



सत्यमेव जयते

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

सं. उक्षेविस/ वाणिज्यिक/ 209/ आर पी सी (46 वीं)/2019/12509-12556
No. NRPC/ Comm/ 209/ RPC (46th)/2019/

दिनांक : 14 अक्टूबर, 2019
Dated: 14th October, 2019

सेवा में / To,

उ.क्षे.वि.स. के सभी सदस्य
Members of NRPC/TCC

विषय: उत्तर क्षेत्रीय विद्युत समिति की 46 वीं तथा तकनीकी समंय उप-समिति की 43 वीं बैठक कार्यवृत्त ।

Subject: 46th meeting of Northern Regional Power Committee and 43rd meeting of TCC – Minutes.

महोदय / Sir,

उत्तरी क्षेत्रीय विद्युत समिति की 46 वीं बैठक दिनांक 24 सितम्बर, 2019 को तथा तकनीकी समंय उप-समिति की 43 वीं बैठक दिनांक 23 सितम्बर, 2019 को कोवलम, थिरुवानाथापुरम में आयोजित की गयी थी । इन बैठकों के कार्यवृत्त की प्रति आपकी सूचना व आवश्यक कार्यवाही हेतु इस पत्र के साथ संलग्न है।

The 46th meeting of Northern Regional Power Committee was held on 24th September, 2019 and 43rd meeting of TCC was held on 23rd September, 2019 at Kovalam, Thiruvananthapuram. A copy of the minutes of the meetings is enclosed herewith for your information and necessary action.

भवदीय/Yours faithfully,

(नरेश भण्डारी)
(Naresh Bhandari)
सदस्य सचिव
Member Secretary

14/X/19

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49. Representative of BRPL (Delhi Private Discom)
50. Representative of Bajaj Energy Pvt Ltd (Member IPP < 1000 MW)
51. Representative of Kreate Energy Pvt Ltd (Member Trader)

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40. WTD, Lanco Anpara Power Ltd., (Fax-124-4741024)
41. Addl. Vice President, Rosa PSCL , (Fax-05842-300003)
42. Director (Technical) JSW Energy Ltd., New Delhi (Fax: 48178740)
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48. Representative of Prayagraj Power Generation Co. Ltd.
49. Representative of BRPL (Delhi Private Discom)
50. Representative of Bajaj Energy Pvt Ltd (Member IPP < 1000 MW)
51. Representative of Kreate Energy Pvt Ltd (Member Trader)

Special Invitee:

- i. Member Secretary, WRPC, Mumbai-400 093.
- ii. Member Secretary, SRPC, Bangalore-560 009
- iii. Member Secretary, ERPC, Kolkata-700 033.
- iv. Member Secretary, NERPC, Shillong-793 003.

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NORTHERN REGIONAL POWER COMMITTEE

MINUTES OF 43rd MEETING OF TECHNICAL CO-ORDINATION SUB- COMMITTEE (TCC) & 46th MEETING OF NORTHERN REGIONAL POWER COMMITTEE (NRPC)

The 43rd meeting of Technical Co-ordination Sub-Committee (TCC) and 46th meeting of Northern Regional Power Committee (NRPC) were held on 23rd and 24th September, 2019 respectively at The LeelaRaviz, Kovalam, Thiruvananthapuram. The list of participants of the TCC and NRPC meetings is enclosed at **Annexure-I & II**. Shri Y. K. Raizada, Director (Technical), RVPNL chaired the TCC meeting. Shri Kunji Lal Meena, CMD, RVPNL, chaired the NRPC meeting.

PROCEEDINGS OF 43rd MEETING OF TCC

Shri H. K. Malik, Executive Director, NR-I, and Shri Sunil Agarwal, Executive Director, AM, POWERGRID welcomed the members and participants of the 43rd TCC meeting.

Shri Naresh Bhandari, Member Secretary, NRPC welcomed the dignitaries on the dias and other members of the Technical Coordination Committee present in the hall. He stated that during summer months from June-August, 2019, power supply position of NR was comfortable and the region as a whole, faced 0.93% energy shortage and 1.12% peak shortage. Maximum energy consumption was 1493MU on 01/07/2019 as compared to 1421MU on 10/07/2018 and Max. peak demand was 66615MW on 03/07/2019 as compared to 61653MW on 10/07/2018. He further informed that total 6 nos. solar plants aggregating to installed capacity of 980 MW, have been integrated in the ISTS network of NR grid during last four months and all are located in Bhadla. He further stated that normally the demand starts tapering in the month of September but this time, it was extended summer till around mid of September month. and now demand has started reducing and thus, it is the appropriate time for availing preventive shutdown for generating units and transmission lines. Demand is likely to decrease gradually and the issues like high voltage, EHV line tripping due to fogging & smog need to be dealt in an effective manner. He informed that NRLDC would be discussing all this in detail in their agenda related to winter preparedness. Besides preventive maintenance, it is also necessary to carry out mock black start exercise to ensure healthiness of system.

Coming to the RE generation, Member Secretary stated that RE generation is a challenge and target becomes mammoth when it is 175GW, to be achieved by 2022. So far its optimal utilisation is concerned, there is a need for storage facility at the generating point. On this aspect, SECI has floated a tender regarding development of co-located storage facility.

MS, NRPC further informed that TCC has large number of agenda items, covering various operational and commercial issues and need deliberation at length. Main operational issues are Protection database creation, Winter preparedness, Telemetry, reactive compensation, Capacitor study, transmission scheme in SEZ in Rajasthan and important commercial issues are PSM and outstanding dues. He expressed hope that during the TCC deliberations, fruitful discussions would take place and members would be able to guide and recommend to NRPC, the solution to the various issues.

Shri Y.K. Raizada, Director (Technical), RVPN and Chairperson, TCC extended his hearty welcome to all the delegates attending the 43rd TCC meeting. He informed that the maximum demand of Northern Region during this summer had already touched 66 GW. He expressed his satisfaction over the fact that the region had been able to meet this demand without any significant event affecting grid security. He stated that in view of large thermal and RE generation target, the distributed architecture of transmission system needs to be utilised optimally so that losses could get reduced.

In the end, he thanked Shri H. K. Malik, ED, NR-1 and Shri Sunil Agarwal, ED, AM, POWERGRID and his team of officers for hosting the meeting and for making excellent arrangements for comfortable stay of the members and participants.

PROCEEDINGS OF 46th MEETING OF NRPC

Shri HK Malik, ED, NR-1 and Shri Sunil Agarwal, ED, AM, POWERGRID welcomed the members and participants to the 46th NRPC meeting.

Member Secretary, NRPC welcomed the members to the 46th meeting of the Northern Regional Power Committee. He especially welcomed Shri. Kunji Lal Meena, CMD, RVPN and Chairperson, NRPC for chairing the NRPC meeting. He informed that in the TCC meeting held on 23rd September 2019, a number of operational and Commercial items were listed on which detailed deliberation took place. Now, the recommendations of TCC, have been referred to NRPC for taking a view in the matter.

Shri Kunji Lal Meena, Chairperson, NRPC welcomed all delegates to the 46th NRPC Meeting. He thanked the entire team of POWERGRID for the excellent arrangements made by them in organizing this meeting at Kovalam. He informed that during the last 2-3 months, several policy & regulatory developments have taken place in the Indian power sector like MoP order regarding Payment Security Mechanism (PSM), CERC's draft regulation in regard to Real Time Market (RTM), Extension of Pilot project on Security Constraint Economic Despatch (SCED) by 6 months, CERC order for Automatic Generation Control (AGC) implementation, etc. He urged all utilities to adhere to the decisions taken and timelines committed

in the meeting. He concluded by thanking all the members for sparing time for the meeting and wished successful and conclusive deliberations in the meeting.

CONFIRMATION OF TCC and NRPC MINUTES

A.1 Minutes of 42nd meeting of TCC and of 45th meeting of NRPC

Members were apprised regarding comments from RVPNL which have been received vide email dated 10.07.2019. TCC agreed that wind generation data may be read as **4226 MW** in place of 4246 MW in B.32.2 of minutes of 42nd TCC/45th NRPC meetings.

Rajasthan has also requested to remove the statement "**He also informed that 2500MW wind data telemetry is not available due to payment issue between wind generators and lease line owner.**" in B.32.2 of minutes of 42nd TCC/45th NRPC meetings. Rajasthan representative stated that RE generator data is not being received, however, data from pooling stations of RVPNL is received at SLDC. He requested that same may be clarified in the minutes. MS, NRPC stated that statement in B.32.2 of minutes may not be deleted, however, an additional statement "**He further clarified that Telemetry data from RVPNL pooling station is available at SLDC.**" may be added to clarify the point.

Accordingly, minutes may be modified as below:

Agenda	Points in Minutes	Modifications
B.32.2	Rajasthan representative updated that telemetry of 2929 MW of Solar generation and 4246 MW of Wind Generation is available.	Rajasthan representative updated that telemetry of 2929 MW of Solar generation and 4226 MW of Wind Generation is available.
B.32.2	He also informed that 2500MW wind data telemetry is not available due to payment issue between wind generators and lease line owner.	He also informed that 2500MW wind data telemetry is not available due to payment issue between wind generators and lease line owner. He further clarified that Telemetry data from RVPNL pooling station is available at SLDC.

Members confirmed the TCC and NRPC minutes along with the above mentioned amendments.

B. OPERATIONAL ISSUES

B.1 System Study for Capacitor Requirement in NR for the year 2019-20

TCC Deliberation

- B.1.1 Member were briefed about the agenda and highlighted that complete data has been submitted by Rajasthan (*except data of 11kV level*), Haryana, Delhi and Punjab. Further, sample data has been submitted by HP and UP and no data has been received from Uttarkhand and Jammu & Kashmir.
- B.1.2 HPSEB stated that complete data will be shared by 15th October, 2019. Rajasthan informed that capacitor at 11kV level are mainly switched off, hence he requested that data up to 33kV level may be considered for study.
- B.1.3 MS, NRPC stated that issue is long pending and proposed that CPRI may be asked to carry out the study with available data and those states for which data is not available, lumped load may be considered at 132kV level with network available at NRLDC. Accordingly, capacitor requirement at different voltage level as per the data considered for particular state can be calculated by CPRI.
- B.1.4 NRLDC stated that 132kV and above data available at NRLDC is furnished by utilities and suggested that utilities themselves should provide their network data of 132kV and above level for capacitor study. However, if any utility does not submit the data, same will be provided by NRLDC.
- B.1.5 TCC agreed to proposal that study may be carried out with data as submitted by states upto 15th October 2019 and for utilities from which data is not received, the network upto 132kV level with loads lumped at 132kV level will be done.
- B.1.6 TCC also agreed that states who have not submitted the complete information shall share their network of 132kV & above to CPRI by 15th October 2019 for the study. In case of non-submission by due date, the network of states, available with NRLDC shall be used for study.

NRPC Deliberation

- B.1.7 Members were apprised that study will be carried out for the states at 11kV, 33kV, 66kV for the states whose data is received by 15th October 2019 and for the remaining states study will be carried out at 132kV level.
- B.1.8 NRPC concurred with the deliberations held in the TCC meeting.

B.2 Database of protection settings

TCC Deliberation

- B.2.1 Members were apprised about the history and decisions taken in the various meetings regarding the project for protection settings database. It was informed that option to nominate CPRI for the project was deliberated in the last TCC/NRPC meeting, however, the same may not be possible under the extant General Financial Rules. The execution methodology involving project bifurcation as enumerated in the Agenda was also discussed.
- B.2.2 MS, NRPC highlighted that in the prospected methodology, the responsibility of collecting and submitting protection setting data will rest on CTU and STUs. He further briefed about the inception of the work which started with the recommendation of Task Force under the Enquiry Committee constituted after grid disturbance and further progress of the project in various PSC/TCC meetings. He informed that budgetary support of PRDC comprising 83 nos. pages has been included in DPR submitted to NLDC for PSDF funding and further highlighted remarks of the then Chairperson, NRPC who opined to maintain neutrality in the tender as PRDC was the executing agency in similar project of other RPCs. However, competition was not noticed in NRPC after carrying out tendering three times. Therefore, it may not be possible to go ahead with the approved DPR as there won't be any possibility of competition in the tendering.
- B.2.3 He further stated that as it is bound to go ahead with the scope defined in the DPR for which funding is granted, the proposal of executing project in two parts may not be feasible as there will be deviation from scope of work. He stressed that Task Force had recommended CTU and STUs to collect protection setting data and submit to NRLDC and respective SLDC with a copy to RPC for maintaining the database; and should be strictly adhered.
- B.2.4 POWERGRID informed that protection settings need change after every alteration in the network and thus coordination is required. MS, NRPC stated that after every change in the data of protection setting, STUs need to submit their data to respective SLDC and CTU to NRLDC and coordination can be done by the two agencies whose network is being changed.
- B.2.5 The importance of protection database and protection coordination were highlighted by NRLDC representative by quoting IEGC clause 5.2(L). He stressed on timebound compilation of structured data.

- B.2.6 TCC Chairperson stated that there is protection wing in every STUs and CTU whose representative is present in Protection sub-committees where methodology can be finalized for collecting the data. It must be ensured that data is collected in time bound manner and it should be used further for analysing the tripping where cause of the event due to protection setting/co-ordination can be determined.
- B.2.7 TCC agreed that proposed bifurcation would lead to deviation from the scope of the project for which PSDF funding is approved and competition can not be enhanced with the current scope of work / tender conditions. Accordingly, TCC recommended that NLDC to be informed about scrapping of DPR and funding thereon.
- B.2.8 TCC recommended that protection setting data may be submitted by STUs and CTU to SLDCs and NRLDC respectively with a copy to NRPC for maintaining database. The guidelines for data collection in a orderly and time bound manner may be finalized in next Protection sub-committee meeting.

NRPC Deliberation

- B.2.9 NRPC concurred with the deliberations held in the TCC meeting and requested utilities to submit the data by 15th October 2019.

B.3 Downstream network by State Utilities from ISTS Stations

TCC Deliberation

- B.3.1 NRLDC stated that after commissioning of 400kV Sambha-Amargarh D/C line reliability of Kashmir valley since last winter has improved. However, a few near miss cases were observed in Valley and integration of downstream network of New Wanpoh with Mirbazaar and Alsteng will further improve the reliability of valley. Alsteng-New Wanpoh is also very important for interconnection of 220kV Alsteng-Drass-Kargil-Leh (Ladakh).
- B.3.2 HPPTCL informed that shutdown of Chhaur could not be taken due to peak hydro season and non-availability of telemetry and work will be completed in due course. NRLDC stated that after charging of Chhaur-Banala D/C line, control area of Malana-II will be shifted to Himachal Pradesh SLDC.
- B.3.3 HVPNL informed that downstream network of Bhiwani and Jind substations will be completed by November 2020. NRLDC requested that efforts may be made to complete it before Summer 2020 to improve reliability. HVPNL agreed to expedite the work. The updated status of downstream network is enclosed at **Annex-III**.
- B.3.4 The status of establishment of new 400/220kV substations in Northern Region is enclosed at **Annex-IV**.

- B.3.5 MS, NRPC suggested that status updation of downstream networks and substations may be taken up in the monthly OCC meetings rather than in TCC/NRPC meetings.
- B.3.6 TCC recommended that status can be updated at OCC level only and major issues if any, may be discussed at TCC/NRPC level. Accordingly, agenda related to updating status of downstream networks and new substations may be dropped from next meeting.

NRPC Deliberation

- B.3.7 NRPC noted the status and concurred with the recommendations of TCC. NRLDC highlighted absence of representation from J&K in monthly OCC meetings and TCC/NRPC meetings. MS, NRPC stated that Principal Secretary, Energy, J&K will be intimated about the lack of representation of J&K in NRPC/TCC meetings.

B.4 Follow up of Major Decisions of NRPC

The status of follow up of decisions of NRPC is enclosed at **Annex-V**.

TCC Deliberations

- B.4.1 MS, NRPC suggested that follow up and status agenda may be taken up in the monthly OCC meetings rather than TCC/NRPC meetings.
- B.4.2 TCC recommended that status can be updated at OCC level only and major issues if any, may be discussed at TCC/NRPC level. Accordingly, agenda related to updating status may be dropped from next meeting.

NRPC Deliberations

- B.4.3 NRPC noted the status and concurred with the recommendations of TCC.

B.5 Training Programme/Workshop on Protection system Auditors from CPRI

TCC Deliberations

- B.5.1 Members were informed that Training Programme/Workshop on Protection Audit for two batches of 30 participants each have been successfully completed at CPRI, Bangalore.
- B.5.2 MS, NRPC informed that NRPC Sect. will be further taking up the Level-2 and Level-3 training programme on Power System Protection for Protection System Engineers.

NRPC Deliberations

- B.5.3 NRPC noted the deliberation of TCC and appreciated the efforts of NRPC Secretariat.

B.6 Cyber Security Preparedness & Monitoring and HVPNL's Agenda (Additional Agenda-II)

TCC Deliberations

- B.6.1 Utilities were requested to update status of VAPT conducted in their respective organization and VAPT plan for the future as well as report the status on the following points:
- a. Appointment of organization-wise Chief Information Security Officers (CISOs) 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.
- B.6.2 HVPNL informed that SLDC networks are integrated with each other as well as with NRLDC. Further, a team of National Critical Information Infrastructure Protection Centre (NCIIPC) visited at Haryana SLDC, Panipat on 05.08.2019 to assess the suitability of SLDC system for declaring it as Critical Information Infrastructure (CII). However, NCIIPC observed that in the present scenario none of the Business Process of SLDC Panipat can be considered for declaring it as CII. Accordingly, he requested that ISMS policy and Cyber Crisis Management Plan (CCMP) may be a unified document for all SLDCs and every SLDC may not be asked for individual documentation.
- B.6.3 HVPNL further informed that cyber security audit is being done by same third party and instead should be carried out from different CERT-In empanelled Auditors. He highlighted issues of Window 7 Operating System Updation as well as frequent changes of Site Engineer deployed by M/s SIEMENS at SLDCs.
- B.6.4 POWERGRID stated that there is initially AMC of 7 years with SIEMENS which includes work of VAPT and cyber security audit by third party. He highlighted that AMC contract is between SLDC and SIEMENS and any additional requirement by SLDC may be dealt bilaterally with SIEMENS and POWERGRID shouldn't be asked for the intervention.

- B.6.5 PSTCL stated POWERGRID was implementing agency for SCADA for the states, and while handing over to STUs, requirements of STUs/SLDCs should have been considered in finalizing scope of AMC. POWERGRID informed that scope of project and AMC for this project has been duly finalized by a constituted committee after deliberations for at least one year.
- B.6.6 TCC recommended that agenda may be discussed in next TeST meeting where modalities can be finalized, and thereafter the agenda may be taken up in next TCC/NRPC meetings.

NRPC Deliberations

- B.6.7 NRPC concurred with the recommendations of TCC.

B.7 Construction of 2 Nos. of 400 kV bays under ISTS at 765/400 kV PGCIL substation, Varanasi

TCC Deliberations

- B.7.1 CTU informed that 2 nos. of 400 kV bays (GIS) at 765/400 kV Varanasi (PGCIL) substation for Jaunpur-Varanasi (PGCIL) 400 kV D/c line has been discussed and agreed in 4th meeting of NR Standing Committee on Transmission held on 25.07.2019 and completion schedule is January, 2021.
- B.7.2 However looking into the timeframe, POWERGRID is exploring the option of providing hybrid bays, if feasible, as discussed in the 5th NR SCT meeting held on 13.09.2019. Accordingly, it was proposed to implement 2 nos. of 400kV bays at Varanasi (PG) with GIS/hybrid option under ISTS.
- B.7.3 CTU stated that scheme is yet to be approved by ECT and if entrusted to them for implementation, they will make best efforts to commission the bays matching with the line. UPPCL was requested to update the latest schedule of Jaunpur-Varanasi (PGCIL) 400kV D/C line.
- B.7.4 TCC recommended the scheme for approval of NRPC.

NRPC Deliberations

- B.7.5 NRPC approved the scheme as per the deliberations held in TCC.

B.8 Additional 1x500 MVA, 400/220kV (4th) transformer at Balachak (Amritsar) along with associated bays under ISTS

TCC Deliberations

- B.8.1 CTU informed that additional 1x500 MVA, 400/220kV (4th) transformer at Balachak (Amritsar) along with associated bays has been discussed and agreed in 4th meeting of Standing Committee of Transmission held on 25.07.2019 under ISTS.
- B.8.2 PSTCL stated that they have been taking up the matter for 500 MVA additional ICT at Amritsar since long and requested CTU to complete the installation work before June 2020, to avoid ATC/TTC curtailment, if any, before peddy period. PSTCL further stated that in regard to installation of 4th ICT, CTU had earlier indicated space constraint but after the site visit of the joint committee, space was identified and PSTCL's request was approved in the 4th meeting of NR Standing Committee on Transmission.
- B.8.3 Regarding early commissioning, CTU stated that scheme is yet to be approved by the ECT and if awarded to them for implementation, they will make best efforts to commission the ICT in 12 months.
- B.8.4 TCC recommended the scheme for approval of NRPC.

NRPC Deliberations

- B.8.5 NRPC approved the scheme as per the deliberations held in TCC.

B.9 220kV two Feeder bays at Saharanpur (400kV) PGCIL under ISTS

TCC Deliberations

- B.9.1 CTU informed that 220kV two Feeder bays at 400/220kV Saharanpur for Saharanpur (PG)-Deoband (Saharanpur-UP) 220 kV D/C line has been agreed under ISTS in the 3rd meeting of NR standing committee on transmission held on 24/5/2019. UP has given schedule of December 2021.
- B.9.2 CTU stated that scheme is yet to be approved by the ECT and if scheme is entrusted to them for implementation, they will make best efforts to commission the bays matching with the line.
- B.9.3 TCC recommended the scheme for approval of NRPC.

NRPC Deliberations

- B.9.4 NRPC approved the scheme as per the deliberations held in TCC.

B.10 Transmission scheme for controlling high loading and high short circuit level at Moga substation under ISTS

TCC Deliberations

B.10.1 POWERGRID informed that to resolve the issues of high short circuit levels of Moga (PG) 400kV bus & high loading of 765/400kV transformers & 400/220kV transformers at Moga S/s, bus split arrangement with suitable reengineering was agreed in 4th meeting of NR Standing Committee of Transmission held on 25/07/2019 under ISTS with following scope:

400kV Bus Section-1

- 400kV Kishenpur D/C feeders
- 400kV Hisar D/C feeders
- 2 nos. 765/400kV transformers
- 1 No. 50 MVAR

400kV Bus Section-2

- 400kV Jalandhar D/C feeders
- 400kV Bhiwani feeder
- 400kV Fatehabad feeder
- 400kV Nakodar feeder
- 400kV Talwandi Sabo/Malkana Feeder
- 4 nos. 400/220kV transformers
- 1 No. 125 MVAR

+Note: Bus splitting would involve running parallel GIS bus (Main-I/Main-II) to the existing bus. The proposed bus section – I arrangement would be transferred to GIS bus. Further, bus sectionalisers between AIS and GIS would be required. To accomplish the same, for Nakodar and ICT-II (765/400kV) feeders, one additional GIS bay module would be required and it shall be double breaker switching scheme. This arrangement would also avoid dismantling of existing buildings

B.10.2 PSTCL stated that splitting of the Bus bar at Moga has to be linked with the commissioning of Bikaner–Moga line to the extent possible. In case Bikaner-Moga line is commissioned earlier, the quantum of injection into the 400kV system through the 765/400 kV ICTs during intermediate period shall be restricted to 2000 MW, as per preliminary studies.

- B.10.3 CTU informed that Bikaner-Moga 765kV D/C line is under advance stage of completion and expected to be commissioned by Dec., 19. The above bus arrangement would be taken up as Supplementary System Strengthening Scheme. PSTCL requested that meeting to decide operational modalities after commissioning of Bikaner–Moga line may be convened at the earliest as commissioning of aforesaid line may not be possible if operational parameters are not finalized and agreed by Punjab and POWERGRID.
- B.10.4 NRLDC stated that bus having two 765/400 kV transformer would be having four no. of 400kV transmission lines and out of these two lines are Moga-Kishenpur D/C 765kV line charged at 400 kV, hence there will be only two 400kV lines on the bus-I (in Bus splitting arrangement) after charging of Moga-Kishenpur at rated voltage. While planning the new transmission system for the hydro projects located in J&K, this arrangement may be relooked.
- B.10.5 TCC recommended the scheme for approval of NRPC.

NRPC Deliberations

- B.10.6 NRPC approved the scheme as per the deliberations held in TCC.

B.11 Modifications in the Transmission schemes for Solar Energy Zones (SEZs) in Rajasthan (8.9 GW) Phase-I under ISTS

TCC Deliberations

- B.11.1 CTU informed that Transmission scheme for SEZs in Rajasthan (8.9 GW) Phase-I has been agreed in 45th NRPC meeting held on 08/06/2019. Present proposal is for inclusion of additional 1x240 MVAR switchable line reactor in each circuit of Fatehgarh-II- Bhadla 765kV D/C line and Fatehgarh-II – Bhadla-II 765kV D/C line at Fatehgarh-II end along with modified scope for Ajmer (PG) – Phagi 765kV D/C line at Phagi (RVPN) end which were agreed in 4th NR SCT meeting held on 25.07.2019.
- B.11.2 Further, CTU informed that RVPN had intimated that no spare bus reactor of 80 MVAR is available at Phagi (RVPN) substation which was earlier agreed to be used for proposed 240 MVAR bus reactors under ISTS. Therefore, there was need to include the 1x80 MVAR (single phase) spare unit along with 240 MVAR bus reactor at Phagi under ISTS. Accordingly, following modifications were proposed to be included in Transmission Scheme for SEZs in Rajasthan (8.9 GW) Phase-I under ISTS:
- Inclusion of 1X240 MVAR switchable line reactor in each circuit at Fatehgarh-II end of the Fatehgarh-II- Bhadla 765 kV D/C line

- Inclusion of 1x240 MVAR switchable line reactor in each ckt at Fatehgarh-II end of the Fatehgarh-II- Bhadla-II 765 kV D/C line.

For Ajmer (PG)– Phagi 765kV D/c line:

- 765kV line bays (AIS) – 3 (2 bays at Ajmer (PG) S/stn and 1 bay at Phagi (RVPN) S/stn)
- 1 complete GIS DIA 765kV (2 main breakers and 1 tie breaker at Phagi (RVPN) S/stn; 765kV reactor bay (GIS) -1 (2nd main bay of new DIA being created for termination of 765kV D/c line from Ajmer)
- 1X240MVA, 765 kV Bus Reactor (including 1X80 MVAR spare unit) with GIS bay at Phagi 765/400 kV S/stn.

B.11.3 TCC recommended the scheme for approval of NRPC.

NRPC Deliberations

B.11.4 NRPC approved the scheme as per the deliberations held in TCC.

B.12 Replacement of Old transformers/reactors (age more than 25 years) in the Northern Region

TCC Deliberations

- B.12.1 POWERGRID informed that many of Transformers and Reactors in POWERGRID system are in service for more than 25 years. The condition assessment of 57 equipment of Northern Region was carried out by POWERGRID and 24 equipment were found critical in the test result. CPRI has recommended for the replacement of 08 nos. of equipment (02 ICTs & 06 reactors) for which POWERGRID will approach CERC for their replacement under O&M add Cap.
- B.12.2 POWERGRID further proposed that replacement of old 315 MVA ICT may be done by 500 MVA ICTs and replacement of old 50/63/80 MVAR Bus Reactor may be done by 125 MVAR reactor.
- B.12.3 PSTCL objected for replacement of transformers which are service for more than 25 years as there were many transformers in STUs which are being operated in this condition. He stated if there is either N-1 non-compliance or parameter deterioration of transformer, then replacement proposal may be deliberated in detail in the forum with details of test results. He stressed that replacement cost may be met through the already approved tariff and no additional burden of replacement cost may be passed on the state utilities. He stated that replacement cost is already being included in the approved tariff under depreciation cost.

- B.12.4 PSTCL also highlighted that N-1 contingency studies are also being carried out for the scenarios of equipment failures. Hence mere 25 years old criteria shouldn't be considered for replacing the ICTs. He stated if parameters of a particular ICT are found to be extremely deteriorating, then only replacement may be agreed.
- B.12.5 RVPNL also objected for replacement of transformers which are service for more than 25 years and requested to deliberate in Standing Committee on case to case basis.
- B.12.6 UP also highlighted that along with reliable and safe operation of the grid, the economic operation of grid should also be ensured.
- B.12.7 HP stated that replacement of 315 MVA with 500 MVA and old 50/63/80 MVAR Bus Reactor with 125 MAVR reactor shouldn't be considered uniformly and case to case study of each augmentation may be done. NRLDC also agreed that technical change in the equipment capacity may be discussed in Standing Committee on case to case basis.
- B.12.8 After deliberations, it was decided that the issue of capacity augmentation of ICT and reactor as well as CPRI Technical report may be first deliberated in detail in the Standing Committee and then it may be discussed in TCC/NRPC meetings.

NRPC Deliberations

- B.12.9 Chairperson, TCC suggested that CERC may work out the modalities for tariff when useful life of equipment is completed.
- B.12.10 Chairperson, NRPC advised that considering reliability and safety of grid, action plan may be made by STU as well as CTU for replacing unhealthy transformer on case to case basis but not transformers which are in service for more than 25 years.
- B.12.11 NRPC concurred with the views of Chairperson, NRPC.

B.13 Cold Spare transformer requirement for Northern Region

TCC Deliberations

- B.13.1 POWERGRID informed that CERC had set up a Committee consisting of representatives from CERC, NLDC, CEA and POWERGRID under the Chairmanship of the Chief (Engineering) of the CERC to assess the requirement of regional spares including bus reactors, line reactors, ICTs, etc. which would ensure reliability of the grid and reduce downtime in case of any failure/outage.

- B.13.2 PSTCL stressed that they have the same stand as of B.12 and tariff for spare ICT is already being included in the approved Tariff and any additional burden on states wouldn't be agreed. He requested that cost for spare equipment may not be approved as it will set a wrong precedent.
- B.13.3 RVPNL stated that they are including cost of spares in the tariff for 765kV system and same may be done by POWERGRID. He objected for any additional financial burden on states for the procurement of cold spares by POWERGRID. NRLDC requested that committee report may be shared amongst the utilities. POWERGRID informed that the committee report is available at CERC site.
- B.13.4 It was decided that utilities would first study the committee report and then issue of procurement of spare equipment may be discussed in next TCC meeting.

NRPC Deliberations

- B.13.5 NRPC concurred with the deliberations held in the TCC meeting.

B.14 Frequent tripping of 220kV Sohawal-Tanda-I & II line of UPPTCL; and Additional Agenda–III: Frequent Tripping of 220kV Lines emanating from Meerut, Baghpat & Saharanpur Sub Station

TCC Deliberations

- B.14.1 POWERGRID informed that 220kV Sohawal - Tanda-I & II have been charged in May 2019, however, these lines are frequently tripping due to faults in the transmission lines of UPPTCL. Due to the same, heavy fault currents are being fed from 400/220 KV transformers installed at Sohawal substation (POWERGRID) which is affecting the health of transformer and may lead to premature failures.
- B.14.2 UPPTCL informed that there was issue of corridor clearance due to trees which has been resolved now and there is no tripping since 08th August, 2019.
- B.14.3 POWERGRID informed that 134 nos. tripping took place since April 19 in the 220kV line emanating from Meerut, Baghpat and Saharanpur, due to which heavy current is being fed through 400/220kV Transformers. The heavy fault current is reducing not only residual life of transformer but also useful life of 220kV switchgear equipment.
- B.14.4 UPPTCL informed that tree cutting is difficult in these areas and has become a law and order situation. He further stated that there was defective batch of Polymer insulator which is being replaced.

- B.14.5 POWERGRID proposed auto re-closure of all 220kV lines may be kept in “OFF” condition to avoid undue stress on transformers and in case of any tripping in future, line will be charged after clearance from UPPTCL. However, NRLDC stated that it is not advisable to switch off the auto re-closure as it will affect reliability of the entire system. POWERGRID again emphasised on damage of equipment due to heavy fault current being fed through it.
- B.14.6 TCC recommended to form a committee of PGCIL and UPPTCL to analyse the trippings in the 220kV line emanating from Meerut, Baghpat and Saharanpur and resolve the issue at the earliest.

NRPC Deliberations

- B.14.7 NRPC concurred with the recommendations of TCC.

B.15 Reliable Communication Scheme (Additional) under Central Sector for Northern Region

TCC Deliberations

- B.15.1 MS, NRPC informed that during 39th& 40th NRPC meetings, implementation of Reliable Communication Scheme envisaging 5474 KM approved for implementation by POWERGRID to provide connectivity of substation of 132 kV and above under central sector as per directive of MOP, GOI.
- B.15.2 POWERGRID informed that in order to provide reliability and redundancy in ISTS communication system in line with draft ‘Manual of communication planning in power system operation, 2019 (CEA)’, and also CERC’s Communication Regulation 2017, additional Central Sector fibre optic links to the tune of 2762 Km. are to be established for building path redundancy and route diversity for reliable data & voice connectivity. Estimated cost of the project is Rs. 92 Cr.
- B.15.3 Member Secretary, NRPC stated that the scheme has been recommended by TeST sub-committee in its 15th meeting and same may be deliberated in NRPC for approval.

NRPC Deliberations

- B.15.4 Rajasthan stated that DPR of the project still does not seem to be ready. Since, Rajasthan itself has been laying 13000 KM network for redundancy, so part of Rajasthan included in the scheme, is not required. POWERGRID stated that they have proposed only those nodes where redundancy is not available. In case, if there is any duplicacy, that would be deleted.

- B.15.5 Punjab conveyed that after going through the minutes of the last TeST sub-committee meeting, it appears that the proposed scheme has been recommended by TeST sub-committee without much deliberation. Also, this project could be considered for PSDF funding as Punjab had also got PSDF funding for similar type of state projects. Regarding less deliberation in TeST, MS, NRPC stated that state representation in meetings other than TCC/NRPC has reduced to a level that in some states AE or AEE participate against Chief Engineer, nominated member. Regarding PSDF support, POWERGRID stated that PSDF support of 50% is for the state sector, but for central sector no such provision is available in this scheme.
- B.15.6 After detailed deliberations, it was decided that this agenda would be again taken up in the next TeST meeting. PSTCL and RRVPNL informed that they are ready to clear the scheme in 15 days if POWERGRID deputs their engineer and they are convinced that while making scheme due diligence has been given to use state network. States also agreed to depute officer not below SE level in the meetings other than TCC/NRPC.

B.16 Establishment of State-of-the-Art Unified Centralized Network Management System U-NMS for ISTS and State Utility Communication Network

TCC Deliberations

- B.16.1 POWERGRID informed that provisions of Centralized NMS and Centralized Monitoring by integrating its NMS with other users NMS has been kept in the draft Technical standard and Communication Planning Criteria Manual of CEA. In addition to this, guideline on availability of Communication system for ISTS has been submitted to CERC by CEA for which centralized NMS/OSS is considered essential. MS, NRPC stated that the scheme has been recommended by TeST sub-committee in its 15th meeting and same may deliberated in NRPC for approval.

NRPC Deliberations

- B.16.2 POWERGRID stated that scheme has been discussed at length in last meeting of TeST sub-committee wherein POWERGRID had made a detailed presentation before the members. The estimated cost of Rs 600 Cr is for all regions.
- B.16.3 Haryana stated that U-NMS is a necessary system because different make of communication systems are to integrated at common platform. POWERGRID stated that in line with CERC's regulations mentioning communication system availability, the proposed U-NMS is also capable to calculate the availability of the communication system besides providing holistic view of network.
- B.16.4 The Committee after detailed deliberation, approved the scheme.

B.17 UPPTCL Communication issues (Agenda by UPPTCL)

TCC Deliberations

B.17.1 It was informed that UPPTCL had requested POWERGRID in 15th TeST meeting to arrange PDH in place of Nokia equipment at 18 locations. POWERGRID has agreed and confirmed that requirement of PDH at these locations would be considered under the ongoing reliable communication scheme.

B.17.2 TCC recommended the proposed arrangement for the approval of NRPC.

NRPC Deliberations

B.17.3 NRPC approved the proposal.

B.18 Signing of MoU between POWERGRID and HVPNL for HVPNL owned bays in POWERGRID Gurgaon and Jind substations

TCC Deliberations

B.18.1 POWERGRID informed that HVPNL owned bays have been commissioned in POWERGRID Gurgaon and Jind substations, however, HVPNL is yet to sign MoU with POWERGRID as per prevailing practice & rates. POWERGRID has been pursuing HVPNL for signing of MoU for maintenance of bays. The details of HVPNL owned bays at POWERGRID S/s are as under:

(i) Details of HVPNL owned bays at POWERGRID Jind SS:

Bay no.	Type of bay	Date of commissioning
1) Bay 401 (Kirori Ckt-1)	Line Main bay	31/12/2013
2) Bay 404 (Kirori Ckt-2)	Line Main bay	31/12/2013
3) Bay 402 (Kirori Ckt-1)	Line Tie bay	31/12/2013

(ii) Details of HVPNL owned bays at POWERGRID Gurgaon SS:

Bay no.	Type of bay	Date of commissioning
1) Bay 408 (Dadulatabad Ckt-I)	Line Main bay	27/06/2013
2) Bay 409 (Dadulatabad Ckt-II)	Line Main bay	27/06/2013

B.18.2 HVPNL stated that there is some issue of difference in charges of HERC and CERC due to which issue is long pending. He agreed that issue will be resolved at the earliest.

B.18.3 NRLDC highlighted the issue of coordination in real time information exchange and tripping reporting of substations having inter-utilities bays and advised to incorporate same in MoUs amongst the utilities.

- B.18.4 TCC noticed that issue is long pending since 2013 and asked HVPNL to resolve the issue and sign MoU by 15th October 2019.

NRPC Deliberations

- B.18.5 NRPC concurred with the recommendations of TCC.

B.19 Long Term Access (LTA) for Tehri PSP (1000 MW) and VishnugadPipalkoti HEP (444 MW)

TCC Deliberations

Tehri PSP (1000 MW)

- B.19.1 CTU informed that Haryana and Uttarkhand have signed LTA Agreement (LTAA). BRPL and BYPL have refused to sign the LTAA and Tata Power and Rajasthan are yet to sign the LTAA for Tehri Pumped Storage Plant (1000 MW).
- B.19.2 As per CERC order in Petition No. 92/MP/2017 dated 08/05/2018, in case of MoP/Gol allocation, beneficiaries shall be considered as deemed LTA Customers till their shares are re-allocated by the MoP/Gol and shall be liable for payment of applicable transmission charges upon operationalization of LTA.
- B.19.3 Rajasthan informed that Agreement signing is under process and is expected to sign shortly. BRPL, BYPL & Tata Power were requested to update the status.

VishnugadPipalkoti HEP (444 MW)

- B.19.4 CTU informed that LTA application in accordance with CERC Regulations/Detailed Procedure is yet to be received from THDC/beneficiaries.
- B.19.5 Further, agenda couldn't be deliberated as there was no representation from THDCIL.

NRPC Deliberations

- B.19.6 NRPC noted the deliberations held in TCC meeting.

B.20 Revision in scope or works of 400KV Dhanansu

TCC Deliberations

- B.20.1 PSTCL informed following amended intra-state work has been agreed in 3rd NRSCT meeting dt. 24.05.2019:

- Establishment of 2x315 MVA, 400/220 S/s at Dhanansu. One 315 MVA, 400/220 KV ICT spared from 400 KV Nakoder shall be installed at 400 KV Dhanansu. The 2nd 315 MVA, 400/220 KV ICT shall also be a spared ICT from the existing 400 KV network of PSTCL.
- LILO of one circuit of 400 KV Jalandhar-Kurukshetra D/c line at Dhanansu (Quad Moose).

220 outlets from Dhanansu 400/220 KV substation:

- Dhanansu – Kohara 220 KV D/c line Appx. Line length – 12km(0.4sq")
- Dhanansu – Ikohara 220 KV D/c line Appx. Line length – 10km(0.4sq")
- Doraha (Dhanansu) – Doraha 220 KV D/c line Appx. Line length – 10 Km (0.4sq")

PSTCL informed that scheme will be funded by Punjab only.

TCC approved the scheme.

NRPC Deliberations

NRPC approved the scheme as per the deliberations held in TCC.

B.21 Creation of new 400 KV S/s, 2*500 MVA ICTs at Ropar in the premises of existing 220 KV Guru Gobind Singh Super Thermal Plant (GGSSTP) Ropar)

TCC Deliberations

B.21.1 PSTCL informed regarding creation of a new 2x500 MVA, 400/220 kV substation at Ropar with the following connectivity, which has been approved in 3rd NRSCT meeting held on 24.05.2019:

- Creation of 400 KV S/s Ropar with installed capacity of 2x500 MVA, 400/220 kV ICTs.
- LILO of both circuits of 400 KV Ludhina PGCIL-Koldamat proposed 400 KV S/s Ropar, LILO Length = 15 km (approx.)

PSTCL informed that scheme will be funded by Punjab only.

B.21.2 TCC recommended the scheme for approval of NRPC.

NRPC Deliberations

B.21.3 NRPC approved the scheme as per the deliberations held in TCC.

B.22 Additional 1*500 MVA 400/220 KV Transformer at Amritsar substation. Balachak(Agenda by PSTCL)

B.22.1 Agenda already deliberated at B.8.

B.23 Certification of 220KV D/C Chhaur-Banala line under construction by HPPTCL as Deemed ISTS (Agenda by HPPTCL)

TCC Deliberations

B.23.1 HPPTCL representative informed that 220kV Chhaur-Banala line will have the injection of only Malana–II and other end at Banala. He informed that line will be commissioned by 30.09.2019 having simple network with 2 nodes and no intrastate linkages.

B.23.2 He requested for certification of 220KV D/C Chhaur-Banala line of HPPTCL as Deemed ISTS without waiting for data of four/two quarters and requested for ISTS certification at the earliest as HPPTCL has to file petition in CERC for tariff.

B.23.3 MS, NRPC informed that studies need to be carried out after commissioning of the line, before certifying the lines as ISTS as per the CERC regulations and approved procedure of NR. He stated if ISTS flow is more than 50%, the line is certified as ISTS for one year. NRLDC representative agreed with comments of MS, NRPC and informed that data for 2 quarters is required to carry out the studies.

B.23.4 TCC advised HPPTCL to submit the request for certification with the relevant data after the commissioning of line. Further, studies may be carried out according to regulations and issue may be discussed in next TCC/NRPC meetings.

NRPC Deliberations

B.23.5 HPPTCL representative informed that commissioning is yet to be done due to Telemetry issue at Everest end. MS, NRPC requested to submit proposal after commissioning of the lines and stated that Everest will be requested to resolve the Telemetry issue at the earliest.

B.23.6 NRPC concurred with the deliberations held in the TCC meeting.

B.24 Telemetry Status of TCSC / FSC (Agenda by NRLDC)

TCC Deliberations

B.24.1 NRLDC informed that FSC/TCSC status is not available at Unnao substation for Bareilly line, and therefore UPPTCL and POWERGRID were requested to arrange for integration of telemetry of FSC/TCSC at the earliest. UPPTCL informed that tentative date of integration of telemetry will be communicated in due course.

NRPC Deliberations

B.24.2 NRPC concurred with the deliberations held in the TCC meeting.

B.25 Telemetry from Kurukshetra HVDC (Agenda by NRLDC)

TCC Deliberations

B.25.1 NRLDC informed that POWERGRID had agreed to provide telemetry of additional data of HVDC like extinction / firing angle, instances of changeover, etc. in meeting held at Kurukshetra. The matter was also discussed in 42nd TCC / 45th NRPC meetings in which NRPC requested POWERGRID to explore the possibility.

B.25.2 POWERGRID informed that OEM has expressed its inability to provide desired data, and accordingly it was decided to drop the agenda point.

NRPC Deliberations

B.25.3 NRPC concurred with the deliberations held in the TCC meeting.

B.26 Winter Preparedness (Agenda by NRLDC)

TCC Deliberations

B.26.1 NRLDC stated that demand of Northern region start decreasing from mid-October and remains on the lower side till February. During winter the ratio of minimum to maximum demand of northern region constituents varies between 40 to 60%. Due to large difference in peak and off peak demand, fast ramping to the tune of 60 MW/Min is required to meet the morning and evening peak and there is need of adequate reactive compensation to maintain voltages within IEGC band. Following measures were suggested

- i. Large variation in peak and off-peak: Following was suggested:
 - a. Demand & ramp forecast
 - b. Ramping of generation to commensurate with load ramp
 - c. Load generation balancing/Portfolio management
 - d. Optimization of Hydro resources
 - e. Staggering of load group :Rajasthan and Haryana were once again asked to disconnect/connect the load in staggered manner.
- ii. High voltages: During lean load period particularly night hours, when load of the major states of NR is almost ~40-50% of peak load, severe high voltages is also experienced throughout the Northern Region. Various studies and solutions as deliberated in various OCC/TCC meetings are:

- a. Monitor Reactive power resources through SCADA. Regarding telemetry of temperature and humidity data, POWERGRID informed that the same would be attended before winter.
- b. Ensure switch-off capacitor banks. A mechanism of real time monitoring of status of capacitor bank at SLDC level may be devised, and the same may be shared to RLDC.
- c. Use of Line reactor as Bus reactor. All possible switching arrangements may be ensured for all those line reactors that can be taken as bus reactor for containing high voltages in case line is not in service. NRLDC stressed the need of trained and adequate manpower at all control centres especially during night hours for carrying out the switching operation.
- d. Carryout Tap optimization. NRLDC informed that Tap optimization studies has been carried out by NLDC/RLDCs at 765/400 & 400/220kV level. It was done on the basis of Simulation, Real time scatter plots of HV & LV side of ICTs, NRPC Reactive power account, etc.
The same has been presented at various OCC/TCC meetings. SLDCs were requested to carry out the same exercise at 220kV and below ICTs and utilize tap optimization for better system operation.
- e. Explore dynamic response by Generators. To further combat high voltage scenario especially during night, dynamic reserves in the system should be explored i.e. generator capability to absorb reactive power, operation HEPs in condenser mode and use of old/retired thermal/gas station in condenser mode. NRLDC informed that in general, generators (specially state owned) are not absorbing MVA_r as per their capability curves. MS, NRPC stressed for co-ordinated efforts from all utilities to combat high voltages during winters, and asked generators for providing dynamic response as per their capability curve and grid requirements in line with various CERC/CEA regulations. Regarding status of synchronous condenser mode of operation which is enclosed at **Annex-VI**, MS, NRPC asked all utilities to update the status and submit either the trial schedule or written submission plant wise with relevant reasons in case of any issues in operating in condenser mode. He also advised that with the penetration of high renewables in the grid, inertia of grid will reduce and suggested utilities to utilize retiring thermal machines as synchronous condenser.

- f. EHV line opening may be the last resort to contain the high voltages. Based on simulation studies, a list of lines should be kept ready that can be opened to contain HV and timely return before demand hours. Ensure reliability of parallel corridors to avoid any loadings/contingency issue. To avoid EHV line tripping, locate the fog dominate area, check insulator cleaning or polymer replacement. Real time fog monitoring using Satellite images may be done.

B.26.2 Apart from above, healthiness of mechanism is i.e. all SPS, protection system, df/dt & UFR etc; to be ensured.

NRPC Deliberations

B.26.3 NRPC concurred with the deliberations held in the TCC meeting.

B.27 Reliability Issues (Agenda by NRLDC)

TCC Deliberations

B.27.1 NRLDC highlighted issues observed during the last three-months time:

- Punjab: ATC/TTC limits of Punjab state control area were revised to 6400/7000 MW based on simulation studies suggesting N-1 non-compliance at 400/220kV Amritsar, Rajpura, Muktsar ICTs. On managing loading at these ICTs, next severe contingency would be N-1 of 400/220kV Ludhiana, Nakodar and Makhu ICTs. New 500MVA ICT has been commissioned at Muktsar hence, removing constraint at Muktsar. Loading at Amritsar and Rajpura ICTs is above N-1 contingency limits while that of Ludhiana and Nakodar ICTs is close to N-1 contingency limit.
- Uttar Pradesh: Demand of Uttar Pradesh continued to remain high (maximum being in range of 20000-22000MW) during last 30 days. N-1 non-compliance was observed at 400/220kV Sarnath ICTs. 500MVA ICT-2 at Agra(UP) is out since 05.08.2019 resulting in N-1 non-compliance at Agra(UP).
- Haryana: TTC/ATC limits were initially assessed by NRLDC as 7500MW/6900MW respectively with N-1 non-compliance at 400/220kV Dipalpur and Panipat ICTs. In real-time also under import of 6000-7000MW, loading of Sonipat, Kabulpur and Panipat (BBMB) ICTs are high (close to N-1 limits) while that of Dipalpur is even above N-1 contingency limits for considerable duration

- Delhi: As per studies carried out by Delhi SLDC and NRLDC, TTC/ATC limit was assessed as 6800MW and 6500MW. Simulation studies suggested N-1 non-compliance at 400/220kV Mundka and Harsh Vihar ICTs. In real time, N-1 non-compliance was observed at Bamnauli and Mundka ICTs.
- Rajasthan: Under N-1 contingency of ICT at Akal or Bhadla, there could be generation loss of the order of 1000-1300MW, which is severe contingency in grid resulting in large scale frequency excursions (dip). Thus, there is need for SPS design to trip some generation in case of tripping of one ICT at these stations and antecedent loading of ICTs being higher than N-1 contingency limit.

NRLDC requested all states to share their latest ATC/TTC assessment for 2019-20 winter.

NRPC Deliberations

B.27.2 NRPC concurred with the deliberations held in the TCC meeting.

B.28 Requirement of model data for simulation of power system stability and dynamics (Agenda by NRLDC)

TCC Deliberations

B.28.1 NRLDC representative requested to furnish model data for simulation of Power system stability. He stated that in view of large renewable penetration and complex growing grid, dynamic studies and respective data has become significant for studying the dynamic behaviors of the system and POSOCO has formulated dynamic model data methodology (Conventional and renewable generator) for all the grid element connected at ISTS level. State may also adopt same guideline for collecting the dynamic model for all the new element before charging/registration.

POSOCO guideline is available at:

<https://nrlcdc.in/download/dynamic-data-modeling-templates/?wpdmdl=7337>

NRPC Deliberations

B.28.2 NRPC concurred with the deliberations held in the TCC meeting.

B.29 Additional Information by NLDC

TCC Deliberations

NLDC stated that in compliance of directions of CERC in the matter of AGC implementation, the general requirement for AGC connecting equipment at power plants has been notified by NLDC and is available at https://posoco.in/download/communication-to-power-plants-regarding-agc/?_wpdmdl=24784. Any queries may please be e-mailed to agcnldc@posoco.in.

All the ISGS stations whose tariff is determined or adopted by CERC should be AGC-enabled before 28th February 2020. NLDC also informed that the tender of primary response testing issued by NLDC is also in advance stage.

NRPC Deliberations

NRPC noted the deliberations held in the TCC meeting.

B.30 ADDITIONAL AGENDA–I: Transmission System Strengthening for potential Solar Energy Zones (SEZs) (11.1GW) in Rajasthan (8.1GW under ISTS & 3GW under Intra State by Rajasthan) under Phase-II (Agenda by POWERGRID)

TCC Deliberations

B.30.1 CTU informed the scheme comprises transmission system for 11.1GW in Rajasthan (8.1GW under ISTS & 3GW under Intra State by Rajasthan) under Phase-II as a part of Govt. of India's initiative to establish 175 GW renewable capacity by 2022.

Further the Transmission System for Solar Energy Zones in Rajasthan (8.9GW) under Phase-I has already been agreed in the 45th NRPC meeting held on 08.06.2019 and taken up for implementation.

B.30.2 Transmission system for integration of 11.1 GW solar potential in Rajasthan {from Ramgarh/Kuchheri (4 GW), Bikaner (3.15 GW), Bhadla (1.75GW) & Fatehgarh (2.2 GW)} comprising of 8.1GW solar potential through ISTS & balance 3GW {located in Jaisalmer (2.1 GW), Jodhpur (0.7 GW) & Bikaner Area (0.2 GW)} through Intra state network of Rajasthan in time frame of 2021-22 in Northern Region was deliberated in the 3rd, 4th and 5th meetings of Northern Region Standing Committee on Transmission (NRSCT) held on 24/05/2019, 25/07/2019 and 13/09/2019 respectively. The minutes of 5th NR SCT meeting have been issued on 21.09.2019 and final scope under ISTS as agreed in 5th NR SCT meeting is attached at **Annex-VII**.

- B.30.3 TCC chairperson stated that such network for intermittent RE generation may create despatch as well as reactive compensation problems for Rajasthan. He also stressed that any state with such huge amount of RE generation shouldn't be penalized for unscheduled interchange charges due to nature of such power.
- B.30.4 PSTCL stated if Phase-I & II are considered togetherly, then cost of transmission charges for such ISTS network may be to the tune of Rs 1.22 per unit. With this, and considering impact of thermal backing, losses, etc. the cost of such RE power would be of the order of Rs 5.98 per unit and such expensive power can't be procured by the states. He proposed that transmission schemes related to RE Green corridor may be funded by Gol by creating a separate provision and may not be burdened on the constituents.
- B.30.5 RVPNL stated that such large network will increase the fault level of Rajasthan and effects of such schemes on Rajasthan needs to be highlighted as equipments may be required to be changed due to such high fault levels. He also requested that possibility of battery storage to avoid ramping up and down may be considered. He stated that Govt. of India had formed RE integration committee and the Committee has released the report in May, 2019.
- B.30.6 NRLDC stated that as per the minutes of standing committee HVDC system was approved in 4th standing committee meeting which has been replaced with AC system in 5th standing committee meeting due to time constraints though HVDC was technically suitable.
- B.30.7 MS, NRPC stated that the scheme was exclusively discussed in detail in the 5th Standing committee meeting held on 13/9/19, and the minutes have been issued on 21/9/19. Minutes are quite exhaustive and constituents views have been covered in detail. The Standing Committee has approved the scheme.
- B.30.8 TCC noted the concerns of constituents and recommended the scheme for approval of NRPC along with views of constituents.

NRPC Deliberations

- B.30.9 NRPC approved the scheme as per the deliberations held in TCC, along with views of constituents.

C. COMMERCIAL ISSUES

C.1 Default in payment of outstanding dues and surcharge by beneficiaries

TCC Deliberations

C.1.1 SJVNL, NHPC and POWERGRID apprised the TCC members regarding the status of their outstanding dues. The details of the same are enclosed in the Agenda note of this meeting.

C.1.2 SJVNL

- HPSEBL informed that out of total Rs 314 Cr LPS (Late Payment Surcharge) pending, Rs 181 Cr share is of HPSEBL and rest belongs to Govt. of HP(GoHP). Since GoHP itself is an equity partner, it has sought waiver of LPS amount.
- On the issue of request from GoHP/HPSEB for waiver of LPS, SJVNL stated that the same has not been agreed by the SJVNL authorities.
- Rajasthan stated that they are in touch with the bankers regarding Rs.5000 Cr. loan and the payment would be released by next month.
- PDD J&K was not present in the meeting. SJVNL informed that they have issued power regulation notice twice to PDD J&K which were withdrawn after their assurance for payment.

C.1.3 THDCIL

Since THDC was not present, latest status could not be ascertained.

C.1.4 NHPC

- PDD J&K was not present in the meeting, committee advised to take up the matter bilaterally.
- NHPC informed that UPPCL would be releasing Rs. 300 Cr by the end of this month and urged them to pay the remaining amount at the earliest.
- UPCL was not present at the time of discussion, committee advised to take up the matter bilaterally.
- NHPC stated that all Rajasthan Discoms have to liquidate their respective outstanding dues, which could be paid by taking loan to avoid surcharge.
- RUVNL stated that they would liquidate the outstanding dues by next month.

C.1.5 POWERGRID

- POWERGRID stated that the latest outstanding dues of DICs are as under:

DIC	Outstanding (Rs. Cr.)for more than 45
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	days
Uttarakhand	153
HP	25
Punjab	22
UP	202

- Punjab stated that they have released Rs. 26 Cr. on 6th Sept. 2019.
- UP stated that most of their funds are being used in current payment after implementation of Payment Security Mechanism (PSM) regime and hence, there is some delay in payment of outstanding dues.
- POWERGRID requested DICs to liquidate the outstanding at the earliest.

NRPC Deliberations

C.1.6 NRPC expressed concern over non-payment of dues by defaulting entities and advised all members to clear the dues in a timely manner.

C.2 Opening of Letter of Credit (LC) of POWERGRID

TCC Deliberations

C.2.1 POWERGRID presented the list of beneficiaries that are yet to submit the requisite LC for the FY 2019-20. The details of the same were enclosed in the Agenda note of this meeting.

C.2.2 MS, NRPC requested the utilities to open LC on priority basis as per provisions in the PPA/CERC regulations.

NRPC Deliberations

C.2.3 NRPC advised all constituents to open the LC as per provisions laid down in their PPA and CERC regulations.

C.3 Maintaining the Letter of Credit for power supplied from NJHPS & RHPS

TCC Deliberations

C.3.1 SJVNL stated that some beneficiaries are not opening unconditional, revolving and irrevocable LCs in line with MoP's order dated 28.06.19.

C.3.2 He stated that they would go ahead with encashment of LCs in case of delay by even one day.

C.3.3 He further stated that some of States have opened a new Trading Company and SJVNL is being told that all future payments would be made through these new companies. However, no clarification is being given on outstanding dues.

- C.3.4 Rajasthan informed that the new company would settle old dues as well, and no rebate would be availed before old dues are settled.

NRPC Deliberations

- C.3.5 NRPC advised all constituents to open the LC in line with the provisions mentioned in recent MoP's order.

C.4 Non-payment of LPS by the beneficiaries in case of SJVNL

TCC Deliberations

- C.4.1 SJVNL stated that while releasing the amount of energy bill raised by SJVN Limited, the amount of late payment surcharge is being excluded by the beneficiaries. Uttar Pradesh, is not even verifying LPS bills.
- C.4.2 He further stated that LPS is an integral part of energy bills which is imposed/charged in accordance with extant CERC regulation and provision contained in the PPA for non-payment of dues. Hence, the non-payment of LPS, is violation of PPA as well as CERC regulations on the subject matter.
- C.4.3 TCC advised the concerned utilities to make payment of energy bill including the amount of LPS while making the payments in future.

NRPC Deliberations

- C.4.4 NRPC concurred the views of TCC.

C.5 Implementation of Payment Security Mechanism (PSM) based scheduling of power

TCC Deliberations

- C.5.1 NRLDC stated that Ministry of Power (MoP), Govt. of India vide its OM no. 23/22/2019-R&R dated 28/06/19 and thereafter, a few clarifications, had directed for implementation of Payment Security Mechanism (PSM) based scheduling of power in the country w.e.f. 01/08/2019 and had also directed to give regular status update on the implementation of the same at Inter-state as well as at Intra-state level.
- C.5.2 NRLDC informed that as the status of the implementation of the scheme at intra-state level is also to be furnished to the Ministry of Power on weekly basis, NRLDC through various letters has requested Northern Regional SLDCs to furnish the status of Implementation of Payment Security Mechanism based scheduling of power at Intra-state level. He informed that only Punjab and HP SLDCs are submitting the intra-state PSM status (excluding state owned generators) and requested other SLDCs to submit intra-state PSM data.

- C.5.3 NRLDC reiterated that as per MoP directive in case of non-maintenance of adequate payment security from an intra-state generating station to distribution company, concerned SLDC should restrict power supply from that generating station to concerned distribution company and SLDC should ensure that the regulated entity during the period of regulation has no access to procure power from the Power Exchanges and they shall not be granted Short Term Open Access.
- C.5.4 MS, NRPC advised SLDCs to furnish intra-state PSM data in compliance of MoP directive and implement the MoP directive on PSM in true letter and spirit.

NRPC Deliberations

- C.5.2 NRPC advised all SLDCs to abide by the instructions mentioned in MoP orders.

C.6 Modus Operandi for payment of Interest due to delay in payment of Compensation Charges on account of SCED Schedule

TCC Deliberations

- C.6.1 NRPC informed that the procedure for calculation of compensation charges on account of SCED was not provided in the DoP issued by the nodal agency. The same was discussed and finalized in the 39th CSC meeting held in NRPC Sectt on 21st May 2019.
- C.6.2 He further informed that the delay in issuance of compensation statement was due to discrepancy in data received by NRPC, wherein schedule in some of the time blocks, was greater than DC on bar. The issue of discrepancy has been sorted out and account statement for part load compensation till June 2019, has been issued by NRPC. Compensation statement for remaining months would be issued shortly.

NRPC Deliberations

- C.6.3 NRPC noted the TCC deliberations.

C.7 Modus Operandi for payment of Interest due to delay in receipt of Payment already made by the Inter State Generating Station to SCED NR Pool account from the Beneficiaries

TCC Deliberations

- C.7.1 APCPL informed that as per the operating procedure of SCED, RPCs issue SCED statements on a weekly basis, and generators have to make payment for decrement schedule due to SCED within seven (07) working days of issuance of SCED statement.

Due to this methodology, there is an inherent delay of approx. 46 days from the payment is made by the generator vis-a-vis the payment is recovered from the beneficiaries which leads to loss of interest to the generators. Weekly summary of the delay was attached with the agenda note of the meeting.

- C.7.2 NRLDC pointed out that alternatively, there are other generators which get increment schedule under SCED, and are receiving payment 46 days in advance. APCPL is facing a problem since its variable cost is high and it usually gets decrement schedule under SCED.
- C.7.3 MS, NRPC stated that there is merit in the problem faced by APCPL. Since, nodal agency would be reviewing the SCED procedure on account of CERC order dated 11.09.2019, this issue may be highlighted before them so that suitable modifications could be favourably considered in the Detailed operating Procedure.

NRPC Deliberations

- C.7.4 NRPC noted and concurred with the TCC deliberations.

C.8 Availability of SEM data on real-time basis and DSM charges

TCC Deliberations

PSTCL stated that at present, grid is being managed through SCADA data whereas accounting is done through SEM data. The SEM data is available only after one week. On account of mismatch between the two, states are sometimes forced to pay huge deviation charges. He urged that there should be a mechanism to make SEM data visible on real time basis, and till that time SCADA data should be used for calculation of DSM charges.

- C.8.1 Haryana, Himachal Pradesh and Rajasthan endorsed the suggestion made by PSTCL.
- C.8.2 NRLDC stated that CERC in its various order has reiterated that SCADA is only meant for monitoring purpose and commercial settlement needs to be done on the basis of SEM data only.
- C.8.3 POWERGRID stated that the present meters do not have any scope to facilitate data on real time basis. Instantaneous reading is not available and only 15 minute average reading is recorded which can be known only after the block is over.

- C.8.4 MS, NRPC stated that there would always be some mismatch between SEM and SCADA data due to accuracy class difference, time drift, communication issues, etc. All stakeholders should work towards minimizing this difference through coordinated efforts. Efforts made by UP in this regard were really appreciable.

NRPC Deliberations

- C.8.5 PSTCL stated that the problem faced by utilities can only be solved when SEM data is made available on real time basis.
- C.8.6 POWERGRID stated that meters would have to be replaced for making SEM data available on real time basis. He further informed that CEA was in the process of notifying new metering regulations and NRPC forum may take a call on whether new meters may be procured after new metering regulations are notified or NRPC may suggest specifications as provided by WRPC.
- C.8.7 CEA informed that the metering regulations would be notified soon and states may submit their comments on the draft regulation available at CEA's website. ED, NRLDC informed that POSOCO has already sent their comments on the draft regulation. It was decided that POSOCO would share these comments with all the constitunets, so that common comments as views of NR constitunets could be framed and communicated to CEA.

C.9 Status of DSM Charges

TCC Deliberations

NRLDC apprised the status of DSM charges payable to Pool Account. It was observed that there is a significant outstanding amount due since very long time by J&K, Uttarakhand and POWERGRID NR.Utilities having amount payable to pool were requested to clear the outstanding at the earliest in accordance with CERC Regulations and to avoid further increase of Delay Payment Interest.

- C.9.1 POWERGRID confirmed that they have paid the outstanding charges.
- C.9.2 TCC urged all concerned to make timely payments to avoid interest against delayed payment.

NRPC Deliberations

- C.9.3 Members concurred with the TCC recommendations.

C.10 Status of LC against Deviation Charges delayed payment

TCC Deliberations

- C.10.1 NRLDC requested defaulting entities to maintain LC against deviation charge as (as per Format issued by NRLDC) in accordance with CERC Regulations. He presented the list of defaulting entities as given in the agenda.
- C.10.2 TCC urged all the defaulting entities to open LC of the required amount in accordance with CERC Regulations.

NRPC Deliberations

- C.10.3 Members concurred with the TCC recommendations.

C.11 Reactive Energy charges status

TCC Deliberations

- C.11.1 NRLDC apprised the current status of Reactive Energy Charges Pool Account Status. It was informed that J&K has a long outstanding dues and only after clearance of outstanding dues by J&K, the settlement of other constituents, who are supposed to receive amount from the pool, could be done. Payable utilities were requested to clear outstanding RE charges payments at the earliest so that, receivable parties will be paid and to avoid further increase of Delay Payment Interest.
- C.11.2 TCC urged that J&K should release outstanding RE charges at the earliest so that, settlement of other constituents from the pool is also done.
- C.11.3 Since representative of J&K was not present therefore latest status could not be ascertained.

NRPC Deliberations

- C.11.4 Members concurred with the TCC recommendations.

C.12 Capacitor Installation in Jammu and Kashmir Region

- C.12.1 NRLDC stated that NRPC in its 6th meeting had approved the proposal for reimbursement of Rs. 2200 Lakh to PDD J&K for installation of shunt capacitors. He added that Rs.2200 Lakh was retained by NRLDC in Reactive Pool Account. Total amount of Rs.1949.19 Lakhs has been released to PDD J&K against the installation of shunt capacitor as per NRPC advisory. He further stated that PDD J&K vide letter dated 10.04.18 has refunded an amount of Rs.18.03 Lakhs as a balance out of Rs.1949.19 Lakhs.

- C.12.2 He informed that the balance amount of Rs.250.81 Lakhs (i.e. Rs.2200 Lakhs -1949.19 Lakhs) plus Rs.18.03 Lakhs refunded by J&K is also available in Reactive pool account. He proposed TCC to transfer the balance amount i.e.; Rs.268.84 lakhs to PSDF account.
- C.12.3 He further stated that the issue had been taken up in the 39th TCC and 42nd NRPC meetings held on 27th/28th June, 2018 respectively wherein representative of PDD, J&K stated that they would utilize the balance amount of Rs.2.68 Crore as per the scheme within 6 months and TCC recommended that PDD, J&K may utilize the balance amount and NRLDC may not transfer the money to PSDF account till further communication from PDD, J&K.
- C.12.4 NRLDC informed that they had not received any communication from PDD J&K in this regard.
- C.12.5 CEA stated that as per draft CERC (Power System Development Fund) Regulations, 2019, the balance in the pool account, should be credited to PSDF, on monthly basis.
- C.12.6 TCC agreed to the suggestion rendered by CEA and recommended to transfer balance amount to PSDF.

NRPC Deliberations

- C.12.7 Members concurred with the TCC recommendation.

C.13 NRLDC Fee & Charges

TCC Deliberations

- C.13.1 NRLDC informed that Sorang HEP and PDD J&K have outstanding dues to be paid towards NRLDC Fees and charges.
- C.13.2 He stated that except UP, all other utilities have paid the Performance Linked Incentive (PLI) bill for the financial year 2017-18 (Provisional) which has been raised by NRLDC in line with the CERC (RLDC Fees and charges) Regulations, 2015. The bill was raised in accordance with proviso (6) of Regulations 29 of CERC Regulations.
- C.13.3 TCC requested UP, PDD J&K and Himachal Sorang to clear all the outstanding amount towards NRLDC Fees and charges including PLI charges at the earliest.
- C.13.4 Further NRLDC stated that most of the users were not providing the details of Payment made / TDS Deduction as per the format given in agenda.

- C.13.5 TCC requested all the users to provide the requisite details as per the format for easy reconciliation.

NRPC Deliberations

- C.13.6 Members noted the TCC discussion.

C.14 Reconciliation of NRLDC Fee and charges

TCC Deliberations

- C.14.1 NRLDC stated that they had sent the reconciliation statements of NRLDC Fee and Charges for the quarter-I, 2019-20 to all the users vide letter dated 31/07/2019.

He requested users to send the duly signed and verified copy of reconciliation statement. He further added that reconciliation from ADHPL, Koteswar, Meja (UP Seller), NAPS, Tanakpur (NHPC) and NTPC (for all stations) had been received. MS NRPC advised that NRLDC fee and charges and poll accounts should be considered deemed reconciled if reconciliation statement is not received within a month's.

- C.14.2 TCC requested to verify the reconciliation statements and send the duly signed copy as a normal practice.

NRPC Deliberations

- C.14.3 Members concurred with the TCC discussions.

C.15 Reconciliation of Pool Accounts (Apr-19 to June-19)

TCC Deliberations

- C.15.1 NRLDC stated that reconciliation statement was not being received from utilities in a timely manner.

- a) Signed Reconciliation of pool account of Deviation charges had been received from ADHPL, NTPC, THDC, APCPL, Azure Power, SJVNL & Nepal only.
- b) Signed Reconciliation of Reactive Energy charges has been received from Rajasthan only.

- C.15.2 NRLDC requested all constituents to reconcile the statement on regular basis and to avoid any further dispute. MS NRPC advised that NRLDC fee and charges and poll accounts should be considered deemed reconciled if reconciliation statement is not received within a month's.

- C.15.3 Members agreed that if reconciled statement is not received in time, it will be considered as deemed reconciled.

NRPC Deliberations

C.15.4 Members concurred with the TCC discussion.

C.16 Status of Outstanding STOA Delay Payment Interest

TCC Deliberations

C.16.1 NRLDC gave details of outstanding STOA delay payment interest. The applicant wise outstanding interest amount (computed till 31.08.2019), was attached at Annexure-IX of the agenda.

C.16.2 He further stated that NRLDC was regularly monitoring the payment defaults, if any by any applicant. He added that some parties were regularly delaying the payment of principal and hence their interest had accrued on a regular basis viz. Arunachal Pradesh Power Corp. Pvt. Ltd.(APPCPL), Kreate Energy Pvt, Ltd., Northern Railways (Both UP and Delhi Division).

C.16.3 He informed that the STOA punching portal of Northern Railways (Delhi Division) was blocked since 8th May'19 due to non-payment of Interest. Similarly, the STOA punching portal of APPCPL had been blocked six times since March'2019 for non- payment of interest which was unblocked only after receiving the payment.

C.16.4 He informed that NRLDC has blocked the above Utilities for further applying for STOA applications, till clearance of all outstanding dues.

C.16.5 TCC urged all the defaulting entities to make timely payment.

NRPC Deliberations

C.16.6 Members noted the TCC discussion.

C.17 STATUS of AMR as on 04.09.2019

TCC Deliberations

C.17.1 NRLDC stated that there is some improvement in data submission to NRLDC by Tuesday particularly after switching over of 52 locations to OPGW. However, data from all locations are required for calculation of losses and preparation of weekly regional energy account. Non-availability of data from any station is making it difficult for NRLDC to process the meter data for loss calculation and timely submission of data to NRPC for preparation/issuance of weekly energy accounts. POWERGRID informed that AMR communications through optical fibre link at 52 locations of POWERGRID have been configured till date and balance shifting work on OPGW will be completed by 31st December 2019. TCC noted the same.

- C.17.2 POWERGRID informed that data from around 1300 Meters was being reported successfully out of 1504 meters integrated with AMR.
- C.17.3 While informing the status based on location wise data availability, NRLDC stated that even if data of a single meter is not available, they have to coordinate with the substation for the data again. Data from all locations are required for calculation of losses and preparation of weekly regional energy account.
- C.17.4 POWERGRID stated that balance work is likely to be completed by 31st December, 2019.
- C.17.5 TCC urged POWERGRID to co-ordinate with M/s Kalkitech and complete the task by 31st December, 2019.

NRPC Deliberations

- C.17.6 SLDC, Himachal Pradesh expressed concern about the long pending work of AMR. He further urged POWERGRID to make sure completion of AMR within the time line.
- C.17.7 Chairperson NRPC stated that since next NRPC meeting is due in second week of December, 2019, he requested POWERGRID to complete the task by 30th November, 2019 itself.
- C.17.8 POWERGRID stated that they would endeavour to complete the task by 30th November, 2019.

C.18 Integration of AMR System with Elster Meters

TCC Deliberations

NRLDC stated that only L&T make meters were integrated with AMR system and Elster make meters were yet to be integrated. He further stated that this issue of integration of Elster make meter with AMR had been long debated in various CSC meeting and TCC/NRPC meeting.

- C.18.1 POWERGRID stated that since M/s Kalkitech was not able to integrate despite various follow up, the said work had been given to M/s Synergy System & Solutions, Faridabad. He further informed that now both M/s Kalkitech and M/s Synergy are able to integrate Elster make meter with AMR system. He added that the same was also informed in Commercial sub-committee meeting held on 12th September, 2019.
- C.18.2 POWERGRID stated that Elster make meters would be integrated by 31st December, 2019 positively.

C.18.3 TCC urged POWERGRID to coordinate with both the vendors to complete the task by 31st December, 2019.

NRPC Deliberations

C.18.4 Chairperson NRPC stated that since this agenda is also linked with previous agenda item, POWERGRID should strive to complete this task also by 30th November, 2019.

C.18.5 POWERGRID agreed for the same.

C.19 AMR data through Fibre Optic Network

TCC Deliberations

C.19.1 POWERGRID was urged by the Committee to expedite the process of switching AMR data through Fibre Optic Network.

C.19.2 POWERGRID stated that format for arriving at the cost estimation of AMR through fibre optic, was shared with utilities in 37th Commercial sub-committee meeting but the information is yet to be received. The format is as under:

Details required to Migrate the Automatic Meter Reading System (AMR) from GRPS to Fibre Optic					
S. No.	Name of Utility /Name of Station	AMR Commissioned (Yes/No)	Make of Communication Panel	Distance between Communication panel to Data Concentrator Unit (DCU) (Cable laying distance in Meter)	Remarks

C.19.3 TCC further requested all utilities to submit the information sought by POWERGRID in prescribed format.

NRPC Deliberations

C.19.4 Members concurred with the discussion of TCC.

C.20 Status regarding procurement of DCD/Meters

TCC Deliberations

- C.20.1 NRLDC informed that the location wise requirement of DCD and quantity of DCD to be procured was provided to POWERGRID vide NRLDC letter dated 01.10.2018.
He further added that POWERGRID vide its email in June-19 informed NRLDC that huge quantity of meters, was required for upcoming solar parks in Northern Region and its present availability was not sufficient to meet the requirement.
- C.20.2 NRLDC requested POWERGRID to provide the present availability of DCDs and meters available in POWERGRID store and update the status on procurement of DCD/meters.
- C.20.3 POWERGRID stated that 130DCD and 240 Meters have to be procured. The bid opening of the tender regarding procurement of DCD/Meters was due on 3rd and 4th October, 2019.
- C.20.4 TCC noted the information.

NRPC Deliberations

- C.20.5 Members noted the information.

C.21 Time drift Correction in Interface Energy Meters

TCC Deliberations

- C.21.1 NRLDC stated that there was a significant improvement in time drift correction in Interface Energy Meters and at present only 5-6% of meters have time drift as per NRLDC record. He appreciated efforts taken by all the utilities in this regard.
- C.21.2 He further informed that NRLDC was regularly uploading the discrepancy report on weekly basis indicating the time drift in meters and also replacement/rectification required in SEMs. He requested all constituents, in whose premises the meters were installed, to take suitable action for time correction based on the weekly discrepancy report of NRLDC.
- C.21.3 POWERGRID informed that same would be completed by next TCC meeting.

NRPC Deliberations

- C.21.4 Members noted the information.

C.22 Scheduling, accounting and other treatment of the legacy shared projects in Northern Region

- C.22.1 NRLDC stated that some NR states have had shares in some of intra-state generating stations.
Some of these shares transactions were being scheduled at Inter-State level through proper 'access' in Inter-State Transmission System (ISTS) from Central Transmission Utility (CTU) while some are based on legacy scheduling process. The legacy scheduling transactions also invariably had associated transmission lines for delivery of these shares. The details of some of such transactions are given at **Annex-VIII**.
- C.22.2 He further stated that the schedule of the above interstate share from some intrastate generators was being carried out through contracts created in NRLDC WBES and punching access has been assigned to host state SLDC.
- C.22.3 He proposed that since there were many differences in scheduling of some of these legacy transactions. It was important that uniformity in accordance to prevailing scheduling norms/regulations is brought at the earliest and therefore following could be considered:
- i. All these transactions wherein specific LTA has not been granted shall be either considered under deemed LTA or specific LTA may be granted by the CTU.
 - ii. The transactions shall be subjected to transmission charges as well as RLDC fee and charges.
 - iii. Revisions in schedules of these transactions should be done ex-ante as applicable to any other transactions under the respective category.
 - iv. Post-facto revisions of some of these transactions which happening today shall be stopped.
- C.22.4 He further stated that non-access of these transactions put additional burden on other utilities in PoC charges.
- C.22.5 Himachal Pradesh requested that they need some time to discuss the matter in detail at their office and then they would be in a position to render their views.
- C.22.6 Member Secretary, NRPC stated that the issue may be discussed in separate meeting amongst concerned states. The outcome of the meeting would be placed before next TCC meeting.

NRPC Deliberations

- C.22.7 Members concurred with the discussion of TCC.

D. ISSUES FOR NRPC

D.1 Reimbursement of Expenditure of NRPC Sectt. for FY 2019-20 by the members of NRPC

D.1.1 Member Secretary, NRPC stated that in the 45th NRPC meeting, all members had agreed to make their payments for current year i.e 2019-20. He informed that for current financial year, contribution has been received so far from one member (Aravali Power) only and is still awaited from 41 members.

D.1.2 The committee requested members to expedite the contribution for NRPC Sectt.

D.2 Reimbursement of Expenditure of NRPC Sectt. by the members of NRPC for the previous years

D.2.1 Member Secretary, NRPC informed that contribution from some of the members towards reimbursement of expenditure of NRPC Sectt. for previous financial years, is still pending despite several reminders. Contributions from some of the constituents, have been pending since FY 2012-13.

D.2.2 Chairperson, NRPC stated that a D.O letter from Chairperson, NRPC could be sent to the members from whom contribution is still awaited.

D.3 Capacity Building Program for Northern Regional Constituents (proposed to be funded 100% through PSDF)

D.3.1 Member Secretary, NRPC stated that during last 45th NRPC meeting held on 8th June, 2019, a proposal on capacity building program, to study the power exchange of Nordic countries to assist the development of a commercially viable and vibrant power market in India, to be carried out for Northern Region Constituents, was placed before Northern Regional Power Committee. The Program is to be executed through PSDF funding exclusively. Members appreciated the proposal and authorized Member Secretary, NRPC to prepare the DPR, attend PSDF meetings on behalf of NRPC and do needful for getting PSDF grant for the Program.

D.3.2 He informed the salient features of the Capacity Building Program are given in the agenda.

- D.3.3 He further stated that the program would benefit the participants from the Central Transmission Utility (CTU), State Transmission Utilities (STUs), Distribution Companies, State Load Dispatch Centers (SLDCs), Generators (including ISGS) of Northern Region, Power System Operation Corporation (POSOCO) and Northern Regional Power Committee (NRPC) Secretariat. He also envisaged participation from Central Electricity Authority (CEA) and Ministry of Power.
- D.3.4 He proposed that NRPC may engage any Power Sector PSU / government organization in line with the provisions of GFR 2017 for executing the program. The program can have 4 batches of 15 participants each (five days for each batch). The tentative tenure of the program would be for one year w.e.f. 01/04/2020.
- D.3.5 Power Trading Corporation, one of the member of NRPC informed that similar program is being executed by them for constituents of ERPC. On the request of house, a brief power point presentation, highlighting the salient features of the program, was also made by Power Trading Corporation.
- D.3.6 Members of the Committee were of the view that executing agency for the program should be in accordance with the relevant provisions laid down in GFR 2017. Members were also apprised about Clause 3.10 of Manual for Procurement of Consultancy & Other Services, 2017 published by Ministry of Finance which says that at times, PSUs or Govt. organizations are used to provide technical expertise and it is possible to use the expertise of such institutions on a Single Source Selection Basis.

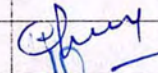
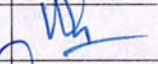
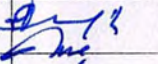
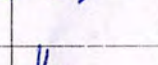
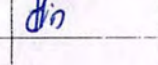

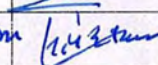
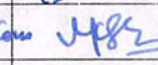
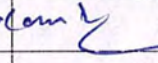
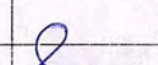
The committee unanimously decided to engage Power Grid corporation of India Ltd., a Navratna PSU of Govt. of India, to execute the program.

D.4 HOSTING OF NEXT MEETINGS OF NRPC / TCC

As per agreed roster for hosting of meetings, the next meetings of TCC (44th) & NRPC (47th) would be held on 10th & 11th December, 2019 respectively at Jaisalmer and are to be hosted by Rajasthan.

Annexure - I

List of Participants of 43rd Meeting of TCC on 23.09.2019 at Kovalam, Thiruvananthapuram

S. No.	Name of Officer	Designation	Organisation	Ph. No.	Mob. No.	Fax No.	E-mail	Signature
1.	BBMB							
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2.	CEA							
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3.	CHANDIGARH							
4.	DELHI							
	S. M. VERMA	Director (Tech)	IPGU/PPCL		9717694896		vermasm@rediffmail.com	
	Satyendra Prakash	AGM (T)	IPGCL-PPCL		9717694813		spmprakash@gmail.com	
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	H. VIJAY	ED (S)	Delhi & CPC		9999533639		harjivam.vyas@gmail.com	
	BRPL - Delhi	Head Power Management	BRPL Delhi	931247045	399036		sanjay.srivastav@relianceada.com	

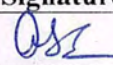




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S. No.	Name of Officer	Designation	Organisation	Ph. No.	Mob. No.	Fax No.	E-mail	Signature
5.	<u>HARYANA</u>							
	Rakesh Jolly	CE	HVPNPL	9356273737	9356273737		ce.socomml@hvpn.org.in	<i>[Signature]</i>
	R. K. Kaushik	SE	SLDC	0180-2662770	9315016209		SESLDC@gmail.com	<i>[Signature]</i>
	Amit Upfal	SE	HPGCL	9355084673	9355084673		amit.upfal@hpgcl.org.in	<i>[Signature]</i>
	Rajesh Garg	Xen	HPGCL	9355084404	9355084404		rajesh.garg@hpgcl.org.in	<i>[Signature]</i>
6.	<u>HIMACHAL PRADESH</u>							
	KESHAV SINGH ARORA	DIRECTOR (CEO)	HPPTCL	9418488316	0177-2832415	0177-2831344	ksingh@ptcl.org.in	<i>[Signature]</i>
	Dr. Deepak Upfal	CE (S&T op)	HPSEBL	9418109169	0177-2657901	0177-2657901	pcshimla2003@gmail.com	<i>[Signature]</i>
	J. P. KALTA	M.D.	HPSEBL	9418026481	0177-2803600		jpkalta@semail.co	<i>[Signature]</i>
7.	<u>J & K</u>							

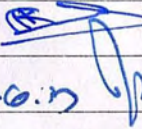
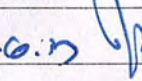
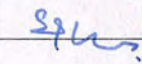
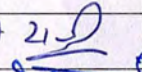
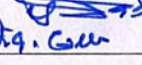
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S. No.	Name of Officer	Designation	Organisation	Ph. No.	Mob. No.	Fax No.	E-mail	Signature
8.	<u>PUNJAB</u>							
1.	N.K. Sharma	Dir/DIST	PSPCL	964620519 →			director.distribution@gmail.com	
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3.	Sanjeev Gupta	CE/TS	PSTCL	9646100864 →			ce-tl@pstcl.org	
4.	A.K. Kapur	Director/Tech	PSTCL	9646117802			dir-tech@pstcl.org	
5.	Y.P.S. BAATH	CE/SLDC	PSTCL	9646118001			ce-slcdc@pstcl.org	
9.	<u>RAJASTHAN</u>							
1.	C.L. KOLI	SE (PP)	RRVUN	9413385340			se-pp@rrvun.com	
2.	A.K. Arya	SE (SLDC)	SLDC, Rajasthan	9414061066			se.slwupnl@gmail.com	
3.	R.P. Sharma	CE (LD)	SLDC Rajasthan	9414061038			ce.ld@rwpn.com	
4.	S.K. Baswal	CE (PPD)	RVPNL, Raj	9413333005			ce.ppd@rwpn.co.in	
5.	SONA SHISHODIA	XEN (PPD)	RVPNL, Raj	9414030303			xen2.ppe@rwpn.co.in	
6.	SANJAY SINGH NEHRA, SE		RUVNL Raj (JVVNL)	9413390412			se.ppe@yahoo.co.in	
10.	<u>UTTAR PRADESH</u>							
1.	S.P. Chawhan	CE	UPRVUNL	941590238 →			cgm.to@uprvunl.org	
2.	Pankaj Saxena	EE	UPPTCL		9415902780	-	smart.saxena@gmail.com	
3.	Sanjay Srivastava	SE	PMC, UPPCL		9415099212		cepmpcuppcl@gmail.com	

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S. No.	Name of Officer	Designation	Organisation	Ph. No.	Mob. No.	Fax No.	E-mail	Signature
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5	C.K. Shukla	CE(PSO)	UPSLDC	9415233470	—	—	ceps0@upslde.org	
6	A.K. Singh	CE(CESS)	UPSLDC	9415006223	—	—	cecs@upslde.org	
11.	<u>UTTRAKHAND</u>							
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12.	<u>NHPC</u>							
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	BIKRAM SINGH	GM	NHPC		9816877750		bikram.singh@nhpc.nic.in	

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S. No.	Name of Officer	Designation	Organisation	Ph. No.	Mob. No.	Fax No.	E-mail	Signature
13.	<u>NPCIL</u>							
14.	<u>NTPC</u>							
1.	K.K SINGH	RED (HR) LUCKNOW	NTPC	0522- 2720738	9650998871		KKsingh04@ntpc.co.in	
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03.	E. PRABHAKAR RAO	Addl. GM	NTPC, Delhi	9004497144	01124362067		EPRAO@NTPC.CO.IN	
15.	<u>PGCIL</u>							
	RAJESH VERMA	SR. DGM	POWERGRID		9599192370		RVERMA@POWERGRIDINDIA .COM	
	Y. K. DIXIT	ZGM	POWERGRID		9811309928		YKDIXIT@Powergridindia.com	

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S. No.	Name of Officer	Designation	Organisation	Ph. No.	Mob. No.	Fax No.	E-mail	Signature
16.	<u>SJVN</u>							
	R. N. BANSAL	Dir (E)	SJVN	0177-2660050	94180-62596	-	de.sectt@sjvn.nic.in	RNB
	Romesh Kumar Kapoor	CCM(C&P)	SJVN	0177-2660240	94180-88008	-	romesh.kapoor@sjvn.nic.in	RNB 23/9/19
17.	<u>THDCIL</u>							
18.	<u>NRLDC</u>							
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	राजेश कुमार	प्रबंधक	एच.आर.एलडीसी कोवाला		956003472		r.kumar@posoco.in	RK
19.	<u>NLDC</u>							
	N. NALLARASAN	Sy. G.M.	NLDC, posoco	8527077022	8527077022	-	nallarasan@posoco.in	NNS

List of Participants of 43rd Meeting of TCC on 23.09.2019 at Kovalam, Thiruvananthapuram

S. No.	Name of Officer	Designation	Organisation	Ph. No.	Mob. No.	Fax No.	E-mail	Signature
20.	<u>APCPL</u>							
	P. MEDIRATTA	AGM	APCPL, JHAJJAR	9416212411	01251-268626		pmediratta@npsc.co.in	<i>P. Mediratta</i>
21.	<u>JHAJJAR POWER (CLP)</u>							
	Divyadeep Gupta	Manager	CLP, Jhajjar	9996789268	01251 273088		divyadeep.gupta@clpindia.in	<i>Divyadeep</i>
	Indrajeet Sahu	Dir.	CLP, Jhajjar	8198900843			indrajeet.sahu@clpindia.in	<i>Indrajeet</i>
22.	<u>JSW ENERGY</u>							
23.	<u>LANCO ANPARA</u>							
24.	<u>ROSA POWER</u>							
25.	<u>Adani Power Raj. Ltd.</u>							
	MANOJ TAUNK	SM	Adani Power Ltd	9099005517			manoj.taunk@adani.com	<i>Manoj Taunk</i>

List of Participants of 43rd Meeting of TCC on 23.09.2019 at Kovalam, Thiruvananthapuram

S. No.	Name of Officer	Designation	Organisation	Ph. No.	Mob. No.	Fax No.	E-mail	Signature
32.	NRPC Naresh Bhandari	MS	NRPC				MS-nrpc@nic.in	
	R. P. Pradhan	SE	NRPC		9811881804		sec-nrpc@nic.in	<i>RP</i>
	SAUMITRA MAZUMDAR	S.E.(O)	NRPC Sectt.		9899879365		seo-nrpc@nic.in	<i>Sumitra</i>
	VIKRANT SINGH DHILLON	AEE	NRPC Sectt.		8800621247		vikrant.dhillon@gov.in	<i>Vikrant</i>
	Manish Mawrya	AEE	NRPC				sec-nrpc@nic.in	
	Kaushik Pandit Rao	AEE	NRPC				- DO -	
33.	<u>OTHERS</u>							
	HARISH SARAO	ED	PTC	98103 94429			harishsarao@ptcltda.com	<i>Harish</i>

Annexure - II

List of Participants of 46th Meeting of NRPC on 24.09.2019 at Kovalam, Thiruvananthapuram

S. No.	Name of Officer	Designation	Organisation	Ph. No.	Mob. No.	Fax No.	E-mail	Signature
1.	BBMB Fr. H.S. Chugh	M/Power	BBMB	9417805591			mb@bbmb.nic.in	
	Sukhwinder S. Bhumra	CE/SD	BBMB	9417276058			ces0@bbmb.nic.in	
	Rajesh Gupta	CE/TS	BBMB	9313472673			cets@bbmb.nic.in	
	Rakeeh K. Sharma	Dir/PR	BBMB	9417216047			dirpr@bbmb.nic.in	
2.	CEA							
	Hemant Jain	Chief Engineer (GM&NPC)	CEA		9818301995	-	hemjain.cea@nic.in	
3.	CHANDIGARH							
4.	DELHI							
	J M Verma	Dirchw/Tech	IPGL/MCL	9717694896			vermatn@rediffmail.com	
	Satyendra Prakash	AGM(T)	IPGCL-PPCL	9717694813			spmprakash@gmail.com	
	H. V. A. S.	EDCT	SLDC Delhi	9999533631			hasjivanvyas@gmail.com	
	Mukesh K. Sharma	Dir (Oper)	DTL					
	Naveen Goel	Mgr (SO)	SLDC Delhi					
	Alisha A.	Mgr	DTL					
	Sanjay Srivastava	Head Power Management	BSES Rajdhani Pvt. Ltd. (BNDL)	9312147045	9999533631 39929036		sanjay.srivastava@reliancedda.com	


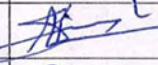
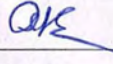

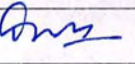

List of Participants of 46th Meeting of NRPC on 24.09.2019 at Kovalam, Thiruvananthapuram

S. No.	Name of Officer	Designation	Organisation	Ph. No.	Mob. No.	Fax No.	E-mail	Signature
5.	<u>HARYANA</u>							
1	Raksh Jolly	C.E.	HVPNL	9356273737			cesocomm1@hvpn.org.in	
2	Amit Upfal	S.E.	HPGCL	9355084673			amit.upfal@hpgcl.org.in	
3	R.k. Kaushik	SE	SLDC	9315016209			SESLDC@gmail.com	
4	Rajesh Garg	DY SECY Generation	HPGCL	9355084404			Rajesh.garg@hpgcl.org.in	
6.	<u>HIMACHAL PRADESH</u>							
	Er R.K. Sharma	MD	HPPTCL	9418482408			onid@hptcl.in	
	Er. K.S. ATTAH	DIRECTOR(P&C)	HPPTCL	9418488316			directrhc@hptcl.in	
	Er. Suneel Grover	MD	HPSLDC	9816096000		0177-2837543	grover.s.in@yahoo.com	
	Er. Deepak Upfal	Chief Eng (S&P)	HPSEBL	0177-2857901	9418109169	0177-2657901	DEShinda2003@gmail.com	
7.	<u>J & K</u>							



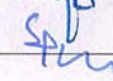
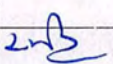
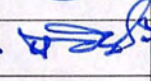
List of Participants of 46th Meeting of NRPC on 24.09.2019 at Kovalam, Thiruvananthapuram

S. No.	Name of Officer	Designation	Organisation	Ph. No.	Mob. No.	Fax No.	E-mail	Signature
8.	<u>PUNJAB</u>							
1	Sanjeev Gupta	CE/TS	PSTCL	9646100864			ce-tl@pstcl.org	
2	A. K. Kapur	Director/Tech	PSTCL	9646117802			dir-tech@pstcl.org	AK
3	Y.P.S. BAATH	CE SLDC	PSTCL	9646118001			ce-slde@pstcl.org	YPS
4	N.K. Sharma	Div/DIST	PSTCL	9646200500			director.distribution@gmail.com	NKS
5	Parmjit Singh	CE/PPR	PSPCL	9646121880			ceppr-pspcl@gmail.com	PS
9.	<u>RAJASTHAN</u>							
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2	C. L. Koli	SE	RRVUN	9413385340			se.pp@rrvun.com	CL
3	A.K. Asya	SE(SOLD)	SLDC, Rajasthan	9414061066			se.ldrupnl@gmail.com	AK
4	R.P. Sharma	CE (LD)	LD Raj	9414061038			ce.ld@rvnl@gmail.com	RPS
5	S. K. Baswal	CE (PPD)	RVPNL	9413387178			ce.ppd@xupn.co.in	
6	SONA SHISHODIA	XEN (PPD)	RVPNL	9414030303			xen2.pp@xupn.co.in	SONA
7	A.K. Baday	XEN (PPD)	RRVUN	9414063267			sesplcell@rrvun.com	AK
10.	<u>UTTAR PRADESH</u>							
1.	S.P. Chaudhary	CE (T.O.)	UPRVUNL	9415900238			cg.m.to@uprvunl.org	SP
2.	Pankaj Saxena	EE	UP-STU	9415902780			smart.saxena@gmail.com	Pankaj
3.	Sanjay Srivastava	SE	PMC, UPPCL	9415099212			cepmmcuppcl@gmail.com	SS

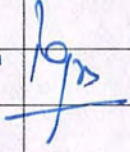
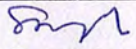
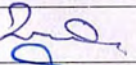
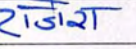
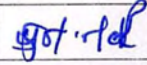
List of Participants of 46th Meeting of NRPCon 24.09.2019 at Kovalam, Thiruvananthapuram

S. No.	Name of Officer	Designation	Organisation	Ph. No.	Mob. No.	Fax No.	E-mail	Signature
4.	C. R. Shukla	CE (PSO)	UPSLDC	9415233470	9415233470		cepsoc@upslde.org	
5.	Akhilesh Kumar Singh	CE (CRS)	UPSLDC		9415006223			
6.	A. J. Siddiqui	SE (SEI)	UPSLDC	9415609363	—	—		
11.	UTTRAKHAND							
1)	A. K. Singh	CE	UPCL, Ddn.	8476055554	—	—	chiefengineer_mdo@gmail.com	
12.	NHPC							
1.	V. K. Sinha	GM	NHPC		9811337111		vkshna@nhpc.nic.in	
2.	Bikram Singh	GM	NHPC		9816877750		bikram.singh@nhpc.nic.in	

List of Participants of 46th Meeting of NRPC on 24.09.2019 at Kovalam, Thiruvananthapuram

S. No.	Name of Officer	Designation	Organisation	Ph. No.	Mob. No.	Fax No.	E-mail	Signature
13.	<u>NPCIL</u>							
14.	<u>NTPC</u>							
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	H Harshabani	GM (Comm)	NTPC	942429158			harshabani@ntpc.co.in	
	E. PRABHAKARA RAO	Addl GM (Comm)	NTPC, Delhi	011 24362062	9004497144	-	EPRAO@NTPC.CO.IN	
15.	<u>PGCIL</u>							
	RAJESH VERMA	SR. DGM	POWERGRID		9599192370		r.verma@powergridindia.com	
	Y.K. DIXIT	Chief EHS	POWERGRID		9811309951		YKDIXIT@powergridindia.com	




List of Participants of 46th Meeting of NRPCon 24.09.2019 at Kovalam, Thiruvananthapuram

S. No.	Name of Officer	Designation	Organisation	Ph. No.	Mob. No.	Fax No.	E-mail	Signature
16.	<u>SJVN</u>	CGM(C&P)	SJVN Hd.	0177-266020	9448088008	-	romesh.kapan@sjuv.nic.in	
17.	<u>THDCIL</u>							
18.	<u>NRLDC</u>							
	शुभो लसो बंडपडा	कार्यपालक निदेशक	NRLDC, Posoco		9717296928		ssbarpanda@posoco.in	
	राजीव पोरवाल	महा प्रबंधक	NRLDC, Posoco	011-26851574	9871581133	011-26852747	rk.porwal@posoco.in	
	राजेश कुमार	प्रबंधक	एनआरएलडीसी पोसोको		9560032972		r.kumar@posoco.in	
19.	<u>NLDC</u>							
	N. NALLARAJAN	Sr-GME	NLDC, posoco		8527077022	-	nallarajan@posoco.in	

List of Participants of 46th Meeting of NRPC on 24.09.2019 at Kovalam, Thiruvananthapuram

S. No.	Name of Officer	Designation	Organisation	Ph. No.	Mob. No.	Fax No.	E-mail	Signature
20.	<u>APCPL</u>							
	G. Krishnan Moorthy	CEO	APCPL	01251 - 266265	9650990 523	01251 - 266211	gkrishnamoorthy@ntpc.co.in	G. Krishnan Moorthy
	P. MEDIRATTA	AGM	APCPL	01251-267626	9416212411		pmediratta@ntpc.co.in	P. Mediratta
21.	<u>JHAJJAR POWER (CLP)</u>							
	Indrajeet Sahu	DM	CLP Jhajjar	8198900843			indrajeet.sahu@clpindia.in	Indrajeet Sahu
	Divyadeep Gupta	Manager	CLP Jhajjar	9996789268	01251273088		divyadeep.gupta@clpindia.in	Divyadeep Gupta
22.	<u>JSW ENERGY</u>							
23.	<u>LANCO ANPARA</u>							
24.	<u>ROSA POWER</u>							
25.	<u>Adani Power Raj. Ltd.</u>							
	MANOJ TAUNK	G.M	Adani Power Ltd		9099005517		manoj.taunk@adani.com	Manoj Taunk

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32.	NRPC Naresh Bhardwaj	MS	NRPC				ms-nrpc@nic.in	
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	R.P. Pradhan	SE(O)	NRPC		9811881804		sec-nrpc@nic.in	
	Manish Mawrya	AEE	NRPC				- Do -	
	Kaushik Pandit Rao		NRPC				- Do -	
	Vikrant S. Dhillon		NRPC				- Do -	
33.	OTHERS							
	HARISH SARAN	ED	PTC	98103 94429			harishsaran@ktrindia.com	

Updated status of downstream network

Sl. No.	Substation	Downstream network bays	Commissioning status of S/s / Transformer	Planned 220 kV system and Implementation Status
1	400/220kV, 3x315 MVA Samba	2 nos. bays utilized under ISTS. Balance 4 nos. to be utilized	Commissioned (1 st & 2 nd – Mar'13 3 rd – Oct'16) Bays-Mar'13	LILO of 220 kV Bishnha – Hiranagar D/c line. Target completion –Nov., 19 220 kV D/c Samba (PG) – Samba (JKPDD) PDD, J&K representative was not present in the meeting.
2	400/220kV, 2x315 MVA New Wanpoh	6 Nos. of 220 kV bays to be utilized	Commissioned in Jul'14 Bays-Jul'14	220 kV New Wanpoh - Mirbazar line 220 kV Alusteng - New Wanpoh Line PDD, J&K representative was not present in the meeting.
3	400/220 kV, 2x315 MVA Parbati Pooling Station (Banala)	2 Nos. of 220 kV bays to be utilized.	Commissioned in Dec'17	220 kV Chhaur- Banala D/c line Charged from Banala end and Telemetry issue at Chhaur end (expected to be resolved by 30 th September 2019).
4	400/220kV, 2x500 MVA Kurukshetra (GIS)	8 nos. of 220 kV bays to be utilized	Commissioned in Mar'17.	LILO of one circuit of Kaul-Pehowa 220 kV D/c line at Bhadson (Kurukshetra) Commissioned on 07.03.2019 LILO of one circuit of Kaul-Bastara 220 kV D/c line at Bhadson (Kurukshetra). Commissioned on 27.06.2019 220kV D/C Bhadson (Kurukshetra) – Salempur with HTLS conductor equivalent to twin moose. P.O. issued on 15.10.18. Contract agreement signed on 30.11.18. Likely date of completion is 30.04.2020.

5	400/220kV, 2x500MVA Bagpat GIS	8 nos. of 220 kV Downstream lines commissioned. Balance 3 Nos. of 220 kV bays to be utilized.	Commissioned in Mar/Jun'16	Bagpat(PG) - Modipuram-II 220kV D/c line Target – Under planning LILO of 220kV S/c Muradnagar II –Baghpat (PG) at Baghpat SS. Commissioned.
6	400/220 kV, 2x315 MVA Saharanpur	All 6 nos. 220 kV bays utilised.	Commissioned in May'16	LILO of Khara-Shamli 220 kV S/C line at SRN(PG). 220 kV SRN(PG)-Sarasawa D/C Line. LILo of SRN-Nanauta 220 kV S/C line at SRN(PG). Commissioned.
7	400/220 kV, 2x315 MVA Dehradun	Out of 6 bays, only two bays used. Balance 4 bays to be utilised.	Commissioned in Jan'17	220 kV Dehradun-Jhajra line. Target completion: Nov., 2021
8	400/220 kV, 2x315 MVA Sohawal	4 Nos 220 kV bays utilized. 2 Nos 220 kV bays to be utilized.	Commissioned in Jun'12	Sohawal-Sohawal (UP) D/C line energized. Sohawal-Barabanki D/C line energized. 220 kV D/C Sohawal-Gonda lines are under construction and expected by February 2020
9	Shahjahanpur 2x315 MVA 400/220 kV	Partially utilized. Balance 5 Nos. of 220 kV bays to be utilized.	Commissioned in Jun/Sep'14	Shajahnapur-Hardoi Commissioned Shajahnapur-Azimpur D/C line is planned, expected by December 2020 220 kV D/C Shajahnapur-Gola line expected by December 2020
10	Hamirpur 400/220 kV 2x 315 MVA Sub- station (Augmentation by 3x105 MVA ICT)	2 nos. bays utilized under ISTS. Balance 6 nos to be utilized	1 st -Dec'13, 2 nd – Mar'14 & 3 rd Mar'19. 4 bays-Dec'13, 2 bays-Mar'14 2 bays-Mar'19	220 kV D/C Hamirpur-Dehan line. Target completion – December 2020
11	Kaithal 400/220 kV 1x 315 MVA Sub- station	July 2017 (Shifting of transformer from Ballabgarh)	Commissioned	220 kV Kaithal(PG)-Neemwala D/c line Target completion - 30.04.2020

12	Sikar 400/220kV, 1x 315 MVA S/s	2 Nos. of 220 kV bays	Commissioned	RVPNL clarified that survey is yet to be carried out, which may finalize the requirement of cable as there is a possibility to carry out work without cable.
13	Bhiwani 400/220kV S/s	6 nos. of 220kV bays	Commissioned	220kV Bhiwani (PG) - Isherwal (HVPNL) D/c line. Target completion – Nov., 2020.
14	Jind 400/220kV S/s	6 nos. of 220kV bays	Commissioned	LILO of both circuits of 220kV D/c Narwana – Mund line at Jind (PG). Target completion - November 2020
15	400/220kV Tughlakabad GIS (10 no of 220kV bays)	4x 500	Commissioned	RK Puram – Tughlakabad (UG Cable) 220kV D/c line. Scheme will be revised Target completion – March 2023. Okhla – Tughlakabad 220kV D/c line. Mehrauli – Tughlakabad 220kV D/c line. BTPS – Tughlakabad 220kV D/c line. Commissioned. Masjid Mor – Tughlakabad 220kV D/c line. Target completion – Dec., 21.
16	400/220kV Kala Amb GIS (TBCB) (6 nos. of 220kV bays)	7x105	Commissioned (Jul'17)	HPSEBL has planned one no. of 220kV D/c line from Kala Amb 400/220kV S/s to 220/132kV Kala Amb S/s. Details for remaining 4 nos. of line bays may be provided. Target completion – December 2021

Sl. No.	Name of Substation	MVA Capacity	Expected Schedule	Downstream connectivity furnished by States in 40 th SCSPNR
1	400/220kV Dwarka-I GIS (8 nos. of 220kV bays)	4x 500	Sep'19	There are forest related issues that is expected to be resolved by March 2020.
2	220/66kV Chandigarh GIS (8 nos. of 66kV bays)	2x 160	Jun'19	Representative of Chandigarh was not present in the meeting.
3	400/220kV Jauljivi GIS Out of these 8 nos. 220kV Line Bays, 4 nos. (Pithoragath-2, & Dhauliganga-2) would be used by the lines being constructed by POWERGRID and balance 4 nos. (Almora-2, Jauljivi-2) bays would be used by the lines being constructed by PTCUL.	2x315	Dec'2019	220kV Almora- Jauljivi line. 220kV Brammah- Jauljivi line E expected by - May 2020
4	400/220kV Sohna Road Sub-station (TBCB) (8 nos. of 220kV bays)	2x500	Sep'19	LILO of both circuits of 220kV D/c Sector-69 - RojKaMeo line at 400kV Sohna Road. LILO of both circuits of 220kV D/c Badshahpur-Sec77 line at 400kV Sohna Road. To be awarded by December 2019 . Expected by May 2021 .
5	400/220kV Prithla Sub-station (TBCB) (8 nos. of 220kV bays)	2x500	Deemed commissioned w.e.f. 06/08/19	LILO of both circuits of 220kV D/c Sector-69 - RojKaMeo line at 400kV Sohna Road. LILO of both circuits of 220kV D/c Badshahpur-Sec77 line at 400kV Sohna Road. Target completion – February 2020.
6	400/220kV Kadarpur Sub-station (TBCB) (8 nos. of 220kV bays)	2x500	Sep'19	NIT floated on 05.03.2019 with due date of submission on 22.04.2019 (opened on 23.04.2019 and under evaluation). Target completion: 30.06.2021

Sl. No.	Name of the project / decision taken	Meeting in which approval was granted/ decision was taken	Updated Status
1.	Provision of Bus Reactors in Northern Region to Control Over Voltages	15 th NRPC on 24/12/09	<p>Out of 17 no. reactors at 15 locations, 15 no. reactors at 13 locations have been commissioned. The status of balance reactors was as under:</p> <p>Parbati-II (1x125 MVAR) and Parbati-III (1x80 MVAR): NHPC informed that tendering is in advanced stage and commissioning schedule is planned to be matched with Parbati-II Target completion: 2021</p>
2.	Transmission system associated with Kishenganga HEP	33 rd Standing Committee Meeting held on 23/12/2013	Kishenganga –Wagoora 220kV D/C Commissioned on 29.07.2019
3.	Unified Real Time Dynamic State Measurement (URTDSM) Scheme.	27 th & 26 th NRPC meeting held on 13 th July 2012 & 30 th Nov., 2012 respectively	<p>Supply: Completed (114 Sub-stations).</p> <p>Scheme has been completed at 112 S/s except at Uri and Dulhasti (due to law & order problem)</p> <p>POWERGRID informed that backup NLDC at Kolkata is pending due to space constraint issue for installation of UPS. NLDC informed that issue is being taken up by ERLDC.</p> <p>WAMS System Commissioned in NRLDC and all SLDCs of Northern Region and other RLDCs/SLDCs (ER & NER).</p> <p>Out of 6 Analytic Software which are being developed by IIT Bombay, 45 have been deployed at NRLDC, Prototype for one application is being tested and remaining one is under development.</p> <p>Installation of Line Parameter Estimation, Vulnerability Analysis of Distance Relay, Supervised Zone-3 Distance Protection, Linear State Estimator is done for NRLDC & Delhi, installation at SLDCs under progress.</p>

			NRLDC informed that feedback has been shared already and requested to complete the implementation at the earliest.
4.	Third party Protection audit of intra-state system / balance system not covered in Basic Protection Audit	27 th NRPC meeting held on 30/11/2012.	UPPTCL: 68 nos. 220kV substations work awarded to CPRI and work at 33 substations completed. Rest to be completed by January 2020 .
5.	Fibre Optic based communication system in NR and Additional OPGW connectivity in Northern Region under Fibre optic expansion project	18 th NRPC meeting held on 27 th November 2010 and 28 th NRPC meeting held in 22 nd March 2013.	<p>Fibre Optic Connectivity under Central sector has been completed with the deletion of Uri-Uri-II link from the scheme. OPGW connectivity under State Sector & Additional requirement of Central Sector is under progress and same shall be completed progressively.</p> <p>State Sector, 1422 Kms out of 2071 Kms completed. Central Sector, 1800 Kms out of 1920 Kms completed.</p> <p>POWERGRID informed that it wasn't possible for installation of OPGW on 8 lines of HPSEB of 66kV lines of length 154 kms. HPSEB informed that a meeting will be convened to resolve the issue.</p> <p>PSTCL reiterated that even though POWERGRID is stating that they have completed the fibre optic connectivity but it shall not be interpreted as "Commissioned" until connectivity is established between stations and only laying of cable may not be considered as commissioning. POWERGRID informed that as agreed in 41st & 42nd TCC they have shown connectivity at 4 stations.</p>
6.	Planning, procurement and deployment of Emergency Restoration System	In the 34 th NRPC meeting on 20 th March, 2015	<ul style="list-style-type: none"> • DTL, PSTCL, UPPTCL and J&K - 02 nos. of ERS procured. • RRVNL – Rajasthan informed that LoA has been placed for 1 set in August, 2019 and ERS will be supplied by April, 2020. • HVPNL - Under Tendering. • PTCUL - DPR finalization is under process. • HPSEBL - Not going for the procurement of ERS as it wasn't successful in hilly region.

Transmission System Strengthening for potential Solar Energy Zones (SEZs) (11.1GW) in Rajasthan (8.1GW under ISTS & 3GW under Intra State by Rajasthan) under Phase-II

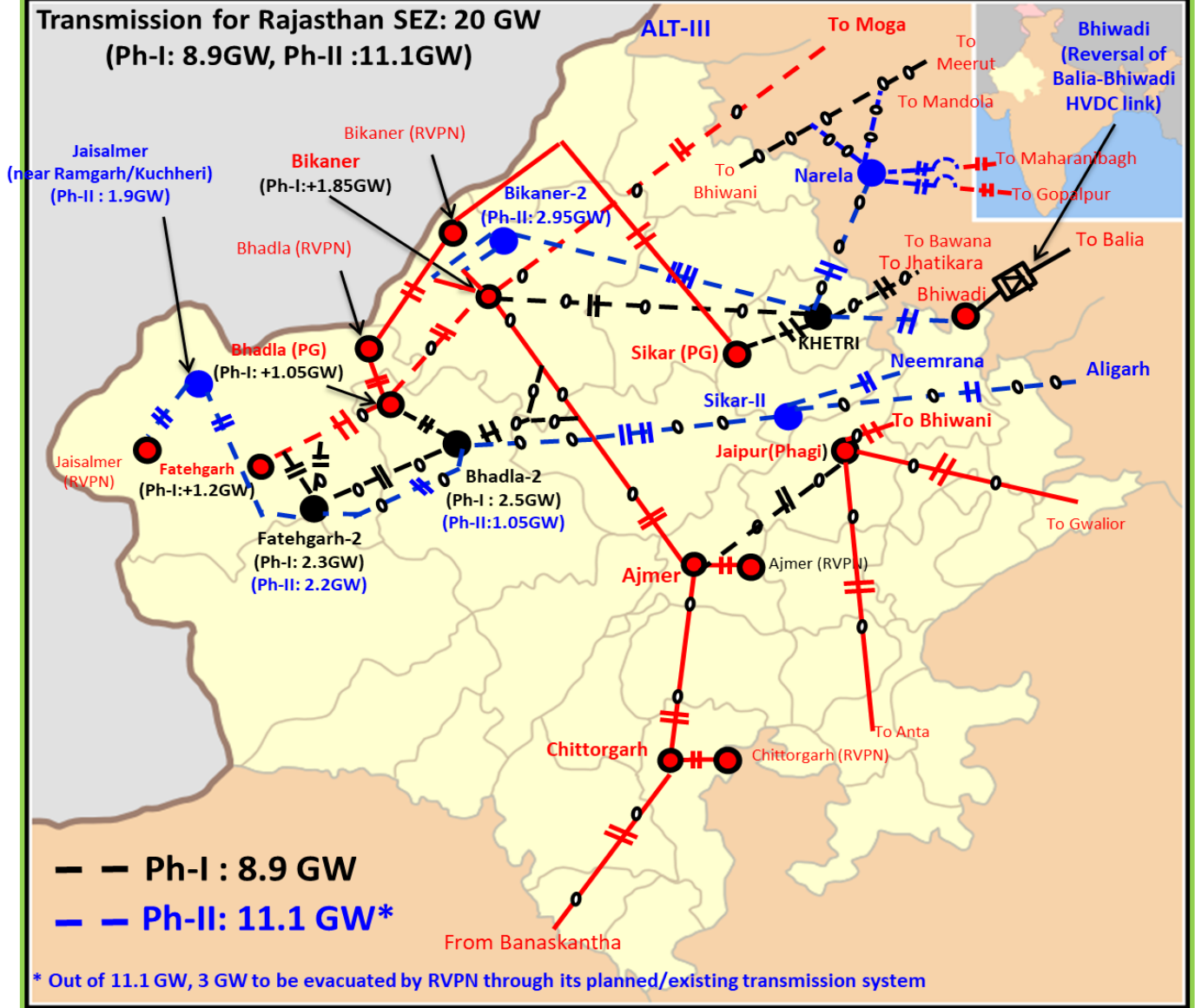
1. Establishment of 400/220kV, 4x500 MVA pooling station at suitable location near Ramgarh/Kuchheri in Distt Jaisalmer (Ramgarh-II PS) with 2x125 MVAR bus reactor.
2. Ramgarh-II PS –Fatehgarh-II PS 400 kV D/c Line (Twin HTLS*)
3. Ramgarh-II PS – Jaisalmer-II (RVPN) 400 kV D/c Line (Twin HTLS*)
4. Establishment of 400/220kV, 6x500MVA pooling station at suitable location near Bikaner (Bikaner-II PS) with 2x125 MVAR bus reactor and with suitable bus sectionalisation at 400 and 220 kV level.
5. Bikaner-II PS – Khetri 400kV 2xD/c line (Twin HTLS* line on M/c tower)
6. Removal of LILO of one circuit of Bhadla-Bikaner(RVPN) 400kV D/c(Quad) line at Bikaner(PG). Extension of above LILO section from Bikaner(PG) upto Bikaner-II PS to form Bikaner-II PS – Bikaner (PG) 400kV D/c(Quad) line)
7. 1x80 MVAR Switchable line reactor for each circuit at each end of Bikaner-II – Khetri 400kV 2xD/c line
8. Establishment of 765/400kV, 2x1500 MVA S/s at suitable location near Sikar (Sikar-II Substation) with 1x125 MVAR & 2x330 MVAR bus reactor at Sikar -II
9. Sikar-II – Aligarh 765kV D/c line
10. Bhadla-II PS – Sikar-II 765kV 2xD/c line
11. Sikar-II – Neemrana 400kV D/c line (Twin HTLS*)
12. 1x330 MVAR Switchable line reactor for each circuit at Sikar II end of Bhadla-II – Sikar-II 765kV 2xD/c line
13. 1x240 MVAR Switchable line reactor for each circuit at Bhadla-II end of Bhadla-II – Sikar-II 765kV 2xD/c line
14. 1x330MVAR Switchable line reactor for each circuit at each end of Sikar-II – Aligarh 765kV D/c line
15. Augmentation with 765/400kV, 2x1500MVA transformer (5th & 6th) at Fatehgarh-II PS
16. Fatehgarh-II PS – Bhadla-II PS 765kV D/c line (2nd)
17. 1x240 MVAR Switchable line reactor for each circuit at each end of Fatehgarh-II – Bhadla-II 765kV D/c line
18. Augmentation with 400/220kV, 4x500MVA transformer (6th to 9th) at Fatehgarh-II PS with suitable bus sectionalisation at 400 kV & 220 kV
19. Augmentation with 765/400kV, 1x1500MVA transformer (4th) at Bhadla-II PS.
20. Augmentation with 400/220kV, 3x500MVA transformer (6th to 8th) at Bhadla-II PS with suitable bus sectionalisation at 400 kV & 220 kV
21. Khetri - Bhiwadi 400kV D/c line (Twin HTLS*)#
22. Power reversal on +500kV, 2500MW Balia – Bhiwadi HVDC line upto 2000MW from Bhiwadi to Balia in high solar generation scenario

23. 220kV line bays for interconnection of solar projects at Bikaner-II PS (10 nos.), Ramgarh-II PS (7 nos), Fatehgarh-II PS (7 nos) & Bhadla-II PS (4 nos)
24. Establishment of 765/400 kV, 3X1500 MVA GIS substation at Narela with 765 kV (2x330 MVA) bus reactor and 400kV (1x125 MVAR) bus reactor.
25. Khetri – Narela 765 kV D/c line
26. 1x330 MVA Switchable line reactor for each circuit at Narela end of Khetri – Narela 765kV D/c line
27. LILO of 765 kV Meerut- Bhiwani S/c line at Narela
28. Removal of LILO of Bawana – Mandola 400kV D/c(Quad) line at Maharani Bagh/Gopalpur S/s. Extension of above LILO section from Maharani Bagh/Gopalpur upto Narela S/s so as to form Maharani Bagh – Narela 400kV D/c(Quad) and Maharani Bagh -Gopalpur-Narela 400kV D/c(Quad) lines.
29. STATCOM:
Fatehgarh – II S/s : STATCOM : ± 600 MVA, 4x125 MVAR MSC , 2x125 MVA MSR
Bhadla – II S/s : STATCOM : ± 600 MVA, 4x125 MVAR MSC , 2x125 MVA MSR
Bikaner – II S/s : STATCOM : ± 300 MVA, 2x125 MVAR MSC , 1x125 MVA MSR

* with minimum capacity of 2200 MVA on each circuit at nominal voltage

Due to space constraints 400kV bays at Bhiwadi S/s to be implemented as GIS

**Transmission for Rajasthan SEZ: 20 GW
(Ph-I: 8.9GW, Ph-II :11.1GW)**



Scheduling, accounting and other treatment of the legacy shared projects in Northern Region

Sl. No.	Plant Name	State in which Plant is embedded	State whose entities have share in the plant	Share in %	Share in MW	Transaction ID for Schedule in Inter-state	Category
1	Bawana	Delhi	Haryana	10	137	SH-07	Scheduled under proper Open Access (CTU)
	Bawana	Delhi	Punjab	10	137	SH-06	
	CLP-Jhajjar	Haryana	Delhi	10	124	LT-05	Including Tr. Charges Including RLDC Fee & Charges Schedule changes are done ex-ante as per the IEGC
2	Rihand hydro	UP	MP	13.75	41.25	LT-01	Considered under deemed LTA.
	Matatila	UP	MP	45	13.75	LT-02	Tr. charges considered RLDC Fee & Charges not considered. Schedule changes are done ex-ante as per the IEGC
3	Vishnu Prayag	UP	Uttarakhand	12	60	SH-01	Considered under deemed LTA
	Alaknanda	UP	Uttarakhand	12	40	LT-38	
	Rajghat	MP	UP	25	11.25	LT-13	Tr. Charges not considered RLDC Fee & Charges not considered. Schedule changes are done ex-ante as per the IEGC
4	Khara	UP	HP	20	14.4	SH-02	Considered under deemed LTA
	RSD	Punjab	HP		22	SH-04	
	Chibro	Uttarakhand	HP	25	60	SH-05	Tr. Charges not considered RLDC Fee & Charges not considered. Schedule of these transactions are changed post-facto based on actual generation as per legacy.
	Khodri	Uttarakhand	HP	25	30		
	Dhalipur	Uttarakhand	HP	25	12.75		
	Dhokrani	Uttarakhand	HP	25	8.43		
Kulhal	Uttarakhand	HP	20	6			

Status of Generator Capability to operate in synchronous condenser mode

S. No.	Agency	Station trial tested	Status of other station/trial testing schedule	Remarks
1.	NHPC HEPs of NR	Chamera-1 Unit #2 and Chamera-2 unit #3	NHPC shared that synchronous condenser operation is possible only in Chamera-II HEP, other NHPC plants have design limitations	MoM of 42 nd TCC & 45 th NRPC meeting
2.	Tehri HEPs	Tehri Unit #1 & 2	Tehri Unit # 3 & 4	
3.	Punjab HEPs	OEM has confirmed capability of RSD to operate in condenser mode.	Punjab may update the plan for trial schedule	
4.	Rajasthan HEPs	Jawahar Sagar HEPs and Rana Pratap Sagar can't operate in synchronous condenser mode due to old age	SLDC Rajasthan may like to confirm	
5.	Uttar Pradesh HEPs		SLDC UP may like to confirm	
6.	Uttarakhand HEPs		SLDC Uttarakhand may like to confirm	
7.	Himachal Pradesh HEPs	Larji Unit #3	SLDC HP may update the status	
8.	Jammu & Kashmir HEPs		SLDC J&K may p update the status	
9.	BBMB HEPs	Pong HEPs	BBMB may update for other stations	
10.	NTPC Gas station	NTPC informed that due to clutch arrangement issue the gas stations Anta, Auraiya, Dadri, Bawana are not capable of running in Condenser mode.		(MoM of 139 th OCC)
11.	Delhi Gas station		Delhi may update regarding exploring of Old GTs for operation in condenser mode	
12.	Uttarakhand Gas stations	Shrvanti expressed its inability to operate in condenser mode	SLDC Uttarakhand may Update of other gas station	142 nd OCC