

Procedure for interconnection of a new transmission element belonging to any Distribution/Transmission licensee/Generation Utility and issue of certificate of successful trial operation by State Load Despatch Centres(SLDCs)

Delhi Grid Code / IEGC provides for formulation of operating procedure by SLDC / RLDC/NLDC. The same is quoted below:

“The SLDC shall develop, document and maintain detailed operating procedures in consultation with the in-State Generating Stations and the Distribution Licensees for managing the State Grid, which shall be consistent with the DGC requirement to enable compliance therewith...”

“A set of detailed operating procedures for the National grid shall be developed and maintained by the NLDC in consultation with the SLDCs, for guidance of the staff of the NLDC and it shall be consistent with IEGC to enable compliance with the requirement of this IEGC.

A set of detailed operating procedures for each regional grid shall be developed and maintained by the respective SLDC in consultation with the regional entities for guidance of the staff of RLDC and shall be consistent with IEGC to enable compliance with the requirement of this IEGC.”

In accordance with the above provisions and in line with NLDC/RLDC operating **procedure, procedure for interconnection of a new transmission element belonging to any Distribution/Transmission licensee or Generation Utility** has been formulated to enable RLDCs/NLDC/SLDC for secure and reliable interconnection of new elements. The details of the same areas follows:

1. All the Distribution/Transmission Licensees or Generation Utility intending to commission any **element, which is apart of inter-state transmission system, shall intimate the** concerned SLDC the details as given below, **generally (10) days** prior to the anticipated date of first test charging.
2.
 - a. **AnnexureA1:** Intimation regarding anticipated charging of the line along with the list of the desired documents being submitted as per **Format I**.
 - b. **AnnexureA2:**List of elements to be charged and Element Rating details as per **Format I A**
 - c. **AnnexureA3:** Single line diagram of the concerned substations, along with status of completion of each dia/bus/breakers clearly indicating which elements are proposed to be charged.
 - d. **Annexure A4 :** List of SCADA points to be made available (as per standard requirement, SLDC would need all MW and MVA_r data, voltage and frequency of all the buses, all the breaker and isolator positions, OLTC tap positions, Main-1/Main-2 protection operated signals)

- e. **AnnexureA5:** Location of Energy meters as per relevant CEA regulations
- f. **AnnexureA6:** Connection Agreement, wherever applicable along with all annexures.

In additions to these documents, charging instructions, details of approval of the transmission scheme from the Standing Committee/CTU/ Steering Committee, STU, availability of line reactors as per approved scheme, approval for changes in the approved scheme, technical parameters of the transmission element required for network modeling shall be made available by CTU/STU/Licensee/user, as the case may be, to RLDCs/NLDC / SLDC.

- 3. Within 3 days of submission of above information by the Transmission Licensee / Distribution Licensees / Generation Utility/ user, concerned RLDC / SLDC shall acknowledge the receipt of the same, as per Format II, and seek clarifications, if any. The utility shall submit the desired information/documents to the concerned RLDC/SLDC with in next three days.
- 4. The request for charging of new element and towards start of the trial operation as per Format III shall be submitted by the Utility to the concerned RLDC / SLDC, **generally three (3) days** prior to the date of first time charging. There could be a separate schedule for test charging and the final schedule for trial operation, which may be mentioned in the Format-I itself. The Utility shall also submit the following documents in this regard:
 - a. **AnnexureB1:**Request for charging of the new element along with the summary of the undertakings being submitted as per **Format III**
 - b. **AnnexureB2:**Undertaking in respect of Protective systems as per **Format III A**
 - c. **Annexure B3:**Undertaking in respect of Telemetry and communication as per **Format III B**
 - d. **Annexure B4:**Undertaking in respect of Energy metering as per **Format III C**
 - e. **AnnexureB5:** Undertaking in respect of Statutory clearances as per **Format III D**

On satisfying itself with the submitted information as stated above under Para 3, the SLDC would issue a provisional approval for charging to the Transmission / Distribution / Generation Utility as per **Format IV** within two days of receipt of above documents.

On the designated day, the Utility shall charge the transmission line/element and do trial operation as per the time line mentioned in Format III, after obtaining the real time code from SLDC. All attempts would be made by the real time operating personnel at the concerned SLDC to facilitate charging and commission in go f the new element at the earliest, subject to availability of real time data and favourable system conditions.

5. Regulation 69(b) of DERC (Terms and Conditions of Tariff), 2017 provides for certification of successful trial operation of new transmission as sets by SLDC. The same is quoted below:

“Trial operation in relation to a transmission system or an element there of shall mean successful charging of the transmission system or an element thereof for 24 hours at continuous flow of power, and communication signal from sending end to receiving end and with requisite metering system, telemetry and protection system in service enclosing certificate to that effect from concerned State Load Dispatch Centre”

Post successful trial operation, following documents shall be submitted by the Utility:

- a. **AnnexureC1:**Requestfor issuance of successful trial operation certificate as per **Format V**
 - b. **AnnexureC2:** Values of the concerned line flow sand related voltages as per local SCADA just before and after charging of the element.
 - c. **AnnexureC3:**Special Energy meter(SEM) Reading corresponding to the trial run
 - d. **AnnexureC4:**Output of Disturbance Recorders/Event Loggers
6. Within three (3) working days of submission of the information mentioned above, SLDC concerned shall issue the certificate for successful completion of trial run of the element as per **Format VI.**
 7. In case of an inter-regional element, both the respective SLDCs would be involved and a copy of the communications may be forwarded to RLDC also in such cases.

Documents to be submitted by Distribution/Transmission Licensee/User to SLDCs

Annexure	Subject	Remarks
Annexure A1	Intimation regarding anticipated charging of the line along with other documents	As per Format I
Annexure A2	List of elements to be charged and Element Rating details	As per Format I A
Annexure A3	Single line diagram of the concerned sub stations, along with status of completion of each dia/bus/breakers	
Annexure A4	List of SCADA points to be made available (as per standard requirement, SLDC would need all MW and MV Ar data, voltage and frequency of all the buses, all the breaker and isolator positions, OLTC tap positions, Main-1/Main-2 protection operated signals)	
Annexure A5	Type and Location of Energy meters as per relevant CEA regulations	
Annexure A6	Connection Agreement, wherever applicable along with all annexures	
Annexure B1	Request for charging of the new transmission element along with the summary of the undertakings being submitted	As per Format III
Annexure B2	Undertaking in respect of Protective systems	As per Format III A
Annexure B3	Undertaking in respect of Telemetry and communication	As per Format III B
Annexure B4	Undertaking in respect of Energy metering	As per Format III C
Annexure B5	Undertaking in respect of Statutory clearances	As per Format III D
Annexure C1	Request for issuance of successful trial operation certificate	As per Format V
Annexure C2	Values of the concerned line flows and related voltages just before and after charging of the element	
Annexure C3	Special Energy meter (SEM) Reading for the trial	
Annexure C4	Output of Disturbance Recorders / Event Loggers	

Format I

Intimation by Transmission Licensee regarding anticipated charging of new elements

<Name of Transmission / Distribution / Generation Utility/User>

Name of the element :

Type of Element :Transmission Line/ICT/Bus Reactor/Line Reactor/Bus / Bay/Series Capacitor/Series Reactor

Voltage Level : AC/DC kV

Owner of the Asset :

Likely Date and time of Charging :

Likely Date and time of start of Trial Operation :

Place:

Date:

(Name and Designation of the authorized person with official seal)

Encl: Please provide full details.

- Annexure A 2** : Format I A: List of elements to be charged and Element Rating details
- Annexure A 3**: Single line diagram of the concerned sub stations, along with status of completion of each dia/bus/breakers
- Annexure A 4**: List of SCADA points to be made available
- Annexure A 5**: Location of installation of Energy meters as per relevant CEA regulations
- Annexure A 6**: Connection Agreement, if applicable along with all annexures

Format I A

List of elements to be charged and Element Rating details

I. List of Elements to be charged:

II. Element Ratings

a. Line

1	From Substation	
2	To Substation	
3	Voltage Level (kV)	
4	Line Length (km)	
5	Conductor Type	
6	No of sub Conductors	

b. ICT

1	Voltage (HV kV / LV kV)	
2	Capacity (MVA)	
3	Transformer Vector group	
4	Total no of taps	
5	Nominal Tap Position	
6	Present Tap Position	
9	Tertiary Winding Rating and Ratio	
10	% Impedance	

c. Shunt / Series Reactor

1	Substation Name / Line Name	
2	Voltage	
3	MVAR Rating	
4	Switchable / Non Switchable	
5	In case of Bus Reactor, whether it can be taken as line reactor	

(Name and Designation of the authorized person with official seal)

Format II

<Name of SLDC >

Acknowledgement of Receipt by SLDC

This is to acknowledge that the intimation of likely charging of (Name of the element) has been received from (Name of the owner of the Element/Asset) on (Date).

Kindly complete the technical formalities in connection with energy metering, protection and real time data and communication facilities and inform us of the same three (3) days before charging of the above transmission element as per Formats III, III A, III B, III C and III D.

Or

The intimation is incomplete and the following information may be submitted within three (3) days of issue of this acknowledgment receipt.

1. _____ -
2. _____
3. _____

Date:

Signature

Name:

Designation:

SLDC

Format III

<Name of Utility>

**Request by Transmission / Distribution / Generation
Utility/User for first time charging and start of Trial
Operation**

Past references :

Name of the element :

Type of Element : Transmission Line/ICT/Bus
Reactor/Line Reactor / Bus /Bay

Voltage Level :

Owner of the Asset :

Proposed Date and time of first time Charging :

Proposed Date and time of Trial Operation :

Place: Date:

(Name and Designation of the authorized person with official seal)

Encl:

Annexure B2 : Undertaking in respect of Protective systems as per Format IIIA

Annexure B3 : Undertaking in respect of Telemetry and communication as per Format IIIB

Annexure B4: Undertaking in respect of Energy metering as per Format IIIC

Annexure B5: Undertaking in respect of Statutory clearances as per Format IIID

Format IIIA

< Name and Address of Utility >

**Undertaking by Transmission/Generation / Distribution Utility/User in respect of
Protective systems**

The following transmission element is proposed to be charged on
_____<date>tentatively around_____ hours.
S no and Name of transmission element

1.0 It is certified that all the systems as stipulated in Part-III of the Central Electricity Authority (Technical Standards for Connectivity to the Grid) Regulations, 2007 (as amended from time to time) have been tested and commissioned and would be in position when the element is taken in to service.

The protective relay settings have been done as per the guidelines of the Regional Power Committee (RPC) as per section 5.21 of the Indian Electricity Grid Code (IEGC). The necessary changes have also been made/would be made appropriately for the following lines at the following substations:

Sl No:	Name of the sub station	Name of the line

Place:

Date:

(Name and Designation of the authorized person with official seal)

Format IIB
< Name and Address of Utility >

Undertaking by Transmission / Generation / Distribution Utility/User in respect of Telemetry and communication

The following element is proposed to be charged on _____ <date>
 tentatively around hours.

S no and Name of element:

The list of data points that would be made available to SLDC in real time had been indicated vide communication dated _____. It is certified that the following data points have been mapped and real time data would flow to SLDC immediately as the element is charged and commissioned.

S no	Name of substation	Data point (analog as well as digital) identified in earlier Communication dated	Point to point checking done jointly with SLD C (Y/N)	Data would be available at SLDC (Y/N)	Remarks (path may be specified)
1	Sending end	Analog			
		Digital			
		SoE			
		Main Channel			
		Standby Channel			
		Voice Communication (Specify:)			
2	Receiving end	Analog			
		Digital			
		SoE			
		Main Channel			
		Standby Channel			
		Voice Communication (Specify:)			

It is also certified that the data through main channel is made available to SLDC as well as alternate communication channel is available for data transfer to SLDC to ensure reliable and redundant data as per IEGC (as amended from time to time). Also, Voice communication is established as per IEGC. The arrangements are of permanent nature. In case of any interruption in data in real time, the undersigned undertakes to get the same restored at the earliest.

Place:

Date:

(Name and Designation of the authorized person with official seal)

Format IIC

< Name and Address of /Utility >

Undertaking by Transmission/Generation/Distribution Utility/ User in respect of Energy metering

The following element is proposed to be charged on _____ <date> tentatively around _____ hours.

S no and Name of element :

Special Energy Meters (SEMs) conforming to CEA (Installation and Operation of Meters) Regulations,

2006 have been installed and commissioned. The SEMs are calibrated in compliance of regulation 9 of Part-I of CEA (Technical Standard for Grid Connectivity) Regulations 2007 as per the following details:

S no	Name of substation	Feeder name	Make of meter	Meter no	CT Ratio	PT/CV T Ratio
1	Sending end					
2	Receiving end					

Data Format Conformity: Yes/No

Polarity as per Convention: Yes/No

Time Drift Correction carried out: Yes/No

The data from the above meters would be forwarded on weekly basis to the SLDC as per section

of the Indian Electricity Grid Code (IEGC) (as amended from time to time) and also as and when requested by the SLDC.

(SLDC to indicate the email ids where the data has to be forwarded).

Place:

Date:

(Name and Designation of the authorized person with official seal)

Format III D

< Name and Address of Utility >

Undertaking by Distribution / Generation / Utility/User in respect of statutory clearances

It is here by certified that all statutory clearances in accordance with relevant CERC Regulations and CEA standards/regulations for charging of _____ have been obtained from the concerned authorities.

Place:

Date:

(Name and Designation of the authorized person with official seal)

Format IV

Approval for charging and trial run

<Name of SLDC>

Approval no:

To,

The Transmission Licensee,

Sub: Charging and trial run of <Name of element>----Provisional approval

Ref: 1) Your application dated in Format-I

2) SLDC response dated in Format-II

3) Your request and details forwarded on dated in Format III,III A,III B III C and III D

Madam/Sir,

1) The above documents have been examined by SLDC and permission for charging of <Name of element> on or after_____ is here by accorded. This approval is provisional and in the intervening period, if any of the conditions given in the undertakings submitted by you are found to be violated, the approval stands cancelled. Kindly obtain a real time code from the appropriate SLDC for each elements witching as well as commencement of trial operation.

1) The following short comings have been observed in the document sat S no3) above.

- a.
- b.
- c.

Please rectify the above short comings at the earliest to enable SLDC to issue the provisional approval for test charging, commissioning and trial operation of<Name of element>.

Thanking you,

Yours faithfully,

(Name and designation of authorized personnel with seal)

Format-V

Transmission Licensee request for issuance of successful trial operation certificate

<Name of Transmission / Generation / Distribution Utility>

To,

<Name of SLDC>

Sub: Successful trial operation of <Name of element>---request for issue of certificate.

Ref:

- i) Our application dated in Format-I**
- ii) Your acknowledgement dated in Format-II**
- iii) Our application dated----in Format-III along with Format III A,III B III C and III D**
- iv) Provisional approval dated ---- issued by your office.**
- v) Real time codes from SLDC on**

Madam/Sir,

Referring to the above correspondence, this is to inform you the successful charging and trial operation of <Name of Transmission element> from-----to----- (time & date). Please find enclosed the following:

1. A plot of the MW/MVAr power flow during the 24 hour trial operation based on the substation SCADA is enclosed at Annexure-B1.
2. The Energy Meter readings have already been mailed to your office on _____. The 15-minute time block wise readings for the trial operation period is enclosed at Annexure-B2
3. Event Logger and Numerical Relay or Disturbance Recorder outputs at Annexure-B3 indicating all the switching operations related to the element. It is further to certify that the time synchronization of numerical relay, event logger and disturbance recorder has been established.

It is requested that a certificate of successful trial operation may kindly be issued at the earliest.

Thanking you,

Yours faithfully,

<Name and Designation of authorized person with official seal>

Encl: Annexure C2: Plot of MW/MVAr flow during 24 hour trial operation.

Annexure C3: Energy Meter

Annexure-C4: Reading Numerical relay or Disturbance Recorder (DR) output and Event Logger output.

<Name and Address of the Load Despatch Centre>

Certificate Number:

Date:

Certificate of completion of Trial Operation of Element

Reference:

- i. Communication dated _____ from Utility to SLDC in Format-I and IA.
- ii. Communication from SLDC dated _____ to Utility in Format-II.
- iii. Communication from Utility to SLDC dated _____ in Format III, III A, IIIB, IIIC and IIID.
- iv. Provisional approval dated _____ from SLDC to Utility for charging in real time in Format-IV.
- v. Real time code issued by SLDC on _____
- vi. Communication dated ___ from Utility in Format-V after trial operation.

Based on the above reference ,it is hereby certified that the following Transmission element has successfully completed the trial operation:

Name of the Transmission Asset:	
Owner of the Transmission Asset :	
Date and Time of Energization for commencement of successful trial run operation	
Date/time of completion of successful trial run operation	

This certificate is being issued in accordance with 69 (b) of DERC (Terms and Conditions of Tariff), 2017 to certify successful completion of trial operation of transmission element. Usage of this certificate for any other purpose is prohibited.

Signature

Name and Designation of the issuing Officer with official seal

Place

Copy to:

- i. Transmission System Owner
- ii. Any other agency, if required