

GRID CONNECTION TO INTRA STATE NETWORK

DRAFT

PROCEDURE FOR GRID CONNECTION

**(TO BE FOLLOWED BY NEW GRID USER
AND
EXISTING GRID USER
AND
GRID CONNECTION AFTER
SUBSEQUENT MODIFICATION/EXPANSION)**

**STATE LOAD DISPATCH CENTRE
GUJARAT ENERGY TRANSMISSION CORPORATION LTD.**

**PREPARED BY COMMERCE DEPARTMENT
SLDC, GOTRI, VADODARA**

GRID CONNECTION PROCEDURE

1. PREAMBLE:

- 1.1 This procedure provides guidelines for grid connection to intra state network applicable to long term open access users including generating & Distribution Company before commencement of long term open access.
- 1.2 The procedure prepare for providing grid connection to intra state network as per prevailing regulation issued by GERC i.e. provision 10(iii) of “Open Access in Intra-state Transmission and Distribution regulation 2005’ and provision 3 of “Levy and Collection of Fees and Charges by SLDC Regulations, 2005”
- 1.3 This procedure is prepared in order to facilitate implementation of regulation issued by Gujarat Electricity Regulatory Commission (as mentioned in above para) exercising powers conferred to State Load Dispatch Centre under IE Act’2003.
- 1.4 An interpretation/meaning of any words, statements and expressions hereunder this procedure shall have a same meaning as stipulated in regulation. Any dispute, therefore, arise due to incorrect interpretation shall be resolved as per meaning of regulation.

2. INTRODUCTION

- 2.1 All long term open access users or users running in parallel with system are obtaining approval for connectivity to intra state network under connectivity condition of State Grid Code or prevailing regulation from State Transmission Utility.
- 2.2 An intending grid user has supposed to compliance all terms and condition mentioned there under in approval given by STU and obtained certificate for confirmation from respective STU.
- 2.3 The user who have obtained approval for connectivity to intra state network and complied all conditions of approval as per connectivity procedure stipulated in State Grid Code are eligible for connection to grid. The procedure followed thereafter, from application to grid by intending user and releasing grid connection, shall be exercised by SLDC.
- 2.4 Such application filed by intending grid users is to be processed by SLDC as per prevailing regulation of GERC. Regulation applicable are reproduced as under :
 - Provision 3 of “Levy and Collection of Fees and Charges by SLDC Regulations, 2005’ is reproduced as under:

“3. Application for connection to Grid

- (i) *Generating companies and licensees requiring long term access to the grid shall submit an application to the SLDC in the specified format at least one month before the proposed date of connection to the State grid, along with fee of Rs. 10,000.00 (Rupees ten thousands only). The existing licensees and generating companies shall register themselves with SLDC by filing an application along with above mentioned fees.*
- (ii) *The SLDC, after scrutinizing the application and after being satisfied of the completeness and correctness of the information furnished in the application, shall register the application in SLDC records duly intimating the applicant regarding the acceptance of the same.*
- Provision 10(iii) of “Open Access in Intra-state Transmission and Distribution regulation 2005’ is reproduced as under:

“10. Bulk Capacity Agreement

- (i) *A long term open access user shall enter into Bulk Power Transmission/Distribution capacity agreement with the transmission/distribution licensee. An open access user shall enter into commercial agreements with the transmission and distribution licensees, for use of their transmission and distribution systems.*
- (ii) *The agreement shall provide, amongst other things for the eventuality of premature termination of agreement and its consequences on the contracting parties.*
- (iii) *After agreements have been entered into and copies furnished to State Load Dispatch Centre, the State Load Dispatch Centre shall inform the open access user the date from which open access will be available which will not be later than 3 days from the date of furnishing of agreements.”*

2.5 Procedure of grid connection can be applicable case to case base depending on complexity involved. Though it is not generic, SLDC has attempted to generalize procedure in order to diffuse complexity involved and to maintain smooth implementation.

2.6 If the grid connection is terminated or renewed due to expiry of agreement, shall also have to obtained grid connection as per procedure stipulated hereunder. The any loss or damage occur due to power exchange takes place without approval of grid connection is to be reported to appropriate commission and shall be treated under breach of regulation.

2.7 In case there is a change in status of network, which was existed during permission granted for grid connection by SLDC, shall also be updated to SLDC and obtain fresh permission for grid connection.

- 2.8** Application of grid connection, not in conformity with procedure stipulated here shall not be processed. Any delay arises due to incomplete or incorrect information to SLDC shall be on account of applicant only.
- 2.9** SLDC may change, modify procedure for providing grid connection. SLDC shall inform such changes in procedure to GERC for conformity and circulated to all users and published on our website.

3. PROCEDURE FOR REGISTRATION OF APPLICATION:

The forthcoming generating companies and distribution licensees as well as existing generating companies shall have to get registration as per procedure described as under:

- 3.1 Generating companies and licensees intend to commence grid connection after obtaining necessary approval from STU shall submit application to SLDC in advance along with necessary fees. The application should be made in specified format as per Annexure I to III duly filled in two copies.
- 3.2 The application shall contain non refundable application fee of Rs.10,000.00 (Rupees ten thousands only) in the favor of Chief Engineer, SLDC, GETCO, Gotri as a grid connection fees. The application received date shall be consider from date of payments of application fee. Any delay due to postal or clearance in bank etc. for which SLDC shall not be responsible.
- 3.3 SLDC shall scrutinize the application, verify completeness and correction of information as above, shall register application and give acknowledgement of application.

4. SUBMISSION / PROCESSING OF GRID APPLICATION:

- 4.1 The relevant documents and details as per prescribed check list is to be made available to SLDC along with application. The check list provides generalized documents but there may be exception based on case to case for which SLDC may require additional information. Applicant has to provide such information in reasonable time period.
- 4.2 Generating Companies has to furnished details and copies of bulk Power Purchase Agreement (PPA) duly signed by its beneficiaries as per clause 10 of GERC regulation 13 of 2005. Based on BPPA, generating companies shall derived allocation in percentage to its beneficiaries (up to 4 digit accuracy after decimal point), single figure for entire day without discriminating peak or off peak etc.
- 4.3 After allocation of capacity as per BPPA, if there is surplus capacity available with generating station, may please be specified in application with probable mode of utilization of such capacity like sale through STOA or pending LTOA etc.

- 4.4 Licensee and Generating companies intend to get grid connection has to furnished details and copies of Bulk power transmission agreement (BPTA) to SLDC along with relevant transmission scheme approved by appropriate commission irrespective of dedicated lines or system strengthening scheme.
- 4.5 Generating companies or licensee shall arrange to carry out system study with connectivity of adjoining network clearly specifying period for which study carried out with underlying assumption. Such system study is provided by STU (GETCO) or respective RLDC on payment basis. It is crucial for SLDC to ascertain deviation in assumption consider during system study and real time parameters, in order to determine suitable period/date for providing grid connection, after ensuring reliable and secure operation. Copy of system study carried out is to be submitted along with application.
- 4.6 Intending grid user, Generating companies or licensee, has to arrange data communication facility to SLDC for real time monitoring and controlling as per requirement of SLDC well in advance as per State Grid Code. The data communication to SLDC is important for system operation, and same shall be tested and obtain satisfactory certificate from SLDC in one month advance before application of grid connection. Same is to be submitted with application.
- 4.7 Generating companies & licensees has to approach SLDC with Stage wise planning of non commercial and commercial operation, schematic network with clear demarcation of interface points for deciding scheduling, metering and energy accounting scheme. Single line diagram for each stage wise planning to be submitted along with application.
- 4.8 As per para (ix), concerned generating companies & licensees shall complete this exercise well in advance and obtain confirmation of scheduling, metering and accounting scheme from SLDC which is to be jointly agreed by all stakeholders. Meters are to be installed by respective agencies as per metering scheme prepared by SLDC. In Gujarat, Hon'ble commission has directed GETCO to provide meter, hence metering scheme finalized shall be installed by generating companies or distribution licensee in consultation with GETCO. Joint Minutes indicating confirmation of each concerned parties is to be submitted along with application.
- 4.9 Distribution licensee has to submit detail of load to be connected category wise, and approved planning for load management within respective control area, network diagram and important places like airport, railway station, hospital etc.

- 4.10 Distribution licensee has to set up their independent control centre for exercising their role of grid user, with real time data availability for taking necessary action in maintaining grid, demand side management and for single point communication with SLDC.
- 4.11 The purchase agreement is to be submitted by distribution licensee with summarize statement showing each supplier, contract capacity along with deficit and surplus for next one year.
- 4.12 The Co generating Plant has to apply for grid connection as per procedure mentioned for generating station. However they have to indicate allocation to their own company, mentioning at same place (without injecting grid) and quantum of MW to be injected into network.
- 4.13 Any dedicated lines or parallel operation of co-generating plant or any other plant shall has to follow same procedure during grid connection.

5. PROCESSING OF GRID CONNECTION:

- 5.1 SLDC will study impact on system due to interconnection of new generating stations & associated network with prevailing system conditions and provide date from which open access to grid available.
- 5.2 SLDC shall ensure the metering accounting, conduct meeting if necessary with concerned stakeholders for role to play by each individual and verify application, verify completeness and correction of information as above, shall register application and give confirmation of acceptance to associated parties.
- 5.3 The evacuation network will be studied by SLDC and ensure that it is as per approved planning. In case deviation from planning, during incomplete network or partial installation, SLDC has to ensure availability of adequate transmission capacity with necessary margin.
- 5.4 Based on current system behavior, SLDC will determine probable date for commencement of grid connection looking to the system reliability conditions after fulfillment of all requirement of SLDC. The date of commencement for open access to be adhered by respective users and change their planning accordingly.
- 5.5 SLDC will finally issue a commencement order for grid connection suitably along with suitable notes as applicable to respective grid connection.

6. APPLICABILITY OF PROCEDURE:

- 6.1 While connection of one or more element of transmission element to grid or part of distribution licensee or generating companies after every modification or upgradation or expansion, the treatment of such connection is not specified in regulation.
- 6.2 If such expansion or modification affects the capacity of generating station, flow of transmission network and addition of new area of supply in distribution licensee which is electrified first time shall affect grid performance and operational planning of State Load Dispatch Centre.
- 6.3 In view of above consideration, procedure mentioned hereunder is to be follow for such medication and expansion of network and addition of generating capacity.
- 6.4 Licensee or generating companies has to register such up gradation or modification and obtain approval for connection to grid. Application fee for such up gradation and modification not mentioned in regulation.
- 6.5 In such type of grid connection, part of information and procedure would be covered while earlier connection to grid, SLDC will have to provide grid connection for additional network or capacity only.
- 6.6 Therefore, every modification/expansion in generating station or existing network shall be treated as revised grid connection and accordingly revised grid connection application to be filed. Application fee shall be applicable as mentioned in regulation for grid connection.

7 TIME LIMIT

- 7.1 All existing grid users have to register with SLDC before 1st April'2009.
- 7.2 All New grid users have to register 45 days in advance before commencement.

FORMAT 1

**APPLICATION FORMAT FOR GRID CONNECTION
FOR GENERATING COMPANIES
(To be applicable for Generating Station)**

Name of Generating Company :					
Registered Address of Generating Company :					
Name of Generating Station:					
Location of Generating Station :					
Category of Generating Station(IPP/CPP/MPP) :					
Approval obtained from various Statutory agencies					
(Name /Reference)					
(Name /Reference)					
Legal/Regulatory cases pending with generating station					
(Name/ Case No/Description of Subject)					
(Name/ Case No/Description of Subject)					
Proposed date of connection with grid					
(A) Details of Generating Station					
Total Generating Capacity (in MW)					
Capacity of each Unit	COD of each Units	Rating in (MW)	MVAR Capability	Terminal Voltage	Rated Aux Req.
Unit 1(Make :)					
Unit 2(Make :)					
Unit 3(Make :)					
Unit 4(Make :)					
Unit 5(Make :)					
Details of Generating Transformer		Type	Rating (MVA)	Ratio HV/LV	Voltage Var. limit
GT of Unit 1					
GT of Unit 2					
GT of Unit 3					
GT of Unit 4					
GT of Unit 5					
(B) Type of Fuel					
		Type of Fuel	Rated consumption		
Gas Bas station					
Thermal Station					
Cogenerations plant					

(C) Bulk Power Purchase Agreement (BPPA)

	Period of Agreement	Quantum	Beneficiary/ Buyer	Injection point	Drawal point
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For supply to Licensee

Transaction 1(Route)					
Transaction 2(Route)					
Transaction 3(Route)					

For supply to Licensee

Transaction 1(Route)					
Transaction 2(Route)					
Transaction 3(Route)					

For supply to Licensee

Transaction 1(Route)					
Transaction 2(Route)					
Transaction 3(Route)					

(D) Bulk Power Transmission Agreement (BPTA)

	Period	Quantum	Connection Points	
I. Intra -State Agency			Interface points	Voltage
			1.	
			2.	
			3.	
			4.	
II. Inter-State Agency			1.	
			2.	
			3.	
			4.	

(E) Parallel Connectivity Approval

STU(Intra State)	Quantum	Date	Period	Ref No/Date
CTU(Inter State)				

(F) Long Term Open Access

STU (Intra State)	Quantum	Period	Injecting Point	Drawee Point	Remarks
CTU (Inter State)	Quantum	Period	Injecting Point	Drawee Point	Remarks

(G) Operating Parameters

i) Ramp-up rate (MW/Minute)		
<ul style="list-style-type: none"> ▪ Hot Start up ▪ Warm Start up ▪ Cold Start up 		

ii) Ramp-down rate (MW/Minute)			
<ul style="list-style-type: none"> ▪ Hot Start up ▪ Warm Start up ▪ Cold Start up 			
iii) Time required for synchronizing generating station			
<ul style="list-style-type: none"> ▪ Hot Start up ▪ Warm Start up ▪ Cold Start up 			
iv) Minimum Notice required from desynchronization to synchronized unit			
v) Technical Minimum load required in open cycle by regulating fuel consumption			
vi) Technical Minimum load required in combine cycle by regulating fuel consumption			
vii) Technical Minimum load required in open cycle by with oil support			
viii) Technical Minimum load required in combine cycle with oil support			
ix) Minimum MVAR injection without loss of active power			
x) Minimum time required for switching from open cycle to combine cycle mode			
xi) Minimum Time required for synchronizing units one after another (only GT units).			
(H) Metering Arrangement			
(i) Metering Scheme finalized by SLDC (Ref/Date)			
(ii) No of Meter Assessed (Category wise)	Assessed	Installed	Pending
<ul style="list-style-type: none"> ▪ Main Meters ▪ Check Meters ▪ Stand by Meters 			
(ii) Submission of Schematic diagram showing meter number at each location to be furnished to SLDC	(Enclosed herewith)		
(iv) Joint Testing of meters (Testing date and record notes duly signed)	Date/ (Record Notes enclosed h/w)		
(v) Scheduling & Accounting Scheme finalized by SLDC(Ref/Date)			
(I) Communication Scheme			
(i) Communication Scheme confirmed by SLDC (Ref/Date)			
(ii) Details of data communication			
<ul style="list-style-type: none"> ▪ No of RTU ▪ No of Transducers /Sensors 			

▪ No of points taped			
▪ Data communication redundancy			
▪ Date of Testing			
▪ Acceptance confirmation of SLDC			
(iii) Details of voice communication			
▪ Mode of communication	(PLCC/any other)		
▪ Type of communication channel	(Dedicated/Interdependent)		
▪ Alternate Communication channel	Channel1	Channel2	Channel3
(J) Islanding & Restoration Scheme			
(i) Proposed Islanding Scheme			
▪ Frequency Variation			
▪ Demand Variation			
▪ Voltage Variation			
(ii) Proposed Restoration procedure			
▪ Availability of Synchronization facility			
▪ Possible sources of black start power			
▪ Availability of independent Black Start power			
(iii) Mock trial of Islanding Scheme			
▪ Date of Trial			
▪ Hours system withstand in island mode			
▪ Stability Measurement			
(iv) Proposed planning date for Mock trial of Islanding Scheme (Not more than four weeks or 30 days after commercial operation of generating station)			
(v) Coordinator /Responsible officer for operating islanding scheme & restoration procedure (Min Two)			
Name :			
Address :			
Contact No.(RTC) :			
(K) List of Attachment			
▪ Schematic diagram			
▪ Power Purchase Agreement			
▪ Power Transmission Agreement			
▪ Registration fee receipt			
▪ Metering details including CT/PT			
▪ Switch yard diagram (Approved by EI)			
▪ Actual data as per Annexure A.2.1 of State Grid Code			
▪ Any other supporting documents			

FORMAT 2

**APPLICATION FORMAT FOR GRID CONNECTION WITH SLDC
FOR DISTRIBUTION LICENSEE
(To be applicable for Distribution Licensee)**

General :				
Name of Distribution Licensee :				
Registered Address of Distribution Licensee :				
Area of Supply of Distribution Licensee:				
Approval obtained from various agencies				
(Name /Reference)				
(Name /Reference)				
Legal/Regulatory cases related with approval of distribution licensee				
(Name/ Case No/Description of Subject)				
(Name/ Case No/Description of Subject)				
Proposed date of grid connection :				
(A) Details of Distribution licensee				
1. Details of connected load	Category of consumers			
	1	2	3	4
Total Number				
Connected Load (MW)				
2. Details of Interface points	Voltage Wise			
(Voltage wise list to be attached)*	400KV	220KV	132KV	66KV
3. Details of EHV lines	Voltage Wise			
	400KV	220KV	132KV	66KV
Number of lines				
Length of lines				
4. Details of EHV Substations	Voltage Wise			
	400KV	220KV	132KV	66KV
Number of Substations				
Capacity of Substations				
(B) Details of Transmission licensee with contract made & Capacity				
Name of Transmission Licensee	Capacity	Period	Seller	Buyer

(C) Details of Long Term Open Access in Transmission Network

Category (in STU/CTU)	Period (From ----- To)	Capacity Reserved	Interface Periphery	Injecting Point	Drawee Point

(D) Details of Long Term Open Access Consumers

Name of Open access consumer	Period (From ----- To)	Capacity Reserved	Interface Periphery	Injecting Point	Drawee Point

(E) Name of generating stations supplied power to distribution licensee

Name of Generating Station	Capacity (in MW)	Contract Quantity	Percentage (Share)	
1.				
2.				
3.				

(F) Communication Scheme

(i) Communication Scheme confirmed by SLDC (Ref/Date)				
(ii) Details of data communication				
▪ No of RTU(Substation wise list to be attached)				
▪ No of Transducers /Sensors				
▪ No of points taped				
▪ Data communication redundancy				
▪ Date of Testing				
▪ Acceptance confirmation of SLDC				
(iii) Details of voice communication				
▪ Mode of communication	(PLCC/any other)			
▪ Type of communication channel	(Dedicated/Interdependent)			
▪ Alternate Communication channel				
Channel 1				
Channel 2				
Channel 3				

(G) Planning for load management

Number of group	Load 3Ph	Load 1Ph	Peak Load	Min Load
A				
B				
C				
D				
E				
F				
G				
H				

(H) Details of Important Customers (Like Military Camp/Airport/Hospital etc.)

Name of Customers	Location	Feeding S/S	Feeding Lines	Remarks

(I) Metering Arrangement

(i) Metering Scheme finalized by SLDC (Ref/Date)

(ii) No of Meter Assessed (Category wise)	Assessed	Installed	Pending	
▪ Main Meters				
▪ Check Meters				
▪ Stand by Meters				

(ii) Submission of Schematic diagram showing meter number at each location to be furnished to SLDC

(To be enclosed herewith)

(iv) Joint Testing of meters (Testing date and record notes duly signed)

Date/ (Record Notes enclosed h/w)

(v) Scheduling & Accounting Scheme finalized by SLDC(Ref/Date)

Ref No/Date

(J) Information of Control Centre of Distribution licensee

(i) Name of Control Centre:	
(ii) Address of Control Centre:	
(iii) Infrastructure Details:	
On line data for Monitoring system:	
Communication Channel:	
Any other :	

(iv) Name and Designation of person responsible for grid operation

Name

Designation

Office Address:

Permanent Address:

(K) List of Attachment

- Schematic diagram
- Power Purchase Agreement
- Power Transmission Agreement
- Registration fee receipt
- Metering details including CT/PT
- Actual data as per Annexure A.2.1 of State Grid Code
- Any other supporting documents

FORMAT 3

**APPLICATION FORMAT FOR GRID CONNECTION
FOR TRANSMISSION LICENSEE
(To be applicable for Transmission Licensee)**

General :					
Name of Transmission Licensee :					
Registered Address of Transmission Licensee :					
Area of Supply of Transmission Licensee:					
Approval obtained from various agencies					
(Name /Reference)					
(Name /Reference)					
Legal/Regulatory cases related with approval of distribution licensee					
(Name/ Case No/Description of Subject)					
(Name/ Case No/Description of Subject)					
Proposed date of grid connection :					
(A) Details of Transmission licensee					
1. Details of Reactors Installed		Voltage Wise			
(Voltage wise list to be attached)*		400KV	220KV	132KV	66KV
3. Details of EHV lines		Voltage Wise			
(List to be attached)		400KV	220KV	132KV	66KV
Number of lines					
Length of lines					
4. Details of EHV Substations		Voltage Wise			
		400KV	220KV	132KV	66KV
Number of Substations					
Capacity of Substations					
(B) Details of Distribution Licensee with contract made & Capacity					
Name of Distribution Licensee		Capacity	Period	Seller	Buyer
(C) Details of Long Term Open Access Consumers					
Name of Open access consumer	Period (From ----- To)	Capacity Reserved	Interface Periphery	Injecting Point	Drawee Point

(D) Name of generating stations connected with Transmission licensee				
Name of Generating Station	Capacity (in MW)	Contract Quantity	Percentage (Share)	
1.				
2.				
3.				
(F) Communication Scheme				
(i) Communication Scheme confirmed by SLDC (Ref/Date)				
(ii) Details of data communication				
<ul style="list-style-type: none"> ▪ No of RTU(Substation wise list to be attached) ▪ No of Transducers /Sensors ▪ No of points taped ▪ Data communication redundancy ▪ Date of Testing ▪ Acceptance confirmation of SLDC 				
(iii) Details of voice communication				
<ul style="list-style-type: none"> ▪ Mode of communication ▪ Type of communication channel ▪ Alternate Communication channel 		(PLCC/any other)		
		(Dedicated/Interdependent)		
Channel 1				
Channel 2				
Channel 3				
(G) Metering Arrangement				
(i) Metering Scheme finalized by SLDC (Ref/Date)				
(ii) No of Meter Assessed (Category wise)		Assessed	Installed	Pending
<ul style="list-style-type: none"> ▪ Main Meters ▪ Check Meters ▪ Stand by Meters 				
(ii) Submission of Schematic diagram showing meter number at each location to be furnished to SLDC		(To be enclosed herewith)		
(iv) Joint Testing of meters (Testing date and record notes duly signed)		Date/ (Record Notes enclosed h/w)		
(v) Scheduling & Accounting Scheme finalized by SLDC(Ref/Date)		Ref No/Date		

(H) Information of Grid Substations

(i) Name of Grid Substation:

(ii) Address of Grid substation :

(iii) Infrastructure Details:

On line data for Monitoring system:

Communication Channel:

Any other :

(iv) Name and Designation of person responsible for grid operation

Name

Designation

Office Address:

(I) List of Attachment

- Schematic diagram
- Power Transmission Agreement
- Registration fee receipt
- Metering details including CT/PT
- Actual data as per Annexure A.2.1 of State Grid Code
- Any other supporting documents

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