

Punjab State Transmission Corporation Ltd.



Detailed Procedure

For

Grant of Connectivity in Intra-State Transmission System

PROCEDURE FOR GRANT OF CONNECTIVITY IN INTRA STATE TRANSMISSION SYSTEM

1. OUTLINE

- 1.1. This Procedure is in accordance with the various provisions of the Punjab State Electricity Regulatory Commission (Terms and Conditions for Intra-State Open Access Regulations), 2011, as amended from time to time (hereinafter referred to as "Open Access Regulations" or "the Regulations"). In case of any contradiction of this procedure with provisions of the Regulations, provisions of the Regulations shall prevail.
- 1.2. This Procedure shall apply to the Applications made by the Applicants who will be non-consumers of Distribution Licensee and seeking connection directly from STU/PSTCL for Grant of Connectivity to the transmission lines or associated facilities with such lines on the Intra-State Transmission System (hereinafter referred to as "InSTS"), received by the State Transmission Utility (STU) i.e. Punjab State Transmission Corporation Ltd (hereinafter referred to as "PSTCL"). This procedure shall come into effect from the date of publication of this Procedure by PSTCL.
- 1.3. Application for grant of connectivity to InSTS can be made by an Applicant (as defined in the regulations, except trading licensee) e.g.
 - 1.3.1. A generating station (including RE/ NRSE generators), who wants to inject power in the Intra-State Transmission System (InSTS) for Sale to 3rd party/ wheeling for captive use under open access.
 - 1.3.2. A consumer/ user/ distribution licensee who intends to avail supply from the Intra-State Transmission System (InSTS) under open access
 - 1.3.3. The applicant/ Open Access customer mentioned at Sr.No. 1.3.1/ 1.3.2 above shall be eligible for connectivity at the voltage level specified in the PSERC (Electricity Supply Code and Related Matters) Regulations, 2014, as amended from time to time (hereinafter referred at as "Supply Code").

Note: Generators selling power to the distribution licensee, In-Situ Captive generators and consumers of distribution licensee shall approach distribution licensee i.e. Punjab State Power Corporation Limited (hereinafter referred to as "PSPCL") for obtaining connectivity in line with the existing/ prevailing procedure as per the provisions of PSERC (Electricity Supply Code and related matters) Regulations, 2014, as amended from time to time. The Applications for Connectivity made prior to the approval of this procedure shall also be processed as per the prevailing procedure and Supply Code.
- 1.4. The generators and users, already connected to the InSTS before approval of this procedure, shall not be required to make fresh application for connectivity for the same capacity and they shall be deemed to have already been granted connectivity(ies).

- 1.5 In case of multiple injection/ drawl locations, separate applications for grant of connectivity shall be made by applicant for each location.
- 1.6. The nodal agency for grant of "Connectivity, Long-Term Access and Medium-Term Open Access to the Punjab State Transmission System" shall be the STU i.e. PSTCL.
- 1.7. Applicant granted "Connectivity" with the grid at the point specified by STU shall have to approach STU at least more than 2 years prior to physical interconnection for obtaining Connection Offer. Further, applicant will have to sign "Connection Agreement" with STU prior to the physical inter-connection. After signing of the Agreement, Nodal Agency will provide a copy of the same to SLDC. In case the connectivity is granted to the Transmission system of a transmission licensee other than the STU, a tripartite agreement shall be signed between the applicant, the State Transmission Utility and such transmission licensee, in line with the provisions of Central Electricity Authority (Technical Standards for Connectivity to the Grid) Regulations, 2007.
- 1.8 The Scheduling Jurisdiction of all State Utilities and State entities will remain with the State Load Dispatch Centre (SLDC). SLDC shall be responsible real time monitoring, issuance of switching instructions, energy accounting and management of Deviation Pool A/c etc. for such State utilities/State entities.
- 1.9 The applicant shall have to comply with the provisions of Central Electricity Authority (Technical Standards for Connectivity to the Grid) Regulations, 2007, PSERC (Punjab State Grid Code) Regulations, 2013, (hereinafter referred to as "State Grid Code" or "SGC") and PSERC (Terms and Conditions for Intra-State Open Access Regulations), 2011, as amended from time to time (hereinafter referred to as "Open Access Regulations" or "the Regulations").
- 1.10 Applicant shall not have dual connectivity of Intra-State Transmission System (InSTS) and Inter-State Transmission System (hereinafter referred to as "ISTS").
- 1.11 The procedures along with requisite formats as described herein, shall be available on PSTCL and SLDC web site "www.pstcl.org" and "www.punjabsldc.org" respectively.

2 SUBMISSION OF APPLICATION

- 2.1. An Application for Grant of Connectivity to InSTS should be submitted in a sealed envelope with "Application for Grant of Connectivity" clearly marked on the envelope. The application shall be addressed to

Superintending Engineer/ Open Access,
Punjab State Transmission Corporation Limited
SLDC Building, 220 kV Sub-Station,
Ablowal, Patiala – 147001.
(E-Mail: se-opac@pstcl.org)

2.2. Application Format: -

An Application for Grant of Connectivity to InSTS shall be made as per the application format for connectivity and shall contain details such as geographical location of the generation project, unit-wise commissioning schedule, quantum of power to be interchanged (that is the quantum of power to be injected in the case of a generating station including a captive generating plant and quantum of power to be drawn in the case of consumers,) with the Intra-State Transmission System [**FORMAT- 1** : "Application for Grant of Connectivity"].

2.3. Application Fee: -

2.3.1 Application shall be accompanied by a non-refundable fee as specified in the Regulations i.e. Rs. 2.00 Lakhs (with applicable taxes, if any).

2.3.2 Application fees is to be directly credited to PSTCL Account electronically through RTGS/ NEFT or through Demand Draft as per details given below:

- a) Payee : Accounts Officer/ ARR, PSTCL, Patiala
- b) Name of Bank : State Bank of India
- c) Branch : Mall Road, Patiala
- d) IFSC : SBIN0050012
- e) A/c No. : 65083682573

Provided that proof of payment directly credited to above PSTCL account must be attached with the application.

Any change in these account details or procedures shall be uploaded on PSTCL website.

2.4. Information required with the application: -

2.4.1 In line with Section 4.3 (i) of State Grid Code, Any applicant seeking to establish new or modified arrangements for connection to and/or use of the transmission system shall submit the following report, data and undertaking along with the application and processing fee to the STU (PSTCL): -

- (a) report stating purpose of proposed connection and/or modification, connection site, transmission licensee to whose system connection is proposed, description of apparatus to be connected or modification to apparatus already connected and beneficiaries of the proposed connection;
- (b) construction schedule and target completion date;

- (c) Copy of Registrar of Companies (ROC) letter/ Memorandum & Articles of Association certifying name & address of the applicant as the case may be.
 - (d) Copy of Board Resolution/ Power of Attorney of the applicant certifying Name & Signatures of the Authorized Signatory, duly certified by Company Secretary/ CA.
 - (e) The above evidences (at Sr.No. 2.4) shall be supported by a sworn in affidavit by the applicant as per the format given at **FORMAT-2: "Undertaking"**.
 - (f) For special loads like arc furnaces, rolling mills etc., Real and Reactive Power values of the load with time and harmonic level.
- 2.4.2 The generating stations, applying for connectivity to InSTS, shall also submit the following information in addition to information under Sr.No. 2.4.1 above:-
- (a) The RE/ NRSE generators, while submitting the application for connectivity shall submit the copy of registration certificate/ clearance from PEDDA along with a report confirming the captive status of RE/ NRSE generators at the time of registration of the project with PEDDA.
 - (b) In order to assess preparedness of applicant making application for the connectivity to the InSTS, the generator shall be required to submit along with its application, documents in support of having initiated specific actions for project preparatory activities in respect of matters mentioned in (i) to (vi) below.
 - i) **Site identification and land acquisition:** The applicant shall inform land required for the generation project along with extent to which the same have been acquired and taken possession of. The "Requirement" of land would be considered as indicated in the proposal filed with the competent authority for seeking environmental clearances. In case of land to be acquired under the **Land Acquisition Act 1894, the applicant shall submit copy of notification issued for such land under Section - 4 of the Land Acquisition Act 1894.** In all other cases, the applicant shall furnish documentary evidence in the form of certificate by concerned and competent revenue / registration authority for the acquisition / ownership / vesting of the land.
 - ii) **Environmental clearance for the power station:** The applicant shall have to inform status on submission of requisite proposal, for the environmental clearance, to the concerned administrative authority (first level submission). However, Clearance must be obtained before signing of Connection Agreement.
 - iii) **Forest Clearance (if applicable) of the land for the power station:** The applicant shall have to inform status on submission of requisite proposal, for the forest clearance, to the concerned administrative authority (first level

submission) However Clearance must be obtained before signing of Connection Agreement.

- iv) **Fuel Arrangements:** Details on fuel arrangements shall have to be informed for the quantity of fuel required to generate power from the power station for the total installed capacity intended for connectivity.
- v) **Water linkage:** The applicant shall inform the status of approval from the concerned irrigation department or any other relevant authority for the quantity of water required for the power station. However, approval must be obtained before signing of Connection Agreement
- vi) The status of order placed for plant and machinery or EPS contract awarded.
- vii) Details of dedicated transmission line associated with the generating station.
- viii) Useful life of generating station:
- ix) Commissioning schedule:
 - i. Original date of commercial operation;
 - ii. Revised date of commercial operation, if any.
- x) Commercial arrangement(s) made by the applicant:
Details of agreement(s) for purchase of electricity for startup power or backup power from any other source including distribution licensee.
- xi) Information specific to captive generating plant:
 - (1) Scheme of captive generating plant –
 - (a) Entity which owns, operates and maintains the plant;
 - (b) Generating unit(s) identified for captive use;
 - (c) Generating unit(s) not identified for captive use.
 - (2) Scheme of captive use/details of captive user(s) –
 - (a) Details of captive user(s) of the plant;
 - (b) Shareholding of each captive user(s) in equity, if any;
 - (c) Percentage share of consumption assigned to each captive user(s) in the aggregated electricity generated;
 - (d) Quantum of power to be transferred to each captive user(s) and the point(s) of drawl, intra-State or transmission system of any other state or inter-State;
 - (e) Details of existing or proposed connectivity of each captive user(s) to InSTS or transmission system of any other state or Inter-STS (i.e. capacity (MW), voltage level (kV), name of 400/220/132 substation and name of licensee where such captive user(s) is embedded) or the point of state periphery at which power shall be delivered if captive user(s) is located outside the State.
- xii) Information specific to plant generating Non-Firm Power:

- (a) Details of pooling station;
 - (b) Entity which owns, operates and maintains the pooling station;
 - (c) Geographical location of pooling station (nearest village/town, district, State, latitude and longitude);
- xiii) Other clearances:
- The Applicant shall also provide the necessary any other approval(s)/ permission(s)/ no objection certificate(s) required from any competent authorities (concerned Dept. /local authorities, as applicable) under the law e.g.
- Forest clearance form Forest Deptt.
 - TEC clearances from Energy Directorate
 - CEA clearance
 - NOC from local authorities /Panchayat/IPH/B&R Dept.
 - Govt. Clearance for muck disposal
 - Aviation clearance
 - Others, if any as applicable or as decided by the STU
- xiv) Any other relevant information required by STU or to be provided by the applicant.

2.4.3 Distribution Licensee or Captive User or an Open Access Consumer applying for connectivity to InSTS, shall also submit the following information in addition to information under Sr.No. 2.4.1 above:-

In order to assess preparedness of applicant making application for the connectivity to the InSTS, the applicant shall be required to submit along with its application, documents in support of having initiated specific actions for project preparatory activities in respect of matters mentioned in (i) to (iii) below.

- i) **Site identification and land acquisition:** The applicant shall inform land required for the generation project along with extent to which the same have been acquired and taken possession of. The "Requirement" of land would be considered as indicated in the proposal filed with the competent authority for seeking environmental clearances. In case of land to be acquired under the **Land Acquisition Act 1894, the applicant shall submit copy of notification issued for such land under Section - 4 of the Land Acquisition Act 1894.** In all other cases, the applicant shall furnish documentary evidence in the form of certificate by concerned and competent revenue / registration authority for the acquisition / ownership / vesting of the land.
- ii) **Environmental clearance (If applicable):** The applicant shall have to inform status on submission of requisite proposal, for the environmental clearance, to the concerned administrative authority (first level submission).

However, Clearance must be obtained before signing of Connection Agreement.

- iii) **Forest Clearance (if applicable):** The applicant shall have to inform status on submission of requisite proposal, for the forest clearance, to the concerned administrative authority (first level submission) However Clearance must be obtained before signing of Connection Agreement.
- iv) The status of order placed for plant and machinery or EPS contract awarded.
- v) Useful life of Premises (i.e. Commercial or Industrial Establishment) of Captive User or Open Access Consumer:
- vi) Commissioning schedule:
 - i) Original date of commercial operation;
 - ii) Revised date of commercial operation, if any.

(a) The application shall be accompanied with the following specific information along with relevant documents:

(A) Distribution Licensee –

(i) Distribution plan:

- (a) Inclusion of sub-station or electric line in the distribution plan as conveyed to STU for transmission planning along with demand estimates;
- (b) Approval of the distribution plan by the competent authority of the Company.

ii. Technical details:

- (a) Existing and additional distribution transformation capacity proposed at the sub-station;
 - b) Existing and proposed electric line for connecting distribution sub-station with Intra-STC;
 - (c) Length and conductor of the electric line mentioned under (b) above;
 - (d) Present load of the sub-station under (a) above and expected growth in load in subsequent five years;
 - (e) Details of other distribution sub-station(s) from where load will be released/transferred to proposed sub-station.
- iii. Information of any Generating Plant or Sub-Station/electric line of captive user connected with distribution system, if any.
 - iv. Any other relevant information required by STU or to be provided by the applicant.

(B) The Open Access Consumer (non-Captive)

- (i) Details of industrial or commercial establishment.
- (ii) Extent of use of transmission system:
 - (a) Existing demand;
 - (b) Additional demand;
 - (c) Total demand to be met through transmission system;
 - (d) Expected growth in demand in subsequent five years.

- (iii) Details of standby supply from distribution licensee:
 - (a) Contracted load;
 - (b) Date of contract.
- (iv) Commercial arrangement(s):
 - (a) Details of agreement(s) for purchase of electricity from any source other than distribution licensee;
 - (b) Details of such source of power connected with InSTS or ISTS and the point of state periphery at which power shall be delivered if the source is located outside the State.
- (v) Any other relevant information required by STU or to be provided by the applicant.

(C) The Captive User,

- i. Details of industrial establishment.
- ii. Extent of use of transmission system by the applicant:
 - (a) Existing demand;
 - (b) Additional demand;
 - (c) Total demand to be met through transmission system; (d) Expected growth in demand in subsequent five years.
- (iii) Details of back up supply from distribution licensee:
 - (a) Contracted load;
 - (b) Date of contract.
- (iv) Commercial arrangement(s) made by the applicant:
 - Details of agreement(s) for purchase of electricity from any source other than distribution licensee.
- (v) Scheme of captive generation and supply to captive user(s):
 - (1) Scheme of captive generating plant and inclusion of its requirement in transmission planning of STU –
 - (a) Name of captive generating plant;
 - (b) Entity which owns, operates and maintains the plant;
 - (c) Geographical location of captive generating plant (i.e. nearest village/town, district, state, latitude and longitude);
 - (d) Details of captive generating plant including type of prime mover (fuel base), generation voltage (kV) and step-up voltage (kV);
 - (e) Generating unit(s) identified for captive use;

- (f) Generating unit(s) not identified for captive use;
- (g) Details of dedicated transmission line;
- (h) Details of existing or proposed connectivity of captive generating plant to InSTS or transmission system of any other state or ISTS (i.e. capacity (MW), voltage level (kV), name of 400/220/ 132 sub-station and name of licensee where such captive plant is embedded) or the point of state periphery at which power shall be delivered if the plant is located outside the State.

(2) Scheme of captive use and information in respect to captive user(s) –

- (a) Details of captive user(s);
- (b) Shareholding of each captive user(s) (including the applicant) in equity;
- (c) Percentage share in consumption assigned to each captive user(s) (including the applicant) in the aggregated electricity generated in the plant;
- (d) Maximum quantum (MW) of power to be transferred to each captive user(s) (including the applicant) and the details of point(s) of drawl (Intra-State or transmission system of any other state or Inter-State) and injection;
- (e) Details of existing or proposed connectivity of each captive user(s) to InSTS or transmission system of any other state or ISTS (i.e. capacity (MW), voltage level (kV), name of 400/220/132 sub-station and name of licensee where such captive user(s) is embedded) or the point of state periphery at which power shall be delivered if captive user(s) is located outside the State.

- (vi) Any other relevant information required by STU or to be provided by the applicant.

2.5 All applications received during the month shall be treated to have been made concurrently.

2.6. An incomplete Application, and/or an Application not found to be in conformity with these Procedures and Regulations, shall be rejected.

3. CHANGES TO THE APPLICATION ALREADY MADE

3.1. Any material change in the location of the applicant (generation project/drawl point)

or change by more than 10% quantum of power to be interchanged with the Intra-State transmission system shall require filing of fresh application by the applicant alongwith applicable fees and the already filed application shall be considered disposed and application fee shall be forfeited.

- 3.2. If any applicant has already been granted connectivity and subsequently applies afresh with material changes as provided above in para – 3.1, then the already granted connectivity shall stand cancelled.

4. GRANT OF CONNECTIVITY

- 4.1. On receipt of application, PSTCL shall scrutinize the application and intimate the deficiencies in the application, if any, to the applicant within 10 working days of receipt of application. The applicant shall rectify the deficiency within 10 working days thereafter, failing which the application shall be closed and 20% of the application fees shall be forfeited and balance shall be refunded by STU to the applicant within 15 days of closure of the application. The application shall be considered incomplete until the deficiencies are rectified by the applicant. The date of receipt of rectified application shall be considered as the date of receipt of application for all intents and purposes. In case, the application is received after 15:00 Hrs, the next/ subsequent working day shall be considered as the date of receipt of application, while calculating the time frame for processing of application.

If any application for grant of Connectivity is withdrawn before the grant of Connectivity, 50% of the application fee shall be forfeited. Balance 50% of the application fee shall be refunded by the STU to the Applicant within 15 days of withdrawal of the application:

Provided that if any application is withdrawn after the grant of Connectivity, such application shall be closed by the STU within a period of 15 days from the date of withdrawal and 100% of the application fee shall be forfeited.

- 4.2. A "Transmission Feasibility Committee" shall be constituted by PSTCL for processing the application and carry out the necessary inter-connection/ feasibility study as specified in the Central Electricity (Technical Standards for Connectivity to the Grid) Regulations, 2007 and State Grid Code, in consultation and through coordination with other agencies involved in State Transmission System to be used. The "Feasibility Committee" shall consist of following members: -

- Chief Engineer/ P&M, PSTCL
- Chief Engineer/ TS, PSTCL
- Chief Engineer/SLDC, PSTCL
- Concerned Superintending Engineer/ P&M, PSTCL, in whose area the applicant (generator/ consumer) is embedded
- Superintending Engineer/ Planning, PSTCL – Convener

- 4.3. The application, complete in all aspects along with supporting data, shall be forwarded by the office of SE/ Open Access, PSTCL to SE/ Planning, PSTCL, for putting the same before transmission feasibility committee.
- 4.4. The Transmission Feasibility Committee shall process the application after carrying out the necessary interconnection/ feasibility study as specified in the Central Electricity Authority (Technical Standards for Connectivity to the Grid) Regulations, 2007 and State Grid Code, and considering comments received from other agencies (if any) involved in the intra-State transmission, The Committee shall:
- (a) Accept the application with such modification or such conditions as may be specified by it.
 - (b) Reject the application for reasons to be recorded in writing
 - If such application is not in accordance with the provisions of the Regulations/ Procedures,
 - If such proposed connection is likely to cause breach of any provision of STU's License or any provision of the State Grid Code or any provision of IEGC or any criteria or covenants or deeds or regulations by which STU is bound
 - If the applicant does not undertake to be bound, in so far as applicable, by the terms of the Regulations/ State Grid Code
 - If the applicant fails to give confirmation and undertakings according to this procedure
 - If grant of connectivity is not technically feasible.
- 4.5. The outcome of processing of application for grant of connectivity shall be communicated by SE/ Planning, PSTCL to the applicant through the office of SE/ Open Access, PSTCL as per **FORMAT-3**, within 60 days from the receipt of application from the applicant. The Connectivity letter issued by the STU shall be valid for a period of 60 days from the date of issue.
- 4.6. While granting connectivity, the STU shall specify the name of the sub-station or pooling station or switchyard where connectivity is to be granted. In case connectivity is to be granted by looping-in and looping-out of an existing or proposed line, the STU shall specify the point of connection and name of the line at which connectivity is to be granted. The STU shall indicate the broad design features of the dedicated transmission line and the timeframe for completion of the dedicated transmission line.
- 4.7. Applicant granted "Connectivity" with the grid at the point specified by PSTCL shall have to furnish additional details (including detailed planning data as per State Grid Code) to PSTCL as per format given at **FORMAT-4**. Such application shall be made before the expiry of connectivity letter issued by STU. Here it may be mentioned that it is advisable that the applicants to submit the additional details/

planning data as early as possible for enabling them having lead time for any type of access.

- 4.8. The additional details (including detailed planning data) submitted by the applicant shall be sent by SE/ Open Access, PSTCL to the SE/ Planning, PSTCL for scrutinizing the same. After processing the data, the "formal Connection Offer" shall be made by SE/ Planning, PSTCL to the applicant through the office of SE/ Open Access, PSTCL, within 60 days of receipt of additional details/ planning data, as per the format given at **FORMAT-5** which shall specify the responsibility & requirements for establishing physical interconnection taking into account any works required for the extension or reinforcement of the State Transmission System necessitated by the applicant's proposal and for obtaining any consent necessary for the purpose.

If the specified time limit for making the offer is not adequate, STU shall make a preliminary offer within the specified time indicating the extent of further time required for detailed analysis.

The Connection offer made by STU shall remain valid for a period of 60 days and unless accepted before the expiry of such period, shall lapse thereafter. In the event of offer becoming invalid or not accepted by the applicant alternative offer or revised application/ data can be furnished with processing fee and procedure laid above will be followed.

Pursuant to the Connection Offer, the applicant shall have to sign "Connection Agreement" with STU (Chief Engineer/P&M, PSTCL, Ludhiana) prior to the physical inter-connection, within 30 days from the receipt of Connection Offer, as per format given at **FORMAT-6**.

- 4.9 In case the connectivity is granted to the transmission system of a transmission licensee other than STU, a tripartite agreement shall be signed between the applicant, the State Transmission Utility and such transmission licensee, in line with the provisions of Central Electricity Authority (Technical Standards for Connectivity to the Grid) Regulations, 2007. After signing of the Agreement, Nodal Agency will provide a copy of the same to SLDC.

*Flowchart for Grant of Connectivity to Open Access Applicants with Intra State Transmission System as per format given at **FORMAT-7***

5. INTERCHANGE OF POWER WITH THE InSTS

- 5.1. The grant of connectivity shall not entitle an applicant to interchange any power with the grid unless it obtains Long Term Access (LTA), Medium Term Open Access (MTOA) or Short Term Open Access (STOA).

- 5.2. The Applicant shall ensure that its unscheduled interchange/ deviation with the grid is only limited to inadvertent changes only and does not cause any transmission constraint. In case of repeated instances of unscheduled interchange/ deviation with grid leading to transmission constraints or grid violations and continued violation of instruction of SLDC to reduce such interchange, the SLDC may report such matter to the commission (PSERC).
- 5.3. However, generating station, including captive generating plant, which has been granted connectivity to the grid shall be allowed to undertake testing including full load testing by injecting its infirm power into the grid before being put into commercial operation, even before availing any type of open access, after obtaining permission of the SLDC, which shall keep grid security in view while granting such permission. Such infirm power injected into the grid by a generating station or a unit thereof, other than those based on non-conventional energy sources, the tariff of which is determined by the Commission, shall be charged at the rates for imbalance/ deviation determined by the Commission.

The power injected into the grid from other generating stations as a result of this testing shall also be charged at imbalance/ deviation rates.

- 5.4. The Generating Station including Captive Generating Station will submit likely date of synchronization, likely quantum and period of injection of infirm power to the SLDC at least one month in advance.

6. CONSTRUCTION OF DEDICATED TRANSMISSION SYSTEM

- 6.1. Unless exempted by the Commission for reasons to be recorded in writing, an applicant may be required by PSTCL to construct a dedicated system to the point of connection to enable connectivity to the grid. The cost of such line and bay shall be borne by the applicant. In cases, where augmentation of the 132 kV and above Voltage line feeding the sub-station is required, the same shall also be borne by the applicant.

In case the applicant is not utilizing the bay allocated to it at InSTS sub-station after grant of connectivity, STU may cancel its connectivity and allocate the bay to other applicant. In such an event, the original applicant shall either dismantle its bay or enter into an agreement with a new applicant as indicated by STU for utilization of the bay within a period of 2 months of cancellation of connectivity.

7. GENERAL

- 7.1. The applicant shall keep the nodal agency indemnified at all times and shall undertake to indemnify, defend and keep the nodal agency, harmless from any and all damages, losses, claims and actions including those relating to injury to or death of any person or damage to property, demands, suits, recoveries, costs and

expenses, court costs, attorney fees, and all other obligations by or to third parties, arising out of or resulting from such grant of connectivity.

- 7.2. All costs/expenses/charges associated with the application, including bank draft, bank guarantee etc. shall be borne by the applicant.
- 7.3. The applicant shall abide by the provisions of the Electricity Act, 2003, Indian Electricity Grid Code, CERC Connectivity Regulations, State Grid Code and PSERC Regulations, as amended from time to time.
- 7.4. This procedure aims at easy and pragmatic disposal of applications made for Connectivity to InSTS. However, some teething problems may still be experienced. In order to resolve the same, this procedure may be reviewed or revised by the Nodal agency with prior approval of PSERC.
- 7.5. All complaints regarding unfair practices, delays, discrimination, lack of information, supply of wrong information or any other matter related to grant of connectivity to InSTS shall be directed to PSERC for redressal.

FORMAT- 1

(APPLICABLE IN CASE OF GRANT OF CONNECTIVITY TO GENERATING STATION)

APPLICATION FOR GRANT OF CONNECTIVITY (to be submitted by the applicant to STU)

Application no. and date	< self-generated by the applicant >
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A. Details of the applicant

1	Name of the applicant	< name of generating company >			
2	Address of registered office (if any)				
3	Address for correspondence				
4	Contact detail(s)				
	(a) Prime contact person				
	Designation				
	Phone no. (with STD code)	Landline		Fax	
	Mobile				
	E-mail				
	(b) Alternate contact person				
	Designation				
	Phone no. (with STD code)	Landline		Fax	
	Mobile				
	E-mail				
5	Status of the applicant	< generator (other than captive)/captive generator >			

B. Details of connectivity requirement

1	Connectivity sought				
	Capacity (MW) for which connectivity is required				
	Voltage Level (kV) at which connectivity is required				
	Date from which connectivity is required (which should be atleast more than two years from the date of				

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	application)	
2	Nearest 400/220/132 kV sub-station(s)	
	(a) Sub-station-1	
	Name of sub-station	
	Voltage level(s) available (kV)	
	Name of licensee (Owner)	
	Distance (Km)	
	(b) Sub-station-2	
	Name of sub-station	
	Voltage level(s) available (kV)	
	Name of licensee (Owner)	
	Distance (Km)	

C. Details of existing connectivity

1	Existing connectivity, if any	
	Date of connectivity	
	Capacity (MW)	
	Name of 400/220/132 sub-station	
	Voltage level (kV)	
	Name of licensee (Owner)	
	Distance (Km)	

D. Details of project (for which connectivity is sought)
(enclose duly signed supporting documents as considered appropriate)

1	Name of generating station	
2	Whether new or existing generating station	
3	Entity which owns, operates and maintains	
4	Is it an identified project of CEA	< yes/no >
5	Geographical location of generating station	
	Nearest village/town	
	District	
	State	
	Latitude	
	Longitude	
6	Existing unit(s) (if any)	
	Details of units	< unit-wise breakup of installed capacity (MW) >

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	Details of re-rated units	< unit-wise breakup of re-rated capacity (MW) >
7	Additional unit(s)	
	Details of units	< unit-wise breakup of installed capacity (MW) >
	Original date of commercial operation	< unit-wise breakup >
	Revise date of commercial operation, if any	< unit-wise breakup >
8	Type of prime mover (fuel base)	< hydro turbine/steam turbine(coal/lignite/multifuel)/gas turbine/diesel engine/wind turbine/specify, if any other>
9	Generation voltage (kV)	
10	Step-up voltage (kV)	
11	Existing dedicated transmission line (if any)	
	Single circuit or double circuit	
	Voltage level (kV)	
	Length (km)	
	Conductor	
12	Information specific to captive generating plant	
	Generating unit(s) identified for captive use	
	Generating unit(s) not identified for captive use	
13	Information specific to plant generating infirm power	
	Name of pooling station, if any	
	Whether new or existing pooling station	
	Voltage level(s) available (kV)	

E. Status of project related activities

(enclose duly signed supporting documents as per clause 3.1 of procedure)

1. Site identification and land acquisition
2. Environmental clearance
3. Forest clearance
4. Fuel arrangements
5. Water linkage
6. Order for supply of plant and machinery or award of EPS contract
7. Dedicated transmission line
8. Useful life of generating station
9. Commissioning schedule
10. Commercial arrangement(s) for purchase of electricity
11. Information specific to captive generating plant
12. Information specific to plant generating non-firm power
13. Other clearances
14. Any other relevant information required by STU or to be provided by the applicant

Procedure for Grant of Connectivity in Intra State Transmission System

In addition to above, the applicant shall also submit concise description of each completed activity with regard to project planning, designing and pre-construction activities (including all licenses, authorizations, permissions and clearances as required from time to time under the law).

F. Details of application fees

1	Non-refundable application fees				
	Name of Bank & branch	Details of instrument (DD/RTGS/NEFT)			Amount (Rs.)
Type of instrument		Instrument no.	Date		

G. Undertaking(s)

< refer clause 2.4 of procedure >

I undertake that all the activities of project planning, designing and pre-construction activities (including all licenses, authorizations, permissions and clearances as required from time to time under the law) are completed. All the details given in support of specific actions taken for project preparatory activities (as given under "E") above) are true and correct and nothing material has been concealed thereof.

I further undertake that the technical standards for connectivity specified by CEA in Central Electricity Authority (Technical Standards for Connectivity to the Grid) Regulations, 2007 as amended from time to time have been complied with.

Place:
(Signature)

Date:
Authorized signatory of the applicant
Name:
Designation:
Seal:

Enclosures:

1. Non-refundable application fees (demand draft or payment slip in case of payment through RTGS/NEFT)
2. Documents in support of information (including project related preparatory activities) submitted under clause 2.4 of this procedure read with this format (mention details)
3. Documents in support of existing connectivity with InSTS (including detailed description of 'electricity systems') along with single line diagrams (if existing user of InSTS)
4. If any other

Copy to others as considered necessary:

FORMAT- 1 (A)

(APPLICABLE IN CASE OF GRANT OF CONNECTIVITY TO Distribution Licensee/PREMISES OF A CAPTIVE USER/ AN OPEN ACCESS CONSUMER (Non-Captive))

APPLICATION FOR GRANT OF CONNECTIVITY (to be submitted by the applicant to STU)

Application no. and date	< self-generated by the applicant >
--------------------------	-------------------------------------

A. Details of the applicant

1	Name of the applicant				
2	Address of registered office (if any)				
3	Address for correspondence				
4	Contact detail(s)				
	(a) Prime contact person				
	Designation				
	Phone no. (with STD code)	Landline		Fax	
	Mobile				
	E-mail				
	(b) Alternate contact person				
	Designation				
	Phone no. (with STD code)	Landline		Fax	
	Mobile				
	E-mail				
5	Status of the applicant	< distribution licensee/ captive user/open access consumer >			

B. Details of connectivity requirement

1	Connectivity sought				
	Capacity (MW) for which connectivity is required				
	Voltage level (kV) at which connectivity is required				
	Date from which connectivity is required (Which shall be at least two years from the date of application)				
2	Nearest 400/220/132 kV sub-station(s)				
	(a) Sub-station-1				

Procedure for Grant of Connectivity in Intra State Transmission System

	Name of sub-station	
	Voltage level(s) available (kV)	
	Name of licensee (Owner)	
	Distance (Km)	
	(b) Sub-station-2	
	Name of sub-station	
	Voltage level(s) available (kV)	
	Name of licensee (Owner)	
	Distance (Km)	

C. Details of existing connectivity

1	Existing connectivity, if any	
	Date of connectivity	
	Capacity (MW)	
	Name of 400/220/132 sub-station	
	Voltage level (kV)	
	Name of licensee (Owner)	
	Distance (Km)	

D. Details of project (for which connectivity is sought)

(enclose duly signed supporting documents as considered appropriate)

In case applicant is Distribution Licensee		
1	Name of Sub-Station	
2	Whether Existing or Proposed Sub-Station	
3.	Geographical Location of Sub-Station	
	Nearest Village/Town	
	District	
	Latitude	
	Longitude	
4	Distribution Transformation Capacity (MVA)	
	Existing, if any	<Voltage Ratio wise Breakup (kV)->
	Additional	<Voltage Ratio wise Breakup (kV)->

Procedure for Grant of Connectivity in Intra State Transmission System

5	Electric Line for connecting Distribution S/Stn with InSTS	Existing if any	Proposed
	Name		
	Single Circuit or Double Circuit		
	Voltage Level (KV)		
	Length (KM)		
	Conductor		
6	Present Load of Sub-Station (In case of Existing S/Stn.)		
7	Expected growth in Load in subsequent five years	<Year wise>	
8	Other Distribution Sub-Station(s) from where load will be released/transferred to proposed S/Stn.		
	Name of S/Stn		
	Name of Licensee (Owner)		
	Capacity (MVA)		
	Present Load (Amp)		
	Load Transferred to proposed S/S (AMP)		
9	Existing grid/feeding primary s/stn		
	Name of S/Stn		
	Name of licensee(owner)		
	Transformation capacity (MVA)		
10	Commissioning schedule		
	Date of start of construction		
	Original date of commercial operation		
	Revised date of commercial operation, if any		

	In case applicant is a captive user <i>(in case if applicable)</i>	
1	Extent of use of transmission system	
	Existing demand	
	Additional demand	
	Total demand to be met	

Procedure for Grant of Connectivity in Intra State Transmission System

2	Expected growth in demand in subsequent five years	< year wise >
3	Maximum quantum (MW) of power assigned from its captive generating plant	
4	Back up supply from distribution licensee	
	Contracted load	
	Date of contract	
5	Commercial arrangement(s) for purchase of electricity from any source other than local discom	
	Name of supplier	
	Contracted load	
	Duration of contract	
6	Geographical location of premises (i.e. industrial establishment)	
	Nearest village/town	
	District	
	Latitude	
	Longitude	

Or

	In case applicant is an open access consumer <i>(in case if applicable)</i>	
1	Extent of use of transmission system	
	Existing demand	
	Additional demand	
	Total demand to be met	
2	Expected growth in demand in subsequent five years	< year wise >
3	Maximum quantum (MW) of power assigned from its captive generating plant	
4	Back up supply from distribution licensee	
	Contracted load	
	Date of contract	
5	Commercial arrangement(s) for purchase of electricity from any source other than local discom	
	Name of supplier	
	Contracted load	
	Duration of contract	
6	Geographical location of premises (i.e. industrial or commercial establishment)	
	Nearest village/town	
	District	
	Latitude	
	Longitude	
7.	Details of Scheme of Captive Generation and Supply to Captive user	

E. Status of project related activities

(enclose duly signed supporting documents as per clause 3.2 of procedure)

1. Site identification and land acquisition
2. Environmental clearance
3. Forest clearance
4. Order for supply of plant and machinery or award of EPS contract
5. Useful life of premises (i.e. commercial or industrial establishment) of captive user or open access consumer
6. Commissioning schedule
7. Other clearances
8. Any other relevant information required by STU or to be provided by the applicant

In addition to above, the applicant shall also submit concise description of each completed activity with regard to project planning, designing and pre-construction activities (including all licenses, authorizations, permissions and clearances as required from time to time under the law).

F. Details of application fees

1	Non-refundable application fees				
	Name of Bank & branch	Details of instrument (DD/RTGS/NEFT)			Amount (Rs.)
		Type of instrument	Instrument no.	Date	

G. Undertaking(s)

< refer clause 2.4 of procedure >

I undertake that all the activities of project planning, designing and pre-construction activities (including all licenses, authorizations, permissions and clearances as required from time to time under the law) are completed. All the details given in support of specific actions taken for project preparatory activities (as given under "E") above) are true and correct and nothing material has been concealed thereof.

I further undertake that the technical standards for connectivity specified by CEA in Central Electricity Authority (Technical Standards for Connectivity to the Grid) Regulations, 2007 have been complied with.

Place:
(Signature)

Procedure for Grant of Connectivity in Intra State Transmission System

Date:
Authorized signatory of the applicant
Name:
Designation:
Seal:

Enclosures:

1. Non-refundable application fees (demand draft or payment slip in case of payment through RTGS/NEFT)
2. Documents in support of information (including project related preparatory activities) submitted under clause 2.4 of this procedure read with this format (mention details)
3. Documents in support of existing connectivity with InSTS (including detailed description of 'electricity systems') along with single line diagrams (if existing user of InSTS)
4. If any other

Copy to others as considered necessary:

FORMAT- 2

On Non Judicial Stamp paper Rs.50

AFFIDAVIT

In the matter of filing application to Punjab State Transmission Corporation Limited, for grant of Connectivity under PSERC (Terms & Conditions for Intra-State Open Access) Regulations, 2011.

I.....(Name).....S/o Shri(Father's name)... working as (Post)..... in(name of the Company).....,having its registered office at (address of the company)....., do solemnly affirm and say as follows:

1. I am the (Post)..... of(Name of the Company)....., the representative in the above matter and am duly authorized by the Board Resolution dated of the above referred Company attached herewith to file the above application and to make this affidavit.
2. I submit that M/s.....(name of the company)..... is a registered company.....(Public Ltd/Pvt. Ltd.)..... registered under Companies Act/..... Under the Article of Association of the Company and in accordance with the provisions of Electricity Act, 2003/ relevant Regulation(s) of PSERC and Procedures notified thereunder, the company can file the enclosed application.
3. I submit that all the details given in the enclosed application for grant of Connectivity alongwith necessary documents are true and correct and nothing material has been concealed thereof.
4. I shall abide by the provisions of Punjab State Grid Code, Indian Electricity Grid Code, Indian Electricity Rules and various standards including Grid Connectivity Standards made by the Central Electricity Authority pursuant to the Act for installation and operation of the apparatus.
5. I also submit that the documents enclosed are original or true copies of their respective originals.

(Signature)
Name of the Applicant
Company Stamp (mandatory)

(To be duly attested by Notary)

(Copy of Board Resolution/ Power of Attorney to be attached)

FORMAT- 3

Intimation for grant of Connectivity/ Connectivity Letter

1 Intimation No.

Date :

2 Ref. Application No.

Date :

3 Name of the Applicant

4 Address for Correspondence

5 Nature of the Applicant

Normal Generator (Captive or other than Captive)
Distribution licensee
Captive User
Open Access Consumer

6 Details for Connectivity

- 6a Capacity (MW) for which connectivity is granted
- 6b Point at which Connectivity is granted
- 6c Tentative Date from which connectivity is granted
- 6d Transmission System Required for Connectivity
- 6e Implementing Agency for transmission system required for connectivity
- 6f Agencies between which agreement is to be signed for implementation of transmission system required for connectivity

7 Transmission Charges Applicable for the dedicated line if additionally applicable (over and above the Open Access Charges)

8 Estimated Amount (in Rupees) to be deposited by the applicant in advance

9 Location of the Generating Station / Consumer

Nearest Village / Town
District
State
Latitude
Longitude

Note :-

1. Applicant given intimation for Connectivity to the grid shall have to furnish additional details to STU (PSTCL) for signing of "Connection Agreement" as per FORMAT- 4 of Connectivity Procedure. These details are to be furnished to STU before the expiry of validity of Connectivity letter issued by STU to the applicant, unless otherwise indicated by STU. The Applicants are, however advised to furnish such details as early as possible for enabling them have lead time for any type of access.
2. The STU will process the above information and will intimate the Connection details as per format given at FORMAT- 5. Pursuant to such Connection details, the applicant shall have to sign "Connection Agreement" with STU prior to the physical inter-connection as per format given at FORMAT- 6. In case the connectivity is granted to the InSTS of an intra-State transmission licensee other than the STU, a tripartite agreement shall be signed between the applicant, the STU and such intra-State transmission licensee, in line with the provisions of the Regulations.

This Connectivity Letter shall be valid for a period of 60 days from the date of issue.

SE/ Planning,
PSTCL, Patiala.

FORMAT- 4

APPLICATION FORM FOR SEEKING CONNECTION TO INTRA-STATE TRANSMISSION SYSTEM

General Information to the Applicants

1. This application form outlines the information that PSTCL requires to process an application for connection to Intra-State Transmission System (InSTS).
3. Based on the information provided through this application, PSTCL shall issue "Connection Offer" to the applicant. The connection offer shall include allocation of "Bay" in the substation where connection has been sought.
4. The "Connection Offer" shall also outline broad technical requirements in line with the applicable CEA Regulations (Technical Guidelines for Connectivity to grid) Regulations 2007, State Grid Code and other best industry practices to ensure safe operation, integrity and reliability in the grid.
5. Pursuant to getting "Connection Offer" the applicant shall be required to sign "Connection Agreement" as per the provisions of CEA Regulations (Technical Guidelines for Connectivity to Grid) Regulations 2007, Grid Code.

**APPLICATION FORM
FOR SEEKING CONNECTION TO INTRA-STATE TRANSMISSION SYSTEM**

A. DETAILS OF APPLICANT

1.	Name of the Applicant Company	:	
2.	Details of Grant of Connectivity (a) Connectivity Intimation No. (b) Date	:	
2.	Address for Correspondence	:	
3.	Contact Person 3.1 Prime Contact Person (a) Name (b) Designation (c) Phone No. (d) FAX (e) E-mail 3.2 Alternate Contact Person (a) Name (b) Designation (c) Phone No. (d) FAX (e) E-mail	:	
4.	Status of Applicant Company (Please tick the appropriate box)	:	<input type="checkbox"/> Generating Station including Captive generating plant Captive User <input type="checkbox"/> Consumer (other than Captive) <input type="checkbox"/> Distribution licensee
5.	Estimated time of completion of project (Please enclose PERT chart)	:	

B. MAPS AND DIAGRAMS

1. Provide necessary survey of India topo sheet clearly marking the location of the proposed site. **Schedule - I**
2. Provide site plan (both hard and soft copy in AutoCAD 2000 & above version) in appropriate scale. **Schedule – II.** The site plan should indicate following details
 - a. The proposed location of the connection point
 - b. Generators
 - c. Transformer
 - d. Site building
3. Provide an electrical Single Line Diagram (SLD) of the proposed facility detailing all significant items of plant. The plan is to be submitted in both hard copy and soft copy in AutoCAD 2000 & above version **Schedule - III**

C. DETAILS OF CONNECTION - GENERATION PLANT

1.	Type of Generation Plant (Hydro, Thermal, Gas etc	:	
2.	Rating of Generator Units	:	Schedule – IV
3.	Maximum Export Capacity Required	:	
4.	In case of hydro generator, the expected		
4.	Maximum Import Capacity required This is the amount of import capacity that the site will require during startup (MVA)	:	
5.	Station house load during normal operating conditions (MW/MVAR)	:	
6.	Expected running regime e.g. base load, peaking etc	:	
7.	Detailed Planning data for Generation Plant (including Generator Data for Fault / Short Circuit Studies and Dynamic Simulation)		
	(a) For Thermal Generating Stations		Schedule – V
	(b) For Hydro Generating Stations		Schedule – VI
	(c) Other Generating Stations		Schedule – VII

D. DETAILS OF CONNECTION –Distribution Licensee, Captive User, Open Access CONSUMER

1.	Type of Load (Industrial/Commercial) a) Urban/rural/industrial- Distribution licensee b) Industrial/commercial including type of industry, i.e. electric furnace, rolling mills, manufacturing, assembly line, etc.	:	
2.	Peak requirement of load in MVA, MW and MVAR	:	
3.	Peak import required in MVA, MW and MVAR	:	
4.	Month-wise Peak import required in MVA, MW and MVAR	:	
5.	Month-wise Energy requirement in MUs.	:	
6.	Data for Fault (Short Circuit Studies)		Single phase and three phase Fault level

E. DETAILS OF CONNECTION – DATA AND VOICE COMMUNICATION

1.	Type Data Gateway (Remote Terminal Unit/ Substation Automation System Gateway)	:	(Whether RTU/ Substation Automation System Gateway; and Number of data ports)
2.	Data Communication Connectivity Standard followed (As per interface requirement and other guideline made available by the SLDC)	:	(Type of Communication Protocol, i.e. 101(serial port) or 104(Ethernet), etc.)
3.	Write here the communication media, interface and capacity being targeted for connection for Data and voice Communication	:	(Communication media: For example, fibre optics, PLCC, etc. Interface: Example RS 232C, G.703) or as per mutual agreement Capacity : Example 1200 baud, 64 Kbps, 9.6 Kbps, etc or as per mutual agreement)

This is to certify that the above data submitted with the application are pertaining to connection sought for the InSTS. Further, any additional data sought for processing the application shall be furnished.

**Authorized Signatory
Of Applicant**

Name :
Designation:
Seal :
Place :
Date :

Schedule – I : Survey of India topo sheet clearly marking the location of the proposed site

Schedule – II : Site plan in appropriate scale.

Schedule – III : Electrical Single Line Diagram (SLD) of the proposed facility detailing all significant items of plant.

Schedule – IV : Rating of Generating Units

(Add additional sheets if number of units are more)

		Unit – 1	Unit - 2	Unit – 3
1.	Unit Rating (MVA)			
2.	Normal Max. Continuous Generation Capacity at Normal operating temperature (MW)			
3	Normal Max. Continuous Export Capacity at Normal operating temperature (MW)			
4	Maximum (Peaking) generating Capacity at min ambient air temperature (MW)			
5	Maximum (Peaking) Export Capacity at min ambient air temperature (MW)			
6	Minimum Continuous Generating Capacity (MW)			
7	Minimum Export Generating Capacity (MW)			
8	Normal Maximum Lagging MVAR at rated MW output			
9.	Normal Maximum leading MVAR at rated MW output			

Please attach a capability Curve (MW & MVAR) : _____

Drawing no. of the Capability
Diagram attachment

Schedule – V : DETAILED PLANNING DATA FOR THERMAL GENERATING STATION

DATA FOR THERMAL POWER STATIONS

1 GENERAL

- i. Name of Power Station.
- ii. Number and capacity of Generating Units (MVA/MW).
- iii. Ratings of all major equipment (Boilers and major accessories, Turbines, Alternators, Generator Unit Transformers etc).
- iv. Single line Diagram of Power Station and switchyard.
- v. Relaying and metering diagram.
- vi. Neutral Grounding of Generating Units.
- vii. Excitation control- (What type is used? e.g. Thyristor, Fast Brushless Excitors)
- viii. Earthing arrangements with earth resistance values.

2 PROTECTION AND METERING

- i Full description including settings for all relays and protection systems installed on the Generating Unit, Generator unit Transformer, Auxiliary Transformer and electrical motor of major equipment listed, but not limited to, under Sec. 3 (General).
- ii Full description including settings for all relays installed on all outgoing feeders from Power Station switchyard, tie circuit breakers, and incoming circuit breakers.
- iii Full description of inter-tripping of circuit breakers at the point or points of Connection with the Transmission System.
- iv Most probable fault clearance time for electrical faults on the User's System (with main and back up protection).
- v Full description of operational and commercial metering schemes.

3 SWITCHYARD

- (i) In relation to interconnecting transformers:
 - Rated MVA.
 - Voltage Ratio.
 - Vector Group.
 - Positive sequence reactance for max., min., normal Tap. (% on MVA).
 - Positive sequence resistance for max., min., normal Tap. (% on MVA).
 - Zero sequence reactance (% on MVA).
 - Tap changer Range (+% to -%) and steps.
 - Type of Tap changer. (off/on load).

Two Winding Transformer Data

1.	Transformer positive sequence resistance (R1%)	
2.	Transformer positive sequence reactance (X1%)	
3.	Transformer zero sequence resistance (R0%)	
4.	Transformer zero sequence reactance (X0%)	
5.	Transformer Vector group	
5.	Nature of Tap Changer (on load/off load)	
6.	Number of steps and step size	

Three Winding Transformer Data

1.	Transformer Vector group	
2.	Positive sequence resistance (R1HL1%) between HV/LV1	
3.	Positive sequence reactance (X1HL1%) between HV/LV1	
4.	zero sequence resistance (R0HL1%) between HV/LV1	
5.	zero sequence reactance (X0HL1%) between HV/LV1	
6.	Positive sequence resistance (R1HL2%) between HV/LV2	
7.	Positive sequence reactance (X1HL2%) between HV/LV2	
8.	Transformer zero sequence resistance (R0HL2%) between HV/LV2	
9.	zero sequence reactance (X0HL2%) between HV/LV2	
10.	Positive sequence resistance (R1L1L2%) between LV1/LV2	
11.	Positive sequence reactance (X1L1L2%) between LV1/LV2	
12.	zero sequence resistance (R0L1L2%) between LV1/LV2	
13.	zero sequence reactance (X0L1L2%) between LV1/LV2	
14.	Positive sequence resistance (R1HL1//L2%) between HV/(LV1+LV2)	
15.	Positive sequence reactance (X1HL1//L2%) between HV/(LV1+LV2)	
16.	zero sequence resistance (R0HL1//L2%) between HV/(LV1+LV2)	
17.	zero sequence reactance (X0HL1//L2%) between HV/(LV1+LV2)	

- (ii) In relation to switchgear including circuit breakers, isolators on all circuits connected to the points of Connection:
- Rated voltage (kV).
 - Type of circuit breaker (MOCB/ABCB/SF6).
 - Rated short circuit breaking current (kA) 3 phase.
 - Rated short circuit breaking current (kA) 1 phase.
 - Rated short circuit making current (kA) 3 phase.
 - Rated short circuit making current (kA) 1-phase.
 - Provisions of auto reclosing with details.
- (iii) In relation to the Lightning Arresters -number and location (line / transformer)-
Technical data

- (iv) In relation to the Communication - Details of communication equipment installed at points of connections.
- (v) In relation to the Basic Insulation Level (kV) -
 - Bus bar.
 - Switchgear.
 - Transformer bushings.
 - Transformer windings.

4 Parameters of Generating Units

- (i) Rated terminal voltage (kV).
- (ii) Rated MVA.
- (iii) Rated MW.
- (iv) Speed (rpm) or number of poles.
- (v) Inertia constant H (MW Sec./MVA).
- (vi) Short circuit ratio.
- (vii) Synchronous Reactance (% on MVA) X_s .
- (viii) Direct Axis Positive Phase Sequence Synchronous Reactance (% on MVA) X_d .
- (ix) Direct axis (saturated) transient reactance (% on MVA) X_d' .
- (i) Direct axis (saturated) sub-transient reactance (% on MVA) X_d'' .
- (ii) Direct Axis Transient Reactance (Unsaturated) (% on MVA) X_{d1}'
- (iii) Direct Axis Sub-Transient Reactance (Unsaturated) (% on MVA) X_{d1}''
- (iv) Quadrature axis Positive Phase Sequence synchronous reactance (% on MVA) X_q .
- (v) Quadrature axis (saturated) transient reactance (% on MVA) X_q' .
- (vi) Quadrature axis (saturated) sub-transient reactance (% on MVA) X_q'' .
- (vii) Quadrature Axis Transient Reactance (Unsaturated) (% on MVA) X_{q1}'
- (viii) Quadrature Axis Sub-Transient Reactance (Unsaturated) (% on MVA) X_{q1}''
- (ix) Zero Phase Sequence Reactance (% on MVA) X_0
- (x) Negative Phase Sequence Reactance (% on MVA) X_2
- (xi) Direct axis transient open circuit time constant (sec) $T'do$.
- (xii) Direct axis sub-transient open circuit time constant (sec) $T''do$.
- (xiii) Quadrature axis transient open circuit time constant (sec) $T''qo$.
- (xiv) Quadrature axis sub-transient open circuit time constant (sec) $T'''qo$.
- (xv) Stator Resistance (Ohm) R_a .
- (xvi) Neutral grounding details.
- (xvii) Stator leakage reactance (Ohm) X_{l1} .
- (xviii) Stator time constant (sec).
- (xix) Rated Field current (A).
- (xx) Open Circuit saturation characteristic for various terminal Voltages giving the compounding current to achieve the same.
- (xxi) Please provide open circuit magnetization curve.
*If this is not available, then please mention "assume" and PSTCL shall assume magnetic saturation characteristics as per the **Annexure-I***

5 Parameters of excitation control system:

- (i) Type of Excitation.
- (ii) Maximum Field Voltage.
- (iii) Minimum Field Voltage.
- (iv) Rated Field Voltage.

- (v) Details of excitation loop in block diagrams showing transfer functions of individual elements using I.E.E.E. symbols.
- (vi) Dynamic characteristics of over - excitation limiter.
- (vii) Dynamic characteristics of under - excitation limiter.
- (viii) Please submit Laplace domain control block diagram that represents the generator excitation system in accordance with the IEEE standard excitation model or as otherwise agreed with PSTCL. This control block diagram should completely specify all the time constants and gains to fully explain the transfer function from the compensator or generator terminal voltage and field current to generator voltage. A list of acceptable IEEE standard excitation model available with PSS/E simulation package used by PSTCL is shown in **Annexure-II**.

Please fill/tick the appropriate box below:

Please assume

OR

If the excitation data is not available at this stage, then PSTCL shall assume exciter model given at **Annexure-III** which represents a typical excitation model.

Assume the model given at **Annexure-III** as our model

6 Parameters of governor:

- (i) Governor average gain (MW/Hz).
- (ii) Speeder motor setting range.
- (iii) Time constant of steam or fuel Governor valve.
- (iv) Governor valve opening limits.
- (v) Governor valve rate limits.
- (vi) Time constant of Turbine.
- (vii) Governor block diagram showing transfer functions of individual elements using I.E.E.E. symbols.

7 Operational parameters:

- (i) Minimum notice required to synchronize a Generating Unit from de-synchronization.
- (ii) Minimum time between synchronizing different Generating Units in a Power Station.
- (iii) The minimum block load requirements on synchronizing.
- (iv) Time required for synchronizing a Generating Unit for the following conditions:
 - Hot
 - Warm
 - Cold
- (v) Maximum Generating Unit loading rating for the following conditions:
 - Hot
 - Warm
 - Cold
- (vi) Minimum load without oil support (MW).

8 GENERAL STATUS

- (i) Detailed Project report.
- (ii) Status Report
 - Land
 - Coal
 - Water
 - Environmental clearance
 - Rehabilitation of displaced persons
- (iii) Techno-economic approval by Central Electricity Authority (CEA)
- (iv) Approval of State Government/Government of India.
- (v) Financial Tie-up.

9 CONNECTION

- (i) Reports of Studies for parallel operation with the State Transmission System.
- (ii) Short Circuit studies
- (iii) Stability Studies.
- (iv) Load Flow Studies.
- (v) Proposed Connection with the State Transmission System.
 - Voltage
 - No. of circuits
 - Point of Connection.

Schedule – VI : DETAILED PLANNING DATA FOR HYDRO GENERATING STATION

DATA FOR HYDRO ELECTRIC POWER STATIONS

1 GENERAL

- (i) Name of Power Station.
- (ii) No. and capacity of units. (MW/MVA)
- (iii) Ratings of all major equipment.
 - a. Turbines (HP)
 - b. Generators (MVA)
 - c. Generator Transformers (MVA)
 - d. Auxiliary Transformers (MVA)
- (iv) Single line diagram of Power Station and switchyard.
- (v) Relaying and metering diagram.
- (vi) Neutral grounding of Generator.
- (vii) Excitation control.
- (viii) Earthing arrangements with earth resistance values.
- (ix) Reservoir Data.
 - a. Salient features
 - b. Type of Reservoir
 - Multipurpose
 - For Power
 - c. Operating Table with
 - Area capacity curves and
 - Unit capability at different net heads

2 PROTECTION

- (i) Full description including settings for all relays and protection systems installed on the Generating Unit, Generator transformer, auxiliary transformer and electrical motor of major equipment included, but not limited to those listed, under Sec. 3 (General).
- (ii) Full description including settings for all relays installed on all outgoing feeders from Power Station switchyard, tiebreakers, and incoming breakers.
- (iii) Full description of inter-tripping of breakers at the point or points of Connection with the Transmission System.
- (iv) Most Probable fault clearance time for electrical faults on the User's System.

3 SWITCHYARD

- (i) Interconnecting transformers:
 - Rated MVA
 - Voltage Ratio
 - Vector Group
 - Positive sequence reactance for max., min. and normal Tap. (% on MVA).
 - Positive sequence resistance for max., min. and normal Tap. (% on MVA).
 - Zero sequence reactance (% on MVA)
 - Tap changer range (+% to -%) and steps.
 - Type of Tap changer (off/on load).
 - Neutral grounding details.

Two Winding Transformer Data

1.	Transformer positive sequence resistance (R1%)	
2.	Transformer positive sequence reactance (X1%)	
3.	Transformer zero sequence resistance (R0%)	
4.	Transformer zero sequence reactance (X0%)	
5.	Transformer Vector group	
5.	Nature of Tap Changer (on load/off load)	
6.	Number of steps and step size	

Three Winding Transformer Data

1.	Transformer Vector group	
2.	Positive sequence resistance (R1HL1%) between HV/LV1	
3.	Positive sequence reactance (X1HL1%) between HV/LV1	
4.	zero sequence resistance (R0HL1%) between HV/LV1	
5.	zero sequence reactance (X0HL1%) between HV/LV1	
6.	Positive sequence resistance (R1HL2%) between HV/LV2	
7.	Positive sequence reactance (X1HL2%) between HV/LV2	
8.	Transformer zero sequence resistance (R0HL2%) between HV/LV2	
9.	zero sequence reactance (X0HL2%) between HV/LV2	
10.	Positive sequence resistance (R1L1L2%) between LV1/LV2	
11.	Positive sequence reactance (X1L1L2%) between LV1/LV2	
12.	zero sequence resistance (R0L1L2%) between LV1/LV2	
13.	zero sequence reactance (X0L1L2%) between LV1/LV2	
14.	Positive sequence resistance (R1HL1//L2%) between HV/(LV1+LV2)	
15.	Positive sequence reactance (X1HL1//L2%) between HV/(LV1+LV2)	
16.	zero sequence resistance (R0HL1//L2%) between HV/(LV1+LV2)	
17.	zero sequence reactance (X0HL1//L2%) between HV/(LV1+LV2)	

(ii) Switchgear (including circuit breakers, Isolators on all circuits connected to the points of Connection).

- Rated voltage (kV).
- Type of Breaker (MOCB/ABCB/SF6).
- Rated short circuit breaking current (kA) 3 phase.
- Rated short circuit breaking current (kA) 1 phase.
- Rated short circuit making current (kA) 3 phase.
- Rated short circuit making current (kA) 1 phase.
- Provisions of auto reclosing with details.

(iii) Lightning Arresters-number and location (line / transformer)-Technical data

(iv) Communications

Details of Communications equipment installed at points of connections.

(v) Basic Insulation Level (kV)

- Bus bar.
- Switchgear.
- Transformer Bushings
- Transformer windings

4 GENERATING UNITS

(i) Parameters of Generator

- Rated terminal voltage (kV).
- Rated MVA.
- Rated MW
- Speed (rpm) or number of poles.
- Inertia constant H (MW sec./MVA).
- Short circuit ratio.
- Synchronous Reactance (% on MVA) X_s
- Direct axis Positive Phase Sequence synchronous reactance X_d (% on MVA).
- Direct axis (saturated) transient reactance (% on MVA) X'_d .
- Direct axis (saturated) sub-transient reactance (% on MVA) X''_d .
- Direct Axis Transient Reactance (Unsaturated) (% on MVA) X_{d1}'
- Direct Axis Sub-Transient Reactance (Unsaturated) (% on MVA) X_{d1}''
- Quadrature axis synchronous reactance (% on MVA) X_q .
- Quadrature axis (saturated) transient reactance (% on MVA) X'_q .
- Quadrature axis (saturated) sub-transient reactance (% on MVA) X''_q .
- Quadrature Axis Transient Reactance (Unsaturated) (% on MVA) X_{q1}'
- Quadrature Axis Sub-Transient Reactance (Unsaturated) (% on MVA) X_{q1}''
- Zero Phase Sequence Reactance (% on MVA) X_0
- Negative Phase Sequence Reactance (% on MVA) X_2
- Direct axis transient open circuit time constant (sec) T'_{do} .
- Direct axis sub-transient open circuit time constant (sec) T''_{do} .
- Quadrature axis transient open circuit time constant (sec) T'_{qo} .
- Quadrature axis transient open circuit time content (sec) T''_{qo} .
- Stator Resistance (Ohm) R_a .
- Stator leakage reactance (Ohm) X_1 .
- Stator time constant (sec).
- Rated Field current (A).
- Neutral grounding details.
- Open Circuit saturation characteristics of the Generator for various terminal voltages giving the compounding current to achieve this.
- Type of Turbine.
- Operating Head (Metres)
- Discharge with full gate opening (cumecs)
- Speed Rise on total Load throw off (%).
- Please provide open circuit magnetization curve.
*If this is not available, then please mention "assume" and PSTCL shall assume magnetic saturation characteristics as per the **Annexure-I***

(ii) Parameters of excitation control system:

Please submit Laplace domain control block diagram that represents the generator excitation system in accordance with the IEEE standard excitation model or as otherwise agreed with PSTCL. This control block diagram should completely specify all

the time constants and gains to fully explain the transfer function from the compensator or generator terminal voltage and field current to generator voltage. A list of acceptable IEEE standard excitation model available with PSS/E simulation package used by PSTCL is shown in **Annexure-II**.

Please fill/tick the appropriate box below:

Please assume

OR

If the excitation data is not available at this stage, then PSTCL shall assume exciter model given at **Annexure-III** which represents a typical excitation model.

Assume the model given at **Annexure-III** as our model

(iii) Parameters of governor:

(iv) Operational parameter:

- Minimum notice required to Synchronise a Generating Unit from de-synchronisation.
- Minimum time between Synchronising different Generating Units in a Power Station.
- Minimum block load requirements on Synchronising.

5 GENERAL STATUS

(i) Detailed Project Report.

(ii) Status Report.

- Topographical survey
- Geological survey
- Land
- Environmental Clearance
- Rehabilitation of displaced persons.

(iii) Techno-economic approval by Central Electricity Authority.

(iv) Approval of State Government/Government of India.

(v) Financial Tie-up.

6 CONNECTION

(i) Reports of Studies for parallel operation with the State Transmission System.

- Short Circuit studies
- Stability Studies.
- Load Flow Studies.

(ii) Proposed Connection with the State Transmission System.

- Voltage
- No. of circuits
- Point of Connection.

7 RESERVOIR DATA

(i) Dead Capacity

(ii) Live Capacity

Schedule – VII : Data for Generators (other than Thermal & Hydro)

Generator Data for Fault (Short Circuit Studies)

All data to be provided on pu machine MVA base

1.	Direct Axis Transient Reactance (Unsaturated)	X_d'	
2.	Sub-transient Reactance (Unsaturated)	X_d''	
3.	Synchronous Reactance	X_s	
4.	Zero Phase Sequence Reactance	X_0	
4.	Negative Phase Sequence Reactance	X_2	

Generator Data

All data to be provided on pu machine MVA base

1.	Direct Axis Positive Phase Sequence Synchronous Reactance	X_d	
2.	Quadrature Axis Positive Phase Sequence Synchronous Reactance	X_q	
3.	Direct Axis Transient Reactance (unsaturated)	X_d'	
4.	Quadrature Axis Transient Reactance (unsaturated)	X_q'	
5.	Sub-Transient Reactance (unsaturated)	X_d''	
5.	Armature Leakage Reactance	X_l	
6.	Direct Axis Transient open circuit Time Constant (Secs)	T_{do}'	
7.	Direct Axis Sub transient open circuit Time Constant(Secs)	T_{do}''	
8.	Quadrature Axis Transient open circuit Time Constant(Secs)	T_{qo}'	
9.	Quadrature Axis Sub transient open circuit Time Constant(Secs)	T_{qo}''	
10.	Inertia of complete turbo generator (MWs/MVA)	H	
11.	Please provide open circuit magnetization curve enter drawing number here or mention "assume" <i>if this not available then PSTCL shall assume magnetic saturation characteristics as per the Annexure-I</i>		

Excitation Data

Please submit Laplace domain control block diagram that represents the generator excitation system in accordance with the IEEE standard excitation model or as otherwise agreed with PSTCL. This control block diagram should completely specify all the time constants and gains to fully explain the transfer function from the compensator or generator terminal voltage and field current to generator voltage. A list of acceptable IEEE standard excitation model available with PSS/E simulation package used by PSTCL is shown in **Annexure-II**.

Please fill/tick the appropriate box

below: Please assume

OR

If the excitation data is not available at this stage, then PSTCL shall assume exciter model given at **Annexure-III** which represents a typical excitation model.

Assume the model given at **Annexure-III** as our model

Two Winding Transformer Data

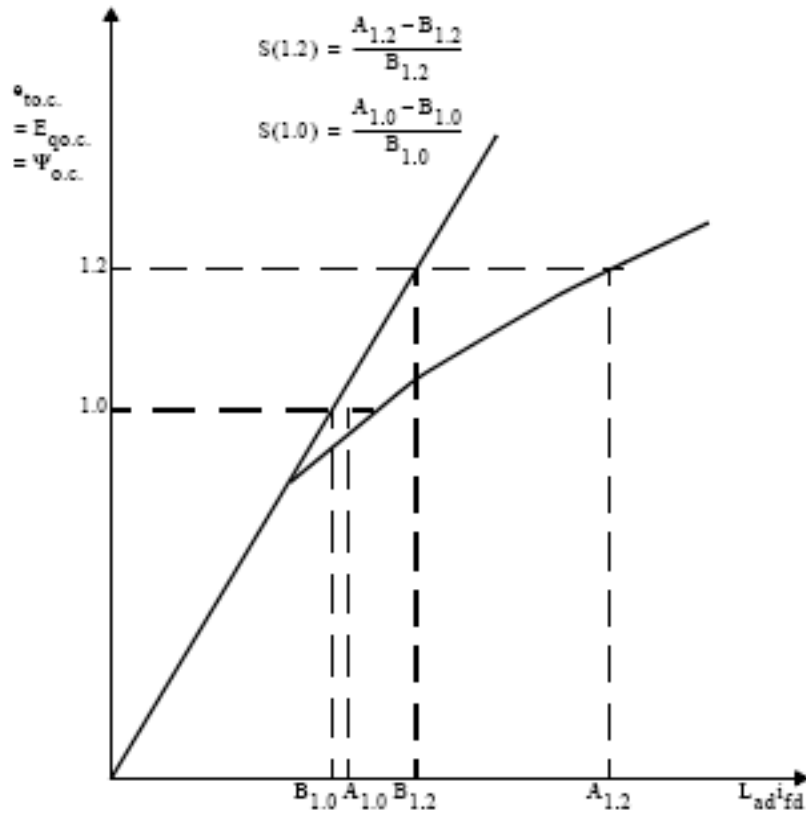
1.	Transformer positive sequence resistance (R1%)	
2.	Transformer positive sequence reactance (X1%)	
3.	Transformer zero sequence resistance (R0%)	
4.	Transformer zero sequence reactance (X0%)	
5.	Transformer Vector group	
5.	Nature of Tap Changer (on load/off load)	
6.	Number of steps and step size	

Three Winding Transformer Data

1.	Transformer Vector group	
2.	Positive sequence resistance (R1HL1%) between HV/LV1	
3.	Positive sequence reactance (X1HL1%) between HV/LV1	
4.	zero sequence resistance (R0HL1%) between HV/LV1	
5.	zero sequence reactance (X0HL1%) between HV/LV1	
6.	Positive sequence resistance (R1HL2%) between HV/LV2	
7.	Positive sequence reactance (X1HL2%) between HV/LV2	
8.	Transformer zero sequence resistance (R0HL2%) between HV/LV2	
9.	zero sequence reactance (X0HL2%) between HV/LV2	
10.	Positive sequence resistance (R1L1L2%) between LV1/LV2	
11.	Positive sequence reactance (X1L1L2%) between LV1/LV2	
12.	zero sequence resistance (R0L1L2%) between LV1/LV2	
13.	zero sequence reactance (X0L1L2%) between LV1/LV2	
14.	Positive sequence resistance (R1HL1//L2%) between HV/(LV1+LV2)	
15.	Positive sequence reactance (X1HL1//L2%) between HV/(LV1+LV2)	
16.	zero sequence resistance (R0HL1//L2%) between HV/(LV1+LV2)	
17.	zero sequence reactance (X0HL1//L2%) between HV/(LV1+LV2)	

Annexure-I

Open Circuit magnetization curve



Magnetic saturation data to be assumed

$S(1.0) =$

$S(1.2) =$

Annexure-II

Acceptable IEEE standard excitation model available with PSS/E simulation package used by PSTCL

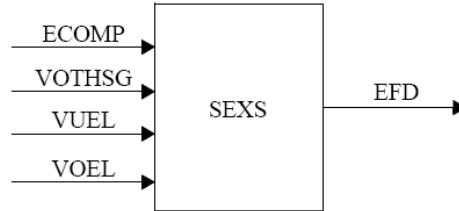
Excitation System Models	
ESAC1A	1992 IEEE type AC1A excitation system model
ESAC2A	1992 IEEE type AC2A excitation system model
ESAC3A	1992 IEEE type AC3A excitation system model
ESAC4A	1992 IEEE type AC4A excitation system model
ESAC5A	1992 IEEE type AC5A excitation system model
ESAC6A	1992 IEEE type AC6A excitation system model
ESAC8B	Basler DECS model
ESDC1A	1992 IEEE type DC1A excitation system model
ESDC2A	1992 IEEE type DC2A excitation system model
ESST1A	1992 IEEE type ST1A excitation system model
ESST2A	1992 IEEE type ST2A excitation system model
ESST3A	1992 IEEE type ST3A excitation system model
EXAC1	1981 IEEE type AC1 excitation system model
EXAC1A	Modified type AC1 excitation system model
EXAC2	1981 IEEE type AC2 excitation system model
EXAC3	1981 IEEE type AC3 excitation system model
EXAC4	1981 IEEE type AC4 excitation system model
EXBAS	Basler static voltage regulator feeding dc or ac rotating exciter model
EXDC2	1981 IEEE type DC2 excitation system model
EXELI	Static PI transformer fed excitation system model
EXPIC1	Proportional/integral excitation system model
EXST1	1981 IEEE type ST1 excitation system model
EXST2	1981 IEEE type ST2 excitation system model
EXST2A	Modified 1981 IEEE type ST2 excitation system model
EXST3	1981 IEEE type ST3 excitation system model
IEEET1	1968 IEEE type 1 excitation system model
IEEET2	1968 IEEE type 2 excitation system model
IEEET3	1968 IEEE type 3 excitation system model
IEEET4	1968 IEEE type 4 excitation system model
IEEET5	Modified 1968 IEEE type 4 excitation system model
IEEEX1	1979 IEEE type 1 excitation system model and 1981 IEEE type DC1 model
IEEEX2	1979 IEEE type 2 excitation system model

Procedure for Grant of Connectivity in Intra State Transmission System

IEEEX3	1979 IEEE type 3 excitation system model
IEEEX4	1979 IEEE type 4 excitation system, 1981 IEEE type DC3 and 1992 IEEE type DC3A models
IEET1A	Modified 1968 IEEE type 1 excitation system model
IEET1B	Modified 1968 IEEE type 1 excitation system model
IEET5A	Modified 1968 IEEE type 4 excitation system model
IEEX2A	1979 IEEE type 2A excitation system model
SCRX	Bus or solid fed SCR bridge excitation system model
SEXS	Simplified excitation system model

SEXS – Simplified Excitation System Model

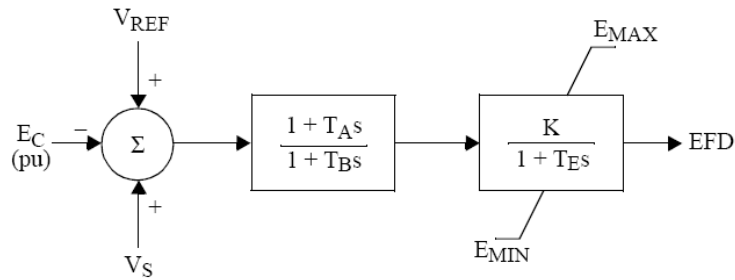
This model is located at system bus # _____ IBUS,
 machine # _____ I.
 This model uses CONs starting with # _____ J,
 and STATEs starting with # _____ K.



CONs	#	Value	Description
J			T_A/T_B
J+1			$T_B (>0)$ (sec)
J+2			K
J+3			T_E (sec)
J+4			E_{MIN} (pu on EFD base)
J+5			E_{MAX} (pu on EFD base)

STATEs	#	Description
K		First integrator
K+1		Second integrator

IBUS, 'SEXS', I, T_A/T_B , T_B , K, T_E , E_{MIN} , E_{MAX} /



$$V_S = VOTHSG + VUEL + VOEL$$

FORMAT- 5

Draft Connection Offer Letter for Connection to the State Transmission Grid

[Name]

[Address of the party]

Subject : Connection Offer letter for connection to the State Transmission Grid.

Dear Sir,

We write with reference to the application No. _____ dated _____ seeking connectivity to the State Transmission System. We have examined your proposal and it is hereby permitted to connect to the grid as per the details given below:

1. Name of the Link : from [Name of switchyard/substation] – to [Name of switchyard/substation]
2. Voltage level : 400/220/132 kV
3. Type of Link : Double Circuit / Single Circuit
4. Reactive compensation to be provided : [Specify rating of Line Reactor/Bus Reactor/Series compensation if any]
5. Maximum Import Capacity through the Link :
6. Maximum Export Capacity through the Link :
7. Date of commissioning :
8. Bay allocated in the switchyard of connectivity : Bay No. [refer enclosed single line diagram at **Annexure-I**]
9. Equipment to be provided by applicant in the allocated bay meeting the technical standards as per Central Electricity Authority (Technical Standards for Connectivity to the Grid) Regulations, 2007 and shall be compatible with the equipment installed at other end. : [refer **Annexure-II**]
- 10 Protection Equipment to be provided by : [refer **Annexure-II**]

applicant shall be meeting the technical standards as per Central Electricity Authority (Technical Standards for Connectivity to the Grid) Regulations, 2007 and shall be compatible & matching with the equipment installed at other end.

- 11 System recording & SCADA Equipment : [refer **Annexure-III**]
shall be meeting the technical standards as per Central Electricity Authority (Technical Standards for Connectivity to the Grid) Regulations, 2007 and shall be compatible to exchange data with the existing system installed in the InSTS network.
- 12 Details of the modification/alteration to existing facilities for accommodating proposed connection and its estimated cost. : [refer **Annexure-IV**]
- 13 Name of Communication Link for Data and Voice Communication : from [Name of switchyard/substation] – to [Name of switchyard/substation]
- 14 Communication equipment details upto PSTCL Data Collection Point : [refer **Annexure-V**]
- 15 Site responsibility schedule at : [as marked in the attached GA diagram **Annexure-VI**]

It should be noted by the applicant that all the equipment and systems to be provided by applicant shall have to conform with the technical standards as specified in the Central Electricity Authority (Technical Standards for Connectivity to the Grid) Regulations, 2007 and Grid Code.

The applicant will establish, test, commission and demonstrate the voice and data communication facilities with SLDC before test charging.

The applicant will forward meter data in the format appropriate and at a periodicity as specified by the appropriate regulatory authority from time to time. This shall be established & demonstrated by the applicant prior to test charging of interconnecting line.

At the connection point to the InSTS, all works associated with bay extension shall be taken- up by PSTCL on deposit of cost for the same.

Thanking You

Yours faithfully,

SE/ Planning,
PSTCL, Patiala.

Annexure-I

Single line Diagram of the Sub-Station /Switchyard of STU/any other transmission Licensee where connectivity is granted together with details of interconnection facilities

Annexure - II

Equipment to be provided by applicant in the allocated bay meeting the technical standards as per Central Electricity Authority (Technical Standards for Connectivity to the Grid) Regulations, 2007

Sl. No.	Name of Equipment	Nos.	Ratings
1.	Circuit Breaker		
2.	Isolators		
3.	Earth Switches		
4.	CT		
5.	CVT		
6.	Wave Trap		
7.	Etc.		
8.			
9.			

System recording & SCADA Equipment to be provided by the applicant

Sl. No.	Name of Equipment	Nos.	Ratings
1.	Event Logger		
2.	Disturbance recorder		
3.	Fault locator		
4.	Data Acquisition System		
5.	Communication equipment		
6.	Etc.		
7.			
8.			

Details of the modification/alteration to existing facilities for accommodating proposed connection and its estimated cost

Communication equipment details upto PSTCL Data Collection Point

Annexure-VI

Site responsibility schedule

A. Principle & Procedure:

The responsibility of control, operation, maintenance & all matters pertaining to safety of equipment and apparatus at the connection point shall lie with the owner.

B. List of equipment and their ownership at the connection point:

Name of Power Station/Sub-Station:

Site Owner:

Site Manager:

Tel. Number:

Fax Number:

Sl. No.	Name of Equipment/ Apparatus	Plant Owner	Safety Responsibility	Control Responsibility	Operation Responsibility	Maintenance Responsibility
	_____kV Switchyard					
1.	All equipment including bus bars					
2.	Feeders					
3.						
	Generating Units					
1.						
2.						

C. Site common Drawings:

- a. Site layout
- b. Electrical layout (SLD)
- c. General Arrangement Drawings (GA)
- d. Details of protection
- e. Common services drawing

FORMAT- 6

DRAFT Connection Agreement

THIS AGREEMENT is made the [] day of [] 20[]

BETWEEN:

- (1) **[Name and registered address of the STU]** (hereinafter called the "PSTCL") which expression shall unless repugnant to the context or meaning thereof be deemed to mean and include its successors or permitted assigns and for the purposes of this Connection Agreement the STU shall act through its _____ **[address of the regional head quarter where connection shall be located]** Unit

as the first party
; and

- (2) **[Name and registered address of the applicant Company]** (herein after called "the Applicant" or "the Customer") which expression shall unless repugnant to the context or meaning thereof be deemed to mean and include its successors or permitted assigns and each of the parties hereto being a "Party" and the term "Parties" shall be construed accordingly.

As the second party

WHEREAS:

- (A) The Applicant has applied to the STU for connection of the **[mention generating station including a captive generating plant or consumer/Distribution Licensee as appropriate]** facility to the STU's Transmission System and use of the STU's Transmission System to transmit electricity to and or from the Facility through the Intra-State Transmission System.
- (B) The STU has agreed to the connection of the **[mention generating station including a captive generating plant or consumer/ Distribution Licensee as appropriate]** Facility to the STU's Transmission and Communication System (via the customer's Site-Related Connection Equipment) at the Connection Point (..... Mention details of the connection point, the name of sub-station, name of line which is to be made LILO, etc....) and to the applicant using the Owner's Transmission and Communication System to transmit electricity as well as real time data to and or from the Facility through the STU's Transmission and Communication System.

- (D) The Parties shall enter into this connection agreement to record the terms and conditions upon which the Parties will carry out their respective Connection Works in accordance with the Connection Agreement. In the case of a generating plant seeking connection to the State Transmission System not owned by the STU, a tripartite Connection Agreement would be signed between the STU, the State transmission licensee and the applicant, since the planning of the Intra-State Transmission System, insulation coordination, system studies, etc. are the responsibility of the STU. The responsibilities of the three parties would be defined accordingly in the tripartite Agreement.
- (E) Further, the parties shall separately take up modalities for implementation of the works on mutually agreed terms and conditions. The scope of works, time schedule for completion of works, including the timelines for the various milestones to be reached for completion of works (PERT chart), shall form an appendix to this agreement, and shall form the basis for evaluating if the works by the parties is being executed in time.
- (F) Further, a signed copy of the agreement and amendments when ever made, shall be submitted to SLDC.

IT IS HEREBY AGREED as follows:

1. General Conditions for Connectivity

1.1 The Parties agree to the following General Conditions that are incorporated into this Agreement.

- (a) The parties shall abide by the Punjab State Electricity Regulatory Commission Terms & Conditions for Intra-State Open Access) Regulations, 2011, as amended from time to time (hereinafter referred to as "Open Access Regulations") and other regulations/grid codes issued by PSERC/ CERC in respect of procedure of grant of connectivity and other matters.
- (b) The applicant shall be responsible for planning, design, construction, and safe and reliable operation of its own equipment in accordance with the PSERC Open Access Regulations, State Grid Code, IEGC, Central Electricity Authority (Technical Standards for Construction of electrical plants and electric lines) Regulations, Central Electricity Authority (Grid Standards) Regulations and other statutory provisions.
- (c) The responsibility of data transfer shall be that of the applicant. The applicant shall provide necessary facilities for voice & data communication for transfer of real time operational data such as voltage, frequency, real and

reactive power flow, energy, status of circuit breaker & isolators positions, transformer taps and other parameters from their station to SLDC as per State Grid Code. The Real Time data shall be transmitted upto SLDC through IEC: 101/104 protocol by providing a redundant (main & backup) communication link/ connectivity using any mode of communication e.g. Optical Fiber/PLCC/MPLS/RF/GPRS or any other latest technology available, which shall be provided and maintained by the applicant. Further, main and backup communication links shall preferably be either through different communication modes or from different service providers (if same communication mode is used). The applicant shall follow the provisions of CERC (Communication Systems for Inter-State Transmission of Electricity) Regulations, 2017, as amended from time to time and technical standards, protocols for communication system etc. notified by CEA under aforesaid CERC Regulations for Communication Infrastructure to be used for data communication and tele-protection of power system and shall ensure the correctness of the real-time data.

STU may provide access to Customer's data transfer through its communication network in case spare channels are available on mutually agreed terms, in which case the nearest connected sub-station of STU where communication capacity (PLCC/ Optical Fiber) is available, may be considered as Data Collection Point (DCP) for onward telemetry of data to SLDC.

- (d) Where an open access customer falls under the category of "Designated Consumer" defined under Electricity Supply Code, 2014, as amended from time to time, the customer shall
- Install power quality meter and share the recorded data thereof with the transmission/ distribution licensee in line with the provisions of Electricity Supply Code and Regulations issued by Commission in this regard, if any.
 - Control the harmonics level at the Point of Common Coupling (PCC) in line with the provisions of Electricity Supply Code/ PSERC relevant Regulations. The limits of voltage harmonics and current harmonics, Point of measurement i.e. PCC and other related matters shall be as per the IEEE 519-2014 namely "IEEE Recommended Practices and Requirements for Harmonic Control in Electrical Power Systems", as modified from time to time read along with Standards issued by Central Electricity Authority (CEA) from time to time.
 - Provide adequate harmonic suppression units/ harmonic filters to avoid dumping of harmonics into transmission system, complying with the standards issued by CEA from time to time.

The measurements undertaken to determine compliance shall be carried out in accordance with the requirements as specified in IEC 61000-4-7 and IEC 61000-4-30. There shall be continuous measurement of harmonics with permanent Power

Quality meters complying with the IEC 61000-4-30 Class-A meters for all new installations.

Where the open access customer fails to install power quality meter within stipulated time or the injection of harmonics exceeds the prescribed limits, such consumer shall be liable to pay a penalty to the STU at the rate and in the manner as may be approved by the Commission from time to time. The penalty shall be without prejudice to the right of the STU to take other punitive action as may be approved by the Commission.

1.2 The following documents and their schedules which have been initialed by the parties and annexed herewith shall be deemed to form part of this Agreement in the order of precedence listed below: -

- (a) Application for seeking connection to the Intra-State Transmission System along with undertaking and documents submitted with the application.
- (b) Intimation for grant of connectivity by STU
- (c) Application for Connection Offer and additional details submitted by the applicant.
- (d) Connection Offer issued by the STU attached hereto;

1.3 Availability of Statutory/Regulatory Approval

Notwithstanding anything in the Agreement to the contrary, the applicant shall be responsible for obtaining the statutory clearances/approval (if required) for carrying out the works requiring connection to the InSTS. Accordingly, the provisions of the Agreement dealing with the carrying out of the Works by either the applicant or the STU (unless otherwise agreed mutually) in all respects would be conditional on and subject to the STU being satisfied that the necessary approvals/clearances are available with the applicant.

2 Agreement to Pay Charges and Costs

2.1 Agreement to Monthly Transmission Tariff

The Customer agrees to pay or make arrangements for payment of the Monthly Transmission Tariff including SLDC charges, FERV, income tax or other taxes, cess, duties etc., for use of State Transmission System, as and when Long term access, Medium-term open access or short-term open access is availed by the applicant, in accordance with the relevant regulations of PSERC in this regard.

2.2 Agreement to additional costs

The Customer agrees to pay cost towards modification/alterations to Owner's infrastructure for accommodating the proposed connection as specified in the offer letter.

2.3 Agreement to pay for damages

The customer agrees to pay/ make good damages, if any, caused to the property of the Owner, which has been notified by the Owner within reasonable time of its occurrence, during the course of control, operation and maintenance of the equipment.

2.4 Agreement to pay Charges for construction of Bays:

The applicant will execute an agreement with STU for the Erection of equipment of applicant in the substation premises of the STU for construction of bays, if required. For this purpose, the applicant shall pay charges to the STU on mutually agreed term.

3. Conditions Precedent to the implementation of the Commissioning Instructions

The applicant shall have to get appropriate "Commissioning Instruction" prior to actually first charging of the equipment through the grid. The charging instruction shall be issued only when the STU is satisfied (acting reasonably) that:

- (a) the Connection Works have been completed;
- (b) the applicant has complied with its all obligations as set out in the Offer Letter;
- (c) The applicant has demonstrated the voice & data communication facilities to SLDC;
- (d) The applicant has obtained necessary approvals like PTCC, Electrical Inspectorate of CEA etc. from competent authority;
- (e) The Customer has complied with its obligations under the PSERC Open Access Regulations, State Grid Code and Central Electricity Authority (Technical Standards for Connectivity to the Grid) Regulations, 2007

4. Metering

Before exchanging any power, the customer shall provide and maintain the Metering equipment, in accordance with the PSERC Open Access Regulations, State Grid Code and Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006, as amended from time to time read along with the approved LTA/ MTOA and STOA Procedures. The metering infrastructure/ system shall also satisfy all the requirements laid in CEA "Functional Requirements for Advanced Metering Infrastructure" and provisions in SAMAST (Scheduling, Accounting, Metering & Settlement of Transaction in electricity) report issued by FOR technical committee (as & when implemented) and other Regulations/ guidelines issued by PSERC/ CERC from time to time

5.1 Site Access

Being restricted area the STU may give permission or allow access to Customer's employees and/or agents and/or subcontractors and/or invitees in the Owner's premises to carry out preliminary site investigation works, the Connection Works, modification works, inspections, etc, based on a written request by the applicant, as deemed fit. All such actions are to be carried out under the strict supervision of THE 'STU's authorized representative to safeguard the safety and security requirements of 'STU's installations and safety of the representatives of the applicant.

Similarly, the applicant may also allow, on prior permission, site access to the 'STU's employees and/or agents and/or invitees to carry out preliminary site investigation works, inspections, etc. in the connection site of the applicant, as deemed fit.

5.2 Conditions of access

Site access for the STU/applicant shall include the right to bring such vehicles, plant, machinery and construction materials as shall be reasonably necessary to carry out the functions in respect of which the permission of access is granted. Being a restricted area, any individual to whom access is given under the Agreement shall comply with all reasonable directions given by the applicant or STU and its appropriately authorized employees and agents to safe guard the interest of safety and security requirements of personnel and equipment. All such access shall be exercisable without payment of any kind.

6. Transfer Assignment and Pledge

The applicant shall not transfer, assign or pledge its rights and obligations under this connection agreement to any other person.

7. Notice

All notices required or referred to under this Agreement shall be in writing and signed by the respective authorized signatories of the parties 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 issue/receive notices etc. in connection with this agreement shall be informed in advance.

8. Settlement of Disputes and Arbitration

All differences and/or disputes between the parties arising out of or in connection with these presents shall at first instance be settled through amicable settlement

at the level of Transmission Planning Committee (TPC) formulated under State Grid Code or at Director level.

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.

9. Force Majeure

Force Majeure herein is defined as any clause which is beyond the control of the Owner or the Customer as the case may be, which they 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 such as:

- Natural phenomenon including but not limited to floods, droughts, earthquake and epidemics;
- Acts of any Government, domestic or foreign, including but not limited to war, declared or undeclared, priorities, guarantees, embargoes.

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

Neither of the parties shall not be liable for delays in performing obligations on account of any force majeure causes as referred to and/or defined above.

10 Confidentiality

The parties 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 Law.

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.

11 Governing Laws and Jurisdiction

The agreement shall be governed by Indian Laws and Rules framed there under. The courts in Punjab shall have exclusive jurisdiction.

12 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.

IN WITNESS WHEREOF the STU and the applicant have caused this Agreement to be executed by duly authorized representative on date above first herein written. Annexures

Witnesses

Signed for and on behalf of STU (PSTCL): -

1.

2.

CE/ P&M,
PSTCL, Ludhiana

Signed for and on behalf of Applicant: -

1.

2.

Signature
(Name & designation of Applicant)

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