

DRAFT TRANSMISSION SERVICE AGREEMENT

FOR

PROCUREMENT OF TRANSMISSION SERVICES

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

**TRANSMISSION SCHEME FOR SOLAR ENERGY
ZONE IN BIDAR (2500 MW), KARNATAKA**

BETWEEN

.....
**[INSERT NAME OF LONG TERM TRANSMISSION
CUSTOMERS]**

AND

BIDAR TRANSMISSION LTD.

.....2020

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

Between:

Persons whose names, addresses and other details are provided in Schedule 1 of this Agreement (collectively referred to as the “Long Term Transmission Customers” and individually referred to as the “Long Term Transmission Customer” respectively), which expression shall unless repugnant to the context or meaning thereof include its successors, and permitted assigns) as Party of the one part;

And

Bidar Transmission Ltd., incorporated under the Companies Act, 2013, having its registered office at Core-4, Scope Complex, 7, Lodhi Road, New Delhi – 110 003 (herein after referred to as Transmission Service Provider or “TSP” which expression shall unless repugnant to the context or meaning thereof include its successors, and permitted assigns) as Party of the other part;

(Each of the “Long Term Transmission Customer” or “Long Term Transmission Customers” 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 issuance of RFP for selecting a Successful Bidder to build, own, operate and maintain the Project comprising of the Elements mentioned in Schedule 2 (hereinafter referred to as the Project)
- B) Pursuant to the said e-Reverse bidding process, the BPC shall identify the Selected Bidder as the TSP, who will be responsible to set up the Project on build, own, operate and maintain basis and to provide Transmission Service to the Long Term Transmission Customers on the terms and conditions contained in this Agreement and the Transmission License.
- C) The Selected Bidder will acquire one hundred percent (100%) of the equity shareholding of Bidar Transmission Ltd. 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 Appropriate Commission for setting up the Project on build, own, operate and maintain basis.
- E) The TSP has further agreed to make an application to the Appropriate 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 Long Term Transmission Customers agree, on the terms and subject to the conditions of this Agreement, to use the available transmission capacity of the Project and pay to TSP the Transmission Charges as determined in accordance with the terms of this Agreement.
- G) The terms and conditions stipulated in the Transmission License issued by the Appropriate 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 Appropriate Commission shall prevail.

NOW, THEREFORE, IN CONSIDERATION OF THE PREMISES AND MUTUAL AGREEMENTS, COVENANTS AND CONDITIONS SETFORTH 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 Appropriate 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 company of at least twenty six percent (26%) of the voting rights of the other company;

“Agreed Form” in relation to any document shall mean the form of the document most recently agreed to by the Parties and initialled by them for identification;

“Allocated Project Capacity” shall mean, for each Long Term Transmission Customer, the sum of the generating capacities allocated to such Long Term Transmission Customer from the ISGS and the contracted power, if any, as adopted by CERC from time to time in determining sharing of transmission charges between the Long Term Transmission Customers;

“Appropriate Commission” shall mean the Central Regulatory Commission referred to in sub-section (1) of Section 76 of the Electricity Act, or the State Regulatory Commission referred to in Section 82 of the Electricity Act or the Joint Commission referred to in Section 83 of the Electricity Act, as the case may be;

“Arbitration Tribunal” shall mean the tribunal constituted under Article 16 of this Agreement;

“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 –III to Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014 attached herewith in Schedule 9;

“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 dated 13th April 2006 under Section – 63 of the Electricity Act and 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 / concerned State Government, responsible for carrying out the process for selection of Transmission Service Provider;

“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 concerned Long Term Transmission Customers’ registered office is located;

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

“CERC” shall mean the Central Electricity Regulatory Commission of India constituted under Section-76 of the Electricity Act, 2003 or its successors;

“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;

Provided that the COD shall not be a date prior to the Scheduled COD mentioned in the TSA, unless mutually agreed to by all Parties;

“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/STU 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 / State Grid Code, 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 Termination Notice or a Long Term Transmission Customer’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 Indian Governmental Instrumentality 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 TSA 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 Long Term Transmission Customers from a bank mentioned in Annexure 17 of the RFP, in the form attached here to as Schedule 11, 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 mean the utility notified by the Central Government under Section-38 of the Electricity Act, 2003;

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

“D/C” shall mean Double Circuit;

“Dispute” shall mean any dispute or difference of any kind between a Long Term Transmission Customer and the TSP or between the Long Term Transmission Customers (jointly) and the TSP, 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;

“Due Date” in relation to any Invoice shall mean the thirtieth (30th) day after the date on which any Invoice is received and duly acknowledged by the Long Term Transmission Customer (or, if that day is not a Business Day, the immediately following Business Day), and by such date, the Invoice is payable by the Long Term Transmission Customer;

“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 Appropriate 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, which has a separate Scheduled COD as per Schedule 3 of this Agreement and has a separate percentage for recovery of Transmission Charges on achieving COD as per Schedule 6 of this Agreement;

“Escalable Transmission Charges” shall mean the charges as specified in Schedule 6 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 35 (thirty five) years from the Scheduled 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 Long Term Transmission Customers ;

“Financial Year” shall mean a period of twelve (12) 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” or “State Grid Code” shall mean the Grid Code specified by the Central Commission under Clause (h) of sub-section (1) of Section 79 of the Electricity Act and/or the State Grid Code as specified by the concerned State Commission, referred under Clause (h) of sub-section (1) of Section 86 of the Electricity Act 2003, as applicable;

“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 Appropriate Commission or tribunal or judicial or quasi-judicial body in India but excluding TSP and Long Term Transmission 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 / Long Term Transmission 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;

“Invoice” shall mean a Monthly Transmission Charges Invoice, a Supplementary Invoice or any other Invoice or Bill raised by any of the Parties;

“Invoice Dispute Notice” shall have the same meaning as defined in Article 10.9.2 of this Agreement;

“Late Payment Surcharge” shall have the meaning ascribed thereto in Article 10.8;

“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 Appropriate Commission;

“Lead Long Term Transmission Customer” shall have the meaning as ascribed hereto in Article 18.1.1 of this Agreement;

“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;

“Letter of Credit” or “LC” shall mean an unconditional, irrevocable, revolving Letter of Credit opened by the Long Term Transmission Customer in favour of the TSP with any scheduled bank;

“Lenders” means the banks, financial institutions, multilateral funding agencies, non banking financial companies registered with the Reserve Bank of India (RBI) , mutual funds, 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 Long Term Transmission Customers under this Agreement in any manner and shall also does not lead to an increase in the liability of any of the Long Term Transmission Customers;

“Lenders Representative” shall mean the person notified by the Lenders in writing as being the representative of the Lenders and such person may from time to time be replaced by the Lenders pursuant to the Financing Agreements by written notice to the TSP;

“Long Term Transmission Customer(s)” shall mean a person availing or intending to avail access to the Inter-State Transmission System for a period up to twenty-five (25) years or more, and for the purposes of this Project, shall refer to entities listed in Schedule 1 of this Agreement or any such other person who executes a Supplementary Agreement for availing Transmission Service as per the provisions of the TSA;

“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 for the relevant Contract Year as specified in Schedule 5 of this Agreement;

“Monthly Transmission Charges Invoice” or **“Monthly Bill”** shall mean a monthly invoice comprising the Monthly Transmission Charges, as per Schedule 5 hereof;

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

“Non-Escalable Transmission Charges” shall mean the charges as specified in column (4) of Schedule 6 of this Agreement;

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

“O & M Contractor” shall mean the entity appointed from time to time by the TSP to operate, maintain & repair any of the Element(s) of the Project;

“Open Access Customer” shall mean a consumer permitted by the State Commission to receive supply of electricity from a person other than distribution licensee of his area of supply or a generating company (including captive generating plant) or a licensee, who has availed of or intends to avail of open access;

“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 a Company 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 Long Term Transmission Customers’ Preliminary Termination Notice or TSP’s Preliminary Termination Notice, as the case may be, as defined in Article 13 of this Agreement;

“Project” shall mean transmission system for Transmission System associated with Transmission Scheme for Solar Energy Zone in Bidar (2500 MW), Karnataka, as detailed in Schedule 2 of this Agreement;

“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;

“RFP” shall mean Request For Proposal dated 05.03.2020 along with all schedules, annexures and RFP Project Documents attached thereto, issued by the BPC for tariff based competitive bidding process for selection of 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. TSA; and
- b. Share Purchase Agreement

“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;

“Rated Voltage” shall mean the manufacturers design 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 Long Term Transmission Customers;

“Rebate” shall have the meaning as ascribed to in Article 10.7 of this Agreement;

“Scheduled COD” in relation to an Element(s) shall mean the date(s) as mentioned in Schedule 3 as against such Element(s) and in relation to the Project, shall mean the date as mentioned in Schedule 3 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 herewith as Schedule 10 on or prior to the Effective Date;

“Share Purchase Agreement” shall mean the agreement amongst REC Transmission Projects Company Ltd., Bidar Transmission Ltd. and the Successful Bidder for the purchase of one hundred (100%) per cent of the shareholding of the Bidar Transmission Ltd. for the Acquisition Price, by the Successful Bidder on the terms and conditions as contained therein;

“Short Term Transmission Customer(s)” shall mean a transmission customer other than the Long Term Transmission Customer;

“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 to acquire one hundred percent (100%) equity shares of Bidar Transmission Ltd., along with all its related assets and liabilities, which will be responsible as the TSP to establish the Project on build, own, operate and maintain basis as per the terms of the TSA and other RFP Project Documents;

“Supplementary Agreement” shall mean the agreement as annexed hereto in Schedule 12 of this Agreement;

“Supplementary Bill” or “Supplementary Invoice” shall mean a bill other than a Monthly Bill raised by any of the Parties in accordance with Article 10.10;

“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 Long Term Transmission Customer Termination Notice or TSP Termination Notice, as the case may be given by Parties pursuant to the provisions of Articles 3.3.2, 3.3.4, 13.3 and 13.4 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 by the Long Term Transmission Customers, as per the provisions of TSA ;

“Transmission Customer(s)” shall mean any person using the Project, including the Open Access Customers;

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

“Transmission Licensee” shall mean a licensee authorized to establish and operate Transmission Lines by the Appropriate Commission;

“Transmission Lines” shall mean all high pressure cables and overhead lines (not being an essential part of the distribution system of a licensee) transmitting electricity from a generating station to another generating station or a sub-station, together with any step-up and step-down transformers, switch-gear and other works necessary to and used for the control of such cables or overhead lines, and such buildings or part thereof as may be required to accommodate such transformers, switchgear and other works;

“Transmission Service” shall mean making the Project available for use by the Transmission Customers as per the terms and conditions of this Agreement;

“Transmission Service Provider” or **“TSP”** shall mean the Bidar Transmission Ltd., which has executed this Transmission Service Agreement and has been / shall be acquired by the Selected Bidder;

“Transmission System” shall mean a line with associated sub-stations or a group of lines inter-connected together along with associated sub-stations and the term includes equipment associated with transmission lines and sub-stations;

“Unscheduled Interchange” shall have the meaning ascribed thereto in Rule 24 of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations 2009, as amended from time to time;

“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 a company 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 company;

“Week” means a calendar week commencing from 00:00 hours of Monday, and ending at 24:00 hours of the following Sunday;

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 be construed as a reference to any person, firm, company, corporation, society, trust, government, state or agency of a state or any association or partnership (whether or not having separate legal personality) of two or more of the above and a person shall be construed as including a reference to its successors, permitted transferees and permitted assigns in accordance with their respective interests;

“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" of a company or corporation shall be construed so as to include any equivalent or analogous proceedings under the Law of the jurisdiction in which such company or corporation is incorporated or any jurisdiction in which such company or corporation carries on business including the seeking of liquidation, winding-up, re-organization, dissolution, arrangement, protection or relief of debtors.

- 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 10 shall be referred to for ascertaining accuracy and correctness of the representations made by the Selected Bidder in Article 17.2.1 (f) 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 Agreement is executed and delivered by the Parties; and
- b. The Selected Bidder has acquired for the Acquisition Price, one hundred percent (100%) of the equity shareholding of REC Transmission Projects Company Ltd. in Bidar Transmission Ltd. along with all its related assets and liabilities as per the provisions of the Share Purchase Agreement, and
- c. The Selected Bidder, on behalf of the TSP, has provided the Contract Performance Guarantee, as per terms of Article 3.1 of this Agreement.

2.2 Term and Termination:

2.2.1 Subject to Article 2.2.2 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 unless extended by the Appropriate Commission for such period and on such terms and conditions as the Appropriate Commission may specify in this regard in terms of the procedures laid down by the Appropriate Commission for such matters.

2.2.2 This Agreement shall terminate before the Expiry Date:

- a. If a Termination Notice is served in accordance with Article 13
 - i. by the Majority Long Term Transmission Customers following a TSP Event of Default; or
 - ii. by the TSP following the Long Term Transmission Customers' Event of Default;
- b. If the Long Term Transmission Customers or the TSP serves a Termination Notice in accordance with Article 3.3.2 and 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 Appropriate Commission at least two years before the date of expiry of the Transmission License, seeking the Appropriate Commission's approval for extension of the term of Transmission License upto the Expiry Date.

- 2.3.2 The TSP shall timely comply with all the requirements as may be laid down by the Appropriate Commission for extension of the term of the Transmission License beyond the initial term of 25 years and the TSP shall keep the Long Term Transmission Customers fully informed about progress on its application for extension of the term of Transmission License.

2.4 Survival:

The expiry or termination of this Agreement shall not affect any accrued rights, obligations 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 for which this Agreement provides, either expressly or by necessary implication, which are to survive after the Expiry Date or termination including those under Article 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 18 (Miscellaneous).

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, on behalf of the TSP shall provide the Contract Performance Guarantee, acquire for the Acquisition Price, one hundred percent (100%) equity shareholding of Bidar Transmission Ltd. from REC Transmission Projects Company Ltd., who shall sell to the Selected Bidder, the equity shareholding of Bidar Transmission Ltd.along with all its related assets and liabilities, and apply to the Appropriate Commission for grant of Transmission License.

The Selected Bidder on behalf of the TSP will provide to the Long Term Transmission Customers the Contract Performance Guarantee for an aggregate amount of Rupees One Hundred Crore Thirty Five Lakh Only (Rs 100.35 Crore) , which shall be provided separately to each of the Long Term Transmission Customers for the amount calculated pro-rata in the ratio of their Allocated Project Capacity, as on the date seven (7) days prior to the Bid Deadline (rounded off to the nearest Rupees one Lakh (Rs. 100,000) with the principle that amounts below Rupees Fifty Thousand (Rs. 50,000) shall be rounded down and amounts of Rupees Fifty Thousand (Rs. 50,000) and above shall be rounded up)

- 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, unless such completion is affected due to the Long Term Transmission Customers' failure to comply with their obligations under Article 3.2 of this Agreement or by any Force Majeure Event, or if any of the activities is specifically waived in writing by the Majority Long Term Transmission Customers:

- a. To obtain the Transmission License for the Project from the Appropriate Commission;
- b. To obtain the order for adoption of Transmission Charges by the Appropriate Commission, as required under Section 63 of the Electricity Act 2003;

- c. To submit to the Lead Long Term Transmission Customer and CEA the Project Execution Plan, within one hundred and twenty (120) days from the Effective Date. The TSP's Project Execution Plan should be in conformity with the Scheduled COD as specified in Schedule 3 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, commissioning to commercial operation, necessary to demonstrate a complete and accurate understanding of the Project, as well as the TSP's knowledge of procedures and prevailing conditions in India. Submission of a detailed bar (GANTT) chart of the Project outlining each activity (taking longer than one Month), linkages as well as durations;
- d. To achieve Financial Closure;
- e. 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; and
- f. To award the Engineering, Procurement and Construction contract ("EPC contract") for the design and construction of towers for the Project and shall have given to such Contractor an irrevocable notice to proceed.

3.2 Satisfaction of conditions subsequent by the Long Term Transmission Customers

- 3.2.1 The Long Term Transmission Customers shall provide, within six (6) months from the Effective Date, an irrevocable letter to the Lenders duly accepting and acknowledging 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 weekly basis, be liable to furnish to the Long Term Transmission Customers additional Contract Performance Guarantee of Rupees Five Crore Two Lakh Only (Rs 5.02 Crore) within two (2) Business Days of expiry of every such Week. Such additional Contract Performance Guarantee shall be provided to each Long Term Transmission Customer 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. The Long Term Transmission Customers 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 Long Term Transmission Customers in accordance with Article 3.3.1 hereof; or
- (ii) the TSP furnishes additional Performance Guarantee to the Long Term Transmission Customers 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 Majority Long Term Transmission Customers, as per Article 18.1.5, 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 the Appropriate Commission and the Lenders' Representative.

3.3.3 If the Long Term Transmission Customers elect to terminate this Agreement as per the provisions of Article 3.3.2, the TSP shall be liable to pay to the Long Term Transmission Customers an amount of Rupees One Hundred Crore Thirty Five Lakh Only (Rs 100.35 Crore) only as liquidated damages. The Long Term Transmission Customers shall be entitled to recover this amount of damages by invoking the Contract Performance Guarantee to the extent of Rupees One Hundred Crore Thirty Five Lakh Only (Rs 100.35 Crore) which shall be provided separately to each of the Long Term Transmission Customers on the basis of their Allocated Project Capacity in MW as on the dated seven (7) days prior to the Bid Deadline, and shall then return the balance Contract Performance Guarantee, if any, to the TSP. If the Long Term Transmission Customers are unable to recover the said amount of Rupees One Hundred Crore Thirty Five Lakh Only (Rs 100.35 Crore) or any part thereof from the Contract Performance Guarantee, the shortfall in such amount not recovered from the Contract Performance Guarantee, if any, shall be payable by the TSP to the Long Term Transmission Customers within ten (10) days after completion of the notice period.

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, shall be extended for a period of such Force Majeure Event, subject to a maximum extension period of three (3) Months, continuous or non-continuous in aggregate. Thereafter, this Agreement may be terminated by the Majority Long Term Transmission Customers or the TSP on mutually agreeable basis by giving a notice of at least seven (7) days, in writing to the other Party, with a copy to the Appropriate Commission and the

Lenders' Representative and the Contract Performance Guarantee shall be returned as per the provisions of Article 6.5.2.

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. No adjustments to the Transmission Charges shall be allowed on this account.

- 3.3.5 Upon termination of this Agreement as per Articles 3.3.2 and 3.3.4, the Lead Long Term Transmission Customer shall approach the Appropriate Commission within seven (7) days of such termination for further necessary directions as per the provisions of the Electricity Act 2003.

3.4 Progress Reports

The TSP and the Lead Long Term Transmission Customer shall notify one another in writing at least once a Month on the progress made in satisfying the conditions subsequent in Articles 3.1.3 and 3.2.

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 2 of this Agreement in accordance with:
 - i. the Grid Code, the grid connectivity standards applicable to the Transmission Line and the sub-station as per 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) Regulations, 2010, Central Electricity Authority (Grid Standards) Regulations, 2010, Central Electricity Authority (Safety requirements for construction, operation and maintenance of electrical plants and electric lines) Regulations, 2011, Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2010 and as amended from time to time,
 - ii. Prudent Utility Practices and the Law;

not later than the Scheduled COD as per Schedule 3 of this Agreement;
- c. for entering into a Connection Agreement with the CTU/STU (as applicable) 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 Long Term Transmission Customers with a copy to CEA,

on a monthly basis, progress reports with regard to the Project and its execution (in accordance with Agreed Form) to enable the Long Term Transmission Customers / CEA to monitor and co-ordinate the development of the Project matching with the Interconnection Facilities.

- h. to comply with all its obligations undertaken in this Agreement.

4.2 Long Term Transmission Customers' obligations in implementation of the Project:

4.2.1 Subject to the terms and conditions of this Agreement, Long Term Transmission Customers, at their own cost and expense, undertake to be responsible;

- a. for assisting and supporting the TSP in obtaining the Consents, Clearances and Permits required for the Project and in obtaining any applicable concessions for the Project, by providing letters of recommendation to the concerned Indian Governmental Instrumentality, as may be requested by the TSP from time to time;
- b. for arranging and making available the Interconnection Facilities to enable the TSP to connect the Project;
- c. for complying with all their obligations under this Agreement, and
- d. for providing all assistance to the Arbitrators as they may require for the performance of their duties and responsibilities.

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 3 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 prevented from performing its obligations under Article 4.1 (a), (b) and (e) by the stipulated date, due to any Long Term Transmission Customers' Event of Default, the Scheduled COD shall be extended, by a 'day for 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 for day' basis, for a maximum period of one hundred and eighty (180) days. In case the Force Majeure Event continues even after the maximum period of one hundred and eighty (180) days, the TSP or the Majority Long Term Transmission Customers may choose to terminate the Agreement as per the provisions of Article 13.5.

4.4.3 If the Parties have not agreed, within thirty (30) days after the affected Party's performance has ceased to be affected by the relevant circumstance, on how long the Scheduled COD should be deferred by, any Party may raise the Dispute to be resolved in accordance with Article 16.

4.5 Metering Arrangements:

4.5.1 The TSP shall comply with all the provisions of the IEGC and the Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006 as amended from time to time, with regard to the metering arrangements for the Project. The TSP shall fully cooperate with the CTU/ STU /RLDC and extend all necessary assistance in taking meter readings.

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, completing and commissioning each Element of the Project by the Scheduled COD in accordance with 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) Regulations, 2010, Central Electricity Authority (Grid Standards) Regulations, 2010, Central Electricity Authority (Safety requirements for construction, operation and maintenance of electrical plants and electric lines) Regulations, 2011, Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2010 and as amended from time to time, Prudent Utility Practices and other applicable Laws.
- 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 by reason of the unsuitability of the Site or Transmission Line route(s) for whatever reasons. The TSP further acknowledges and agrees that it shall not be entitled to any financial compensation in this regard.
- 5.1.3 The TSP shall be responsible for obtaining all Consents, Clearances and Permits relating 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 Article 5.1.1 in particular and shall furnish to the Lead Long Term Transmission Customer promptly with copy/ies of each Consents, Clearances and Permits, which it obtains. The Long Term Transmission Customers shall assist and support the TSP in obtaining the Consents, Clearances and Permits required for the Project and in obtaining any applicable concessions for the Project, by providing letters of recommendation to the concerned Indian Governmental Instrumentality, as may be reasonably required from time to time.
- 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 (if required);
 - (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 costs, including payment of any crop 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 Long Term Transmission Customers liable for the performance of such Contractor(s).

5.3 Monthly Progress Reporting:

The TSP shall provide to the Long Term Transmission Customers, on a monthly basis, progress reports with regard to the Project and its execution (in accordance with Agreed Form) to enable the Long Term Transmission Customers to monitor and co-ordinate the development of the Project, matching with the Interconnection Facilities.

A copy of such monthly report shall also be sent by the TSP to the CEA.

5.4 Quality of Workmanship:

The TSP shall ensure that the Project is designed, built and completed in a good workmanlike manner using sound engineering and construction practices, and using only materials and equipment that are new and of international – utility grade quality such that, the useful life of the Project will be till the Expiry Date.

The TSP shall ensure that design, construction and testing of all equipment, facilities, components and systems of the Project shall be in accordance with Indian Standards and Codes issued by Bureau of Indian Standards and only in case they are not applicable under certain conditions, the other equivalent internationally recognised Standards and Codes shall be followed.

5.5 Inspection by the Lead Long Term Transmission Customer:

The Lead Long Term Transmission Customer shall designate, from time to time by a written notice to the TSP, at the most three (3) employees from any of the Long Term Transmission Customers, who shall have access at all reasonable times to the Site and to all such places where the Project is being executed for the purpose of inspecting the progress of the Project, at its own cost and expenses.

5.6 Site regulations and Construction Documents

The TSP shall abide by the Safety Rules and Procedures as mentioned in Schedule 4 of this Agreement

The TSP shall retain at the Site and make available for inspection to the Lead Long Term Transmission Customer 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 CEA. However, such intimation by the CEA and the subsequent effect of such remedial measures carried out by the TSP shall not relieve the TSP of its obligations in the Agreement. CEA 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, it may refer the same to the Appropriate Commission for appropriate action.

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, the Long Term Transmission Customers 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 be not earlier than its Scheduled COD or Schedule COD extended as per Article 4.4.1 of this Agreement, unless the Lead Long Term Transmission Customer otherwise agrees.
- 6.1.2 The RLDC / SLDC (as the case may be) or the CTU / STU (as the case may be) or the Lead Long Term Transmission Customer may, for reasonable cause, including failure to arrange for Interconnection Facilities as per Article 4.2, 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 30 days. Further, the Scheduled COD would be extended as required, for all such deferments on day for 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 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.

6.2 Commercial Operation:

- 6.2.1 An Element of the Project shall be declared to have achieved COD seventy two (72) hours following the connection of the Element with the Interconnection Facilities 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 or seven (7) days after the date of deferment, if any, pursuant 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 3 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, shall be eligible for payment of the Monthly Transmission Charges applicable for such Element.

6.3 Liquidated Damages for delay due to Long Term Transmission Customer Event of Default or Direct Non Natural Force Majeure Events or Indirect Non Natural Force Majeure Events or Natural Force Majeure Event (affecting the Long Term Transmission Customer)

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 Long Term Transmission Customer(s) of the date of intention to connect the Element(s) of the Project, where such date is on or 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 a Long Term Transmission Customer Event of Default or due to Direct Non Natural Force Majeure Event or Indirect Non Natural Force Majeure Event or (Natural Force Majeure Event affecting the Long Term Transmission Customer) provided such Direct Non Natural Force Majeure Event or Indirect Non Natural Force Majeure Event or (Natural Force Majeure Event affecting the Long Term Transmission Customer(s)) has continued for a period of more than three (3) continuous or non-continuous Months, the TSP shall, until the effects of the Long Term Transmission Customer Event of Default or of Direct Non Natural Force Majeure Event or Indirect Non Natural Force Majeure Event or (Natural Force Majeure Event affecting the Long Term Transmission Customer(s)) 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 on account of the Long Term Transmission Customer Event of Default, the Long Term Transmission Customer(s) shall make payment to the TSP of Non Escalable Transmission Charges in proportion to their Allocated Project Capacity, calculated on Target Availability for and during the period of such delay.
- b. In case of delay due to Direct Non Natural Force Majeure Event, the Long Term Transmission Customer(s) shall make payments to the TSP of Non Escalable 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 (d) below.
- c. In case of delay due to Indirect Non Natural Force Majeure Event or (Natural Force Majeure Event affecting the Long Term Transmission Customer(s)), the Long Term Transmission Customer(s) shall make payment to the TSP for debt service, subject to a maximum of Non

Escalable Transmission Charges calculated on Target Availability, which is due under the Financing Agreements for the period of such events in excess of three (3) continuous or non continuous Months in the manner provided in (d) below.

- d. 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 Long Term Transmission Customer(s)), the Long Term Transmission Customer(s) shall be liable to make payments mentioned in (b) and (c) above, after commencement of Transmission Service, in the form of an increase in Non Escalable Transmission Charges. These amounts shall be paid from the date, being the later of a) the date of cessation of such Direct Non Natural Force Majeure Event or Indirect Non Natural Force Majeure Event (or Natural Force Majeure Event affecting the Long Term Transmission Customer(s)) and b) the completion of sixty (60) days from the receipt of the Financing Agreements by the Long Term Transmission Customer(s) from the TSP.

Provided such increase in Non Escalable Transmission Charges shall be determined by Appropriate Commission on the basis of putting the TSP in the same economic position as the TSP would have been in case the TSP had been paid amounts mentioned in (b) and (c) above in a situation where the Force Majeure Event had not occurred.

For the avoidance of doubt, it is specified that the charges payable under this Article 6.3.1 shall be paid by the Long Term Transmission Customer(s) in proportion to their then Allocated Project Capacity.

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 as extended under Articles 4.4.1 and 4.4.2, then the TSP shall pay to the Long Term Transmission Customer(s), as communicated by the Lead Long Term Transmission Customer, in proportion to their Allocated Project Capacity as on the date seven (7) days prior to the Bid Deadline, 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 Long Term Transmission Customers' any rights 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 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 within the said period of ten (10) days, the Long Term Transmission Customers 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 Long Term Transmission Customers under this Article 6.3, the TSP shall be liable to forthwith pay the balance amount.

6.5 Return of Contract Performance Guarantee

6.5.1 If the TSP fails to achieve COD of any of the Elements on their respective Scheduled COD specified in this Agreement, subject to conditions mentioned in Article 4.4, the Long Term Transmission Customers shall have the right to encash the Contract Performance Guarantee and appropriate in their favour as liquidated damages an amount specified in Article 6.4.1, without prejudice to the other rights of the Long Term Transmission Customers under this Agreement.

6.5.2 The Contract Performance Guarantee as submitted by TSP in accordance with Article 3.1.1 shall be released by the Long Term Transmission Customers 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 3.1.1 or Article 11) and consequent part invocation of the Contract Performance Guarantee by the Long Term Transmission Customers, the Long Term Transmission Customers 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 Long Term Transmission Customers 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 Rupees Ninety Four Crore Fifty Lakh Only (Rs 94.50 Crore) or (ii) termination of this Agreement by any Party as mentioned under Article 3.3.4 of this Agreement.

6.5.3 The release of the Contract Performance Guarantee shall be without prejudice to other rights of the Long Term Transmission Customers under this Agreement.

ARTICLE: 7**7 OPERATION AND MAINTENANCE OF THE PROJECT****7.1 Operation and Maintenance of the Project:**

- 7.1.1 The TSP shall be responsible for ensuring that the Project is operated and maintained in accordance with the Indian Electricity Grid Code (IEGC) / State Grid Code (as applicable), Transmission License, directions of National Load Despatch Centre / RLDC / SLDC (as applicable), Prudent Utility Practices, other legal requirements including the terms of Consents, Clearances and Permits and is made available for use by the Transmission Customers as per the provisions of applicable regulations including but not limited to the Central Electricity Regulatory Commission (Open Access in Inter-state Transmission) Regulations, 2008, 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 (Installation and Operation of Meters) Regulations, 2006, and the Central Electricity Authority (Grid Standards) of Operation and Maintenance of Transmission Lines Regulations, 2010 as amended from time to time and provisions of this Agreement..
- 7.1.2 The TSP shall operate and maintain the Project in an efficient, coordinated and economical manner and comply with the directions issued by the National Load Despatch Centre, RLDC or the SLDC, as the case may be, in line with the provisions of the Electricity Act 2003 and Rule 5 of the Electricity Rules, 2005, and as amended from time to time.
- 7.1.3 The TSP shall be responsible to provide non-discriminatory open access to the Project as per the provisions of the Electricity Act 2003, Central Electricity Regulatory Commission (Open Access in Inter-state Transmission) Regulations, 2008, Central Electricity Regulatory Commission (Grant of Connectivity, Long-term Access and Medium-term Open Access in inter-state Transmission and related matters) Regulations, 2009 (as amended from time to time) and applicable regulations of the relevant State Electricity Regulatory Commission, as the case may be, as amended from time to time. The Long Term Transmission Customers agree with the TSP to provide such access to the Open Access Customers.
- 7.1.4 If the TSP fails to comply with the directions issued by the Appropriate Commission or the RLDC / SLDC, as the case may be and is liable to pay a penalty under the provisions of the Electricity Act 2003, such penalties shall be borne by the TSP and cannot be claimed from any of the Long Term Transmission Customers.
- 7.1.5 The TSP may, with prior intimation to the Appropriate Commission and the Lead Long Term Transmission Customer, engage in any business for the optimum utilisation of the assets, subject to the provisions of Section 41 of the Electricity Act 2003 and Transmission License.

- 7.1.6 The TSP shall abide by the Safety Rules and Procedures during the Operation Period as mentioned in Schedule 4 of this Agreement.

7.2 Scheduled Outage

- 7.2.1 In line with the provisions of the Grid Code, as amended from time to time, the TSP shall provide its annual outage plan, and shall be governed by the decisions of the RPC in this regard.

7.3 Unscheduled Outage

- 7.3.1 In the event of an Unscheduled Outage, the TSP shall inform, in writing to the concerned RLDC/SLDC, as the case may be, and the Lead Long Term Transmission Customer, the reasons and the details of occurrence of such Unscheduled Outage. The TSP shall further inform about, the nature of the work to be carried out, the estimated time required to complete it and the latest time by which in its opinion the work should begin consistent with the Prudent Utility Practices.
- 7.3.2 The TSP shall use its reasonable endeavours consistent with Prudent Utility Practices to carry out the maintenance in minimum time schedule to address such Unscheduled Outage and bring the Element/Project back in operation.

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 III of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014, as applicable seven (7) days prior to the Bid Deadline and as appended in Schedule 9

8.2 Target Availability:

The Target Availability of the Project shall be 98%.

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, Insurances against such risks, with such deductibles 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 Lead Long Term Transmission Customer copies of certificates and policies of the Insurances as soon as they are effected and renewed by or on behalf of the TSP from time to time in 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 to the TSP and the Long Transmission 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 Long Term Transmission Customers

9.4.1 The Long Term Transmission 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 Long Term Transmission Customers shall pay to the TSP, in Indian Rupees, on monthly basis, the Monthly Transmission Charges from the date on which an Element(s) has achieved COD until the Expiry Date of this Agreement, unless terminated earlier, in line with the provisions of Schedule 5 of this Agreement.

10.2 Calculation of Monthly Transmission Charges:

The Monthly Transmission Charges for each Contract Year shall be calculated in accordance with the provisions of Schedule 5 of this Agreement.

10.3 Incentive Payment

Incentive payment, on account of Availability being more than the Target Availability shall be payable by the Long Term Transmission Customer(s), in line with Clause 1.2.2 of Schedule 5 of this Agreement and shall be paid on an annual basis. The annual incentive amount payable to the TSP shall be shared by the Long Term Transmission Customer(s) in the ratio of the Transmission Charges paid or actually payable to the TSP by them existing at the end of the relevant Contract Year.

10.4 Payment of Penalty

The TSP shall pay a penalty on account of Availability being less than Ninety Five percent (95%) in any Contract Year in respect of the Element(s) having achieved COD or in case of the Project, after COD of the Project, to be computed in line with Clause 1.2.3 of Schedule 5 of this Agreement and paid on an annual basis. This penalty payable by the TSP shall be apportioned in favour of the Long Term Transmission Customer(s) in the ratio of the Transmission Charges paid or actually payable to the TSP by them existing at the end of the relevant Contract Year.

10.5 Delivery of Invoices:

10.5.1 TSP's Invoices

- a. Commencing with the month following the month in which the COD of an Element (which is first Commissioned) occurs, the TSP shall submit to Long Term Transmission Customers by the fifth day of such and each succeeding month (or, if such day is not a Business Day, the immediately following Business Day) an Invoice in the Agreed Form (the "Monthly Transmission Charge Invoice") signed by the authorised signatory of the TSP setting out the computation of the Monthly

Transmission Charges to be paid by the Long Term Transmission Customers to the TSP in respect of the immediately preceding month in accordance with this Agreement; and

- b. Each Monthly Transmission Charge Invoice shall include detailed calculations of the amounts payable under it, together with such further supporting documentation and information as Long Term Transmission Customers may reasonably require / request, from time to time.

10.5.2 Long Term Transmission Customers Invoices

- a. Long Term Transmission Customers shall (as and when any amount becomes due to be paid by TSP), on the fifth day of the month (or, if such day is not a Business Day, the immediately following Business Day) submit to the TSP an Invoice in the Agreed Form (the "Long Term Transmission Customers Invoice") setting out the computation of any amount that may be payable to it by the TSP for the immediately preceding month pursuant to this Agreement.
- b. Each Long Term Transmission Customer's Invoice shall include detailed calculations of the amounts payable under it, together with such further supporting documentation as the TSP may reasonably require/request, from time to time.

10.6 Payment of Invoices:

- 10.6.1 Pursuant to Article 10.4, any amount payable under an Invoice shall be paid in immediately available and freely transferable clear funds, for value on or before the Due Date, to such account of the TSP or Long Term Transmission Customers as shall have been previously notified to Long Term Transmission Customers or the TSP, as the case may be.

10.6.2 Where in respect of any month there is both:

- a. an amount payable by the Long Term Transmission Customers to TSP pursuant to a Monthly Transmission Charge Invoice and
- b. an amount payable by the TSP to Long Term Transmission Customer pursuant to a Long Term Transmission Customer's Invoice as per provisions of this Agreement,

the two amounts, to the extent agreed to be set off by the TSP may, be set off against each other and the balance, if any, shall be paid by Long Term Transmission Customers to the TSP or by TSP to Long Term Transmission Customers, as the case may be.

- 10.6.3 The Long Term Transmission Customers shall pay the amount payable under the Monthly Transmission Charge Invoice and the Supplementary Bill on the Due Date to such account of the TSP, as shall have been previously notified by

the TSP to the Long Term Transmission Customers in accordance with Article 10.6.6 below.

10.6.4 All payments made by the Long Term Transmission Customers shall be appropriated by the TSP in the following order of priority:

- i. towards Late Payment Surcharge, payable to the TSP, if any;
- ii. towards earlier unpaid Monthly Transmission Charge Invoice, if any;
- iii. towards earlier unpaid Supplementary Bill, if any;
- iv. towards the then current Monthly Transmission Charge Invoice, if any; and
- v. towards the then current Supplementary Bill.

10.6.5 All payments required to be made under this Agreement shall only include any deduction or set off for:

- i. deductions required by the Law; and
- ii. amounts claimed by the Long Term Transmission Customers from the TSP, through an Invoice duly acknowledged by the TSP, to be payable by the TSP, and not disputed by the TSP within thirty (30) days of receipt of the said Invoice and such deduction or set-off shall be made to the extent of the amounts not disputed. It is clarified that the Long Term Transmission Customers shall be entitled to claim any set off or deduction under this Article, after expiry of the said thirty (30) day period.

Provided further, the maximum amounts that can be deducted or set-off by all the Long Term Transmission Customers taken together (proportionate to their Allocated Project Capacity in case of each Long Term Transmission Customer) under this Article in a Contract Year shall not exceed Rupees Thirty Three Crore Forty Five Lakh Only (Rs 33.45 Crore), except on account of payments under sub Article (i) above.

10.6.6 The TSP shall open a bank account at [Insert identified place or account] (the "**Designated Account**") for all payments to be made by the Long Term Transmission Customers to the TSP, and notify the Long Term Transmission Customers of the details of such account at least ninety (90) days before the Scheduled COD of the first Element to the Long Term Transmission Customers. The Long Term Transmission Customers shall, on the day of payment, notify the TSP of the payment made to the Designated Account. The Long Term Transmission Customers shall also designate a bank account at [Insert identified place] for payments to be made by the TSP to Long Term Transmission Customers and notify the TSP of the details of such account ninety (90) days before the Scheduled COD of the

first Element.

10.7 Payment of Rebate:

10.7.1 In case the Long Term Transmission Customer pays to the TSP through any mode of payment in respect of a Monthly Transmission Charge Invoice or Supplementary Bill, the following shall apply:

- a. For payment of Invoices through any mode of payment, a Rebate of 2% shall be allowed on the Monthly Transmission Charge Invoice or Supplementary Bill for payments made in full within one Business Day of the receipt of the Invoice; or
- b. For payment of Invoices subsequently, but within the Due Date, a Rebate of 1% shall be allowed on the payments made in full.
- c. Applicable rate of Rebate at (a) and (b) above shall be based on the date on which the payment has been actually credited to the TSP's account. Any delay in transfer of money to the TSP's account, on account of a statutory holiday, public holiday, or any other reasons shall be to the account of the Long Term Transmission Customers.
- d. No Rebate shall be payable on the bills raised on account of Change in Law relating to taxes, duties and cess;

Provided that if any Long Term Transmission Customer fails to pay a Monthly Transmission Charge Invoice/ Supplementary Bill or part thereof within and including the Due Date, the TSP shall recover such amount as per provisions of Article 10.11.1 (f).

10.8 Surcharge

10.8.1 Any amount due from one Party to the other, pursuant to this Agreement and remaining unpaid for thirty (30) days after the Due Date, shall bear Late Payment Surcharge @ 1.25% per month on the unpaid amount. Such Late Payment Surcharge shall be calculated on simple rate basis and shall accrue from the Due Date until the amount due is actually received by the payee.

10.9 Disputed Invoices

10.9.1 If either Party does not question or dispute an Invoice within thirty (30) days of receiving it, the Invoice shall be considered correct, complete and conclusive between the Parties.

10.9.2 If either Party disputes any item or part of an item set out in any Invoice then that Party shall serve a notice (an "Invoice Dispute Notice") on the other Party setting out (i) the item or part of an item which is in dispute, (ii) its estimate of what such item or part of an item should be, (iii) and with all written material in support of its claim.

- 10.9.3 If the invoicing Party agrees to the claim raised in the Invoice Dispute Notice issued pursuant to Article 10.9.2, the invoicing Party shall revise such Invoice within seven (7) days of receiving such notice from the disputing Party and if the disputing Party has already made the excess payment, the invoicing Party shall refund to the disputing Party, such excess amount within fifteen (15) days of receiving such notice. In such a case, the excess amount shall be refunded along with interest at the same rate as the Late Payment Surcharge, which shall be applied from the date on which such excess payment was made to the invoicing Party and up to and including the date on which such payment has been received as refund.
- 10.9.4 If the invoicing Party does not agree to the claim raised in the Invoice Dispute Notice issued pursuant to Article 10.9.2, it shall, within fifteen (15) days of receiving the Invoice Dispute Notice, furnish a notice to the disputing Party providing (i) reasons for its disagreement; (ii) its estimate of what the correct amount should be; and (iii) all written material in support of its counter-claim.
- 10.9.5 Upon receipt of notice of disagreement to the Invoice Dispute Notice under Article 10.9.4, authorised representative(s) or a director of the board of directors/member of board of each Party shall meet and make best endeavours to amicably resolve such Dispute within fifteen (15) days of receiving such notice of disagreement to the Invoice Dispute Notice.
- 10.9.6 If the Parties do not amicably resolve the dispute within fifteen (15) days of receipt of notice of disagreement to the Invoice Dispute Notice pursuant to Article 10.9.4, the matter shall be referred to Appropriate Commission for Dispute resolution in accordance with Article 16.
- 10.9.7 If a Dispute regarding a Monthly Transmission Charge Invoice or a Supplementary Invoice is settled pursuant to Article 10.7 or by Dispute resolution mechanism provided in this Agreement in favour of the Party that issues the Invoice Dispute Notice, the other Party shall refund the amount, if any incorrectly charged and collected from the disputing Party or pay as required, within five (5) days of the Dispute either being amicably resolved by the Parties pursuant to Article 10.9.5 or settled by Dispute resolution mechanism, along with interest (at the same rate as Late Payment Surcharge) or Late Payment Surcharge from the date on which such payment had been made to the invoicing Party or the date on which such payment was originally due, as may be applicable.
- 10.9.8 For the avoidance of doubt, it is clarified that despite a Dispute regarding an Invoice, the concerned Long Term Transmission Customer shall, without prejudice to its right to Dispute, be under an obligation to make payment, of the lower of (a) an amount equal to simple average of last three (3) months Invoices (being the undisputed portion of such three months Invoices) and (b) Monthly Invoice which is being disputed, provided such Monthly Invoice has been raised based on the Allocated Project Capacity and in accordance with this Agreement.

10.10 Payment of Supplementary Bill

10.10.1 Either Party may raise a bill on the other Party ("Supplementary Bill") for payment on account of:

- i. adjustments (if any) required by the Regional Energy Account ; or
- ii. quarterly or annual reconciliation as per Article 10.13; or
- iii. Change in Law as provided in Article 12,

and such Bill shall be paid by the other Party.

10.11 Payment Security Mechanism:

10.11.1 Establishment of Letter of Credit:

- (a) Not later than one (1) Month prior to the Scheduled COD of the first Element of the Project, each Long Term Transmission Customer shall, through a scheduled bank, open a Letter of Credit in favour of the TSP, to be made operative from a date prior to the Due Date of its first Monthly Transmission Charge Invoice under this Agreement and shall be renewed annually.
- (b) The draft of the proposed Letter of Credit shall be provided by each Long Term Transmission Customer to the TSP not later than the Financial Closure of the Project and shall be mutually agreed between the Parties.
- (c) The Letter of Credit shall have a term of twelve (12) Months and shall be for an amount:
 - i. for the first Contract Year or for each subsequent Contract Year, equal to one point one (1.1) times the estimated average Monthly Transmission Charges based on Target Availability of the Elements or Project with Scheduled COD in such Contract Year, as the case may be;
 - ii. Provided that, the TSP shall not make any drawl before the Due Date and shall not make more than one drawal in a month.

Provided further that if at any time, such Letter of Credit amount falls short of the amount specified in Article 10.11.1, otherwise than by reason of drawal of such Letter of Credit by the TSP, the relevant Long Term Transmission Customer shall restore such shortfall within seven (7) days.

- (d) Long Term Transmission Customers shall cause the scheduled bank issuing the Letter of Credit to intimate the TSP, in writing regarding

establishing of such Letter of Credit.

- (e) In case of drawal of the Letter of Credit by the TSP in accordance with the terms of this Article 10.11.1, the amount of the Letter of Credit shall be reinstated within seven (7) days from the date of such drawal.
- (f) If any Long Term Transmission Customer fails to pay a Monthly Transmission Charge Invoice / Supplementary Bill or part thereof within and including the Due Date, then, unless an Invoice Dispute Notice is received by the TSP as per the provisions of Article 10.9.2, the TSP may draw upon the Letter of Credit, and accordingly the bank shall pay without any reference or instructions from the Long Term Transmission Customers, an amount equal to such Monthly Transmission Charge Invoice/Supplementary Bill or part thereof plus Late Payment Surcharge, if applicable, in accordance with Article 10.8 above, by presenting to the scheduled bank issuing the Letter of Credit, the following documents:
 - i. a copy of the Monthly Transmission Charge Invoice/Supplementary Bill which has remained unpaid by such Long Term Transmission Customer;
 - ii. a certificate from the TSP to the effect that the Invoice at item (i) above, or specified part thereof, is in accordance with the Agreement and has remained unpaid beyond the Due Date; and
 - iii. calculations of applicable Late Payment Surcharge, if any.

Provided that failure on the part of the TSP to present the documents for negotiation of the Letter of Credit shall not attract any Late Payment Surcharge on the Long Term Transmission Customers.

- (g) Each Long Term Transmission Customer shall ensure that the Letter of Credit shall be renewed not later than thirty (30) days prior to its expiry.
- (h) All costs relating to opening and maintenance of the Letter of Credit shall be borne by the Long Term Transmission Customers. However, the Letter of Credit negotiation charges shall be borne and paid by the TSP.
- (i) If a Long Term Transmission Customer fails to pay (with respect to a Monthly Bill or Supplementary Bill) an amount exceeding thirty percent (30%) of the most recent undisputed Monthly Bill, for a period of seven (7) days after the Due Date and the TSP is unable to recover the amount outstanding to the TSP through the Letter of Credit,
 - (i) the TSP shall issue a notice to such Long Term Transmission Customer within seven (7) days from such period, with a copy to each of the other Long Term Transmission Customers, highlighting the nonpayment of such amount by such Long Term Transmission Customer;

- (ii) If such Long Term Transmission Customer still fails to pay such amount within a period of thirty (30) days after the issue of notice by TSP as mentioned in (i) above, the TSP shall approach the RLDC / SLDC (as the case may be) requesting for the alteration of the schedule of dispatch of the lowest cost power of such Long Term Transmission Customer(s) from the Central Generating Stations, and the RLDC / SLDC shall continue to reschedule the lowest cost power till all the dues of the TSP are recovered;

- Provided that in this case, the quantum of electricity and the corresponding period in which it would be rescheduled for dispatch shall be corresponding to the amount of default. This electricity will then be dispatched to other utilities by the concerned RLDC/SLDC, as the case may be, during the peak hours, i.e., 7pm to 10 pm. The price of this electricity will be determined as per the UI rate;

- Provided further that the revenue from such diverted power would be used to pay the dues first of the generating company (which would include the capacity charges as well as the energy charges) and the remainder would be available for covering the default amount and the balance (if any), after recovering both the charges, would be paid to the defaulting Long Term Transmission Customer.

10.12 Payment Intimation

Long Term Transmission Customers shall remit all amounts due under an Invoice raised by the TSP to the TSP's account by the Due Date and notify the TSP of such remittance on the same day. Similarly, the TSP shall pay all amounts due under an Invoice raised by Long Term Transmission Customers by the Due Date to concerned Long Term Transmission Customer's account and notify such Long Term Transmission Customers/s of such payment on the same day.

10.13 Quarterly and Annual Reconciliation

10.13.1 Parties acknowledge that all payments made against Monthly Bill(s) and Supplementary Bill(s) shall be subject to quarterly reconciliation at the beginning of the following quarter of each Contract Year and annual reconciliation at the end of each Contract Year to take into account Regional Energy Account, adjustments in Transmission Charges payments, Rebates, Late Payment Surcharge, Incentive, Penalty, or any other reasonable circumstance as may be mutually agreed between the Parties.

10.13.2 The Parties, therefore, agree that as soon as all such data in respect of any quarter of a Contract Year or a full Contract Year, as the case may be, is

available and has been finally verified and adjusted, the TSP and each Long Term Transmission Customer shall jointly sign such reconciliation statement. Within fifteen (15) days of signing of a reconciliation statement, the TSP or Long Term Transmission Customers, as the case may be, shall raise a Supplementary Bill for the payments as may be due as a result of reconciliation for the relevant quarter/ Contract Year and shall make payment of such Supplementary Bill for the adjustments in Transmission Charges payments for the relevant quarter/Contract Year.

- 10.13.3 Interest / Late Payment Surcharge shall be payable in such a case from the date on which such payment had been made to the invoicing Party or the date on which any payment was originally due, as may be applicable. Any dispute with regard to the above reconciliation shall be dealt with in accordance with the provisions of Article 16

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 of the Long Term Transmission Customers or the TSP whose performance has been affected by an event of Force Majeure.

11.2.2 An event of Force Majeure affecting the CTU/STU or any agent of the Long Term Transmission Customers, which has affected the Interconnection Facilities, shall be deemed to be an event of Force Majeure affecting the Long Term Transmission Customers.

11.2.3 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 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:

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,

(b) Non-Natural Force Majeure Events:**i. Direct Non-Natural Force Majeure Events**

- Nationalization or compulsory acquisition by any Indian Governmental Instrumentality of any material assets or rights of the TSP; or

- the unlawful, unreasonable or discriminatory revocation of, or refusal to renew, any Consents, Clearances and Permits required by the TSP to perform their obligations 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
- radioactive 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.

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 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 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 pursuant to this Agreement except to the extent that the performance of its obligations was prevented, hindered or delayed due to a Force Majeure Event;
- (b) every Party shall be entitled to claim relief for a Force Majeure Event affecting its performance in relation to its obligations under 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 III to the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations 2014, as on seven (7) days prior to the Bid Deadline. For the event(s) for which the Element(s) is/are deemed to be available as per Appendix III to the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations 2014, then only the Non Escalable Transmission Charges, as applicable to such Element(s) in the relevant Contract Year, shall be paid by the Long Term Transmission Customers as per Schedule 5, 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 Lead Long Term Transmission Customer may, from time to time on one (1) day notice, inspect the Project and the TSP shall provide the Lead Long Term Transmission Customer's personnel with access to the Project to carry out such inspections, subject to the Lead Long Term Transmission Customer's personnel complying with all reasonable safety precautions and standards.

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 date, which is seven (7) days prior to the Bid Deadline resulting into any additional recurring / non-recurring expenditure by the TSP or any income to 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;
- 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 Appropriate Commission, under which the Transmission License for the Project was granted if made applicable by such Appropriate Commission to the TSP;
- any change in the Acquisition Price; 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. on account of regulatory measures by the Appropriate Commission including calculation of Availability; and
- b. in any tax applied on the income or profits of the TSP.

12.2 Relief for Change in Law

12.2.1 During Construction Period:

During the Construction Period, the impact of increase/decrease in the cost of the Project in the Transmission Charges shall be governed by the formula given below:

- For every cumulative increase/decrease of each Rupees Four Crore Twenty Eight Lakh Only) (Rs. 4.28 Crore) in the cost of the Project up to the Scheduled COD of the Project, the increase/decrease in Non-Escalable Transmission Charges shall be an amount equal to Zero Point Three One Three percent (0.313%) of the Non-Escalable Transmission Charges.

12.2.2 During the Operation Period:

During the Operation Period, the compensation for any increase/decrease in revenues shall be determined and effective from such date, as decided by the Appropriate Commission whose decision shall be final and binding on both the Parties, subject to rights of appeal provided under applicable Law.

Provided that the above mentioned compensation shall be payable only if the increase/decrease in revenues or cost to the TSP is in excess of an amount equivalent to one percent (1%) of Transmission Charges in aggregate for a Contract Year.

12.2.3 For any claims made under Articles 12.2.1 and 12.2.2 above, the TSP shall provide to the Long Term Transmission Customers and the Appropriate Commission documentary proof of such increase/decrease in cost of the Project/revenue for establishing the impact of such Change in Law.

12.2.4 The decision of the Appropriate Commission, with regards to the determination of the compensation mentioned above in Articles 12.2.1 and 12.2.2, and the date from which such compensation shall become effective, shall be final and binding on both the Parties subject to rights of appeal provided under applicable Law.

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 Lead Long Term Transmission Customer 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 Lead Long Term Transmission Customer 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 effect on the TSP.

12.4 Payment on account of Change in Law

12.4.1 The payment for Change in Law shall be through Supplementary Bill as mentioned in Article 10.10. However, in case of any change in Monthly Transmission Charges by reason of Change in Law, as determined in accordance with this Agreement, the Monthly Invoice to be raised by the TSP after such change in Transmission Charges shall appropriately reflect the changed Monthly Transmission Charges.

ARTICLE: 13**13 EVENTS OF DEFAULT AND TERMINATION****13.1 TSP 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 a breach by the Long Term Transmission Customers of their obligations under this Agreement, the Long Term Transmission Customers Event of Default 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 Lead Long Term Transmission Customer in this regard;
- b. The failure to commission any Element of the Project by the date falling six (6) months after its Scheduled COD;
- c. If the TSP:
 - i. assigns, mortgages or charges or purports to assign, mortgage or charge any of its assets or rights related to the Project in contravention of the provisions of this Agreement; or
 - ii. transfers or novates any of its obligations pursuant to this Agreement, in a manner contrary to the provisions of this Agreement;

except where such transfer is in pursuance of a Law and

- it does not affect the ability of the transferee to perform, and such transferee has the financial and technical capability to perform, its obligations under this Agreement;
- is to a transferee who assumes such obligations under the Project and this Agreement remains effective with respect to the transferee;

- d. If:
 - i. The TSP becomes voluntarily or involuntarily the subject of any bankruptcy or insolvency or winding up proceedings and such 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 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 Appropriate Commission as per the provisions of Central Electricity Regulatory Commission (Procedure, terms and Conditions for grant of Transmission License and other related matters) Regulations, 2009 or as amended from time to time; or

- e. Revocation of the Transmission License of TSP; or
- f. Non-payment of i) an amount exceeding Rupees Fifty (50) lakhs required to be paid to the Long Term Transmission Customers under this Agreement within three (3) months after the Due Date of an undisputed Invoice raised by the said Long Term Transmission Customer(s) on the TSP or ii) an amount up to Rupees Fifty (50) lakhs required to be made to the Long Term Transmission Customers under this Agreement within six (6) months after the Due Date of an undisputed Invoice; or
- g. Failure on the part of the TSP to comply with the provisions of Article 18.2 of this Agreement; or
- h. the TSP repudiates this Agreement and does not rectify such breach even within a period of thirty (30) days from a notice from the Lead Long Term Transmission Customer in this regard; or
- i. after Commercial Operation Date of the Project, the TSP fails to achieve monthly Target Availability of 98%, for a period of six (6) consecutive months or within a non-consecutive period of six (6) months within any continuous aggregate period of eighteen(18) months except where the Availability is affected by Force Majeure Events as per Article 11; or
- j. any of the representations and warranties made by the TSP in Article 17 of this Agreement being found to be untrue or inaccurate. Further, in addition to the above, any of the undertakings submitted by the Selected Bidder at the time of submission of the Bid being found to be breached or inaccurate, including but not limited to undertakings from its Parent Company/ Affiliates related to the minimum equity obligation; or
- k. the TSP fails to complete/fulfil all the activities/conditions within the specified period as per Article 3 ; or

- l. except where due to any Long Term Transmission Customer's failure to comply with its obligations, 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 Majority Long Term Transmission Customers; or
- m. 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 Long Term Transmission Customers' Event of Default

The occurrence and continuation of any of the following events shall constitute a Long Term Transmission Customers' Event of Default, unless any such Long Term Transmission Customers' Event of Default occurs as a result of a breach by the TSP of its obligations under this Agreement, a TSP Event of Default or a Force Majeure Event:

- a. a Long Term Transmission Customer fails to pay (with respect to a Monthly Bill or Supplementary Bill) an amount exceeding thirty percent (30%) of the most recent undisputed Monthly Bill, for a period of ninety (90) days after the Due Date and the TSP is unable to recover the amount outstanding to the TSP through the Letter of Credit; or
- b. the Long Term Transmission Customer repudiates this Agreement and does not rectify such breach even within a period of thirty (30) days from a notice from the TSP in this regard; or
- c. except where due to the TSP's failure to comply with its obligations, the Long Term Transmission Customers are in material breach of any of their obligations under this Agreement and such material breach is not rectified by the Long Term Transmission Customer within thirty (30) days of receipt of notice in this regard from the TSP to all the Long Term Transmission Customers; or
- d. any of the representations and warranties made by the Long Term Transmission Customers in Article 17 of this Agreement being found to be untrue or inaccurate; or
- e. If:
 - i. any Long Term Transmission Customer 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 Long Term Transmission Customer; or

- iii. the Long Term Transmission Customer 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 it shall not constitute a Long Term Transmission Customer Event of Default where such dissolution or liquidation of such Long Term Transmission Customer is for the purpose of a merger, consolidation or reorganization and where the resulting entity has the financial standing to perform its obligations under this Agreement, similar to such Long Term Transmission Customer and expressly assumes all obligations of such Long Term Transmission Customer under this Agreement and is in a position to perform them;

13.3 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 Majority Long Term Transmission Customers, through the Lead Long Term Transmission Customer, may serve notice on the TSP, with a copy to the Appropriate Commission and the Lenders' Representative, of their intention to terminate this Agreement (a "Long Term Transmission Customer's Preliminary Termination Notice"), which shall specify in reasonable detail, the circumstances giving rise to such Long Term Transmission Customer's Preliminary Termination Notice.
- b. Following the issue of a Long Term Transmission Customer'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 under this Agreement, and the TSP shall not remove any material, equipment or any part of the Project, without prior consent of the Lead Long Term Transmission Customer.
- d. Following the expiry of the Consultation Period, unless the Parties shall have otherwise agreed to the contrary or the circumstances giving rise to Long Term Transmission Customers Preliminary Termination Notice shall have ceased to exist or shall have been remedied, the Long Term Transmission Customers may terminate this Agreement by giving written notice of thirty (30) days ("Long Term Transmission Customers' Termination Notice") to the TSP, with a copy to the Lenders' Representative and the Appropriate Commission. Unless the Lenders have exercised their rights of substitution as per the provisions of Article 15.3 of this Agreement and the Appropriate Commission has agreed to such

substitution rights of the Lenders or otherwise directed by the Appropriate Commission, this Agreement shall terminate on the date of expiry of such Long Term Transmission Customers' Termination Notice. Upon termination of the Agreement, the Lead Long Term Transmission Customer shall approach the Appropriate Commission seeking revocation of the Transmission License and further action as per the provisions of the Electricity Act, 2003.

13.4 Termination Procedure for Long Term Transmission Customers Event of Default

- a. Upon the occurrence of a Long Term Transmission Customers Event of Default under Article 13.2, the TSP may serve notice on Long Term Transmission Customers, with a copy to the Appropriate Commission and the Lenders' Representative, of its intention to terminate this Agreement (a "TSP's Preliminary Termination Notice"), which notice shall specify in reasonable detail the circumstances giving rise to such TSP's Preliminary termination Notice.
- b. Following the issue of a TSP's Preliminary Termination 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 Event of Default 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 under this Agreement.
- e. Following the expiry of the Consultation Period, unless the Parties shall have otherwise agreed or the circumstances giving rise to the TSP Preliminary Termination Notice shall have ceased to exist or shall have been remedied, the TSP may terminate this Agreement by giving written notice of thirty (30) days ("TSP's Termination Notice") to the Lead Long Term Transmission Customer, with a copy to the Lenders' Representative and the Appropriate Commission. Unless the Lenders have exercised their rights for substitution as per provisions of Article 15.3 of this Agreement and the Appropriate Commission has agreed to such substitution rights of the Lenders or otherwise directed by the Appropriate Commission, this Agreement shall terminate on the date of expiry of such Termination Notice.

13.5 Termination due to Force Majeure

In case the Parties could not reach an agreement pursuant to Article 4.4.2 of this Agreement and the Force Majeure Event or its effects continue to be present, either Party shall have the right to cause termination of the Agreement. The Long Term Transmission Customers shall also have the right to cause

termination of the Agreement and to approach the Appropriate Commission to seek further directions in this regard. In such an event, subject to the terms and conditions of the

Financing Agreements, this Agreement shall terminate on the date of such Termination Notice. In case of such termination, the Contract Performance Guarantee shall be returned to the TSP as per the provisions of Article 6.5.2.

- 13.5.1 In case of termination of this Agreement, the TSP shall provide to the Lead Long Term Transmission Customer the full names and addresses of its Contractors as well as complete designs, design drawings, manufacturing drawings, material specifications and technical information, as required by the Long Term Transmission Customers within 30 (thirty) days of Termination Notice.

13.6 Revocation of the Transmission License

- 13.6.1 The Appropriate Commission may, as per the provisions of the Electricity Act, 2003, revoke the Transmission License of the TSP. In the event of the revocation of the Transmission License, the Appropriate Commission would take necessary steps as per the provisions of the Electricity Act, 2003. Further the Long Term Transmission Customers reserve the right to terminate the Agreement in the event of the revocation of the Transmission License of the TSP by the Appropriate Commission.

ARTICLE: 14**14 LIABILITY AND INDEMNIFICATION****14.1 Indemnity**

14.1.1 The TSP shall indemnify, defend and hold each Long Term Transmission Customer harmless against:

- (a) any and all third party claims, actions, suits or proceedings against the Long Term Transmission Customers 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 breach of statutory duty on the part of Long Term Transmission Customers, its contractors, servants or agents; and
- (b) any and all losses, damages, costs and expenses including legal costs, fines, penalties and interest actually suffered or incurred by Long Term Transmission Customers 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 breach of statutory duty on the part of Long Term Transmission Customers, its contractors, servants or agents or
 - ii. any of the representations and warranties of the TSP under this Agreement being found to be inaccurate or untrue.

14.1.2 Each of the Long Term Transmission Customers shall 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 a breach by the Long Term Transmission Customers of any of their 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 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,

finest, penalties and interest ('Indemnifiable Losses') actually suffered or incurred by the TSP from third party claims arising by reason of:

- i. a breach by the Long Term Transmission Customers of any of their obligations under this Agreement (Provided that this Article 14 shall not apply to such breaches by Long Term Transmission Customers, 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 Long Term Transmission Customers under this Agreement being found to be inaccurate or untrue.

14.2 Patent Indemnity:

14.2.1

- (a) The TSP shall, subject to the Long Term Transmission Customers compliance with Article 14.2.1 (b), indemnify and hold harmless the Long Term Transmission Customers 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 Long Term Transmission Customers 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 Long Term Transmission Customers arising out of the matters referred to in Article 14.2.1 (a), the Lead Long Term Transmission Customer 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 Lead Long Term Transmission Customer of all actions taken in such proceedings or claims.
- (c) If the TSP fails to notify the Lead Long Term Transmission Customer

within twenty-eight (28) days after receipt of such notice from the Long Term Transmission Customers under Article 14.2.1 (b) above, that it intends to attend any such proceedings or claim, then the Long Term Transmission Customers 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 Lead Long Term Transmission Customer within the twenty eight (28) days period, the Lead Long Term Transmission Customer shall make no admission that may be prejudicial to the defence of any such proceedings or claims.

- (d) The Lead Long Term Transmission Customer 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 Long Term Transmission Customers, 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 Lead Long Term Transmission Customer a notice thereof, and the Long Term Transmission Customers 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 Lead Long Term Transmission Customer shall promptly notify the TSP of all actions taken in such proceedings or claims.
- (c) If the Lead Long Term Transmission Customer 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 Long Term Transmission Customers. Unless the Lead Long Term Transmission Customer 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 Long Term Transmission Customers request, afford all available assistance to the Long Term Transmission Customers in attending to such proceedings or claim, and shall be reimbursed by the

Long Term Transmission Customers for all reasonable expenses incurred in so doing.

14.3 Monetary Limitation of liability

- 14.3.1 A Party ("Indemnifying Party") shall be liable to indemnify the other Party ("Indemnified Party") under this Article 14 for any indemnity claims made in a Contract Year only up to an amount of Rs. 6.70 Crore (Rupees Six Crore Seventy Lakh Only). With respect to each Long Term Transmission Customer, the above limit of Rs. 6.31 Crore (Rupees Six Crore Thirty One Lakh Only) shall be divided in the ratio of their Allocated Project Capacity, as existing on the date of the indemnity claim.

14.4 Procedure for claiming indemnity

- 14.4.1 Where the Indemnified Party is entitled to indemnification from the Indemnifying Party pursuant to Articles 14.1 or 14.2 the Indemnified Party shall promptly notify the Indemnifying Party of such claim, proceeding, action or suit referred to in Articles 14.1 or 14.2 in respect of which it is entitled to be indemnified. Such notice shall be given as soon as reasonably practicable after the Indemnified Party becomes aware of such claim, proceeding, action or suit. The Indemnifying Party shall be liable to settle the indemnification claim within thirty (30) days of receipt of the above notice.

Provided however that, if:

- i. the Parties choose to contest, defend or litigate such claim, action, suit or proceedings in accordance with Article 14.4.3 below; and
- ii. the claim amount is not required to be paid/deposited to such third party pending the resolution of the Dispute,

the Indemnifying Party shall become liable to pay the claim amount to the Indemnified Party or to the third party, as the case may be, promptly following the resolution of the Dispute, if such Dispute is 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 Long Term Transmission Customers 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 Long Term Transmission Customers, the TSP or others), strict liability, contract, breach of statutory duty, operation of law or otherwise.

14.5.2 The Long Term Transmission Customers shall have no recourse against any officer, director or shareholder of the TSP or any Affiliate of the TSP or any of its officers, directors or shareholders for such claims excluded under this Article. The TSP shall also have no recourse against any officer, director or shareholder of Long Term Transmission Customers, or any Affiliate of Long Term Transmission Customers 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 15.2.4.

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, Letter of Credit or the other 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 carrying out 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 carrying out the Project; or
 - c. security arising out of retention of title provisions in relation to goods acquired in the ordinary course of the TSP carrying out the Project.
- 15.2.4 Neither the TSP nor any of the Long Term Transmission Customers can relinquish or transfer its rights and obligations, without prior approval of the Appropriate Commission.

15.3 Substitution Rights of the Lenders

- 15.3.1 The TSP would need to operate and maintain the Project under the provisions of the Transmission License granted by the Appropriate Commission and the provisions of this Agreement and can not 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 Appropriate Commission.
- 15.3.2 However, in the case of default by the TSP in debt repayments, the Appropriate 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, 2009 or 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 New Delhi, India.

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:

16.3.1 Where any Dispute

- i. arises from a claim made by any Party regarding any provisions of this Agreement, , or
- ii. relates to any matter agreed to be referred to the Appropriate Commission, including those under Articles, 2.2.1, 2.3.1, 3.3.5, 5.1.2,

7.1.4, 7.1.5, 9.3.3, 10.9.6, 12.1.1, 12.2, 13, 15.2.4, 15.3, 16.3.3, and 18.17.1 hereof,

such Dispute shall be submitted to adjudication by the Appropriate Commission.

Appeal against the decisions of the Appropriate Commission shall be admissible only as per the provisions of the Electricity Act, 2003, as amended from time to time.

16.3.2 The obligations of the Long Term Transmission Customers under this Agreement towards the TSP shall not be affected in any manner by reason of inter-se disputes amongst the Long Term Transmission Customers.

16.3.3 Where any dispute is referred by the Appropriate Commission to be settled through arbitration process, such Dispute shall be resolved by arbitration under the Indian Arbitration and Conciliation Act, 1996 and the Rules of the Indian Council of Arbitration, in accordance with the process specified in this Article.

- (i) The Arbitration Tribunal shall consist of three arbitrators to be appointed in accordance with the Indian Council of Arbitration Rules
- (ii) The place of arbitration shall be New Delhi, India. The language of the arbitration shall be English.
- (iii) The Arbitration Tribunal's award shall be substantiated in writing. The Arbitration Tribunal shall also decide on the costs of the arbitration proceedings and the allocation thereof.
- (iv) The award shall be enforceable in any court having jurisdiction, subject to the applicable Laws.
- (v) The provisions of this Article shall survive the termination of this Agreement for any reason whatsoever.

16.4 Parties to Perform Obligations:

Notwithstanding the existence of any Dispute and difference referred to the Appropriate Commission or the Arbitration Tribunal as provided in Article 16.3 and save as the Appropriate Commission or the Arbitration Tribunal may otherwise direct by a final or interim order, the Parties hereto shall continue to perform their respective obligations (which are not in dispute) under this Agreement.

ARTICLE: 17**17 REPRESENTATION AND WARRANTIES****17.1 Representation and warranties of the Long Term Transmission Customers**

17.1.1 Each Long Term Transmission Customer 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 has been duly authorized to execute and consummate this Agreement;
- b. This Agreement is enforceable against the said Long Term Transmission Customer in accordance with its terms;
- c. The consummation of the transactions contemplated by this Agreement on the part of said Long Term Transmission Customer 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 said Long Term Transmission Customer is a Party or to which the said Long Term Transmission Customer is bound, which violation, default or power has not been waived;
- d. The said Long Term Transmission Customer is not insolvent and no insolvency proceedings have been instituted, nor threatened or pending by or against the said Long Term Transmission Customer;
- e. There are no actions, suits, claims, proceedings or investigations pending or, to the best of the said Long Term Transmission Customer's knowledge, threatened in writing against the said Long Term Transmission Customer 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 judgements, decrees or orders of any such courts, commission, arbitrator or governmental agencies or authorities, which materially adversely affect its ability to comply with its obligations under this Agreement;

17.1.2 Each of the said Long Term Transmission Customer makes all the representations and warranties above to be valid as on the date of this Agreement.

17.2 Representation and Warranties of the TSP:

17.2.1 The TSP hereby represents and warrants to and agrees with the Long Term Transmission Customers as follows and acknowledges and confirms that the

Long Term Transmission Customers 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;
- 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.
- f. deleted.
- g. The TSP makes all the representations and warranties above to be valid as on the date of this Agreement.

17.2.2 The TSP makes all the representations and warranties above to be valid as on the date of this Agreement.

ARTICLE: 18**18 MISCELLANEOUS PROVISIONS****18.1 Lead Long Term Transmission Customer:**

18.1.1 The Long Term Transmission Customers hereby appoint and authorise [redacted] [hereinafter referred to as the “Lead Long Term Transmission Customer”] to represent all the Long Term Transmission Customers for discharging the rights and obligations of the Long Term Transmission Customers, which are required to be undertaken by all the Long Term Transmission Customers. All the Long Term Transmission Customers shall follow and be bound by the decisions of the Lead Long Term Transmission Customer on all matters specified in the Schedule 8 of this Agreement. Accordingly, each Long Term Transmission Customer agrees that any decision, communication, notice, action or inaction of the Lead Long Term Transmission Customer on such matters shall be deemed to have been on its/his behalf and shall be binding on each of the Long Term Transmission Customer. The TSP shall be entitled to rely upon any such action, decision or communication or notice from the Lead Long Term Transmission Customer. It is clarified that provisions under this Article 18.1 are not intended to and shall not render the Lead Long Term Transmission Customer liable to discharge Transmission Charges payments due to TSP from the other Long Term Transmission Customers.

18.1.2 The Long Term Transmission Customers hereby also appoint and authorise [redacted] [hereinafter referred to as the “Alternate Lead Long Term Transmission Customer”], to act as Lead Long Term Transmission Customer as per the provisions of this Article 18.1.2, on the occurrence of any Event of Default specified in Article 13 by the Lead Long Term Transmission Customer. In such an event, the TSP may, at its option, within a period of fifteen (15) days from the date of issue of the TSP’s Preliminary Termination Notice referred to in Article 13 and if the said default by the Lead Long Term Transmission Customer subsists, specify in writing to all the Long Term Transmission Customers that the Alternate Lead Long Term Transmission Customer shall thereafter act as the Lead Long Term Transmission Customer. In such a case, if the TSP so notifies, the Alternate Lead Long Term Transmission Customer shall, thereafter, act as Lead Long Term Transmission Customer for the purposes of this Agreement, and the Lead Long Term Transmission Customer earlier appointed under Article 18.1.1 shall automatically cease to be the Lead Long Term Transmission Customer. It is clarified that all decisions taken by the [redacted] appointed under Article 18.1.1., in its capacity as Lead Long Term Transmission Customer before such change, shall continue to be valid, in accordance with this Agreement.

18.1.3 In the event of [redacted] becoming the Lead Long Term Transmission Customer as per Article 18.1.2, all the Long Term Transmission Customers shall also appoint any of Long Term Transmission Customers, other than [redacted], appointed under Article 18.1.1, as an Alternate Lead Long Term

Transmission Customer and thereafter the provisions of Article 18.1.2 shall be applicable.

18.1.4 Notwithstanding anything contained above, any decision which is required to be taken by the Long Term Transmission Customers jointly under the provisions of Article 13, shall be taken by all the Long Term Transmission Customers and in case of difference amongst the Long Term Transmission Customers, the said decision shall be taken by the Majority Long Term Transmission Customers, as defined in Article 18.1.5 below.

18.1.5 Any decision taken by Long Term Transmission Customers, who taken together constitute sixty five percent (65%) of the Allocated Project Capacity and constitute in number at least fifty percent (50%) of the total number of Long Term Transmission Customers (hereinafter referred to as “Majority Long Term Transmission Customers”), shall be binding on the Lead Long Term Transmission Customer and all other Long Term Transmission Customers. Majority Long Term Transmission Customers shall also have the right to replace the Lead Long Term Transmission Customer by any other Long Term Transmission Customer of their choice. All decisions taken by the Majority Long Term Transmission Customers in this Agreement shall be conveyed by the Lead Long Term Transmission Customer.

18.2 Equity Lock-in Commitment:

18.2.1 The aggregate equity share holding of the Selected Bidder in the issued and paid up equity share capital of Bidar Transmission Ltd. shall not be less than the following:

(a) Fifty one percent (51%) up to a period of two (2) years after COD of the Project; and

(b) Twenty six percent (26%) for a period of three (3) years thereafter

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 in (a) and (b) 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 five (5) years 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 in (a) and (b) above.

18.2.2 If equity is held by the Affiliates, Parent Company or Ultimate Parent Company of the Selected Bidder, subject to the second proviso to Article 18.2.1, then such Affiliate, Parent Company or Ultimate Parent Company shall be eligible to transfer its shareholding in Bidar Transmission Ltd. 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.

18.2.3 Subject to Article 18.2.1, all transfer(s) of shareholding of Bidar Transmission Ltd. by any of the entities referred to in Article 18.2.1 and 18.2.2 above, shall be after prior written permission from the Lead Long Term Transmission Customer.

18.2.4 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 Bidar Transmission Ltd. 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 Bidar Transmission Ltd., then holding of Selected Bidder A in Bidar Transmission Ltd. 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 Bidar Transmission Ltd., then, for the purposes of ascertaining the minimum equity/equity lock-in requirements specified above, the effective holding of Bidder A in Bidar Transmission Ltd. shall be fifteen percent (15%), (i.e., $30\% \times 50\%$)

18.2.5 The provisions as contained in this Article 18.2 shall override the terms of the consortium agreement submitted as part of the Bid.

18.2.6 The TSP shall be responsible to report, within thirty (30) days from the occurrence of any event that would result in any change in the equity holding structure from that existed as on the date of signing of the Share Purchase Agreement. In such cases, the Lead Long Term Transmission Customer would reserve the right to ascertain the equity holding structure and to call for all such required documents / information/clarifications as may be required.

18.3 Language:

18.3.1 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.

18.3.2 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.

18.4 Affirmation

The TSP and the Long Term Transmission Customers, 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 Long Term Transmission Customers hereby undertake not to engage in any similar acts during the Term of Agreement.

18.5 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.

18.6 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.

18.7 Breach of Obligations

The Parties acknowledge that a breach of any of the obligations 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.

18.8 Nomination Restriction

Notwithstanding anything contained to the contrary in this Agreement, wherever a reference is made to the right of a Long Term Transmission Customer to nominate a third Party to receive benefits under this Agreement, such Third Party shall have a financial standing comparable to that of the Long Term Transmission Customer in question.

18.9 Commercial Acts

The Long Term Transmission Customers and the TSP unconditionally and irrevocably agree that the execution, delivery and performance by each of them of this Agreement and any other RFP Project Document to which it is a Party

constitute private and commercial acts rather than public or governmental acts;

18.10 Restriction of Shareholders/Owners Liability

- 18.10.1 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.
- 18.10.2 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.

18.11 Taxes and Duties:

- 18.11.1 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.
- 18.11.2 Long Term Transmission Customers shall be indemnified and held harmless by the TSP against any claims that may be made against Long Term Transmission Customers in relation to the matters set out in Article 18.11.1.
- 18.11.3 Long Term Transmission Customers shall not be liable for any payment of, taxes, duties, levies, cess whatsoever for discharging any obligation of the TSP by the Long Term Transmission Customers on behalf of TSP or its personnel, provided the TSP has consented in writing to Long Term Transmission Customers for such work, which consent shall not be unreasonably withheld.

18.12 No Consequential or Indirect Losses

The liability of the TSP and the Long Term Transmission Customers shall be limited to that explicitly provided in this Agreement.

Provided that, notwithstanding anything contained in this Agreement, under no event shall the Long Term Transmission Customers or the TSP claim from one another any indirect or consequential losses or damages.

18.13 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.

18.14 Confidentiality

- 18.14.1 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 any of the Long Term Transmission Customers 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.

18.15 Order of priority in application:

In case of inconsistencies between the terms and conditions stipulated in Transmission License issued by Appropriate Commission to the TSP, agreement(s) executed between the Parties, applicable Law including rules and regulations framed there under, 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 there under,
- this Agreement.

18.16 Independent Entity:

- 18.16.1 The TSP shall be an independent entity performing its obligations pursuant to the Agreement.
- 18.16.2 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 Long Term Transmission Customers 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 Long Term Transmission Customers.

18.17 Amendments:

- 18.17.1 This Agreement may only be amended or supplemented by a written agreement between the Parties and after obtaining approval of the Appropriate Commission, where necessary.

18.18 Waiver:

- 18.18.1 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:
- 18.18.2 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.

18.19 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.

18.20 Entirety:

- 18.20.1 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.
- 18.20.2 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 Long Term Transmission Customers by the TSP shall stand superseded and abrogated.

18.21 Notices:

- 18.21.1 All notices or other communications which are required to be given under this Agreement shall be in writing and in the English language
- 18.21.2 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 :
Attention :
Email :
Fax. No. :
Telephone No.:

18.21.3 If to the Long Term Transmission Customers, 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) [Insert Name of the Long Term Transmission Customer]

Address :
 Attention :
 Email :
 Fax. No. :
 Telephone No.:

(ii) [Insert Name of the Long Term Transmission Customer]

Address :
 Attention :
 Email :
 Fax. No. :
 Telephone No.:

(iii)..... [Insert Name of the Long Term Transmission Customer]

Address :
 Attention :
 Email :
 Fax. No. :
 Telephone No.:

(iv).....[Insert Name of the Long Term Transmission Customer]

Address :
 Attention :
 Email :
 Fax. No. :
 Telephone No.:

18.21.4 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.

18.21.5 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.

18.22 Fraudulent and Corrupt Practices

- 18.22.1 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 Long Term Transmission Customer(s) may terminate the Agreement without being liable in any manner whatsoever to the TSP, if it determines that the TSP has, directly or indirectly or through an agent, engaged in corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice in the Bid process. In such an event, the Long Term Transmission Customer(s) shall forfeit the Contract Performance Guarantee, without prejudice to any other right or remedy that may be available to the Long Term Transmission Customer(s) hereunder or subsistence otherwise.
- 18.22.2 Without prejudice to the rights of the Long Term Transmission Customer(s) under Clause 18.22.1 hereinabove and the rights and remedies which the Long Term Transmission Customer(s) may have under this Agreement, if a TSP is found by the Long Term Transmission Customer(s) 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 TSA, the Long Term Transmission Customer(s) may terminate the Agreement without being liable in any manner whatsoever to the TSP. Further, the TSP shall not be eligible to participate in any tender or RFP issued by the Long Term Transmission Customer(s) during a period of 2 (two) years from the date such TSP is found by the Long Term Transmission Customer(s) 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.
- 18.22.3 For the purposes of this Clause 18.22, 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 TSA 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 TSA, as the case may be, any person in respect of any matter relating to the Project or the LoI or the TSA, 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;

18.23 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 Long Term Transmission Customer]

.....

[Signature ,Name, Designation and Address]

3. For and on behalf of

..... [Insert Name of the Long Term Transmission Customer]

.....

[Signature ,Name, Designation and Address]

4. For and on behalf of

..... [Insert Name of the Long Term Transmission Customer]

.....
[Signature ,Name, Designation and Address]

WITNESSES:

1. For and on behalf of

: Regional Power Committee

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

2. For and on behalf of

CTU

[Signature]

[Insert Name, Designation and Address of the Witness]

SCHEDULES

Schedule: 1**List of Long Term Transmission Customers**

Note: As referred to in the recital of this Agreement and in the definition of “Long Term Transmission Customers” in this Agreement

Sl. No.	Name of the Long Term Transmission Customer	Address of Registered Office	Law under which incorporated	Allocated Project Capacity (in MW)*

* While the bidding is being done on the basis of existing Standard Bidding Documents (SBDs), and the list of LTTC is being provided as per the format of the existing SBDs. It is clarified that the transmission charges will be shared and recovered as per the applicable CERC regulation. The transmission charges will be shared and recovered for payment as per the applicable CERC regulation which is at present the Point of Connection mechanism of sharing. As per the present CERC regulation the charges will be recovered by the Central Transmission Utility from the DICs and disbursed to the TSPs as per the Revenue Share Agreement.

Note: The above list of Long Term Transmission Customers is subject to change. Any addition or deletion in this list after the award of LoI shall be duly notified to the Parties to the Agreement.

The new Long Term Transmission Customers shall become a Party to this Agreement after agreeing to the terms and conditions of this Agreement and signing a Supplemental Agreement as annexed in Schedule 12 to this Agreement.

Schedule: 2

Project Description and Scope of Project

1.0 Project Scope:

Sl. No.	Scheme/ Transmission Works	Completion Target
1.	Establishment of 3x1500MVA (765/400kV) and 5x500MVA (400/220kV) Station at suitable border location near Bidar with 765kV (1x240MVAR) and 400kV(1X125MVAR) bus reactor. <u>A. 765kV</u> i) ICT: 10x500MVA, 765/400/33 kV (with 1x500 MVA, 765/400/33 kV Transformer unit as common spare for three banks) ii) ICT bay: 3 nos. iii) Line bay: 2 nos. iv) Bus Reactor: 3x80 MVAR (one bank of 240 MVAR) v) Line Reactor: 6x80 MVAR (two banks of 240 MVAR each) vi) Spare Reactor: 1x80 MVAR (common spare unit for banks of Bus Reactor & Line Reactor) vii) Bus Reactor bay: 1 no. viii) Switchable Line Reactor bay: 2 nos. ix) Space for future line bay: 6 nos. x) Space for future 765/400/33 kV ICT along with associated bay: 1 no. xi) Space for future 765kV Bus Reactor along with associated bay: 1 no. <u>B. 400kV</u> i) ICT: 5x500MVA, 400/220kV ii) ICT bay: 8 nos. (3 nos. for 765/400/33kV and 5 nos. for 400/220/33kV) iii) Bus Reactor: 1x125 MVAR, 420kV iv) Bus Reactor bay: 1 no. v) Space for future line bay: 8 nos. vi) Space for future 765/400/33kV ICT bay: 1 no. vii) Space for future 400/220/33kV ICT along with associated bay: 2 nos.	18 months (December'2021#)

	<u>C. 220kV</u> i) ICT bay: 5 nos. (4 nos. on Bus section-A and 1 no. on Bus section-B) ii) Line bay: 8 nos. (6 nos. on Bus section-A and 2 no. on Bus section-B) iii) Bus sectionalizer bay: 2 nos. (one no. for each Main Bus) iv) Bus coupler bay: 2 nos. (one no. for each Bus section) v) Transfer Bus coupler bay: 2 nos. (one no. for each bus section) vi) Space for future 400/220kV ICT bay: 2 nos. (2 nos. on Bus section-B) vii) Space for future line bay: 4 nos. (2 nos. each on Bus section-A & Bus section-B)	
2.	Bidar PS –Maheshwaram (PG) 765kV D/c line	
3.	2 nos of 765 kV line bays at Maheshwaram (PG) GIS substation for termination of Bidar PS – Maheshwaram (PG) GIS 765kV D/c line	
4.	765 kV, 1x240MVAR switchable line reactor for each circuit at Bidar PS end of Bidar PS– Maheshwaram (PG) 765kV D/c line [as per A. v), vi) & viii) above]	

#Scheduled COD in months is considering Effective Date in June, 2020_. It is clarified that in case there is delay in achieving Effective Date, the schedule shall be compressed accordingly to achieve Scheduled COD by December, 2021..

Note:

- i. POWERGRID to provide space for 2 no. of 765 kV line bays at Maheshwaram (PG) substation for termination of Bidar PS – Maheshwaram (PG) 765 kV D/c line

SPECIFIC TECHNICAL REQUIREMENTS FOR TRANSMISSION LINES

- 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 2010, as amended from time to time.
- 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:
- 2.1** Steel section of grade E 250 and/or grade E 350 as per IS 2062, are only 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.
- 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

- 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.
- 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.
- 5.0** 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 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.
- 6.0** **The relevant conductor configuration shall be as follows:-**

Transmission line	ACSR Conductor specified	Equivalent AAAC conductor based on 53.5% conductivity of Al Alloy	Equivalent AL59 conductor based on 59% conductivity of AL Alloy	Sub-conductor Spacing
765kV 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	Stranding details: 61/3.19mm 28.71 mm diameter; 487.5 sq.mm Aluminium alloy area	Stranding details: 61/3.08mm 27.7 mm diameter; 454 sq.mm Aluminium alloy area	457 mm

Note: The transmission lines shall have to be designed for a maximum operating conductor temperature of 85 deg C for ACSR as well as AAAC and AL59.

- 7.0 The required phase to phase spacing and horizontal spacing for 765kV line shall be governed by the tower design as well as minimum live metal clearances for 765kV voltage level under different insulator swing angles. However, the phase to phase spacing for 765kV line shall not be less than 15 m.
- 8.0 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 ended from time to time and IS:5613. Since these clearances for 765kV are not included in CEA Regulation/ Indian Standard, following values shall be considered:

a) Minimum live metal clearances for 765 kV line:

(i) Under stationary conditions

From tower body: For 765 kV D/C: 6.1 m

For 765kV S/C: 5.6 m

(ii) Under swing conditions

Wind pressure Condition	Minimum electrical clearance
a) Swing angle (25°)	4.4 mtrs
b) Swing angle (55°)	1.3 mtrs

- b) Minimum ground clearance: 15 m
- c) Minimum mid span separation between earthwire and conductor: 9.0 m

9.0 Shielding angle shall not exceed 10deg for 765kV D/C Line transmission line.

10.0 The Fault current for design of line shall be 50 kA for 1 sec for 765kV.

11.0 In case of 765kV 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.

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 kms distance at tension tower for direct earthing of both shield wires.

Transmission Scheme for Solar Energy Zone in Bidar (2500 MW), Karnataka

SPECIFIC TECHNICAL REQUIREMENTS FOR SUBSTATION

The proposed new substation shall be conventional AIS type generally conforming to the requirements of CEA regulation for construction of substation.

The proposed augmentation at Maheswaram (PG) shall be GIS type generally conforming to the requirement of CEA regulation for construction of substation.

1.0 Salient features of Substation Equipment and Facilities

The design and specification of substation equipment are to be governed by the following factors:

1.1 Insulation Coordination

The system design parameters for substations/switchyards shall be as given below:

Sl No	Description of parameters	765/400/220kV Bidar PS			765kV Maheswaram (PG) GIS Extn.
		765 kV System	400 kV System	220 kV System	765 kV System
1.	System operating voltage	765kV	400kV	220kV	765kV
2.	Maximum voltage of the system (rms)	800kV	420kV	245kV	800kV
3.	Rated frequency	50Hz	50Hz	50Hz	50Hz
4.	No. of phase	3	3	3	3
5.	Rated Insulation levels				
i)	Impulse withstand voltage for (1.2/50 micro sec.) - Transformer and Reactors - for Other Equipment - for Insulator String	1950kVp 2100kVp 2100kVp	1300kVp 1425kVp 1550kVp	950 kVp 1050kvp 1050kVp	1950kVp 2100kVp 2100kVp
ii)	Switching impulse withstand voltage (250/2500 micro sec.) dry and wet	1550kVp	1050kVp	-	1550kVp
iii)	One minute power frequency dry withstand voltage (rms)	830kV	630kV	-	830kV
iv)	One minute power frequency dry and wet withstand voltage (rms)	-	-	460kV	-
6.	Corona extinction voltage	508 kV	320kV	-	508 kV

Sl No	Description of parameters	765/400/220kV Bidar PS			765kV Maheswaram (PG) GIS Extn.
		765 kV System	400 kV System	220 kV System	765 kV System
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 266kV rms	1000 micro-volts at 156kV rms	2500 micro-volts at 508 kV rms
8.	Minimum creepage distance for insulator string/ longrod insulators/ outdoor bushings	24800 mm (31mm/kV)	13020 mm (31mm/kV)	7595 mm (31mm/kV)	24800 mm (31mm/kV)
9.	Minimum creepage distance for switchyard equipment other than those mentioned at sl. no. 8 above	20000 (25mm/kV)	10500mm (25mm/kV)	6125 mm (25mm/kV)	20000 (25mm/kV)
10.	Max fault current	50kA	63kA	50kA	40kA
11.	Duration of fault	1 sec	1 Sec	1 Sec	1 Sec

1.2 Switching Scheme

The switching schemes, as mentioned below, shall be adopted at various voltage levels of substation/switchyard:

Substation	765kV side	400kV side	220kV side
765/400/220kV Bidar PS	One & half breaker (AIS)	One & half breaker (AIS)	Double Main & Transfer (AIS) with sectionalization
765kV Maheswaram (PG) GIS	One & half breaker (GIS)	-----	-----

- At 765kV & 400kV voltage level, each circuit of a double circuit transmission line shall be terminated in different diameters.
- Transformers of same HV rating shall be placed in different diameters.

2.0 Substation Equipment and Facilities:

The switchgear shall be designed and specified to withstand operating conditions and duty requirements. The rated current of equipment shall be as mentioned below:

Sl. No	Description of bay	765/400/220kV Bidar PS			765kV Maheswaram (PG) GIS S/S Extn.
		765kV	400kV	220 kV	400kV
1.	Bus Bar	4000A	4000A	4000A	4000A
2.	Line bay	3000A	3000A	1600A	3000A
3.	ICT bay	3000A	3000A	1600A	-
4.	Bus Reactor bay	3000A	3000A	-	-
5.	Line Reactor	3000A	-	-	-
6.	GIS Auxiliary Bus Module for switching of Transformer	-	-	-	3000A
7.	Bus Coupler bay	-	-	4000A	-
	Transfer Bus coupler bay	-	-	1600A	-
	Bus sectionalizer bay	-	-	4000A	-

Further, current rating of all equipment in one diameter shall be the highest current rating required for connected line/ICT/Reactor so that the system could operate without any constraint in case of outage of any bus bar.

At 765kV Maheswaram GIS substation, 2 nos. of 765kV GIS complete diameters shall be constructed by TSP. Out of these two diameters, one 765kV GIS diameter shall be suitable for termination of 1 no. of 765kV line (one circuit of Bidar- Maheshwaram D/C line) and 1 no. of 765kV side of 765/400kV future Transformer. The second 765kV GIS diameter shall be suitable for termination of 1 no. of 765kV line (second circuit of Bidar-Maheshwaram D/C line) and 1 no. of 765kV future line.

TSP shall also provide 765kV GIS Auxiliary bus module complete with necessary extension/interface module suitable for future extension for switching of future 765/400kV Transformer. The 765kV GIS bus ducts for connection with 765kV side of future 765/400kV Transformer and 765kV future line shall be brought outside of the GIS hall and shall be provided with extension/interface module suitably for future connection. Existing 765kV Main Bus-I & II and 765kV auxiliary bus for 765/400kV ICTs shall be extended to the GIS hall being constructed under present scope.

2.1 (765/ $\sqrt{3}$) / (400/ $\sqrt{3}$) / 33 kV Single Phase Autotransformer

Transformer shall conform to IEC-60076 in general. The transformer and all its accessories including bushing/ built in CTs etc. shall be designed to withstand thermal and mechanical stresses caused by symmetrical or asymmetrical faults on any terminals. Mechanical strength of the transformer shall be such that it can withstand 3-phase and 1- phase through fault for transformer rated voltage applied to HV and/or IV terminals of transformer. The short circuit shall alternatively be considered to be applied to each of the IV, HV and tertiary (LV) terminals of the transformer. The tertiary is not considered to be connected to source. The maximum short

circuit output current at the tertiary terminals shall be limited to a safe value to make the transformer short circuit proof. The Tertiary winding shall be designed to withstand mechanical and thermal stresses due to dead short circuit on its terminals. However, the cooling for continuous thermal rating of the tertiary winding shall be of at least 5 MVA capacity.

Core shall be constructed from high grade, non-ageing cold rolled super grain oriented silicon steel laminations with requisite BIS certification (HI-B or better grade). The maximum flux density in any part of the core and yoke at the rated MVA, voltage and frequency shall not exceed 1.9 Tesla at all tap positions during 10% continuous over voltage condition. The Transformers shall withstand without damage and over-heating due to over fluxing conditions of 105% for continuous, 125% for 1 minute and 150% for 5 seconds.

All the windings shall be capable of withstanding the dielectric, mechanical and thermal stresses which may be caused by switching, dead short circuit on its terminals. Transfer surge at tertiary shall not exceed 250kVp during impulse from HV & IV Terminals. The air core reactance of the HV winding shall be not less than 25%. External or internal reactors shall not be used to achieve the specified HV/IV, HV/LV and IV/LV impedances.

Transformer shall be fitted with 4x33.3 % independent cooler banks, out of which 3x33.3 % shall be capable of dissipating total losses at continuous maximum rating and 1x33.3% radiator bank shall be used as stand by. Each cooler bank (1x33.3%) shall be capable of dissipating 33.3 per cent of the loss at continuous maximum rating independently. Cooling shall be so designed that during total failure of power supply to cooling fans and oil pumps (considering only three cooler bank (3x33%), the transformer shall be able to operate at full load for at least twenty (20) minutes without the calculated winding hot spot temperature exceeding 140 deg C. Transformer shall be designed so that tank hotspot shall not exceed 110 deg C, considering maximum ambient temperature of 50 Deg. C.

The transformer shall be complete with all required accessories, Bushing CTs, Neutral CT (outdoor type), cooler control cabinet, individual and common marshalling box, RTCC etc. as required for satisfactory operations of transformer. The transformer shall be provided with IEC 61850 compliant digital RTCC relay having automatic voltage regulating features using Bay control and protection unit used for SAS to operate OLTC including parallel operation of transformers. Neutral of the transformer shall be solidly grounded.

HV & IV bushings shall be porcelain / composite type and hermetically sealed oil filled condenser type. LV bushing shall be of RIP (resin impregnated paper condenser) with composite insulator type. 36kV Neutral bushing shall be solid or oil communicating type with porcelain housing.

The Technical Particulars / Parameters of Transformer are given below:

Sl.	Description	Unit	Parameters
1	Rated Capacity: HV/IV	MVA	500MVA, 1- phase
2	Voltage ratio (Phase Voltage)	kV	$(765/\sqrt{3}) / (400/\sqrt{3}) / 33$ kV
3	Vector Group (3 –ph)		YNaoD11
4	Cooling		ONAN/ONAF/(OFAF or ODAF) OR

			ONAN/ONAF1/ONAF2
5	Rating at different cooling	%	60/80/100
6	Frequency	Hz	50
7	Impedance at 75 Deg C		Tolerances as per IEC
	HV – IV	%	At Max. / Principal / Min. Voltage tap: 12.8 / 14.0 / 16.3
	HV - LV	%	At Max. / Principal / Min. Voltage tap: 160 / 195 / 240
	IV - LV	%	At Max. / Principal / Min. Voltage tap: 150 / 180 / 220
8	Temp. rise over 50deg C Ambient Temp	Deg. C	Top oil: 40, Winding: 45, Hotspot: 59
9	Losses		
a)	Maximum No-Load Loss at rated voltage and frequency	kW	70
b)	Maximum Load Loss at rated current and 75°C	kW	450
c)	Maximum Auxiliary Loss at rated voltage and frequency	kW	10
10	Windings		
i)	Insulation Level (LI/SI/PF)		kVp/kVp/kVrms
	HV		1950/1550/-
	IV		1300/1050/570
	LV		250/-/95
	Neutral		170/-/70
ii)	Tan delta of windings	%	< 0.5
11	Tap Changer on the neutral side of the winding & Tapping details		OLTC with range $\pm 5.5\%$ for HV variation in step of 0.5%, 22 steps
12	Partial discharge (PD) level at 1.58 x 765kV / $\sqrt{3}$	pC	≤ 100
13	Noise level at rated voltage and at principal tap at full load and all cooling active	dB	≤ 80
14	Insulating oil		virgin high grade inhibited, conforming to IEC- 60296
15	Bushing		
A	Rated voltage HV/IV/LV/Neutral	kV	800/420/52/36
B	Rated current (Min.): HV/IV/LV/Neutral	A	2500/2500/3150/3150
C	Insulation Level (LI/SI/PF)		kVp/kVp/kVrms
	HV		2100/1550/970
	IV		1425/1050/695

	LV		250/-/105
	Neutral		170/-/77
D	Tan delta of bushings	%	< 0.5
E	PD Level of Bushing at Um	pC	≤ 10

2.2 765/√3 kV Single Phase Shunt Reactor

Reactor shall conform to IEC-60076 in general. The reactor shall be designed to withstand the over-voltages repeatedly without risk of failure at 1.05 Um continuously, 1.25 Um for 1 minute and 1.50 Um for 5 seconds (where Um is 800/√3 kV). The reactors shall be designed for switching surge overvoltage of 1.9 p.u. and temporary over voltage of the order of 1.4 p.u. for about 10 cycles followed by power frequency overvoltage upto 830 kVrms for about five minutes. The reactor shall withstand the stress due to above transient dynamic conditions which may cause additional current flow as a result of changed saturation characteristics/slope beyond 1.25 p.u. voltage.

The shunt reactor shall be of either gapped core type or magnetically shielded air core type (shell type) construction. The impedance ratio (X0/X1) specified shall be achieved adopting by either single phase construction in separate tanks or 3 limb core construction. In case of coreless construction, a magnetic shield shall be provided around the coreless coils and non-magnetic material sheet shall form the central core to minimize the vibrations. Core shall be constructed from non-ageing, cold rolled grain oriented silicon steel laminations with requisite BIS certification.

Shunt Reactors shall be capable of operating continuously at a voltage 5% higher than their rated voltage and the thermal & cooling system shall be designed accordingly considering maximum ambient temperature as 50 Deg C.

Reactor shall be designed so that tank hotspot shall not exceed 110 deg C, considering maximum ambient temperature of 50 Deg. C.

The reactor shall be complete with all required accessories, Bushing CTs, Neutral CT (outdoor type) (if required), individual and common marshalling box etc. as required for satisfactory operations of reactor. HV bushing shall be porcelain/composite type and hermetically sealed oil filled condenser type. Neutral Bushing shall be 145kV RIP (resin impregnated paper condenser) with composite insulator type.

The Technical Particulars / Parameters of Reactor are given below:

Sl.	Description	Unit	Parameters
1	Rated Capacity at 765/√3 kV	MVA R	80, 1-phase
2	Rated Voltage (Ur)	kV	765/√3
3	Maximum operating voltage continuous (Um)	kV	800/√3
4	Cooling System		ONAN

5	Permissible unbalance among current different phases		$\pm 1\%$
6	Crest value of Third Harmonic content in phase current at rated voltage with sinusoidal wave form	%	$\leq 3\%$ of the crest value of fundamental
7	Range of constant current		Up to 1.25 p.u. voltage
8	Tolerance on current	%	(i) 0 to +5% for a single phase unit (ii) $\pm 1\%$ for between units
9	Ratio of zero sequence reactance to positive reactance (X_0/X_1)	Range	0.9 - 1.0
10	Max. Temp. rise over 50 deg C Ambient Temp and Voltage at 800/ $\sqrt{3}$ KV		Top oil/Winding/Hotspot: 40/45/59
11.	Losses		
a)	Maximum Permissible Losses at rated Voltage, Frequency and at 75°C (kW)	kW	98
12	Windings		
i)	Insulation level (LI/SI/PF)		kVp / kVp / kVrms
	HV		1950/1550/830 (Ph-Earth) for 5 min.
	Neutral		550/-/230
ii)	Tan delta of windings	%	< 0.5
13	Vibration at 800/ $\sqrt{3}$ kV and rated frequency	micro n	≤ 200 microns peak to peak
14	Noise level at at 800/ $\sqrt{3}$ kV and rated frequency	dB	≤ 80 dBA
15	Insulating Oil		virgin high grade inhibited, conforming to IEC-60296
16	Partial discharge (PD) level at 1.58 Ur / $\sqrt{3}$	pC	< 100
17	Bushing		
i)	Rated voltage: HV / Neutral	kV	800/145
ii)	Rated current (Min.): HV / Neutral	A	2500/1250
iii)	Insulation level (LI/SI/PF)		kVp / kVp / kVrms
	HV		2100/1550/970
	Neutral		650/-/305
iv)	Tan delta of bushings: HV/Neutral	%	< 0.5
v)	PD of Bushing at Um: HV/Neutral	pC	< 10

The neutral of shunt reactor shall be insulated to 550 kVp for lightning impulse. The neutral of the line reactors (wherever provided) shall be grounded through adequately rated Neutral Grounding Reactors (NGR) to facilitate single phase auto-reclosure, provided that the NGR shall be provided with bypass arrangement through a breaker so that the line reactor can be used as Bus Reactor as and when required. The neutral of Bus Reactor shall be solidly grounded.

Neutral Grounding Reactor (NGR) and Surge Arrester for 765kV line reactors

The neutral grounding reactors are required for grounding of the neutral point of shunt reactors to limit the secondary arc current and the recovery voltage to a minimum value. NGR shall be dry type air core for outdoor application. Line and ground side of NGR shall be rated for 145kV and 36kV class of insulation respectively. NGR shall be rated for continuous current of 20A and short time current of 240A r.m.s for 1 minute. However, the NGR shall be designed for a short time current of 600 Amp r.m.s to ensure mechanical robustness. It shall be solidly connected between neutral of shunt reactor and earth. The NGR shall be mounted on support structure (non-magnetic material) high above ground level (2.55 meter) to allow free and safe access at ground level for personnel.

The surge arresters (rated voltage 132kV) shall be of heavy duty station class type. It shall be physically located between the neutral of shunt reactor (brought out at 145kV class bushing) and neutral grounding reactor. The surge arresters shall conform in general to IEC-60099-4. Surge arresters shall be of gapless type without any series or shunt gap. Arresters shall be hermetically sealed units, of self-supporting construction, suitable for mounting on structures.

2.3 400/220kV, 3-Phase Transformer

Transformer shall conform to IEC 60076 in general. The 500 MVA transformers shall be designed based on design of dynamic short circuit tested 315 MVA or 500 MVA transformers. The transformer and all its accessories including bushing/ built in CTs etc shall be designed to withstand thermal and mechanical stresses caused by symmetrical or asymmetrical faults on any terminals. Mechanical strength of the transformer shall be such that it can withstand 3- phase and 1- phase through fault for transformer rated voltage applied to HV and / or IV terminals of transformer. The short circuit shall alternatively be considered to be applied to each of the HV, IV and tertiary (LV) transformer terminals. Tertiary is not considered to be connected to source.

Core shall be constructed from non-ageing, cold rolled high permeability grade or better grain oriented silicon steel laminations with requisite BIS certification. The maximum flux density in any part of the core and yoke at the rated MVA, voltage and frequency shall not exceed 1.9 Tesla at all tap positions during 10% continuous over voltage condition. Transformers shall withstand without damage and over-heating due to over fluxing conditions of 110 % for continuous, 125 % for 1 minute and 140 % for 5 seconds.

All the windings shall be capable of withstanding the dielectric, mechanical and thermal stresses which may be caused by switching, dead short circuit on its terminals. Transfer surge at tertiary shall not exceed 250kVp during impulse from HV & IV Terminals. The tertiary windings shall be suitable for connection of reactors or capacitors which would be subjected to frequent switching and shall be suitable for connection to LT Transformer for auxiliary supply. The air core reactance of HV winding of transformer shall not be less than

20% for 400kV class Transformer. External or internal reactors shall not be used to achieve the specified HV/IV, HV/LV and IV/LV impedances.

Transformers shall be fitted with two cooler banks, each capable of dissipating 50 per cent of the loss at continuous maximum rating. Transformer shall be capable of operating at full load for 20 minutes in the event of failure of the oil circulating pump or blowers associated with one cooler bank and for at least ten (10) minutes in the event of total failure of power supply to cooling fans and oil pumps, without winding hot spot temperature exceeding 140 deg C. Transformer shall be designed so that tank hotspot shall not exceed 110 deg C, considering maximum ambient temperature of 50 Deg. C.

The transformer shall be complete with all required accessories, Bushing CTs, cooler control cabinet, individual and common marshalling box, RTCC etc as required for satisfactory operations of transformer. The transformer shall be provided with IEC 61850 compliant digital RTCC relay having automatic voltage regulating features using Bay control and protection unit used for SAS, to operate OLTC including parallel operation of transformers.

Neutral of the transformer shall be solidly grounded.

HV, IV and LV bushing shall be RIP (resin impregnated paper condenser) with composite insulator type. 36kV Neutral bushing shall be solid porcelain or oil communicating type.

The major technical particulars / parameters of transformer are given below:

Technical Particulars / Parameters of 500MVA, 400/220/33kV, 3-Phase Autotransformer			
Sl.	Description	Unit	Technical Parameters
1.	Rated Capacity : HV/IV/ LV (Tertiary)	MVA	500/500/166.67
2.	Voltage ratio (Line to Line)		400/220/33
3.	Vector Group		YNaOd11
4.	Cooling		ONAN/ONAF/(OFAF or ODAF) or ONAN/ONAF1/ ONAF2
5.	Rating at different cooling above	%	60/80/100
6.	Type of Transformer		Constant Ohmic impedance type
7.	Impedance at 75 Deg C		
a)	HV – IV (with tolerance as per IEC)	%	At Max./ Principal/ Min. Voltage Tap: 10.3/12.5/15.4
b)	HV - LV	%	At Principal tap(minimum) : 60

c)	IV - LV	%	At Principal tap (minimum): 45
8.	Losses		
a)	Maximum No-Load Loss at rated voltage and frequency	kW	90
b)	Maximum Load Loss at rated current and 75 ⁰ C	kW	500
c)	Max I ² R loss at rated current and frequency and at 75 ⁰ C for HV and IV windings	kW	375
d)	Maximum Auxiliary Loss at rated voltage and frequency	kW	15
9.	Max. Temperature rise over 50 deg C ambient Temp	Deg. C	Top oil: 45 & Winding: 50
10.	Windings		
i)	Insulation Level (LI/SI/PF)		kVp/kVp/kVrms
a)	HV		1300/1050/570
b)	IV		950/-/395
c)	LV		250/-/95
d)	Neutral		95/-/38
ii)	Tan delta of winding	%	< 0.5
11.	Tap Changer & Tappings		OLTC with range $\pm 10\%$ for HV variation in the step of 1.25%, on common end of series winding
12.	Maximum Partial discharge (PD) level at $1.58 \cdot U_r / \sqrt{3}$	pC	100
13.	Noise level at rated voltage and at principal tap at no load and all cooling active	dB	< 80
14.	Bushing		
i)	Rated voltage (HV/IV/LV/Neutral)	kV	420/245/52/36
ii)	Rated current (Min.) HV/IV/LV/Neutral	A	1250/2000/3150/2000
iii)	Insulation Level (LI/SI/PF)		kVp/ kVp/ kVrms
a)	HV		1425/ 1050/ 695
b)	IV		1050/ 850/ 505
c)	LV		250/ -/ 105
d)	Neutral		170/ -/ 77
iv)	Tan delta of bushings HV/IV/LV	%	< 0.5
v)	Max. PD of bushings at level Um	pC	10

15.	Insulating Oil		virgin high grade inhibited, conforming to IEC-60296
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2.4 420kV, 3-Phase, Shunt Reactor

Reactor shall conform to IEC 60076-6 in general. The reactor shall be designed to withstand the over-voltages repeatedly without risk of failure at 1.05 Ur continuously, 1.25 Ur for 1 minute and 1.50 Ur for 5 seconds (where Ur is 420kV). The reactors shall be designed for switching surge overvoltage of 2.5 p.u. and temporary overvoltage of 2.3 p.u. for few cycles followed by power frequency overvoltage up to 1.5 p.u. The reactor must withstand the stress due to above transient dynamic conditions which may cause additional current flow as a result of changed saturation characteristics/slope beyond 1.5 p.u. voltage.

The reactor shall be of either gapped core type or magnetically shielded air core type (shell type) construction. The impedance ratio (X_0/X_1) specified shall be achieved by adopting either single phase construction in separate tanks or three phase with 3 limb or 5 limb core construction. In case of coreless construction, a magnetic shield shall be provided around the coreless coils and non-magnetic material sheet shall form the central core to minimize the vibrations. Core shall be constructed from non-ageing, cold rolled grain oriented silicon steel laminations with requisite BIS certification.

Shunt Reactors shall be capable of operating continuously at a voltage 5% higher than their rated voltage without exceeding winding and tank hot spot temperature 140 Deg and 110 Deg Celsius respectively, considering maximum ambient temperature as 50 Deg C.

The reactor shall be complete with all required accessories, Bushing CTs, marshalling box etc as required for satisfactory operations of reactor. HV and Neutral bushings shall be RIP (resin impregnated paper condenser) with composite insulator type.

The Technical Particulars / Parameters of Shunt Reactor are given below:

Sl.	Description	Unit	Parameters
1.1	Rated Voltage, Ur (1p.u)	kV	420
1.2	Rated Capacity at 420 kV	MVA R	125
1.3	Cooling System		ONAN
1.4	Permissible current unbalance among different phases	%	± 2
1.5	Crest value of Third Harmonic content in phase current at rated voltage with sinusoidal wave form	%	$\leq 3\%$ of the crest value of fundamental
1.6	Range of constant Impedance		Up to 1.5 p.u. voltage
1.7	Tolerance on current	%	0 to +5%

Sl.	Description	Unit	Parameters
1.8	Ratio of zero sequence reactance to positive reactance (X0/X1)	Range	0.9 - 1.0
1.9	Max. Temperature rise over 50 deg C Ambient Temp at rated voltage	Deg. C	Top oil: 40 & Winding: 45
1.10	(a) Maximum Permissible load Losses at rated Voltage, Frequency and at 75° C (kW) for 420kV, 125 MVAR, 3-Phase Reactor	kW	160
	(b) Maximum Permissible I ² R Losses of Reactor at rated Voltage, Frequency and at 75° C	kW	90
1.11	Windings		
a)	Insulation level (LI/SI/PF)		kVp/ kVp/kVrms
	HV		1300/1050/-
	Neutral		550/-/230
b)	Tan delta of windings	%	< 0.5
1.11	Partial discharge (PD) level at 1.58 Ur / $\sqrt{3}$	pC	< 100
1.12	Vibration & Tank stress level at rated voltage and frequency		≤ 200 microns peak to peak; Average: ≤60 microns peak to peak. Stress: ≤ 2.0kg/sq.mm at any point on tank.
1.13	Noise level at rated voltage and frequency	dB	< 80
1.14	Bushing		
a)	Rated voltage : HV / Neutral	kV	420/145
b)	Rated current (Min.) HV / Neutral	A	800/800
c)	Insulation level (LI/SI/PF)		kVp/ kVp / kVrms
	HV		1425/1050/695
	Neutral		650/-/305
d)	Tan delta of bushings : HV / Neutral	%	< 0.5
e)	PD of bushings at level Um	pC	<10

Sl.	Description	Unit	Parameters
1.15	Insulating Oil		virgin high grade inhibited, conforming to IEC-60296

The neutral of shunt reactor shall be insulated to 550 kVp for lightning impulse. The neutral of the line reactors (wherever provided) shall be grounded through adequately rated Neutral Grounding Reactors (NGR) to facilitate single phase auto-reclosure, provided that the NGR shall be provided with bypass arrangement through a breaker so that the line reactor can be used as Bus Reactor as and when required. The neutral of Bus Reactor shall be solidly grounded.

Neutral Grounding Reactor (NGR) and Surge Arrester for 400kV Line Reactors (as applicable)

The neutral grounding reactors are required for grounding of the neutral point of shunt reactors to limit the secondary arc current and the recovery voltage to a minimum value. NGR shall be oil filled type suitable for outdoor application. Line and ground side of NGR shall be rated for 145kV and 36kV class of insulation respectively. NGR shall be rated for continuous current of 10A and short time current of 60A r.m.s for 10 seconds. It shall be solidly connected between neutral of shunt reactor and earth.

The surge arresters (rated voltage 120kV) shall be of heavy duty station class type. It shall be physically located between the neutral of shunt reactor (brought out at 145kV class bushing) and neutral grounding reactor. The surge arresters shall conform in general to IEC-60099-4. Surge arresters shall be of gapless type without any series or shunt gap. Arresters shall be hermetically sealed units, of self-supporting construction, suitable for mounting on structures.

2.5 765kV GIS Substation equipment

GIS (Gas Insulated Switchgear) shall be Indoor type in accordance to IEC: 62271- 203. The switchgear shall be designed and specified to withstand operating conditions and duty requirements. All the switchgear such as Circuit Breaker, isolator, earth switch including CT, PT etc. shall be GIS type. Outdoor Surge Arrester and Voltage Transformer shall be AIS or GIS type.

The GIS assembly shall consist of separate modular compartments e.g. Circuit Breaker compartment, Bus bar compartment filled with SF6 Gas and separated by gas tight partitions so as to minimize risk to human life, allow ease of maintenance and limit the effects of gas leaks failures & internal arcs etc. These compartments shall be designed to minimize the risk of damage to adjacent sections and protection of personnel in the event of a failure occurring within the compartments. Rupture diaphragms with suitable deflectors shall be provided to prevent uncontrolled bursting pressures developing within the enclosures under worst operating conditions, thus providing controlled pressure relief in the affected compartment. The arrangement of gas sections or compartments shall be such as to facilitate future extension of any make without any drilling, cutting or welding on the existing equipment. To add equipment, it shall not be necessary to move or dislocate the

existing switchgear bays.

The bus bar modules including auxiliary bus modules (wherever applicable) shall be provided with suitable End Piece (Interface) module with the test link facility for future extension as per provisions of future requirement. The end piece module shall be designed in such a way so that future GIS module may be tested without extending test voltage to existing bus and vice-versa by removing the test link.

TSP shall make available the complete details for the design of interface module such as cross section, enclosure material, enclosure dimensions (inner & outer), Flange diameter (inner & outer), conductor cross-section & connection arrangement, bolt spacing & dimension, rated gas pressure, Gasket detail etc. Further, adequate space for GIS busbar interface module shall be taken into account for future scope. Each section shall have plug-in or easily removable connection pieces to allow for easy replacement of any component with the minimum disturbance to the remainder of the equipment. Inspection windows (View Ports) shall be provided for Disconnect Switches and both type of earth switches i.e. Maintenance and fast operating.

Local control cabinets (LCC) shall be provided as per requirement. The alarm & annunciation of GIS equipment shall be wired to SCADA System.

The material and thickness of the enclosures shall be such as to withstand an internal flash over without burns through for a period of 300 ms at rated short time withstand current. The material shall be such that it has no effect of environment as well as from the by-products of SF6 breakdown under arcing condition. This shall be validated with Type Test.

Service continuity requirement for GIS:

The GIS equipment with the given bus switching arrangement shall be divided into different gas compartments. During the work such as a fault repair or major maintenance, requiring the dismantling of a gas compartment for which more than one compartments may need to be de-gassed.

TSP shall meet following Service continuity conditions (to the extent possible) with ensuring equipment and operating personnel's safety:

- For One & half breaker bus switching scheme, during a fault in Circuit Breaker compartment, no bus bar and feeder is permitted out of service during maintenance and repair/replacement.
- For Double Main bus switching scheme, during a fault in Circuit Breaker compartment, no bus bar is permitted out of service during maintenance and repair/replacement.
- During a fault in GIS compartment other than Circuit Breaker compartment, maximum one bus bar and/or one feeder is permitted out of service during maintenance and repair/replacement.

UHF sensors in GIS for PD (Partial Discharge) detection:

Adequate number of UHF sensors shall be provided in the offered GIS alongwith suitable portable type PD measuring instrument for detection of Partial discharge (of 5 pC and above as per IEC 60270). The number and location of these sensors shall be based on laboratory test on

typical design of GIS as per recommendations of CIGRE Document No. 654 (Application Guide for sensitivity verification for UHF Partial discharge detection system for GIS).

2.5.1 Circuit Breakers

GIS Circuit breakers shall in general be of C2-M2 class and comply to IEC- 62271-100. The rated break time shall not exceed 40 ms for 765kV. Circuit breakers shall be provided with single phase and three phase auto reclosing. The Circuit breakers controlling 765kV lines shall be provided with pre insertion closing resistor of about 450 ohms with 9 ms insertion time or Controlled Switching Device (CSD). The short line fault capacity shall be same as the rated capacity and this is proposed to be achieved without use of opening resistors. Control switching device shall be provided in Circuit Breaker of switchable line reactor bay and in Main & Tie bay circuit breakers of line with non-switchable line reactors, Bus reactors and 765/400kV Transformers (wherever applicable).

2.5.2 Isolators

The isolators shall comply to IEC 62271-102 in general. Isolators shall be motor (DC powered) operated. Earth switches are provided at various locations to facilitate maintenance. Main blades and earth blades shall be interlocked and interlock shall be fail safe type. All earth switches shall be motor operated type.

Isolator shall be suitable for Bus Transfer Current Switching duty as per IEC standard. High speed earthing switches shall be provided for grounding purpose at overhead line terminations & cable terminations & cable terminations and shall have fault making capability as specified. Earth switch for line isolator shall be of earthing switch class E1 and shall be suitable for induced current switching duty as defined for Class-B as per relevant standard.

2.5.3 Current Transformers

Current Transformers shall comply with IEC 61869 in general. All ratios shall be obtained by secondary taps only. Generally, Current Transformers (CT) shall have five cores (four for protection and one for metering) whereas; CT in Tie bays shall have six cores (four for protections & two for metering) suitably distributed on both sides of CB (for 400kV and above voltage class). 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 for better sensitivity and accuracy.

2.5.4 Voltage Transformer

The voltage transformers shall conform to IEC-61869. Voltage transformers shall be of electromagnetic type with SF6 gas insulation. The earth end of the high voltage winding and the ends of the secondary winding shall be brought out in the terminal box. The voltage transformers shall be located as a separate bay module and will be connected phase to ground and shall be used for protection, metering and synchronization. The voltage transformers shall be of inductive type, nonresistant and shall be contained in their own-SF6 compartment, separated from other parts of installation. The voltage transformer shall be effectively shielded against high frequency electromagnetic transients. The voltage

transformer shall have three secondary windings. The voltage transformer should be thermally and dielectrically safe when the secondary terminals are loaded with the guaranteed thermal burdens. The accuracy class for protection cores shall be 3P. The accuracy of 0.2 on metering core should be maintained throughout the entire burden range on all the three windings without any adjustments during operation. The rated burden of cores shall be closer to the maximum burden requirement of metering & protection system for better sensitivity and accuracy.

2.5.5 SF6 to Air Bushing

Outdoor bushings, for the connection of conventional external conductors to the SF6 metal enclosed switchgear, shall be provided. Bushings shall generally be in accordance with the requirements of IEC -60137. The creepage distance over the external surface of outdoor bushings shall not be less than 31 mm/kV. SF6 to air Bushing shall be of Polymer / composite type and shall be robust and designed for adequate cantilever strength to meet the requirement of seismic condition. The electrical and mechanical characteristics of bushings shall be in accordance with IEC 60137. Polymer / composite insulator shall be seamless sheath of silicone rubber compound. The housing & weather sheds should have silicon content of minimum 30% by weight. It should protect the bushing against environmental influences, external pollution and humidity. The hollow silicone composite insulators shall comply with the requirements of IEC 61462 and the relevant parts of IEC 62217.

2.6 Circuit Breakers (AIS)

The circuit breakers and accessories shall conform to IEC: 62271-100, IEC: 62271-1 and shall be of SF6 Type. The rated break time shall not exceed 40 ms for 765kV & 400kV circuit breakers and 60 ms for 220kV circuit breakers. 765kV, 400kV and 220kV Circuit breakers shall be provided with single phase and three phase auto reclosing. The Circuit breakers controlling 765kV lines shall be provided with pre insertion closing resistor of about 450 ohms maximum with 9 ms minimum insertion time or Controlled Switching Device. The Circuit breakers controlling 400kV lines of more than 200km length shall be provided with pre insertion closing resistor of about 400 ohms maximum with 8 ms minimum insertion time or Controlled Switching Device. The short line fault capacity shall be same as the rated capacity and this is proposed to be achieved without use of opening resistors. Control switching device shall be provided in Circuit Breaker of switchable line reactor bay and in Main & Tie bay circuit breakers of line with non-switchable line reactors, Bus reactors and 765/400kV Transformers (wherever applicable).

2.7 Isolators (AIS)

The isolators shall comply to IEC 62271-102 in general. 765kV Isolator design shall be double break or vertical break or knee-type. 400 kV and 220kV Isolators shall be double break type. All Isolators and earth switches shall be motor operated. Earth switches shall be provided at various locations to facilitate maintenance. Isolator rated for 765kV, 400kV and 220kV shall be of extended mechanical endurance class-M2 and all earth switches shall be class M0 as per IEC-62271-102. Main blades and earth blades shall be interlocked and interlock shall be fail safe type. 765kV, 400kV and 220kV earth switch for line isolator shall be suitable for induced current switching duty as defined for Class-B.

2.8 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 765kV & 400kV shall have six cores (four for protection and two for metering). 220kV Current Transformers shall have five cores (four for protection and one for metering). The burden and knee point voltage shall be in accordance with the requirements of the system including possible feeds for telemetry. 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 for better sensitivity and accuracy.

2.9 Capacitor Voltage Transformers (AIS)

Capacitive Voltage transformers shall comply to 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 it shall be 0.2. The Capacitive voltage transformers on lines shall be suitable for Carrier Coupling. The Capacitance of CVT for 765kV shall be 8800 pF. The Capacitance of CVT for 400kV and 220kV shall be of 4400/8800 pF depending on PLCC requirements. The rated burden of cores shall be closer to the maximum burden requirement of metering & protection system for better sensitivity and accuracy.

2.10 Surge Arresters (AIS)

624kV, 336kV & 216kV Station class, current limiting, heavy duty gapless type Surge arresters conforming to IEC 60099-4 in general shall be provided for 800kV, 420kV & 245kV systems respectively. The rated voltage of Surge arrester and other characteristics are chosen in accordance with system requirements. Surge arresters shall be provided near line entrances, transformers & Reactor 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.

2.11 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. All numerical relays shall have built in disturbance recording feature.

a) Transmission Lines Protection

765kV, 400kV and 220kV lines shall have Main-I numerical three zone distance protection scheme with carrier aided inter-tripping feature. 765kV, 400kV and 220kV 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

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 30kM) having

Fibre 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 220kV line bays where the line lengths are not indicated, Numerical Distance protection relay as Main-I and Line Current differential relay (with back up distance protection feature) as Main-II shall be provided. Further, in such case, the matching line current differential relay for remote end shall be provided by the remote end 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 765kV, 400kV and 220kV lines shall be provided with single and three phase auto-reclosing facility to allow reclosing of circuit breakers in case of transient faults. These lines shall also be provided with distance to fault locators to identify the location of fault on transmission lines.

All 765kV & 400kV 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 765kV, 400kV and 220kV 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 HV & MV side
- iv) Numerical Over fluxing protection on HV & MV side
- v) Numerical Overload alarm
- vi) Numerical Back up Impedance protection on HV& MV sides for 765/400/33kV ICT and on HV side for 400/220/33kV ICT.

Further, Numerical Back-up Over-current and earth fault protection on HV & MV side of autotransformer shall not be combined with other protective functions (except back up Impedance protection) in the main relays and shall be independent relays. Besides these, power transformers shall also be provided with Buchholz relay, 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 open delta protection is required to 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) 765kV & 400kV Reactor Protection

Reactor shall be provided with the following protections:

- i) Numerical Differential protection.
- ii) Numerical Restricted earth fault protection
- iii) Numerical Back-up impedance protection

Besides these, reactors shall also be provided with Buchholz relay, 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 765kV, 400kV and 220kV buses. Duplicated bus bar protection is envisaged for 765kV & 400kV 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 765kV, 400kV and 220kV 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 765kV & 400kV switchyard, if spare bay of half diameter is identified as future, Tie CB relay panel shall be provided with Auto-reclosure feature.

2.12 Substation Automation System

- a) For new substations, state of art Substation Automation System (SAS) conforming to IEC-61850 shall be provided. The distributed architecture shall be used for Substation Automation

system, where the controls shall be provided through Bay control units. The Bay control unit is to be provided bay wise for voltage level 220kV and above. All bay control units as well as protection units are normally connected through an Optical fibre high speed network. The control and monitoring of circuit breaker, dis-connector, re-setting of relays etc. can be done from Human Machine Interface (HMI) from the control room.

The functions of control, annunciation, disturbance recording, event logging and measurement of electrical parameters shall be integrated in Substation Automation System.

The Automation System shall be provided with the facility of communication and control for remote end operation so that by providing remote HMI and suitable communication link, the substation can be controlled from a remote location. Mode of communication shall be considered as optical fibre or leased line based on IEC- 60870-5-104 communication protocol.

At new substations, the Substation Automation System (SAS) shall be suitable for operation and monitoring of the complete substation including proposed future bays/elements.

At existing substations with Substation automation system (SAS), augmentation of existing SAS shall be done for bays under present scope.

At 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 synchronisation 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.

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.

3.1 AC & DC power supplies

For catering the requirements of three phase & single phase AC supply and DC supply for various substation equipment, the following arrangement is envisaged:-

- i) For LT Supply at each new Substation, two (2) nos. of LT Transformers (minimum

800kVA for substations with highest voltage rating as 765kV and minimum 630kVA for substations with highest voltage rating as 400kV) shall be provided out of which one shall be connected with SEB/DISCOM supply and other one shall be connected to tertiary of Transformer.

Metering arrangement with Special Energy Meters (SEMs) shall be provided by TSP at 33kV tertiary of Transformer for drawing auxiliary supply at new substation. Such SEMs shall be provided by CTU at the cost of the TSP. Accounting of such energy drawn by the TSP shall be done by RLDC/RPC as part of Regional Energy Accounting.

Additionally, Active Energy Meters may be provided at the same point in the 33kV tertiary of Transformer by local SEB/DISCOM for energy

- ii) 2 sets of 220V battery banks for control & protection and 2 sets of 48V battery banks for PLCC/ communication equipment shall be provided at each new Substation. Each battery bank shall have a float-cum-boost charger. Battery shall be of VRLA type.
- iii) Suitable AC & DC distribution boards and associated LT Switchgear shall be provided at new substation. For new substation, following switch boards with minimum rating as specified here under shall be considered with duplicate supply:
 - (a) 415V Main Switch board – 2 nos. (two sections separated by one bus coupler)
 - (b) AC distribution board – 2 nos. (two sections separated by one bus coupler)
 - (c) Main lighting distribution board – 1 no.
 - (d) Emergency lighting distribution board – 1 no.
 - (e) 220 Volt DC distribution board – 2 nos.
 - (f) 48 Volt DC distribution board – 2 nos.

Sizing of LT Switchgear shall be suitable to cater the requirement for all present and future bays. AC & DC distribution boards shall have modules for all the feeders (including future as specified).

- iv) At new Substation, one no. of DG set (minimum 500 kVA for substations with highest voltage rating as 765kV and minimum 250kVA for substations with highest voltage rating as 400kV) shall be provided for emergency applications.
- v) At new substation, sizing of battery and battery charger shall be done based on the number of bays specified (including future bays).
- vi) For substation extensions, existing facilities shall be augmented as required.

3.2 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.

Beam type heat detection for GIS hall fire protection system shall be provided for all the GIS halls.

At existing substations, the fire-fighting systems as available shall be extended to meet the additional requirements.

3.3 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.

3.4 Illumination

Normal & emergency AC & DC illumination shall be provided adequately in the control room & 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 luminaries.

3.5 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 & 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.

At existing substations, the adequacy of size of control room shall be ascertained and the same shall be augmented as per requirement.

3.6 GIS hall

The Gas Insulated Switchgear (GIS) of each voltage alongwith other associated equipment shall be housed inside the GIS building separately. The panels i.e. Bay level units, bay mimic, relay and protection panels, RTCC panels, PLCC panels etc. are to be placed in a separate room in the GIS building. The size of the room shall be such that all the panels for the bays under present scope shall be accommodated. The panel room shall be air-conditioned. Further, the temperature of the room shall be monitored through substation automation system by providing necessary temperature transducers. Ventilation system of suitable capacity shall be provided for each GIS hall.

One EOT Crane of suitable capacity for erection & Maintenance of largest GIS component/assembly and all plant installed in the GIS switchgear room shall be provided in each GIS hall. The crane shall be capable of fulfilling all special requirements for erection &

maintenance of GIS equipment. The capacity of the crane shall be sized to lift the heaviest GIS switchgear component.

For extension of existing GIS, existing facilities shall be suitably augmented/ extended for GIS equipment under present scope.

3.7 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.

3.8 Visual monitoring system for watch and ward of substation premises:

Visual monitoring system for effective watch and ward of substation premises covering the areas of entire switchyard, Control room building, other buildings/stores and main gate, shall be provided. The Visual Monitoring System shall have provision of WAN connectivity for remote monitoring.

The number of cameras and their locations shall be decided in such a way that any location covered in the substation area can be scanned. The cameras shall be located in such a way to monitor at least:

1. The operation of each and every isolator pole of the complete yard in case of AIS Substation.
2. The Operation of each bay bays of GIS Hall as applicable.
3. All the Transformer and Reactors, all the Entrance doors of Control Room Building, GIS hall and any other building as applicable.
4. All the gates of switchyard.
5. Main entrance Gate
6. All other major AIS Equipment (such as CB, CT, CVT, SA etc. as applicable)

4.0 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 400kV future lines and single conductor for 220kV 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.
- e) In 765 & 400kV 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. 3000A.

PLCC

PLCC & PBAX: Power line carrier communication (PLCC) equipment complete for speech, teleprotection 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.

A telephone exchange (PABX) of 24 lines shall be provided at new substations 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 765kV & 400kV Transmission lines. The pass band of coupling devices shall have sufficient margin for adding communication channel in future if required. Necessary protection devices for safety of personnel and low voltage part against power frequency voltages and transient over voltage shall also be provided.

The line traps shall be broad band tuned suitable for blocking the complete range of carrier frequencies. Line Trap shall have necessary protective devices such as lightning arresters for the protection of tuning device. Decoupling network consisting of line traps and coupling capacitors may also be required at certain substation in case of extreme frequency congestion.

The carrier terminals shall be of single side-band (SSB) amplitude modulation (AM) type and shall have 4 kHz band width. PLCC Carrier terminals and Protection couplers shall be considered for both ends of the line.

PLCC equipment for all the transmission lines covered under the scheme (consisting of one set of analog PLCC channel along with circuit protection coupler and one set of Digital protection coupler for both ends) shall be provided by TSP. Further, PLCC equipment for both ends of transmission lines not covered under present scope shall be provided by developer of lines. However, CVT & Wave trap for all the line bays under present scope shall be provided by TSP.

TSP shall provide/undertake necessary addition/modification/shifting/re-commissioning etc. of PLCC equipment due to LILO of transmission lines (wherever applicable).

- f) All other associated equipment like cabling, coupling device and HF cable shall also be provided by the TSP. The wave trap and CVT required for PLCC at remote end shall be provided by respective bay owner.

SPECIFIC TECHNICAL REQUIREMENTS FOR COMMUNICATION

Transmission Scheme for Solar Energy Zone in Bidar (2500 MW), Karnataka

In order to meet the requirement for grid management and operation of substations, Transmission Service Provider (TSP) shall conform to the following requirements.

1. For Bidar PS – Maheshwaram (PG) 765kV D/C line

On Bidar PS – Maheshwaram (PG) 765kV D/C line one OPGW containing 24 Fibres is to be installed by the TSP in place of conventional earth wire during the construction of line. The installation of OPGW shall be done from gantry of Bidar PS up to gantry of Maheshwaram (PG) 765kV and shall be terminated in a Joint Box to be provided by TSP at both the ends. In case of requirement of repeater to establish link between Bidar PS – Maheshwaram (PG), the OPGW (48F) connectivity from power line crossing point upto repeater station shall also be in the scope of TSP.

2. For establishment of 400/220 kV, 5X500 MVA at Bidar Pooling Station

- (I) TSP shall provide FODP(96 F) and Approach Cable (24F) at Bidar Pooling station, Maheshwaram (PG) s/s and repeater station(if any) which shall be connected with OPGW fibres to be installed on Bidar - Maheshwaram(PG) 765 kV D/C T/L.
- (II) TSP (Transmission Service Provider) shall provide STM-16 SDH equipment for Bidar Pooling station, Maheshwaram (PG) s/s and for repeater stations (if required) along with necessary interfaces to meet the voice and data communication requirement of these stations
- (III) In case of repeater requirement, TSP shall provide Repeater shelter alongwith DG set, provisioning for AC and DC supply and other associated systems.
- (IV) The integration of Communication equipment with centralized NMS at regional level shall be responsibility of TSP. Configuration work in centralized NMS for integration of new Communication equipment is not in scope of TSP, however all necessary support to integrate new Communication equipment in the Centralized NMS shall be ensured by TSP.
- (V) TSP shall install required no. of Phasor Measurement Units (PMUs) for all 400kV and above voltage level feeders (under the scope of this project) at Bidar Pooling station, Maheshwaram (PG) s/s and PMUs shall support latest IEEE C-37.118 protocols. These PMUs shall be integrated with the PDC (Phasor Data Concentrator) located at respective RLDC/SLDC.
- (VI) TSP shall install RTU/SAS with necessary interfaces which shall be integrated with respective RLDC SCADA System on IEC 60870-5-101/104 protocol.
- (VII) The maintenance of all the communication equipments including FODP and approach cable, PMUs, RTU/SAS & repeater stations shall be the responsibility of TSP.

Schedule: 3**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]

	Name of the Transmission Element	Scheduled COD in months 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 3x1500MVA (765/400kV) and 5x500MVA (400/220kV) Station at suitable border location near Bidar with 765kV(1x240MVAR) and 400kV(1X125MVAR) bus reactor	18 months (December'2021#)	38.07%	Element at Sl. No 2, 3 & 4
2.	Bidar PS –Maheshwaram (PG) 765kV D/c line		54.81%	Element at Sl. No 1, 3 & 4
3.	765 kV line bays at Maheshwaram (PG) for termination of Bidar PS – Maheshwaram (PG) 765kV D/c line		2.92%	Element at Sl. No 1, 2, & 4
4.	765 kV, 1x240MVAR switchable line reactor for each circuit at Bidar PS end of Bidar PS– Maheshwaram (PG) 765kV D/c line		4.20%	Element at Sl. No 1, 2, & 3

#Scheduled COD in months is considering Effective Date in, June 2020. It is clarified that in case there is delay in achieving Effective Date, the schedule shall be compressed accordingly to achieve Scheduled COD by December, 2021.

Note:

- (i) POWERGRID to provide space for 2 no. of 765 kV line bays at Maheshwaram (PG) substation for termination of Bidar PS – Maheshwaram (PG) 765 kV D/c line

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 overall Project: 18 months from Effective Date

Schedule: 4**Safety Rules and Procedures**

[Note: As referred to in Articles 5.6 and 7.1.6 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 in the execution 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 Lead Long Term Transmission Customer and 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 Party 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.

Schedule: 5**Computation of Transmission Charges**

[Note: As referred to in the definitions of “Monthly Transmission Charges”, “Monthly Transmission Charges Invoice” and in Articles 10.1, 10.2, 10.3 and 11.7 (c) of this Agreement]

1.1 General

- a. The Monthly Transmission Charges to be paid by the Long Term Transmission Customers to the TSP for providing Transmission Service for any Contract Year during the term of the Agreement shall be in accordance with this Schedule.
- b. The Transmission Charges to be paid to the TSP shall comprise of the Escalable Transmission Charges and the Non Escalable Transmission Charges, payable by each Long Term Transmission Customer, in proportion to their Allocated Project Capacity for the Contract Year, as determined by the CERC. In the event of change by CERC in the methodology for the allocation of Transmission Charges between the Long Term Transmission Customers, such revised methodology shall apply.
- c. For the purpose of payment, the Escalable Transmission Charges to be paid in any Contract Year shall be the Escalable Transmission Charge as per Schedule 6 duly escalated as provided in Schedule 7.
- d. In case of any extension of time period for the Scheduled COD, the applicable Transmission Charges in relation to an Element shall be the Transmission Charges of the Contract Year in which the COD of such Element occurs or it has deemed to have occurred, and in relation to the Project, the Transmission Charges applicable will be for the Contract Year in which the COD occurs.
- e. The Annual Transmission Charges shall be the sum of the Payable Annual Escalable Transmission Charges and the Payable Annual Non Escalable Transmission Charges for the Contract Year n.
- f. The Transmission Charges shall be payable based on the Allocated Project Capacity at Target Availability and Incentive for Availability beyond the Target Availability as provided in this schedule shall be admissible for payment. In case of Availability being lower than the Target Availability, the Transmission Charges shall be payable on proportionate basis as provided in this Schedule. In case of the Availability being lower than the level as specified in Article 10.4, the TSP shall pay a penalty as per the provisions in this Schedule. This penalty payable by the TSP shall be apportioned in favour of the Long Term Transmission Customer(s) in the ratio of the Transmission Charges paid or actually payable to the TSP then existing at the end of the relevant Contract Year.
- g. The Availability shall be calculated as per the procedure specified in Appendix III of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014 as notified by CERC and as attached herewith.

- h. All applicable Rebates and Surcharges will be computed and Invoices, as required, would be raised based on the provisions laid out in Articles 10.7 of this Agreement.
- i. Reactive Power compensations and payments shall be as per the provisions of the Grid Code.

1.2 Components of Monthly Bill

The Monthly Bill for any month in a Contract Year shall consist of the following:

- i. Monthly Transmission Charges in accordance with Article 1.2.1 below;
- ii. Incentive Payment determined in accordance with Article 1.2.2 below (applicable on annual basis and included only in the Monthly Tariff Payment for the first month of the next Contract Year); and
- iii. Penalty Payment determined in accordance with Article 1.2.3 below (applicable on annual basis and included in the Monthly Tariff Payment for the first month of the next Contract Year.

1.2.1 Computation of Monthly Transmission Charges

The Monthly Transmission Charges for any month m in a Contract Year n shall be calculated as below:

If $CA \geq NA$;

Monthly Transmission Charge $MTC(m)$ =

$$\left[\sum_{m=1}^m T_{mn} / \text{No. of days in the month 'm' in Contract Year 'n' * No. of days in the month 'm' in Contract Year 'n' for which bill is raised} \right] - \sum_{m=1}^{M-1} MTC(m-1)$$

ELSE

Monthly Transmission Charge $MTC(m)$ =

$$\left[\sum_{m=1}^M T_{mn} / \text{No. of days in the month 'm' in Contract Year 'n' * } AA/NA * \text{No. of days in the month 'm' in Contract Year 'n' for which the bill is raised} \right] - \sum_{m=1}^{M-1} MTC(m-1)$$

where:

- m is the month in Contract Year 'n'
- M= month considered for payment in the Contract Year 'n'
- Tmn= Transmission Charges for the month 'm' in Contract Year 'n' and is equal to the sum of Monthly Escalable Transmission Charges (METC mn) and Monthly Non Escalable Transmission Charges (MNETC mn)
- CA is the Cumulative Availability , as per REA, from the first day of the Contract Year "n" in which month "m" occurs upto and including upto the end of the month "m";
- AA is the actual Availability for the month 'm' in the Contract Year n, as per REA, (expressed in percentage);
- NA is the Target Availability;
- MTC (m-1) is the Payable Monthly Transmission Charge for the month '(m-1)' for the Contract Year 'n'
- **Monthly Escalable Transmission Charges (METC mn)**

The Monthly Escalable Transmission Charges (METC_{mn}) for month 'm' for the Contract Year 'n' shall be calculated by the following formula,

$$\text{METC}_{mn} = [\text{Escalable Transmission Charge for the first Contract year (as provided in Schedule 6)} / \text{No. of days in the Contract Year 'n'}] * \text{No. of days in the month 'm'} * p/q$$

Where,

'p' is the escalation index as per Schedule 7 at the beginning of the month 'm' (expressed as a number)

'q' is the escalation index as per Schedule 7 applicable as at the beginning of the first Contract Year mentioned in Schedule 6 (expressed as a number)

- **Monthly Non Escalable Transmission Charges (MNETCmn)**

The Monthly Non Escalable Transmission Charges (MNETCmn) for month 'm' for the Contract Year 'n' shall be calculated as follows;

$$\text{MNETCmn} = [\text{Non Escalable Transmission Charge for the Contract Year 'n' (as provided in Schedule 6)} / \text{No. of days in the Contract Year 'n'}] * \text{No. of days in the month 'm'}$$

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.

1.2.2 Incentive Payment

If and to the extent the Availability in a Contract Year exceeds ninety eight percent (98%) for AC system, the TSP shall be entitled for an annual Incentive as calculated below:

$$\text{Incentive} = 0.02 \times \text{Annual Transmission Charges} \times (\text{Actual annual Availability} - \text{Target Availability})$$

Provided that no Incentive shall be payable above the Availability of 99.75% for AC system.

Incentive shall be shared by the Long Term Transmission Customer(s) in the ratio of the Transmission Charges paid or actually payable to the TSP by then existing at the end of the relevant Contract Year.

1.2.3 Penalty

If and to the extent that the Availability in a Contract Year falls below ninety five percent (95%) for AC system, the TSP shall be entitled for an annual penalty as per the formula given below:

$$\text{Penalty} = 0.02 \times \text{Annual Transmission Charges} \times (\text{Target Availability} - \text{Actual Annual Availability})$$

The penalty payable by the TSP shall be apportioned in favour of the Long Term Transmission Customer(s) in the ratio of the Transmission Charges paid or actually payable to the TSP by them existing at the end of the relevant Contract Year.

1.3 Recovery from Short Term Transmission Customers

The Transmission Charges to be paid by the Long Term Transmission Customers to the TSP shall stand reduced in proportion to their then existing Allocated Project Capacity at the end of the relevant month, to the extent of adjustable revenues from Short Term Transmission Customers.

The charges payable by the Short Term Transmission Customers shall be calculated on the basis of the provisions of the Central Electricity Regulatory Commission (Open Access in Inter-state Transmission) Regulations, 2008 or as amended from time to time.

1.4 Scheduling Charges

The payment of scheduling charges to the respective RLDC or SLDC, as the case may be, shall be the responsibility of the Long Term Transmission Customers.

Schedule: 6**Transmission Charges**

[Note: As referred to in the definitions of “Element”, “Escalable Monthly Charges”, “Non Escalable Monthly Charges” and “Monthly Transmission Charges” and in Clauses 1.1 (c) of Schedule 5 of this Agreement]

[To be incorporated from the Bid of the Selected Bidder]

[In case of pre-signing of RFP Project Documents, this needs to be inserted after selection of the Selected Bidder]

Year	Commencement Date of Contract Year	End Date of Contract Year	Non-Escalable Transmission Charges (in Rupees Millions)	Escalable Transmission Charges (in Rupees Millions)
(1)	(2)	(3)	(4)	(5)
1	Scheduled COD 31.12.2021	31-March		
2	1-April	31-March		
3	1-April	31-March		
4	1-April	31-March		
5	1-April	31-March		
6	1-April	31-March		
7	1-April	31-March		
8	1-April	31-March		
9	1-April	31-March		
10	1-April	31-March		
11	1-April	31-March		
12	1-April	31-March		
13	1-April	31-March		
14	1-April	31-March		
15	1-April	31-March		
16	1-April	31-March		
17	1-April	31-March		
18	1-April	31-March		
19	1-April	31-March		
20	1-April	31-March		
21	1-April	31-March		
22	1-April	31-March		
23	1-April	31-March		
24	1-April	31-March		
25	1-April	31-March		
26	1-April	31-March		
27	1-April	31-March		
28	1-April	31-March		
29	1-April	31-March		
30	1-April	31-March		
31	1-April	31-March		

Year	Commencement Date of Contract Year	End Date of Contract Year	Non-Escalable Transmission Charges (in Rupees Millions)	Escalable Transmission Charges (in Rupees Millions)
32	1-April	31-March		
33	1-April	31-March		
34	1-April	31-March		
35	1-April	31-March		
36	1-April	35 th anniversary of Scheduled COD		

[This table needs to be replicated exactly as from Annexure-22 of the RFP (i.e. Financial Bid of the Selected Bidder).]

Notes:

- a. Charges for the first Contract Year are the Transmission Charges applicable for the twelve month period (from the immediately preceding 1 April from the Scheduled COD till the immediately succeeding 31 March) irrespective of the duration of the first Contract Year.
- b. Charges for the second Contract Year are the Transmission Charges applicable for the full Contract Year
- c. Charges for the last Contract Year are the Transmission Charges applicable for the twelve month period (from immediately preceding 1 April to the date of 35th anniversary of the Scheduled COD till the immediately succeeding 31 March) irrespective of the duration of the last Contract Year.
- d. However, in cases of both (a) and (c) above, total Transmission Charges payable to the TSP are computed proportionately for the total number of days in the first and last Contract Year respectively.
- e. Charges for Short Term Open Access of the Project shall be as per the provisions of Central Electricity Regulatory Commission (Open Access in Inter-state Transmission) Regulations 2008 as notified by CERC and as amended from time to time.

Proportionate Transmission Charges payable for each Element of the Project:

Sr. No	Name of the Transmission Element	Percentage of Quoted Transmission Charges recoverable on Scheduled COD of the Element of the Project
1.	Establishment of 3x1500MVA (765/400kV) and 5x500MVA (400/220kV) Station at suitable border location near Bidar with 765kV(1x240MVAR) and 400kV(1X125MVAR) bus reactor	38.07%
2.	Bidar PS –Maheshwaram (PG) 765kV D/c line	54.81%
3.	765 kV line bays at Maheshwaram (PG) for termination of Bidar PS – Maheshwaram (PG) 765kV D/c line	2.92%
4.	765 kV, 1x240MVAR switchable line reactor for each circuit at Bidar PS end of Bidar PS–Maheshwaram (PG) 765kV D/c line	4.20%

#Scheduled COD in months is considering Effective Date in, June 2020. It is clarified that in case there is delay in achieving Effective Date, the schedule shall be compressed accordingly to achieve Scheduled COD by December, 2021.

Note:

- (i) POWERGRID to provide space for 2 no. of 765 kV line bays at Maheshwaram (PG) substation for termination of Bidar PS – Maheshwaram (PG) 765 kV D/c line

Schedule: 7**Escalation Index****[Note: As referred to in Clause 1.1 of Schedule 5 of this Agreement]**

The index (“Escalation Index”) to be applied for escalation of Escalable Transmission Charges shall be computed by assuming that as on the date of the COD, the value of such Escalation Index is 100. Thereafter, for each month after the COD, the value of the Escalation Index shall be computed by applying the per annum inflation rate specified by CERC for payment of Escalable Transmission Charges, as per the provisions of the Competitive Bidding Guidelines.

For the avoidance of doubt, it is clarified that:

- if the prevailing inflation rate specified by CERC is 4.7% per annum, then at the end of the first month after the COD, the value of the Escalation Index shall be 100.3917 [i.e., $100 * (1 + 4.7\%/12)$] for Escalable Transmission Charges. Thereafter, at the end of the second month beyond such first month, the value of the Escalation Index shall be 100.7833 [i.e $100 * [1 + (4.7\% * 2)/12]$] and so on. The value of the Escalation Index at the end of the Nth Month after the COD shall be calculated as: $100 * (1 + N * 0.047 / 12)$ for Quoted Escalable Transmission Charges.
- the per annum inflation rate specified by CERC shall be revised only at the end of every six (6) months.
- The value of the Escalation Index shall be calculated upto the fourth decimal point.

In case, due to any reason, CERC discontinues the publication of the inflation rate mentioned above, then the Lead Long Term Transmission Customer and the TSP shall replace the above inflation rate with an inflation rate which shall be computed on the same basis as was being used by CERC to estimate their notified inflation rate.

Schedule: 8

List of Articles

List of Articles under which rights and obligations of the Long Term Transmission Customers (including all matters incidental thereto and related follow-up), which are required to be undertaken by the Lead Long Term Transmission Customer, or by Majority Long Term Transmission Customers or by the Long Term Transmission Customers jointly, respectively:

A) **Rights and Obligations of the Long Term Transmission Customers required to be undertaken by the Lead Long Term Transmission Customer**

1. **Article 3.3.5** (approach the Appropriate Commission on termination of the Agreement on TSP's not able to meet conditions subsequent)
2. **Article 5.5** (inspection of the Project during the construction phase);
3. **Articles 6.1.1 and 6.1.2** (extension of Scheduled COD);
4. **Article 6.4.1** (communication with the TSP on imposition of liquidated damages)
5. **Articles 7.3.2** (notice for maintenance of Interconnection Facilities under the purview of the Long Term Transmission Customers);
6. **Article 11.7 (d)** (inspection of Project during operation of Force Majeure);
7. **Article 13.1 (a)** (notice to TSP on abandonment of Project);
8. **Article 13.3. (d)** (to approach the Appropriate Commission for revocation of Transmission Licensee on account of TSP's Event of Default);
9. **Articles 14.2.1 (b), 14.2.2 (b) and 14.2.2 (c)** (notice for patent indemnity);
10. **Article 14.2.1 (d)** (provide assistance to the TSP during the proceedings of patent indemnity);
11. **Article 18.2.3** (written permission to TSP for divestment of equity holding and subsequent verification of equity structure, post-divestment); and
12. **Schedule 7** (computation of alternative escalation index in the event of CERC discontinuing publishing of the inflation rate mentioned in this schedule).

B) **Rights and Obligations of the Long Term Transmission Customers required to be undertaken by the Majority Long Term Transmission Customers**

1. **Article 2.3.1**(decision to continue the Project beyond the Expiry Date);
2. **Article 3.1.3** (waiver of the TSP's obligations due to reasons attributable to the Long Term Transmission Customer(s));

3. **Articles 3.3.2 and 3.3.4** (right to terminate the Agreement on non-fulfillment of conditions subsequent);
4. **Articles 13.1 (k) and 13.1 (I)** (invocation of termination of the Agreement due to the TSP's Event of Default;
5. **Article 13.3** (notice to TSP for termination of Agreement on TSP's Event of Default;
6. **Article 18.1.4** (in case of any difference of opinion on any decision among the Long Term Transmission Customers, decision in such cases to be taken by the Majority Long Term Transmission Customers); and
7. **Article 18.1.5** (Right to replace the Lead Long Term Transmission Customer).

and any other Articles of this Agreement not specifically mentioned herein, which provide for a joint action by all the Long Term Transmission Customers.

Schedule: 9

**Appendix III of Central Electricity Regulatory Commission
(Terms and Conditions of Tariff) Regulations, 2014**

Procedure for Calculation of Transmission System Availability Factor for a Month:

1. Transmission system availability factor for a calendar month (TAFM) shall be calculated by the respective transmission licensee, got verified by the concerned 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. Transmission System Availability shall be calculated separately for each Regional Transmission System and inter-regional transmission system. For the purpose of calculation of TAFM:
 - 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 transformer together) shall form one element.
 - iii) Static VAR Compensator (SVC): SVC along with SVC transformer shall form one element. However, 50% credit to inductive and 50% to capacitive rating shall be given.
 - iv) Bus Reactors/Switchable line reactors: Each Bus Reactors/Switchable line reactors shall be considered as one element.
 - v) HVDC Bi-pole links: Each pole of HVDC link along with associated equipment at both ends shall be considered as one element.
 - vi) HVDC back-to-back station: Each block of HVDC back-to-back station shall be considered as one element. If associated AC line (necessary for transfer of interregional power through HVDC back-to-back station) is not available, the HVDC back-to-back station block shall also be considered as unavailable.
2. The Availability of AC and HVDC portion of Transmission system shall be calculated as under:

%TAFM for AC System:

$$\begin{aligned}
 & o \times AV_o + p \times AV_p + q \times AV_q + r \times AV_r \\
 & = \frac{\quad}{o + p + q + r} \times 100
 \end{aligned}$$

% TAFM for HVDC system

$$= \frac{s \times AV_s + t \times AV_t}{S + t} \times 100$$

Where

o	=	Total number of AC lines.
AV _o	=	Availability of o number of AC lines.
p	=	Total number of bus reactors/switchable line reactors
AV _p	=	Availability of p number of bus reactors/switchable line reactors
q	=	Total number of ICTs.
AV _q	=	Availability of q number of ICTs.
r	=	Total number of SVCs.
AV _r	=	Availability of r number of SVCs.
s	=	Total number of HVDC poles
AV _s	=	Availability of s number of HVDC poles
t	=	Total number of HVDC back-to-back station blocks
AV _t	=	Availability of t number of HVDC back-to-back station blocks

3. The weightage factor for each category of transmission elements shall be as under:

- (a) For each circuit of AC line – Surge Impedance Loading for Uncompensated line (SIL) multiplied by ckt-km.

SIL rating for various voltage level and conductor configuration is given in **Appendix-IV**. However, for the voltage levels and/or conductor configurations not listed in Annexure-I, appropriate SIL based on technical considerations may be used for availability calculation under intimation to long-term transmission customers/DICs.

For compensated AC line, Surge Impedance Loading (SIL) shall be as certified by the Regional Power Committee (RPC) Secretariat considering the compensation on the line.

For shunt compensated line the reduced value of SIL shall be taken in accordance with the location of the reactor. Similarly in case of the lines with series compensation the higher SIL shall be taken as per the percentage of compensation.

- (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 station connecting two Regional grids- Rated MW capacity of each block.

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 Availability of each category of the transmission elements are as per **Appendix-V**.
5. The transmission elements under outage due to following reasons shall be deemed to be available:
 - i. Shut down availed for maintenance or construction of elements of another transmission scheme. 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.
 - ii. Switching off of a transmission line to restrict over voltage and manual tripping of switched reactors as per the directions of RLDC.
6. Outage time of transmission elements for the following contingencies shall be excluded from the total time of the element under period of consideration.
 - i. Outage of elements due to acts of God and force majeure events beyond the control of the transmission licensee. However, onus of satisfying the Member Secretary, RPC that element outage was due to aforesaid events and not due to design failure shall rest with the transmission licensee. A reasonable restoration time for the element shall be considered in accordance with Central Electricity Regulatory Commission (Standard of Performance of inter-State transmission licensees) Regulations, 2012 as amended from time to time 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. 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 substation or bays owned by other agency causing 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.

Appendix-IV

SURGE IMPEDANCE LOADING (SIL) OF AC LINES

S.No.	Line voltage (kV)	Conductor Configuration	SIL (MW)
1	765	Quad Bersimis	2250
2	400	Quad Bersimis	691
3	400	Twin Moose	515
4	400	Twin AAAC	425
5	400	Quad Zebra	647
6	400	Quad AAAC	646
7	400	Tripple Snowbird	605
8	400	ACKC(500/26)	556
9	400	Twin ACAR	557
10	220	Twin Zebra	175
11	220	Single Zebra	132
12	132	Single Panther	50
13	66	Single Dog	10

Appendix-V

FORMULAE FOR CALCULATION OF AVAILABILITY OF EACH CATEGORY OF TRANSMISSION ELEMENTS

$$AV_o(\text{Availability of } o \text{ no. of AC lines}) = \frac{\sum_{i=1}^o \frac{W_i(T_i - T_{NAi})}{T_i}}{\sum_{i=1}^o W_i}$$

$$AV_s(\text{Availability of } s \text{ no. of HVDC pole}) = \frac{\sum_{j=1}^s \frac{W_j(T_j - T_{NAj})}{T_j}}{\sum_{j=1}^s W_j}$$

$$AV_q(\text{Availability of } q \text{ no. of ICTs}) = \frac{\sum_{K=1}^q \frac{W_k(T_k - T_{NAk})}{T_k}}{\sum_{k=1}^q W_k}$$

$$AV_r(\text{Availability of } r \text{ no. of SVCs}) = \frac{\sum_{l=1}^r \left[\frac{0.5 W_{il}(T_{il} - T_{NAil})}{T_{il}} + \sum_{l=1}^r \frac{0.5 W_{cl}(T_{cl} - T_{NAcl})}{T_{cl}} \right]}{\sum_{l=1}^r \left[0.5 W_{il} + \sum_{l=1}^r 0.5 W_{cl} \right]}$$

$$AV_p(\text{Availability of } p \text{ no. of Switched Bus reactors}) = \frac{\sum_{m=1}^p \frac{W_m(T_m - T_{NA m})}{T_m}}{\sum_{m=1}^p W_m}$$

$$AV_t(\text{Availability of } t \text{ no. of HVDC Back-to-back Blocks}) = \frac{\sum_{n=1}^t \frac{W_n(T_n - T_{NA n})}{T_n}}{\sum_{n=1}^t W_n}$$

Where W_i	=	Weightage factor for i^{th} transmission line
W_j	=	Weightage factor for j^{th} HVDC pole
W_k	=	Weightage factor for k^{th} ICT
$W_{il} \& W_{cl}$	=	Weightage factors for inductive & capacitive operation of l^{th} SVC
W_m	=	Weightage factor for m^{th} bus reactor
W_n	=	Weightage factor for n^{th} HVDC back to back block.

$T_i, T_j, T_k, T_l, T_{cl}, -$ $T_m \& T_n$	The total hours of i^{th} AC line, j^{th} HVDC pole, k^{th} ICT, l^{th} SVC (Inductive Operation), l^{th} SVC (Capacitive Operation), m^{th} Switched Bus Reactor & n^{th} HVDC back-to-back block during the period under consideration (excluding time period for outages not attributable to transmission licensee for reasons given in Para 6 of the procedure)
$T_{NA}^i, T_{NA}^j, T_{NA}^k -$ $T_{NA}^l, T_{NA}^l, T_{NA}^m,$ T_{NA}^n	The non-availability hours (excluding the time period for outages not attributable to transmission licensee taken as deemed availability as per Para 5 of the procedure) for i^{th} AC line, j^{th} HVDC pole, k^{th} ICT, l^{th} SVC (Inductive Operation), l^{th} SVC (Capacitive Operation), m^{th} Switched Bus Reactor and n^{th} HVDC back-to-back block .

Schedule: 10

Entire Bid (both financial bid and technical bid) of the Selected Bidder to be attached

Schedule: 11

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. To be provided separately in the name of each of the Long Term Transmission Customer(s), in proportion to their Allocated Project Capacity as provided in Schedule 1 of this document)

In consideration of the[Insert name of the TSP or Selected Bidder on behalf of the TSP, with address] agreeing to undertake the obligations under the TSA datedand the other RFP Project Documents and REC Transmission Projects Co. Ltd. (“BPC”), agreeing to execute the *Share Purchase Agreement* 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[Insert Name of the Long Term Transmission Customer] at[Insert the Place from the address of the Long Term Transmission Customer indicated in the TSA] forthwith on demand in writing from[Name of the Long Term Transmission Customer] 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 in respect of the Long Term Transmission Customer as per the terms of TSA separately to each Long Term Transmission Customer in the ratio of Allocated Project Capacities, as on the date seven (7) days prior to the Bid Deadline] on behalf of M/s. [Insert name of the Selected Bidder].

This guarantee shall be valid and binding on the Guarantor Bank up to and includingand shall not be terminable by notice or any change in the constitution of the Bank or the term of the TSA 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 TSA]. The Long Term Transmission Customer 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 Long Term Transmission Customer, made in any format, raised at the above mentioned address of the Guarantor Bank, in order to make the said payment to the Long Term Transmission Customer.

The Guarantor Bank shall make payment hereunder on first demand without restriction or conditions and notwithstanding any objection by Bidar Transmission Ltd., [Insert name of the TSP] and/or any other person. The Guarantor

Bank shall not require the Long Term Transmission Customer to justify the invocation of this BANK GUARANTEE, nor shall the Guarantor Bank have any recourse against the Long Term Transmission Customer 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 the Long Term Transmission Customer shall not be obliged before enforcing this BANK GUARANTEE to take any action in any court or arbitral proceedings against Bidar Transmission Ltd. or the Selected Bidder or TSP, as the case may be, to make any claim against or any demand on Bidar Transmission Ltd. or the Selected Bidder or TSP, as the case may be, or to give any notice to Bidar Transmission Ltd. or the Selected Bidder or TSP, as the case may be, or to enforce any security held by the Long Term Transmission Customer or to exercise, levy or enforce any distress, diligence or other process against Bidar Transmission Ltd. or the Selected Bidder or TSP, as the case may be.

The Guarantor Bank acknowledges that this BANK GUARANTEE is not personal to the Long Term Transmission Customer and may be assigned, in whole or in part, (whether absolutely or by way of security) by Long Term Transmission Customer to any entity to whom the Lead Long Term Transmission Customer is entitled to assign its rights and obligations under the TSA.

The Guarantor Bank hereby agrees and acknowledges that the Long Term Transmission Customer shall have a right to invoke this Bank Guarantee either in part or in full, as it may deem fit.

Notwithstanding anything contained hereinabove, our liability under this Guarantee is restricted to Rs. Crores (Rs.) only and it shall remain in force until[Date to be inserted on the basis of Articleof TSA], 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]. We are liable to pay the guaranteed amount or any part thereof under this Bank Guarantee only if the Long Term Transmission Customer 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

Schedule: 12

SUPPLEMENTARY AGREEMENT

BETWEEN

..... [Insert name of the TSP]

AND

..... [Insert name of the new Long Term Transmission Customer 1],

..... [Insert name of the new Long Term Transmission Customer 2],

.
. .
.

..... [Insert name of the new Long Term Transmission Customer n]

THIS SUPPLEMENTARY AGREEMENT entered into on [Insert date] [Insert day] of[Insert month] in [Insert year] by and between, [Insert name of the Transmission Service Provider] incorporated under the Companies Act, 1956, having its registered office at (here in after referred to as Transmission Service Provider or “TSP”, which expression shall unless repugnant to the context or meaning thereof include its successors, and permitted assigns) as Party of the first part,

AND

..... [Insert name of the new Long Term Transmission Customer ‘1’] having its registered office at..... [Insert address of the new Long Term Transmission Customer 1] and having an Allocated Project Capacity as specified in the Table 2 of this Supplementary Agreement, (which expression shall unless repugnant to the context or meaning thereof include its successors, and permitted assigns) as Party of the second part,

..... [Insert name of the new Long Term Transmission Customer ‘2’] having its registered office at..... [Insert address of the new Long Term Transmission Customer 1] and having an Allocated Project Capacity as specified in the Table 2 of this Supplementary Agreement, (which expression shall unless repugnant to the context or meaning thereof include its successors, and permitted assigns) as Party of the third part,

.
. .
.

..... [Insert name of the new Long Term Transmission Customer ‘n’] having its registered office at..... [Insert address of the new Long Term Transmission Customer 1] and having an Allocated Project Capacity as specified in the Table 2 of this Supplementary

Agreement, (which expression shall unless repugnant to the context or meaning thereof include its successors, and permitted assigns) as Party of the nth part.

WHEREAS:

- A. The TSP has executed the TSA with the existing Long Term Transmission Customers as listed out in Schedule 1 of the TSA.
- B. The existing Long Term Transmission Customers as listed out in Schedule 1 of the TSA have executed the TSA with the TSP.
- C. The TSP has agreed to provide the Transmission Service to the existing Long Term Transmission Customers as per the terms and conditions of the TSA.
- D. The Allocated Project Capacity of the existing Long Term Transmission Customers as on this date.....[Insert date] is as detailed below:

Table : 1

Sl. No.	Name of the existing Long Term Transmission Customers	Allocated Project Capacity (in MW)
1		
2		
3		
.		
.		

- E. The existing Long Term Transmission Customers have agreed, on the terms and subject to the conditions of the TSA, to use the available transmission capacity of the Project and pay TSP the Transmission Charges as determined in accordance with the terms of the TSA.

NOW THEREFORE THIS AGREEMENT WITNESSETH as under:

- 1) The new Long Term Transmission Customer(s) and their Allocated Project Capacity as on this date.... [Insert date] are as detailed below:

Table 2:

Sl. No.	Name of the new Long Term Transmission Customer(s)	Allocated Project Capacity (in MW)
1		
2		
3		
.		
.		

- 2) The new Long Term Transmission Customer(s) have been granted long term open access from the CTU/STU, as the case may be, and are beneficiaries to the Project.

- 3) The new Long Term Transmission Customer(s) agree to the terms and conditions laid down in the TSA, to use the Project and pay the TSP the Transmission Charges as determined in accordance with the terms of the TSA and the provisions of this Supplementary Agreement.
- 4) The TSP agrees to provide the Transmission Service to the new Long Term Transmission Customer(s) as per the terms and conditions of the TSA.
- 5) All terms and conditions of the TSA between the TSP and the existing Long Term Transmission Customers (as listed out in Table 1 of this Supplementary Agreement) shall apply, mutatis mutandis without any change, to the new Long Term Transmission Customers (as listed out in Table 2 of this Supplementary Agreement)

IN WITNESS WHEREOF the parties have executed these presents through their Authorised Representatives

WITNESS:

**Table 3:
WITNESS**

1. Signature:	For and on behalf of
Name:	[Insert name of the TSP]
Designation:	
2. Signature:	For and on behalf of
Name:	[Insert name of the new Long
Designation:	Term Transmission Customer
	1]
3. Signature:	For and on behalf of
Name:	[Insert name of the new Long
Designation:	Term Transmission Customer
	1]
.	;
n. Signature:	For and on behalf of
Name:	[Insert name of the new Long
Designation:	Term Transmission Customer
	n]