



भारत सरकार/Government of India  
विद्युत मंत्रालय/Ministry of Power  
केंद्रीय विद्युत प्राधिकरण/Central Electricity Authority  
राष्ट्रीय विद्युत समिति/National Power committee  
9001:2008]



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कटवारिया सराय/Katwaria Sarai, नई दिल्ली / New Delhi – 110016

वेबसाइट / Website: [www.cea.nic.in](http://www.cea.nic.in)

No. 3/NRCE/NPC/CEA/2016/180 - 208

Date: 21<sup>st</sup> November 2016

### MEETING NOTICE

To,

As per the list of addressee

Subject: 7<sup>th</sup> Meeting of National Reliability Council for Electricity (NRCE)- Reg.

Madam / Sir,

The 7<sup>th</sup> meeting of the NRCE would be held on **07<sup>th</sup> December 2016 (Wednesday) at 1500 Hrs (03:00PM)** in 2<sup>nd</sup> Floor Conference Hall, Sewa Bhavan, R.K.Puram, New Delhi. The agenda would be as given below:

**(A) Confirmation of the Summary Record Notes** of Discussions in the 6<sup>th</sup> Meeting of NRCE held on 17<sup>th</sup> March 2016.

The record notes of the 6<sup>th</sup> Meeting of NRCE was issued vide letter dated 28<sup>th</sup> April, 2016. No comments have been received from any of the Members.

The record notes may please be confirmed.

**(B) Implementation of CERC order dated 05.08.2015 – Preparation of reliability Standards for “Protection System” and “Communication System” for Indian Power System.**

As decided in the 6<sup>th</sup> meeting of NRCE held on 17<sup>th</sup> March 2016, the following sub group has been constituted to finalize the above standards:

1. Superintending Engineer (O), NRPC
2. Director (GM), CEA
3. Director, PSETD Div., CEA
4. Representatives from POWERGRID at the level of Dy. GM
5. Executive Engineer P&C, TANTRANSOCO, Guindy
6. Deputy General Manager, POSOCO
7. Director, NPC, CEA

The Committee would consider number of CEA Regulations available on protection and recommendations of the Ramakrishna Task Force on protection requirements and prepare the protection standard for Indian Power System. Further the communication standards would be developed based on the report of the committee formed by CERC (for preparation of Communication Standards) under Ex. Chairperson, CEA Ms. Neeraja Mathur

It was decided in the meeting that the subgroup would submit their report within three months.

*Two Meetings of this Sub Group has been held during the period April- November 2016. The Sub Group has finalized the broad areas of protection standards.*

*Gist of deliberations in the meetings are at Annexure-I.*

**(C) Methodology for computation of TTC/ATC/TRM and alternative methods of calculation of Transmission Reliability Margin (TRM) in consultation with POSOCO and CTU**

It was decided in the 6<sup>th</sup> meeting of NRCE that Sub Group of NRCE constituted for the purpose of determination of TTC/ATC/TRM shall examine and suggest a clear methodology for calculation of ATC, TTC, TRM to POSOCO to comply with. It was also decided reconstitution of the Sub-Group consequent to reconstitution of NRCE with following members:

1. Chief Engineer (PSP&A-II), CEA
2. Director (PSP&A-I), CEA
3. Representative from RPCs
4. Deputy General Manager, CTU
5. Superintending Engineer (System Studies / Planning), TANGEDCO
6. Chief Engineer (STU), MSETCL
7. Dr. Abhijit R. Abhyankar, Associate Professor, Electrical Engineering Department, IIT Delhi.
8. Director, NPC, CEA

The subgroup shall approve the methodology for computation of TTC/ATC/TRM on monthly basis or calculate TTC/ATC/TRM if necessary, as per the CERC order dated 11.12.2013.

*A meeting of this group held on 19<sup>th</sup> September 2016. The following are the summary of decisions in the Meeting:*

- a) POSOCO to provide the computation details of TTC/ATC/TRM for the month of December 2016 to the Sub-Group along with the assumptions and historical values used in the computation.
- b) Further deliberation on computation of TRM, methodology and procedure to be adopted for computation of TTC and assessment of spatial distribution of load to various nodes.
- c) Report(s), as discussed above, would be submitted by POSOCO/CTU/RPCs on the status of implementation of the earlier decisions of NRCE.
- d) CTU would provide the terminal equipment ratings to POSOCO and CEA. A survey of ISTS Line and Equipment ratings should be conducted, mainly for 400 kV.
- e) Utilization of LTA granted for solar power plants to be explored in the next meeting. Members are requested to present their views/observations to the member convener of the Sub-Group.
- f) RPCs to take up the issue related to using ICT tap changer for voltage control in OCC meetings and forward the outcome to the member convener, sub-group.
- g) Outage treatment of FSC for contingencies to be taken up in next meeting

**(D) Consultancy Assignment to Powertech Labs to review Transmission System Transfer Capability & review of Operational and Long Term Planning**

A copy of the Minutes of the Meeting in CEA with CTU & POSOCO held on 20/10/16 on the matter is at **Annexure-II**.

All the Members of the NRCE are requested to kindly make it convenient to attend the meeting.

भवदीय / Yours faithfully,

Encl: as above

  
21/11/2016  
(बी.सी.मल्लिक / B.C.Mallick)

Chief Engineer & Member Secretary, NRCE

**List of Addressee**

1. Member (GO&D), CEA, Sewa Bhavan, R.K.Puram, New Delhi – 110 066
2. Chief Operating Officer (CTU), PGCIL, Saudamini, Plot No.2, Sector-29, Gurgaon-122 001.
3. Member Secretary, NRPC, 18-A, Shaheed Jeet Singh Marg, New Delhi-110 016.  
E-mail: [ms-nrpc@nic.in](mailto:ms-nrpc@nic.in)
4. Member Secretary, SRPC, 29, Race Course Cross Road, Bengaluru-560 009.  
E-mail: [mssrpc-ka@nic.in](mailto:mssrpc-ka@nic.in)
5. Member Secretary, WRPC, Plot No.F-3, Opposite SEPZ Complex, MIDC Area, Marol, Andheri(East), Mumbai-400 093. E-mail-[ms-wrpc@nic.in](mailto:ms-wrpc@nic.in)
6. Member Secretary, ERPC, 14 Golf Club Road, Tollygune, Kolkata-700033.  
E-mail: [mserpc-power@nic.in](mailto:mserpc-power@nic.in)
7. Member Secretary, NERPC, NERPC Complex, Dong Parmaw, Lapalang Shillong-793006. E-mail: [ms-nerpc@gov.in](mailto:ms-nerpc@gov.in)
8. Director (Operations), Tamilnadu Transmission Corporation Limited (TANTRANSCO), Maaligai, 144, Anna Salai, Chennai-600 002. E-mail: [directoropn@tnebnet.org](mailto:directoropn@tnebnet.org)
9. Director (Operations), West Bengal State Electricity Transmission Co.Ltd (WBSETCL), Vidyut Bhawan, Bidhannagar Block – DJ Sector-II, Kolkata-700 091,  
E-mail- [imanasbanerjee@gmail.com](mailto:imanasbanerjee@gmail.com).
10. Director(Operations), Maharashtra State Electricity Transmission Co.Ltd. (MSETCL) Prakashganga Plot NO. C-19, E-Block, Bandra-Kurla Complex, Bandra(E), Mumbai-400 051. E-mail: [dirop@mahatransco.in](mailto:dirop@mahatransco.in)
11. Director (Operation), UP Power Transmission Corporation Limited, Shakti Bhawan, 14, Ashok Marg, Lucknow – 226 001. E-mail: [director\\_op@upptcl.org](mailto:director_op@upptcl.org)
12. Managing Director, Assam Electricity Grid Corporation Ltd.( AEGCL), Bijulee Bhawan, 1<sup>st</sup> Floor , Paltan Bazar, Guwahati-781001. E-mail:[golapkumar@rediffmail.com](mailto:golapkumar@rediffmail.com)
13. Prof. S.C. Srivastava, Dept. of Electrical Engineering IIT Kanpur, Kalyanpur. Kanpur- 208016, E-mail [scs@iitk.ac.in](mailto:scs@iitk.ac.in)

14. Dr. Abhijit A. Abyankar, Associate Professor, Electrical Engg. Department, IIT Delhi., E-mail: [abhyankar@ee.iitd.ac.in](mailto:abhyankar@ee.iitd.ac.in)
15. Chief Engineer (PSP&A-I), CEA, Sewa Bhavan, New Delhi- 110066
16. Chief Engineer (PSP&A-II), CEA, Sewa Bhavan, New Delhi -110066 – **with a request to apprise the status of work of the subgroup to NRCE**
17. Shri Vikas Saxena, President- Power Systems, Engg &PMG, Lalitpur Power Generation Co. Ltd., E-mail: [vsaxena58@gmail.com](mailto:vsaxena58@gmail.com), [vsaxena@lpgcl.com](mailto:vsaxena@lpgcl.com)
18. Shri Satyajit Ganguly, Vice President- BD & Regulatory, Sesa Sterlite Ltd. (APP representative) E-mail: [satyajit.ganguly@vedanta.co.in](mailto:satyajit.ganguly@vedanta.co.in)

**Special Invitees:**

1. CEO, POSOCO,B-9, Qutab Institutional Area, Katwaria Sarai, New Delhi-110016. E-mail: [sksoonee@posoco.in](mailto:sksoonee@posoco.in)
2. Chief Engineer (GM), CEA, Sewa Bhavan, New Delhi- 110066
3. Superintending Engineer (O), NRPC, 18A Katwaria Sarai, New Delhi -110016 – **with a request to apprise the status of work of the Subgroup to NRCE.**

Copy for kind information to:

1. Chairperson, CEA, Sewa Bhavan, New Delhi -110 066
2. Additional Secretary, Ministry of Power, Shram Shakti Bhavan, Rafi Marg, Sansad Marg Area, New Delhi -110 001
3. Joint Secretary(R&R), Ministry of Power, Shram Shakti Bhavan, Rafi Marg, Sansad Marg Area, New Delhi - 110 001
4. CMD, Power Grid Corporation of India Ltd., Saudamini, Plot No.2, Sector-29, Gurgaon-122 001. E-mail: [powergridindia.com](mailto:powergridindia.com)
5. Director (Transmission), Tamilnadu Transmission Corporation Limited (TANTRANSCO), NPKRR Maaligai, 144, Anna Salai, Chennai-600 002. E-mail: [dirtp\\_tantransco@tnebnet.org](mailto:dirtp_tantransco@tnebnet.org)
6. Managing Director, West Bengal State Electricity Transmission Co.Ltd (WBSETCL), Vidyut Bhawan, Bidhannagar Block – DJ Sector-II, Kolkata-700 091. E-mail: [cmd@wbsedcl.in](mailto:cmd@wbsedcl.in)
7. CMD, Maharashtra State Electricity Transmission Co.Ltd. (MSETCL) Prakashganga Plot NO. C-19, E-Block, Bandra-Kurla Complex, Bandra(E), Mumbai-400051. E-mail: [cetrpl@mahatransco.in](mailto:cetrpl@mahatransco.in)
8. CMD, UP Power Transmission Corporation Limited, Shakti Bhawan, 14, Ashok Marg, Lucknow -226 001. E-mail: [cmd@upptcl.org](mailto:cmd@upptcl.org)

**Gist of Deliberations in the Meetings of NRCE Subgroup for Preparation of “Reliability Standard of Protection System and Communication System” for Indian Power System**

**First Meeting held on 3<sup>rd</sup> June 2016:**

- (i) It was decided that Protection Standard may be taken up first followed by the Communication Standard.
- (ii) Technical Standards of CEA such as Technical Standards for Construction of Electrical Plants and Electric Lines and Technical Standards for Connectivity to the Grid cover several aspects related to Protection. These standards carry force of law. Based on analysis of NERC protection standards or otherwise, if need is felt for amendment to CEA’s technical standards, this group can make appropriate recommendation. The preparation of a new Technical Standard solely for covering protection related aspects may not be desirable as it would lead to duplicity and confusion.
- (iii) Some of the provisions of NERC protection standards are already incorporated in various CEA standards regulations viz. NERC code No. PRC-002-1, 003-1,004-3 are having matching provisions in CEA grid Standards.
- (iv) A representative from NTPC Ltd for finalizing recommendations of Protection related issues and one officer from Power Communication and Development (PCD) Division of CEA while deliberating on Communication Standards may be co-opted.
- (v) Broad areas of Protection Standards which need further deliberations in detail are as follows:
  1. Definition of Protection System its Philosophy and aspects related to Protection Coordination
  2. Regional Disturbance Monitoring and Reporting
  3. Protection mis-operation Reporting and monitoring of corrective action
  4. Reporting of Special Protection System Misoperation
  5. Need for Sudden Pressure Release Relay
  6. Need for voltage collapse prediction system
  7. Transmission and Generation Protection System Maintenance and Testing
  8. Special Protection System Review Procedure
  9. Transmission Relay Loadability
  10. Generator Relay Loadability

11. Relay Performance During Stable Power Swings
12. Time synchronization issues
13. DC system – Testing procedure
14. Minimum event list for event logging facility
15. Compliance Monitoring

**Second Meeting held on 04<sup>th</sup> November 2016:**

Documentation on the following is being carried out:

1. Protection System Philosophy and aspects related to Protection Coordination
2. Regional Disturbance Monitoring and Reporting

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**Minutes for Meeting in CEA with CTU & POSOCO on 20/10/16 regarding Consultancy Assignment to Powertech Labs to review Transmission System Transfer Capability & review of Operational and Long Term Planning**

1. CTU informed that a tentative schedule for presentation and training for the six Tasks of the consultancy assignment has been submitted by Powertech Labs Inc. (M/s PLI) under the ongoing consultancy contract. The same is enclosed at **Annexure-I**. The schedule submitted by them is in two phases, i.e. Phase I from 15<sup>th</sup> November 2016 to 8<sup>th</sup> December 2016 and Phase II from 16<sup>th</sup> January 2017 to 7<sup>th</sup> February 2017. The Phase-I Schedule includes – (i) presentations on Task I, II & III, and (ii) training for Task I & II for three regions viz. ER, NR & NER. Phase II schedule includes training for Task I& II for remaining two regions viz. WR & SR and presentations on Task IV, V & VI.
2. It was informed that M/s Powertech Labs Inc. has made certain changes in the duration of presentation & training. These are as given below:

Task Name	Days for Presentation		Days for Training in each RPC		Days for Review meeting	
	As per Contract Agreement	Proposed by M/s PLI	As per Contract Agreement	Proposed by M/s PLI	As per Contract Agreement	Proposed by M/s PLI
Task I	2	1	3	2	No review meeting envisaged	
Task II	2	1	3	3	2	-
Task III	2	2	No training envisaged		No review meeting envisaged	
Task IV	2	1	3(RPC) +5(for CEA,CTU & POSOCO)	-	3	-
Task V	2	2	No training envisaged		No review meeting envisaged	
Task VI	2	2	No training envisaged		No review meeting envisaged	

3. Based on the discussion during the meeting, it was proposed that there should be a one-day presentation on 15<sup>th</sup> November 2016 at NRPC, New Delhi to the Grid Study Committee covering Task-I, II & III, and detailed presentations on the three Tasks spread over for four days from 16<sup>th</sup> November to 19<sup>th</sup> November 2016. The presentations for Task-I & II may be held on 16<sup>th</sup> & 17<sup>th</sup> November 2016 respectively and the presentation for Task- III may be held on 18<sup>th</sup> & 19<sup>th</sup> November 2016. Accordingly, it was agreed that the total duration of presentation for Task I, II & III would be for five days instead of six days as given in the contract agreement.
4. Regarding reduction of duration by 1 day, in training for Task I, it was stated that M/s PLI during interaction had informed that training for 3 days is not required as it covers only methodology and international practices. Same was deliberated and it was agreed that the request of M/s PLI for two-day training for Task I instead of 3 days as given in the contract agreement may be accepted.

5. It was also informed by CTU that the payment for the agreed man-days would be reduced as per above revision under Phase I.
6. Further, POSOCO informed that the schedules of ERLDC & NLDC may be interchanged and the same was agreed.
7. Regarding the provision of 2-day review meeting of Task II in the Contract Agreement, it was discussed that since a review meeting for Task II has already taken place in Canada, it was agreed that the same is not required now.
8. For Phase-II schedules starting 16<sup>th</sup> January '17, it was agreed to be finalized later.
9. During the meeting, inputs required for 2030 scenario were also discussed. CEA proposed to build upon the 2021-22 peak case (approximate All India load 225GW) to 2030 peak case with approximate all India load of 330GW (considering 5% load growth in 8 years). The same was agreed. For transmission network, it was agreed to truncate the lower voltage level transmission network & shift the loads and generation to 400kV level. Based on above, files are to be prepared for 2030 scenario. It was also decided to include possible Hydro projects in Nepal and Bhutan for 2030 in the simulation.
10. Regarding double / extreme contingencies, it was agreed to follow the CEA's Planning criteria on transmission.
11. Further, regarding new technologies, it was suggested that use of Ultra High Voltage 1200kV transmission, Fault Current Limiters/international practices for limiting short circuit level, VSC/HVDC, PST etc. may be included by the consultant in the Task IV report. The consultant may include other technologies that are feasible by 2030. The new technologies may also be in the field of transmission planning, construction of transmission lines and substations, O&M, asset management, grid operation.
12. It was also agreed that a meeting may be held during the next week for adoption of Task I & II draft reports after incorporating any changes as would be finalized after discussion by CEA, CTU & POSOCO.

**Participants:**

- 1) Sh Pardeep Jindal, Chief Engineer (PSP&A-II), CEA
- 2) Ms. Shivani Sharma, Deputy Director, CEA
- 3) Sh. N. Nallarasana, Dy. General Manager (System Operation), NLDC, POSOCO
- 4) Sh. Mukesh Khanna, Asstt. General Manager (CTU-Planning), POWERGRID
- 5) Ms. Rashmi Pant Joshi, Dy. Manager(CTU-Planning), POWERGRID