

FROM : SRPC BANGALURU

FAX NO. : +91 80 22352616

13 Oct. 2016 5:24PM P1

FAK

**TRANSMISSION CORPORATION OF TELANGANA LIMITED**

From  
The Chief Engineer/SLDC,  
TSTRANSCO, Vidyut Soudha,  
Hyderabad -500082.

To  
The Chief Engineer/SP P&A II  
Central Electricity Authority,  
Sewa Bhavan, Sector 1,  
RKPuram, New Delhi-22

1/2

Lr.No. SE(PS)/DE(SS&LTSS)/ADE3SS/E.CPRI/D. No.447/16, Dt: 04.10.2016

Sir,

Sub:- TSTRANSCO -Provision of exclusive 220 kV Feeder to Central Power Research Institute, Hyderabad for their on line 350 MVA short circuit test facility - Regarding.

- Ref: i) Lr No:CPRI/UHV/XII PLAN/SCT/2015,Dt:24.04.2015.(Copy enclosed)  
 ii) Lr No:CPRI/UHV/XII PLAN/SCT2015-16,Dt:08.09.2015.(Copy enclosed)  
 iii) PGCIL letter ref: SR-I/ AGM(AM)/ONMO-94663/2016,Date:29-08-2016 (Copy enclosed)  
 iv) Lr No:CPRI/UHV/ SCT/2016,Dt:19.09.2016.(Copy enclosed)

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Central Power Research Institute, Hyderabad vide reference (i) cited above, has informed to establish a 350 MVA short circuit test facility at their existing UHVRL, CPRI, Hyderabad and requested to provide supply at 220 kV voltage class with dedicated 220 kV Double circuit transmission line upto CPRI, Hyderabad with necessary protection equipment.

Further vide reference (ii) cited above, CPRI has provided information about Power requirement, Duration of power requirement and test procedure, protection.

The issue was addressed to PGCIL, Secunderabad as the proposed loading of CPRI has direct bearing on 400/220 kV Ghanapur (PGCIL) SS, and requested to communicate the acceptance for extending the supply to M/s CPRI for their proposed on line 350 MVA short circuit test facility.

In response M/s PGCIL vide ref(iii) has informed that, the proposed connectivity is different from the conventional connectivity and matter may referred to CEA with a request to convene a meeting of CTU,CPRI,SRLDC,TSTRANSCO & SRPC.

M/s CPRI vide ref (iv) has once against requested to carry out the technical feasibility study to 220 kV power supply from nearest 220 kV TSTRANSCO substation to their existing laboratory at CPRI, Uppal.

Contd..2.

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14.10.16

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EX/SCT  
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: 2 :

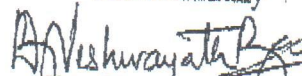
A copy of above correspondence is herewith enclosed for ready reference please.

In view of the above, it is requested to convene a meeting on providing supply with dedicated 220 kV Double circuit Feeders to Central Power Research Institute, Hyderabad for their proposed on line 350 MVA short circuit test facility.

Thanking you and early meeting in this regard is highly solicited.

Encl: As above

Yours faithfully

  
Chief Engineer/SLOC FAC 4/10/16  
TSTRANSCO

Copy submitted to:

The Member Secretary/SRPC/Bengaluru, 560009

The COO/CTU/ Saudamini, Plot No.2, Sector 29, Near IFFCO Chowk,  
Gurgaon (Haryana) - 122001, INDIA

The General Manager/SRLDC/POSOCO/Bengaluru

The Joint Director/UHV RL/CPRI/Medipalli/Hyderabad-500096

Copy to  
DE(T) to Director/Projects & Grid Operation/TSTransco/Hyderabad





# केन्द्रीय विद्युत अनुसंधान संस्थान

(भारत सरकार की सोसाइटी विद्युत मंत्रालय)

यू. एच. वी. अनुसंधान प्रयोगशाला

वरंगल हाईवे, मेडिपल्ली पोस्ट, हैदराबाद - ५०० ०९८, भारत

**Central Power Research Institute**

(A Govt of India Society, Ministry of Power)

**UHV Research Laboratory**

Warangal Highway, Medipally P.O. Hyderabad - 500 098 India

वेब साइट Website : [http:// www.cpri.in](http://www.cpri.in)

दुरभाष : +91- 40 - 2980 3112

Telephone : +91- 40 - 2980 4701

फैक्स/Fax : +91- 40 - 2980 3378

ई-मेल E-mail : [uhvrl@cpri.in](mailto:uhvrl@cpri.in)

No. CPRI/UHV/SCT /2016

Date: 19-09-2016

To,

**Director (Transmission)**  
**Transmission Corporation of Telangana State**  
**Vidyut Soudha,**  
**Hyderabad – 500 082**

Dear Sir,

**Sub:** Providing 220kV Double Circuit feeder to CPRI, Hyderabad – reg.

We are highly thankful for the courtesy extended to the under signed during the discussions in your chambers on 1<sup>st</sup> September 2016 followed by discussions with power system group of TSTRANSCO on 16<sup>th</sup> instant regarding providing 220 kV power supply for our proposed short circuit laboratory at existing CPRI premises at Uppal.

In this regard, we inform that presently we have power supply at 33 kV Voltage class with 2 x 2.5 MVA power transformers which will be continued for existing plant auxiliaries and UHV testing facilities.

As per the discussion, we inform that the proposed short circuit laboratory will be provided with separate three single phase transformers connected in delta on HV primary side (220kV) with OLTC tapping range of +/- 20% approximately. On LV side, the secondary will be split in no. of windings, generally 3-4 parts, to connect them either in series or in parallel, which can be connected in star or delta to give three phase secondary voltage between 6 to 42 kV. Each single phase transformer will be approximately rated for 8MVA continuous with %Z of as low as 1% and short circuit capacity of about 150MVA. Thus, during short circuit testing, the expected apparent 3- phase short circuit power of 350 MVA (1or 3 sec) will be drawn from the 220 kV network during the test conditions.

During non-testing conditions the above transformer will either be in open condition or idle charged. CPRI will assure and ensure that selection of a power supply configuration shall be such as to avoid significant disturbances to the other users fed from the network. In any case, it shall be ensured that the voltage drop shall be not be more than 5% for 1 sec. under any circumstances due the laboratory operation. Thus, the ratings/specifications of the short circuit transformers will be decided after network study.


Also we inform that, the scheduled to be completed by March – 2018 and without the support of TSTRANSCO we will not be in a position to complete the project.

Kindly carry out the technical feasibility study based on the above preliminary data to provide 220 kV power supply from nearest 220 kV TSTRANSCO substation to our existing laboratory at CPRI,Uppal.

Thanking you,

Yours faithfully

  
Dr. Pradeep Nirgude 15/9/16  
Joint Director

  
19/9/16  
Through: ~~Additional Director~~ & Unit Head – UHVRL, Hyderabad

Copy to.

1. Chief Engineer – Transmission/TSTRANSCO/VidyutSoudha/Hyderabad – 500 082
2. Chief Engineer – SLDC/TSTRANSCO/VidyutSoudha/Hyderabad- 500 082



1989-2014

पावर ग्रिड कॉर्पोरेशन ऑफ इंडिया लिमिटेड  
(भारत सरकार का उद्यम)  
POWER GRID CORPORATION OF INDIA LIMITED  
(A Government of India Enterprise)



पावरग्रिड

कवाडीगूडा मेन रोड, सिकंदराबाद-500 080 (आं.प्र.)  
KavadiGuda Main Road, Secunderabad - 500 080 (A.P.)  
Tel. : 040-27546658 Fax : 040-27546637

दक्षिणी क्षेत्र पारेषण प्रणाली-I / Southern Region Transmission System - I

Ref: SR-I/AGM (AM)/ONMD-94663 /2016

Date: 29.08.2016

To  
The Director (Transmission)  
TSTRANSCO, Vidyut Soudha,  
Khairatabad,  
HYDERABAD-500 082

CE Trans / CBSLDC  
DE protection

Dear Sir,

Sub: Extension of HT Supply at 220 kV level to CPRI - reg.

Pl Study & discuss  
V/R  
8/9

Ref: 1. Your letter Ref.No.SE (PS)/DE(SS&LTSS)/ADE3SS/F.CPRI/D.No.308/016 DT: 06.04.2016

This has reference to the letter for extension of HT supply at 220 kV level to CPRI; the request was referred to our Corporate Engineering department. The following are the observations from our Corporate Engineering department:

- To have short circuit level of 20 kA at CPRI 220 kV tests lab the short circuit level at Ghanapur 220 kV bus should be about 40 kA whereas present short circuit level at Ghanapur is about 35 kA.
- The short circuit test at CPRI would be equivalent to switching in of 350 MVAR reactive load for 3 seconds. Studies indicate that with 350 MVAR reactive compensation a voltage drop of about 6 - 7 kV at Ghanapur 220 kV bus, while at CPRI test lab voltage drop shall be about 10 kV. The effect on substation needs to be further studied.

JE/SP  
&  
JE/SS  
r.a

Further, as the proposed connectivity is different from conventional connectivity, it is suggested that the matter may be referred to CEA with a request to convene a meeting of CTU, CPRI, SRLDC, TSTRANSCO & SRPC.

8/9

Thanking you,

DIRECTOR (TRANSMISSION),  
TSTRANSCO,

Forward No..... 1600

3-SEP 2016

JE/PS  
JE/Trans  
E/PS  
S

Director (Transmission)

Stamp: TSTRANSCO  
6 SEP 2016  
SE/SLOG  
CE/SLOG

For Power Grid Corporation of India Limited

Yours faithfully,

P. Ranga Rao  
(P. Ranga Rao)

Addl. General Manager (AM &S)

Copy to : ED (SRITS - I), for kind information please.

ADD-3

8/9/16



TRANSMISSION CORPORATION OF TELANGANA LIMITED

From  
Director/Transmission,  
TSTRANSCO, Vidyut Soudha,  
Hyderabad -500082.

To  
Executive Director(SR-I & II),  
PGCIL,  
Kavadiguda Main Road,  
Secunderabad - 500080  
Telangana

Lr.No. SE(PS)/DE(SS&LTSS)/ADE3SS/D. No. 175/15, Dt: 26.09.2015

Sir,

Sub:- TSTRANSCO -Providing exclusive 220 kV Feeder to Central Power Research Institute,Hyderabad for their on line 350 MVA short circuit test facility - Regarding.

- Ref: i) Lr No:CPRI/UHV/XII PLAN/SCT/2015,Dt:24.04.2015.(Copy enclosed)  
ii) U.O.No.CPT 140/SE-PM-II/F.CPRI/D.No.495/2015,Dt:17-07-2015(Copy enclosed)  
iii) Lr No:CPRI/UHV/XII PLAN/SCT2015-16,Dt:08.09.2015.(Copy enclosed)

\*\*\*\*

In the reference (i) cited above, Central Power Research Institute, Hyderabad has informed that it is proposed to establish a 350 MVA short circuit test facility at UHVRL,CPRI, Hyderabad and requested to provide an exclusive 220 kV/20 KA feeder with all necessary protection equipment along with an exclusive 220 kV Double circuit transmission line upto CPRI,Hyderabad. The feasibility report with two proposals is hereby referred wide reference (ii) by our field offices for the above scheme.

Further wide reference (iii) cited above, CPRI has provided information about Power requirement, Duration of power requirement and test procedure, protection. In the above letter the following is informed:

"The test procedure involves creating short circuit by closing fast acting make switch and opening of the master circuit breaker. Thus it can be seen that in normal case the short circuit transformers are on no load condition where as in short circuit test duration i.e.,3 sec during STC , the short circuit MVA requirement will be 350 MVA or higher whatever possible to achieve. As a general thumb rule, if the short circuit level of the power system feeding the fault is 20 times higher than the short circuit MVA requirement,i.e.7000 MVA for 350 MVA, the power system is considered to be safe and the short circuit power of 350 MVA is approximately close to the rated power of a 220 kV line"

:: 2 ::


The TSIKANSKO field offices have proposed to extend connectivity at 220 kV level either by laying 8.0 kM of 220 kV, 1000 sq.mm XLPE UG cable radially from 220/132 kV Ghanapur SS under Proposal -I **or** by laying 5.0 kM of 220 kV, 1000 sq.mm XLPE UG cable radially from 220/33 kV Infosys SS (under construction) under Proposal -II. The source in both the above proposals is from 400/220 kV Ghanapur (Hyderabad AP PGCIL) SS.

As the proposed loading of CPRI is directly bearing on 400/220 kV Ghanapur (PGCIL) SS, it is requested to communicate the acceptance for extending the supply to M/s CPRI for their proposed on line 350 MVA short circuit test facility.

Encl: As above

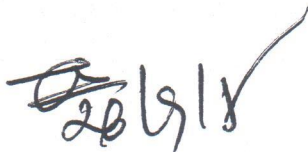
Yours faithfully

  
DIRECTOR/TRANSMISSION  
TSTRANSCO


  
SE/PS 26/9.

Copy to

The member secretary/SRPC/Bengaluru 560009 for information file  
The Chief Engineer/Transmission/TSTRANSCO/VSI/Hyd.

  
26/9/18

XII plan - Online SCT  
SCT

केन्द्रीय विद्युत अनुसंधान संस्थान	
CENTRAL POWER RESEARCH INSTITUTE	
यू एच वी मार एन / UHVRL हैदराबाद / HYDERABAD - 500 098	
Office of the Unit Head एकक प्रयत्न का कार्यालय	
Diary No. UHV - 1039	/2015 - 2016
Date : 11/04/2016, Time : 09:30 AM Hrs.	
UH: 	Sign :

11.4.16,



(Draft for approval)

TRANSMISSION CORPORATION OF TELANGANA LIMITED

From  
Director/Transmission,  
TSTRANSCO, Vidyut Soudha,  
Hyderabad -500082.

To  
Executive Director(SR-I & II),  
PGCIL,  
Kavadiguda Main Road,  
Secunderabad - 500080  
Telangana

Lr.No. SE(PS)/DE(SS&LTSS)/ADE3SS/F.CPRI/D. No.204 /15, Dt: 12.11.2015

Sir,

Sub:- TSTRANSCO -Providing exclusive 220 kV Feeder to Central Power Research Institute,Hyderabad for their on line 350 MVA short circuit test facility - Feasibility -Regarding.

Ref: 1) Lr No:CPRI/UHV/XII PLAN/SCT/2015,Dt:24.04.2015.

2) U.O.No.CPT 140/SE-PM-II/F.CPRI/D.No.495/2015,Dt:17-07-2015.

3) Lr No:CPRI/UHV/XII PLAN/SCT2015-16,Dt:08.09.2015.

4) Lr.No. SE(PS)/DE(SS&LTSS)/ADE3SS/D. No. 175/15, Dt: 26.09.2015  
(Letter addressed to ED(SR-I&II),PGCIL,Kavadiguda,Secunderabad)

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Please refer to the letter cited under reference (4) above, where in it was requested to communicate the acceptance for extending the supply to M/s CPRI for their proposed on line 350 MVA short circuit test facility, as the proposed loading of CPRI is directly bearing on 400/220 kV Ghanapur (PGCIL) SS.

M/s CPRI, Hyderabad has provided information about Power requirement, Duration of power requirement and test procedure, protection vide reference (3) cited above & the correspondence was already furnished vide reference(4) cited above.

M/s CPRI has informed the following in their correspondence:

"The test procedure involves creating short circuit by closing fast acting make switch and opening of the master circuit breaker. Thus it can be seen that in normal case the short circuit transformers are on no load condition where as in short circuit test duration i.e.,3 sec during STC , the short circuit MVA requirement will be 350 MVA or higher whatever possible to achieve. As a general thumb rule, if the short circuit level of the power system feeding the fault is 20 times higher than the short circuit MVA requirement,i.e.7000 MVA for 350 MVA, the power system is considered to be safe and the short circuit power of 350 MVA is approximately close to the rated power of a 220 kV line"




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The TSTRANSCO field officers have proposed to extend connectivity at 220 kV level either by laying 8.0 km of 220 kV, 1000 sq.mm XLPE UG cable radially from 220/132 kV Ghanapur SS under Proposal -I or by laying 5.0 km of 220 kV, 1000 sq.mm XLPE UG cable radially from 220/33 kV Infosys SS (under construction) under Proposal -II. The source in both the above proposals is from 400/220 kV Ghanapur (Hyderabad AP PGCIL) SS.

Hence, it is requested to communicate the feasibility for extending the supply to M/s CPRI for their proposed on line 350 MVA short circuit test facility at an early date.

~~Encl. As above~~


Yours faithfully

  
DIRECTOR/TRANSMISSION  
TSTRANSCO

Copy to:

  
AD E/SS

  
DE/SS

  
SE/PS

The Member Secretary SRPC/Bengaluru, 560009 for information please.

The Chief Engineer/Transmission/TSTRANSCO/Vidyut Soudha/Hyderabad

The Additional Director unit head / CPRI / UHV research laboratory, warangal high way, medipally P.O. Hyd-500098

