TRANSMISSION CORPORATION OF TELANGANA LIMITED
VIDYUT SOUDHA, HYDERABAD-82

Website: www.tstransco.in CIN No: U40102AP2014SGC094248

From
Chief Engineer,
Commercial & RAC,
TSTRANSCO,Vidyut Soudha,
Hyderabad – 500082.

To
The Commission Secretary,
TSERC,
5th Floor,Singareni Bhavan,
Red Hills, Hyderabad – 500004.

Lr.No.CE/Comml&RAC/SE/DE/Comml/AE-BL&C/F./D.No.270/2021,dt:08.10.2021

Sir,

Sub: TSTRANSCO – Preparation of Model Connection Agreement as per TSERC Regulation No. 4 of 2018 (State Electricity Grid Code Regulation) — Submitted – Reg.

Ref: TSERC (State Electricity Grid Code) Regulation 2018, Regulation No. 4 of 2018, Dt.18.12.2018

*****

As per Part C (Connection Code), Clause 15 of TSEGC Regulation, **"Connection Agreement"**, the STU shall prepare a model connection agreement and place it before the Commission for approval. Accordingly, the Draft Model Connection Agreement is prepared as per the provisions of the State Electricity Grid Code, 2018 and is herewith submitted.

Encl: Draft Model Connection Agreement

Yours Faithfully,

Chief Engineer
Commercial & RAC
TSTransco

TSERC HYDERABAD
INWARD
8 OCT 2021
No. Sign

Copy submitted to:
The Joint Managing Director/Fin., Comml & HRD/TSTRANSCO/VS/Hyderabad.

CONNECTION AGREEMENT

For

Connection to Intra-State Transmission System (InSTS)/ Distribution System

In

Telangana State

Note:

Applicability:

1) The agreement will be entered into between various parties as per the below table:

S. No	Case of Connection	Type of Consumer	Parties to the Agreement
1	Case 1(G1): System Voltage at 132kV and above	Generator	TS TRANSCO and Generator
2	Case 1(G2): System Voltage at 33kV	Generator connected at 33kV Side of 132/33kV Substation	TS TRANSCO, TS Discoms, and Generator
3	Case 1(G3) System Voltage at 33kV	Generator connected at 33kV Side of 33/11kV Substation	TS Discoms and Generator
4	Case 2 (T): System Voltage at 132kV and above	Transmission Licensee	TS TRANSCO and Transmission Licensee
5	Case 2 (D): System Voltage at 33kV and above	TS Discoms/ Distribution Licensee	TSTRANSCO and Discom Distribution Licensee
6	Case 3(C): System Voltage at 33 kV and above	▪ Bulk Load Consumer connected at 132kV and above ▪ Bulk load Consumer connected at 33kV side of 132/33kV Substation	TSTRANSCO, TS Discoms and Bulk Load Consumer

Table 1: Applicability of the Connection Agreement

Further, the bulk consumers, which have in-house captive generation facilities and intend to supply surplus power to grid for sale or banking, shall enter into a connection agreement applicable for a generator and the boundary meters shall be at the TSTRANSCO/TS DISCOM (whichever is applicable)grid substation premises. In case of bulk consumers who intend to utilize the entire captive generation and not supply power to the grid, those consumers can enter the agreement applicable to bulk consumers.

2) For new generator connection, the connection agreement is to be concluded before synchronization of the Generator.

3) For new consumers, the connection agreement is to be concluded before extending of supply to the consumer.

4) For existing generators and consumers, the connection agreement is to be entered within 3 months after approval of the agreement by the regulatory commission.

5) The articles and clauses must be selected based on Table 1 as per applicability.

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CHAPTER 1 - DEFINITIONS AND INTERPRETATIONS

The following definitions shall be applicable for all schedules and shall be agreed by all parties of the agreement:

1. **'Act'** means the Electricity Act, 2003 including amendments thereto.
2. **'Apparatus'** means electrical apparatus and includes allmachines, fittings, accessories, and appliances in which conductors are used.
3. **'Appropriate Transmission Utility'** means the Central Transmission Utility or State Transmission Utility as the case may be.
4. **'Automatic Voltage Regulator (AVR)'** meansa continuously acting automatic excitation control system to regulate a generating unit terminal voltage.
5. **'British Standards' (BS)** means those standards and specifications approved by the British Standards Institution.
6. **'Bulk Consumer'** refers to any consumer who avails of supply at a voltage of 33 kV and above.
7. **'CEA or Authority'** means the Central Electricity Authority constituted and established under Sub-Section (1) of Section 70 of the Act, 2003.
8. **'Commission'** means the Telangana State Electricity Regulatory Commission or TSERC established for the state of Telangana.
9. **'Connection point'** means a point at which a User's or Transmission Licensee's plant and / or Apparatus connects to the intra-state transmission system/Distribution System.
10. **'Consumer'**meansany person who is supplied with electricity for his own use by a licensee or the Government or by any other person engaged in the business of supplying electricity to the public under this Act or any other law for the time being in force and includes any person whose premises are for the time being connected for the purpose of receiving electricity with the works of a licensee, the Government or such other person, as the case may be.
11. **'Distribution System'**means any system consisting mainly of cables, service lines and overhead lines, electrical plant and meters having design voltage of 33 kV and under and shall also include any other system of higher voltage as the commission

may specifically recognize. A Distribution system shall not include any part of the Transmission system.

12. **'Earthing'** means electrical connection between non-energized conducting parts and the general mass of earth by an earthing device.
13. **'Event logging facility / Event Logger'**, means a device provided to record the sequence of operations in time, of relays / equipment at a location during an event.
14. **'Electrical Plant or Plant'** means any plant, equipment, apparatus or appliance or any part thereof used for, or connected with, the generation, transmission, distribution, or supply of electricity but does not include-
    a. an electric line; or
    b. a meter used for ascertaining the quantity of electricity supplied to any premises; or
    c. an electrical equipment, apparatus, or appliance under the control of a consumer.
15. **'Frequency'** means the number of alternating cycles per second (expressed in Hertz).
16. **'Generating Unit or Generator'** means an Electrical Generator coupled to a prime mover within a Power Station together with all Plants and Apparatus at that Power Station (up to the Connection point) which relates exclusively to the operation of that generator. Further, a generating unit can also consider systems such as PV solar power generation and battery energy storage systems, etc.

    In case of solar photo voltaic generating station, each inverter along with associated modules will be reckoned as a separate generating unit.
17. **'IEC Standard'** means standard approved by the International Electrotechnical Commission.
18. **'Indian Standard (IS)'** means the standards specified by the Bureau of Indian Standards.
19. **'Isolator or Isolating device'** means a device for achieving isolation of one part of an electrical system from the rest of the system.
20. **'Installed capacity'**,
    i. in case of coal, lignite, gas engines and hydro stations, means the summation of the name plate capacities of all the units of the generating station or Maximum Continuous Rating of the generating station; and

ii. in case of solar/ wind generating stations and generating stations using inverters, means the summation of the name plate capacities of wind turbines or solar generating units in terms of AC capacity in KW; and

iii. in case of biomass, Municipal solid waste plant and bagasse generating stations, means the summation of the name plate capacities of the generating unit, as the case may be.

21. **'InterConnection point'**means a point on the electricity system, including a sub-station or a switchyard, where the interconnection is established between the facility of the applicant and the electricity system (TSTRANSCO/TSDISCOM network) and where electricity injected into or drawn from the electricity system can be measured unambiguously for the applicant.

22. **'Intra-State Transmission System'** (In-STS) means any system for conveyance of electricity by transmission lines within the area of the state and includes all transmission lines, sub-stations and associated equipment of all Intra-State transmission licensees in the State:

    Provided that the definition of point of separation between a transmission system and a distribution system and between a generating station and transmission system shall be guided by the provision of the regulations notified by the authority under clause (b) of section 73 of the Act.

23. **'Maximum Continuous Rating'**(MCR) of a generating unit means the maximum continuous output in MW at the generator terminals guaranteed by the manufacturer at rated parameters.

24. **'Power Factor'** means the cosine of the electrical angle between the voltage and current complexors in an AC electrical circuit.

25. **'Power Purchase Agreement (PPA)'**means the Power Purchase Agreement signed between the Developer and TSDISCOMS/Consumer/ Procurer/Purchaser.

26. **'Power System Stabilizers' (PSS)** means controlling equipment which receives input signals of speed, frequency and power to control the excitation via the voltage regulator for damping power oscillations of a synchronous machine.

27. **'Protection system'** means the equipment by which abnormal conditions in the grid are detected and fault clearance, actuating signals or indications are initiated without the intervention by the operator.

28. **'Reactive Power'** meansin relation to the AC system, the product of root means square (r.m.s.) voltage, root means square (r.m.s.) current and the sine of the

electrical phase angle between the voltage complexor and current complexor, measured in voltamperes reactive (VAr).

29. **'Site Common Drawing'** means drawings prepared for a connection site, which depicts layout of connection site, electrical layout, common protection, and control drawings and common services.
30. **'Southern Regional Power Committee or SRPC'**means a committee established by resolution by the Central Government for a specified region for facilitating the integrated operation of power systems in that region.
31. **'Single Line Diagram'** means diagrams which are schematic representation of the HV/EHV apparatus and the connections to all external circuits at a Connection Point incorporating its numbering nomenclature and labeling.
32. **'Standards'** means "Standards on Grid Connectivity" as specified by Central Electricity Authority.
33. **'State Load Despatch Centre or SLDC'**means the company notified by the state government under Sec 31(1) of the Act.2003 or the center run by the STU within the state for undertaking load dispatch operations.
34. **'State Grid Code'** means the regulation specifying the philosophy, liabilities, and responsibilities for planning and operating state power system.
35. **'State Transmission Utility' or 'STU'** means Transmission Corporation of Telangana Limited notified by Government of Telangana vide G.O.Ms.No. 1, Dated: 21-06-2014 as specified under sub-section (1) of section 39 of the Act.
36. **'System Protection Scheme or Protection Scheme'** means scheme designed to detect abnormal system conditions and take predetermined corrective action to preserve system integrity and provide acceptable system performance.
37. **'Total Harmonic Distortion' (THD)** means a measure of distortion of the voltage or current waveform (which shall ideally be sinusoidal) and is the square root of the sum of squares of all voltages or current harmonics expressed as a percentage of the magnitude of the fundamental.
38. **'Transmission System'** means a network of transmission lines and sub-stations.
39. **'Under Frequency Relay' (UFR)** means a relay which operates when the system frequency falls below specified limits and initiates load shedding.
40. **'User'**means persons including intra-state generating stations, transmission licensees, distribution licensees, consumers of the distribution licensees directly connected to the intra-state transmission system (including consumers connected at

33kV bus of distribution substations), persons availing inter/ intra state open access, and captive generating plants connected and operating in parallel with the grid, including those who are connected at 33kV bus of the distribution substations, who are connected to and/or use the intra-state transmission system.

41. **'Voltage Unbalance'** means the deviation between highest and lowest line voltage divided by Average Line Voltage of the three phases.

The words and expressions used in this agreement and not defined herein but defined in the Act or the State Grid Code or any other regulations specified by the Commission /Authority shall, unless the context otherwise requires, have the meanings assigned to them under the Act or the State Grid Code or other regulations specified by the commission/Authority, as the case may be.

CHAPTER 2 - CONNECTION AGREEMENT

(Applicable only in Case 1(G1))

This Connection Agreement (the "Agreement") is made on the _____ day of _____ by and between:

TRANSMISSION CORPORATION OF TELANGANA LIMITED, a company organized and existing under the laws of India with its registered office at D.No.6-3-572, Vidyut Soudha, Hyderabad - 500082, Telangana (hereinafter called "TSTRANSCO" which expression shall unless repugnant to the context or meaning thereof include its successors and assignees) represented by Superintending Engineer/ OMC/_____/TSTRANSCO as the party of the first part.;

_____, is a "(Generating Company/Power Developer including Captive Generator" incorporated under the companies Act, 1956 having its registered office at -------- ---------- (hereinafter referred to as Long Term Transmission/Distribution System User/ User) which expression shall unless repugnant to the context or meaning thereof include its successors and assignees as party of the second part.

WHEREAS, TSTRANSCO is the State Transmission Utility under Section 39 (1) of the Electricity Act 2003 and is a Transmission Licensee under Section 14 of the Electricity Act, 2003 and owns, operates & maintains Intra-State Transmission System in the State of Telangana.

WHEREAS, _____ is developing/have developed a _____ MW(capacity) _____ Power Project (Fuel type) at _____;

Details of commercial arrangement regarding evacuation of power: _____

WHEREAS, _____ is seeking/having grid connectivity for their project to TSTRANSCO network; and

WHEREAS, TSTRANSCO has issued the feasibility letter/approval for Grid Connectivity to the project from the _____ (Substation) at _____ voltage level vide Lr.No._____

(Applicable only in Case 1(G2))

This Connection Agreement (the "Agreement") is made on the _____ day of _____ by and between:

TRANSMISSION CORPORATION OF TELANGANA LIMITED, a company organized and existing under the laws of India with its registered office at D.No.6-3-572, Vidyut Soudha, Hyderabad - 500082, Telangana (hereinafter called "TSTRANSCO" which expression shall unless repugnant to the context or meaning thereof include its successors and assignees) represented by Superintending Engineer/ OMC/ /TSTRANSCO as the party of the first part.;

AND

_____ POWER DISTRIBUTION COMPANY OF TELANGANA LIMITED, a company organized and existing under the laws of India with its registered office at _____ (hereinafter referred to as "**TS_PDCL**" which expression shall unless repugnant to the subject or context, means and includes its successors and assignees), represented by Superintending Engineer/Operation/TS_PDCL as party of the second part:

AND

_____, is a "(Generating Company/Power Developer including Captive Generator" incorporated under the companies Act, 1956 having its registered office at -------- ---------- (hereinafter referred to as Long Term Transmission/Distribution System User / User) which expression shall unless repugnant to the context or meaning thereof include its successors and assignees as party of the third part.

WHEREAS, TSTRANSCO is the State Transmission Utility under Section 39 (1) of the Electricity Act 2003 and is a Transmission Licensee under Section 14 of the Electricity Act, 2003 and owns, operates & maintains Intra-State Transmission System in the State of Telangana.

WHEREAS, TS_PDCL (referred to as TS DISCOM) is the Distribution Licenseeunder Section 14 of the Electricity Act, 2003 and owns, operates & maintains Distribution System within its specified area of supply.

WHEREAS, _____ is developing/have developed a _____ MW(capacity) _____ Power Project (Fuel type) at _____;

Details of commercial arrangement regarding evacuation of power: _____

WHEREAS, _____ is seeking/having grid connectivity for their project their project to TSTRANSCO/TS_PDCL network; and

WHEREAS, TSTRANSCO/TS_PDCL has issued the feasibility letter/approval for Grid Connectivity to the project from the _____ (Substation) at _____ voltage level vide Lr.No._____

(Applicable only in Case 1(G3))

This Connection Agreement (the "Agreement") is made on the _____ day of _____ by and between:

_____ **POWER DISTRIBUTION COMPANY OF TELANGANA LIMITED**, a company organized and existing under the laws of India with its registered office at _____ (hereinafter referred to as "**TS_PDCL**" which expression shall unless repugnant to the subject or context, means and includes its successors and assignees), represented by Superintending Engineer/Operation/TS_PDCL as party of the first part:

AND

_____, is a "(Generating Company/Power Developer including Captive Generator" incorporated under the companies Act, 1956 having its registered office at -------- ---------- (hereinafter referred to as Long Term Transmission/Distribution System User /User) which expression shall unless repugnant to the context or meaning thereof include its successors and assignees as party of the second part.

WHEREAS, TS_PDCL (referred to as TS DISCOM) is the Distribution Licenseeunder Section 14 of the Electricity Act, 2003 and owns, operates & maintains Distribution System within its specified area of supply.

WHEREAS, _____ is developing/have developed a _____ MW(capacity) _____ Power Project (Fuel type) at _____;

Details of commercial arrangement regarding evacuation of power: _____

WHEREAS, _____ seeking/having grid connectivity for their project to TS_PDCL network; and

WHEREAS, TS_PDCL has issued the feasibility letter/approval for Grid Connectivity to the project from the _____ (Substation) at _____ voltage level vide Lr.No._____

(Applicable only in Case 2(T))

This Connection Agreement (the "Agreement") is made on the _____ day of _____ by and between:

TRANSMISSION CORPORATION OF TELANGANA LIMITED, a company organized and existing under the laws of India with its registered office at D.No.6-3-572, Vidyut Soudha, Hyderabad - 500082, Telangana(hereinafter called **"TSTRANSCO"** which expression shall unless repugnant to the context or meaning thereof include its successors and assignees) represented by Superintending Engineer/ OMC/ /TSTRANSCO as the party of the first part.;

AND

_____, is a "(Transmission Licensee incorporated under the companies Act, 1956 having its registered office at ---------- ----- (hereinafter referred to as Long Term Transmission System User / User) which expression shall unless repugnant to the context or meaning thereof include its successors and assignees as party of the second part.

WHEREAS, TSTRANSCO is the State Transmission Utility under Section 39 (1) of the Electricity Act 2003 and is a Transmission Licensee under Section 14 of the Electricity Act, 2003 and owns, operates & maintains Intra-State Transmission System in the State of Telangana.

WHEREAS, _____ is a private transmission licensee

WHEREAS, _____ is seeking/having grid connectivity to TSTRANSCO network; and

Details of commercial arrangement regarding evacuation of power: _____

WHEREAS, TSTRANSCO has issued the feasibility letter/approval for Grid Connectivity to the project from the _____ (Substation) at _____ voltage level vide Lr.No._____

(Applicable only in Case 2(D))

This Connection Agreement (the "Agreement") is made on the _____ day of _____ by and between:

TRANSMISSION CORPORATION OF TELANGANA LIMITED, a company organized and existing under the laws of India with its registered office at D.No.6-3-572, Vidyut Soudha, Hyderabad - 500082, Telangana(hereinafter called **"TSTRANSCO"** which expression shall unless repugnant to the context or meaning thereof include its successors and assignees) represented by Superintending Engineer/ OMC/ /TSTRANSCO as the party of the first part.;

AND

_____, is a "(Distribution Licensee/Discom incorporated under the companies Act, 1956 having its registered office at ---------- ----- (hereinafter referred to as Long Term Transmission/Distribution System User / User) which expression shall unless repugnant to the context or meaning thereof include its successors and assignees as party of the second part.

WHEREAS, TSTRANSCO is the State Transmission Utility under Section 39 (1) of the Electricity Act 2003 and is a Transmission Licensee under Section 14 of the Electricity Act, 2003 and owns, operates & maintains Intra-State Transmission System in the State of Telangana.

WHEREAS, _____ is a distribution licensee / DISCOM

WHEREAS, _____ is seeking/having grid connectivity to TSTRANSCO network; and

WHEREAS, TSTRANSCO has issued the feasibility letter/approval for Grid Connectivity to the project from the _____ (Substation) at _____ voltage level vide Lr.No._____

(Applicable only in Case 3(C))

This Connection Agreement (the "Agreement") is made on the _____ day of _____ by and between:

TRANSMISSION CORPORATION OF TELANGANA LIMITED, a company organized and existing under the laws of India with its registered office at D.No.6-3-572, Vidyut Soudha, Hyderabad - 500082, Telangana (hereinafter called "TSTRANSCO" which expression shall unless repugnant to the context or meaning thereof include its successors and assignees) represented by Superintending Engineer/ OMC/ /TSTRANSCO as the party of the first part.;

AND

_____ POWER DISTRIBUTION COMPANY OF TELANGANA LIMITED, a company organized and existing under the laws of India with its registered office at _____ (hereinafter referred to as "**TS_PDCL**" which expression shall unless repugnant to the subject or context, means and includes its successors and assignees), represented by Superintending Engineer/Operation/TS_PDCL as party of the second part:

AND

_____, is a "(Bulk load Consumer)" incorporated under the companies Act, 1956 having its registered office at ---------- (hereinafter referred to as Long Term Transmission/Distribution System User / User) which expression shall unless repugnant to the context or meaning thereof include its successors and assignees as party of the third part.

WHEREAS, TSTRANSCO is the State Transmission Utility under Section 39 (1) of the Electricity Act 2003 and is a Transmission Licensee under Section 14 of the Electricity Act, 2003 and owns, operates & maintains Intra-State Transmission System in the State of Telangana.

WHEREAS, TS_PDCL (referred to as TS DISCOM) is the Distribution Licensee under Section 14 of the Electricity Act, 2003 and owns, operates & maintains Distribution System within its specified area of supply.

WHEREAS, _____ is seeking/having grid connectivity for their project to TSTRANSCO/TS_PDCL network; and

WHEREAS, Telangana State Electricity Regulatory Commission (hereinafter referred to as "TSERC") has notified "TSERC (State Electricity Grid Code) Regulation, 2018 (hereinafter referred to as State Grid Code)" for the state of Telangana pertaining to Connectivity and Operation of Intra State Transmission System and according to the clause 15.1 (i) of the State Grid Code, a connection agreement is required to be signed between TSTRANSCO/ TSDISCOM and respective users of the Intra State Transmission System/Distribution System; and

NOW, THEREFORE in consideration of the premises and mutual agreements, covenants and conditions set forth herein, it is hereby agreed by and between the parties as follows:

2.1 <u>Compliance of State Grid Code</u>

All/ Both the parties agree and confirm that they shall be abiding the provisions of the TSERC (State Electricity Grid Code Regulation 4/2018) (with amendments thereof) and procedures and operating practices prescribed there under. _____ also agree to supply the Standards Planning Data and Detailed Planning Data to TSTRANSCO / TS DISCOMs (whichever is applicable) as may be specified for the purpose of planning and development of intra-state transmission system in accordance with Clause 10 of the State Grid Code.

All/ Both the parties agree to abide by the directions and instructions of State Load Despatch Centre issued in discharge of its functions and comply with any procedure and processes prescribed by the State Load Despatch Centre under the State Grid code. _____ confirms that they shall adhere to the system security standard specified under Clause 25 of the State Electricity Grid Code and operate respective system in accordance with Clause 24 of the State Electricity Grid Code.

In case of discrepancy between terms and conditions stipulated in the Agreement and State Electricity Grid Code Conditions, the terms and conditions of the State Electricity Grid Code shall prevail.

Compliance of Central Electricity Authority Regulations:

All/ Both the parties agree and confirm that they shall be abiding by the provisions of the Central Electricity Authority's Technical Standards for Connectivity to the Grid Regulations 2007 inclusive of any subsequent amendments thereof issued by the CEA.

The stipulations mentioned in the connectivity regulations issued by the CEA, in case of Generators (conventional or generators using Inverters & renewable sources), Transmission Line and Substations, Bulk load and DISCOMs shall be complied with.

Compliance of Central Electricity Regulatory Commission Regulations:

All/ Both the parties agree and confirm that they shall be abiding by the provisions of the applicable regulations of Central Electricity Regulatory Commission inclusive of any subsequent amendments thereof.

Compliance of Telangana State Electricity Regulatory Commission Regulations:

All/ Both the parties agree and confirm that they shall be abiding by the provisions of the applicable regulations of Telangana State Electricity Regulatory Commission inclusive of any subsequent amendments thereof.

2.2 <u>Connection Standards and codes of practice</u>

a) _____ shall follow the industry best practices and applicable industry standards in respect of the operation and maintenance of the installed equipment.

b) Unless there is a commercial arrangement between the parties regarding evacuation of power, _____ shall not inject / draw power from/into the In-STS network.

c) _____shall be liable for any drawls /injections of energy without any commercial arrangements. Any such injected energy will be treated as inadvertent, beside attracting penalties as per DSM regulations, andany such energy drawl shall be treated as "full open access consumers", levying appropriate charges and disconnection of supply

d) The equipment including overhead lines and cables shall comply with the relevant Indian standards, British Standards (BS) or International Electrotechnical Commission (IEC) Standards or American National Standards Institute (ANSI) or any other equivalent International Standards.

e) Provided that, whenever an International Standard or International Electrotechnical Commission Standards is followed, necessary corrections or modifications shall be made

for nominal system frequency, nominal system voltage, ambient adoption of the said Standard.

f) The effect of wind, storms, floods, lightning, elevation, temperature extremes, icing, contamination, pollution, and earthquakes must be considered in the design and operation of the connection facilities.

g) Construction, installation, operation, and maintenance of equipment by all/ both the parties shall conform to the relevant standards specified by the Authority. The equipment including overhead lines and cables must be of approved standards as communicated by TSTRANSCO / TSDISCOM (whichever is applicable).

h) _____ shall be responsible for the planning, design, construction, reliability, protection, and safe operation of its own equipment subject to the regulations for construction, operation, maintenance, and connectivity and other statutory provisions

i) There shall be no fluctuations or disturbances to the Transmission network or other consumers connected to the network due to the paralleling of the Generators. _____ shall provide, under own expenses, adequate protection as required by TS TRANSCO to facilitate safe parallel operation of the generator with the network and to prevent disturbances of the grid

j) _____ shall make arrangements for integration of the control and telemetering features for their system into the Automatic generation control, automatic load shedding, special protection system, energy management systems and supervisory control and data acquisition system of the respective state or region.

k) _____ shall comply with the appropriate intrastate DSM regulations issued by TSERC

l) (applicable for generators only) _____ provide the unique registration number from the Authority, as per the CEA (Technical Standards for Connectivity to the Grid) (Amendment) Regulations,2019 to TSTRANSCO/TS DISCOM (whichever is applicable) , and provide the registration details from SLDC ,as per clause 3.1 of the APERC Regulation No.1 of 2006 (adopted by TSERC vide Regulation No.1 of 2014)

m) _____ shall cooperate with the Power Systems wing at TSTRANSCO / TS DISCOM (whichever is applicable) and State Load Despatch Centre in respect of the matters listed below, but not limited to:

   i) Protection coordination and settings of its protective relays accordingly.

   ii) Agree to maintain meters and communication system which are in its jurisdiction in good condition.

iii) Participate in contingency operations such as load shedding, increasing, or reducing generation, islanding, black start, providing start-up power and restoration as per the procedure decided by the State Load Dispatch Centre.

iv) Furnish data as required by TSTRANSCO / TS DISCOM (whichever is applicable) and/or State Load Dispatch Centre and any committee constituted by the Authority or appropriate Government for system studies / simulation models or for facilitating analysis of tripping or disturbance in power system.

v) Carry out modifications in its equipment with respect to short circuit level, protection coordination and other technical reasons considered necessary due to operational requirements.

vi) Abide by the coordinated outage plan of the state and region in respect of generating units and transmission lines as approved by TS TRANSCO/TS DISCOMs/SLDC/Regional Power Committee; and

vii) Comply with the cyber security guidelines issued by the Central Government/State Government (whichever is applicable), from time to time, and the technical standards for communication systems laid down by the Authority/SLDC/Commission (whichever is applicable)

viii) (applicable for solar / wind power generators only)provide dynamic reactive power support, have Low Voltage Ride Through (LVRT) and High Voltage Ride Through (HVRT) features, and shall have frequency and power output controllers as per the CEA (Technical Standards for Connectivity to the Grid) (Amendment) Regulations,2019 and subsequent amendments thereof

ix) (applicable for solar / wind power generators only) ensure that inverters have voltage control & night mode and shall operate for reactive power compensation as per the CEA (Technical Standards for Connectivity to the Grid) (Amendment) Regulations,2019 and subsequent amendments thereof

x) (applicable for solar / wind power generators only) have the features/provision to control active power injection as per the signal/instructions from the SLDC/Regional Power Committee

2.3 <u>Safety Standards</u>

All/ Both the parties shall comply with the Central Electricity Authority (Measures relating to Safety and Electricity Supply) Regulation, 2010 and amendments thereof.

2.4 Substation Grounding

Both /All parties shall ensure that proper grounding is done at their respective substations. Each sub-station must have a ground mat solidly connected to all metallic structures and other non-energized metallic equipment. The mat shall limit the ground potential gradients to such voltage and current levels that will not endanger the safety of people or damage equipment which are in, or immediately adjacent to, the station under normal and fault conditions. The ground mat size and type shall be based on local soil conditions and available electrical fault current magnitudes. In areas where ground mat voltage rises would not be within acceptable and safe limits (for example due to high soil resistivity or limited sub-station space), grounding rods and ground wells may be used to reduce the ground grid resistance to acceptance levels. Sub-station grounding shall be done in accordance with the norms of the Institute of Electrical and Electronics Engineers (IEEE) – 80.

2.5 Metering Requirements

Metering requirement at the inter-connection points shall be governed by the Metering Code as specified in State Electricity Grid Code approved by the Commission. _____ shall abide by the Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006 and its subsequent amendments from time to time, in addition to theclause 8 of the metering proceeding of TSERC dated: 02-02-2015.Further, the following shall apply:

a) Metering at the interconnection points shall be maintained by TSTRANSCO/ TS DISCOMs (whichever is applicable) as per clause 8of the metering proceedings of TSERC dated 02-02-2015.The Metering System shall be suitable to measure and store all pertinent parameters at all inter-connection points needed for billing the intra-state energy exchange as per the applicable tariffs and for energy accounting and UI settlement system as specified by the Commission from time to time. The metering software, load survey parameters shall be as per the energy billing center of TSTRANSCO/TS DISCOM, whichever is applicable

b) The meters shall be tested by NABL accreditedlaboratory for routine accuracy testing at least once in five years and recalibrated if required. Provided that these meters shall also be tested periodically / whenever the energy and other quantities recorded by the meter are abnormal or inconsistent with electrically adjacent meters. The testing activities shall be under the scope of the user and shall be done in presence of TSTRANSCO/ TSDISCOMs personnel

c) In case of the In-house captive generator intending to inject energy into grid under open access, metering shall be done at the substation end, in addition to the existing metering in the premises of the consumer

d) Reading of the meters shall be taken periodically at the appointed day and hour by authorities of TS TRANSCO / TS DISCOMs (whichever is applicable) in presence of the user

2.6 Equipment at Connection Points

_____ shall confirm that their respective equipment at Connection Point shall comply with minimum technical and design criteria specified in the State Grid Code. Single Line Diagram showing arrangement of equipment belonging to the _____ and /or TSTRANSCO/TSDISCOM at each connection point are appended with this agreement and made available to the SLDC. The parties herein agree that they shall not alter the arrangement of equipment at the connection point without consent of other party.

_____ confirm that before physical connection of their systems at the connection points they shall intimate to the State Transmission Utility and the State Load Dispatch Centre.

2.7 Site Common Drawings

The site common drawings shall be prepared for each connection point and will include the following information: (i) site layout; (ii) electrical layout: (iii) details of protection / control; and (iv) common services drawings.

The detailed drawings shall be prepared by transmission licensee and user in respect of their system / facility at each connection point and copies of the same shall be made available to concerned user and TSTRANSCO / TS DISCOM (whichever is applicable) respectively.

In case of any changes in the site common drawings that are found necessary by TSTRANSCO/ TS DISCOM (whichever is applicable) or user in respect of their system / facility at the connection point, the details of such changes shall be furnished to the other party as soon as possible.

The changes so brought about as necessitated shall be in conformity with the Act, 2003 and regulations issued thereunder including but not limited to the regulation.

2.8 Power Quality

The user shall ensure the power quality parameters, such as harmonics, DC injection, and flicker etc., in accordance with the CEA (Technical Standards for Connectivity to the Grid)

Regulations,2007 (and subsequent amendments thereof) / TSERC Regulations issued from time to time. The measurement of these parameters shall be done at least once in a year, in the presence of all/both parties, as per the above said regulations.

2.9 Inspection, Test, calibration, and Maintenance

Before connecting, _____ shall complete all inspections and tests finalized in consultation with the TS TRANSCO/ TS DISCOM (whichever is applicable) to which its equipment is connected. _____ shall make available all drawings, specifications and test records of the project equipment pertaining to integrated operation to the TS TRANSCO and TS DISCOM. _____ shall cooperate and facilitate for periodical testing and carrying maintenance schedule of the equipment.

2.10 Site Responsibility Schedule

A Site Responsibility Schedule (SRS) for every connection point shall be prepared by the owner of the sub-station where connection is taking place. The details shall be provided as annexure (Annexure-1) to the agreement.

The site responsibility schedule shall be prepared by TS TRANSCO/ TS DISCOM (whichever is applicable) and the user, detailing the ownership responsibilities of each, before execution of the project or connection, including safety responsibilities.

The following information shall be included in Site Responsibility Schedule (SRS), namely:

a) Schedule of electrical apparatus, services, and supplies.
b) Schedule of telecommunications and measurement apparatus
c) Safety rules applicable to each plant/apparatus.
d) The ownership of Plant/apparatus
e) The responsibility for control of Plant/apparatus
f) The responsibility for maintenance of plant /apparatus
g) The responsibility for operation of plant/apparatus
h) The manager of the site
i) The responsibility for all matters relating to safety of persons at site
j) The responsibility for all matters relating to safety of equipment at site

No connection shall be made unless Site Responsibility Schedule is prepared and signed by all concerned parties.

2.11 Capital Expenditure by parties

The user shall bear the entire cost of interconnection facilities. The Operation and Maintenance expenditure of the interconnection facility from time to time must be borne by the developer. The maintenance work must be done in coordination with TSTRANSCO / TS DISCOM (whichever is applicable).

2.12 Commercial Agreement to Pay Charges & Costs

(Applicable for Case 1(G1), Case 1(G2), and Case 1(G3) only):

a) Agreement to pay Monthly Transmission/Wheeling Tariff for Captive and Third-Party wheeling:

_____ declares that they shall pay the Monthly Transmission Tariff/Wheeling Tariff including SLDC charges for use of Intra-State Transmission System, as and when Long Term Open Access or Short Term Open Access is availed by the applicant, in accordance with the relevant regulations of TSERC in this regard.

The commercial arrangement for evacuation and sale of power shall be governed by the respective PPAs with TSDISCOMs/Distribution Licensee or Open Access Agreements with other users of the In-STS network.

In case of In-house generators exclusively operating in parallel with TSTRANSCO / TS DISCOMs (whichever is applicable) for the safe operation, they shall pay applicable Grid Support/Parallel Operation charges as and when notified by TSERC and as amended from time to time.

b) Agreement to pay additional costs:

_____ declares that they shall pay the cost towards modifications/alterations to the infrastructure of TSTRANSCO/ TS DISCOM (whichever is applicable) , as the case may be, for accommodation of the proposed connection as specified in the approval of TSTRANSCO/ TS DISCOM (whichever is applicable) furnishing connection details.

c) Agreement to pay for damages:

_____declares, as per mutual agreement, that they shall pay/make good for damages, if any, caused by the customer to the property of the TSTRANSCO/ TS DISCOM (whichever is applicable), as the case may be, which has been notified by the TSTRANSCO/ TS DISCOM (whichever is applicable), as the case may be, within reasonable time of its occurrence, during the course of control, operation and maintenance of the equipment.

d) Bay and Line maintenance charges:

i) Line maintenance charges

The line and associated equipment, till the interconnection point / isolating device at the connection point, shall be maintained by the user.

The Generator may also request TSTRANSCO/ TS DISCOM (whichever is applicable) to maintain the line and if the line is maintained by the TSTRANSCO/ TS DISCOM (whichever is applicable), the cost of maintenance of line shall be paid by the generator.

ii) Bay maintenance charges

As the terminating bay falls under the premises of the TSTRANSCO/ TS DISCOM (whichever is applicable), TSTRANSCO/ TS DISCOM (whichever is applicable) alone has to operate and maintain the line terminal bay of dedicated lines at the TSTRANSCO/ TS DISCOM (whichever is applicable) substation. The generator shall pay to TSTRANSCO/TS DISCOM for the operation and maintenance of the bays at the TS TRANSCO/TS DISCOM substation. Any costs related to replacement of equipment or spares in case of failure shall be borne by the User.

TSTRANSCO/ TS DISCOM (whichever is applicable) shall have the right to recover the operation and maintenance charges for the terminal bay. The charges are based on the methodology stipulated in clause 2.13.d.(iii). The details regarding the bay arrangements and the detailed charges shall be laid down in the Site Responsibility Schedule.

iii) Methodology for the O&M expenses and escalation:

The O&M expenses shall be in line with the Cost Data/ SSR data (whichever is applicable). The following table mentions the methodology to be used for calculating the O&M expenses and escalation:

S.No	Category	Base level	Escalation
1	Transmission Network for TS TRANSCO / Distribution network for TS DISCOM	1.5 percent of the actual capital expenditure at the time of commissioning of transmission system.	weighted average index with 60 percent weightage to Wholesale Price Index and 40 percent to Consumer Price Index

The above methodology is as per the CERC regulations. The maintenance work will not cover supply of any equipment / spares including emergency replacements. In

case the services of the manufacturers or any outside agency are required on any particular occasion which cannot be carried out by TSTRANSCO/ TS DISCOM (whichever is applicable) personnel, TSTRANSCO/ TS DISCOM (whichever is applicable) shall arrange for the same at the applicant's cost post prior concurrence.

A detailed schedule of the O&M activities and responsibilities shall be included in the Site Responsibility Schedule.

(Applicable for Case 2(T)only):

a) Agreement to pay Monthly Transmission/Wheeling Tariff:

_____ declares that they shall pay the Monthly Transmission Tariff/Wheeling Tariff including SLDC charges for use of Intra-State Transmission System.

b) Agreement to additional costs:

_____ declares that they shall pay the cost towards modifications/alterations to the infrastructure of TSTRANSCO, as the case may be, for accommodation of the proposed connection as specified in the approval of TSTRANSCO furnishing connection details.

c) Agreement to pay for damages:

_____declares, as per mutual agreement, that they shall pay/make good for damages, if any, caused by the customer to the property of the TSTRANSCO, as the case may be, which has been notified by the TSTRANSCO, as the case may be, within reasonable time of its occurrence, during the course of control, operation and maintenance of the equipment.

d) Bay and Line maintenance charges:

i) Line maintenance charges

The line and associated equipment, till the interconnection point / isolating device at the connection point, shall be maintained by the user.

ii) Bay maintenance charges

As the terminating bay falls under the premises of the TSTRANSCO, TSTRANSCO alone must operate and maintain the line terminal bay of dedicated lines at the TSTRANSCO substation. The user shall pay to TSTRANSCO for the operation and maintenance of the bays at the TS TRANSCO substation. Any costs related to replacement of equipment or spared in case of failure shall be borne by the User.

TSTRANSCO have the right to recover the operation and maintenance charges for the terminal bay. The charges are based on the methodology stipulated in clause

2.13.d.(iii). The details regarding the bay arrangements and the detailed charges shall be laid down in the Site Responsibility Schedule.

iii) Methodology for O&M expenses and escalation

The O&M expenses shall be in line with the Cost Data/ SSR data (whichever is applicable). The following table mentions the methodology to be used for calculating the O&M expenses and escalation:

S.No	Category	Base level	Escalation
1	Transmission Network for TS TRANSCO	1.5 percent of the actual capital expenditure at the time of commissioning of transmission system	Weighted average index with 60 percent weightage to Wholesale Price Index and 40 percent to Consumer Price Index

The above methodology is as per the CERC regulations. The maintenance work will not cover supply of any equipment / spares including emergency replacements. In case the services of the manufacturers or any outside agency are required on any occasion which cannot be carried out by TSTRANSCO personnel, TSTRANSCO shall arrange for the same at the applicant's cost post prior concurrence.

A detailed schedule of the O&M activities and responsibilities shall be included in the Site Responsibility Schedule

(Applicable for Case 2(D)):

a) Agreement to pay Monthly Transmission/Wheeling Tariff

_____ declares that they shall pay the Monthly Transmission Tariff/Wheeling Tariff including SLDC charges for use of Intra-State Transmission System. The commercial arrangement for evacuation/transmission of power shall be governed by their respective commercial agreements with TS TRANSCO.

2.13 General guidelines on Protection

The parties agree and confirm that connection with Intra-State Transmission System shall comply with following minimum technical design criteria regarding System parameters and protection.

i) Grid Parameters Variations – General:

The parties shall ensure that plant and apparatus requiring service from or providing service to the In-STS is of such design and construction that ensures satisfactory operation of such plant and apparatus which will not be obstructed by variation in

instantaneous values of system frequency and voltage from their nominal values and that such plant and apparatus shall not induce any adverse effect on the In-STS

ii) **Grid Parameters -Frequency Variation:**

Rated frequency of the system shall be 50.0 Hz and _____ shall make all possible efforts to ensure that the grid frequency always remains within the frequency band as specified by IEGC and any other regulations as may be specified by the appropriate authority from time to time.

iii) **Grid Parameters -Voltage Variation:**

The variations of voltage may not be more than the voltage range specified as per Clause 16.3 and Clause 25.27 of State Electricity Grid Code Regulation 2018.

A generating unit shall be provided with an Automatic Voltage Regulator, protective devices, and safety devices.

iv) **Protection System:** Protection System shall be designed to reliably detect fault on various abnormal conditions and provide an appropriate means and location to isolate the equipment or system automatically. The protection system must be able to detect power system faults within the zone. The protection system should be able to detect abnormal conditions such as equipment failures or open phase conditions Further, the following shall also be applicable:

- Every Element of the power system shall be protected by the standard protection system having the required reliability, selectivity, speed, discrimination, and sensitivity. Where failure of a protective relay in the user's system has substantial impact on the grid, the user shall connect an additional protection as back up protection besides the Main protection.
- Notwithstanding the protection systems provided in the grid, the user shall provide requisite protections for safeguarding their system from faults originating in the grid
- Bus bar protection and Breaker Fail protection or Local Breaker Back-up Protection shall be provided wherever stipulated in the regulations.
- Special protection Scheme such as Under Frequency relay for Load shedding, voltage instability, angular instability, generation backing down or Islanding Schemes may also be required to be provided to avert system disturbances.
- Protection co-ordination issues shall be finalized at regional levels by Regional Electricity Board/Regional Power Committee and for Intra-State lines by STU.

- The user shall develop protection manuals conforming to various standards for the reference and use of its personnel.
- The protection systems shall be provided by all transmission licensees and users to isolate the faulty equipment and protect the other components against all types of faults, internal / external to them, within the specified fault clearance time with reliability, selectivity, and sensitivity.
- In case of TSTRANSCO network, The general philosophy of 220kV & above transmission lines protection shall be as per "Recommended Methodology for Relay Settings of Uncompensated Transmission Lines" furnished in the Report of Task Force on Power System Analysis Under Contingencies. However, the procedure for calculation of zonal reactive reaches shall be as per existing TSTRANSCO standards.
- In case of connection is at 132 kV level, the general protection philosophy of 132 kV transmission lines shall be as per TSTRANSCO standards.
- In case the connection is at 33kV level, the transmission/ distribution line protection shall be as per the existing TSTRANSCO/ TS DISCOM standards. For protection of 33 kV feeders connected to the transmission/ distribution substation, the user shall provide numerical based directional 3 O/L & 1 E/F relays with instantaneous element.
- Provided that all users or transmission licensees shall establish protection systems as specified by the competent Authority under the provisions of the Act, 2003
- Additional Protection System shall be provided by the user as recommended by the STU/SRPC, if it is felt that the existing protection system is inadequate to meet the technical and protection requirements as stipulated in the TS Grid Code Regulation, 2018 as amended from time to time.
- 220kV and 400kV feeders shall have single phase auto reclose facility at both ends.
- Periodical testing of the protection settings shall be done for the bays at the user's end in the presence of TSTRANSCO / TS DISCOM (officials). User shall ensure the periodical maintenance and testing of equipment and relays at user end as per norms.
- All the users shall facilitate the identification, installation and commissioning of System Protection Schemes (SPS) (including inter-tripping and run-back) in the

power system to operate the transmission system closer to their limits and to protect against situations such as voltage collapse and cascade tripping, tripping of important corridors/flow-gates etc., as per IEGC Clause 5.2 (O).

v) **Sub-station Equipment**

All Extra High Voltage (EHV) sub-station equipment of both the parties shall comply with Bureau of Indian Standards/International Electrotechnical Commission (IEC)/ prevailing Code of practice.

All equipment shall be designed, manufactured, and tested and certified in accordance with the quality assurance requirements as per the standards of International Electrotechnical Commission or the Bureau of Indian standards.

Each connection between a user and In-STS shall be controlled by a circuit breaker capable of interrupting, at the connection point, at the least short circuit current as advised by TSTRANSCO/ TS DISCOM (whichever is applicable).

vi) **Fault Clearance Times**

The fault clearance time for primary protection schemes, for a three phase fault close to the bus-bars on the user's equipment directly connected to In-STS and for a three phase fault close to the bus-bars on In-STS connected to user's equipment, shall be as per the State Grid Code and TSTRANSCO protection standards.

Back-up protection shall be provided for required isolation/protection in the event of failure of the primary protection systems provided to meet the above fault clearance time requirements. If a Generating Unit is connected to the intra-state Transmission System directly, it shall be capable of withstanding, until clearing of the faulty by back-up protection on the intra-state Transmission system side.

2.14 Reactive Power Management

_____ agrees that the reactive power management and/or other facilities shall be provided, in the areas prone to low or high voltage systems close to the load points thereby avoiding the need for exchange of Reactive Power to/from the intra-state Transmission System and to maintain the intra-state Transmission system voltage within the specified range. _____ shall agree to abide by the guidelines for Reactive Power management as specified under State Grid Code and also as per the regulations of CEA as amended from time to time.

The line reactors may be provided to control temporary over voltage within the limits.

The additional reactive compensation to be provided by the user shall be indicated by TSTRANSCO / TS DISCOM (whichever is applicable) for implementation.

2.15 SCADA and Communication Facilities

_____ agrees to maintain reliable and efficient speech and data communication systems to facilitate necessary communication and data exchange as prescribed by the SLDC for supervision/control of the State Grid under normal and abnormal conditions at their respective ends at their own cost. _____ agrees to abide by the guidelines issued under Clause 18 of the State Electricity Grid Code.

All the users and transmission licensees, including the TS TRANSCO, shall maintain the required facilities at their respective ends:

Provided that the equipment / devices for communication and data exchange , such as voltage, frequency, line flows (MW and MVAR), isolator and breaker status etc.,shall be provided considering the guidelines of SLDC, the interface requirements and other such guidelines / specifications as applicable.

2.16 System Recording Instruments

_____ agrees to provide the recording instruments Data Acquisition System /Disturbance Recorder/ Event Logger /Fault Locator (including time synchronization equipment) as may be necessary under applicable standards within the 3 months from the date of connection agreement (in respect of existing users).

Every Generating Station and substation connected to the grid at 33kV and above shall be provided with Disturbance Recording and Event Logging facilities. All such equipment shall be provided with time synchronization facility for global common time reference.

All the users and transmission licensees shall provide all the requisite recording instruments in accordance with the agreed time schedule.

2.17 Conditions Precedent to the implementation of the Charging Clearance

The applicant shall have to get appropriate "charging clearance" prior to first charging of the equipment through the grid. The charging clearance shall be issued only when the TS TRANSCOis satisfied (by acting reasonably) that:

a) The Inter Connection works have been completed: (Feeder bay + Metering bay)
b) The applicant has complied with its all obligations as set out in the approvals issued by TSTRANSCO/TSDISCOMS.
c) The applicant has demonstrated the voice & data communication and requisite system recording facilities to concerned SLDC.
d) The applicant has obtained necessary approvals like PTCC, Electrical Inspectorate of CEA, CEIGetc., from competent authority.

e) The applicant has complied with its obligations under the Central Electricity Authority (Technical Standards for Connectivity to the Grid) Regulations and relevant other regulations of TSERC and its amendments from time to time.

2.18 Access to all parties

The parties owning the Connection Site, as the case may be, shall provide reasonable access and other required facilities to another including the SLDC, whose equipment is proposed to be installed at the connection site for installation, operation, maintenance etc.

Written procedures and agreements shall be developed between entities to ensure that mandatory access is available to the entity concerned at the same time safeguarding the interests of All/ Both entities at the connection site.

The authorized personnel of All/ Both parties shall have the right to inspect the plant of other party at inter-connection point to ensure conformity to standards and restrictions.

2.19 Unintended and Unscheduled back-energisation

_____ shall not energize In-STSsystem by injecting supply from its generators or any other source either by automatic controls or manually unless specifically requested by TSTRANSCO/ TS DISCOM (whichever is applicable).

2.20 Notice

All correspondence/notices required or referred to under this Agreement shall be in writing and signed by the respective authorized signatories of the _____ and TSTRANSCO/ TS DISCOM (whichever is applicable) mentioned herein, unless otherwise notified. Each such notice shall be deemed to have been duly given if delivered or served by registered mail/speed post of the department of post with an acknowledgment due to other party(ies) as per authorization by parties.

The authorities of the parties who shall be responsible for the correspondence notices in connection with this agreement shall be informed in advance.

2.21 Settlement of Disputes and Arbitration

All differences and or/disputes between the _____ and TSTRANSCO/ TS DISCOM (whichever is applicable) arising out of or in connection with these presents shall at first instance be settled through amicable settlement at the level of CEO/SE(OMC/TSTRANSCO or TSDISCOM).

In the event of unresolved disputes or differences as covered under the statutory arbitration provided under the Electricity Act, 2003, the same shall be resolved accordingly.

Notwithstanding the existence of any disputes and differences referred to arbitration, the parties herein shall continue to perform their respective obligations under this Agreement.

2.22 Force Majeure

Force Majeure herein is defined as any clause which is beyond the control of the TS TRANSCO /TS DISCOM (whichever is applicable) or the User as the case may be, which could not be foreseen or with a reasonable amount of diligence could not have been foreseen and which substantially affects the performance of the agreement. Force Majeure events would include:

a) Natural phenomenon including but not limited to floods, droughts, earthquake, and epidemics.
b) War (whether declared or undeclared), invasion, armed conflict, or act of foreign enemy in each case involving or directly affecting India, revolution, riot, insurrection or other civil commotion, act of terrorism or sabotage in each case within India.
c) Nuclear explosion, radioactive or chemical contamination or ionizing radiation directly affecting the generation station, captive generating plant or bulk consumer, inter-state transmission system of the STU or Intra-State transmission licensee other than STU, or any facility or system that is integral to and substantial for the performance to this agreement.
d) Any event or circumstances of a nature analogues to any events set forth above within India.

Provided either party shall within fifteen (15) days from the occurrence of such a Force majeure event notify the other in writing of such cause (s).

Neither of the parties shall be liable for delays in performing obligations on account of any force majeure causes as referred to and /or defined above.

2.23 Confidentiality

The _____ and TSTRANSCO/ TS DISCOM (whichever is applicable)shall keep in confidence any information obtained under this connection agreement and shall not divulge the same to any third party without the prior written consent of the other party, unless such information is

a) In the public domain,

b) Already in the possession of the receiving party.

c) Required by the govt. ministries/agencies/court of competent jurisdiction.

The information exchanged herein between the parties shall be used only for the purpose of, and in accordance with, this agreement and for the purpose stated herein. This clause shall remain in force even after termination of connection agreement.

2.24 Transfer Assignment and Pledge

The User shall not assign, sell, convey, or otherwise transfer this agreement, or any of its rights or obligations thereunder, without prior written consent of the TSTRANSCO / TSDISCOM (whichever is applicable). In case thisagreement is assigned, it shall be only for the purpose of title transfer and not for the purpose of trade. The assignee or other transferee shall assume all duties and obligations arising from and after the time of the consent to transfer by TSTRANSCO / TSDISCOM (whichever is applicable), but such assignment or transfer shallnot release the assigning or transferring user from its duties and obligations unless specifically provided in the written consent and in theassignment, conveyance or transfer document. All duties and obligationsarising prior to the assignment or transfer shall remain the duties andobligations of the assignor unless all/ both the parties specifically agree otherwise.

2.25 Non-Compliance

Failure by the userto comply with the CEA regulations / TSERC regulations, and with the terms of the agreement , shall lead to disconnection.

2.26 Amendment to the Connection Agreement

In case of modification to point of connection like re-allocation of bays, upgradation of voltage level etc. by either of the parties, if mutually agreed, an amendment to the Connection Agreement shall be executed between the parties within 30 days of implementing such modification.

2.27 Validity of the Connection Agreement

This agreement shall remain valid unless All/ Both the _____ and TSTRANSCO/ TS DISCOM (whichever is applicable) with mutual agreement decide to amend /modify in

respect of re-allocation of bays, up gradation of voltage level etc. or terminate it without having any effect on other commercial agreements.

Any TSERC/CEA order amended shall have the effect on the operation of this agreement and the same shall be applicable for the _____.

In witness whereof the parties have signed this agreement on the day, month and year first written above.

For and on behalf of TSTRANSCO/TSDISCOM **For and on behalf of _____**

In the presence of

1.

2.

Annexure-1: Site Responsibility Schedule

SITE RESPONSIBILITY SCHEDULE

Format, principles, and Procedure

(Pursuant to Clause 20.1 of the State Electricity Grid Code)

A1: SITE RESPONSIBILITY SCHEDULE

1. Introduction

Clause 15.1 of the Telangana State Electricity Grid Code relates to connection conditions for connectivity with Intra State Transmission system and states the terms and conditions of the connection agreement between the user and the STU. A Site Responsibility Schedule for work relating to each connection is required to be prepared detailing responsibilities of each part for ownership, control, operation maintenance, and safety of any person at connection site.

This document describes the formant, principles, and procedure for preparation of SRS for the works to be carried out for new connections modifying an existing connection to and / or use of the Intra -State Transmission System.

2. Objectives

The objective of this procedure is to be ensure that the responsibilities of the parties seeking connection or modification of an existing connection with Intra State Transmission System are clearly identified in the Site Responsibility Schedule.

3. Scope and Applicability

The Site Responsibility Schedule shall be prepared for all connections to /or use of Intra State Transmission System. _____, user of the Intra State Transmission System shall comply with the following requirements.

a) Single Line Diagram of each connection point.

b) Site Common Drawings of each connection point.

4. Availability of copy of Format and Procedure

The Format, principles, and procedure for preparation of the site Responsibility Schedule at connection point of the intra-state Transmission/Distribution System (Pursuant to Clause 20.1 of the State Electricity Grid Code) can be obtained from Nodal Officer of STU/DISCOM as given below:

Superintending Engineer/OMC/_____,

Transmission Corporation of Telangana Limited

(and / or)

Superintending Engineer/Operation/_____,

Telangana State _____ Distribution Company Limited

Tel: ; Mobile : ; Fax :

E-mail :

The copy of application form and the procedure is also available at web-sites of TSTRANSCO/TS DISCOM and can be downloaded from website.

5. Operational responsibility

The Nodal Officer of STU/DISCOM nominated by the TSTRANSCO/TSDISCOM shall be responsible for coordination and implementing the procedure of Site Responsibility Schedule and ensuring that the process is carried out on a continuous basis. He shall also coordinate with other transmission licensees for the connectivity with Intra-State Transmission System.

6. Safety

The responsibility of parties for safety at the connection point and system connected thereto shall be clearly indicated in the Site Responsibility Schedule so that there are no chances of misunderstanding and role of each party is clearly defined. The safety responsibility shall be defined in unambiguous terms.

7. Responsibility for preparation of Site Responsibility Schedule

Site Responsibility Schedule shall be prepared by the TSTRANSCO/TS DISCOM with whose system the _____ seeks to connect. The Site Responsibility Schedule shall be prepared and finalized by the TSTRANSCO/TS DISCOM in consultation and in agreement with the _____ seeking connection with Intra State Transmission schedule.

At the connection site where equipment is installed, _____ shall furnish required data to the TSTRANSCO/TS DISCOM and the TSTRANSCO/TS DISCOM shall prepare Site Responsibility Schedule. At a generating station, the TSTRANSCO/TS DISCOM shall furnish the necessary data to the generating company who shall prepare site Responsibility Schedule.

The Site Responsibility Schedule shall be signed by the authorized person of the TSTRANSCO/DISCOM and the authorized personnel of the generating company.

8. Site Responsibility Schedule contents.

Following information shall be included in the Site Responsibility Schedule:

a. Schedule of High Voltage (HV) Apparatus

b. Schedule of plant, Low voltage (LV) / Medium Voltage (MV) Schedule:

c. Services and supplies

d. Schedule of telecommunications and measurement apparatus

e. Safety rules applicable to each plant/apparatus.

The Site Responsibility Schedulenecessarily to provide responsibility with regard to following for each item of equipment installed at the connection site:

a. The ownership of Plant/ apparatus

b. The responsibility for control of Plant/ apparatus

c. The responsibility for maintenance of Plant/ apparatus

d. The responsibility for operation of Plant/ apparatus

e. The manager of the Site

f. The responsibility for all matters relating to safety of persons at Site.

9. Single Line Diagram

Single Line Diagram shall be prepared by parties for each connection point detailing all equipment at the connection point.

Single Line Diagram shall clearly indicate the schematic representation of the all HV/EHV apparatus and the connections to all external circuits at the connection point. The Single Line Diagram shall incorporate standard numbering nomenclature and labeling of the TSTRANSCO/ TS DISCOM. Single Line Diagram shall be furnished for each connection point by _____ to the State Load Despatch Centre.

In the event of a proposal to change any equipment, the concerned parties shall intimate the necessary changes required to STU/DISCOM and all other Users. Single Line Diagram shall be updated appropriately by the concerned parties and a copy of the same shall be provided to the State Load Despatch Centre.

10. Site Common Drawings

_____ shall agree to prepare Site Common Drawings showing layout of equipment, electrical layout drawings, common protection/control drawings and common service drawings as specified in Clause 20.3 of State Grid Code.

11. General Conditions regarding Equipment Maintenance

In case of a generator or a transmission licensee, the maintenance of the line and associated equipment, till the interconnection point / Isolating device at the connection point, shall be under the scope of the user.

As the terminating bay falls under the premises of the STU/ DISCOM, TS TRANSCO / TS DISCOMs (whichever is applicable) alone must operate and maintain the line terminal bay of dedicated lines at the STU/ DISCOM substation. Besides meeting the cost of equipment or spares required for replacement of failed or defective equipment, the generator must pay for the operation and maintenance of the bays at the TS TRANSCO/ TS DISCOMs (whichever is applicable) substation.

TS TRANSCO/ TS DISCOMs (whichever is applicable) have the right to recover the operation and maintenance charges for the terminal bay

A proforma related to the activities has been enclosed with the document (Schedule-2). Details shall be added according to the site conditions and maintenance responsibility shall be indicated.

The maintenance work will not cover supply of any equipment / spares including emergency replacements. In case the services of the manufacturers or any outside agency are required on any particular occasion which cannot be carried out by TS TRANSCO/ TS DISCOMs (whichever is applicable) personnel, TS TRANSCO/ TS DISCOMs (whichever is applicable) shall arrange for the same at the applicant's cost post prior concurrence.

12. Access to Connection Site

The parties owning the Connection Site shall provide reasonable access and other required facilities to TSTRANSCO/TS DISCOM (whichever is applicable) whose equipment is installed or proposed to be installed at the Connection Site for installation, operation, maintenance, etc.

Written procedures and agreements shall be developed between the parties to ensure that mandatory access is available tots TRANSCO/TS DISCOM (whichever is applicable) or_____ at the same time safeguarding the interests of the parties at the Connection Site.

General Format of Site Responsibility Schedule

Schedule -1

Name of Transmission Licensee	---
Name & Designation of coordinating officer of Transmission Licensee/ Distribution Licensee (whichever is applicable)	
Contact Address Telephone Mobile Fax No E-mail Id	
Name of Sub-Station where inter- connection with In-STS is proposed	
Voltage of Connection with intra –State Transmission System	
Name of User (including other transmission /Distribution licensee/ Discom) seeking connection with In-STS.	
Name & Designation of co-ordinating officer of User	
Contact Address Telephone /Mobile/ Fax No E-mail Id	

Schedule -2: Activity Responsibility

Item of Plant/Apparatus	Plan Owner	Safety Responsibility	Control Responsibility	Operation Responsibility	Maintenance Responsibility	Remark
Give details of all equipment at connection site	----------Details as per filled in Performa enclosed herewith----------					
Metering System	----------Details as per filled in Performa enclosed herewith----------					
Name, designation and Contact details (Telephone/Mobile/E-mail) of authorized officer responsible for activity on behalf of Transmission Licensee						
Signature						
Name, designation, and Contact details (Telephone/Mobile/E-mail) of authorized officer responsible for activity on behalf of user						
Signature						

Date:

Details of All Performa For Connection Agreement

Details of Energy Meters. **Schedule-3**

Sr.No.	Name of feeder where	Type of Meter	Make and Model	Class of Meter	Sr.No. Meter.	Equipment Owner	Equipment Responsibility	Maintenance Responsibility
1								
2								
3								
4								

Type of Meter

1) **Panel Meter (Import / Export)**
2) **ABT Main and Check Meter**
3) **Billing Energy Meters**
4) **Express Feeder Separated Energy Meter.**

Authorized Signatory (TS TRANSCO/TS DISCOM) **Authorized Signatory (User)**

Details of Capacitive Voltage Transformers (Metering) **Schedule -4**

Sr. No.	Name of Feeder where installed	Make	Voltage Ratio	Class	No. of Cores	Burden in VA	Insulation Level	Type	Sr. No.	Lab. Testing No.	Equipment Owner	Equipment Responsibility	Maintenance Responsibility
1													
2													
3													
4													
5													
6													

Type: CVT / PT & Model No.

Authorized Signatory (TS TRANSCO/TS DISCOM) **Authorized Signatory (User)**

Details of Electro Magnetic Voltage Transformers (Protection) **Schedule -5**

Sr.No.	Name of Feeder where installed	Make	Voltage Ratio	Class	No.of Cores	Burden in VA	Insulation Level	Type	Sr.No.	Lab. Testing No.	Equipment Owner	Equipment Responsibility	Maintenance Responsibility
1													
2													
3													
4													
5													
6													

Type: CVT / PT & Modei No.

Authorized Signatory (TS TRANSCO/TS DISCOM) **Authorized Signatory (User)**

Details of Current Transformers (Metering) **Schedule -6**

Sr. No.	Name of Feeder where installed	Make	Voltage	Ratio	No. of Cores	Class	Burden in VA	Sr.No.	Lab. Testing No.	Equipment Owner	Equipment Responsibility	Maintenance Responsibility
1												
2												
3												
4												
5												
6												

Type CVT / PT & Model No.

Authorized Signatory (TS TRANSCO/TS DISCOM) **Authorized Signatory (User)**

Details of Current Transformers (Protection) **Schedule -7**

Sr. No.	Name of Feeder where installed	Make	Voltage	Ratio	No. of Cores	Class	Burden in VA	Sr.No.	Lab. Testing No.	Equipment Owner	Equipment Responsibility	Maintenance Responsibility
1												
2												
3												
4												
5												
6												
7												

Type CVT / PT & Model No.

Authorized Signatory (TS TRANSCO/TS DISCOM) **Authorized Signatory (User)**

Details of Circuit Breakers. **Schedule -8**

Sr.No.	Name of Line / TF	Make	Type	Model	Breaker No.	Normal Current in AMP	Capacity in KV	Rupturing Current	DC Voltage	Working Pressure	Equipment Owner	Equipment Responsibility	Maintenance Responsibility

Breaker Type: MOCB, SF6, ABCB etc.

Authorized Signatory (TS TRANSCO/TS DISCOM) **Authorized Signatory (User)**

Details of Isolators. **Schedule -9**

Sr.No.	Name of Line / TF Where Provided	Make	Voltage	Capacity in AMP.	Type	Sr. No	With ES	Without ES	Equipment Owner	Equipment Responsibility	Maintenance Responsibility
1											
2											
3											
4											
5											

Type: Double Break (DB), Centre Break (CB) etc.

Authorized Signatory (TS TRANSCO/TS DISCOM) **Authorized Signatory (User)**

Details of LAs. **Schedule -10**

Sr.No.	Name of Line / TF Where Installed	Make	Type	Voltage	Sr.No.			Equipment Owner	Equipment Responsibility	Maintenance Responsibility
					R-Ph	Y-Ph	B-ph			
1										
2										

Authorized Signatory (TS TRANSCO/TS DISCOM) **Authorized Signatory (User)**

Details of Wave Trap. **Schedule -11**

Details of Wave Trap (W.T)

Sr.No.	Name of Line / TF Where installed	Make	Capacity / Value	Sr.No. of C.C.			Equipment Owner	Equipment Responsibility	Maintenance Responsibility
1									
2									

Authorized Signatory (TS TRANSCO/TS DISCOM) **Authorized Signatory (User)**

DETAILS OF ALL EQUIPMENT AND METERING SYSTEM FOR BAYS CONNECTING

Details of Control & Relay (C&R) Panel — Schedule -12

Sr.No.	Name of Line / TF Where installed	Make	Sr. No. of Panel	Diff. Protn. Make / Type / Sr.No.	Dist. Protn. Make / Type / Sr.No.	Back up Protn. Make / Type / Sr.No.	Equipment Owner	Equipment Responsibility	Maintenance Responsibility
1									
2									

Authorized Signatory (TS TRANSCO/TS DISCOM)

Authorized Signatory (User)