault location readout display for the last detected line fault;
- Manual initiation of automatic self-test routines;
- Any other controls or indications

2) Printers

A printer shall be provided for each DC Line Fault Locator or it may be integrated with operator control and monitoring system. The printer shall print the day, hour, minute, second and millisecond of each fault or manual or automatic system test. The printer shall also print the location of each fault in kilometres from the respective station.

If fault locator is integrated with operator control and monitoring system that all these details shall be displayed on Video Display Unit (VDU) and stored in archives in the backup memory.

3) Power Requirements

The equipment shall be suitable for operation from the station battery supply. There shall be no loss of accuracy within specified variations of DC input voltage.

Note: Alternatively, TSP may also propose an integrated solution with the fault locator integrated into the HVDC Control and Protection system meeting the system requirements. If fault locator is integrated with operator control and monitoring system then all these details shall be displayed on Video Display Unit (VDU) and stored in archives in the backup memory.

25. Operations supervision and control

a) The TSP shall provide the control facilities from the operator control desk

through a monitor and keyboard/mouse system. These facilities shall include all control operations, digital setting, indicating devices, Station single line diagram and symbols, any other special control devices and meters required for control and monitoring of the complete HVDC system.

b) The layout of the station single line diagram, together with control, indicating and metering devices on the control desk shall be logical, compact, of pleasing appearance, and shall facilitate efficient supervision and operation of the station(s) by the operator. Every detected change of position shall immediately be displayed in the single-line diagram on the station screen, recorded in the event list and printable.

c) of pleasing appearance, and shall facilitate efficient supervision and operation of the station(s) by the operator. Every detected change of position shall immediately be displayed in the single-line diagram on the station screen, recorded in the event list and printable.

d) Graphic representation of thyristor valves and valve cooling piping network shall be provided on station monitoring system. The graphical representation shall also display faulty thyristors in different colours indicating faulty thyristor position.

e) The 'Sequence of events' recorder, transient fault recorder, on-line DC Line fault locator, GPS system, Station Master Clock, visual display system, operator control protection and monitoring system shall be a part of the HVDC system.

The details of operator control and monitoring system are provided at 'Annexure-Operator Control and Monitoring System'. The Transient Fault Recorder provided for the HVDC system shall be as per '***Appendix C.3***'

26. Telecommunication

For smooth operation of the HVDC system, communication network with high reliability and availability shall be provided for transmission of control and protection signals between the two or more (in case of multi-terminal DC) HVDC terminals. The communication system design shall be as per '***Annexure- Specific Technical Requirements for communication'.***

A limited remote data transfer of the HVDC system from the Load dispatch centers shall be provided by TSP. All required remote control and remote monitoring facilities shall be provided at each converter station. Complete remote monitoring of each converter station shall be possible from opposite converter station.

Synchro phasor measurement using Phasor Measurement Units (PMUs) along with

fibre optic connectivity, Global Positioning System Receiver and communication equipment shall be provided for monitoring AC side of converter bays of HVDC station.

27. Valve Hall

The valve hall shall mainly contain thyristor valves, its associated structure, cooling and arresters. No oil filled equipment shall be present inside the valve hall. In case the turret of converter transformers (having oil) is protruding inside the valve hall, suitable fire barrier matching with adjacent valve hall wall fire rating shall be provided. The valve halls shall be provided with interference screening, if required by OEM. In addition, the control cable and cable termination rooms shall be suitably screened to minimize radio interference. Necessary measures shall be taken to take care of high frequency noise emission from valves.

The valve halls shall have ample clearances such that the inspection of valves can be possible and allow access of mobile valve servicing equipment without any dismantling. The valve hall building shall be pressurized to prevent the ingress of unfiltered air. In addition, the building shall be properly sealed to minimize the flow of outside air into it and vice versa. Openings for equipment and services shall be weather proof. The Valve hall building shall consist of steel framed structure. The steel building shall be pre-engineered building fabricated in the factory and shall be assembled at site. Minimum two nos. scissor lift for erection and maintenance of valve modules shall be provided per station. Proper cable sealing shall be provided for cable entry into valve hall and control room to avoid entry of water and moisture.

28. Ventilation System for Valve Hall

Each valve hall shall have an independent ventilation system. Each ventilation system shall consist of two 100% capacity systems, one operating and one stand-by.

The ventilation of the valve hall shall be of a positive pressure type. Once through ventilation system will not be acceptable. The ventilation system shall be a closed cycle with fresh air intake limited to a maximum of 20% of the total air requirement. Fresh outdoor air shall be filtered and dehydrated before being blown into the valve hall by the air fans to avoid dust accumulation and condensation on components present in the valve hall. Suitable measures shall be taken to minimise stagnant air. Each valve hall shall be provided with remotely operated motorized exhaust dampers which shall be normally closed and will be opened under high pressure/emergency conditions only.

Ive hall shall be provided with remotely operated motorized exhaust dampers which shall be normally closed and will be opened under high pressure/emergency conditions only.

To ensure that the air being supplied to the valve hall is free from dust particles, a minimum three stage dust filtration process shall be supplied. This shall consist of at least the following:

1. Pre-Filters: To remove dust particles down to 10 microns in size with at least 95% efficiency.
2. Fine Filters: To remove dust particles down to 5 microns in size with at least 99% efficiency.
3. Absolute Filters: To remove dust particles down to 0.3 microns in size with at least 99.5% efficiency.

All the filters shall be panel type. Easy access should be available to the filters for replacement/cleaning.

It shall be possible to maintain specified conditions continuously inside the valve hall, both automatically and manually controllable from the station service panel (located in the control room) as well as from the local control panel.

In addition to the alarms for particular parameters like pressure, temperature & relative humidity etc., indicating instruments shall be provided for each valve hall. These parameters shall be integrated with station monitoring system also.

The valve hall shall be kept at a pressure above the atmospheric pressure under all conditions. The test shall be conducted at site to measure the pressure inside the valve hall for 48 hours.

Adequate numbers of de-humidifiers shall be provided for each valve hall as per design requirement.

29. Air Conditioning System

Air conditioning shall be provided on a continuous basis in the control room, bay kiosks, valve module workshop & storage rooms, control & protection workshops, offices, first aid room, conference room, entrance halls, corridors etc. and all rooms containing electronic equipment.

The air conditioning system for the control room shall consist of two (2) systems each of 100% capacity; one operating and one stand-by. Both units shall be interconnected so that, in the event of breakdown of one unit, the stand-by unit can be placed into service. Stand-by and operating units shall be alternated monthly for regular operation. The operation of the units shall be automatically controlled including sequential start and stop with single command.

y unit can be placed into service. Stand-by and operating units shall be alternated monthly for regular operation. The operation of the units shall be automatically controlled including sequential start and stop with single command.

If valve base electronics and/or valve cooling control cubicles are located at places other than in the station control room, these areas can be cooled by using split Air Conditioning units

of appropriate capacity. At least two units shall be provided, one operating and one stand-by with the facility of automatic changeover after operator assigned time period.

A separate air conditioning system shall be provided for other areas of the service building. This shall also consist of two (2) Nos. each of 100% capacity; one operating and one stand-by.

apacity; one operating and one stand-by.

30. Visual monitoring system (VMS) for watch and ward of station premises:

Visual monitoring system for effective watch and ward of substation premises shall cover all the transformers and reactors, outdoor DC yard, valve halls, indoor and outdoor isolators, earth switches, breakers, AC and DC capacitors, all other major AC Equipment (such as CB, isolators, CT, CVT, SA etc. as applicable), panel room, all entrance doors for the service building, other buildings, all the gates of switchyard and all entry and exit points of control room building and accordingly the location of cameras shall be decided. The camera shall be high definition color CCD camera with night vision feature. The VMS data partly/completely shall be recorded (minimum for 30 days) at least @25fps (or better) and stored on network video recorder and followed by transfer of the data to a juke box. 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 operation of cameras shall be integrated with the Network server placed in Control room of HVDC station. Sensors shall also be placed on boundary walls to prevent intrusion from outside and shall be connected to the CCTV system.

eras shall be integrated with the Network server placed in Control room of HVDC station. Sensors shall also be placed on boundary walls to prevent intrusion from outside and shall be connected to the CCTV system.

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 & 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.

At existing HVAC substations, the visual monitoring system if available shall be augmented as per existing or better specification as required.

31. Building Management System

A fully computerized and automatic Building Management System (BMS) shall control the operation of the mechanical systems serving the valve hall and service building and other systems as detailed below.

Scope of Work

The scope of work shall cover all necessary system provisions (including hardware and software) for synchronizing/integrating the BMS with the control and monitoring of

- Air Conditioning system,
- Valve hall ventilation system
- Fire Fighting Systems including Fire Spray and Hydrant systems, water level in Fire Water Tanks etc.
- Utility Services i.e. Water Storage and Supply,
- Access Control including Motorised Gate at the entrance to the station and for all entrance doors for the control room building including provision of electromagnetic door locks, card readers etc.
- Fire Detection and Alarm System.
- Illumination systems
- VMS

32. Water Supply and Distribution System

The water supply and distribution system shall include the supply, distribution and storage of water in the HVDC Station at least the following purposes.

a) storage of water for the firefighting system;

b) storage of water sufficient for 24 hours of continuous operation of HVDC converter in the event of interruption of water supply to the tanks;

c) water supply for the valve cooling system;

d) water supply for sanitary services;

Two nos. 100% capacity water storage RCC tanks shall be provided. Each tank shall be constructed in such a way that there shall be segregation between requirement for fire water storage and water for other purposes. Both the tanks shall have interconnection piping with isolation valves for both tanks. Separate piping as per IS/IEC standard for firefighting, valve cooling and other purposes shall be provided from the tanks from independent headers.

tanks shall have interconnection piping with isolation valves for both tanks. Separate piping as per IS/IEC standard for firefighting, valve cooling and other purposes shall be provided from the tanks from independent headers.

33. Grounding & Safety:

a) The design of the grounding system shall be based on relevant IS/IEC/IEEE standards.

b) In order to prevent adverse effect (i.e. overheating due to induced circulating current) of magnetic field of air core reactors, special care shall be taken e.g. no closed loops are formed by the earthing conductors and in reinforcement bars of the foundation or other necessary mitigation measure to be provided. Air core reactor manufacturer's guidelines shall be followed.

c) The electrical safety clearances for the DC side shall not be less than the clearances applicable for an AC switchyard at the equivalent BIL level.

d) The total electric field at ground level shall be as prescribed in relevant standards.

e) Fencing and electrical interlocking & mechanical key arrangements shall be provided for all non-accessible areas, for valve halls, and for areas where for equipment mounted directly on ground without suitable height of steel structure, e.g. smoothing reactor area, AC and DC filter areas, as applicable.

f) Safety precautions in regards to gas/oil pipe lines in vicinity of HVDC/ AC lines shall be taken coordination with gas/ petroleum authorities.

34. Cables:

All cables shall be FRLSH type. The High Voltage (6.6 kV to 33 kV) power cables shall be XLPE insulated conforming to IS-7098 Part-2. The Low Voltage power cables shall be 1.1 kV XLPE insulated conforming to IS-7098 Part 1 or relevant IEC standards and/or PVC insulated conforming to IS-1554 Part 1. The control cables shall be 1.1 kV PVC insulated conforming to IS-1554 Part-1. The rating and size of cables shall be determined by TSP. All cables shall be armored except cables used for special purpose as per OEM recommendation. Fibre optic cables conforming to IEC– 60793 and 60794 shall be used to transmit the signals to and from various equipment and panels located in the AC/DC switchyards, Valve Halls, control rooms, valve cooling rooms etc.

35. Auxiliary Power Supply System:

The auxiliary power supply system shall have the following:

a) Highly reliable duplicated supply sources from two separate sources with automatic change-over facilities. One of the sources of auxiliary power shall be from 33 kV side of 2 Nos. of 400/33 kV transformers (50 MVA) at Bhadla HVDC and 33 kV tertiary of 2 nos. 765/400/33 kV ICT at Fatehpur. This source shall be stepped down to 433 V by means of station service transformer of minimum 2000 kVA capacity and rated 33/0.433 kV .

b) 3/0.433 kV .

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c) Completely separated secondary distribution (415 V) systems for the auxiliaries of each converter.

d) Duplicated supply by two different 415 V power sources to essential loads

e) Diesel Generator (DG) Set of minimum 1500 kVA capacity per pole shall be provided to meet essential loads. This generator set shall start automatically and cater load immediately in case of loss of all the normal and standby supply sources. The DG sets shall be designed and rated so as to meet the load time characteristics of the essential loads of the entire station as determined by the TSP with a 10% margin on the load.

f) Parallel operation between station service transformers shall not be permitted at any voltage level in order to limit fault currents, prevent back feed into the AC bus and to ensure independence of supply sources. Also, parallel operation shall not be permitted between transformers and the DG set.

g) Suitable protection on all primary MV and LV supply connections shall be provided.

h) The 220 V DC supply system(s) per pole shall consist of at least two independent DC systems; each system consisting of one float-cum-boost charger, one battery bank and one distribution panel. A 48 V DC system consisting of two battery sets, two battery chargers and two distribution boards shall also be supplied for communication panels (wherever supplied). If desired, 48 V supply may be obtained from 220 V DC battery bank by use of adapters, without compromising backup time.

(i) The station services DC system shall cater to the DC loads of HVAC and HVDC switchyards, auxiliary services control, valve and pole control, protection circuits, communication system loads etc.

(ii) Minimum lighting load shall be connected to the station DC system.

(iii) 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.

i) All auxiliaries shall give rated output at voltage variation of ±10% and frequency variation of -5% to +3%. Sizing of LT Switchgear shall be suitable to cater the requirement for all present and future bays. AC & DC distribution boards shall have modules for all the feeders (including future as specified).

j) able to cater the requirement for all present and future bays. AC & DC distribution boards shall have modules for all the feeders (including future as

specified).

k) For substation extensions, existing facilities shall be augmented as required.

An indicative SLD for the Auxiliary Supply System is enclosed at ***'Appendix-C.5'.***

For the requirement of the Auxiliary Power as described above, Essential Load is defined as per below: -

Essential loads: *These are the loads whose failure shall affect the conversion capability of the HVDC system. These loads shall include, but not be limited to, the cooling and other auxiliaries of the converters, the cooling of transformers and reactors, valve hall cooling, etc. In addition, loads that must remain working in case of complete loss of the AC power supply shall also be included in essential loads. These loads shall include, but not be limited to, the station battery chargers, disconnecting switching and circuit breakers operating mechanism, the emergency lighting, fans to keep over pressure in valve halls, etc.*

t breakers operating mechanism, the emergency lighting, fans to keep over pressure in valve halls, etc.

36. Fire Detection, Alarm and Protection system:

A comprehensive fire detection, alarm and protection system as per Central Electricity Authority (Measures Relating to Safety and Electric Supply) Regulations shall be provided. Valve Hall shall have Air aspiration system (fast and early smoke detection system). Suitable Infra-Red (IR)/Ultra Violet (UV) detector to detect the flashover inside the Valve Hall shall also be provided. The Valve hall wall towards converter transformers shall be suitable for minimum 3-hour fire rating.

Suitable fire detection system using smoke detectors and/or heat detectors shall be provided in HVDC 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:

Suitable No. of hydrants shall be provided for protection of HVDC Station equipment in the yard and HVDC Station building.

HVWS System:

High Velocity Water Spray (HVWS) system shall be provided for converter transformer, ICTs and Shunt Reactors.

37. Testing and trial operation

38. ial operation

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All equipment/components including Thyristor valves, Converter Transformers, smoothing reactors, EHV DC Transformer bushings and wall bushings shall be subjected to Type tests, Routine tests, Factory Acceptance Test (FAT), Site Acceptance Test (SAT) as per relevant IS / IEC/ IEEE as applicable. The SAT shall consist of sub-system & system tests and shall be carried out after installation of equipment at site. The sub-system tests cover the major sub-system like valve cooling, AC & DC filters, HVDC converter, auxiliary systems, communication etc. After completion of sub-system tests, system tests covering power transmission tests, transient & dynamic control tests, measurement of electric field and RFI etc shall be conducted. After completion of all system tests, final trial operation of the HVDC System shall be carried out for continuous period of normal operation of not less than 10 days (for each Pole/Bipole separately, followed by entire HVDC link consisting of two parallel Bipoles again for 10 days) during which the converter equipment shall be fully operational. The HVDC System shall be declared under Commercial Operation after the successful completion of its Trial Operation.

39. Reactive power exchange

The reactive power exchange limits with the system for the Converter Stations are specified in this specification.

The following reactive power exchange limits shall be honored by the HVDC system:

(A) Reactive power exchange limits

Table 9

Minimum DC Power **150 MW**	**Maximum DC Power** **3000 MW per bipole**
In the entire range of HVDC power	
400 kV AC SYSTEM Bhadla	
Maximum Export at 420 kV 50 MVAR	Import NIL at 380 kV
400 kV AC SYSTEM Fatehpur	
Maximum Export at 420 kV 100 MVAR	Import NIL at 380 kV

Sectionalizer breaker at 400kV Bhadla & 400kV Fatehpur is to be considered normally closed. However, bidder shall design both stations such that power transmission is also possible with sectionalizer open.

The control of reactive power exchange shall be fully automatic and shall be

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continuously monitored. The control equipment, however, shall allow both automatic and operator-initiated switching. In the former case, adequate annunciation shall be provided to the operator. The reactive power control system shall not require any element switching for DC power flow changes of 150 MW in either direction since the last switching operation had taken place. Switching necessary to maintain the AC bus voltage within the ranges specified is permissible for power order changes of less than 150 MW.

Each breaker used for switching shunt reactive elements shall have point-on-wave switching control for energizing its branch, to minimize voltage disturbances while switching capacitors and filters, and minimize DC offset current while switching shunt reactors. Breakers used for switching shunt reactive and filter elements must be capable of de-energizing their branch at the maximum temporary overvoltage conditions specified in this specification, or as determined by the TSP's studies, including full load rejection studies, whichever is greater. The reactive compensation and overvoltage limiting equipment shall be designed such that at any power transfer level up to rated power in either direction, a complete or partial interruption of DC power transfer shall not result in a fundamental frequency over voltage beyond the values specified in this specification. The TSP shall provide controlled or point-on-wave switching for synchronous closing of converter transformer.

All the necessary studies of reactive compensation and voltage control shall be performed. The calculations of reactive power exchange and of voltage control shall be based on the most unfavorable combination of tolerances on equipment, connected system configuration and of changes in operating conditions.

40. Pole Blocking

The HVDC System shall be designed such that the power transfer loss of a faulted Pole due to Pole blocking or during DC line fault clearing is transferred to the remaining Pole. The power transfer on the remaining Pole shall be increased up to its rated short-time power transfer capability to compensate for the power transfer loss on the faulted Pole and to minimize AC network disturbance.

When an increase in power transfer of the healthy Pole is required due to blocking of the other Pole, 90% of the increase in DC power transfer required shall be achieved within 100 milliseconds of the faulted Pole blocking.

For the case where a Pole blocks while communications are not in-service, 90% of the required DC power transfer to the other Pole shall be achieved within 100 milliseconds of the rectifier blocking.

The HVDC System shall recover to 90% of the pre-fault DC power transfer level consistently within 120 milliseconds from the instant of fault clearing, without subsequent commutation failure on the faulted or healthy Pole or sustained oscillation for all inverter system fault conditions. For all rectifier AC system fault conditions, the recovery time, to 90% pre-fault power level, shall be within 100

milliseconds from the instant of fault clearing. This recovery time shall be achieved for all short circuit levels as defined in this specification.

If it is in the interest of the overall improved recovery of the AC/ DC system, in such cases the recovery times other than those specified shall also be acceptable, subject to review

41. Pole Deblocking and Converter Start-up

A coordinated sequence of starting an HVDC Pole shall be established and demonstrated during FAT. The sequence shall be in a such a manner that it will not impact the connected AC system. It shall be possible to start and deblock at minimum DC power specified in this specification earlier while maintaining all the AC and DC filter performance requirements.

42. AC bus fault

The TSP shall demonstrate the response of the power controller to DC voltage changes in the rectifiers and inverter for solid converter AC bus faults, both single phase-to-ground and three phase-to-ground.

The HVDC system shall recover to 90% of the pre-fault DC power transfer level consistently within 120 ms from the instant of fault clearing, without subsequent commutation failure or sustained oscillation for all inverter AC system fault conditions. For all rectifiers AC system fault conditions, the recovery time, to 90% pre-fault power level, shall be within 100 ms from the instant of fault clearing. This recovery time shall be achieved for the fault levels above the minimum specified in Table-1. Recovery times greater than specified above shall be acceptable only if the higher recovery times results in the overall AC and DC system improvement.

The response time shall be determined in accordance with the general criteria defined in this specification. The specified response for the rectifiers ac system and inverter ac system faults shall be demonstrated [400 kV level at Bhadla (HVDC), 400 kV and 765 kV level at Bhadla-III, 765 kV level at Ramgarh, 765 kV level at Sikar-II, 400 kV level Fatehgarh-III (Section-2) and 400 kV level Fatehgarh-II, 400 kV and 765 kV level at Fatehpur (HVDC), 765 kV level at Varanasi and 765 kV level at Kanpur] for the following conditions:

(i) Single phase-to-ground faults, for five cycle, ten cycle, and twenty cycle fault clearing and with fault levels resulting in voltage reduction to 90%, 70%, 50%, 30%, 20%, and 5% of nominal converter AC bus voltage.

(ii) ing in voltage reduction to 90%, 70%, 50%, 30%, 20%, and 5% of nominal converter AC bus voltage.

(iii) Three Phase-to-ground faults, for five cycle fault clearing, with fault levels

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resulting in voltage reduction to 90%, 70%, 50%, 30%, 20% and 0% of nominal converter AC bus voltage.

(iv) Zero impedance three phase 400 kV AC busbar faults at Bhadla and Fatehpur which are cleared after five cycles and which result in the loss of one DC pole.

(v) Three phases to ground, five cycle, and Single line to ground, ten cycle faults. The outage of components would include 400 kV single circuits, 400 kV double circuits if these are on same tower, generator, filter bank etc.

(vi) Three phase to ground, five cycle, and Single line to ground, ten cycle faults following conditions when system is already running under single contingency and which result in outage of further system components. The outage of components would include 400 kV single circuits, 400 kV double circuits if these are on same tower, generator, filter bank etc. Under such conditions it shall be shown that the system stability is maintained although the time required for recovery may exceed the values given above. For certain cases if there is a need for run back condition on HVDC the same shall be evolved by the TSP.

(vii) For certain cases if there is a need for run back condition on HVDC the same shall be evolved by the TSP.

43. DC Line Faults

The DC line fault protection sequence shall detect the fault, de-energize the faulted line Pole by control action, allow a time period for fault deionization (settable between 50 ms to 1000 ms), and then automatically attempt restoration of the DC power transfer on the Pole.

There shall be 2 full voltage restarts followed by 1 reduced voltage (80% DC voltage) restart attempt. All equipment shall be dimensioned keeping these 3 restart attempts in mind.

For mono-polar Metallic return, minimum one restart attempts shall be considered at full voltage and current corresponding to 10% overload operation.

The minimum total time to restore the DC power to 90% of the pre-fault DC power from the end of the deionization period shall not exceed 100 milliseconds (excluding the time allowed for deionization).

The system shall be designed and capable of the following:

a) During the DC line fault and deionization interval the power transfer on the non-faulted Pole shall be rapidly increased to the extent possible in order to minimize the impact on the DC power transfer.

b) On recovery of the faulted Pole the power transfer on both Poles shall resume the pre-fault values.

c) The transfer of power to the non-faulted Pole during the line fault clearing and recovery sequence shall occur even when the HVDC telecommunications are not in service.

d) The healthy Pole shall not fail commutation when a DC line faults occur on the other Pole or any time there after until the faulty Pole is back to normal operation.

The clearing and recovery of a DC line Pole fault shall be demonstrated in bipolar and monopolar mode at 1.0 pu power transfer prior to the fault for the particular mode. Faults shall be applied at the line ends and at the line midpoint in both power directions. The demonstration shall include the influence of the function provided to transfer power from the faulted Pole to the other Pole.

Suitable modeling of the DC line, which takes into account the electro-magnetic coupling between the Poles, shall be considered in the above studies.

DC reduced voltage restart shall be possible even when there is no telecommunication between rectifier and inverter stations.

44. Operation During Reduced AC Voltage Conditions

To assist in the recovery of the network, the Converter Stations shall be able to continue operation with reduced AC bus bar voltages.

In addition to the requirements of operation under over voltage conditions specified in this specification, the converter equipment shall be able to continue operating without blocking of converters with AC bus voltage reduced to 30% of nominal voltage during three phase faults, and to zero on one phase during single line to ground faults, for a period of 1 second followed by voltage recovery to 80%. The gate control units shall be able to trigger the thyristor valve as soon as the voltage recovers after the AC bus voltage has dropped to zero for 1 second. The converters shall continue to transmit power to the extent possible under the above reduced voltage conditions. The valve firing system as well as all the cooling equipment shall be rated for these conditions. The cooling system shall not trip during AC system faults.

45. Controlled Shutdown

Each Pole shall be able to be shut down in a controlled manner by the automatic reduction in the power order accompanied by appropriate AC harmonic filter bank switching. The block and isolation of a converter Pole shall be done without the block or shutdown of other Pole converters.

46. Power Runback

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The controls shall be capable of achieving 90% of any step change requested by run-back modulation signals including within 200 milliseconds of receipt of the run-back signal.

47. Commutation Failure Performance

There shall be no commutation failures for the disturbances described below:

a) Disturbances resulting in AC voltage drops of 15% or less compared to the voltage prior to the disturbance. In this case, repetitive commutation failure shall not occur (though one or two commutation failure may occur).

b) Dynamic AC voltage swings of less than ±10% with an oscillation period of one second or longer.

c) Switching of any reactive element in the Converter Stations.

d) Energization of the converter transformer on the other Pole or any other AC transformer in the switchyard.

e) Sympathetic commutation failures shall not occur on the healthy Pole for faults on the other Pole.

f) The control system shall be designed to prevent multiple commutation failures after one commutation failure is detected.

g) The switching in and out or a tripping due to faults of a filter sub bank at the converter stations shall not result in a commutation failure, except for faults at 400 kV side of the filter sub bank.

48. Cyber security

The designed system shall be compliant with:

a) IEC-27001 Information security management
b) IEC-62443
c) CEA (Cyber Security in Power Sector) Guidelines, 2021

Cyber security shall be incorporated in the overall design of the HVDC controls, protection, communications, HMI and SCADA systems. The TSP shall propose a secure and robust design in the control and LAN systems, using next generation firewalls, dual firewall communication designs, routers, gateways, data diodes, etc. that have built in cyber secure measures.

49. Performance Guarantee for Converter Station (excluding HVDC line)

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a) HVDC Station losses: The Guaranteed losses of HVDC converter stations shall include the no load loss and equivalent load loss. The equivalent load loss is the sum of load losses at specific loadings multiplied by weightage factors as per expected loading cycle. The Guaranteed losses shall be verified as per IEC 61803.

b) No load loss shall be guaranteed corresponding to converter transformer set at principal tap with nominal AC system voltage and nominal frequency. Also refer maximum guaranteed loss figures in table below:

c) The system shall meet various harmonic performance parameters on both AC side and DC side.

d) Design targets for HVDC station Reliability and Availability^^ and station guaranteed losses^ (per Bipole of 3000 MW basis per station):

Table 10

1	Overall Energy availability of HVDC scheme (a) Overall Performance (b) Excluding transformer	Not less than 97% Not less than 98%
2	Forced Energy Unavailability (FEU)	Not more than 0.6%
3	Schedule Energy Unavailability (SEU)	Not more than 1%
4	Single Pole outage per pole per year	Not more than 8 (with average outage duration of 7.5 hours)
5	Bipole outage per station per year	Not more than 0.2 (with average outage duration of 8 hours)
6	No-load losses (kW)	0.2 % of Bipole Rating
7	Equivalent load loss (kW)*	0.7% of Bipole Rating

* **Equivalent load loss**= Load loss at 1000 MW in kW*0.4 + Load loss at 1500 MW in kW * 0.16 + Load loss at 2500 MW in kW * 0.16 + Load loss at 3000 MW in kW * 0.28).

^ - These loss figures are per bipole of 3000 MW for both the terminal stations

^^The details for calculating Availability are mentioned in ***'Appendix C.4'.***

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For the loss guarantee stated above, following equipment/systems shall be considered:

e) Determination of losses

The total losses of the HVDC converter station shall be calculated as the sum of the losses determined for each individual equipment. The major components to be included in the loss calculation and guarantees and the method of assessment for each component shall be as follows:

1. Converter Transformers as per IEC 60076-57-129
2. DC Smoothing Reactors
3. Thyristor Valves as per IEC 61803
4. Reactive Power Equipment, AC FILTER
5. Auxiliary Power Transformers
6. DC Filters and 50 Hz blocking filter as per IEC 61803
7. Miscellaneous Losses for the following equipment shall also be included:
    a) Devices used for TOV suppression
    b) Direct current voltage transformer
    c) Surge capacitors
    d) RI & PLC filters

Specific Exclusion:

Equipment specifically excluded from the loss calculations shall be the oil treatment plant and firefighting load, station auxiliary system energy consumption (such as illumination of indoor and outdoor services, Air conditioning & ventilation system for control room, service building, kiosk, battery & battery charger etc.) except auxiliary power consumption required by Converter transformer cooling and Valve cooling system.

f) Guaranteed Failure Rate of Thyristors

The maximum annual guaranteed thyristor level failure rate shall not exceed 0.2% per 12 pulse valve group. The failure rate shall not include failures directly attributable to operating and maintenance errors.

g) AC/DC HV Filter Capacitor Failure Rate Guarantee

The maximum guaranteed annual capacitor failure rate shall not exceed 0.15% except first unit failure. The capacitor shall be considered as failed if its Capacitance value varies more than ±5% of the (actual measured) name plate value or as indicated by manufacturer. Leakage of oil from the capacitor and deformation of the capacitor unit shall be considered as a failure even if the

capacitance value is within the tolerance limits.

h) Flashover Guarantee

Flashover is defined as breakdown of insulation for self-restoring insulation media which leads to outage as defined elsewhere in this specification. TSP shall guarantee that there shall be not more than two pollution related flashovers per station per year for DC yards (base environmental conditions as given in this specification will be considered) for each Bipole separately. In case of a flashover, TSP shall make necessary investigations to establish the cause of the same, propose mitigation measures and implement the same. In case of flashover in common neutral area of both Bipoles, the flashover shall be counted in one of the Bipole with lesser number of flashover.

i) Guaranteed Failure Rate of Relay Module/ C&P Module/Component

The guaranteed failure rate of relay module/ C&P module/ component shall not be more than 0.5% (except 1st unit failure). This will include individual circuit boards but not computers. The failures directly attributable to operation & maintenance errors and other incidents unrelated to the DC system shall not be included in the calculation. The relay module/ C&P module/ component failure rate shall be monitored on per pole per station basis.

50. Commissioning and start of operation

51. missioning and start of operation

The purpose of commissioning period is to demonstrate to the Nodal Agency/Independent Engineer's satisfaction that the equipment is ready for its purpose and it functions satisfactorily under normal operating conditions. The testing and commissioning period will have the necessary duration to demonstrate the proper functioning of all the Project equipment and systems.

a) Site Testing

After the installation and preliminary adjustments of equipment, the Site tests shall be performed in the following stages:

- Erection checks
- Commissioning tests
- Sub-system tests
- Sub-system energization tests

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- System tests

The site testing has been categorized in above stages for the sake of convenience only. There may be overlapping of two or more stages for particular tests. The TSP shall perform the site testing with complete responsibility.

The TSP shall provide all instruments, equipment and facilities required to perform these site tests. Calibration certificates for the test equipment shall be made available at site prior to the start of the testing.

All special and test equipment necessary to simulate devices or switching sequences and required for commissioning shall be provided by the TSP. Results of the site tests shall be well documented and shall form a part of plant documentation.

52. Mandatory Spares:

The mandatory spares for the HVDC Station shall be as per 'Annexure-B, 4. Mandatory spares for HVDC stations (substation/switchyard level)' of CEA's 'Guidelines for availability of spares and inventories for power transmission system, transmission lines & substation/switchyard) assets, 2020'.

The specific exclusion to the above list is Sl. No. 2.1, Converter Transformer and Sl. No. 3, Smoothing Reactor. Other Converter Transformer spares from Sl.No. 2.2. to Sl. No. 2.41 to be provided. The spare requirement for Smoothing Reactors shall be as per Clause 22 d).

Minimum one No. (single phase two winding) spare Converter transformers of each type and rating per station, shall be provided. The spare Converter Transformers shall be inclusive of all fitments, hardware, bushings, as well coolers if mounted on the tank, accessories and oil complete in all respect.

53. HVDC building:

The Building shall comprise of but not limited to the following facilities:

1. Control & Relay Panel room
2. ACDB & DCDB room
3. Battery room
4. Service Room cum workshop
5. Valve hall
6. Cooling system room
7. AHU Room
8. Valve Hall Ventilation Room

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9. Any Other room/facilities as per functional requirement

54. For Type Test requirement of equipment, CEA's 'Guidelines for the Type Tests for major equipment of Power Sector' is to be followed.

55. **Applicable Standards:**

All equipment and material shall be designed, manufactured, tested and commissioned in accordance with latest Indian Standards / IEC or IEEE standards, / CIGRE guidelines and the Acts, Rules, Laws and Regulations of India. Some of them are as follows:

Table 11

Sr. No.	Description	Standard
1.	Terminology for HVDC transmission	IEC 60633
2.	Thyristor valves for HVDC transmission	IEC 60700(1-2)
3.	Performance of HVDC with line commutated converters	IEC 60919(1-3)
4.	Determination of power losses in High-Voltage Direct Current (HVDC) converter stations with line-commutated converters	IEC 61803
5.	High-Voltage Direct Current (HVDC) installations - System tests	IEC 61975
6.	High-Voltage Direct Current (HVDC) systems - Guidance to the specification and design evaluation of reactive power exchanges	IEC 62001 (1-4)
7.	Bushings for DC Applications	IEC 65700
8.	Insulation Coordination	IEC 60071 (1- 5)
9.	Application guide for metal oxide arresters without gaps for HVDC converter stations	CIGRE report 33/14-05

10.	Converter transformers	IEC 60076-57-129
11.	Power transformers - Part 6: Reactors	IEC 600076-6
12.	Shunt capacitors for AC power systems having a rated voltage above 1000 V	IEC 60871-(1-4)
13.	Semiconductor devices - Part 6: Discrete devices –Thyristors	IEC 60747-6
14.	Fire aspects of HVDC thyristor valves and valve halls.	CIGRE-TB 136 1999 SC 14 TF 14.01.04
15.	Guidelines for the system design of HVDC project	IEC/TR 63127 Ed. 1.0
16.	High voltage direct current (HVDC) power transmission - System requirements for DC-side equipment - Part 1: Line-Commutated Converters	IEC/TS 63014 Ed. 1.0
17.	Guidelines for operation and maintenance of HVDC converter station	IEC/TR 63065 Ed. 1.0
18.	Guidelines on Asset Management for HVDC Installations	IEC/TR 62978 Ed. 1.0
19.	Transformer for HVDC applications	IEC:60076-57-129
20.	Surge Arresters – Metal Oxide Surge Arresters without gaps for HVDC converter stations	IEC60099-9-Part -9
21.	CT's and VT's	IEC 61869
22.	Disconnectors and Earthing Switches	IEC 62271
23.	Cyber Security	IEC 62443 IEC 27001
24.	UPS, SMPS and Other Power supply units	IEC 62040

		IEC 61558
25.	Other items as per relevant and prevailing standards specified elsewhere in the specification for substation works.	

Appendix- C.1

DC Voltage Measuring Equipment

A proven type of voltage divider shall be provided for DC voltage measurement. The accuracy of the device shall not vary more than 0.5% with an ambient temperature change of 50° C. The overall voltage measuring system shall have an accuracy of at least 1.0% of full scale. The response time shall not be longer than 150 micro seconds, accepting an overshoot of up to 20% at that rise time. The measuring system shall achieve proper operation of the control and protection system to which it is connected.

The measurement range shall be sufficient to measure voltages up to 1.5 pu. Preference shall be given to devices which provide isolation between the HV primary connection and the output signal. If the output signal is not completely isolated from the HV connection, protection shall be provided to limit the possible output signal voltages to less than 2 kV in the event of a fault on the device.

All low-level signals shall be cabled separately from high level signals. The divider shall be so arranged that no leakage current on the surface of the insulator can pass to the measuring circuit. The insulator shall for this reason be continuous without any metallic intermediate flanges. Furthermore, the interior of the divider shall be so arranged that interior leakage currents do not influence the measurement.

For voltage measuring equipment to be erected in the outdoor switchyard, it shall be ensured that discharge activity on the housing shall not cause interference with the output signal.

For each voltage measuring device furnished, all necessary auxiliary power plus any equipment necessary for the transformation of the auxiliary power to an acceptable form shall be provided. Such transformation equipment shall be mounted in the control cubicles.

Direct Current Measuring Equipment

Direct Current Transducers supplied shall be mounted in bushings, if available. In locations where bushings are not available, free-standing transducers shall be provided. For each transducer furnished, the all-necessary auxiliary power plus any equipment necessary for the transformation of the auxiliary power to an acceptable form shall be provided.

The design of the measuring system shall be based on maximum interchangeability where any electronic module shall be compatible with any of the core and coil assemblies.

The transducer output signal shall be of sufficient magnitude to ensure that the content of the signal is usable at all levels of primary current from 1% to 300% of the rated current, with a measurement output possible up to 600% before saturation of the output signal occurs.

In the event of high current (up to 0.2s short circuit current), the DC CT shall remain unsaturated for 20 ms or longer. This time shall be measured from the instant the current attains 10 pu. The DC CT shall be provided with interlock circuits that indicate saturation of the DC CT, as well as DC CT faults.

It shall be ensured that any low-level signals generated are kept shielded from interference due to other higher voltage circuits. The low-level signals shall be cabled separately from high level signals.

It shall be ensured that all DC current measurement outputs are accurately calibrated with all the respective loads connected. If required, on-site adjustments to output calibration shall be possible. The sensitivity of the devices supplied for such calibration shall be appropriate for setting the required accuracy.

The electronic module shall be provided with interlock circuits to indicate that the measuring system is fully operable.

Each transducer shall be provided with a capacitive tap.

In case of Optical DC measuring system, the materials used in it shall be non-corrosive in nature.

Stationary Accuracy

The composite accuracy of all DC current measurement systems used for protective purposes shall be equal to or better than ±2% of rated DC current up to 120% of the maximum rated current and ±10% of rated DC current up to 1.2 times peak calculated fault DC current.

All DC current measuring system used for control purposes shall have a composite accuracy of ±0.75% of rated DC current from minimum rated current to 120% of the maximum rated current and ±10% of rated DC current from 120% up to 300% of the rated current.

All transducers used for corresponding functions, e.g. pole differential protection etc shall have matching accuracies equal to or better than ±2% of rated current up to 300% of the rated current.

Dynamic Accuracy

The response of the measuring systems shall be such that a linear current change within 150% of maximum rated current and with a rise time of 45 ms, is tracked by the transducer output with an error which does not exceed +0%, -2% of rated current on any point of the curve. The rise time is defined as the time required for the current to change from 10 to 90% of the full current change. The frequency response shall be within +3% at 1500 Hz.

Appendix C.2

Operator's Control, Monitoring and Support Systems

A. General Requirements

All hardware such as computers, computer peripherals/printers/ accessories, testing equipment etc and networking products shall conform to latest products based on industry standard. It shall be possible to fully monitor and control both stations as described below-

- Operation control of both converter station (from monitors) from Bhadla
- Operation control of both converter stations (from monitors) from Fatehpur
- In separate operation control mode, all the terminals shall be able to control their own station individually.

The above selection modes shall be separately provided for control of the DC system and the AC systems of either station.

A Station operator desk to be supplied at each converter station shall be able to control the stations. The control shall be possible from TFT Monitors and operator key board/ mouse. In the event of failure of the system, control and monitoring shall be by means of direct control at the Bipole control panels, circuit breaker controls panels etc generally as shown in 'Figure-A'. This control could be made from PC connected to these control panels and necessary interface shall be provided to achieve this. The control functions to be provided from the equipment control panels shall include at least those listed under 'Table-A' and 'Table -B'. It shall also be possible for operator to know individual alarms by selecting the particular panel on the display monitor.
control functions to be provided from the equipment control panels shall include at least those listed under 'Table-A' and 'Table -B'. It shall also be possible for operator to know individual alarms by selecting the particular panel on the display monitor.

The TSP shall provide the equipment necessary for the purpose of control, status indication and metering of all equipment (keeping in view the intermediate Bay Kiosks to be provided in AC & DC yard,) Bhadla and Fatehpur.

The control room shall generally house the following equipment:

- Operator control, monitoring and support system
- DC line fault location equipment, if not integrated within C&P system.
- Transient fault recorders, if not integrated within C&P system.
- Master controller equipment, if not integrated within C&P system.

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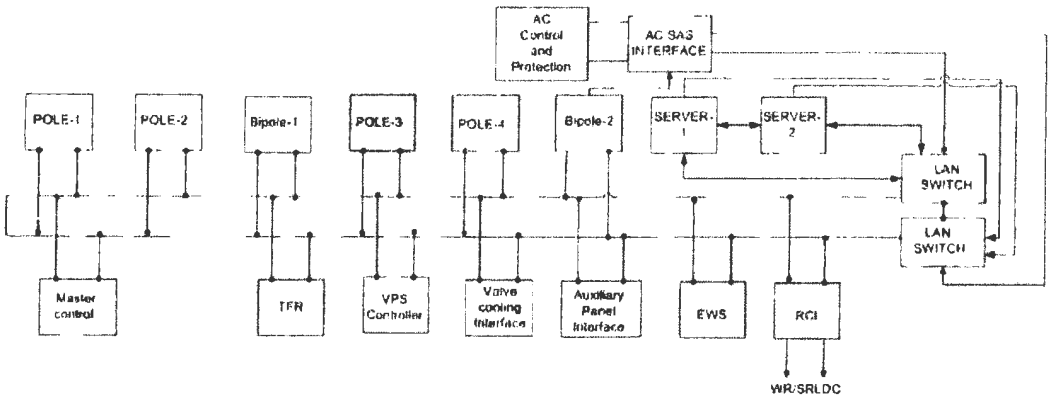
- Station fire alarm, control & monitoring panel



Typical station control and monitoring system

'Figure – A'

(System shall be redundant with system A and system B. Only one system has been represented.)

i. HVDC Controls

The station control room at each converter station shall have facilities that include, but not be limited to, the functions shown on Table-A and B

A description of major HVDC control functions is outlined below:

1. Controlling Station (Master Station) Selector Switch

Control location selector switches shall be provided in each station control room. These selector switches shall enable the operator to control the HVDC system and/or the HVAC yard of any converter station from either Bhadla and Fatehpur stations. HVDC and HVAC yard control & monitoring of other converter station shall be provided from TFT Monitors.

2. Bipole Controls

Bipole controls shall refer to the common control functions that affect both poles in a Bipole. These functions are typically Bipole power order, power direction, power limit and power ramp rate.

The power flow over the Bipole shall be maintained at the Bipole power order as set by the operator.

The power ramp rate shall control the timing sequence for loading Bipole at a pre-selected rate (within specified range) set by the operator.

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The power limit control shall enable the operator to set different limits to Bipole loading. It shall also be possible to operate each pole separately from Bipole Controls.

3. **Pole/Converter Current Order/Limit**

The power setting divided by voltage shall determine the current order to either pole. However, this shall not preclude the ability to control each pole, by means of a directly entered manual current order signal.

The pole current limit set point shall enable the operator to raise/ lower current limits to optimize link capabilities under varying conditions such as ambient temperature, temporary reduction in capability etc.

4. **HVDC System Control Mode Selection (Per Pole)**

The following basic control modes shall be provided:

a) Power Control Mode
b) Current Control Mode

Disturbance free transfer of any pole from one control mode to another shall be possible.

5. **Miscellaneous Operator Controls**

a) DMR (Dedicated Metallic Return) Line Current Null Control

This control shall enable the operator to null the current flowing in the DMR (Dedicated Metallic Return) Line resulting from unequal sharing of load between poles during balanced operation.

b) Block/ Deblock

This control shall enable the operator to stop (block) or start (deblock) a converter. Automatic sequences shall be provided to fullfil preconditions for deblock. A normal stopping sequence initiated by "block" contact involves a sequence at each end that causes the voltage and current to drop to zero.

c) Pole Start/ Stop

This control shall enable start or stop of the complete pole, comprising converters at either of the rectifiers and the inverter and shall take care of all interlocks, start/stop preconditions and sequences automatically.

d) Direction of Power Transfer

Power flow shall be possible in both directions.

e) Pole Metallic Return/DMR (Dedicated Metallic Return)/DMR-PMR parallel Mode

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This selector switch (or switches) shall enable an automatic sequence from Pole metallic return to DMR and vice versa. This mode change shall be possible even with power flowing in the DC system. It shall also be possible to operate DMR & PMR conductors in parallel.

f) DC Filter Connect/ Isolate

Motorized disconnects are specified for switching the filter arms to allow disconnection of a faulty filter bank or arm and for restoration to service as quickly as possible. An automatic switching sequence shall be provided which shall take care of all the interlocks.

g) DC Line Isolator

DC line isolators are specified for maintenance purposes and their electrical operation in local shall be possible. Operation shall be permitted only with pole blocked and station ground connected. Automatic operation shall also be possible if required by any sequences subject to satisfying all interlocks permitting the operation.

h) Grounding Switches in DC Yard

Grounding switches are specified for the DC switchyard area to allow each isolatable section of bus to be grounded. Only local electrical operation is required. However, if operation of any grounding switches is part of any automatic sequence(s), or is specified elsewhere, then those grounding switch(es) shall be operable locally as well as remotely.

i) Valve Hall Ground Switches

Remotely controlled motor operated grounding switches are specified for the valve halls to protect maintenance personnel. The operation of all the valve hall ground switches together as a group shall be possible by initiating a sequence from the control room. Provision shall however be made (key operated switch) for defeating the interlock to permit entry of personnel into the restricted area of the valve hall.

j) Maintenance/Bypass Isolators for Metallic Return Transfer Switch / Bus (MRTS or MRTB)

Electrically local operated isolators shall be provided to establish a ground reference when MRTS is being maintained. These shall be interlocked with the MRTS.

k) Emergency Stop

An emergency stop button on pole basis shall be provided in the control room. Operation of this button shall automatically ramp down at a fast rate the direct power, lead to blocking of the converters and reach safe shut down with Operation of High speed parallel/ De-parallel switches.

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l) HVAC Controls

HVAC controls shall consist of close-open operations for circuit breakers and motor operated disconnectors.

ii. Station Control Facilities

The TSP shall provide the control facilities from the operator control desk through a TFT monitor and keyboard/ mouse system. These facilities shall include all control operations, digital setting, indicating devices, Station single line diagram and symbols, any other special control devices and meters required for control and monitoring of the complete HVDC system. The layout of the station single line diagram, together with control, indicating and metering devices on the control desk shall be logical, compact, and shall facilitate efficient supervision and operation of the station(s) by the operator.

pact, and shall facilitate efficient supervision and operation of the station(s) by the operator.

iii. Station Level Status Supervision

The position of each switchgear e.g. Circuit breaker, isolator, earthing switch, transformer tap changer etc shallbe supervised continuously. Every detected change of position shall immediately be displayed in the single-line diagram on the station screen, recorded in the event list and an option to take hard copy printout of event list shall be available. Alarms shall be initiated in the case of spontaneous position changes.

The switchgear positions shall be indicated by two auxiliary switches, normally closed (NC) and normally open (NO), which shall give ambivalent signals. An alarm shall be initiated if these position indications are inconsistent or if the time required for operating mechanism to change position exceeds a predefined limit.

osed (NC) and normally open (NO), which shall give ambivalent signals. An alarm shall be initiated if these position indications are inconsistent or if the time required for operating mechanism to change position exceeds a predefined limit.

iv. System Indications and Power Measuring Facilities

The TSP shall provide DC and AC system / equipment indication facilities in the station control room at each converter station that shall include, but not be limited to, the functions shown on Table A and Table B. Alarms of slave stations shall be indicated and displayed both at Master Station and slave stations and vice-versa.

3-Dimensional graphic representation of thyristor valves and valve cooling piping network shall be provided on station monitoring system. The graphical representation shall also display faulty thyristors in different colours indicating faulty thyristor position.

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lay faulty thyristors in different colours indicating faulty thyristor position.

Pressure, temperature and relative humidity of each valve hall shall also be displayed in the control room. Alarm(s) shall be raised in case any of the parameters exceed limits.

'Table A' provides a list of minimum AC and DC metering facilities required, which shall be included on TFT monitors.

v. Energy Metering

Energy meters as per relevant CEA Guidelines and Specifications/Regulations for the 765 kV , 400 kV , 220 kV & 132 kV AC switchyards (as applicable) and 33 kV feeders at HVDC terminals shall be provided by the TSP.

B. System Requirements

General

The main control and monitoring systems shall be configured as dual redundant computer-based systems in a main and hot standby configuration generally as shown in 'Figure A'. The operator control, monitoring and support system could be integrated with station control system. Outage of any subsystem or complete loss of one system shall not affect the control and monitoring of the HVDC station. The system shall be based on open system concept in hardware and software and industry standard communication protocols and graphical user interface.

ols and graphical user interface.

The redundant, computer-based system shall accept control inputs from the Operator by means of TFT monitor/ mouse etc and send these commands to the HVDC and the HVAC control systems.

The system shall gather alarm, status and measurand data from the plant and display it to the Operator on the mimic diagram on TFT monitors, loggers etc as further defined below. The system shall be so designed that no alarm and status data or control data shall be lost.

Table -A Controls & Indications at Bhadla and Fatehpur :-

Sl. No.	Signal Name	Bhadla	Fatehpur
	CONTROLS SIGNALS		
1.	Bipole power order	√	√
2.	Bipole power order ramp	√	√
3.	Bipole power order limit	√	√

Sl. No.	Signal Name	Bhadla	Fatehpur
4.	Bipole power/current control	√	√
5.	Power direction P1.P3, P2.P4	√	√
6.	Power/Current control P1.P3,P2.P4	√	√
7.	Current order setting	√	√
8.	Current ramp start/stop	√	√
9.	Current order ramp setting	√	√
10.	Current limit setting	√	√
11.	Master station transfer	√	√
12.	Metallic/DMR switching	√	√
13.	Reduced voltage on/off P1, P2, P3, P4	√	√
14.	Start/Stop & Block/deblock P1, P2, P3, P4	√	√
15.	Power Swing modulation on/off	√	√
16.	DC power /current control	√	√
17.	Emergency stop P1, P2, P3, P4	√	√
18.	Frequency control/on/off	√	√
19.	Frequency target/limits	√	√
20.	Connect/isolate P1, P2, P3, P4	√	√
21.	Joint/separate, Sync/Async	√	√
22.	DC Filter connect/isolate P1, P2, P3, P4	√	√
23.	RPC auto/man off switching	√	√
24.	RPC Volt/Reactive Selection	√	√
25.	RPC MVAr/Voltage set points	√	√
26.	Open line test auto/man P1.P3, P2.P4	√	√
27.	AC Filter (bank/ sub-bank) breake	√	√
28.	Conv. Trans Breaker open/close	√	√
29.	AC Filter (bank/sub-bank) Disconn open/close	√	√
30.	Con. Trans Disconn open/close	√	√
31.	Tap changer auto/man P1, P2, P3, P4	√	√
32.	Valve hall Gr. Switch open/close P1, P2, P3	√	√
33.	Bhadla Sw. yard Breaker open	√	√
34.	Fatehpur Sw. yard Breaker open	√	√
	INDICATIONS		
35.	DC OP Mode Pwr./current	√	√
36.	Gr/metallic return indication. P1.P3, P2.P4	√	√
37.	Power direction P1.P3, P2.P4	√	√
38.	Pole Telecommunication healthy	√	√
39.	Pole blocked/deblock P1, P2, P3, P4	√	√

Sl. No.	Signal Name	Bhadla	Fatehpur
40.	Master station Bhadla-Fatehpur- LDC	√	√
41.	DC Station overload in use	√	√
42.	Power ramp in progress	√	√
43.	Stabilization control on/off	√	√
44.	Full/reduced DC voltage indication	√	√
45.	Tap changer Auto/Man indication.	√	√
46.	Pole connect/isolate indication.	√	√
47.	Power direction normal/reverse	√	√
48.	Runback activated indication.	√	√
49.	Frequency control on/off	√	√
50.	Frequency control activated	√	√
51.	AC bay Circuit breakers indication.	√	√
52.	AC bay disconnectors indication.	√	√
53.	AC Filter (Sub-bank) Circuit breaker indication	√	√
54.	AC Filter (Sub-bank) disconnector indication.	√	√
55.	DC filter con/isolated indication.	√	√

Table -B Indication Signals to RLDC

S.No	Signal Name	RLDC
1.	Bipole power order	√
2.	Power Swing modulation on/off	√
3.	DMR/metallic return indication. P1.P3, P2.P4	√
4.	Pole blocked/deblock P1, P2, P3, P4	√
5.	Runback activated indication.	√
6.	Frequency control on/off	√
7.	Frequency control activated	√
8.	Full/reduced DC voltage indication.	√
9.	AC bay Circuit breakers indication.	√
10.	AC bay disconnectors indication.	√
11.	DC Power Bipole	√
12.	DC Line current/ voltage P1.P3, P2.P4	√
13.	AC side A/MW/MVAR/ P1, P2, P3, P4	√
14.	AC Filter/Cap A. Mvar all banks	√
15.	AC Lines A/MW/MVAR/	√
16.	Station/AC system MW exchange	√
17.	Station/AC System MVAR exch.	√

18.	AC Bus Voltage	√
19.	AC Bus Frequency	√

The system shall also be designed to allow input of signals from the Dispatch centre - for example, load frequency control (LFC) signals. The system shall be capable of meeting the control and monitoring requirements of each converter station and LDC while operating at maximum rating, with a reserve capacity of minimum twenty-five per cent. Equipment bins that are not fully equipped with cards shall be fully wired and be ready to accept additional cards. Power supply units shall be rated to meet the full capacity requirements.

C. Functional Requirements

1. General

The redundant computer-based system shall be a highly reliable integrated system, which shall provide Operator's interface, alarm and monitoring system and operator guidance/ expert system.

The high-voltage apparatus within the station shall be operated from different places:

- Remote control centres
- Station operator control.
- Local Bay controller IED (in the bays)

Operation shall be possible by only one operator at a time. The operation shall depend on the conditions of other functions, such as interlocking, synchro-check etc.

2. Run Time Command Cancellation and Self-Supervision

Command execution timer (configurable) must be available for each control level connection. If the control action is not completed within a specified time, the command should get cancelled. Continuous self-supervision function with self-diagnostic feature shall be included.

3. User Configuration

The monitoring, controlling and configuration of all input and output logical signals and binary inputs and relay outputs for all built-in functions and signals shall be possible both locally and remotely.

It shall also be possible to interconnect and derive input and output signals, logic functions, using built-in functions, complex voltage and currents, additional logics (AND-gates, OR gates and timers). (Multi-activation of these additional functions should be possible).

The Functional requirement shall be divided into following levels:

a) Bay Level Functions.
b) System Level Functions.

D. Computer Information System Requirement:

A computer-based information system shall perform following functions:

- Initiation of commands to control HVDC system.
- Control and monitor the Valve cooling system.
- Monitoring of process data to give brief overview as well as a comprehensive view of each subsystem.

- Sequence of event recording and alarm system including determination of Event Categories (major, warning, alarm).
- Process data archiving and trending.

Soft copy of complete station documentation shall be available on Operator Work Stations.

All the system trends shall be available at least for one-year period and retrievable on demand from the main storage system. The process data logging shall have hourly/ daily logging of station data. Archiving and back up storing facility of the log sheets shall be possible and facilities taking backup on External hard discs/ Drives minimum 2 tera bytes shall be provided.

E. Remote Control, Monitoring and Tele Control systems

The TSP shall provide facilities for coordinated control and monitoring of the HVDC system. All required remote control and remote monitoring facilities shall be provided at each converter station. Complete remote monitoring of each converter station shall be possible from opposite converter station. The HVDC tele-control system equipment shall be used in the processing of signals to be transmitted over the fibre optic communication system between the converter stations of Bipolar scheme.

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Appendix C.3

Transient Fault Recorders

1. General

The transient fault recorders (TFR) shall continuously monitor the power system. These could be integrated with operator control and monitoring system or supplied as standalone units.

Below requirements are specified for standalone units. Similar functional requirements will be applicable for integrated TFR.

One recorder per pole shall be provided at each converter station. The TFR may be provided in the form of central unit together with Data Acquisition Units (DAUs). Initiation by any one of the fault detecting sensors or external initiating contacts shall cause the fault recorder to record on all channels. The record shall comprise-fault information, time of fault information and post fault information. The TSP shall determine the number of analog and event inputs required for each recorder and supply these number plus minimum 25% spare channels. The TFR shall also have facility for harmonic analysis upto 50th harmonics of waveforms. Recorders shall be of solid-state modular construction microprocessor based and without moving parts. First in, first out (FIFO) printing logic shall be used. The necessary software for directly analyzing the records on the memory of the TFR shall also be supplied.

supplied.

Facilities shall also be provided for data retrieval from TFR and analyse by means of a master station based on compatible PC having minimum configuration of 2.8 GHz clock speed, 1 TB hard disc & 16 GB RAM capacity, complete with 24-inch LED monitor, keyboard/ mouse etc and include laser colour printer with capability to print on A3 and A4 size paper. All necessary software package(s) along with facility to communicate between TFR & PC shall be provided by the TSP.

2. Input Signals

The input signals and starting sensors required for the HVDC system for commissioning and operation shall be determined by the TSP. The input signals to each fault recorder system for a pole shall include, but not be limited to, the following:

- Valve group firing pulse markers;
- Valve group ignition delay angle response;
- Valve group voltage;
- Pole current order;
- DC line voltage (own pole);
- DC line voltage (other pole);

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- DC neutral Bus voltage (Both poles)
- DC line current (own pole);
- DC line current (other pole);
- DC power (each pole and both converters)
- DC power (other pole and both converters)
- Current order
- AC bus voltage (3 phases);
- AC current to each valve group and transformer primary currents.

The Triggering of TFR shall include, but not be limited to following inputs:

- Pole Block/ Deblock
- Pole Commutation Fail
- Pole Firing pulse loss
- Pole last Breaker opened
- Pole DC Protection Voltage level trigger
- Pole DC Protection dv/dt triggger
- Pole di/dt
- Pole 30 minutes, 2 hours and 5 seconds overload operated
- Pole MR/ GR sequence initiated
- AC Over voltage/ under voltage Protection operated.
- Full voltage/ RVO Changeover
- I_{dc} Limit by VDCOL
- DC O/V, U/V
- Telecommunication Fail

Each fault recorder shall be equipped with suitable input circuits and starting sensors for all of the input signals. The TSP shall ensure that the characteristics of the input circuits and starting sensors are well matched to the characteristics of the signal sources.

3. Electrical Characteristics

(i) Monitoring Systems

The recorder shall be a digital based type. Operation of the equipment shall be based on programs stored in non-volatile solid-state memory. Programs shall be stable and no inadvertent change of program(s) shall occur.

The recorder shall be equipped with a built-in post fault record- length timer, adjustable over a range of 0.5 to 10 seconds after the fault.

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Normally open operation alarm contacts shall close while the fault recorder system is operating and be utilized as inputs to the alarm monitoring and reporting system. A three digit, manually resettable operations counter shall be provided that indicates the number of faults or disturbances recorded.

Facility for automatic storage of information to a PC or an independent storage device (e.g. a disc drive) shall be provided. The output shall be possible to be printed on plain paper in the A4/A3 format.
The recorded information shall include but not necessarily be limited to:

- Station Identification
- Identity of trigger source
- Record Identification for Analog, Event and Sensor traces
- Date/ Time: Year, Day, Hour, Minute, Second, Millisecond
- Analog traces
- Event traces
- Sensor traces
- Time marker trace which shall allow time interpolation of records to 2 ms.
- Start of record line.

(ii) Operations

The fault recorder shall continuously monitor the power system. Initiation by fault detecting sensors or by other input contacts or pre-selected events shall cause that particular recorder to record the fault information. The other pole recorder shall also record in a slave mode. Operation of any one of the initiating sensors shall start the recording mechanism or otherwise cause all channels to record until the fault clears or the record-length timer setting is exceeded.

The transient fault recorder shall have facility for suitable interface for transmission of recorded analog and digital information to a remote station. This shall be demonstrated by the TSP at site by using inter-station communication.

(iii) Input Circuitry

The input circuits for the recording channels shall be insulated for operation at potentials of 2000 Vrms between channels and between channel and ground. Each input recording channel shall be capable of operating from the output of 1A rms nominal secondaries of current transformers and capacitive voltage transformers with 63.5 V rated secondary. Each channel shall be supplied with a selection of current shunts and voltage multipliers to provide a range of high and low current or voltage ranges which can be selected by straps or similar method. The recorder shall also be capable of operating from the DCCT's and direct voltage devices supplied for the station. Any device required for processing of input signals in order to make them

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compatible to the equipment shall form an integral part of the supplied equipment. However, such processing of input signals shall in no way distort its waveform. The equipment shall be carefully screened, shielded, earthed and protected as may be required for its safe functioning. It shall be possible to position the reference point of any of the analog channels to any position on the record. The individual traces shall be identified on the record by numbering them in the order they are connected at the input.

It shall be possible to position the reference point of any of the analog channels to any position on the record. The individual traces shall be identified on the record by numbering them in the order they are connected at the input.

The current values of scaling parameters related to the various channels shall be printed on each printout to enable quick interpretation of the records.

(iv) Starting Sensors

The initiating or detecting devices, which start the recording, shall be solid state and automatic self-resetting type.

Each sensor shall be equipped with an indicating lamp, viewable from the front of the cabinet, which operates when the sensor operates. The lamp shall remain 'on' until reset by the station operator. Failure to reset the lamp shall not affect subsequent operation of the sensor. Sensor settings shall be easily adjustable and easily accessible. One starting sensor for at least each of the following types of changes shall be provided.

following types of changes shall be provided.

- Level Changes Over Current Over Voltage Under voltage
- Swing Rate of change of nominal input
- Frequency
- Under frequency
- Over frequency

It shall be possible to adjust the response time of the sensors, in each case, to ensure the most rapid operation consistent with the characteristics of the analogue quantity being monitored.

It shall also be possible to initiate the fault recording, as required, by additional external relay contacts, either NO or NC.

(v) Pre-fault Periods

The recording system shall accurately record power system transient disturbances with a pre-fault period, which shall be settable between 50 to 250 ms.

(vi) Memories

Sufficient memory shall be provided to prevent any loss of records under all normal operating circumstances.

(vii) Time

A means shall be provided to record on the chart the time of occurrence of each fault or disturbance to a resolution of 2 milliseconds or better. The time clock shall be synchronized with the station master clock signal. Facility shall exist to display the time in hour, minutes and seconds on the front of the panel.

(viii) Calibrations

The recording system shall be so designed that each channel may be calibrated separately. Calibration shall be accomplished by applying the calibration level input in the test switches. Controls and switches shall be provided on the front panel to facilitate calibration.

(ix) Resolutions

a) Analog resolution

Analog to digital conversion shall be 12 bits (minimum). The amplitude of the recording shall be adjustable and magnification in fixed steps, of the recording, shall be provided.

b) Events Resolution

The event resolution at the lowest scan rate shall be two milliseconds or better.

c) Transient Response (analog channels)

The transient response delay of the analog input conditioning circuits to a step function input shall be less than 400 microseconds between 10% and 90% values of the step function with overshoot of the final value of the step function being not more than 2%.

(x) Recording Quality

Static trace width	1.5 mm maximum
Residual channel noise	0.1% of full-scale maximum at 50 Hz or any harmonic thereof
Recording resolution	0.1% of full scale
Phase error between channels	Less than 5 degrees at 50 Hz
Crosstalk	Lower than 50 dB (DC to 1500 Hz)

Scale alteration/ expansion facilities shall be provided.

(xi) Alarm Circuits and Indicators

Alarm circuits shall be provided to indicate inability for automatic operation due to power failure, out of paper condition, incorrect switch positioning or other failure(s), which shall be prominently visible on the recorder panel. Each alarm circuit shall

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include a normally open contact which shall be integrated into the station alarm monitoring and reporting system.

(xii) Power Requirements

The recording system shall be suitable for operation from the station battery supply. There shall be no loss of accuracy in the recording system for specified variations of DC input voltage.

Appendix C.4

DEFINITIONS

OUTAGE TERMS

1. Outage

   The state in which equipment or a unit of equipment is unavailable for normal operation due to an event directly related to the same equipment or some unit of equipment.

2. Scheduled Outage

   Scheduled outage is an outage which can be scheduled at least one week in advance. This includes planned maintenance, normally conducted on annual basis, and also unplanned maintenance or repair which can be deferred at least one week subsequent to discovery of the need for maintenance or repair. If the outage is extended due to additional work which would have otherwise caused a forced outage, the excess period is counted as a forced outage.

3. Forced Outage

   The state in which equipment is unavailable for normal operation, but is not in the scheduled outage state, i.e. an outage which is not a scheduled outage.

4. Pole Outages

   An outage which causes a reduction in the Bipole DC power system transfer capacity equal to or less than the power rating of one pole

5. Bipole Outages

   An outage which causes a reduction in the bipolar DC system power transfer capacity greater than the power rating of one pole

CAPACITY TERMS

1. Maximum Continuous Capacity (Pm)

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The maximum bipolar HVDC system capacity (MW) for which continuous operation under normal conditions is possible referred on to the rectifier DC bus, i.e. 3000 MW.

2. Outage Capacity (Po)

   The capacity reduction in MW which the outage would have caused if the HVDC system were operating at its maximum continuous capacity (Pm) at the time of the outage.

3. Outage Derating Factor (ODF)

   The ratio of outage capacity (Po) to maximum continuous capacity (Pm). ODF = Po/Pm

OUTAGE DURATION TERMS

1. Actual Outage Duration (AOD)

   The time elapsed in hours between the start and the end of an outage. The time shall be counted to the nearest 1/10th of an hour. Time less than 1/10 of an hour shall be counted as having duration of 1/10 of an hour.

2. Equivalent Outage Duration (EOD)

   The actual outage duration (AOD) in hours, multiplied by the outage derating factor (ODF), so as to take account of partial loss of capacity.

   EOD = AOD x ODF

   Each equivalent outage duration may be classified according to the type of outage involved, i.e. equivalent forced outage duration (EFOD) and equivalent scheduled outage duration (ESOD).

TIME CATEGORIES

1. Period Hours (PH)

   The number of hours in the reporting period.

In a full year the Period Hours are 8760 h (8784 h for a leap year). If the equipment is commissioned part way through a year the period hours shall be proportionately less than 8760 h. (This shall not be applicable for verification of guarantees).

2. Actual Outage Hours (AOH)

The sum of actual outage durations within the reporting period

AOH = ∑ AOD

The actual outage hours (AOH) may be classified according to the type of outage involved, i.e. AFOH and ASOH.

3. Equivalent Outage Hours (EOH)

The sum of all equivalent outage durations within the reporting period.

EOH = ∑ EOD

The equivalent outage hours may be classified according to the type of outage involved, i.e. equivalent forced outage hours (EFOH) and equivalent scheduled outage hours (ESOH).

If outage duration overlaps the beginning or end of a reporting period, only the EOD which lie within the reporting period shall be included in EOH.

AVAILABILITY AND RELIABILITY TERMS

1. Energy Unavailability (EU)

Energy unavailability is a measure of the energy which could not have been transmitted due to (scheduled & forced) outages. The impact of overload capability of the individual poles shall not be considered for calculating the Energy unavailability.

Energy Unavailability % (EU) = EOH/PH x 100

Forced Energy Unavailability % (FEU) = EFOH/PH x 100

Scheduled Energy Unavailability % (SEU) = ESOH/PH x 100

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2. Energy Availability (EA)

   A measure of the energy which could have been transmitted except for limitations of capacity due to outages, arising from any cause, either forced or scheduled.

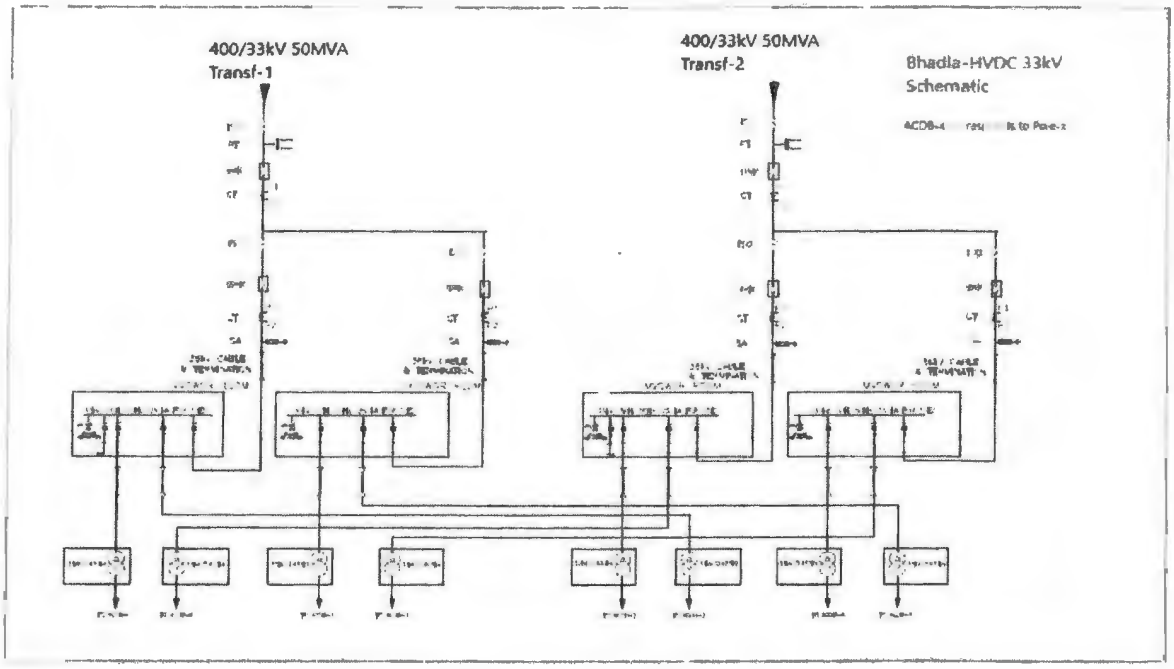
   Energy Availability % (EA) = (100 - EU)

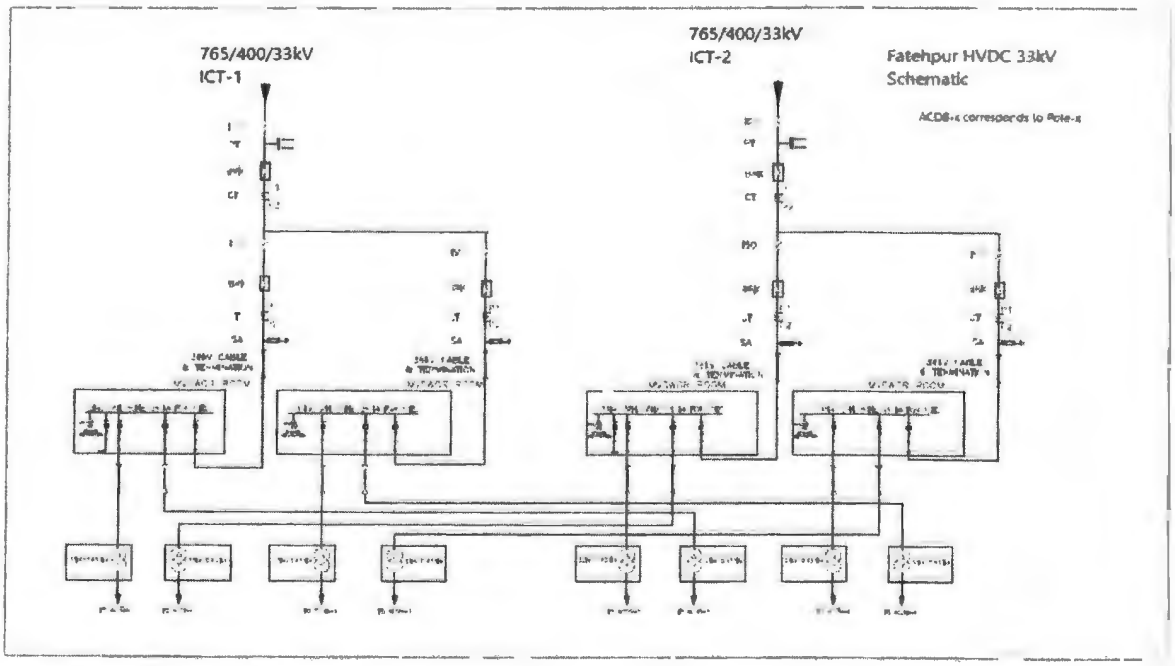
3. Energy Utilisation (U)

   A factor giving a measure of energy actually transmitted over the system.

   Energy Utilisation % (U) = [Total energy transmitted/ (Pm x PH)] x 100]

Appendix-C.5





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Annexure - D

LOCATION DETAILS OF EXISTING SUBSTATIONS

a) **Bhadla-III s/s**: Location details is to be finalized by the developer of the substation

b) **Bhadla (HVDC) converter station**: Location details is to be finalized by the developer of the terminal station under the present scope

c) **Fatehpur (HVDC) converter station**: Location details is to be finalized by the developer of the terminal station under the present scope

Annexure – E1

SPECIFIC TECHNICAL REQUIREMENTS FOR HVDC TRANSMISSION LINE

A.1.0 The design, routing and construction of HVDC transmission lines shall be in accordance with CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations 2022, as amended from time to time.

A.2.0 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.2.1 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.2.2 Towers shall be designed as per IS-802:2015, however the drag coefficient of the tower shall be as follows: -

Solidity Ratio	Drag Coefficient
Upto 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.3.0 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.4.0 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.

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A.5.0 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.6.0 A) For power line crossing of 400 kV or above voltage level (if crossed over the existing line), large angle & dead-end towers (i.e. D/DD/QD) shall be used on either side of power line crossing.

B) 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.

C) 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.

D) For crossing of railways, national highways and state highways, the Rules/Regulations of appropriate authorities shall be followed.

A.7.0 The relevant conductor configuration shall be as follows: -

i. Type of conductor: ACSR / AAAC / AL59

Basic parameters for Transmission Line associated with HVDC Bipole link:

Transmission line	**ACSR Conductor specified**	**AAAC conductor based on 53% conductivity of AL Alloy (Size as per IEC-1089)**	**Minimum size of AL59 conductor based on 59% conductivity of AL Alloy (Option 1)**	**Minimum size of AL59 conductor based on 59% conductivity of AL Alloy (Option 2)**	**Sub-conductor Spacing**

Transmission line	ACSR Conductor specified	AAAC conductor based on 53% conductivity of AL Alloy (Size as per IEC-1089)	Minimum size of AL59 conductor based on 59% conductivity of AL Alloy (Option 1)	Minimum size of AL59 conductor based on 59% conductivity of AL Alloy (Option 2)	Sub-conductor Spacing
±800 kV HVDC transmission lines *(hexa bundle configuration per pole)*	Lapwing: Stranding 45/4.78 mm-Al + 7/3.18 mm-Steel; 38.22 mm diameter; 807.5 sq. mm, Aluminium area; Maximum DC Resistance at 20°C (Ω/km): 0.0358; Minimum UTS: 188.0 kN	Stranding details: 61/4.38mm, 39.5 mm diameter; 921 sq.mm Aluminium alloy area; Maximum DC Resistance at 20°C (Ω/km): 0.0361; Minimum UTS: 244.0 kN	Stranding details: 61/4.36mm, 39.2 mm diameter; 910 sq.mm Aluminium alloy area; Maximum DC Resistance at 20°C (Ω/km): 0.0326; Minimum UTS: 199.0 kN	Stranding details: 61/4.17 mm, 37.53 mm diameter; 833 sq.mm Aluminium alloy area; Maximum DC Resistance at 20°C (Ω/km): 0.0356; Minimum UTS: 181.96 kN	457 mm

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Transmission line	ACSR Conductor specified	AAAC conductor based on 53% conductivity of AL Alloy (Size as per IEC-1089)	Minimum size of AL59 conductor based on 59% conductivity of AL Alloy (Option 1)	Minimum size of AL59 conductor based on 59% conductivity of AL Alloy (Option 2)	Sub-conductor Spacing
Twin Lapwing transmission lines for DMR *(2 Nos. Dedicated Metallic Return line with Twin bundle configuration)*	Lapwing: Stranding 45/4.78 mm-Al + 7/3.18 mm-Steel; 38.22 mm diameter; 807.5 sq. mm Aluminium area; Maximum DC Resistance at 20°C (Ω/km): 0.0358; Minimum UTS: 188.0 kN	Stranding details: 61/4.38mm, 39.5 mm diameter; 921 sq.mm Aluminium alloy area; Maximum DC Resistance at 20°C (Ω/km): 0.0361; Minimum UTS: 244.0 kN	Stranding details: 61/4.36mm, 39.2 mm diameter; 910 sq.mm Aluminium alloy area; Maximum DC Resistance at 20°C (Ω/km): 0.0326; Minimum UTS: 199.0 kN	Stranding details: 61/4.17 mm, 37.53 mm diameter; 833 sq.mm Aluminium alloy area; Maximum DC Resistance at 20°C (Ω/km): 0.0356; Minimum UTS: 181.96 kN	450 mm

Note: *The transmission lines shall have to be designed for a maximum operating conductor temperature of 85 deg C.*

A.8.0 The required pole to pole spacing shall be governed by the tower design as well as minimum live metal clearances under different insulator swing angles. However, the spacing between Pole and DMR shall not be less than 9.7 m and pole to pole clearance shall not be less than 22.0 m. Also, DMR line shall be placed above the Pole.

A.9.0 All electrical clearances including minimum live metal clearance, ground clearance and minimum mid span separation between earth wire and conductor shall be as per Central Electricity Authority (Measures Relating to Safety &

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Electric Supply) Regulations as amended from time to time and relevant Indian Standards. For the clearances which are not included in CEA Regulation/ Indian Standard, following values shall be considered:

1) Minimum live metal clearances for ±800 kV line:

a.(i) Swings and Clearances:

Wind pressure Condition	Minimum electrical clearance
a) Swing angle (0°)	7.7 m
b) Swing angle (21°)	6.5 m
c) Swing angle (53°)	2.0 m

a.(ii) Swings and Clearances: For Jumper

Wind pressure Condition	Minimum electrical clearance
a) Swing angle (0°)	7.7 m
b) Swing angle (25°)	6.5 m
c) Swing angle (72°)	2.0 m

a.(iii) Swings and Clearances: For Jumper with pilot insulator

Wind pressure Condition	Minimum electrical clearance
a) Swing angle (0°)	7.7 m
b) Swing angle (25°)	6.5 m
c) Swing angle (66°)	2.0 m

b) (i) Minimum ground clearance for AL 59 conductor (61/4.17 mm, 37.53 mm diameter): 19 m

(ii) Minimum ground clearance for other conductors: 18 m

c) Minimum mid span separation between earthwire and Pole conductor: 12.0 m

2) Minimum live metal clearances for DMR line:

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a) Swings and Clearances:

Wind pressure Condition	Minimum electrical clearance
a) Swing angle (0°)	1.53 m
b) Swing angle (15°)	1.53 m
b) Swing angle (30°)	1.37 m
d) Swing angle (45°)	1.22 m
e) Swing angle (60°)	1.07 m

b) Minimum mid span separation between earthwire and DMR conductor: 6.1 m

A.10.0 Shielding angle shall not exceed 10 deg for Pole and 30 deg for Dedicated Metallic Return.

A.11.0 At least one out of two earth wires shall be OPGW and second earth wire, if not OPGW, shall be either of galvanized standard steel (GSS) or AACSR or any other suitable conductor type depending upon span length and other technical consideration. However, minimum size of galvanized stranded steel (GSS) shall be 7/4.5 mm & diameter 13.50 mm.

A.12.0 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.13.0 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 & 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.14.0 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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line. In order to optimize the route use of GATISHAKTI platform shall also be made.

A.15.0 The transmission lines shall be designed with porcelain/glass/ Composite Insulators as per site pollution severity level in the concerned area. However, minimum creepage distance and insulator length shall be as per follows:

Sl. No.	Description	Type of Insulator	Insulator for ±800 kV HVDC Transmission Lines	Insulator for 132 kV Dedicated Metallic Retum Conductor
1.	Minimum Creepage Distance for both Light and medium as well as for Heavy and very heavy pollution level	Composite Insulator	50400 mm	8000 mm
	Minimum Creepage Distance for Light and medium pollution level	Porcelain /Glass Insulator	37760 mm	5550 mm
2.	Minimum length of insulator	--	As per design requirement	2550 mm

A.16.0 Wherever, transmission lines are passing through cyclone prone areas (i.e. areas upto 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 gram/m^2 of surface area except for plates and sections below 5 mm thickness which shall have a minimum overall zinc coating of 610 gram/m^2 of surface area. The average zinc coating for all sections and plates of 5 mm and above thickness 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/m^3.

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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/m^2 per coat shall be applied on all exposed faces of foundation (i.e. pedestal & base slab).

d) Double coat of 20 mm thick cement plaster shall be provided on all exposed concrete surface up to 300 mm below ground level to give protection to concrete surface from environmental and saline effect.

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.17.0 The raised chimney foundation is to be provided in areas prone to flooding/water stagnation like paddy field /agricultural field & 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 HFL (High Flood Level) 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).

Annexure – E2

SPECIFIC TECHNICAL REQUIREMENTS FOR HVAC TRANSMISSION LINE

A.1.0 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.

A.2.0 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.2.1 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.2.2 Towers shall be designed as per IS-802:2015, however the drag coefficient of the tower shall be as follows: -

Solidity Ratio	Drag Coefficient
Upto 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.3.0 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.4.0 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.

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A.5.0 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.6.0 A) For power line crossing of 400 kV or above voltage level, large angle & dead-end towers (i.e. D/DD/QD) shall be used on either side of power line crossing.

B) 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.

C) 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.

D) For crossing of railways, national highways and state highways, Regulations of appropriate authorities shall be followed.

A.7.0 The relevant conductor configuration shall be as follows: -

Type of conductor: ACSR / AAAC / AL59

Basic parameters:

Transmission line	**ACSR Conductor specified**	**Equivalent AAAC conductor based on 53% conductivity of Al Alloy**	**Equivalent AL59 conductor based on 59% conductivity of AL Alloy***	**Sub-conductor Spacing**
765 kV D/C (Hexa Zebra) transmission lines	**Zebra: Stranding** 54/3.18 mm-Al + 7/3.18 mm-Steel; 428 sq mm Aluminium area; 28.62 mm diameter; Maximum DC Resistance at 20°C (Ω/km): 0.06868; Minimum UTS: 130.32 kN	**Stranding details:** 61/3.19mm, 28.71 mm diameter; 487.5 sq.mm Aluminium alloy area; Maximum DC Resistance at 20°C (Ω/km): 0.06815; Minimum UTS:	**Stranding details:** 61/3.08mm, 27.72 mm diameter; 454 sq.mm Aluminium alloy area; Maximum DC Resistance at 20°C (Ω/km): 0.0653; Minimum UTS:	457 mm

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Transmission line	ACSR Conductor specified	Equivalent AAAC conductor based on 53% conductivity of Al Alloy	Equivalent AL59 conductor based on 59% conductivity of AL Alloy*	Sub-conductor Spacing
		135.6 kN	108 kN	
400 kV D/C (Quad Moose) transmission lines	**Moose: Stranding** 54/3.53mm-Al + 7/3.53 mm-Steel; 31.77 mm diameter; 528.5 sq. mm, Aluminium area; Maximum DC Resistance at 20°C (Ω/km): 0.05552; Minimum UTS: 161.20 kN	**Stranding details:** 61/3.55mm 31.95mm diameter; 604 sq. mm Aluminium alloy area; Maximum DC Resistance at 20°C (Ω/km): 0.05506; Minimum UTS: 159.80 kN	**Stranding details:** 61/3.31 mm 29.79 mm diameter; 525 sq. mm Aluminium alloy area; Maximum DC Resistance at 20°C (Ω/km): 0.0566; Minimum UTS: 124.70 kN	457 mm

Note:

1. **To Select any size above the minimum, the sizes mentioned in the Indian standard i.e IS-398(part-6) should be followed.*
2. *The transmission lines shall have to be designed for a maximum operating conductor temperature of 85 deg C.*

A.8.0 The required phase to phase spacing and horizontal spacing for 765 kV and 400 kV line 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 and 400 kV lines shall not be less than 15 m and 8 m respectively.

A.9.0 All electrical clearances including minimum live metal clearance, ground clearance and minimum mid span separation between earth wire and conductor shall be as

per Central Electricity Authority (Measures Relating to Safety & Electric Supply) Regulations as amended from time to time and IS: 5613. Since these clearances for 765 kV are not included in CEA Regulation/ Indian Standard, following values shall be considered:

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°)	1.3m

b) Minimum ground clearance: 18 m

c) Minimum mid span separation between earthwire and conductor: 9.0 m

Minimum live metal clearances for 400 kV line:

a) (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

b) Minimum ground clearance: 8.84 m

c) Minimum mid span separation between earthwire and conductor: 9.0 m

A.10.0 Shielding angle shall not exceed 10 deg for 765 kV D/C and 20 deg for 400 kV transmission line.

A.11.0 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 .

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A.12.0 In case of 765 kV & 400 kV 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 standard steel (GSS) or AACSR or any other suitable conductor type depending upon span length and other technical consideration.

A.13.0 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 at tension tower for direct earthing of both shield wires. If site condition demands, multiple earthing or use of earthing enhancement compound shall be used.

A14.0 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 & 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.15.0 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 line. In order to optimize the route use of GATISHAKTI platform shall also be made.

A.16.0 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 gram/m^2 of surface area except for plates and sections below 5 mm thickness which shall have a minimum overall zinc coating of 610 gram/m^2 of surface area. The average zinc coating for all sections and plates 5 mm and above thickness shall be maintained as 127 microns and that for plates and sections below 5 mm thickness 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/m^3.

c) The surface of the reinforced steel may 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/m^2 per coat shall be applied on all exposed faces of foundation (i.e. pedestal & base slab).

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d) Double coat of 20 mm thick cement plaster shall be provided on all exposed concrete surface up to 300 mm below ground level to give protection to concrete surface from environmental and saline effect.

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 50mm coping portion as well as up to 350 mm above CL portion.

A.17.0 The raised chimney foundation is to be provided in areas prone to flooding/water stagnation like paddy field /agricultural field & 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 HFL (High Flood Level) 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).

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ANNEXURE-E3

SPECIFIC TECHNICAL REQUIREMENTS FOR HVAC EQUIPMENT

The 765 kV & 400 kV switchyard shall be conventional AIS type generally conforming to the requirements of CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations 2022 as amended from time to time.

All other CEA Regulations/guidelines as amended upto date and MoP guidelines 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 kV Fatehpur		400 kV Bhadla-III (HVDC)
		765 kV System	400 kV System	400 kV System
1.	System operating voltage	765 kV	400 kV	400 kV
2.	Maximum voltage of the system (rms)	800 kV	420 kV	420 kV
3.	Rated frequency	50 Hz	50 Hz	50 Hz
4.	No. of phase	3	3	3
5.	Rated Insulation levels			
i)	Impulse withstand voltage for (1.2/50 micro sec.)			

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Sl. No.	Description of parameters	765/400 kV Fatehpur		400 kV Bhadla-III (HVDC)
		765 kV System	400 kV System	400 kV System
	- for Equipment other than Transformer and Reactors - for Insulator String	2100 kV p 2100 kV p	1425 kV p 1550 kV p	1425 kV p 1550 kV p
ii)	Switching impulse withstand voltage (250/2500 micro sec.) dry and wet	1550 kV p	1050 kV p	1050 kV p
iii)	One-minute power frequency dry withstand voltage (rms)	830 kV	630 kV	630 kV
6.	Corona extinction voltage	508 kV	320 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	1000 micro-volts at 266 kV rms
8.	Minimum creepage distance for insulator string/ longrod insulators/ outdoor bushings	24800 mm (31mm/ kV)	13020 mm (31mm/ kV)	13020 mm (31mm/ kV)
9.	Minimum creepage distance for switchyard equipment	20000 mm (25 mm/ kV)	10500 mm (25 mm/ kV)	10500 mm (25 mm/ kV)
10.	Max. fault current	50 kA	63 kA	63 kA
11.	Duration of fault	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

765/400 kV Fatehpur (HVDC)	One & Half breaker	One & Half breaker
400 kV Bhadla (HVDC)	-NA-	One & Half breaker
400 kV Bhadla-3 (Existing)	-NA-	One & Half breaker

Notes: -

i) For one and half breaker switching scheme, any double circuit line originating from same transmission or 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 of 2 feeders.

iv) 400 kV Bus Sectionaliser shall be placed such that each section shall have even distribution of Pole(s), ICT, Feeders and filter bank(s)/sub-bank (s) so as to have maximum operational flexibility.

v) At 400 kV Bhadla-III substation, 4 nos. main bays alongwith associated tie-bays shall be executed by the 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 minimum capacity.

Sl. No.	Description of bay	Ampacity		
		765/400 kV Fatehpur		400 kV Bhadla-III
		765 kV	400 kV	400 kV
1.	Bus Bar	4000 A	4500 A	4500 A
2.	Line bay	3150 A	3150 A	3150 A
3.	ICT bay	3150 A	3150 A	3150 A

4.	Bus Reactor bay	3150 A	3150 A	3150 A
5.	Bus Sectionaliser bays	NA	4000 A	4000 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)" available on CEA website.

Spare 1-phase Transformer unit shall be placed and connected in such a way that it can be utilized for any of the transformer banks (including for future transformer banks) without its physical movement.

B.2.2 400/33 kV , 50 MVA Transformers [for exclusively supplying auxiliary power to HVDC terminal]

50 MVA, 400/33 kV, 3-Phase Transformers shall conform to CEA's "Standard Specifications and Technical Parameters for Transformers and Reactors (66 kV and above)" available on CEA website.

B.2.3 (765/√3) kV, Single Phase Shunt Reactor

110 MVAR, 765/√3 kV, 1-Phase Reactor (including arrangement for 3-phase bank formation of 330 MVAR) shall conform to CEA's "Standard Specifications and Technical Parameters for Transformers and Reactors (66 kV and above)" available on CEA website.

Spare 1-phase Shunt Reactor unit shall be placed and connected in such a way that it can be utilized for all the bus and line reactor banks (including for future reactor banks) without its physical movement.

B.2.4 765 kV & 400 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 & 400 kV circuit breakers. 765 kV & 400 kV Circuit breakers shall be provided with single phase and three phase auto reclosing. The Circuit breakers controlling 765 kV lines shall be provided either with pre-insertion closing resistor of about 450 ohms maximum with 9 ms insertion time or with Controlled Switching Device. The Circuit breakers controlling 400 kV lines shall be provided with pre-insertion

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closing resistor of about 400 ohms with 8 ms insertion time or Controlled Switching Device (CSD) for lines longer than 200 km. 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 and in Main & Tie circuit breakers of line with non-switchable line reactors and Bus reactors and 765 kV class Transformers.

B.2.4.2 Isolators (AIS)

The isolators shall comply to IEC 62271-102 in general. 765 kV isolator design shall be double break or vertical break or knee-type. 400 kV isolator 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 765 kV and 400 kV shall be of extended mechanical endurance class - M2 and 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. 765 kV and 400 kV earth switches 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 & 400 kV shall have six cores (four for protection and two for metering). The burden and knee point voltage shall be in accordance with the requirements of the system including possible feeds for telemetry. Accuracy class for protection core shall be PX and for metering core it shall be 0.2S. The rated burden of cores shall be closer to the maximum burden requirement of metering & protection system (not more than 20 VA for metering core) for better sensitivity and accuracy. The instrument security factor shall be less than 5 for CTs upto 400 kV and less than 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. 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 shall be of 4400/8800 pF depending on PLCC requirements however the Capacitance of CVT for 765 kV shall be 8800 pF. The rated burden of cores shall be closer to the maximum burden requirement of metering & protection system (not more than 50 VA for metering core) for better sensitivity and accuracy.

B.2.4.5 Surge Arresters (AIS)

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624 kV & 336 kV Station High (SH) duty gapless type Surge arresters with thermal energy (Wth) of minimum 13 kJ/ kV & 12 kJ/ kV conforming to IEC 60099-4 in general shall be provided for 765 kV & 400 kV systems respectively. Other characteristics of Surge arrester shall be chosen in accordance with system requirements. Surge arresters shall be provided near line entrances, 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 & 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 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 and 400 kV transmission lines shall have Main-I numerical three zone distance protection scheme with carrier aided inter-tripping feature. 765 kV & 400 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 & 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 end shall be provided by the TSP. Associated power & control cabling and integration with SAS at remote end shall be provided by respective bay owner.

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 lines shall be provided with single and three phase auto-reclosing facility to allow reclosing of circuit breakers in case of transient

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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 lines shall also be provided with two stages over voltage protection. Over voltage protection & distance to fault locator may be provided as in-built feature of Main-I & 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 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) & Intermediate Voltage (IV) side
iv) Numerical Over fluxing protection on HV & IV side
v) Numerical Overload alarm

Further, Numerical Back-up Over-current and earth fault protection on HV & 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.

Suitable monitoring, control (operation of associated circuit breaker & 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 & protection IEDs to be provided for autotransformer.

c) 765 kV & 400 kV Reactor Protection

Reactor shall be provided with the following protections:

i) Numerical Differential protection.

ii) Numerical Restricted earth fault protection

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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 & 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 and 400 kV buses. Duplicated bus bar protection is envisaged for 765 kV & 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 future bays envisaged i.e. input / output modules for future bays 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.

For existing substations, the existing bus bar protection shall be augmented as per requirement.

e) Local Breaker Back up Protection

This shall be provided for each 765 kV and 400 kV circuit breakers and will be connected to de-energize the affected stuck breaker from both sides.

Notes:

1. *LBB & 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 & overload protection can be provided as built-in feature of differential relay.*
4. *In 765 kV & 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

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wise for voltage level 400 kV and above. All bay control units as well as protection units are normally connected through an Optical fiber 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 Substation Automation System.

At new substations, the Substation Automation System (SAS) shall be suitable for operation and monitoring of the complete substation including proposed future bays/elements.

In existing substations with Substation Automation System (SAS), augmentation of existing SAS shall be done for bays under present scope.

In existing Substations where Substation automation is not provided, control functions shall be done through control panels.

Necessary gateway & modems (as required) shall be provided to send data to RLDC/SLDC as per their requirement. 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, processing equipment required to receive time signal through GPS or from National Physical Laboratory (NPL) through INSAT shall be provided at new substations. This equipment shall be used to synchronize SAS & IEDs etc.

B.2.7 Phasor Measurement Units (PMUs)

TSP shall supply, install and commission required no. of Phasor Measurement Units (PMUs) for all 400 kV and above voltage line bays under the scope of work and PMUs shall support latest IEEE C-37.118 protocols. The supplied PMUs may be mounted in the C&R/SAS panels. These PMUs shall be provided with GPS clock and LAN switch and shall connect with LAN switch of control room with Fibre Optic cable which shall further be interfaced with the Fibre Optical Transmission Equipment (FOTE). These PMUs shall be integrated with the existing Phasor Data Concentrator (PDC) located at respective RLDC. Configuration work in existing PDC at RLDC for new PMU integration is not in scope of TSP (shall be done by respective RLDC), however all the necessary co-ordination and support in this regard shall be ensured by TSP.

In case of bay extensions work, TSP shall also provide separate WAMS (PMU, switches, interface cabling and other associated accessories) required for extended bays at existing s/s.

B.3.0 Substation Support facilities

Certain facilities required for operation & maintenance of substations as described below shall be provided at new substation. In existing substation, these facilities have already been provided and would be extended/ augmented as per requirement.

B.3.1 Fire Fighting System

Fire-fighting system for substation including transformer & reactor shall conform to CEA (Measures Relating to Safety & Electric Supply) Regulations.

Further, adequate water hydrants and portable fire extinguishers shall be provided in the substations. The main header of 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.3.2 Oil evacuating, filtering, testing & 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.

B.3.3 Illumination

Normal & emergency AC & 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.

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 luminaires.

B.3.4 Control Room

For new substation, substation control room shall be provided to house substation work stations for station level control (SAS) alongwith its peripheral and recording equipment, AC & DC distribution boards, DC batteries & 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 control room for all the future bays also.

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Common control room may be constructed for HVDC and HVAC systems.

At existing substations, the adequacy of size of control room shall be ascertained and the same shall be augmented as per requirement.

B.3.5 Control Concept

All the EHV circuit breakers in substation/switching stations shall be controlled and synchronized from the switchyard control room/remote control center. Each breaker would have two sets of trip circuits which would be connected to separate DC supplies for greater reliability. All the isolators shall have control from remote/local whereas the earth switches shall have local control only.

B.4 General Facilities

a) Line Gantry/Towers are envisaged for bays under present scope only. However, for adjacent future line bay, tower shall be designed for extension (considering Quad conductors for 765 kV & 400 kV future lines) wherever applicable.

b) Bay extension works at existing substation shall be executed by TSP in accordance with the requirement/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 gm/sq.m and 900 gm/sq.m for coastal/creek regions (if applicable).

e) In 765 kV & 400 kV switchyard, if spare bay of half diameter is identified as future, all the equipment for Tie & 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 wall shall be of 1.8 m from finished ground level (FGL).

g) All electrical equipment shall be installed above Highest Flood Level 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.

B.5 EXTENSION OF EXISTING SUBSTATION

The following drawings/details of existing substation is attached with the RFP documents for further engineering by the bidder.

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Sl. No.	Drawing Title	Drawing No./Details	Rev. No.
A.	**400 kV Bhadla-3 S/s Extension**		
1.0	Single Line Diagram	Developer yet to be finalized by BPC. The finalization of drawings is in the scope of developer. The same may be availed from the developer on finalization.	
2.0	General Arrangement		
3.0	Earthmat Layout		
4.0	Visual Monitoring System		
5.0	Bus Bar Protection		
6.0	Substation Automation System (SAS)		

Bidder is also advised to visit the substation sites and acquaint themselves with the topography, infrastructure such as requirement of roads, cable trench, drainage etc. and also the design philosophy.

Annexure – F

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, CERC (Communication System for inter-State transmission of electricity) Regulations, 2017, and CEA (Cyber Security in Power Sector) Guidelines, 2021, all above documents as amended from time to time.

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.

In order to meet the requirement for grid management and operation of substations, Transmission Service Provider (TSP) shall provide the following:

For smooth operation of the HVDC system, communication network with high reliability and availability shall be provided for transmission of control and protection signals between the two or more (in case of multi-terminal DC) HVDC terminals. The communication system design shall be as follows:

- Main-I
- Main-II (as hot standby to Main-I)
- Back-up communication

The TSP shall supply, install and commission SDH equipment required for the converter stations at Bhadla and Fatehpur and the necessary repeater stations. The repeater stations for fibre optic communication are also included in the scope of the TSP. The number and locations of repeaters shall be finalized after survey by TSP.

COMMUNICATION SYSTEMS GENERAL

Duplicated (2X100%) main communication systems (Main-I and Main-II) at Bhadla and Fatehpur terminal and its repeaters shall comprise first cubicle of Main Fibre Optic Terminal equipment (FOTE) and second cubicle of Standby FOTE and be provided to meet the requirements of the control, protection, data transfer and telephone systems. System shall be based on the fibre optic communication between the converter stations through ± 800 kV DC lines. Each Main & Standby FOTE system shall be independent of each other. TSP to design the optical fibre Communication system between the converter stations in such a way that

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communication is available even when there is complete failure of one FOTE system. All repeater stations required for the communication system shall be provided by TSP. The TSP shall provide all required equipment, accessories, routers, modems and facilities etc as required, for successful commissioning and use of the communication channels at Bhadla and Fatehpur HVDC Bipole terminal.

The backup communication link shall also be provided through OPGW on parallel AC Lines. Necessary support shall be provided by the TSP to other TSP/s whose existing communication network is required to be configured for backup communication. Configuration work shall be done by the backup communication system owner/s for the Fatehpur-Bhadla HVDC link in coordination with the TSP. TSP shall be responsible for all interface requirements with the Communication system of the other TSP(s) whose OPGW/Communication equipment are required for successful commissioning of the backup communication link including hardware/accessories etc.

C.1 ±800 kV HVDC line between Bhadla (HVDC) & Fatehpur (HVDC)

On Bhadla (HVDC) – Fatehpur (HVDC) ±800 kV HVDC line, TSP shall supply, install & commission One (1) no. OPGW cable containing 24 Fibres (24F) on one E/W peak and conventional earth wire on other E/W peak. OPGW diameter shall be in line with earthwire parameters mentioned in Annexure-E1(Specific technical requirements for HVDC transmission line).

The TSP shall install this OPGW from gantry of Bhadla (HVDC) up to the gantry of Fatehpur (HVDC) S/s with all associated hardware including Vibration Dampers, mid-way and gantry Joint Boxes (**called OPGW Hardware hereafter**) and finally terminate in Joint Boxes at end Substations. The transmission line length is 950 kms (approx.) where repeaters are required to meet link budget requirement of Bhadla (HVDC) – Fatehpur (HVDC).

TSP shall finalize the location and number of repeater stations depending upon the actual site conditions. Further TSP shall comply to the requirements mentioned as per **Appendix-F.1**.

C.2 LILO of both circuits of 765 kV Varanasi – Kanpur (GIS) D/c line at Fatehpur (HVDC)

On LILO of both circuits of 765 kV Varanasi – Kanpur (GIS) D/c line at Fatehpur (HVDC), TSP to supply, install and commission OPGW and earthwire as per Tower Configurations:

(i) For Multi Circuit Tower Configuration: Two (2) no. OPGW cable containing 24 Fibres (24F) on both the Earthwire peaks

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(ii) For Double Circuit Tower configuration (for both Loop in and Loop Out portion): One (1) no. OPGW cable containing 24 Fibres (24F) to be installed on one earthwire peak and conventional earthwire on other earthwire peak for both Loop In and Loop Out Lines.

The TSP shall install OPGW cables from Gantry of Fatehpur (HVDC) up to the LILO tower with all associated hardware including Vibration Dampers, LILO Tower, mid-way and gantry Joint Boxes (called **OPGW Hardware** hereafter) and finally terminate in Joint Boxes at Fatehpur (HVDC) substation. The transmission line length of LILO portion is 30 kms (approx.), if after survey repeater is required to meet the link budget requirement of Varanasi – Fatehpur (HVDC) & Fatehpur (HVDC) – Kanpur (GIS) link the same shall be provided by TSP.

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**.

Maintenance of OPGW Cable and **OPGW Hardware** shall be responsibility of TSP.

C.3 Bhadla-3 – Bhadla (HVDC) 400 kV 2xD/c line

On Bhadla-3 – Bhadla (HVDC) 400 kV 2xD/c line, TSP shall supply, install and commission One (1) no. OPGW cable containing 24 Fibres (24F) on one E/W peak and conventional earth wire on other E/W peak **for both the D/c lines**.

The TSP shall install this OPGW from gantry of Bhadla-3 up to the gantry of Bhadla (HVDC) S/s with all associated hardware including Vibration Dampers, mid-way and gantry Joint Boxes (called **OPGW Hardware** hereafter) and finally terminate in Joint Boxes at end Substations. The transmission line length is 2 kms (approx.) where repeater is not required to meet link budget requirement of Bhadla-3 – Bhadla (HVDC).

C.4 Establishment of ±800 kV Bhadla (HVDC) terminal station

(i) TSP shall supply, install and commission 2 no. FODP (96 F) and 1 no. FODP (48F) alongwith panel and approach Cable (24F 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 and commission 2xSTM-16 (FOTE) equipment (in redundant mode connected with separate fibre pairs of same OPGW) alongwith panel/s supporting minimum Five (5) directions each with MSP (Multiplex Section Protection – 1+1) at Bhadla (HVDC) S/s with necessary interfaces to meet the voice and data communication requirement among

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Bhadla-3 (2 nos.), Fatehpur (HVDC)/ Repeater Stations. The suitable DC Power Supply and backup to be provided for each communication equipment operational in redundant mode.

(iii) FODP and FOTE equipment with panels shall be provided in Control Room of Bhadla (HVDC) S/s. FOTE and FODP equipment can be accommodated in same panel to optimize space.

(iv) The new communication equipment under the present scope shall be compatible for integration with existing regional level centralized NMS. The local configuration of the new communication equipment shall be the responsibility of TSP. The configuration work in the existing centralized NMS for integration of new Communication equipment shall be done by Regional ULDC Team, however all the necessary support in this regard shall be ensured by TSP.

(v) TSP shall supply, install and commission Firewall in redundant mode (1+1) in line with the specification attached at **Annexure F.1**.

(vi) The maintenance of all the communication equipment including FOTE, FODP, approach cable, Repeater Station, DCPS alongwith Battery Bank and Firewall shall be the responsibility of TSP.

C.5 Establishment of ±800 kV Fatehpur (HVDC) terminal station

(i) TSP shall supply, install and commission 2 no. FODP (96F) and 1 no. FODP (48F) alongwith panel and approach Cable (24F 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 and commission 2xSTM-16 (FOTE) equipment (in redundant mode connected with separate fibre pairs of same OPGW) alongwith panel/s supporting minimum Five (5) directions each with MSP (Multiplex Section Protection – 1+1) at Fatehpur (HVDC) S/s with necessary interfaces to meet the voice and data communication requirement among Bhadla (HVDC), Varanasi, Kanpur (GIS) and Repeater Stations. TSP to also provide suitable optical interfaces/equipment at Varanasi and Kanpur (GIS) Substations FOTE to meet link budget requirement for connectivity with Fatehpur (HVDC) Station. The suitable DC Power Supply and backup to be provided for each communication equipment operational in redundant mode.

(iii) FODP and FOTE equipment with panels shall be provided in Control Room of Fatehpur (HVDC) S/s. FOTE and FODP equipment can be accommodated in same panel to optimize space.

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(iv) The new communication equipment under the present scope shall be compatible for integration with existing regional level centralized NMS. The local configuration of the new communication equipment shall be the responsibility of TSP. The configuration work in the existing centralized NMS for integration of new Communication equipment shall be done by Regional ULDC Team, however all the necessary support in this regard shall be ensured by TSP.

(v) TSP shall supply, install and commission Firewall in redundant mode (1+1) in line with the specification attached at **Annexure F.1**.

The maintenance of all the communication equipment including FOTE, FODP, approach cable, Repeater Station, DCPS alongwith Battery Bank and Firewall shall be the responsibility of TSP.

C.6 4 no. of 400 kV line bays at Bhadla-3 for Bhadla-3 – Bhadla (HVDC) 400 kV 2xD/c line

(i) TSP shall supply, install and commission 1 no. FODP (96F) and 1 no. FODP (48F) alongwith panel and required Approach Cable (24F) with all associated hardware fittings from gantry tower to Bay Kiosk and from the Bay Kiosk to Control room.

(ii) TSP shall supply, install and commission One STM-16 (FOTE) equipment alongwith panel/s supporting minimum Five (5) directions with MSP (Multiplex Section Protection – 1+1) with necessary interfaces to meet the voice and data communication requirement between Bhadla-3, Bhadla (HVDC), local patching at Bhadla-3. 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)]. The FOTE under present scope shall be integrated by TSP with the existing/proposed FOTE at control room of **Bhadla-3** 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 /

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Splice trays/ Patch cords etc. and suitable optical interfaces/ equipment in the existing FOTE/FODP panels in another Kiosk (SPR).

(iv) FOTE & FODP can be accommodated in same panel to optimize space.

(v) The new communication equipment under the present scope shall be compatible for integration with existing regional level centralized NMS. The local configuration of the new communication equipment shall be the responsibility of TSP. The configuration work in the existing centralized NMS for integration of new Communication equipment shall be done by Regional ULDC Team, however all the necessary support in this regard shall be ensured by TSP.

The maintenance of all the communication equipment including FOTE, FODP, approach cable, DCPS alongwith Battery Bank shall be the responsibility of TSP.

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Appendix-F.1

Repeater Requirements

FOTE to be provided by TSP in repeater station/s shall be 2xSTM-16 (FOTE) equipment (in redundant mode connected with separate fibre pairs of same OPGW/UGFO/Approach Cable)

- If the repeater location is finalized in the Control Room of a nearby substation, TSP shall provide 1 no. OPGW (48F) on a single Earthwire peak with OPGW Hardware and mid-way Joint Boxes etc of the line crossing the main line and 1 no. Approach Cable (48F) with all associated hardware fittings, to establish connectivity between crossing point of main transmission line up to the repeater equipment in substation control room.
- h OPGW Hardware and mid-way Joint Boxes etc of the line crossing the main line and 1 no. Approach Cable (48F) 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 and 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 1 no. OPGW (48F) on a single Earthwire peak with OPGW Hardware and mid-way Joint Boxes etc of the line crossing the main line and 1 no. Approach Cable (48F) / UGFO (48F) 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.
- shelter is to be housed.

  TSP shall provide repeater shelter along with FODP, FOTE (with STM-16 capacity) with suitable interfaces required 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, thre TSP shall make the provisions for Land at nearby tower for repeater shelter. Further TSP shall provide 1 no. Approach Cable (48F) / UGFO (48F) with all associated hardware fittings to establish connectivity up to the location of repeater shelter.

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- O (48F) 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

  Maintenance of OPGW Cable and OPGW Hardware, repeater equipment and items associated with repeater shelter shall be 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. Communication (through FOTE), Voice etc for smooth operation and monitoring of new added grid elements.

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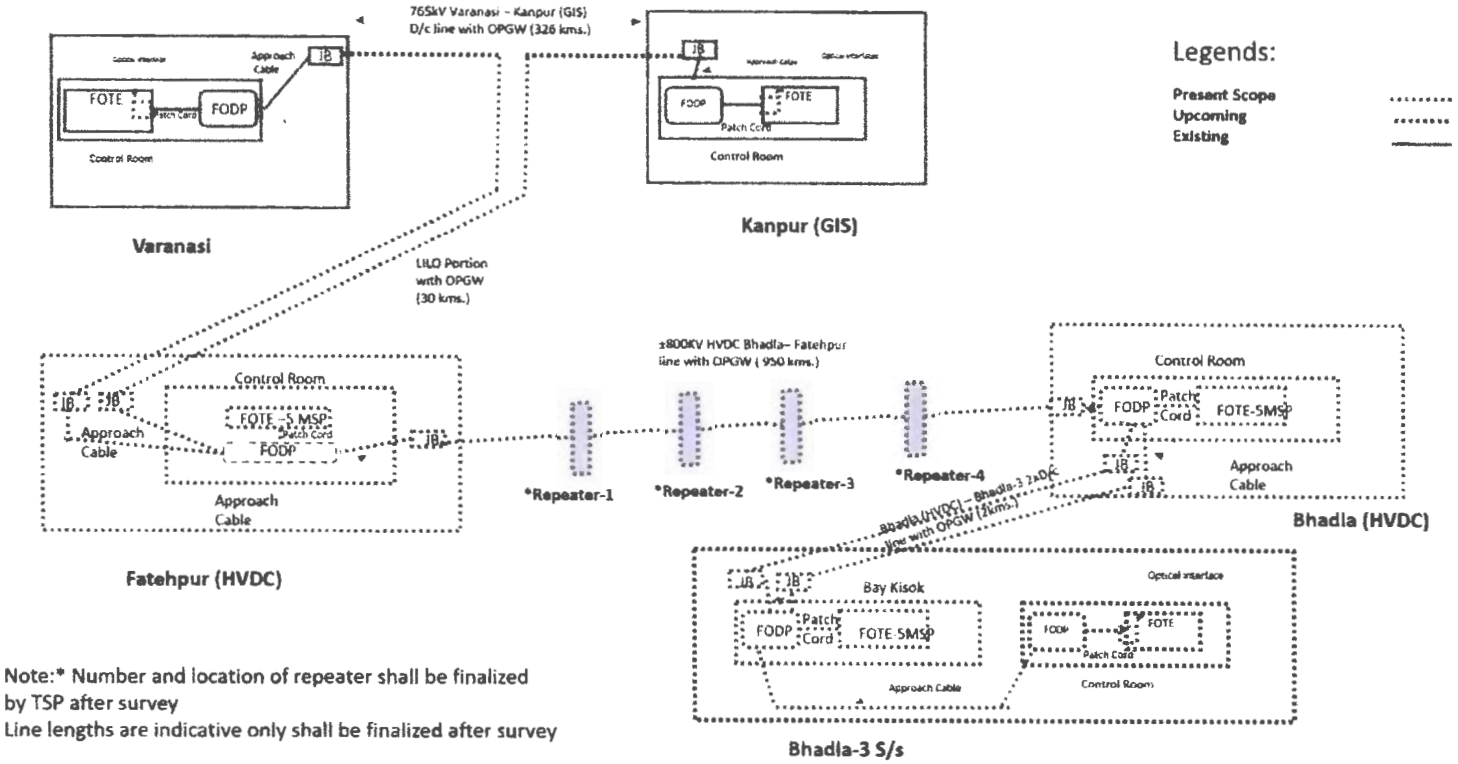
Proposed Communication for Transmission system for evacuation of power from Rajasthan REZ Ph-III Part-1



Note:* Number and location of repeater shall be finalized by TSP after survey
Line lengths are indicative only shall be finalized after survey

Figure F.1

Annexure-F.1

Next Generation Firewall (NGFW)

TSP shall provide 2 NGFW one in Main and another in Standby mode having electrical ethernet interfaces/ports and placed between FOTE and SAS gateway/s at the substation. All ethernet based applications shall be terminated in the firewall ports directly (e.g. PMU, AMR, VOIP, SAS/SCADA etc). Each port of firewall shall work as a separate zone. Firewall shall be hardware based with features of Block/Allow/drop and IPSec VPN (network encryption).

The number of ports/interfaces in each firewall (i.e. Main and Standby) shall be minimum 16 nos. TSP shall provide either single firewall or multiple firewalls to meet the interfaces requirement, each for main as well as standby firewall. Minimum throughput of firewall shall be 300 Mbps.

The Firewall shall be managed/ configured as standalone at present and shall also have compatibility to manage/configure through Centralized Management Console (CMC) remotely in future.

Firewall shall be tested and certified for ISO15408 Common Criteria for least EAL4+. Further, the OEM must certify that it conforms to Secure Product Development Life Cycle requirements as per IEC62443-4-1. The firewall shall generate reports for NERC-CIP Compliance.

The specifications for the firewalls are given at **Annexure-F.2** and schematic diagram showing firewall placement given at **Figure F.2**.

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Annexure F.2

Specifications of Next Generation Firewall (NGFW)

1. NGFW shall have following features including but not limited to:
   Encryption through IPSec VPN (Virtual Private Network), Deep Packet Inspection (DPI), Denial of service (DoS) and Distributed Denial of Service (DDoS) prevention, Port Block/ Allow, rules/ policies for block/allow, IP (Internet Protocol) and Media Access Control (MAC) spoofing protection, threat detection, Intrusion Prevention System (IPS), Anti-Virus, Anti-Spyware, Man In the middle (MITM) attack prevention.
2. The proposed firewall shall be able to handle (alert, block or allow) unknown /unidentified applications e.g. unknown TCP and UDP packets. It shall have the provision to define application control list based on application group and/or list.
3. tions e.g. unknown TCP and UDP packets. It shall have the provision to define application control list based on application group and/or list.
4. Firewall shall have feature and also have capability to update the definition/ Signatures of Anti-Virus online as well as offline. Firewall shall also be compatible to update the definitions/signatures through CMC. There shall be a defined process for security patching and firmware up-gradation. There shall be a feature to field validate firmware checksum. The same shall also be validated before using the OEM provided file/binary in the process of firmware up-gradation and security patching
5. Firewall shall have Management Console port to configure remotely.
6. Firewall shall be EMI/EMC compliant in Substation environment as per IEC 61850-3.
7. Firewall shall be rack mounted in existing standard equipment cabinets.
8. Firewall shall have support of SCADA applications (IEC-60870-5-104), ICCP, PMU (IEEE C37.118), Sub-Station Automation System (IEC 61850), Ethernet and other substation environment protocols.
9. Client based Encryption/ VPN must support different Operating System platforms e.g. Windows, Linux and Mac.

10. The solution must have content and comprehensive file detection policies, blocking the files as function of their types, protocols and directions.
11. Firewall shall have logging facility as per standard logs/events format. Firewall shall have features to export the generated/stored logs/events in csv (Comma Separated Value) and also any other standard formats for offline usage, analysis and compliance. Firewall shall have suitable memory architecture and solution to store and be enable to export all logs/events for a period of last 90 days at any given time.
12. Firewall shall have features and be compatible with local as well as central authentication system (RADIUS, LDAP, or TACACS+) for user account and access right management. It shall also have Role Based User management feature.
13. Firewall shall have the capability to configure sufficient number of VLANs.
14. Firewall shall have the capability to support sufficient number of sessions.
15. Firewall shall have provision to configure multiple IP Sec VPNs, at least 100 nos., (one-to-many or many-to-one). Shall support redundant operation with a similar router after creation of all the IP Sec VPN. IPSec VPN shall support encryption protocols as AES128, AES256 and hashing algorithms as MD5 and SHA1. IPSec VPN throughput shall support at least 300 Mbps
16. Firewall shall be capable of SNMP v3 for monitoring from Network Management system. It shall also have SNMPv3 encrypted authentication and access security
17. Firewall shall support in Active/Passive or Active-Active mode with High Availability features like load balancing, failover for firewall and IPsec VPN without losing the session connectivity.
18. Firewall should have integrated traffic shaping (bandwidth, allocation, prioritisation, etc) functionality.
19. Shall support simultaneous operation with both IPv4 and IPv6 traffic.
20. Firewall shall be compatible with SNTP/NTP or any other standards for clock synchronization.
21. Firewall shall have the features of port as well as MAC based security.

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22. Firewall shall support exporting of logs to a centralized log management system (e.g. syslog) for security event and information management.

23. Firewall time shall be kept synchronised to official Indian Timekeeping agency, time.nplindia.org.

24. Firewall product shall be provided with all applicable updates at least until 36 months since the applicable date of product shipping to the concerned utility.

Firewall Placement Diagram

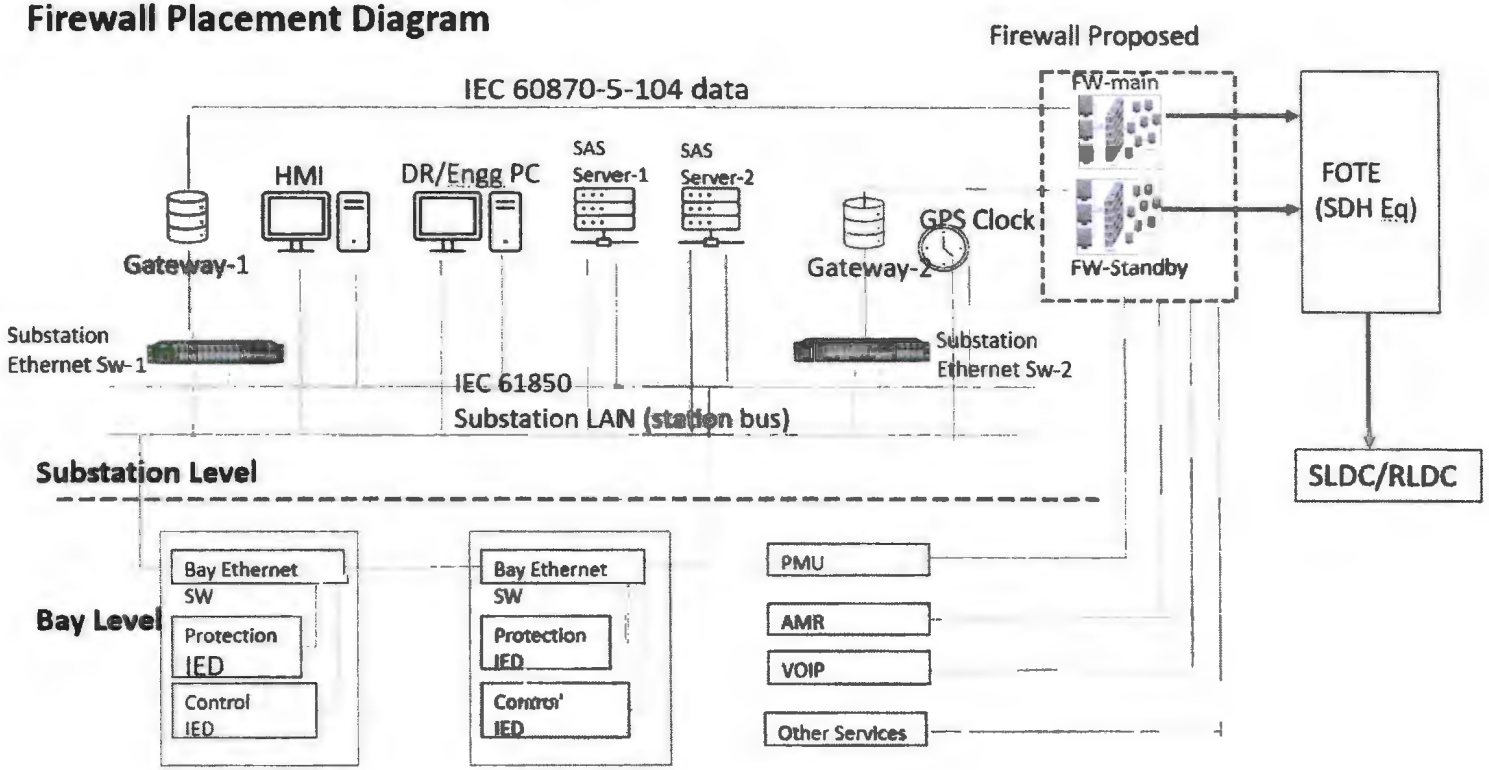

Figure F.2

C.7 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 protections for transmission line and the line compensating equipment shall have hundred percent back up communication channels i.e. two channels for tele-protection in addition to one channel for speech plus data for each direction. The PLCC equipment shall in brief include the following:

- Coupling device, 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 centers (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.

- 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.

- nals and Protection couplers shall be considered for both ends of the line.

- PLCC equipment for all the transmission lines covered under the

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scheme shall be provided by TSP as per following configuration. CVT and Wave trap for all the line bays under present scope shall be provided by TSP.

Sl. No	Line name	PLCC configuration
1	400 kV Bhadla-3 - Bhadla (HVDC) 2xD/c Line	2 Sets of Digital Protection Coupler for each circuit at both ends.
2	765 kV Varanasi – Fatehpur (HVDC) D/C line [after LILO]	**At Varanasi End:** 1 (one) set Digital Protection Coupler for each circuit shall be provided by the TSP. Existing 1(one) set of Analog PLCC (ETL-81) shall also be used. **At Fatehpur (HVDC) End:** 1 (one) set Digital Protection Coupler for each circuit shall be provided by the TSP. 1 (one) set of existing Analog PLCC (ABB Make, Model: ETL-81) of each circuit to be shifted from Varanasi end and commissioned by the TSP in co-ordination with the owner.
3	765 kV Kanpur (GIS) – Fatehpur (HVDC) D/C line [after LILO]	**At Kanpur End:** 1 (one) set Digital Protection Coupler for each circuit shall be provided by the TSP. Existing 1(one) set of Analog PLCC (ETL-81) shall also be used. **At Fatehpur (HVDC) End:** 1 (one) set Digital Protection Coupler for each circuit shall be provided by the TSP. 1 (one) set of existing Analog PLCC (ABB Make, Model: ETL-81) of each circuit to be shifted from Kanpur end and commissioned by the TSP in co-ordination with the owner.

Further, CVT and Wave trap for all line bays under present scope shall be provided by TSP where analog PLCC is required.

- TSP shall provide/ undertake necessary addition/ modification/ shifting/ re-commissioning etc. of PLCC equipment due to LILO of transmission lines (wherever applicable).

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- All other associated equipment like cabling, coupling device and HF cable shall also be provided by the TSP.

- 2 sets of 48V battery banks for PLCC and communication equipment shall be provided at each new Substation with at least 10 hours battery backup and extended backup, if required.

Annexure-G

Frequently Asked Queries:

1.0 Transmission Line:

1.1 Please clarify that whether shutdowns for crossing of existing transmission lines of POWERGRID/STUs/ Power Evacuation Lines from Generation Plants/ Any other Transmission Licensee will be given to TSP on chargeable basis or free of cost.

Reply: Shutdowns for crossing of existing transmission lines of POWERGRID/ STUs/ Power Evacuation Lines from Generation Plants/ Any other Transmission Licensee will be given to TSP by the concerned owner of the lines as per their own terms & conditions. As far as shutdown of ISTS lines are concerned the same can be availed by approaching respective Regional Power Committee.

1.2 We understand that the suggested swing angle criteria are applicable for Suspension Insulator in Suspension Tower. Further, you are requested to provide similar swing angle and clearance criteria for Pilot Insulator with Jumper & Jumper.

Reply: It is clarified that the swing angle criteria (as mentioned in RFP) for transmission lines is applicable for Suspension Insulator in Suspension Tower. Further, as per Clause 3.0 of Specific Technical Requirements for transmission lines, Transmission service Provider (TSP) shall adopt any additional loading/design criteria for ensuring reliability of the line, if so desired and /or deemed necessary.

1.3 We request you to kindly allow that use of diamond configuration at Power line crossings and the existing owner of the lines may be directed to allow the same for the successful bidders.

Reply: Power line crossing including Diamond configuration is responsibility of the TSP. TSP shall formally submit the profile of the crossing section to the owner of the existing line suggesting proposed crossing alternatives. The crossing will have to be carried out as per approval of owner of the existing line.

1.4 It is requested you to kindly provide present status of Forest Clearances if any transmission line corridor area falling in wildlife forest / reserve forest/ mangroves.

Reply: Based on the preliminary route survey, the process of initiation of forest clearance for the forest stretches, if any, enroute the proposed line alignment will be initiated by way of writing letters to the concerned authority(ies). However, it may be noted that it will be the responsibility of TSP for obtaining forest clearance for the forest stretches as provided in the survey report and also for any forest area encountered during detailed survey.

2.0 Substation

2.1 We understand that space for storage of O&M spare shall be provided by existing owner within the station boundary without any cost. Kindly confirm.

M spare shall be provided by existing owner within the station boundary without any cost. Kindly confirm.

Reply: Space for storage of O&M spares shall be arranged by TSP on its own.

2.2 We presume that the O&M for the end Termination bays will be in the scope of the TSP and TSP shall not be liable for any payment towards O&M to the existing owner of the substation. Kindly confirm.

Reply: Operation and maintenance of the bays is solely responsibility of the TSP.

2.3 With reference to subject scheme of existing sub-station, we assumed following scope of work:

(a) We assumed internal road is available and need not to consider in the present scope of work.

(b) Drainage is available and need not to consider in the present scope of work.

(c) Cable trench extension in adjacent to Main cable trench only under present scope of work.

(d) Levelled area being provided by developer for bay extension.

Reply: Regarding requirement of internal road, drainage, cable trench, leveling of the bay extension area, bidder is advised to visit site and acquaint themselves with the provisions/facilities available at substation.

2.4 Kindly provide the soil investigation report of soil parameters of existing

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substation.

Reply: Bidder is advised to visit the substation site and ascertain the requisite parameters.

2.5 Kindly confirm, energy accounting of aux. power consumption. Whether it will be on chargeable basis or part of transmission loss.

Reply: It will be on chargeable basis.

2.6 We understand that VMS requirement is for unmanned stations only. For Manned stations VMS is not compulsory.

Reply: VMS shall be provided in line with requirements of RfP document.

2.7 It is understood that Construction water and power shall be provided free of cost to TSP by respective substation owner for construction of new bays.

Reply: Arrangement of construction power & water is in the scope of TSP.

2.8 It is understood that existing fire hydrant system shall be extended by the TSP for bay extension.

Reply: Existing fire hydrant system shall be extended from existing system (if required)

2.9 Please clarify that Status of land acquisition for Substations. Whether the lands have been acquired by BPC and will be transferred to TSP.

Reply: The acquisition of land for substation is in the scope of TSP.

2.10 We understood that no any dedicated metering CT & CVT required for Line/feeders. Further, we understood that requisite Energy meters for various 765 kV , 400 kV & 220 kV Feeders shall be provided & installed by CTU free of cost to TSP.

Reply: Dedicated metering CT and CVT are not required for line/feeders. Metering core of existing CT/CVT can be used provided accuracy class is matching with metering requirement. Requisite Special Energy Meters shall be provided and installed by CTU at the cost of TSP in C&P panel subject to space availability, else, in separate metering panel (to be provided by TSP at its cost).

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3.0 Communication

3.1 What are the usage of OPGW, FOTE, PMU etc. under communication requirement of RFP?

Reply: User shall be responsible for providing compatible equipment along with appropriate interface for uninterrupted communication with the concerned control center and shall be responsible for successful integration with the communication system provided by CTU.

Communication systems e.g. OPGW, FOTE, PMU etc. are required for grid operation through RLDC/SLDC, speech communication, tele-protection and tele-metering.

3.2 Is space for installation of communication panels are provided to TSP in existing Substations incase new bays are in the scope of TSP?

Reply: The space related issues are deliberated in the RFP itself. TSP to carry out survey of the existing substation for physical space requirement. In case space is not available in the existing substation then TSP shall accommodate the same in the respective bay SPR (Switchyard Panel Room)/Bay Kiosk/ Relay panel room in case of GIS s/s. Further, TSP to connect and integrate the proposed FOTE with the existing FOTE in the control room.

In Case 132 kV Substation TSP shall accommodate the said panels either by extension of existing control room or other arrangements.

3.3 How is the OPGW laying done in case of LILO lines?

Reply: In case LILO lines are on same towers (e.g. both Line in and Line Out portion are on same towers, generally done LILO of S/C lines). Then 2x24F OPGW shall be required to install by TSP on both earthwire peak on 400 kV & 765 kV lines where two E/W peaks are available. On 220 & 132 kV lines where only one E/W peak is available TSP to install one no. 48F OPGW.

Incase LILO lines are on different towers (e.g. both Line In and Line Out portion are on different towers, generally done LILO of D/C lines). Then 1x24F OPGW shall be required to install by TSP on one earthwire peak, on both Line in and Line Out portions of 400 kV & 765 kV lines. On 220 &132 kV lines where only one

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E/W peak is available TSP to install one no. 24F OPGW in place of conventional earthwire.

1x24F OPGW shall be required to install by TSP on one earthwire peak, on both Line in and Line Out portions of 400 kV & 765 kV lines. On 220 &132 kV lines where only one E/W peak is available TSP to install one no. 24F OPGW in place of conventional earthwire.

3.4 How is the OPGW laying done in case Multi circuit Towers?

Reply: In case two different lines are using common multi circuit portion for some distance (originating from different stations, may be terminating on same or on different stations). Two no. 24F OPGW to be installed on both E/W peaks for common M/C portion of 765 kV & 400 kV lines.

Incase 220/132 kV lines using multi circuit portion where single E/W peak is available one no. 48F may be installed for common multi circuit portion.

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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]

Sl. No.	Name of the Transmission Element	Scheduled COD from effective date	Percentage 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 6000 MW, ±800 kV Bhadla (HVDC) [LCC] terminal station (4x1500 MW) at a suitable location near Bhadla-3 substation	48 months for Bipole-1 (20/01/2029) and 54 months for Bipole-2 (20/07/2029)	32.92%	All elements of the scheme except elements covered under Biplole-2, are required to be commissioned simultaneously as their utilization is dependent on each other. Further, elements under Bipole-2 shall have to be commissioned simultaneously.
2.	Establishment of 6000 MW, ±800 kV Fatehpur (HVDC) [LCC] terminal station (4x1500 MW) at suitable location near Fatehpur (UP)		32.07%	
3.	Bhadla-3 – Bhadla (HVDC) 400 kV 2xD/c quad moose line along with the line bays at both substations	48 months (20/01/2029)	00.55%	
4.	±800 kV HVDC line (Hexa lapwing) between Bhadla (HVDC) & Fatehpur (HVDC) (with Dedicated Metallic Return)		28.69%	
5.	Establishment of 5x1500 MVA, 765/400 kV ICTs at Fatehpur (HVDC) along with 2x330 MVAr (765 kV) bus reactor		3.94%	
6.	LILO of both ckts of 765 kV Varanasi – Kanpur (GIS) D/c line at Fatehpur		1.83%	

Note: 50% of percentage quoted transmission charges of respective terminal (i.e. Bhadla or Fatehpur) is to be taken for each Bipole-1 and Bipole-2 for respective terminal.

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The payment of Transmission Charges for any Element, irrespective of its successful commissioning on or before its Scheduled COD, shall only be considered after successful commissioning of the Element(s), which are pre-required for declaring the commercial operation of such Element as mentioned in the above table.

Scheduled COD for the Project is: 54 months (20/07/2029)

[Note: List of Element(s) along with the critical Element(s) to be provided by CEA]

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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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 X 25% X ((28+31)/365)	5.65		--	0.00
1-Apr-18 to 30-Nov-18	140 X 25% X (244/365)	23.39		--	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

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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:

Element No.	Completion Schedule in Months	Scheduled CoD of the Element	Actual CoD of the Element	% Charges recoverable on Scheduled CoD

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				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

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Illustration-4: In case of delay in achieving COD of Project & all individual Elements (COD of the Project achieved in Contract Year other than Contact 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%

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

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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
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

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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**
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:

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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%;

Monthly Transmission Charges MTC(m) = Tmn *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%;

Monthly Transmission Charges MTC(m) = Tmn * (AA/ 98.5%)

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% / 98.5%)

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= Transmission Charges for the month 'm' in Contract Year 'n' = (=Transmission Charge/ no. of days in the Year n)* 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. 35570.00 Million

Proportionate Transmission Charges payable for each Element of the Project:

Sl. No.	Name of the Transmission Element	Percentage 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 6000 MW, ±800 kV Bhadla (HVDC) [LCC] terminal station (4x1500 MW) at a suitable location near Bhadla-3 substation	32.92%	All elements of the scheme except elements covered under Biplole-2, are required to be commissioned simultaneously as their utilization is dependent on each other. Further, elements under Bipole-2 shall have to be commissioned simultaneously.
2.	Establishment of 6000 MW, ±800 kV Fatehpur (HVDC) [LCC] terminal station (4x1500 MW) at suitable location near Fatehpur (UP)	32.07%	
3.	Bhadla-3 – Bhadla (HVDC) 400 kV 2xD/c quad moose line along with the line bays at both substations	00.55%	
4.	±800 kV HVDC line (Hexa lapwing) between Bhadla (HVDC) & Fatehpur (HVDC) (with Dedicated Metallic Return)	28.69%	
5.	Establishment of 5x1500 MVA, 765/400 kV ICTs at Fatehpur (HVDC) along with 2x330 MVAr (765 kV) bus reactor	3.94%	

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Sl. No.	Name of the Transmission Element	Percentage 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.	LILO of both ckts of 765 kV Varanasi – Kanpur (GIS) D/c line at Fatehpur	1.83%	

Note: 50% of percentage quoted transmission charges of respective terminal (i.e. Bhadla or Fatehpur) is to be taken for each Bipole-1 and Bipole-2 for respective terminal.

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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 ("TAFPn") 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 ("TAFPn") 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.

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:

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TAFPn (in %) for AC system:

$$= \frac{(o \times AVo)+(p \times AVp)+(q \times AVq)+(r \times AVr)+(u \times AVu)}{(o+p+q+r+u)} \times 100$$

Where,

o	=	Total number of AC lines.
AVo	=	Availability of o number of AC lines
p	=	Total number of bus reactors switchable line reactors
AVp	=	Availability of p number of bus reactors/switchable line reactors
q	=	Total number of ICTs
AVq	=	Availability of q number of ICTs
r	=	Total number of SVCs
AVr	=	Availability of r number of SVCs
u	=	Total number of STATCOM
AVu	=	Availability of u number of STATCOM

TAFMn (in %) for HVDC System:

$$\sum_{x=1}^{s} Cxbp\,(act) \times AVxbp + \sum_{y=1}^{t} Cy\,(act)btb \times AVybtb$$

$$\sum_{x=1}^{s} Cxbp + \sum_{y=1}^{t} Cy\,btb$$

Where

Cxbp(act)	=	Total actual operated capacity of x^{th} HVDC pole
Cxbp	=	Total rated capacity of x^{th} HVDC pole
AVxbp	=	Availability of x^{th} HVDC pole
Cybtb(act)	=	Total actual operated capacity of y^{th} HVDC back-to-back station block
Cybtb	=	Total rated capacity of y^{th} HVDC back-to-back station block
AVybtb	=	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

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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.

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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.

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:

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- 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 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

AVo(Availability of o no. of AC lines) = $\frac{\sum_{i=1}^{o} Wi(Ti - TNAi) Ti}{\sum_{i=1}^{o} Wi}$

AVq(Availability of q no. of ICTs) = $\frac{\sum_{k=1}^{R} Wk(Tk - TNAk) Tk}{\sum_{k=1}^{S} Wk}$

AVr(Availability of r no. of SVCs) = $\frac{\sum_{l=1}^{n=} Wl(Tl - TNAl) Tl}{\sum_{l=1}^{r} Wl}$

AVp(Availability of p no of Switched Bus reactors) = $\frac{\sum_{m=1}^{p} Wm(Tm - TNAm) Tm}{\sum_{m=1}^{p} Wm}$

AVu(Availability of u no. of STATCOMs) = $\frac{\sum_{n=1}^{u} Wn(Tn - TNAn) Tn}{\sum_{n=1}^{u} Wn}$

AV_{xbp}(Availability of an individual HVDC pole) = $\frac{(Tx - TN)}{Tx}$

AV_{ybb} (Availability of an individual HVDC Back-to-back Blocks) = $\frac{(Ty - TNAy)}{Ty}$

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For the HVDC transmission system

For the new HVDC commissioned but not completed twelve months:

For first 12 months: [(AV$_{xtp}$ or AV$_{ytb}$)x95% 85%], subject to a ceiling of 95%.

Where,

o	=	Total number of AC lines:
AVo	=	Availability of o number of AC lines:
p	=	Total number of bus reactors switchable line reactors:
AVp	=	Availability of p number of bus reactors switchable line reactors:
q	=	Total number of ICTs:
AVq	=	Availability of q number of ICTs:
r	=	Total number of SVCs:
AVr	=	Availability of r number of SVCs:
U	=	Total number of STATCOM:
AVu	=	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:
Wm	=	Weightage factor for mth bus reactor:
Wn	=	Weightage factor for nth STATCOM.

T*i*, T*k*, T*l*, T*m*, T*n*, T*x*, T*y* — The total hours of ith AC line, kth ICT, lth SVC, *m*th Switched Bus Reactor & nth STATCOM, xth HVDC pole, yth 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$_{NAk}$ T$_{NAl}$, T$_{NAm}$, T$_{NAn}$, T$_{NAx}$, T$_{NAy}$ per Para 5 of the procedure) for — The non-availability hours (excluding the time period for outages not attributable to transmission licensee taken as deemed availability as ithAC line, *k*thICT, lth SVC , *m*th Switched Bus Reactor, nth STATCOM, xth HVDC pole and ythHVDC back-to-back block.

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Schedule: 7

Entire Bid (both financial bid and technical bid) of the Selected Bidder to be attached here

Bid dated 08.10.2024 & 28.11.2024 shall be integral part of this 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 .....[Insert name of the SPV or Selected Bidder on behalf of the TSP, or Lead Member in case of the Consortium, with address] agreeing to undertake the obligations under the Transmission Service Agreement dated .....and the other RFP Project Documents and the Nodal Agency and the .....[Insert the name of the BPC], 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 M/s. ..... [Insert name of the Selected Bidder or SPV].

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], ... [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 ..... [Insert name of the SPV] or the Selected Bidder, as the case may be, to make any claim against or any demand on ..... [Insert name of the SPV] or the Selected Bidder, as the case may be, or to give any notice to ..... [Insert name of the SPV] 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 ..... [Insert name of the SPV] 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.

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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 ..... [Insert name of the Selected Bidder or Lead Member in case of the Consortium or SPV]. 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:

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

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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.

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Annexure A10

Form-I

Application Form for Grant of Transmission licence

1. **Particulars of the Applicant**

SN	Particulars	Details
i.	Name of the Applicant	Rajasthan Part I Power Transmission Limited
ii.	Status	Public Limited Company
iii.	Address	C-105, Anand Niketan, New Delhi 110021
iv.	Name, Designation & Address of the Contact Person	Shri Prashant Kumar, Head-Regulatory & Commercial, Rajasthan Part I Power Transmission Limited, C/o 4th Floor South Wing, KP Epitome, Makarba, Ahmedabad, 380051
v.	Contact Telephone No	+91 9810866555
vi.	Fax No	079-25556601
vii.	Email ID	prashant.kumar1@adani.com
viii.	Place of Incorporation/ Registration	New Delhi
ix.	Year of Incorporation/ Registration	2023
x.	Following documents are to be enclosed	
	a) Certificate of Registration	Annexure A2
	b) Copy of Board Resolution	Annexure A11

2. **Particulars of the Project for which licence is being sought:**

a) Transmission Lines:

S No	Name (end-points Location)	Voltage Class (kV)	Length (km)	Type (S/C or D/C)
1.	±800 kV HVDC line (Hexa lapwing) between Bhadla (HVDC) & Fatehpur (HVDC) (with Dedicated Metallic Return) (capable to evacuate 6000 MW with overload as specified)	±800	955	Two Bipole with DMR
2.	Bhadla III – Bhadla (HVDC) 400 kV 2xD/c quad moose line	400	2.5	D/C
3.	LILO of both circuits of 765 kV Varanasi – Kanpur (GIS) D/c line at Fatehpur (HVDC)	765	LILO IN- 23.042 km LILO OUT- 23.509 km	D/C

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b) Sub-stations:

S No	Name (Location)	Voltage Level (s) (kV)	Transformer (Nos. and MVA capacity)	Reactive/Capacitive compensation (device with MVAR Capacity)	No. of bays
1	±800 kV HVDC [LCC] terminal station (4x1500 MW) at Bhadla	±800	4x1500 MW (±800/±400 KV converter transformer)		Bipole-1 (2 x1500MW) on bus section-1 Bipole-2 (2 x1500MW) on bus section-2 400kV AC Lines Bays – 4 nos. at Bhadla HVDC 400 KV bus sectionaliser at Bhadla HVDC– 2 nos (1 set).
2	±800 kV HVDC [LCC] terminal station (4x1500 MW) at Fatehpur (UP)	±800	4x1500 MW (±800/±400 KV converter transformer)		Bipole-1 (2 x1500MW) on bus section-1 Bipole-2 (2 x1500MW) on bus section-2
3	765/400KV Fatehpur (UP) (HVDC) substation	765	5x1500 MVA (765/400 KV ICTs)	765KV, 330MVAr (Bus reactor)- 2 nos.	765KV ICT Bays- 5 nos. 765KV Reactor Bays -2 nos. 765KV line Bays- 4 nos.
4	765/400KV Fatehpur (UP) (HVDC) substation	400			400 KV ICT bays-5 nos. 400 KV bus sectionaliser – 2 nos (1 set).
5	400kV PGCIL Bhadla III Substation	400			400kV Lines Bays- 4 nos. at Bhadla III

C) Commissioning Schedule

S No.	Scope of the Transmission Scheme	Scheduled COD in months from Effective Date
1	Establishment of 6000 MW, ±800 kV Bhadla (HVDC) [LCC] terminal station (4x1500 MW) at a suitable location near Bhadla-3 substation • 400/33 kV, 2x50 MVA transformers for exclusively supplying auxiliary power to HVDC terminal. • 400 kV bus sectionaliser-2 nos. (1 Set) at Bhadla (HVDC) station Future provisions: Space for • 400 kV line bays along with switchable line reactor: 4 Nos. • 400 kV Bus Reactor along with bay: 1 no. • 400 kV Sectionalisation bay: 1 set	48 months for Bipole-1 (20/01/2029) and 54 months for Bipole-2 (20/07/2029)
2	Establishment of 6000 MW, ±800 kV Fatehpur (HVDC) [LCC] terminal station (4x1500 MW) at suitable location near Fatehpur (UP)	
3	Bhadla-3 – Bhadla (HVDC) 400 kV 2xD/c quad moose line along with the line bays at both substations • 400 kV line bays -8 nos.	48 months (20/01/2029)
4	±800 kV HVDC line (Hexa lapwing) between Bhadla (HVDC) & Fatehpur (HVDC) (with Dedicated Metallic Return)	
5	Establishment of 5x1500 MVA, 765/400 kV ICTs at Fatehpur (HVDC) along with 2x330 MVAr (765 kV) bus reactor • 765/400 kV 1500 MVA ICTs: 5 nos. (16x500 MVA, including one spare unit) • 765 kV ICT bays – 5 nos. • 400 kV ICT bays – 5 nos. • 400 kV Bus sectionaliser-2 nos. [1 Set] • 765 kV line bays – 4 nos. • 330 MVAr, 765 kV Bus Reactor -2 nos. (7x110 MVAr, including one spare unit) • 765 kV reactor bays- 2 nos. Future provisions: Space for • 765/400 kV ICT along with bay: 1 no. • 765 kV line bay along with switchable line reactor: 4nos. • 765 kV Bus Reactor along with bays: 2 nos. • 400/220 kV ICTs along with bays: 4nos. • 400 kV line bays along with switchable line reactor: 4 nos. • 400 kV Bus Reactor along with bay: 1 no. • 220 kV line bays: 6 nos.	

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S No.	Scope of the Transmission Scheme	Scheduled COD in months from Effective Date
6	LILO of both ckts of 765 kV Varanasi – Kanpur (GIS) D/c line at Fatehpur	

Note:

(i) Developer of Bhadla-III PS to provide space for 4 nos. of 400 kV bays at their substation

(ii) HVDC terminals will be implemented with 100% power reversal capability

d) Identified Long-Term transmission customers of the Project:

1. Central Transmission Utility of India Limited (Nodal Agency)

e) Any other relevant information: Nil

3. Levelized transmission charges in case of project selected through the transparent process of competitive bidding and estimated completion cost of the project in other cases: **Rs 35,570.00** million per annum

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

(a) Recommendation of selection by the Empowered Committee

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

} Bid Evaluation Committee Certificate as furnished by BPC is enclosed as Annexure A5

5. List of documents enclosed:

Name of the Document

a) **Certificate of Registration, MoA & AoA: Annexure A3**
b) **Copy of Board Resolution: Annexure A11**
c) **Bid Evaluation Committee Certificate as furnished by BPC: Annexure A5**

Rajasthan Part I Power Transmission Limited

Barhant Kumar

(Signature of the Applicant)

Dated: 20.01.2025
Place: Ahmedabad

Annexure A11

adani
Energy Solutions

CERTIFIED TRUE COPY OF THE RESOLUTION PASSED AT THE MEETING OF THE MANAGEMENT COMMITTEE OF BOARD OF DIRECTORS OF ADANI ENERGY SOLUTIONS LIMITED (FORMERLY KNOWN AS ADANI TRANSMISSION LIMITED) ("THE COMPANY") HELD ON TUESDAY, THE 27TH DAY OF AUGUST, 2024 AT ADANI CORPORATE HOUSE, SHANTIGRAM, S. G. HIGHWAY, AHMEDABAD – 382 421

"RESOLVED THAT in supersession with all earlier resolutions passed in this regard Mr. M. R. Krishna Rao, Mr. Vivek Gautam, Mr. Molay Kumar Maitra, Mr. Tanmay Vyas, Mr. Praveen Tamak, Mr. Narendra Ojha, Mr. Bhavesh Kundalia, Mr. Prashant Kumar, Mr. Naresh Desai, Mr. Afak Pothiawala, Mr. Matulya Shah and Mr. Rajesh Sirigirisetty (hereinafter referred to as "**Authorised Signatories**") be and are hereby severally Authorised to sign and submit petitions, affidavits, agreements, declarations, undertakings, deeds, Bills, submission of details of Bank Accounts or change of Bank Accounts and other documents in connection therewith or incidental thereto before Central Electricity Regulatory Commission (CERC), Appellate Tribunal for Electricity (APTEL), Power Grid Corporation of India Limited (PGCIL), Central Transmission Utility of India Ltd (CTUIL), Power System Operation Corporation Limited (POSOCO), Regional Power Committees and Regional Load Dispatch Centers and other regulatory authorities for and on behalf of the Company.

RESOLVED FURTHER THAT the Authorised Signatories be and are hereby further severally authorised (a) to issue notices, affidavit and other documents, communications to Long Term Transmission Customers and other Parties / agencies, including Central Transmission Utility of India Limited. and WRLDC/SRLDC (b) to file Petition, Affidavit, Notices and other documents before Regulatory Commission or other Electricity body, Appellate Tribunal for Electricity and Supreme Court for issues arising out of Transmission Service Agreement and Bulk Power Transmission Agreement, (c) to engage, appoint or remove any pleaders or advocates, and sign vakalatnamas, power of attorney for such engagement or appointment and (d) to file appeal and defend the interest of the Company."

Certified True Copy
For Adani Energy Solutions Limited
(formerly known as Adani Transmission Limited)

Jaladhi Shukla
Company Secretary
Membership No. F5606

Adani Energy Solutions Limited

Rajasthan Part I Power Transmission Limited

Adani Energy Solutions Ltd
(formerly known as Adani Transmission Limited)
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