सत्यमेव जयते

भारत सरकार
Government of India
विद्युत मंत्रालय
Ministry of Power
उत्तर क्षेत्रीय विद्युत समिति
Northern Regional Power Committee

सं.-उक्षेविस/प्रचालन/106/01/2019/Nil दिनांक: 04 /03/2019

विषय: **प्रचालन समन्वय उपसमिति की 157 वीं बैठक का कार्यसूची।**
Subject: **Agenda of 157th OCC meeting.**

प्रचालन समन्वय उप-समिति की **157**वीं बैठक **07-03-2019** को **10:30** बजे से उ.क्षे.वि.स. सचिवालय, नई दिल्ली में आयोजित की जाएगी । उक्त बैठक की कार्यसूची उत्तर क्षेत्रीय विद्युत समिति की वेबसाइट http://www.nrpc.gov.in पर उपलब्ध है ।

157th meeting of the Operation Co-ordination sub-committee will be held on **07-03-2019** at **10:30 am** at NRPC Secretariat, New Delhi. The agenda of this meeting has been up-loaded on the NRPC web-site http://www.nrpc.gov.in.

The status of various points under follow up issues from previous OCC meetings may please be furnished prior to the meeting for ensuring healthy discussions in the meeting. You are kindly request to attend the meeting and in case if not able to attend then one level junior may be nominated to attend the meeting with proper briefing of the agenda items under discussions.

Sd/-

(सौमित्र मजूमदार)
अधीक्षण अभियंता(प्रचालन)

सेवा में : प्रचालन समन्वय उपसमिति के सभी सदस्य ।
To: All Members of OCC

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Part-A

1. Confirmation of Minutes:

The minutes of the 156th OCC meeting held on 11.02.2019 and 12.02.2019 at New Delhi were issued vide letter of even number dated 01.03.2019.
No comment on the minutes has been received from any of the members till date.
The sub-committee may kindly confirm the Minutes.

2. Maintenance Programme of Generating Units and Transmission Lines:

2.1. Maintenance Programme for Generating Units.

The proposed maintenance programme for Generating Units for the month of April, 2019 will be discussed on 11.03.2019 at NRPC office, New Delhi.

2.2. Outage Programme for Transmission Elements.

The proposed Outage programme of Transmission lines for the month of April, 2019 shall be discussed on 11.03.2019 at NRPC office, New Delhi.

3. Planning of Grid Operation:

3.1. Anticipated Power Supply Position in Northern Region for April, 2019

The Anticipated Power Supply Position in Northern Region for March, 2019 is enclosed at **Annexure 3.**
SLDCs are requested to inform/updated their estimated power supply position for April, 2019 and measures proposed to be taken to bridge the gap between demand & availability, as well to dispose of the surplus, if any, in the prescribed format.

4. Information about variable charges of all the generating units in the Region.

The variable charges details for different generating units are available on the Merit Order Portal.

All utilities are requested to confirm if the process of Scheduling is being done as per Merit Order Despatch and in case of variations the reasons may be highlighted.

5. Reactive compensation at 220 kV/400 kV level

5.1 In the 38th TCC & 41st NRPC following elements in NR were approved:

a) 500 MVAr TCR at 400 kV bus at Kurukshetra S/S of Powergrid.

b) 30 no. 220 kV bus reactors at 220 kV sub-stations and 18 no. 400 kV bus reactors at 400 kV sub-stations subject to the availability of space.

5.2 POWERGRID:

500 MVAr TCR at Kurukshetra: Award placed in January 2019 with completion schedule of 22 months.

5.3 DTL:

The updated status of the reactors as received from DTL is placed below:

S. No.	Sub Station	Voltage level (kV)	Reactor (MVAr)	Status

1	Peeragarhi	220	1x50	PR No 1100002017 Raised.
2	Mundka	400	1x125	Scheme is being placed before BOD, DTL for approval
		220	1x25	
3	Harsh Vihar	220	2x50	Board preamble sent for financial vetting & approval. Scheme shall be placed before BOD, DTL.
4	Electric Lane	220	1x50	Feasibility report received from SS&LM division and site revisited. Accordingly, the Scheme is under preparation.
5	Bamnauli	220	2x25	Under financial concurrence
6	Indraprastha	220	2x25	Under financial concurrence
TOTAL			**450**	

DTL may kindly update on any further progress made.

5.4 PSTCL:

PSTCL representative had earlier informed that for 400 kV bus reactor at Dhuri substation and 220 kV bus reactors at Dhuri and Nakodar substations, the Technical bids had already been opened and Price bids were put on hold due to pending PSDF approval.

As per the conditions of PSDF funding, it was decided that the LOA would be placed only after approval for PSDF funding. However, the delay in obtaining the PSDF funding approval has delayed the tendering process and the Bidders were now refusing to extend their Bid validity which could lead to jeopardizing the whole process only because of delay in approval of PSDF funding.

PSTCL may kindly update.

5.5 Uttarakhand:

125 MVAr reactors at Kashipur: Technical bid has been opened and is under evaluation.

PTCUL may kindly update.

5.6 Rajasthan:

The status as updated in the 155th OCC meeting is placed below:

Item	Background	Status
3 Nos. each of 25 MVAr (220 kV) reactors for Akal, Bikaner & Suratgarh.	DPR submitted for PSDF funding on 27.04.2018. Reply on observations made by NLDC submitted on 28.07.2018	Approved in the Monitoring Committee of PSDF. Minutes of the Monitoring Committee meeting to be issued.
1 No. of 25 MVAr (220 kV) reactor for Barmer & 125 MVAr (400 kV) reactor for Jodhpur, included in 450 MVAr (13x25 + 1x125 MVAr) proposal	Revised DPR for 450 MVAr approved Reactor after separating STATCOM was submitted vide letter dtd. 12.10.2018 to POSOCO for approval.	Clarifications have been sought by Techno-Economic Sub Group of PSDF from Rajasthan.

Rajasthan may kindly update.

6. System Study for Capacitor Requirement in NR for the year 2019-20

38th TCC & 41st NRPC meeting: NRPC approved that the capacitor requirement study of NR shall be conducted at 11/33 kV level from CPRI so as to obtain the true requirement of capacitor for FY 2018-19.

6.1 **39th TCC and 42nd NRPC** approved the Techno Commercial offer of CPRI at **Rs. 32 lakhs (Rs. 20 lakhs for previous study and Rs. 12 lakhs for additional assignment) excluding taxes** for conducting the capacitor study. In the meeting the format for data submission was shared with the members and they were requested to ensure timely submission of the data so that the study may be carried out in the stipulated time frame.

6.2 In the **150th OCC meeting**, members expressed concerns on the nature of the format and submitted that the format being lengthy would require some time for better understanding of the format and submission of data accordingly.

6.3 To address the concerns of the members of OCC forum, in the **151st OCC meeting**, representative of CPRI made a detailed presentation explaining the format in the meeting and based on the inputs received from the members, the format has been revised and has already been sent to the respective SLDC's through e-mail dated 24.09.2018. CPRI has also shared a video of the presentation explaining the format which can be viewed on Youtube at https://youtu.be/QTXx7owPF3g.

6.4 Members were also requested to initially fill the data format for any one 220 kV or 132 kV substation and send it to CPRI (manoharsingh@cpri.in) to check its suitability for utilization in carrying out the study and further action.

6.5 **152nd OCC meeting:** No progress has been made so far for submission of data. All the utilities were again requested to make efforts to do the needful.

6.6 **40th TCC & 43rd NRPC meeting:** Members were requested to expedite submission of the data to CPRI in the format prescribed for studies to be conducted for Capacitor requirement in NR for the year 2019-20.

6.7 **153rd OCC meeting:** MS, NRPC expressed his concerns as no data in the specified format has been received from any of the state even for a single substation which was desired to verify its suitability for utilization in carrying out the capacitor study.

6.8 Representative of Haryana stated that they had submitted data to which the representative of CPRI replied that the data submitted by Haryana was not in the format as decided in the 151st OCC meeting which was forwarded to all the utilities via e-mail dated 24.09.2018.

6.9 Representative of Rajasthan SLDC stated that the load data at 11 kV substations was not being maintained. Therefore, it was not possible for them to furnish the same.

6.10 EE (O), NRPC and representative of JVVNL stated that the load data was maintained at 11 kV sub-station and the same may be made available.

6.11 Representative of Rajasthan SLDC stated that the same would be verified and the data shall be submitted at the earliest.

6.12 The issue of non-submission of data for system study of capacitor requirement in NR for the year 2019-20 has been taken up with the highest management of DISCOMs, STUs and SLDCs. The letter regarding the same dated 06.11.2018 is enclosed at Annexure – Agenda item no 7 of the Agenda of the 154th OCC meeting, for reference.

6.13 **154th OCC meeting**: SE (O) stated that the matter is being pursued with the top management of the DISCOMs (refer Annexure – Agenda item no 7 of the Agenda of the 154th OCC meeting) & follow-up is also being done. He stated that all SLDCs should take up the issue with their respective DISCOMs for submission of the data as desired at the earliest.

6.14 155th OCC meeting: MS, NRPC stated that the sample data as received from most of the utilities were not in line as per the requirement of CPRI and the same has also been informed through mail by CPRI to the respective utilities. He further stated that due to non-availability of data in proper format, the study could not be performed and low voltage profile issue may be encountered in future.

6.15 Representative of DTL stated that they have incorporated the changes as suggested by CPRI and has again submitted the same to CPRI. Once approved, DTL would start compiling data for their whole network and submit the same to CPRI.

6.16 156th OCC meeting: All utilities were advised to expedite the collection of data, in the absence of which the study may not be got conducted.
All utilities are requested to update.

7. Phase nomenclature mismatch issue with BBMB and interconnected stations

7.1 The Protection Sub-Committee while discussing multiple elements tripping at 400/220/132 kV Dehar HEP of BBMB in its 34th meeting held on 21.04.2017 recommended inter-alia that BBMB should modify phase sequence nomenclature at Dehar. The issue was further deliberated in the 138th OCC meeting held on 23.08.2017, wherein it was observed that nomenclature of phases at BBMB end has inadvertently been marked as below:

Phase of the grid	Corresponding nomenclature of the phase at BBMB end
R Phase	B Phase
Y Phase	R Phase
B Phase	Y Phase

BBMB was asked to rectify the nomenclature at their end accordingly.

7.2 However, BBMB raised concern that the rectification can't be done in one go, and coordination would be required from all the concerned utilities to carry out this activity and requested NRPC to form a committee comprising of BBMB and its partner states, utilities with which BBMB has interconnection, NRPC Secretariat and POWERGRID for the same.

7.3 NRPC in its 41st meeting held on 28th February, 2018 approved the proposed formation of the committee and advised BBMB to rectify phase sequence nomenclature within six months.

7.4 BBMB drew a draft action plan which was duly deliberated by the Committee in its 1st meeting held on 04.06.18. The action plan was circulated to all the concerned utilities for - their comments and concurrence. The execution of the action plan was tentatively planned during month of November-December, 2018.

7.5 HPSEB and PSTCL agreed with action plan, however, PSTCL was of the view that 400 kV Dehar-Rajpura line is owned by PGCIL and hence the work is to be executed by them. Comments on the action plan were also received from NTPC and POWERGRID. BBMB has agreed with the comments from NTPC and has furnished their reply on the comments of POWERGRID.

7.6 The reply of BBMB vis-à-vis the comments of POWERGRID were deliberated in the 151st OCC meeting wherein members were of the view that reply of BBMB was generally in order. However, POWERGRID representative stated that the matter pertains to NR-I and NR-II region of POWERGRID and final decision regarding the same has to be taken up at the level Executive Directors of respective regions.

7.7 Accordingly, the matter was taken up vide letter of even number dated 07.10.2018 for POWERGRID consent to the action plan. However, reply of the same is still awaited.

7.8 152nd OCC meeting: POWERGRID representative assured that the issue will be resolved with BBMB.

7.9 SE (O) requested POWERGRID to give their consent at the earliest so as the BBMB could execute the work in the upcoming months of November & December as per the decision of NRPC.

7.10 40th TCC & 43rd NRPC meeting: In the meeting POWERGRID stated that they have reservation regarding the action plan submitted by BBMB, as for a single circuit line it may not be optimal plan to change the Jumper configuration in view of requirement for long shut down & material. He further stated that a similar issue was encountered in Rajasthan wherein same problem was mitigated for a Double circuit line. POWERGRID was requested to submit all their reservations in writing, highlighting the issues which may be encountered at the time of implementation of above. In the meeting it was emphasised that the work should be completed in the lean period of November-December 2018.

7.11 153rd OCC meeting: POWERGRID updated that the site visit is planned shortly to resolve the issue. As desired in the 43rd NRPC meeting POWERGRID submitted all their reservations in writing (Annexure 8 of MoM of 153rd OCC meeting). POWERGRID was once gain requested to resolve the matter immediately so that the work can be executed by BBMB in the lean period itself. BBMB representative also requested for the same as once the clearance from POWERGRID is received thereafter also the matter has to be got approved in their Protection Committee.

7.12 154th OCC meeting: POWERGRID submitted the details (Annexure 8 of the MOM of the 154th OCC meeting) of the issues/ difficulty which would be faced while executing the rectification of phase nomenclature mismatch. POWERGRID intimated that the site visit had been made by their site officials.

7.13 MS, NRPC stated that the rectification of the phase nomenclature mismatch is very important and it should be completed during the lean period itself.

7.14 After deliberations it was decided that a joint visit by POWERGRID, BBMB, NRLDC and NRPC would be made on 15/01/2019 so as to list out the difficulties that would be faced during rectification.

7.15 **155th OCC meeting:** Due to the schedule of OCC meeting on 16th and 17th January, the visit could not be carried out. In the meeting, it was decided that the same may be tentatively done on 23rd and 24th January 2019. The visit is again proposed on 14th & 15th February 2019.

7.16 **156th OCC meeting:** BBMB and POWERGRID were advised to mutually decide the date and conduct the visit at the earliest.

7.17 **POWERGRID & BBMB may kindly update.**

8. Follow up of issues from previous OCC Meetings – Status update:

8.1 The updated status of Agenda items is enclosed at **Annexure 8. All utilities are requested to regularly update the status.**

9. Status of FGD installation vis-à-vis installation plan at identified TPS.

9.1 The updated status of FGD installation is attached at **Annexure-9. All utilities are requested to regularly update the status.**

10. LVRT compliance by wind generators.

10.1 The CEA (Technical Standards for Connectivity to the Grid) Amendment Regulations, 2013 stipulates that wind generating stations connected at voltage level of 66 kV and above shall remain connected to the grid when voltage at the interconnection point on any or all phases dips up to specific levels and for specific periods. LVRT is the capability of the generating unit to operate through the periods of lower grid voltage by boosting the terminal voltage of the point of connection of the wind machine when there is a fault at the remote location so that transient stability support is provided.

10.2 CERC has already directed all WTGs of capacity equal to or more than 500 kW except Stall Type WTGs to implement LVRT, after the issue of necessary regulation/clarification by CEA. CERC has also desired that all WTGs of capacity equal to or more than 500 KW except 'Stall Type WTGs' to comply with LVRT, for which SERCs may consider to allow the cost of retrofitting WTGs with LVRT under the provision of 'Change in Law' in the respective PPAs. With regard to monitoring of the installation and performance of LVRT installed on existing WTGs, CERC has directed SLDCs to prepare quarterly reports and submit it to RPCs. RPCs are directed to validate the reports submitted by SLDCs in consultation with RLDCs and report any deficiency and non-compliance to the Commission in accordance with law.

10.3 Many wind generations operate without LVRT/FRT feature thereby adversely responding at low voltage either due to high load condition at wind pockets or any fault condition in different parts of the grid and becomes a source for grid incident. The installed capacity having LRVT, their setting is not uniformly matching with the provisions of the Central Electricity Authority (Technical standards for connectivity to the Grid) Regulation, 2007 as amended from time to time.

10.4 As LVRT are not installed in many of the wind turbines in State of Rajasthan, the issue is being regularly raised in the various meetings of TCC/NRPC and OCC, so far without any result. In 38th TCC/41st NRPC meeting, NRPC directed Rajasthan to issue a notice to all the LVRT non-compliant wind generators specifying a time period within which they need to get the LVRT compliance beyond which they would be constrained to deny scheduling to these generators. In 145th OCC meeting, RRVPNL intimated that MNRE had directed WTG manufacturers to apply for LVRT testing by 15.03.2018 along with the submission of an affidavit for CEA Technical standards compliance and submission of Bank Guarantee of Rs. 1 Crore per model (to be returned after the submission of certificate of compliance to CEA Technical standards).

10.5 In 148th OCC meeting, SLDCs were requested to issue notice to all not compliant Wind Turbine generators. Rajasthan SLDC representative confirmed that notice has been served. In the 149th OCC meeting, Rajasthan representative intimated that a meeting of wind turbine manufacturers was held on 05.07.2018 by RRVPNL to sort out the issue of LVRT. It was also informed that 638 generators are LVRT complaint & 106 do not require as per the regulation and 2641 generators need to be LVRT compliant. The capacity of generators that are non–compliant is 3019 MW. It was also informed that the cost of installing LVRT is about Rs. 25-40 lakh per generator for which the generators will have to make arrangements. Subsequently, meetings with WTGs were held on 23.07.2018 and 09.10.2018 by RRVPNL. It was informed that M/S Suzlon and Inox have filed a petition for waiver of installation of LVRT on account of the additional cost involved. Further, in a meeting held on 23.10.2018 in NRPC Secretariat with the WTGs to explore GSS/PSS level solution like STATCOM and other alternatives. WTGs were requested to take up for "Pass-through tariff" under "change in law" with SERC. CEA representative proposed that SLDCs may file a petition with respective SERC indicating problem being faced by the WTGs in LVRT installation. In the 154th OCC meeting, Representative of Rajasthan SLDC informed that petition to be filled to SERC was put up for approval; but the management decided that matter may be taken up by the STU in view of the provision of B.3 of CEA (Technical Standards for Connectivity to the Grid) Amendment Regulations, 2013. SLDCs were requested in the 155th OCC meeting to comply with the CERC order on the LVRT issue by submitting quarterly report.

10.6 In the 156th OCC meeting, all SLDCs were once again requested to submit quarterly reports on installation & performance of LVRT on existing WTGs to NRPC, as per the order dt. 05.01.2016 of CERC.

10.7 **RRVPNL is requested to submit the** quarterly reports on installation & performance of LVRT on existing WTGs to NRPC.

11. System Protection Scheme (SPS) in NR

11.1 Revised System Protection Scheme (SPS) for 765 kV Agra-Gwalior line:

11.1.1 154th OCC meeting: POWERGRID representative informed that modifications related to CB ON/OFF status have been completed at both Agra and Gwalior end. He told that DTPC installation has been completed and the end to end testing has also been done for 20 links out of 21. He further stated that end to end testing is remaining only for Bhiwadi-Heerapura-Bhilwara-Chittorgarh link. He further requested the concerned states to terminate the links at the designated feeder on which the load shedding is required to be done. He told that end connections with Trip relay of the feeder to be done by States. He assured that as targeted, the mock testing can be carried out in 01/2019. Representative of NRLDC requested POWERGRID to coordinate with states and keep NRPC/NRLDC in loop for early completion of the scheme. MS NRPC requested POWERGRID to coordinate with nodal officers of the concerned states for early termination of the links at their end.

11.1.2 In **155th OCC meeting**, POWERGRID representative stated that the cable has already been laid down to the Protection panel in all substations and only the terminal connection needs to be done which has to be done by the utility concerned. Once the terminal connections are done, mock testing of the scheme can be done. Delhi, Haryana, Rajasthan, Punjab and UP were advised to expedite. POWERGRID was requested to coordinate with nodal officers of the concerned states for early termination of the links at their end.

11.1.3 POWERGRID was advised to pursue with the concerned utilities and get the work done at the earliest so that mock testing of the scheme may be conducted in the first week of February 2019.

11.1.4 156th OCC meeting: POWERGRID representative informed that states were intimated via e-

mail to arrange for terminating the trip cable to respective feeders. He told that only Delhi has confirmed the termination of trip cable. He further stated that it was being coordinated with all nodal officers. Haryana, Rajasthan, Punjab and UP were requested to expedite the termination of the trip cables to respective feeders.

11.1.5 POWERGRID was again requested to follow up with the concerned utilities for early completion of scheme so that mock testing of the scheme may be conducted in the February 2019.

11.1.6 POWERGRID may kindly update the status.

11.2 SPS for ICTs at 765 kV Unnao sub-station:

11.2.1 153rd OCC meeting: UPRVUNL updated that the work is under progress. BHEL had given a list of MAX-DNA Hardware to be procured by department. The offer stands received and procurement is under process. He further added that BHEL is developing the software logic of the SPS. As on date it is expected that the work would be completed by December 2018

11.2.2 154th OCC meeting: UPRVUNL updated that all the hardware required has been arranged at site. BHEL Engineer will be available at site from 22/12/2018 to finalize the design of logic in 15 days. Thereafter implementation will be done in next 7-8 days. The implementation of logic is expected to be completed by 1/2019.

11.2.3 155th OCC meeting: UPRVUNL in its letter dated 15.01.2019 has intimated that all the hardware required has been arranged at site. BHEL engineer will be available in the 3rd week of January. The design of SPS logic is under process with BHEL and the implementation of SPS is expected to be completed by January 2019.

11.2.4 156th OCC meeting: UPRVUNL in its letter dated 11.02.2019 has intimated that all hardware has been arranged at site. The BHEL engineer will be available w.e.f. 20th Feb 2019 to 24th Feb, 2019. The SPS implementation is expected to be completed by Feb, 2019

11.2.5 UPRVUNL may kindly update the status.

11.3 SPS for Kawai – Kalisindh - Chhabra generation complex:

11.3.1 **152nd OCC meeting:** RRVPNL representative submitted a letter from SE (Procurement-I), RVPN, Jaipur Annexure-XII of the MOM of the 152nd OCC meeting, vide which it has been intimated that the Technical specification for implementation of Automatic load shedding scheme under SPS for Kawai Kalisindh generation complex is under approval. Further, it was intimated that the contract will be awarded within 4-5 months and complete implementation of above scheme may take further 6-7 months. SLDC Rajasthan representative confirmed that Chabra STPS units have also been wired to the SPS.

11.3.2 155th OCC meeting: RRVPNL representative stated that the tender would be floated by the end of February 2019.

11.3.3 156th OCC meeting: Rajasthan vide letter dated 06.02.2019 has requested to review SPS scheme for Kawai – Kalisindh - Chhabra generation complex upon commissioning of 400 kV CTPP-Anta feeder. The agenda has been deliberated in detail at point no. 1 Part-B NRLDC.

11.3.4 **RRVPNL may update.**

12. Automatic Demand Management System

12.1 Clause 5.4.2 (d) of IEGC mandates for implementation of the state-of-the-art demand management schemes for automatic demand management to reduce overdrawal from the gird. The responsibility for the implementation of the same has been entrusted on SLDCs/ SEB/ DISCOMs.

12.2 CERC in its order in **petition No. 5/SM/2014** had granted time till **31.06.2016** to the concerned SLDCs/ SEB/ DISCOMs to implement ADMS, failing which action under Section 142 of the Act for non-compliance of the Regulation 5.4.2 (d) of the Grid Code and order of the Commission. **RLDCs were also directed to submit the report in this regard to the commission by 31.08.2016.**

The issue of implementation of ADMS in NR is being deliberated regularly in the OCC meetings. The status of implementation of ADMS in states of NR is:

State/ Utility	Status
Punjab	**Not fully implemented.** At SLDC level, remote tripping for 96 locations is operational. At 11 kV feeder level, ADMS is to be implemented by Distribution Company.
TPDDL	**Fully implemented.**
Rajasthan	**Under implementation.** LoA placed on 12/12/2018 with an execution period of 18 months for ADMS at the level of 33 kV feeders at EHV Substation of RVPN under SCADA / EMS part of project. ADMS functionality at 11 kV feeders from 33/11 kV substation is under the jurisdiction of the Discoms and matter is being perused with discoms authorities
UP	**Not fully implemented.** Remote operation of 132 kV feeders under ADMS is operational. For the down below network, issue taken up with the DISCOMs.
Haryana	**Not implemented.**

12.3 In the 156th OCC meeting representative of Haryana SLDC and Haryana DISCOM were not sure about the responsibility for implementing the ADMS scheme to which it was clarified that according to the IEGC clause 5.4.2 (d), it was the joint responsibility of SLDC/SEB/DISCOMs for the implementation of ADMS scheme.

12.4 All the utilities are requested to update the status of implementation of ADMS so as to avoid any action by the commission under Section 142 of the Electricity Act for non-compliance of IEGC.

13. Status of implementation of recommendations of Enquiry Committee on grid disturbances on 30 & 31.7.2012

13.1 The utilities were requested to update the information as per the letter enclosed at Annexure 14 of the agenda of 156th OCC. In 155th OCC meeting, it was informed that in 8th NPC meeting held on 30th Nov, 2018 the non-submission of this information was highlighted and a serious concern was shown regarding the same. The status of information received is as given below:

Submitted		Not Submitted	
NTPC (NCR)	POSOSCO	Uttar Pradesh	Delhi
BBMB	NHPC	Himachal Pradesh	UT of Chandigarh
Punjab	HPGCL (Panipat TPS)	SJVNL	Jammu and Kashmir

Rajasthan	NPCIL	NTPC (NR-HQ)	
THDC	POWERGRID (NR-1 & NR-2)	POWERGRID (NR-3)	

13.2 All Utilities are requested to kindly update the status.

14. Planning, procurement and the deployment of Emergency Restoration System.

14.1 The updated status as per the 156th OCC meeting is enclosed as Annexure –14.

14.2 The guidelines have been issued vide which the Ministry of Power has directed that for 5000 ckt kms minimum 2 numbers of ERS are required (Annexure 16 of the MOM of the 150th OCC meeting).

14.3 **155th OCC meeting:** BBMB was advised to procure ERS for their system, to which BBMB replied that the decision has already been taken by their board that partner states will provide ERS to BBMB, whenever needed. MS, NRPC stated that in such a stance, BBMB partner states, shall procure 1 additional set each, for requirement of BBMB as and when arises.

14.4 156th OCC Meeting: Representative of BBMB stated that regarding the proposal for procuring one additional ERS set by each partner state of BBMB, the communication has already been done with the concerned and their reply on the same was awaited for further action

14.5 All utilities are requested to kindly update.

15. Cleaning and Replacement of porcelain insulators

15.1 All transmission licensees in the Northern Region were requested since 148th OCC Meeting to plan insulator replacement work from September 2018 onwards. The meeting for cleaning and replacement work of conventional insulator was held on 15.10.2018 and the minutes of the meeting was issued vide letter dated 12.11.2018. All utilities were requested to stick to the timeline as brought out in the meeting to mitigate fog related trippings during winter season and to ensure proper submission of data regarding progress of the cleaning/ replacement work in line with the discussions held in the meeting.

15.2 **156th OCC meeting:** It was intimated that a web based online application (http://nrpc.gov.in/portal) has been made functional on NRPC website, wherein transmission licensees can regularly fill up their respective data pertaining to cleaning & replacement of porcelain insulators. This online application can facilitate generation of centralized and consolidated report. Demonstration of the application was given to the participants. It was intimated that requisite login ID and password may be furnished to the transmission licensees by NRPC; thereafter, online data may be furnished by respective transmission licensee.

15.3 All transmission licensees of Northern Region are requested to submit cleaning & replacement of porcelain insulators related data on online application using their respective login ID and password.

16. Cyber Security Preparedness Monitoring

A. In the 37th TCC and 40th NRPC meeting Chief Engineer (IT), CEA & CISO, MoP gave a detailed presentation on potential cyber threats for power sector along with cyber incidences and shared the desired action points to counter cyber threat. All utilities were also requested to monitor actions being taken in regard to the following points and report the status:

a. Appointment of organization-wise Chief Information Security Officers and its status.
b. Identification of organization-wise Critical Infrastructure and its status.
c. Preparation of organization-wise Crisis Management Plan and its status.
d. Status of Cyber Security Mock Drill activity in coordination with CERT-In.
e. Status of Training / Workshops on Cyber Security organized / participated by power sector entities.
f. Status of action taken on CERT-In / NCIIPC advisories.

A.1 156th OCC meeting: All utilities were requested to furnish updated status of the aforementioned points to NRPC so the compiled information may be submitted to CISO, MoP.

A.2 POWERGRID intimated that draft Crisis Management Plan (CMP) for Transmission sector has been prepared and has been submitted for approval.

A.3 POWERGRID is requested to share the draft Crisis Management Plan (CMP) for Transmission sector with CISO, MoP.

B. 156th OCC meeting: it was mentioned that inherent vulnerability in the ICT infrastructure or website or web applications may invite attackers to carry out malicious activities and exploit the targeted organization. In this regard it is necessary for all utilities to conduct Vulnerability Assessment & Penetration Test (VAPT) of their respective ICT infrastructure, websites and web applications for proper assessment and remedial action thereafter.

B.1 NHPC vide e-mail dated 19.02.2019 has intimated that as a Pilot location, the auditing of IT infrastructure of IT&C Division and VAPT of Two Power Stations namely Chamera-II and Teesta-V Power Stations have already been done in NHPC. For the above works the work order was placed to M/s TCG Digital Solution Pvt. Ltd. Kolkata on 31.10.2018. The Audit/VAPT of IT&C Division, CO, Teesta-V and Chamera-2 Power Station completed on 15/12/2018. The final report has also been submitted by the Firm on 31.12.2018. The compliance of the observations is under progress.

B.2 All utilities are requested to intimate NRPC about the status of VAPT conducted in their respective organization and VAPT plan for the future.

17. TTC assessment considering temperature dependent rating of lines/terminal equipment

17.1 For conducting studies in PSSE for assessment of inter control area transfer capability, POSOCO considers thermal ratings of lines as specified in CEA's 'Manual on Transmission Planning criteria- 2013' considering ambient temp. of 45^{o}C for terminal equipment ratings of both ends of the lines.

17.2 As there is a scope for considering temperature adjusted thermal ratings for these lines in the PSSE studies, NRCE has decided to finalize the methodology for computation of TTC/ATC/TRM taking into a/c variation in thermal capability of lines wrt variation of ambient temp.

17.3 POSOCO is in the process of populating the temp. adjusted thermal ratings in these lines in the PSSE study case.

17.4 All STUs and transmission licensees are requested to furnish terminal equipment ratings at all lines at 400 kV and above for fully implementing the temp adjusted TTC to ensure that there is no gap in security assessment. The matter is under regular follow up since 152nd OCC meeting; only **HVPNL** has submitted the data (Annexure-19 of minutes of 156th OCC) so far.

17.5 All other STUs and transmission licensees were requested for expeditious submission of information.

18. Expediting Construction of 132 kV supply for railway traction substation for railway electrification projects in states in NR region.

18.1 Ministry of Railways has accorded high priority to railway electrification projects for reducing dependence on imported petroleum based fuel thereby enhancing energy security of nation. However, it is observed progress of ongoing transmission line and substation works being executed by SEBs is not matching with the targets for railway sections planned to be commissioned on electric traction. It is found that the work of transmission line for 31 traction sub stations (UP 19, Haryana 5, Punjab 1, and Rajasthan 5 & J&K 1) are yet to be completed. Further tender for transmission line work for 14 traction sub stations(UP 5, Haryana 2, Punjab 2, Rajasthan 5) are yet to be awarded and estimate for10 traction sub stations(UP 1, Punjab 2, Rajasthan 7) are yet to be received by Railways from respective SEBs. The details are enclosed at Annexure –20 of the Agenda of the 154th OCC meeting.

18.2 154th OCC meeting: SE (O) stated that early commissioning of transmission line works and substation across the nation is required, so as to harness full potential of electrification. Members were requested to take up the matter with concerned utilities to expeditious completion of the transmission line works and substation and regularly update the progress of the work in monthly OCC meeting. On deliberations it was observed that for expeditious action, RAILWAY authorities should be requested to present the detail of the pending works.

18.3 Members are requested to update as per the Annexure –20 of the agenda of 156th OCC.

19. Problem of excessive vibrations in GTs of Rihand Stage – III and Vindhyachal Stage-IV during operation of Rihand - Dadri HVDC, on monopole mode with ground return.

19.1 148th OCC meeting:

NTPC representative highlighted as under:

- Shifting of 2x500 MW Rihand Stage-III units (Unit# 5&6) from NR Grid to WR Grid through Vindhyachal Pooling Station was successfully done on 28th Nov' 17 with coordination in real time between POSOCO, NTPC and POWERGRID (WRTS-II).
- With Rihand stage-III units connected to Vindhyachal Pooling Station, problem of excessive vibrations in GTs of Rihand stage III (and Vindhyachal Stage-IV also) has been observed whenever Rh- Dadri HVDC is run on single pole in ground return mode. The observations during the period 27th Nov'17 to 5th March'18 at Rihand is enclosed in the attached sheet (ANNEXURE AA of the Additional Agenda OCC 148th Meeting).
- The issue was briefly discussed in the 142nd OCC Meeting against agenda point no 18 and where it was decided that system study was required to be done to further deal with this problem. Previous experience of NTPC in this regard was also sought which was subsequently provided to NRLDC by Rihand station.
- It is apparent that DC current passes through these GTs during above situation which is detrimental for the GTs and which may lead to their failure.
- It is therefore requested that a solution may kindly be arrived to deal with the above situation at the earliest.

19.2 **142nd OCC meeting:** NTPC was requested to check transducer at Vindhyachal end as there was huge mismatch in MVAr and also get assessment of earthing system at Rihand done. Further it was decided that as per decision in the 38th TCC & 41st NRPC meeting the committee will look into resolving the issue.

19.3 Nominations from CEA, CTU/ POWERGRID, NTPC, POSOCO were received and the first meeting of the committee **(**Minutes attached at Annexure -Agenda item no. 21**)** was held prior to the 152nd OCC meeting.

19.4 154th OCC: NTPC and POWERGRID were again requested to submit all the information as requested during 1st meeting of the committee at the earliest**.**

19.5 155th OCC Meeting: NTPC informed that all the relevant information has been submitted on seo-nrpc@nic.in. POWERGRID was again requested to submit the information as desired in the first meeting of the committee (Minutes were again attached at *Annexure-21 of the MoM of 155th OCC*).

19.6 POWERGRID is requested to submit the information as desired in the first meeting of the committee (Minutes attached at Annexure 21 of the agenda of 156th OCC).

20. Mapping of UFR, df/dt relay details in SCADA

20.1 The UFR and df/dt mapping is mandatory as per Hon'ble CERC regulation. The issue has been discussed in various OCC, NRPC-TCC meetings.

20.2 **136th OCC meeting:** It was decided that in addition to the SCADA mapping, states should provide the following information regarding the UFR, df/dt relays installed at their respective substations:

a. Source of frequency measurement for UFR, df/dt relay viz. positive sequence, phase-to-neutral, phase-to-phase.

b. Computational time for measurement of frequency, rate of change of frequency in UFR, df/dt relays respectively.

20.3 137th OCC meeting: NRPC once again reiterated that mapping of UFR has to be done in the SCADA of SLDC & NRLDC for better visibility of relay status and feeder load relief and emphasized upon the importance of digital breaker status of feeders in such defense schemes. In 140th 143rd , 146th and 151st OCC meeting, all the state utilities were requested to correct the SCADA UFR, df/dt displays as per the comments. The defense schemes are extremely important schemes and can avert any major contingency. Hence, State utilities should make all possible efforts to strengthen the same.

States	UFR	df/dt	Status as per the 151st OCC meeting	Remarks	Data Availability
J&K	No	No			
UP	Yes	Yes	Following are provided since last status: • Feeder wise planned load relief in df/dt. • Alternate feeder details in UFR display. • Total planned relief in df/dt display.	Following yet to be provided: • Feeder-wise planned load relief of UFR. • Telemetry of feeders (Partial details available). • Alternate feeder details in df/dt display (Partial details available for UFR). • Total planned relief in UFR display. (Stage wise) • Total actual relief. (Stage Wise)	Very Poor
Haryana	Yes	Yes	Following are provided since last status: • Stage-2, 3 of df/dt	Following yet to be provided: • Telemetry of feeders (Partial details available).	Poor

			included in display. • Feeder wise planned load relief. • Alternate feeder details. • Total actual relief in UFR.	• Telemetry of alternate feeders not available. • Calculation of total actual relief in df/dt seems incorrect.	
Delhi	Yes	Yes		Following yet to be provided: • Total of actual analog data of MW and alternate feeders. • Data suspected for most of the digital and Analog value at NRLDC display but available at SLDC display.	Poor
HP	Yes	Yes	Following are provided since last status: • Segregation of stage wise load. • Alternate feeder details include for most of the feeders. • Partial telemetry of feeders.	Following yet to be provided: • Telemetry of feeders (Partial data available). • Alternate feeder details in UFR (a few not available).	Poor
Uttarakhand	No	No			
Punjab	Yes	Yes		Following yet to be provided: • Complete telemetry of feeders. • Alternate feeders' details. • Digital Status of all the feeders	Poor
Rajasthan	Yes	Yes	Following are provided since last status: • UFR display provided.	Following yet to be provided: • Analog value and digital data not available in UFR display (only alternate feeder details provided)	Very Poor

20.4 Utilities are requested to submit the progress on details tabulated above at the earliest and correct, provide the SCADA UFR, df/dt displays as per the comments.

Annexure 3

Anticipated Power Supply Position in Northern Region for April, 2019

		MU	MW
State		Apr-19	Apr-19
Chandigarh	Availability	134	329
	Requirement	133	313
	Surplus/Shortfall (MU)	1	16
	Surplus/Shortfall (%)	0.5%	5.2%
Delhi	Availability	3054	5982
	Requirement	2770	5400
	Surplus/Shortfall (MU)	284	582
	Surplus/Shortfall (%)	10.3%	10.8%
Haryana	Availability	5964	9150
	Requirement	3545	7700
	Surplus/Shortfall (MU)	2419	1450
	Surplus/Shortfall (%)	68.2%	18.8%
Himachal Pradesh	Availability	255	1360
	Requirement	812	1558
	Surplus/Shortfall (MU)	-557	-199
	Surplus/Shortfall (%)	-68.6%	-12.7%
Jammu & Kashmir	Availability	1206	2213
	Requirement	1672	2752
	Surplus/Shortfall (MU)	-466	-539
	Surplus/Shortfall (%)	-27.9%	-19.6%
Punjab	Availability	4347	6966
	Requirement	3840	7039
	Surplus/Shortfall (MU)	507	-73
	Surplus/Shortfall (%)	13.2%	-1.0%
Rajasthan	Availability	9328	15713
	Requirement	6061	10620
	Surplus/Shortfall (MU)	3267	5093
	Surplus/Shortfall (%)	53.9%	48.0%
Uttar Pradesh	Availability	11759	18319
	Requirement	9960	18000
	Surplus/Shortfall (MU)	1799	319

	Surplus/Shortfall (%)	18.1%	1.8%
Uttarakhand	Availability	626	1454
	Requirement	1161	2012
	Surplus/Shortfall (MU)	-535	-558
	Surplus/Shortfall (%)	-46.1%	-27.7%
Total NR	Availability	36674	61485
	Requirement	29954	51529
	Surplus/Shortfall (MU)	6719	9956
	Surplus/Shortfall (%)	22.4%	19.3%

Follow up issues from previous OCCMs **ANNEXURE 8**

SNO	Description of Agenda point	Details	STATUS UPDATED
1	**Monitoring of schemes funded from PSDF (Agenda by NPC)**	The latest status of the schemes for which grant has been sanctioned from PSDF for the schemes in Northern Region. Utilities are requested to expedite implementation of the schemes and submit information of physical as well as financial progress in the prescribed format by first week of every month on regular basis to Member Convener, PSDF Project Monitoring Group (AGM, NLDC and POSOCO) with a copy to NPC Division	**Punjab & DTL updated status. All other utilities were requested to update** **HVPNL- A committee has been constituted for submitting recommendations to procure/ install the Automatically Switched type or Conventional type of capacitor banks at existing as well as upcoming S/Stns. In future and the committed shall review the Techno-Economic analysis of both types (manual & automatic) of capacitor banks.**
2	**Sub-stations likely to be commissioned in next 6 months.**	All the concerned states were requested to submit the details of the downstream network associated SPECIFICALLY with THESE POWERGRID substations along with the action plan of their proposed/approved networks.	**The details of the substations of Power Grid and their required downstream network were enclosed *as* Annexure 9/2 of the Agenda.PSTCL updated as under*:*** **Moga-Mehalkalan 220 KV D/C line work has been completed. Expected date of commissioning of line is 31.01.2019** **All other concerned utilities were requested to update regularly and ensure that the work is completed expeditiously.** **HVPNL- Down the line HVPNL lines /Sub stations from PGCIL stations HVDC Jind, Kurukshetra, Bhiwani & 315 MVA ICT at 400 KV Kaithal stations**
3	**Progress of installing new capacitors and repair of defective capacitors**	. The available up to date status of installation of new capacitors and revival of defective capacitor by the State constituents is enclosed as ***ANNEXURE 10/3OF THE AGENDA OF THE 146TH OCC MEETING.***	**Information received in the 1/2019 from Uttarakhand , UP, Rajasthan & Haryana is enclosed at Annexure9/3. All other states were requested to update.** **HVPNL- For replacement of defective capacitor cells a PO has been placed upon M/s BHEL on Dt.31.10.2018 (HDP-2371) for supply of 530 no. 200KVAR capacitor cells and the supply is expected shortly.**
4.	**Healthiness of defence mechanism: Self-**	**Report of Mock exercise for healthiness of UFRs carried out by utilities themselves on quarterly basis is to be submitted to NRPC Secretariat and NRLDC. All utilities were advised to certify specifically, in the report that "*All the UFRs are checked***	**Information from for period ending September 2018 has not been received from Punjab, Delhi, Rajasthan the same may please be submitted.** **The information of period ending 9/2018 from Punjab,**

	certification	***and found functional".***	**DTL stand submitted. Rajasthan was requested to update.** **The information ending 12/2018 was submitted by BBMB and UP.** **All others were requested to submit.** **HVPNL- upto September'2018 the necessary confirmation has been supplied by the concerned field offices.**
5	**Strengthening of Intra-State transmission system**	Also all SLDCs are requested to give half yearly feedback ending 6/2018 in the month of 7/2018 to STU regarding bottlenecks, constraints and overloading in the State transmission network for proper transmission planning **PTCUL, Punjab ,Delhi & Rajasthan have submitted the information ending 6/2018 & that send submitted to concerned office.**	**UPPTCL has submitted the information ending 12/2018.** **ALL other SLDCs were requested to give half yearly feedback ending 12/2018 in the month of 1/2019 to STU regarding bottlenecks, constraints and overloading in the State transmission network for proper transmission planning**
6	**Mapping of Feeders in SCADA**	In the 141st OCC meeting members were informed about the "Compendium of SPS in NR" (*Annexure-_9 of the MOM_)* which was released in the 40th NRPC meeting. All the utilities were requested to go through the compendium and identify feeders concerning their state and map the same in SCADA. **150th OCC meeting:** MS NRRPC stated that as per the Compendium of SPS in NR" which was released in the 40th NRPC meeting. All the utilities are requested to go through the compendium and identify feeders concerning their state and map the same in SCADA. This document is available on NRLDC & NRPC website. NRLDC representative added that it is very important that the feeders should be mapped in SCADA. It was stated that this issue will be discussed in the Test committee meeting also. The matter under discussion in subsequent meetings but no further update	**All states except Punjab & Rajasthan were requested to update.** **HVPNL-SCADA wing has made provisions in the database as well as associated displays at control centre. The work at RTU locations is yet to be carried out to complete the SCADA mapping.**

Sr. No.	Developer	Name of Project	Sector	State	Region	NCR/Non-NCR	Unit No	Unit Cap acity	DATE of COMMISSIONING	SPM Norms (mg/Nm3)	Current SPM (mg/Nm3)	ESP Plan	ESP Status	NOx Norms (mg/Nm3)	Current NOx (mg/Nm3)	Nox plan	NOx Status	Sox Norms (mg/N	Current Sox (mg/N	Old FGD Phasing Plan for	FGD Phasing Plan	Whether FGD Installe	FGD Commissioned	Remarks	FGD Status	Tar Date of FS Start	Tar Date of FS Complete	Tar Date of Tender Spec	Tar Date of NIT Issue	Tar Date of Bid Open	Tar Date of Bid Award	Tar Date of FGD Comm.
1	CHINA LIGHT POWER	MAHATMA GANDHI TPS	Private Sector	Haryana	NR	NCR	1	660	**12-01-2012**			SPM Compliant								1-31-2019	31/12/2019	N	Y	FGD POSSIBLE	FGD Installed and is Under Renovation							
2	CHINA LIGHT POWER	MAHATMA GANDHI TPS	Private Sector	Haryana	NR	NCR	2	660	**11-04-2012**			SPM Compliant								1-31-2019	31/12/2019	N	Y	FGD POSSIBLE	FGD Installed and is Under Renovation							
3	HGPCstpn	PANIPAT TPS	State Sector	Haryana	NR	NCR	6	210	**31-03-2001**											4-30-2021	31/12/2019	N	0	FGD POSSIBLE	Developer wants exemption							
4	HGPCstpn	PANIPAT TPS	State Sector	Haryana	NR	NCR	7	250	**28-09-2004**			28-02-2021								2-28-2021	31/12/2019	N	0	FGD POSSIBLE	Feasibility Study Under Progress							
5	HGPCstpn	PANIPAT TPS	State Sector	Haryana	NR	NCR	8	250	**28-01-2005**			31-12-2020								12-31-2020	31/12/2019	N	0	FGD POSSIBLE	Feasibility Study Under Progress							
6	HGPCstpn	RAJIV GANDHI TPS	State Sector	Haryana	NR	NCR	1	600	**31-03-2010**			30-04-2022								4-30-2022	31/12/2019	N	0	FGD POSSIBLE	Feasibility Study Completed.							
7	HGPCstpn	RAJIV GANDHI TPS	State Sector	Haryana	NR	NCR	2	600	**01-10-2010**			28-02-2022								2-28-2022	31/12/2019	N	0	FGD POSSIBLE	Feasibility Study Completed.							
8	HGPCstpn	YAMUNA NAGAR TPS	State Sector	Haryana	NR	NCR	1	300	**01-11-2007**			31-12-2021								12-31-2021	31/12/2019	N	0	FGD POSSIBLE	Feasibility Study Completed.							
9	HGPCstpn	YAMUNA NAGAR TPS	State Sector	Haryana	NR	NCR	2	300	**29-03-2008**			31-10-2021								10-31-2021	31/12/2019	N	0	FGD POSSIBLE	Feasibility Study Completed.							
10	NTPC	INDIRA GANDHI STPP	Central Sector	Haryana	NR	NCR	1	500	**31-10-2010**			SPM Comnliant	SPM Comnliant				Award in Septomber 18			10-31-2020	31/12/2019	N	0	FGD POSSIBLE	Bid awarded on 30 Jan 2018							
11	NTPC	INDIRA GANDHI STPP	Central Sector	Haryana	NR	NCR	2	500	**05-11-2011**			SPM Compliant	SPM Compliant				Award in September 18			4-30-2020	31/12/2019	N	0	FGD POSSIBLE	Bid awarded on 30 Jan 2018							
12	NTPC	INDIRA GANDHI STPP	Central Sector	Haryana	NR	NCR	3	500	**07-11-2012**			SPM Compliant	SPM Compliant				Award in September 18			2-29-2020	31/12/2019	N	0	FGD POSSIBLE	Bid awarded on 30 Jan 2018							
13	GVK Power Ltd.	GOINDWAL SAHIB	Private Sector	Punjab	NR	Non-NCR	1	270	**14-02-2016**											4-30-2020	30/04/2020	N	0	FGD POSSIBLE	ECE was invited vide newspaper advt. On 18.06.2018							
14	GVK Power Ltd.	GOINDWAL SAHIB	Private Sector	Punjab	NR	Non-NCR	2	270	**15-03-2016**											3-29-2020	28/02/2020	N	0	FGD POSSIBLE	ECE was invited vide newspaper advt. On 18.06.2018							
15	L&T Power Develolopment LTD(Nabha)	Nabha TPP (Rajpura TPP)	Private Sector	Punjab	NR	NCR	1	700	**24-03-2014**	50	<50	SPM Comnliant	SPM Comnliant	300	450	01-04-2021	SNCR ba	200	1610	4-30-2021	31/12/2019	N	0	FGD POSSIBLE	NIT expected in Oct' 18				Oct-18	Nov-18	Dec-18	
16	L&T Power Development LTD(Nabha)	Nabha TPP (Rajpura TPP)	Private Sector	Punjab	NR	NCR	2	700	**06-07-2014**	50	<50	SPM Compliant	SPM Compliant	300	464	01-02-2021	SNCR ba	200	1620	2-28-2021	31/12/2019	N	0	FGD POSSIBLE	NIT expected in Oct' 18				Oct-18	Nov-18	Dec-18	
17	PSEB	GH TPS (LEH.MOH.)	State Sector	Punjab	NR	NCR	1	210	**29-12-1997**			30-04-2022								4-30-2022	31/12/2019	N	0	FGD POSSIBLE	Administrative approval is under process.							
18	PSEB	GH TPS (LEH.MOH.)	State Sector	Punjab	NR	NCR	2	210	**16-10-1998**			30-04-2022								4-30-2022	31/12/2019	N	0	FGD POSSIBLE	Administrative approval is under process.							
19	PSEB	GH TPS (LEH.MOH.)	State Sector	Punjab	NR	NCR	3	250	**03-01-2008**			28-02-2022								2-28-2022	31/12/2019	N	0	FGD POSSIBLE	Administrative approval is under process.							
20	PSEB	GH TPS (LEH.MOH.)	State Sector	Punjab	NR	NCR	4	250	**31-07-2008**			28-02-2022								2-28-2022	31/12/2019	N	0	FGD POSSIBLE	Administrative approval is under process.							
21	Talwandi Sabo Power Limited	TALWANDI SABO TPP	Private Sector	Punjab	NR	NCR	1	660	**17-06-2014**			SPM Compliant								2-28-2021	31/12/2019	N	0	FGD POSSIBLE	Feasibility Study Carried Out. PPA issues pending with regulator							
22	Talwandi Sabo Power Limited	TALWANDI SABO TPP	Private Sector	Punjab	NR	NCR	2	660	**25-10-2015**			SPM Compliant								12-31-2020	31/12/2019	N	0	FGD POSSIBLE	Feasibility Study Carried Out. PPA issues pending with regulator							
23	Talwandi Sabo Power Limited	TALWANDI SABO TPP	Private Sector	Punjab	NR	NCR	3	660	**29-03-2016**			SPM Compliant								10-31-2020	31/12/2019	N	0	FGD POSSIBLE	Feasibility Study Carried Out. PPA issues pending with regulator							
24	Adani Power Ltd.	KAWAI TPS	Private Sector	Rajasthan	NR	Non-NCR	1	660	**28-05-2013**			N								8-31-2020	31/08/2020	N	0	FGD POSSIBLE	NIT to be issued soon.				Oct-18	Dec-18	Jan-19	Aug-20
25	Adani Power Ltd.	KAWAI TPS	Private Sector	Rajasthan	NR	Non-NCR	2	660	**24-12-2013**			N								6-30-2020	30/06/2020	N	0	FGD POSSIBLE	NIT to be issued soon.				Oct-18	Dec-18	Jan-19	Jun-20
26	RRVUNL	CHHABRA TPP	State Sector	Rajasthan	NR	Non-NCR	1	250	**30-10-2009**	50	80	31-12-2021	Tender Specifications under process	300	311	31-12-2022	Tender S	600	779	12-31-2021	31/12/2021	N	0	FGD POSSIBLE	Tender Specification under process				Sep-18			
27	RRVUNL	CHHABRA TPP	State Sector	Rajasthan	NR	Non-NCR	2	250	**04-05-2010**	50	94	31-10-2021	Tender Specifications under process	300	590	31-12-2022	Tender S	600	784	10-31-2021	31/10/2021	N	0	FGD POSSIBLE	Tender Specification under process				Sep-18			
28	RRVUNL	CHHABRA TPP	State Sector	Rajasthan	NR	Non-NCR	3	250	**14-09-2013**	50	85	31-08-2021	Tender Specifications under process	300	355	31-12-2022	Tender S	600	975	8-31-2021	31/08/2021	N	0	FGD POSSIBLE	Tender Specification under process				Sep-18			
29	RRVUNL	CHHABRA TPP	State Sector	Rajasthan	NR	Non-NCR	4	250	**30-06-2014**	50	55	31-08-2021	Tender Specifications under process	300	415	31-12-2022	Tender S	600	896	8-31-2021	31/08/2021	N	0	FGD POSSIBLE	Tender Specification under process				Sep-18			
30	RRVUNL	CHHABRA TPP	State Sector	Rajasthan	NR	Non-NCR	5	660	**04-04-2017**	30	67	30-04-2020	Tender Specifications under process	100	340	31-12-2022	Tender S	100	1790	4-30-2020	30/04/2020	N	0	FGD POSSIBLE	NIT under process				Nov-18			
31	RRVUNL	KALISINDH TPS	State Sector	Rajasthan	NR	Non-NCR	1	600	**02-05-2014**	50	43		SPM Compliant	300	254	31-12-2022	Tender S	200	1828	6-30-2021	30/06/2021	N	0	FGD POSSIBLE	NIT under process				Nov-18			
32	RRVUNL	KALISINDH TPS	State Sector	Rajasthan	NR	Non-NCR	2	600	**06-06-2015**	50	46		SPM Compliant	300	212	31-12-2022	Tender S	200	1258	4-30-2021	30/04/2021	N	0	FGD POSSIBLE	NIT under process				Nov-18			
33	RRVUNL	KOTA TPS	State Sector	Rajasthan	NR	Non-NCR	5	210	**26-03-1994**	100	113	31-12-2022	Tender Specifications under process	600	375	31-12-2022	Tender S	600	576	12-31-2022	31/12/2022	N	0	FGD POSSIBLE	Tender Specification under process				Sep-18	Sep-18		
34	RRVUNL	KOTA TPS	State Sector	Rajasthan	NR	Non-NCR	6	195	**30-07-2003**	100	102	31-12-2022	Tender Specifications under process	600	375	31-12-2022	Tender S	600	565	12-31-2022	31/12/2022	N	0	FGD POSSIBLE	Tender Specification under process				Sep-18	Sep-18		
35	RRVUNL	KOTA TPS	State Sector	Rajasthan	NR	Non-NCR	7	195	**30-08-2009**	50	47		SPM Comnliant	600	240	31-12-2022	Tender S	600	780	10-31-2022	31/10/2022	N	0	FGD POSSIBLE	Tender Specification under process				Sep-18	Sep-18		
36	RRVUNL	SURATGARH TPS	State Sector	Rajasthan	NR	Non-NCR	1	250	**10-05-1998**	100	96		SPM Compliant	600	325	31-12-2022	Tender S	600	880	12-31-2022	31/12/2022	N	0	FGD POSSIBLE	Tender Specification under process				Sep-18			
37	RRVUNL	SURATGARH TPS	State Sector	Rajasthan	NR	Non-NCR	2	250	**28-03-2000**	100	85		SPM Compliant	600	492	31-12-2022	Tender S	600	948	10-31-2022	31/10/2022	N	0	FGD POSSIBLE	Tender Specification under process				Sep-18			
38	RRVUNL	SURATGARH TPS	State Sector	Rajasthan	NR	Non-NCR	3	250	**29-10-2001**	100	92		SPM Compliant	600	322	31-12-2022	Tender S	600	911	8-31-2022	31/08/2022	N	0	FGD POSSIBLE	Tender Specification under process				Sep-18			
39	RRVUNL	SURATGARH TPS	State Sector	Rajasthan	NR	Non-NCR	4	250	**25-03-2002**	100	87		SPM Compliant	600	242	31-12-2022	Tender S	600	925	6-30-2022	30/06/2022	N	0	FGD POSSIBLE	Tender Specification under process				Sep-18			
40	RRVUNL	SURATGARH TPS	State Sector	Rajasthan	NR	Non-NCR	5	250	**30-06-2003**	100	90		SPM Comnliant	600	298	31-12-2022	Tender S	600	890	4-30-2022	30/04/2022	N	0	FGD POSSIBLE	Tender Specification under process				Sep-18			
41	RRVUNL	SURATGARH TPS	State Sector	Rajasthan	NR	Non-NCR	6	250	**29-08-2009**	50	44	28-02-2022	Tender Specifications under process	300	360	31-12-2022	Tender S	600	919	2-28-2022	28/02/2022	N	0	FGD POSSIBLE	Tender Specification under process				Sep-18			
42	Lalitpur Power Gen. Co	LALITPUR TPS	Private Sector	Uttar Pardesh	NR	Non-NCR	2	660	**08-01-2016**											2-28-2021	28/02/2021	N	0	FGD POSSIBLE	Petition was filed with UPERC for approval capital cost for installation of FGD and other associated systems. UPERC directed to approach CEA.							
43	Lalitpur Power Gen. Co	LALITPUR TPS	Private Sector	Uttar Pardesh	NR	Non-NCR	3	660	**01-04-2016**											10-31-2021	31/10/2021	N	0	FGD POSSIBLE	Petition was filed with UPERC for approval capital cost for installation of FGD and other associated systems. UPERC directed to approach CEA.							
44	Lalitpur Power Gen. Co.	LALITPUR TPS	Private Sector	Uttar Pardesh	NR	Non-NCR	1	660	**26-03-2016**											12-31-2020	31/12/2020	N	0	FGD POSSIBLE	Petition was filed with UPERC for approval capital cost for installation of FGD and other associated systems. UPERC directed to approach CEA.							
45	Lanko Anpara Pow Ltd	ANPARA C TPS	Private Sector	Uttar Pardesh	NR	Non-NCR	1	600	**12-10-2011**			SPM Comnliant								8-31-2022	31/08/2022	N	0	FGD POSSIBLE	Tender Specification made							
46	Lanko Anpara Pow Ltd	ANPARA C TPS	Private Sector	Uttar Pardesh	NR	Non-NCR	2	600	**18-01-2012**			SPM Comnliant								6-30-2022	30/06/2022	N	0	FGD POSSIBLE	Tender Specification made							
47	NTPC	DADRI (NCTPP)	Central Sector	Uttar Pardesh	NR	NCR	1	210	**21-12-1991**			SPM Compliant								12-31-2020	31/12/2019	N	N	FGD POSSIBLE	Dry Sorbent Injection (DSI) SYSTEM TO BE INSTALLED							
48	NTPC	DADRI (NCTPP)	Central Sector	Uttar Pardesh	NR	NCR	2	210	**18-12-1992**			SPM Compliant								10-31-2020	31/12/2019	N	N	FGD POSSIBLE	Dry Sorbent Injection (DSI) SYSTEM TO BE INSTALLED							
49	NTPC	DADRI (NCTPP)	Central Sector	Uttar Pardesh	NR	NCR	3	210	**23-03-1993**			SPM Compliant								8-31-2020	31/12/2019	N	N	FGD POSSIBLE	Dry Sorbent Injection (DSI) SYSTEM TO BE INSTALLED							
50	NTPC	DADRI (NCTPP)	Central Sector	Uttar Pardesh	NR	NCR	4	210	**24-03-1994**			SPM Compliant								6-30-2020	31/12/2019	N	N	FGD POSSIBLE	Dry Sorbent Injection (DSI) SYSTEM TO BE INSTALLED							
51	NTPC	DADRI (NCTPP)	Central Sector	Uttar Pardesh	NR	NCR	5	490	**25-01-2010**			SPM Compliant	SPM Compliant				Awardied on June 18			4-30-2020	31/12/2019	N	N	FGD POSSIBLE	Awarded on 01 Feb 18. Work in progress						Jan-18	
52	NTPC	DADRI (NCTPP)	Central Sector	Uttar Pardesh	NR	NCR	6	490	**16-07-2010**			SPM Compliant	SPM Compliant				Awarded on June 18			2-29-2020	31/12/2019	N	N	FGD POSSIBLE	Awarded on 01 Feb 18. Work in progress						Jan-18	
53	NTPC	RIHAND STPS	Central Sector	Uttar Pardesh	NR	Non-NCR	1	500	**31-03-1988**			SPM Compliant	SPM Compliant				Combustion tuning after			2-28-2022	28/02/2022	N	N	FGD POSSIBLE	NIT In Sep 18				Sep-18			
54	NTPC	RIHAND STPS	Central Sector	Uttar Pardesh	NR	Non-NCR	2	500	**05-07-1989**			SPM Compliant	SPM Compliant				Combustion tuning after			12-31-2021	31/12/2021	N	N	FGD POSSIBLE	NIT In Sep 18				Sep-18			
55	NTPC	RIHAND STPS	Central Sector	Uttar Pardesh	NR	Non-NCR	3	500	**31-01-2005**			SPM Compliant	SPM Compliant				NIT in Sep' 18			10-31-2021	30/10/2021	N	N	FGD POSSIBLE	Award in 31-08-2018						Aug-18	
56	NTPC	RIHAND STPS	Central Sector	Uttar Pardesh	NR	Non-NCR	4	500	**24-09-2005**			SPM Compliant	SPM Compliant				NIT in Sep' 18			4-30-2021	30/04/2021	N	N	FGD POSSIBLE	Award in 31-08-2018						Aug-18	
57	NTPC	RIHAND STPS	Central Sector	Uttar Pardesh	NR	Non-NCR	5	500	**25-05-2012**			SPM Compliant	SPM Compliant				NIT in Sep' 18			2-28-2021	28/02/2021	N	N	FGD POSSIBLE	Award in 31-08-2018						Aug-18	
58	NTPC	RIHAND STPS	Central Sector	Uttar Pardesh	NR	Non-NCR	6	500	**17-10-2013**			SPM Compliant	SPM Compliant				NIT in Sep' 18			12-31-2020	31/12/2020	N	N	FGD POSSIBLE	Award in 31-08-2018						Aug-18	
59	NTPC	SINGRAULI STPS	Central Sector	Uttar Pardesh	NR	Non-NCR	1	200	**14-02-1982**			31-12-2021								12-31-2021	31/12/2021	N	N	FGD POSSIBLE	NIT IN LOT-3 PLANNED IN OCT 2018							
60	NTPC	SINGRAULI STPS	Central Sector	Uttar Pardesh	NR	Non-NCR	2	200	**25-11-1982**			31-12-2021								12-31-2021	31/12/2021	N	N	FGD POSSIBLE	NIT IN LOT-3 PLANNED IN OCT 2018							
61	NTPC	SINGRAULI STPS	Central Sector	Uttar Pardesh	NR	Non-NCR	3	200	**28-03-1983**			31-08-2021								8-31-2021	31/08/2021	N	N	FGD POSSIBLE	NIT IN LOT-3 PLANNED IN OCT 2018							
62	NTPC	SINGRAULI STPS	Central Sector	Uttar Pardesh	NR	Non-NCR	4	200	**02-11-1983**			31-08-2021								8-31-2021	31/08/2021	N	N	FGD POSSIBLE	NIT IN LOT-3 PLANNED IN OCT 2018							
63	NTPC	SINGRAULI STPS	Central Sector	Uttar Pardesh	NR	Non-NCR	5	200	**28-02-1984**			30-04-2021								4-30-2021	30/04/2021	N	N	FGD POSSIBLE	NIT IN LOT-3 PLANNED IN OCT 2018							
64	NTPC	SINGRAULI STPS	Central Sector	Uttar Pardesh	NR	Non-NCR	6	500	**23-12-1986**			28-02-2021	Under R&M				Combustion tuning after			2-29-2021	28/02/2021	N	N	FGD POSSIBLE	NIT In Sep 18				Sep-18			
65	NTPC	SINGRAULI STPS	Central Sector	Uttar Pardesh	NR	Non-NCR	7	500	**24-11-1987**			31-12-2020	Under R&M				Combustion tuning after			12-31-2020	31/12/2020	N	N	FGD POSSIBLE	NIT In Sep 18				Sep-18			
66	NTPC	UNCHAHAR TPS	Central Sector	Uttar Pardesh	NR	Non-NCR	1	210	**21-11-1988**			31-12-2022								12-31-2022	31/12/2022	N	N	FGD POSSIBLE	NIT IN LOT-3 PLANNED IN SEP 2018.							
67	NTPC	UNCHAHAR TPS	Central Sector	Uttar Pardesh	NR	Non-NCR	2	210	**22-03-1989**			31-12-2022								12-31-2022	31/12/2022	N	N	FGD POSSIBLE	NIT IN LOT-3 PLANNED IN SEP 2018.							
68	NTPC	UNCHAHAR TPS	Central Sector	Uttar Pardesh	NR	Non-NCR	3	210	**27-01-1999**			31-10-2022								10-31-2022	31/10/2022	N	N	FGD POSSIBLE	NIT IN LOT-3 PLANNED IN SEP 2018.							
69	NTPC	UNCHAHAR TPS	Central Sector	Uttar Pardesh	NR	Non-NCR	4	210	**22-10-1999**			31-10-2022								10-31-2022	31/10/2022	N	N	FGD POSSIBLE	NIT IN LOT-3 PLANNED IN SEP 2018.							
70	NTPC	UNCHAHAR TPS	Central Sector	Uttar Pardesh	NR	Non-NCR	5	210	**28-09-2006**			30-04-2022								4-30-2022	30/04/2022	N	N	FGD POSSIBLE	NIT IN LOT-2 PLANNED IN JULY 2018.							
71	NTPC	UNCHAHAR TPS	Central Sector	Uttar Pardesh	NR	Non-NCR	6	500	**31-03-2017**			31-08-2020								8-31-2020	8-31-2020	N	N	FGD POSSIBLE	Price bid submitted on 29.06.2018.							
72	Prayagraj Power Generation Company LTD.	PRAYAGRAJ TPP	Private Sector	Uttar Pardesh	NR	Non-NCR	1	660	**25-12-2016**			SPM Compliant								4-30-2020	30/04/2020	N	0	FGD POSSIBLE	Feasibility Study is under process. Requsted for FGD implementation date to be postponed by 5-6 years.							
73	Prayagraj Power Generation Comnaiy LTD.	PRAYAGRAJ TPP	Private Sector	Uttar Pardesh	NR	Non-NCR	2	660	**06-09-2015**			SPM Compliant								6-30-2020	30/06/2020	N	0	FGD POSSIBLE	Feasibility Study is under process. Requsted for FGD implementation date to be postponed by 5-6 years.							

74	Prayagraj Power Generation Company LTD.	PRAYAGRAJ TPP	Private Sector	Uttar Pardesh	NR	Non-NCR	3	660	**22-05-2017**			29-02-2020													2-29-2020	29/02/2020	N	0	FGD POSSIBLE	Feasibility Study under progress								
75	Rosa Power Supply Co	ROSA TPP Ph-I	Private Sector	Uttar Pardesh	NR	Non-NCR	1	300	**10-02-2010**			31-12-2021													12-31-2021	31/12/2021	N	0	FGD POSSIBLE	Tendering Under Process								
76	Rosa Power Supply Co	ROSA TPP Ph-I	Private Sector	Uttar Pardesh	NR	Non-NCR	2	300	**26-06-2010**			31-12-2021													12-31-2021	31/12/2021	N	0	FGD POSSIBLE	Tendering Under Process								
77	Rosa Power Supply Co	ROSA TPP Ph-I	Private Sector	Uttar Pardesh	NR	Non-NCR	3	300	**25-12-2011**																10-31-2021	31/10/2021	N	0	FGD POSSIBLE	Tendering Under Process								
78	Rosa Power Supply Co	ROSA TPP Ph-I	Private Sector	Uttar Pardesh	NR	Non-NCR	4	300	**28-03-2012**																10-31-2021	31/10/2021	N	0	FGD POSSIBLE	Tendering Under Process								
79	UPRVUNL	ANPARA TPS	State Sector	Uttar Pardesh	NR	Non-NCR	1	210	**24-03-1986**			31-10-2022													10-31-2022	31/10/2022	N	0	FGD POSSIBLE	Administrative aporoval is under process.								
80	UPRVUNL	ANPARA TPS	State Sector	Uttar Pardesh	NR	Non-NCR	2	210	**28-02-1987**			31-08-2022													8-31-2022	31/08/2022	N	0	FGD POSSIBLE	Feasibility Study Under Progress								
81	UPRVUNL	ANPARA TPS	State Sector	Uttar Pardesh	NR	Non-NCR	3	210	**12-03-1988**			30-06-2022													6-30-2022	30/06/2022	N	0	FGD POSSIBLE	Feasibility Study Under Progress								
82	UPRVUNL	ANPARA TPS	State Sector	Uttar Pardesh	NR	Non-NCR	4	500	**19-07-1993**	100	239	30-04-2022	Engagement of agency for pre-award services is in process	600	411		Nox com	200	675	4-30-2022	30/04/2022	N	0	FGD POSSIBLE	Engagement of agency for pre-award services is in process								
83	UPRVUNL	ANPARA TPS	State Sector	Uttar Pardesh	NR	Non-NCR	5	500	**04-07-1994**	100	265	28-02-2022	Engagement of agency for pre-award services is in process	600	431		Nox com	200	687	2-28-2022	28/02/2022	N	0	FGD POSSIBLE	Engagement of agency for pre-award services is in process								
84	UPRVUNL	ANPARA TPS	State Sector	Uttar Pardesh	NR	Non-NCR	6	500	**08-06-2015**	50	45	SPM Corrollant	SPM Corrollant	300	222		Nox com	200	629	6-30-2021	30/06/2021	N	0	FGD POSSIBLE	Part -1 Techno Comm Bid opened on 27.11.2018						Sep-18		
85	UPRVUNL	ANPARA TPS	State Sector	Uttar Pardesh	NR	Non-NCR	7	500	**06-03-2016**	50	47	SPM Compliant	SPM Compliant	300	228		Nox com	200	649	4-30-2021	30/04/2021	N	0	FGD POSSIBLE	Part -1 Techno Comm Bid opened on 27.11.2018						Sep-18		
86	UPRVUNL	HARDUAGANJ TPS	State Sector	Uttar Pardesh	NR	NCR	8	250	**27-09-2011**																12-31-2021	31/12/2019	N	0	FGD POSSIBLE	Administrative approval is under process.								
87	UPRVUNL	HARDUAGANJ TPS	State Sector	Uttar Pardesh	NR	NCR	9	250	**25-05-2012**																10-31-2021	31/12/2019	N	0	FGD POSSIBLE	Administrative approval is under process.								
88	UPRVUNL	OBRA TPS	State Sector	Uttar Pardesh	NR	Non-NCR	9	200	**26-10-1980**																8-31-2022	31/08/2022	N	0	FGD POSSIBLE	Feasibility Study Under Progress								
89	UPRVUNL	OBRA TPS	State Sector	Uttar Pardesh	NR	Non-NCR	10	200	**14-01-1979**			31-10-2022													10-31-2022	31/10/2022	N	0	FGD POSSIBLE	Feasibility Study Under Progress								
90	UPRVUNL	OBRA TPS	State Sector	Uttar Pardesh	NR	Non-NCR	11	200	**31-12-1977**			31-12-2022													12-31-2022	31/12/2022	N	0	FGD POSSIBLE	Feasibility Study Under Progress								
91	UPRVUNL	OBRA TPS	State Sector	Uttar Pardesh	NR	Non-NCR	12	200	**28-03-1981**			30-06-2022													6-30-2022	30/06/2022	N	0	FGD POSSIBLE	Feasibility Study Under Progress								
92	UPRVUNL	OBRA TPS	State Sector	Uttar Pardesh	NR	Non-NCR	13	200	**21-07-1982**			30-04-2022													4-30-2022	30/04/2022	N	0	FGD POSSIBLE	Feasibility Study Under Progress								
93	UPRVUNL	PARICHHA TPS	State Sector	Uttar Pardesh	NR	Non-NCR	3	210	**29-03-2006**			30-04-2022													4-30-2022	30/04/2022	N	0	FGD POSSIBLE	Administrative approval is under process.								
94	UPRVUNL	PARICHHA TPS	State Sector	Uttar Pardesh	NR	Non-NCR	4	210	**28-12-2006**			30-04-2022													4-30-2022	30/04/2022	N	0	FGD POSSIBLE	Administrative aporoval is under process.								
95	UPRVUNL	PARICHHA TPS	State Sector	Uttar Pardesh	NR	Non-NCR	5	250	**24-05-2012**			28-02-2022													2-28-2022	28/02/2022	N	0	FGD POSSIBLE	Administrative approval is under process.								
96	UPRVUNL	PARICHHA TPS	State Sector	Uttar Pardesh	NR	Non-NCR	6	250	**11-03-2013**			31-12-2021													12-31-2021	31/12/2021	N	0	FGD POSSIBLE	Administrative approval is under process.								
97	NTPC	Meja STPP	Central Sector	Uttar Pardesh	NR	Non-NCR	1	660	**30-03-2016**																				FGD will award in LOT-1A of NTPC								

State-wise Emergency Restoration system in NR #				
Transmission Licensee	Requirement of Total no of ERS in State	Number of ERS available in state	No of ERS to Be Procured	Remark if Any
POWERGRID		2 sets of 400 kV & 2 sets 765 kV	-	-
DTL		2 sets	-	-
PSTCL		2 sets	-	-
UPPTCL		2 sets	-	-
PTCUL			2 sets	DPR under finalization
HVPN			2 sets	Under tendering
RRVPN			2 sets	NIT floated
HPPTCL			2 sets	Matter under consideration regarding funds availability
PDD J&K		2 sets	-	-
BBMB		0	0	##
Sterlite*				

*Sterlite has an arrangement with M/s Supreme, Kolkata to provide the ERS services as and when required and are in the process of procurement of their own.

Data as available with NRPC Sectt.

In the 155th OCC meeting, MS, NRPC advised BBMB to procure ERS for their system to which BBMB replied that the decision has already been taken in the full board decision of BBMB that the partner states will provide ERS to BBMB whenever needed.

MS, NRPC stated that if such a stance has been taken by the partner states, the partner states shall procure 1 additional set each to be provided to BBMB whenever they require.