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भारत सरकार

Government of India

विद्युत मंत्रालय

Ministry of Power

उत्तर क्षेत्रीय विद्युत समिति

Northern Regional Power Committee

सं. उ.क्षे.वि.स./ वाणिज्यिक/ 209/ आर पी सी (40 वीं)/2018/ 455-343  
No. NRPC/ Comml/ 209/ RPC (40<sup>th</sup>)/2018/

दिनांक : 11 जनवरी, 2018  
Dated: 11<sup>th</sup> January, 2018

सेवा में / To,

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

**विषय:** उत्तरी क्षेत्रीय विद्युत समिति की 40 वीं तथा तकनीकी समंवय उप-समिति की 37 वीं बैठक का कार्यवृत्त।

**Subject:** 40<sup>th</sup> meeting of Northern Regional Power Committee and 37<sup>th</sup> meeting of TCC – Minutes.

महोदय / Sir,

उत्तरी क्षेत्रीय विद्युत समिति की 40 वीं बैठक दिनांक 28 अक्टूबर, 2017 को तथा तकनीकी समंवय उप-समिति की 37 वीं बैठक दिनांक 27 अक्टूबर, 2017 को श्रीनगर, जम्मू-कश्मीर में आयोजित की गयी थी। इन बैठकों के कार्यवृत्त की एक प्रति आपकी सूचना व आवश्यक कार्यवाही हेतु इस पत्र के साथ संलग्न है।

The 40<sup>th</sup> meeting of Northern Regional Power Committee was held on 28<sup>th</sup> October, 2017 and 37<sup>th</sup> meeting of TCC was held on 27<sup>th</sup> October, 2017 at Srinagar, Jammu & Kashmir. A copy of the minutes of the meetings is enclosed herewith for favour of information and necessary action.

भवदीय/Yours faithfully,

*आनंद कुमार*  
11/1/18

(एम.ए.के.पी. सिंह)

(M.A.K.P. Singh)

सदस्य सचिव

Member Secretary

**List of NRPC Members**

1. Sh. Hirdesh Kumar, IAS, Chairperson, NRPC and Commissioner/Secretary, PDD, J&K, Jammu
2. Sh. Vineet Garg, IAS, Managing Director, HVPN Ltd, Panchkula -134109
3. Managing Director, HPSEB Ltd, Shimla-171004
4. Chairman, BBMB, Chandigarh-160019
5. Member (GO&D), CEA, New Delhi
6. Chief Engineer, UT of Chandigarh, Chandigarh-160066
7. Managing Director, DTL, New Delhi-110002
8. General Manager, SLDC, DTL, New Delhi-110002
9. Managing Director, IPGCL, New Delhi-110002
10. Chief Engineer (SO&C), SLDC, HVPNL, Panipat
11. Managing Director, HPGCL, Panchkula-134109
12. Managing Director, DHBVN, Hisar -125005
13. Managing Director, HPPTC Ltd, Shimla-171004
14. Superintending Engineer, SLDC, HP Load Despatch Society, Totu, Shimla
15. Managing Director, J&K State Power Dev. Corp., Srinagar, J&K
16. CMD, PSTCL, Patiala-147001
17. CMD, PSPCL, Patiala-147001
18. CMD, RRVPNL, Jaipur-302005
19. Chief Engineer (LD), SLDC, Heerapur, Jaipur-302024
20. CMD, RRVUNL, Jaipur-302005
21. CMD, Jodhpur VVNL, Jaipur, Rajasthan
22. CMD, UPPTCL, Lucknow-226001
23. Managing Director, SLDC, UPPTCL, Lucknow-226001
24. Managing Director, UPRVUNL, Lucknow-226001
25. Managing Director, Madhyanchal VVNL, Lucknow-226001
26. Managing Director, SLDC, PTCUL, Rishikesh
27. Managing Director, PTCUL, Dehradun-248001
28. Managing Director, UJVNL, Dehradun-248001
29. Managing Director, UPCL, Dehradun-248001
30. Director (Finance), NHPC, Faridabad-121003
31. Director (Finance), NPCIL, Mumbai-400094
32. Director (Commercial), NTPC, New Delhi-110003
33. Director (Operation), PGCIL, Gurgaon-122001
34. CMD, SJVNL, New Delhi
35. Director (Technical), THDC, Rishikesh-249201
36. CEO, POSOCO, New Delhi-110016
37. GM, NRLDC, New Delhi-110016
38. CEO, Aravali Power Company Pvt. Ltd., NOIDA
39. Sh. Karunakar Jha, DGM (Commercial), Jhajjar Power Ltd., Haryana
40. Sh. Ranjan Kumar, WTD, Lanco Anpara Power Ltd.
41. Sh. B.S. Prasad, Station Director, Rosa Power Supply Company Ltd.
42. Sh. Prem R. Kumar, CEO, BSES Yamuna Power Limited, New Delhi
43. Sh. Satish Jindal, Director and CEO (Trading), JSW Energy Ltd., New Delhi
44. Sh. Jaydeb Nanda, COO, Adani Power Rajasthan Ltd., Ahmedabad-380006
45. Sh. Amit Mittal, Talwandi Sabo Power Ltd. Distt: Mansa, Punjab-151302
46. Sh. R.S. Sharma, MD, Lalitpur Power generation Company Ltd., Noida-201301
47. Sh. Sameer Ganju, Head-Northern Region, Adani Enterprises ltd., New Delhi-110021
48. Nabha Power Limited Rajpura, Punjab-140401
49. Prayagraj Power Generation Co. Ltd. Bara, Allahabad, Uttar Pradesh-212107
50. Shree Cement Limited Ltd, Beawar-305901

**Special Invitee**

1. Chief Engineer, NPC, CEA, NRPC Building, Katwaria Sarai, New Delhi-110016

### **List of TCC Members**

1. Sh. Asgar Ali Majaz, Chairman TCC and Development Commissioner (P), PDD, Jammu, J&K
2. Sh. Jatinder Kumar Juneja, Director (Tech), HVPN Ltd, Panchkula-134109
3. Sh. R.K. Sharma, Director (Tech), HPSEB Ltd, Shimla-171004,
4. Sh. V.K. Kalra, Member (Power), BBMB, Chandigarh-160019
5. Chief Engineer (GM), CEA, R. K. Puram, New Delhi-110066
6. Chief Engineer, NPC, CEA, NRPC Building, Katwaria Sarai, New Delhi-110016
7. Chief Engineer, UT of Chandigarh, Chandigarh-160009
8. Sh. Prem Prakash, Director (Operation), DTL, New Delhi-110002
9. Sh. V. Venugopal, GM, SLDC, DTL, New Delhi-110002
10. Sh. Jagdish Kumar, Director (Technical), IPGCL, New Delhi-110002
11. Chief Engineer (SO&C), SLDC, HVPNL, Sewah, Panipat
12. Director (Generation), HPGCL, Panchkula-134109
13. Chief Engineer, HPPC, Panchkula-134109
14. Director (Projects), HPPTC Ltd., Shimla-171004
15. Superintending Engineer, SLDC, HP LDS, Totu, Shimla
16. Managing Director, J&K State Power Dev. Corp., Srinagar, J&K
17. Director (Tech.), PSTCL, Patiala
18. Director (Distribution), PSPCL, The Mall, Patiala
19. Director (Technical), RVPNL, Janpath, Jaipur-302005
20. Director (PT), Jaipur VVNL, Jaipur, Rajasthan
21. Director (Opn), UPPTCL, Lucknow-226001
22. Chief Engineer (TO), UPRVUNL, Lucknow-226001
23. Director (O&M), PTCUL, Dehradun-248001
24. Managing Director, UPCL, Dehradun-248006
25. Director (Operation), UJVNL, Dehradun-248006
26. Executive Director (O&M), NHPC, Faridabad-121003
27. Sh. K.P.Singh Chief Engineer (E&T), NPCIL, Mumbai-400094
28. Regional Executive Director (NR), NR-HQ, NTPC, Lucknow-226010
29. Executive Director (NR-I), PGCIL, New Delhi-110016
30. Sh. R.K. Bansal, Director (E), SJVNL, New Delhi
31. General Manager (Electrical Design), THDC, Rishikesh-249201
32. General Manager, NRLDC, New Delhi-110016
33. AGM (O&M), Aravali Power Company Pvt. Ltd., Jhajjar
34. Sh. Karunakar Jha, DGM (Commercial), Jhajjar Power Ltd., Haryana
35. Sh. Ranjan Kumar, WTD, Lanco Anpara Power Ltd.
36. Sh. Niranjan Jena, Addl. Vice President, Rosa PSCL
37. Sh. Girish Deshpande, Director (Technical) JSW Energy Ltd., New Delhi
38. Sh. Kanti Biswas, Station Head, Adani Power Rajasthan Ltd., Ahmedabad-380006
39. Sh. Prem R. Kumar, CEO, BSES Yamuna Power Limited, New Delhi
40. Shree Cement Limited Ltd, Beawar-305901
41. Sh. Amit Mittal, Talwandi Sabo Power Ltd. Distt: Mansa, Punjab-151302
42. Sh. Vikas Saksena, President, Lalitpur Power generation Company Ltd., Noida-201301
43. Sh. Sameer Ganju, Head-Northern Region, Adani Enterprises ltd., New Delhi-110021
44. Nabha Power Limited Rajpura, Punjab-140401
45. Prayagraj Power Generation Co. Ltd. Bara, Allahabad, Uttar Pradesh-212107
46. Shree Cement Limited Ltd, Beawar-305901

#### **Copy for information to:**

- 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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उत्तर क्षेत्रीय विद्युत समिति  
NORTHERN REGIONAL POWER COMMITTEE

**MINUTES OF**  
**37<sup>th</sup> MEETING OF TECHNICAL COORDINATION SUB-COMMITTEE (TCC)**  
**&**  
**40<sup>th</sup> MEETING OF NORTHERN REGIONAL POWER COMMITTEE (NRPC)**

The 37<sup>th</sup> meeting of Technical Coordination Sub-Committee (TCC) and 40<sup>th</sup> meeting of Northern Regional Power Committee (NRPC) were held on 27<sup>th</sup> and 28<sup>th</sup> October, 2017, respectively at Srinagar, Jammu & Kashmir. The list of participants of the TCC and NRPC meetings is enclosed at **Annexure- I & II**, respectively.

<b>PROCEEDINGS OF 37<sup>th</sup> MEETING OF TCC</b>
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1. Sh. Gul Ayaz, Chairman, TCC and Secretary (Tech.), PDD, J&K welcomed the Members of the TCC and other delegates.
2. He expressed satisfaction that summer peak load period in Northern Region passed without any significant event affecting grid security. He informed that in Northern Region, during the current year, demand met was more than 58 GW. During current year, load not served was merely 1.5% and 3.8% in terms of energy and peak respectively. However, he expressed concern about coal shortages and reduction in availability of power in last few weeks.
3. He stated that on pan India basis, installed capacity had crossed 329 GW against demand of about 164 MW implying that the country has now entered in an era of surplus capacity. He urged all utilities to be prepared for compliance of stricter environmental norms for coal based capacity, which is about 60%. He also alerted delegates about likely effect on power availability due to strict environment norms and the issues arising on account of integration of large renewable capacity in the grid.
4. Chairman, TCC stated that though power is normally available in the country, in the State of J&K the load is not fully served mainly due to intra-State transmission constraints. He apprised the house about the extensive distribution reform programmes going on in the J&K State. He highlighted the issues at 132 kV transmission level especially in Rajouri, Poonch and adjoining areas. He emphasized that with anticipated fast increasing load demand of the region, construction of a new 2x315 MVA, 400/132 kV Grid sub-station along with LILO of under construction 400 kV Jalandhar-Samba-Amargarh Transmission Line, somewhere in Rajouri is required. He also expressed the need for financial package from central Govt. for strengthening of intra-State transmission system in the State.

5. He urged that winter preparedness must be completed in time to tackle power system issues such as fog related trippings and high voltage conditions etc. He also highlighted the operational as well as commercial importance of reliable communication & telemetry system and urged the concerned utilities for concerted effort to ensure the reliable telemetry. He apprised the house about the communication infrastructure strengthening works being undertaken by J&K. While emphasizing the need of reliable protection system, he requested all the concerned entities to complete internal audit of protection system before December'17 and take corrective action in time.
6. He again thanked all the delegates for sparing time to discuss the important issues. He wished that in the meeting there would be fruitful discussions, which would go long way in facilitating safe, reliable and economic operation of NR power system.
7. Sh. M. A. K. P. Singh, Member Secretary, NRPC welcomed the Members of Technical Coordination Sub-Committee and other delegates of the 37<sup>th</sup> TCC meeting and expressed sincere thanks to PDD, J&K for excellent arrangements and hospitality. He apprised the delegates that a special sub-group was proposed to be constituted for facilitating resolution of power sector issues of J&K and expressed hope that in near future the issues of J&K power system would be amicably resolved.

<b>C O N F I R M A T I O N   O F   M I N U T E S   ( T C C )</b>
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**A.1 Minutes of 35<sup>th</sup> and 36<sup>th</sup> (Special) meeting of TCC**

Member Secretary, NRPC informed the Committee that the minutes of 35<sup>th</sup> and 36<sup>th</sup> (Special) meeting of TCC held on 01<sup>st</sup> May, 2017 and 14<sup>th</sup> September, 2017 respectively, were circulated vide letter No. NRPC/Comml/209/RPC(39<sup>th</sup>)/2017/8010-98 dated 14<sup>th</sup> July, 2017 and NRPC/Comml/ 209/ TCC (36<sup>th</sup>)/2017/ 10899-10945 dated 04<sup>th</sup> October, 2017. No comments have been received on the minutes.

The Committee confirmed the minutes of 35<sup>th</sup> and 36<sup>th</sup> (special) meetings of TCC.

<b>P R O C E E D I N G S   O F   4 0 <sup>t h</sup>   M E E T I N G   O F   N R P C</b>
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1. Chairperson, NRPC and Commissioner & Secretary, PDD, Govt. of Jammu & Kashmir, Shri Dheeraj Gupta, IAS, welcomed the members of the Northern Regional Power Committee and other delegates of the 40<sup>th</sup> meeting of NRPC.
2. While applauding TCC efforts in deliberating and resolving several issues, he urged all the members to implement the decisions in letter & spirit, in a time bound manner.



3. Chairperson, NRPC appreciated the contribution of all stakeholders in facilitating the Northern Power system in meeting the highest ever demand successfully. Expressing his concern about shortage of coal in last few weeks, he suggested all Coal based stations to maintain sufficient coal stock and to keep the stations, which are not normally running due to lower position in merit order, ready to meet such situations. He also advised all the STUs and POWERGRID to be prepared with requisite man & material including ERS to deal with tower damages.
4. Chairperson, NRPC has called for urgent action on winter preparedness activities including replacement & cleaning of insulators and action points already identified for optimization of reactive resources by transmission as well as generating utilities.
5. He urged all the members to take proactive measures and adopt new mechanisms for managing the integration of large scale renewable in the grid.
6. He appreciated the actions taken by NRPC Secretariat for skill development and suggested to continue the same to ensure that power sector personnel remain updated with current technology and best practices.
7. While highlighting the vital role of NRPC in providing a very good platform for resolving issues amicably and reducing litigations, Chairperson, NRPC urged the members to utilise this forum for benefit of all.
8. He expressed his gratitude towards all the delegates for sparing time and wished fruitful deliberations in the meeting.
9. Sh. Ravindra Kumar Verma, Chairperson, CEA, thanked PDD, J&K for hosting the meeting in a nice ambiance and making excellent arrangement with unparalleled hospitality.
10. Chairperson, CEA mentioned that the Indian power system is in a transition stage. The country had come out of an era of power shortage and has emerged as surplus in capacity, which is manifested in form of large un-requisitioned power in the country almost throughout the year. He stated that wherever, there are incidents of shortages, it is not due to less availability of power but due to several other reasons including commercial reasons and constraints in intra-State transmission and distribution level. He called for mindset change from load shedding to more energy consumption for development of the country.
11. While highlighting the challenges of large renewable integration in the grid, Sh. Verma emphasized the need for proactive action, including implementation of smart grid technologies and demand side management, building a robust & reliable communication infrastructure etc., by all stakeholders.
12. Chairperson, CEA apprised the house about the paradigm shift in form of proposed change from 15 minute to 5 minute time block for scheduling and settlement of power, in the country. He urged all the members to keep in mind this change, while

planning for metering, communication and telemetry infrastructure development and up-gradation.

13. While mentioning the new environmental norms by MoEF & CC for Coal based stations, he informed that out of 196 GW Coal based capacity 161 GW capacity needs FGD installation by 2022 for compliance of new SO<sub>x</sub> emission norms.
14. Indicating the less power availability scenario in the country during last few weeks, Chairperson, CEA, stated that due to sharp rise in demand coupled with reduction in hydro and wind generation the reliance on Coal based generation increased. To cope up with the situation, Coal based generation was increased but eventually this culminated in Coal shortage. He called for timely proactive action by all the concerned utilities to maintain Coal stock as per CEA norms.
15. Chairperson, CEA had again thanked PDD, J&K for excellently hosting the meeting and wished for successful deliberations in the meeting.

<b>C O N F I R M A T I O N   O F   N R P C   M I N U T E S</b>
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## **A.2 Minutes of 39<sup>th</sup> meeting of NRPC**

Member Secretary, NRPC informed the Committee that the minutes of 39<sup>th</sup> meeting of NRPC held on 02<sup>nd</sup> May, 2017, were circulated vide letter No. NRPC/Comml/209/RPC(39<sup>th</sup>)/2017/8010-98 dated 14<sup>th</sup> July, 2017. No comments were received on the minutes.

The Committee confirmed the minutes of 39<sup>th</sup> meeting of NRPC.

## **B . O P E R A T I O N A L I S S U E S**

### **B.1 Revised System Protection Scheme (SPS) for 765 kV Agra-Gwalior line.**

#### **TCC Deliberations**

- B.1.1 Member Secretary, NRPC informed the Committee that the proposal of POWERGRID for booking of the cost of the revised SPS scheme (for meeting contingency of 765 kV Agra-Gwalior Inter-regional link) in any other ongoing project/work and to include provision of 5 years AMC in the scope of work for implementation of the revised scheme was approved in the 39<sup>th</sup> NRPC meeting. In the meeting NRPC had advised POWERGRID to ensure implementation of the revised scheme by Oct, 2017.

- B.1.2 He further stated that in the 139<sup>th</sup> OCC meeting, representative of POWERGRID had informed that the bid had been opened on 25.08.2017 and all out efforts were being made to ensure that the scheme was implemented by 31.12.2017.
- B.1.3 He added that in the 140<sup>th</sup> OCC meeting, the revised logic of the scheme was presented by POWERGRID to which concerns were raised in the meeting as it seemed would not serve fully the purpose of meeting the contingency and as such POWERGRID was asked to review the same.
- B.1.4 Members expressed concerns about the shifting of the implementation date of the scheme to which POWERGRID committed for making all out efforts for completion of scheme by February, 2018.
- B.1.5 Regarding the logic of SPS presented in the 140<sup>th</sup> OCC meeting, TCC recommended to convene a separate meeting comprising members from NRLDC, NRPC Sectt. and POWERGRID.
- B.1.6 On a query raised about the cost of the project, POWERGRID informed that the project cost is Rs. 2.73 Crs and AMC cost for 5 years in Rs. 1.75 Crs.
- B.1.7 Representative of NRLDC informed that a compendium of all the SPS schemes implemented in NR had been prepared and would be released in the 40<sup>th</sup> NRPC meeting.
- B.1.8 TCC noted the information and advised POWERGRID to implement the scheme by February, 2018.

#### **NRPC Deliberations**

- B.1.9 NRPC expressed concerns about the delay in the implementation of the scheme to which POWERGRID reiterated their commitment to implement the scheme by February, 2018.
- NRPC released the compendium of all the SPS schemes implemented in NR prepared by NRLDC in the meeting.
- B.1.10 Chairperson CEA, Chairperson NRPC and other members of the Committee requested NRPC and NRLDC to review the SPS at regular interval. NRPC concurred with the recommendation of TCC to convene a separate meeting for reviewing the logic of SPS for 765 kV Agra- Gwalior line.

## **B.2 System Study for Capacitor Requirement in NR for the year 2017-18 & 2018-19.**

#### **TCC Deliberations**

- B.2.1 Member Secretary, NRPC informed the Committee that in the 37<sup>th</sup> NRPC meeting the proposal for entrusting the work of System Studies for the year 2016-17 and 2017-18 to CPRI was approved and accordingly a Letter of Award (LoA) was issued to CPRI for carrying out the studies with consultancy charges of Rs. 20 Lakh plus Service tax after the due approval of Chairperson, NRPC. Due to delay in data submission by the

utilities for the period of FY 2016-17, it was decided to conduct the studies for 2017-18 and 2018-19.

- B.2.2 He further stated that in the 39<sup>th</sup> NRPC meeting the proposal of installation of capacitor by Haryana, Punjab and Uttar Pradesh as proposed by the respective States was approved. NRPC also approved installation of capacitor in J&K limited to 1102 MVAR (as per study of CPRI).
- B.2.3 He further stated that for obtaining more feasible and practical requirement of capacitors, the need for conducting the study of capacitor requirement for 2018-19 up to 11/33 kV level was discussed in the 139<sup>th</sup> OCC meeting. Representative of CPRI had informed in the 139<sup>th</sup> OCC meeting that NR system was modelled up to 220/132 kV level only, for conducting the study up to 11/33 kV additional data upto 11/33 kV would be required and network model has to be reworked accordingly, for which additional charges would have to be paid.
- B.2.4 It was informed in the 139<sup>th</sup> OCC meeting that UP had raised certain concerns regarding the operational quantum of capacitor banks taken in the study and subsequent requirement projected in the report. UP and other utilities were advised to nominate one officer for verification of the data incorporated in the study being carried out by CPRI.
- B.2.5 Representative of Rajasthan stated that they would carry out the study for their State themselves. But Members expressed that the system study has to be carried out for the entire region and as such Rajasthan data would also be required.
- B.2.6 TCC deliberated on the need for conducting the study for capacitor requirement of the States. Concerns were raised by the members for conducting the study at 11/33 kV level as it would involve huge exercise of data collection involving the Discoms and suggested for conducting the study in two stages:
- a) One at 220/132 kV level
  - b) Subsequently, down to 11/33 kV level
- B.2.7 TCC requested all the utilities to provide the data of their network upto 11 kV to CPRI for modelling of the network. Citing the huge task of data collection which requires some time, TCC recommended for conducting the study for the period 2019-20 instead of 2018-19 at 11/33/66 kV level and also agreed in-principle for the additional charges which may be levied by CPRI for conducting the study to be paid from NRPC fund.
- B.2.8 Member Secretary, NRPC informed that last OCC had recommended for the formation of a subgroup for J&K work consisting of representatives from J&K, NRPC, NRLDC and POWERGRID. This sub group would meet regularly to discuss the work of system strengthening, capacitor installation and protection system up-gradation in J&K.

- B.2.9 TCC advised to have representation from CTU also and recommended for the formation of the sub-group for J&K. The meeting would be held in J&K as and when required.
- B.2.10 Member Secretary, NRPC informed that in the 39<sup>th</sup> NRPC meeting, Chairperson, NRPC and Commissioner & Secretary, PDD, Govt. of Jammu & Kashmir had requested POWERGRID to take up the work of system strengthening, capacitor installation and protection system up-gradation in J&K on deposit basis to which POWERGRID representative had agreed stated that detailed discussion, in this regard, would be done, separately, with the concerned J&K officers.
- B.2.11 Representative of PDD informed that POWERGRID has already been doing system strengthening work for J&K under PMDP-2 (Prime Minister Development Package-2). POWERGRID informed that scope of work for capacitor installation and protection system up-gradation in J&K was not clear to which PDD informed that it was being implemented by them on their own. POWERGRID representative informed that detailed deliberations on the subject would be done in the meeting of the sub-group being proposed for J&K.

#### **NRPC Deliberations**

- B.2.12 NRPC approved the recommendations of TCC for conducting the study of capacitor requirement for 2019-20 at 11/33/66 kV level and also for the additional charges which may be levied by CPRI for additional scope of study, to be paid from NRPC fund.
- B.2.13 NRPC approved the formation of the sub-group for issues related to J&K comprising members from J&K, NRPC, NRLDC, POWERGRID and CTU to discuss the work of system strengthening, capacitor installation and protection system up-gradation in J&K. The meeting would be held in J&K or any other place as and when required.

### **B.3 Reactive compensation at 220 kV level.**

#### **NRPC Deliberations**

- B.3.1 Member Secretary, NRPC informed the Committee that the report of POWERGRID on Reactive compensation in Northern Region was deliberated in 34<sup>th</sup>TCC/38<sup>th</sup>NRPC meeting held on 24<sup>th</sup>/25<sup>th</sup>October, 2016 and NRPC had approved the reactors as per the details given at Annexure-I to the agenda note. Delhi and Rajasthan had certain reservations to the recommendations made by POWERGRID. 35<sup>th</sup> TCC recommended and 39<sup>th</sup> NRPC approved the proposal of OCC for referring the report by POWERGRID and study by Rajasthan to Standing Committee on Power System Planning of NR.
- B.3.2 He briefed the Committee about the decision of Standing Committee on Power System Planning of NR.

In the 39<sup>th</sup> Meeting of SCSPNR held on 29<sup>th</sup> & 30<sup>th</sup> May 2017 following was agreed:

- a) TCR of capacity 500 MVA at Kurukshetra 400 kV bus.
- b) Bus Reactors at 30 Nos. 220 kV sub-stations and 18 Nos 400 kV level sub-stations subject to the availability of space (Annexure II to the Agenda note). It was also agreed that these reactors shall be provided by the owner of the substations.

B.3.3 Member Secretary, NRPC briefed that the TCR of 500 MVA at 400 kV Kurukshetra bus had been approved by the standing Committee in view of the prevailing high voltage conditions at Kurukshetra which leads to curtailing power transfer capability through Champa- Kurukshetra HVDC.

B.3.4 NRPC requested POWERGRID to commission TCR of capacity 500 MVA at Kurukshetra 400 kV bus at the earliest as apart from providing voltage relief it would also help in stabilization of Champa –Kurukshetra HVDC.

B.3.5 NRPC advised all the utilities to commission the reactors as given in Annexure II to the Agenda note at the earliest and to submit the detailed action plan with the timeline in the next OCC meeting. NRPC further pointed that these reactors are essential for maintaining the voltage level of the grid and needs to be commissioned within 26 months.

B.3.6 POWERGRID informed that the reactors proposed at the ISTS stations would be done under Tariff Based Competitive Bidding (TBCB) and the timeline for the same cannot be provided. However, POWERGRID assured of commissioning the TCR at Kurukshetra at the earliest.

#### **B.4 Reliable Communication Scheme under Central Sector for NR.**

##### **TCC Deliberations**

B.4.1 Member Secretary, NRPC informed the Committee that 39<sup>th</sup> NRPC had approved, implementation of following Communication Schemes:

- 1) Reliable Communication Scheme under Central Sector for Northern Region comprising 5474 Km of OPGW along with communication equipments and associated items at an estimated cost of Rs. 137 Cr.
- 2) Replacement of OPGW along with communication equipments installed under ULDC phase-I at an estimated cost of Rs. 59 Crs as a part of Reliable Communication Scheme under Central Sector for Northern Region.

B.4.2 He further mentioned that, based on NRPC approval POWERGRID has prepared the Detailed Project Report. As per DPR, quantities along with cost of the project are as under:

- a) Reliable Communication Scheme under Central Sector for Northern Region consisting of 5428 Km of OPGW along with communication equipments and associated items at a cost of Rs. 177 Cr.

- b) Replacement of OPGW along with communication equipment and associated items installed under ULDC project Phase-I consisting of 1820 Km of OPGW along with communication equipments and associated items at a cost of Rs. 60 Crs. The same is taken up as a part of Reliable Communication Scheme under Central Sector for Northern Region.
- B.4.3 POWERGRID submitted that the Implementation of “Reliable Communication Scheme under Central Sector for Northern Region” consisting of 7248 Km (5428 Km + 1820 Km) of OPGW along with communication equipment and associated items was planned at a total cost of Rs. 237 Cr (Rs. 177 Crs + Rs. 60 Crs). Implementation schedule for this project would be 28 months from the date of Investment Approval.
- B.4.4 POWERGRID informed that the actual cost would be discovered only after bidding process and implementation of the project. Tariff for the investment made is to be shared by all constituents as per CERC notification. The scheme would become part of existing Commercial Agreement signed for ULDC Project.
- B.4.5 On a query regarding increase in cost, in spite of reduction in quantity, POWERGRID representative informed that the increase in price was due to following factors:
- i) Increase in basic cost on account of revised Schedule of rates at the price level of June, 2017, while earlier it was based on Feb, 2017 price level.
  - ii) Inclusion of IDC, IEDC
- B.4.6 He added that the present Cost estimate of Rupees 177 Cr. comprises of: Basic Cost- Rs. 146.5 Cr., IEDC- Rs.15.5.Cr, IDC- Rs.10 Cr. and Contingency- Rs.5 Cr.
- It was also informed that DPR had been approved and NIT process would be completed in Nov, 2017. The time line for completion is 28 months from the date of investment approval say 1<sup>st</sup> Dec., 2017.
- B.4.7 TCC noted the information. Member Secretary, NRPC informed that for State portion, UP, Rajasthan, Punjab and Uttarakhand had submitted proposal for Communication schemes for PSDF funding. He informed that latest status of PSDF funding of these schemes was enclosed at Annexure-III of the agenda.
- B.4.8 Member Secretary, NRPC apprised the Committee that decision of increasing the PSDF funding from 30% to 50%. Haryana representative informed that the scheme for their State would be submitted for PSDF funding shortly.
- B.4.9 TCC advised all the States to submit their proposal for PSDF funding and implement the schemes in a time bound manner.

#### **NRPC Deliberations**

- B.4.10 NRPC noted the deliberations held in TCC regarding reliable communication scheme under central sector in Northern Region and advised POWERGRID to take action as decided in the TCC meeting.

B.4.11 NRPC noted the deliberations in TCC regarding the communication schemes by the States and advised concerned States to ensure completion of the project within the agreed time line.

## **B.5 Reliability of telemetry**

### **TCC Deliberations**

B.5.1 Member Secretary, NRPC informed the Committee that in the 11<sup>th</sup> TeST meeting held on 10<sup>th</sup> July 2017 the sub-Committee expressed concern about unreliable telemetry, which is detrimental to safe and economic operation of the grid. It was also emphasized that non-availability of telemetry is non-compliance of regulatory provisions. The sub-Committee advised all the concerned utilities to take immediate steps for ensuring reliable telemetry at their respective sub-station/generating stations. Concerned transmission/generation utilities were advised to submit action taken report by 31<sup>st</sup> July, 2017 to NRPC Secretariat & NRLDC. However, he stated that no report had been received in NRPC Secretariat in this regard.

B.5.2 NRLDC representative gave a detailed presentation covering utility wise data of non-availability as well data intermittency. Following were the salient points of the presentation:

- a. In the last TeST sub-Committee meeting, non-availability of telemetry was reported to be about 30%, which has reduced to 28% level, thus there was no significant improvement in telemetry.
- b. Telemetry from 30% stations and generating stations was either not available or intermittent. Availability of telemetry stations from J&K, Punjab and Rajasthan state control areas was very low.
- c. Out of 116 central sector stations reporting to NRLDC, 50 numbers of stations had single channel and thus no redundancy of communication.
- d. Even wherever real time data was available, the digital data availability was very poor and therefore, state estimator output at time was very poor. Availability of digital data is less than 70% from most of the utilities while it was less than 50% for J&K and Haryana and less than 55% for Rajasthan State control area. Only BBMB and POWERGRID had digital data availability above 80% (86 and 82% respectively).
- e. Some of recently commissioned station had availability of telemetry at the time of first time charging of the element, but after the commissioning of element, telemetry remains unavailable. In this respect, examples of Mathura, Agra South, and Aligarh etc. were mentioned.
- f. NRLDC also emphasized that SCADA being eyes and ears of the system operator, the adequate attention must be paid towards providing telemetry as well as maintaining availability of the telemetry.



g. Availability of telemetry should be ensured at state level also.

B.5.3 Some of the important station's data was not available since long as given below:

Central Sector	Rajasthan	UPPTCL	PTCUL
Budhil (13.10.17)	Chabra TPS ( 25.06.17 )	Aligarh	Rishikesh ( intermittent )
Malana (Aug' 17)	Deedwana	Vishnuprayag	Srinagar ( intermittent )
Salal (29.08.17 )	Barsingsar	Mathura	Kashipur ( 13.08.2016 )
Samba (29.08.17 )	Giral	Jhansi	Shravanti
Uri – II (intermittent )	Suratgarh Critical ( Not integrated )		
Parvati – II (intermittent )			

B.5.4 CEA representative informed that not providing telemetry is violation of CEA connectivity regulations.

B.5.5 TCC recommended that all the utilities would provide reliable telemetry within 1 month where telemetry was not there. It was also decided that no element will be allowed to connect in the grid without telemetry.

B.5.6 Regarding OPGW connectivity of Karcham, Sorang HEPs and Jhajjar TPS it was informed by POWERGRID that it was part of reliable communication scheme in NR stations to be implemented by POWERGRID. Regarding connectivity of Rampur HEP it was informed that the same had been done and OPGW connectivity of NJHPS would be established by October 2017 end.

B.5.7 Regarding telemetry from Suratgarh and Chhabra TPS concerned utilities were advised to ensure telemetry within 1 month. Rajasthan representative agreed for the same. PTCUL representative informed that telemetry from 400kV Kashipur would be made available within 1 month. Regarding Salal HPS, POWERGRID representative informed that telemetry would be restored through redundant link within few days.

B.5.8 NRLDC representative emphasized that the communication plan needs to be tied up when stations is planned. The non-availability of data should be resolved on priority with proper delegation of responsibility. Serious efforts should be made for improving the reliability of data telemetry.

### **NRPC Deliberations**

B.5.9 Members expressed concern about non-availability of reliable telemetry and advised all the concerned utilities to ensure telemetry within the agreed time line in TCC.

B.5.10 NRPC approved the TCC recommendation that all the utilities would provide reliable telemetry within 1 month where telemetry was not there and that no element will be allowed to connect in the grid without telemetry.

## **B.6 Wideband connectivity with PTCUL:**

### **TCC Deliberations**

B.6.1 Member Secretary, NRPC informed that a team consisting of members from NRPC secretariat, NRLDC and POWERGRID had visited PTCUL Dehradun on 31<sup>st</sup> Aug, 2017 and held discussion on all pending issues with higher authorities of PTCUL. He apprised the TCC about the discussions and decisions in the said meeting held at Dehradun (Minutes of this meeting were enclosed at Annexure-IV of the agenda) on following issues:

- i.* Availability of reliable communication between SLDC Dehradun with NRLDC.
- ii.* Availability of reliable telemetry from 400 kV Kashipur and Rishikesh Substations.
- iii.* Implementation of URTDSM.
- iv.* Balance payment for SCADA/EMS for ULDC Phase-I.
- v.* Implementation of EPBAX and VCS system supplied by PGCIL/NRLDC.

B.6.2 PTCUL representative assured the Committee that all the actions on the identified action points including payment to POSOCO and POWERGRID would be completed by Nov., 2017.

### **NRPC Deliberations**

B.6.3 NRPC noted the deliberations held in TCC and advised PTCUL to ensure action on the identified action points within the agreed time line i.e. by Nov, 2017.

## **B.7 Replacement of old S 900 RTUs:**

### **TCC Deliberations**

B.7.1 Member Secretary, NRPC informed the Committee that S 900 RTUs are required to be replaced on priority basis as decided in 35<sup>th</sup> TCC & 39<sup>th</sup> NRPC meetings. He further apprised the TCC that in 11<sup>th</sup> TeST meeting held on 10<sup>th</sup> July 2017, the issues related to replacement of old S900 RTUs were again deliberated and many members including that from Central Generating Stations and DTL requested POWERGRID to reconsider procurement of new RTUs on behalf of these utilities. Representative of POWERGRID had agreed for procurement of new RTUs on deposit basis.

- B.7.2 POWERGRID representative informed that they had not received requirements from all the utilities as per decision in TeST meeting . He stated that requisition for 63 RTUs only had been received. He added that after getting requisitions from all the utilities POWERGRID would initiate procurement of RTUs on behalf of the utilities.
- B.7.3 PSTCL representative informed their requirement of 30 RTUs. Whereas, PTCUL and RVPNL stated that they would procure on their own.
- B.7.4 NRLDC representative expressed concern about delay in process and possible effect on telemetry as the AMC expires next year.
- B.7.5 TCC expressed concern over delay in replacement of RTUs and advised POWERGRID to procure RTUs as per request of other utilities at the earliest, so that replacement may be done timely. POWERGRID representative assured that if there is delay in replacement, then AMC would be extended to ensure proper maintenance of the RTUs.
- B.7.6 POWERGRID informed that procurement would be done on deposit basis after advance payment. Keeping in view, small amount of expenditure and complications in procurement of RTUs separately by different utilities, TCC advised all the concerned utilities to consider POWERGRID proposal to avoid further delay in the process.
- B.7.7 Some members expressed reservation about 100% advance payment. Member Secretary, NRPC suggested that the issue of 100% advance payment may be settled on mutual discussion basis.

#### **NRPC Deliberations**

- B.7.8 NRPC noted the deliberations held in TCC and advised all concerned utilities to submit their requirement to POWERGRID and POWERGRID to ensure procurement and replacement of RTUs before expiry of present AMC contract, as per the decisions of TCC.

#### **B.8 Downstream network by State Utilities from ISTS Stations**

- B.8.1 Member Secretary, NRPC informed the Committee that NR State representatives had raised the issue of number of bays for downstream networks in an ISTS substation in 35<sup>th</sup> TCC meeting. In the meeting Chairman, TCC had opined that it may not be possible to utilize all the bays in a new 400 kV sub-station, in one go. He suggested that specific requirement of bays should be seen while planning a new sub-station instead of going for standard numbers of bays as per established norms. He also advised that POWERGRID should take up this issue in next Standing Committee for power system planning in NR. He emphasized that utilization of STU assets should be considered while planning for ISTS network in a State. To ensure optimum planning and utilization of assets prior consultation with all the stakeholders must be done.

- B.8.2 He further stated that 35<sup>th</sup> TCC recommended that the no. of bays to be commissioned for each substation may be decided in consultation with the concerned State, keeping in view the specific requirement of the State and utilization of STU network instead of following norms of standard number of bays, as per existing guidelines. TCC and NRPC had advised POWERGRID to take up the issue of number of bays in the next Standing Committee meeting on Power System Planning.
- B.8.3 Member Secretary, NRPC informed the Committee that the matter was discussed up in the 37<sup>th</sup> meeting of Empowered Committee on Transmission, the minutes (*Annexure-III*) of which read as “.....*Empowered Committee suggested that 220 kV bays to be included in the scope of TBCB should be as per the requirement indicated by the drawing entity.*”
- B.8.4 He apprised the forum about the details of upcoming substations of POWERGRID in the next 6 months and their required downstream network status (as given in Annexure-V to the Agenda note).
- B.8.5 All the concerned States were requested to submit the details of the downstream network of these POWERGRID substations along with the detailed status/ sketches of their proposed/approved networks to NRPC Secretariat.
- B.8.6 TCC recommended the decision of 37<sup>th</sup> Empowered Committee on Transmission of CEA to be put up to NRPC for approval.

#### **NRPC deliberation**

- B.8.7 NRPC expressed that the decision of the Empowered Committee on Transmission shall be interpreted in a way that the layout of the substation shall remain same as per the standard and the space shall be left for the bays not included in the scope of the project for its utilization in future.
- B.8.8 NRPC concurred with the recommendation of TCC and advised all the concerned States to submit the details of the downstream network of these POWERGRID substations along with the detailed status/ sketches of their proposed/approved networks to NRPC Secretariat.

### **B.9 Capacity Building Programmes by NRPC**

#### **A Training programme on Power System Protection System for Protection System Engineers (Level 3)**

##### **TCC Deliberations**

- B.9.1 Member Secretary, NRPC apprised the TCC that Training programme on Power System Protection System for Protection System Engineers (Level 3) is planned to be organized in Dec, 2017. He stated that the estimated expenditure will be Rs. 15000/- plus taxes per participant per day. Thus, the total estimated expenditure for 5 day training for 30 nos. of participants would be about Rs. 25 Lakh plus taxes. He proposed this expenditure to be met from NRPC fund. He also proposed to get the

programme conducted through POWERGRID in line with the Level 2 programme, organized earlier.

- B.9.2 TCC agreed to the proposal and recommended for approval of NRPC. It was also decided that utilities will ensure nomination of those officers who had earlier participated in Level 2 programme in order to garner maximum benefit.

**NRPC Deliberations**

- B.9.3 NRPC agreed with the recommendation of TCC to conduct level-3 training proposal on Power System Protection System for Protection System Engineers through POWERGRID along with the estimated expenditure of ₹25 Lakh plus taxes to be met from NRPC fund.

**B. Training program for STU personnel on OPGW related aspects:**

**TCC Deliberations**

- B.9.4 Member Secretary, NRPC informed the Committee that POWERGRID is implementing this training programme during 9<sup>th</sup> to 10<sup>th</sup> November, 2017 at Agra. SE(C), NRPC advised all concerned utilities to ensure proper participation in the programme.

- B.9.5 The committee noted the information.

**NRPC Deliberations**

- B.9.6 NRPC noted the deliberations held in TCC and appreciated the initiative taken by POWERGRID.

**C. Training for EMS application:**

**TCC Deliberations**

- B.9.7 Member Secretary, NRPC informed that the Committee that the state estimator training is to be conducted by M/s Siemens at all SLDCs of NR region except Uttarakhand. The training is proposed to start in November, 2017. He also apprised the Committee that M/s Siemens has quoted the rate of Rs. 1,60,000/- plus taxes for 5 days for each SLDC. The members were also informed that a Committee comprising members from POWERGRID, NRLDC and NRPC Secretariat had examined the proposal and recommended for placing the order to M/s Siemens at the cost of Rs. 1,60,000/- plus taxes for 5 days for each SLDC

- B.9.8 The Committee noted the information and recommended the 5 days training program for EMS application by OEM M/s Siemens at each SLDC for the price of Rs. 1,60,000/- plus taxes. The expenditure shall be met from NRPC fund.

**NRPC Deliberations**

- B.9.9 NRPC noted and concurred with the TCC deliberations & recommendation.

## **D. Capacity Building Programme on Renewable Integration:**

### **NRPC Deliberations**

B.9.10 SE(C), NRPC briefly described about this capacity building programme. He mentioned that a Capacity Building Programme on Integration of Renewable Energy Sources into the Grid was conducted by NRPC for the utilities of Northern Region through consortium consisting of AF-Mercados Energy Markets International S.A. and Mercados Energy Markets India Pvt. Ltd. The programme was conducted in three batches with domestic as well as European phase which was completed in July 2016.

B.9.11 He informed that Payment of 90 % of the contract value Rs. 4,25,59,649/- i.e. Rs. 3,83,03,684/- was already been released to the service provider. The Contract Agreement required balance payment of 10% i.e. Rs. 42,55,965/- to be released after successful completion of the Programme. However, the balance payment in full could not be made due to following issues:

- a) Non-completion/part completion of some of the tasks envisaged in the contract agreement.
- b) Some lapses by the service provider in logistics arrangements.
- c) Additional costs due to cancellations of bookings for Shri Awasthi, Jt. Chief, CERC, who was to be part of Batch-3 but could not proceed due to non-availability of approval of Competent Authority.

B.9.12 In order to resolve above mentioned issues a Committee was constituted with members from NRPC Sectt., Powergrid, POSOCO and DTL. The Committee in its interim report came to the conclusion that the material available on record clearly establishes that the service provider had not been able to complete some tasks fully for reasons solely attributable to them. The Committee in its interim report recommended the following:

- a) The total amount for incomplete/partially completed task comes out to be Rs. 33,39,258/- and the same may be deducted from the balance payment.
- b) There were some lapses by the service provider in logistics arrangements, for which a token amount of Rs 10,000/- may be deducted from the balance payment to the service provider.
- c) The Service Provider had failed to submit documents as required by the Contract Agreement to establish cancellation cost incurred for Mr. Awasthi. Therefore, no compensation should be paid to the service provider against their claim due to cancelation costs attributing to non-participation of Mr. Awasthi.

B.9.13 Legal opinion was taken by NRPC Sectt. in which the lawyer had endorsed the views of the Committee to deduct the amount, though there was no explicit provision of the same in the contract agreement.

- B.9.14 Pending the final report of the Committee, with the approval of Chairperson, NRPC, Rs. 9,06,707/- (after deducting Rs. 33,39,258/- plus Rs. 10,000/- from the balance payment of Rs. 42,55,965/-) had been released to the service provider.
- B.9.15 After interaction with the service providers, the Committee in its final report revised the amount of deduction due to non-completion of the tasks from Rs. 33,39,258/- to Rs. 28,56,861/- . This was due to considering the overhead expenses @ 15% of the total cost, instead of 10% of the cost incurred on food, hotel etc, which was considered earlier by the Committee. Committee recommended for payment of differential amount of Rs. 4,82,397/- ( =33,39,258-28,56,861) to the service provider. The committee has also recommended for payment of some amount against the cancellation cost towards non-participation of Mr. Awasthi. Thus, the Committee recommended as under:
- a) Taking into account the overhead expenses @ 15% of the total cost, instead of 10% of the cost incurred on food, hotel etc, which was considered earlier by the committee, an amount of Rs. 4,82,397/- may be released.
  - b) Based on the documents provided by the service provider, Rs. 34,563/- may be released against the cancellation cost of non-participation of Mr. Awasthi.
- B.9.16 The payment of Rs. 34,563/- against the cancellation cost of non-participation of Mr. Awasthi was done after approval of Chairperson, NRPC.
- B.9.17 However, Rs. 4,82,397/- could not be released, as Chairperson, NRPC had opined that Committee should justify revision in overhead cost .
- B.9.18 The matter was again referred to the Committee and the Committee reiterated its views on considering revised overhead cost. The Committee had given justification for revised overhead cost calculation citing some examples of 15 % overhead cost approved by NRPC for the projects being implemented by POWERGRID on deposit basis and the norms of 15% overhead including profit followed by CPWD . However, the matter was again referred to the Committee for more justification.
- B.9.19 After detailed deliberation NRPC decided that the issue of revision of overhead cost from 10 to 15 % and payment of Rs. 4,82,397/- on account of this revision may be examined again. Except this issue of overhead cost, NRPC concurred with the deductions made from the balance 10% payment to the service provider.

## **B.10 RGMO/FGMO compliance by generators in the region**

### **TCC Deliberations**

- B.10.1 NRLDC representative informed that CERC (IEGC) 5<sup>th</sup> amendment dated 12.04.2017 provides that all coal/lignite based thermal generating units of 200 MW and above, Open Cycle Gas Turbine/Combined Cycle generating stations having gas turbines of capacity more than 50 MW each and all hydro units of 25 MW and above should provide RGMO/FGMO response. Further, it has been provided in Regulation 5.2(h)

that ‘RLDCs/SLDCs should not schedule the generating station or unit(s) thereof beyond ex-bus generation corresponding to 100% of the installed capacity of the generating station or unit(s) thereof and that the generating station shall not resort to Valve Wide Open operation of units” so that primary response is ensured.

- B.10.2 It was also apprised that CERC in its letter dated 05.06.2017 has directed to obtain the status of availability of RGMO/FGMO response from the generators (ISGS as well as intra-state generators) in the region. The issue had been discussed regularly in OCC meetings. However, information from few utilities only had been received. Information from all the generators is required for submitting the report to CERC. All the other utilities were requested to update the status. The updated status of units operating under RGMO/FGMO was attached at Annexure –VI of the agenda.
- B.10.3 NRLDC informed that CERC in its recent order has directed utilities for compliance of RGMO/FGMO and close monitoring by CERC would be done w.e.f. from September 2017.
- B.10.4 The Committee advised all the utilities to ensure compliance of CERC regulations and submit the status of RGMO/FGMO to NRPC Sectt. and NRLDC within 15 days.
- B.10.5 The Committee also decided that mapping of RGMO/FGMO signal in SCADA would be done so that real time status is available in SLDC and RLDC and the cost of wiring etc. for the mapping at utility end would be borne by the respective utility.

#### **NRPC Deliberations**

- B.10.6 NTPC representative informed that NTPC will submit action plan in this regard by 27<sup>th</sup> November, 2017
- B.10.7 NRPC agreed with the TCC deliberations. All the utilities were advised to submit status of RGMO/FGMO in 15 days to NRLDC and NRPC Sectt. so that the compliance report may be submitted to CERC.
- B.10.8 NRPC decided that the mapping of RGMO/FGMO status, in SCADA to be completed within 3 months.

#### **B.11 Optimization of Hydro Resources:**

##### **TCC Deliberations**

- B.11.1 NRLDC representative informed that the Forum of Load Despatchers (FOLD) and POSOCO had prepared a “Report on Operational Analysis for Optimization of Hydro Resources & facilitating Renewable Integration in India” which is available on POSOCO website <https://posoco.in/hydro-committee-report>). He gave a detailed presentation on the report.
- B.11.2 He mentioned that as per the report many of the generating stations can achieve a better peaking capacity, while honouring the other conditionality / constraints, such as flood control, drinking water & irrigation requirements. In the report it is suggested



that operational interventions backed by policy & regulatory framework, additional peaking support from the existing hydro power stations can be achieved. In the report optimization of operations, value flexibility through incentive schemes for peaking & ramping support, synchronous condenser operation, black start service, pumped mode operation, etc. are discussed. It was also mentioned that coordinated scheduling w.r.t. reservoir levels and grid requirements, may bring in overall economy in operation of hydro generating plants.

B.11.3 Following aspects had been deliberated:

- i. Enabling Peaking Availability by dispatching of Hydro units to factor demand pattern & trend of electricity prices and ensuring unit availability for maximizing utilization (for better valuing of water & flexibility)
- ii. Optimising Ramping support by ensuring more hydro units on bar for a given dispatch schedule
- iii. Resuming pumping mode operation at all existing PSP units
- iv. DSM for storage & pondage type stations
- v. Ancillary Services framework for inter-state hydro stations to begin with AGC for CERC regulated hydro stations
- vi. RoE to be linked to Primary Response facility for intra-state hydro
- vii. Incentive for Voltage Control Service, synchronous condenser operation
- viii. Incentive for black-start service & adequate redundancy for black start units
- ix. Transmission Planning study to factor in all India hydro dispatch at 10% overload capability
- x. Transfer capability assessment to factor in silt issues
- xi. One and half breaker switching scheme for all hydro stations (especially for Gas insulated sub-stations(GIS))
- xii. Up-rating cables between hydro station (GIS) & pot head yard
- xiii. Adequate Reactive Compensation for transmission system evacuating Hydro Generation
- xiv. Reliable (N-1) Communication path from Hydro stations to RLDCs/SLDCs for flow of real time data & voice signal
- xv. Provision for adequate telemetry from Hydro stations in SERC Hydro Tariff regulations
- xvi. Constitution of Regional Hydro Coordination Forums
- xvii. Each silt affected station to have facility for silt forecasting
- xviii. Intra basin hydro stations to have plan for coordinated flushing & review it periodically

- xix. The RoR& pondage type hydro stations & intra basin hydro stations must have facility for inflow forecasting
- xx. Amendment in Tariff Regulations of appropriate commissions with Capacity charge & energy charge for Hydro power in line with CERC Regulations
- xxi. Every plant to develop a long term R&M plan with provision for periodic review w.r.t. flexibility requirement
- xxii. The Review of Standards to essentially consider N-1 secure operation of hydro units, protection adequacy, flexibility needs etc.
- xxiii. The Regional Hydro Coordination forum to periodically review the constraints

B.11.4 The Committee in principle agreed with the recommendations in the Report. TCC advised all utilities to submit their comments on the report to NRPC Sectt. and NRLDC within one month, so that implementation of recommendations in the report may be initiated.

#### **NRPC Deliberations**

**B.11.5 NRPC noted the deliberations held in TCC and concurred with the decisions.**

### **B.12 Devastating conditions prevailing due to abrupt decline in hydro (Agenda by HPSEBL)**

#### **TCC Deliberations**

- B.12.1 HPSEBL representative raised the concern over abrupt decline in hydro generation specifically owing to silt as well as impact of downward revisions of Central Sector hydro projects affecting availability of power to the State.
- B.12.2 He informed that nomination from HPSEBL had been sent for the Committee comprising members from different organizations constitute to examine and look into the factors responsible for such conditions.
- B.12.3 HPSEBL representative suggested amendments in prevailing regulations to have a gate closure for revision of DC by generators so that drawing entities may get time to manage reduced availability of power from hydro stations. He also suggested that adequate quantum of power may be made available under ancillary services to deal with such situations.
- B.12.4 CEA representative stated that in this regard CERC was considering amendment of relevant Regulations and he suggested that CERC may be requested to expedite the same.
- B.12.5 Representative of NRLDC emphasised that steps needed to be taken for enhancing the silt forecasting mechanism to avoid such sudden outage of generators. He suggested that each utility should always maintain mandatory reserves which can be operationalized within short interval. HP, being a hydro rich state, was advised to keep these reserves with some other states. HP was further advised for:

- a) Having banking agreements with other states which can supply power in case of emergency.
- b) Signing of over-arching agreement with other NR states as margin is generally available with other states during such contingency.
- c) For going for medium term contracts rather than short term contracts for selling/buying of power.

B.12.6 HPSEBL representative agreed to look into the above suggestions.

B.12.7 The Committee in principle agreed for gate closure of DC revision by generators and advised all utilities to maintain mandatory reserves and sign overarching agreement for facilitating short-term transaction.

#### **NRPC Deliberations**

B.12.8 Chairperson, CEA suggested that CERC should consider fuel neutral and more power under ancillary services. He suggested that a sub-group may be constituted to examine all the issues and submit report to CEA.

B.12.9 Member Secretary, NRPC informed that a Committee has been formed for silt forecasting. Nominations had been sought for member of the Committee.

B.12.10 NRPC decided that all the States would sign the overarching agreement to facilitate short-term power transactions among NR beneficiaries. It was also decided that the scope of the sub-group to be constituted would be widened to **examine all related issues**.

### **B.13 Commissioning of Static VAR Compensator (SVC) at Ludhiana & Kankroli**

#### **TCC Deliberations**

B.13.1 Member Secretary informed that NRPC had concurred that POWERGRID should take necessary action as per decisions in OCC meetings. He apprised the committee with the decisions taken by the OCC which required for following actions for voltage regulation through SVC:

- a) Ensuring telemetry of operation mode, slope, voltage limiters (Max/Min) on band etc. along with Vref and Qref. Etc
- b) A detail operating procedure manual of SVC.
- c) Installation of circuit breakers for individual capacitor banks and reactors of the SVC.

B.13.2 POWERGRID informed that that details pertaining to point (a) and (b) has been submitted for Kankroli and the same would be submitted within 15 days for Ludhiana. For the installation of circuit breakers for individual capacitor banks, POWERGRID informed that no manufacturer worldwide provides for such circuit breaker and SVC being a Thyristor controlled device would automatically take care

of the situation. He assured that in case of a fault in a capacitor bank the faulty section would be blocked by thyristor control and the entire SVC would not trip and continue to operate with reduced capacity.

B.13.3 TCC noted the information furnished by POWERGRID.

#### **NRPC Deliberations**

B.13.4 NRPC agreed with the deliberations held in the TCC taking into consideration the assurance given by POWERGRID that in case of any fault in a section of SVC, the thyristor control would block the faulty section on its own and the SVC would continue to operate with reduced capacity.

### **B.14 Database of Protection Settings**

#### **TCC Deliberations**

B.14.1 Member Secretary, NRPC informed that Ministry of Power had constituted a ‘Task Force on Power System Analysis under Contingencies’ in December 2012 based on the recommendations of Enquiry Committee headed by Chairperson, CEA on grid disturbances that took place on 30<sup>th</sup> and 31<sup>st</sup> July 2012,. The Task Force had submitted its report in August 2013.

B.14.2 He stated that based on the recommendations of the Task Force, it was decided that data regarding settings of relays shall be compiled by the CTU and STUs in their respective network and furnished to RLDC and SLDC respectively with a copy to RPC for maintaining the database. The database was to be kept updated and verified during the audit.

B.14.3 He further informed that the issue of database of protection settings has been regularly being pursued and was also deliberated in the 35<sup>th</sup>TCC/39<sup>th</sup>NRPC meeting held on 1<sup>st</sup>/2<sup>nd</sup>May, 2017 in which TCC had expressed their concern over the non-submission of protection database by the utilities and recommended for engaging a third party for development of Protection database with funding through PSDF in line with ERPC and SRPC.

B.14.4 Committee was informed that the approval of Chairperson, NRPC has been obtained on 25.08.2017, authorising Member Secretary, NRPC to carry out following activities:

- i) Formation of group for finalization of detail scope of work of the Project.
- ii) Submission of proposal for financing the Project through Power System Development fund (PSDF).
- iii) Opening of a separate account in the name of ‘NRPC Protection Database Fund’ for receiving the grant from PSDF for the Project.
- iv) Carry out e-tendering process including tender publication, opening, evaluation etc. for selecting contractor for implementing the scheme based on scope of work

of the Project finalized by the group. However, the Letter of Award for the work would be placed with the approval of Chairperson, NRPC.

B.14.5 In the 34<sup>th</sup> PSC meeting formation of a core Committee was proposed to define the comprehensive Scope of the project comprising members from NRPC secretariat, NRLDC, and all the utilities of NR. Nominations were sought from the utilities for the Committee.

B.14.6 In the meeting it was informed that the nominations were sought and had been received from most of the utilities. It was further informed that the first meeting of the Committee was proposed to be held in 2<sup>nd</sup> week of November' 17.

B.14.7 TCC noted the information.

#### **NRPC Deliberations**

B.14.8 Member Secretary, NRPC informed that during a discussion with NRPC, Chairman, he had opined that the work of Protection Database for NR may be awarded to an entity having adequate capability and capacity to perform the task for the huge Northern Region. NRPC, Chairman advised that the Committee for formulating the Detailed Scope of work for the contract should also consider this aspect while preparing the Eligibility and Qualification criteria of the bidder. He had further stressed that the security of such a database also needs to be ensured and the same should be mandated in the Bidding Document for the prospective bidders.

B.14.9 Chairperson, CEA advised that before the finalization of the Bidding Document, representative of ERPC may be requested to make a presentation about the project implemented in their region.

B.14.10 NRPC accorded its consent to the discussions held in the TCC meeting.

#### **B.15 Issue of ownership of 3x105 MVA ICT replaced by POWERGRID in place of 250 MVA ICT at BBMB, Dehar (Agenda by POWERGRID)**

##### **TCC Deliberations**

B.15.1 Representative of POWERGRID informed that as per the approval of 30<sup>th</sup> Standing Committee of Power System Planning of NR held on 19.11.2011, POWERGRID had to install 2 x 63 MVAR Bus reactors and replace 250 MVA ICT with 3 x 105 MVA ICT at BBMB, Dehar.

a. The commissioning detail of the said elements as under:

<b>Sl. No.</b>	<b>Description of Element</b>	<b>Date of first time charging</b>	<b>DOCO date</b>	<b>Remarks</b>
1	3 x 105 MVA ICT	31.01.2017 at 20:05 hrs	02.02.2017	Successful Trial Run Certificate on hold by NRLDC.

2	63 MVAr B/Reactor - I	12.12.2016 at 22:34 hrs	14.12.2016	Certificate issued by NRLDC.
3	63 MVAr B/Reactor - II	28.09.2017	Yet to be declared.	Test Charged only.

B.15.2 He informed that all documents related to commissioning were submitted by POWERGRID to NRLDC for issuance of successful trial run certificate for 3 x 105 MVA ICT at BBMB, Dehar. The certificate was put on hold because BBMB had claimed the ownership for the said installed ICT at Dehar. However, for 63 MVAr Bus Reactor – I, successful trial run certificate had already been issued in Dec’16 and no objection was raised by BBMB.

B.15.3 He further stated that as the ICT has been installed and commissioned by POWERGRID, the successful trial run certificate may be issued to POWERGRID so as to declare DOCO for tariff purpose.

B.15.4 Member Secretary, NRPC apprised the forum that the issue was discussed in the 39<sup>th</sup> meeting of Standing Committee on Power System Planning of Northern Region held on 29<sup>th</sup>& 30<sup>th</sup>May 2017 which recorded as

“Earlier also BBMB had raised similar issue regarding ownership of LILO portion of Dehar – Bhiwani and Dehar – Panipat 400 kV lines. To resolve the ownership issue meetings were held in CEA and it was decided that the ownership shall remain with POWERGRID as the investment has been made by POWERGRID.”

B.15.5 TCC decided to drop the agenda item as the issue was already settled and the aggrieved may reach CEA, if required.

#### **NRPC Deliberations**

B.15.6 Representative of POWERGRID informed that the NRLDC was not giving successful trial run certificate for 3 x 105 MVA ICT at BBMB, Dehar even though they have invested their money and successfully commissioned the same.

B.15.7 He informed that due to some operational problems at Dehar substation, high voltage and transformer overloading were prevailing which required for installing Bus reactor, Line reactor and a Transformer at Dehar Substation. He further stated that BBMB in 2013 had refused to carry out the work. POWERGRID for the interest of the system had carried out the work as per the recommendations of Standing Committee and NRPC. It was further informed that POWERGRID had invested their money for the transformer.

B.15.8 POWERGRID stated that now that the transformer has been commissioned, BBMB is blocking the issuance of successful trial run certificate for 3 x 105 MVA ICT at BBMB, Dehar by NRLDC by claiming the ownership of the ICT.

B.15.9 Representative of BBMB informed that the issue of funding for the project was never discussed and it was presumed by them that the same was being done through PSDF

funding. He also pointed that the issue was discussed and decided in the 39<sup>th</sup> meeting of SCSPNR unilaterally as there was no representative of BBMB present in the meeting.

B.15.10 Chairperson, CEA advised Member Secretary, NRPC not to drop the agenda and to call the affected parties along with the relevant documents to get the chronology of the discussions and for finalizing the issue.

B.15.11 NRPC agreed to call the affected parties along with the relevant documents to get the chronology of the discussions and for finalizing the issue.

## **B.16 Schemes Agreed in 39<sup>th</sup> Standing Committee Meeting**

### **TCC Deliberations**

B.16.1 MS, NRPC briefed about the decisions of 39<sup>th</sup> meeting of Standing Committee meeting of NR held on 29-30<sup>th</sup> May, 2017 in which following inter-state transmission schemes were agreed:

#### **A. System strengthening Scheme in Northern Region:**

- i). 1x500MVA, 400/220kV ICT along with ICT bays and 1 nos. of 220kV line bay at 400kV Roorkee (PG) S/s
  - ii). 1x500MVA, 400/220kV ICT along with ICT bays and 2 nos. of 220kV line bays at 400kV Sonapat (PG) S/s
  - iii). 2 nos. of 220kV bays at 400kV Abdullapur (PG) S/s
  - iv). 1x500MVA, 400/220kV ICT along with ICT bays at Bhadla pooling station\*
  - v). Replacement of 1x315 MVA ICT by 1x500 MVA and two nos. of 220 kV line bays at Lucknow
  - vi). 1x315 MVA, 400/220 kV ICT (to be shifted from Lucknow after refurbishment if required) along with ICT bays and 2 nos. of 220 kV line bays at Gorakhpur
  - vii). 1x500MVA, 400/220kV ICT along with ICT bays and 2 nos of 220kV line bays at 400kV Fatehpur (PG) S/s
- Note: The 1X500MVA, 400/220kV ICT at Bhadla is to be provided for grant of LTA to M/s Essel Saurya Urja Company of Rajasthan Ltd. So, it was proposed to take up the above mentioned ICT at Bhadla Pooling Station separately after fulfilling regulatory requirements by the LTA applicant.

B.16.2 NRPC agreed to the above System strengthening Scheme in Northern Region.

#### **B. Creation of 400/220kV S/s in NCT of Delhi during 12<sup>th</sup> Plan period(Part-A):**

- i). To meet the load demand of East Delhi, Kashmere Gate, Park Street and Electric Lane areas, 400/220 kV Rajghat substation was planned by LILO of both circuits of Mandaula-Bawana 400kV D/c at Rajghat. Also, to provide second feed to Maharani bagh, Rajghat–Maharani bagh 400kV D/c line was planned. However, due to non-availability of land at Rajghat, its location was shifted adjacent to existing 400/220kV Maharani bagh and accordingly Rajghat– Maharani bagh 400kV D/c line was dropped.

- ii). Subsequently, DTL proposed a 4x500 MVA, 400/220kV S/s at Gopalpur in North Delhi instead of Rajghat (Maharanibagh-II) due to severe RoW constraints in taking out 220kV and 33kV feeders. Accordingly, the 4x500MVA, 400/220kV Rajghat substation was also dropped and 4x500 MVA, 400/220kV Gopalpur substation was agreed to be implemented by DTL as an intra-state project.
- iii). To provide second feed to Maharanibagh, it was proposed to implement LILO of both circuits of Mandaula- Bawana 400kV D/c line at Maharanibagh (existing) on M/c towers. This LILO at Maharanibagh (PG) is under implementation by POWERGRID. Further, to provide connectivity to Gopalpur, LILO of both circuits of Bawana- Maharanibagh 400kV D/c at Gopalpur was to be carried out by DTL.
- iv). Further, to address the high fault level at Maharanibagh, it was proposed that LILO of one ckt. of Samaypur(PG)-Dadri 400kV line at Maharanibagh would be bypassed at Maharanibagh. The LILO would be operated in emergency condition only.

Accordingly, following works were proposed to be included under the “Creation of 400/220kV substations in NCT of Delhi during 12<sup>th</sup> Plan period (Part-A)” scheme:

- i). 4 nos. of 400 kV GIS bays at 400/220 kV Maharanibagh (existing) substation for LILO of both circuits of Mandola- Bawana 400kV D/c line at Maharanibagh (existing)
- ii). Bypassing of LILO of one circuit of 400kV Dadri– Samaypur(PG) D/c line at Maharanibagh (existing) (to be used during emergency)

### **NRPC Deliberations**

B.16.3 NRPC agreed to the above works.

### **C Scheme to control Fault Level in Northern Region (Phase-II):**

B.16.4 The issue of high short circuit level at following pockets (where each pocket consists of a group of substations having high fault level) in Northern Region were informed:

Substation associated with high capacity D/c (Quad Moose) ring of NCR,

Meerut, Bagpat, Abdullapur, Panchkula and Patiala,Bhiwani, Hissar, Mohindergarh&Dhanonda,Agra,Kanpur, Panki, Fatehpur and Allahabad,Singrauli, Anpara and Rihand,Lucknow, Bareilly and Unnao

B.16.5 He stated that the mitigating measures involved re-alignment of some lines and installation of 12 ohm bus/line reactors. He further informed that re-arrangement in following two pockets was initially agreed during the 39th standing committee meeting:

### **Part-A: At Kanpur**

- i). 12 ohm Series Line reactor in Kanpur (old)–Kanpur (New), 400kV D/c line at Kanpur (old) end



- ii). Fatehpur–Kanpur (old) 400kV D/c and Kanpur (old)–Panki 400kV D/c lines to be disconnected at Kanpur (old) end and connecting them directly to form Fatehpur–Panki 400 kV D/c line.

#### **Part-B: At Bhiwani, Hissar and Mohindergarh**

- i). 12 ohm Series Bus reactor at Bhiwani (PG) substation.
- ii). 12ohm Series Line reactors in Mohindergarh–Dhanonda 400kV D/c line Ckt I & II at Dhanonda end (Implementation agency (CTU or STU) to be decided)
- iii). Mohindergarh–Bhiwani (PG) 400kV D/c line (One of the two D/c lines) and Bhiwani (PG)- Hissar (PG) 400kV D/c line (D/c line which is Direct)) to be disconnected from Bhiwani (PG) end and directly connected to form Mohindergarh–Hissar 400kV D/c line
- iv). The remaining Bhiwani (PG)–Hissar (PG) 400kV D/c line (one circuit via Bhiwani BBMB) and Hissar (PG)–Moga (One circuit via Fatehabad) 400kV line to be disconnected at Hissar end and directly connected to form Bhiwani (PG)–Moga 400kV line (One circuit via Fatehabad and other circuit via Bhiwani (BBMB).

B.16.6 It was further informed that for both Part-A & Part-B, Shifting/reorientation works inside substations may be required to accommodate the splitting/bypass arrangements.

#### **NRPC Deliberations**

B.16.7 NRPC agreed to the above works.

#### **B.17 Charging of Kurukshetra – Jind 400kV D/c (Quad) line**

##### **TCC Deliberations**

B.17.1 Representative of POWERGRID informed that Pole 1 (3000 MW) of + 800 kV Champa- Kurukshetra 6000 MW HVDC system has been commissioned. 3000 MW power which is being imported from Champa in Western Region to Kurukshetra in Northern Region through this HVDC system is being evacuated through the following connecting lines:

- i). Kurukshetra – Abdullapur 400kV D/c (Triple) line
- ii). Kurukshetra – Sonapat 400kV D/c (Triple) line
- iii). Kurukshetra – Jalandhar 400kV D/c (Quad) line (one circuit via Nakodar)

B.17.2 In addition to above lines, Kurukshetra –Jind 400 kV D/c (Quad) line was proposed for evacuation of power along with Phase 2 (3000 MW) of Champa - Kurukshetra HVDC system. The schedule of Kurukshetra – Jind line was March 2018. However, the line was likely to be completed shortly.

B.17.3 He informed that Jind 400 kV substation is presently connected to Bhiwani through 400 kV D/c line. It is proposed to pre-pone the commissioning of Kurukshetra–Jind 400 kV D/c line considering that as Bhiwani and Kurukshetra are both strong sources of power and having important outgoing feeders, it is desirable to connect them through Kurukshetra –Jind – Bhiwani 400kV D/c (Quad) line for reliability of supply. Further, the connection would also help in increasing the low short circuit level at

Kurukshetra in the coming winter season, which was otherwise facing operational issues.

- B.17.4 TCC agreed to the proposal of POWERGRID for early charging of the line in view of increase in reliability on account of interconnection between two major sources at Kurukshetra HVDC and 765kV Bhiwani S/S.

#### **NRPC Deliberations**

- B.17.5 NRPC concurred with the deliberations held in TCC and approved the proposal of POWERGRID for early charging of the Kurukshetra – Jind 400kV D/c (Quad) line.

### **B.18 LVRT issues of wind/solar generation**

#### **TCC Deliberations**

- B.18.1 Member Secretary, NRPC stated that the Technical Standards for Connectivity to the Grid, (Amendment), regulations, 2012, provided for LVRT capability for Wind generating units.
- B.18.2 He informed that in the 36<sup>th</sup> NRPC meeting, the LVRT issue of wind/solar generation was raised wherein representative of RVPNL stated that LVRT was being enforced for wind stations. Rajasthan had submitted status of LVRT for wind stations on 19<sup>th</sup> April, 2017. According to which, many of the wind generators commissioned after 15.04.2014, do not have LVRT facility. Similarly, many generators with installed capacity 500 kW or more and commissioned before 15.04.2014, do not also have LVRT facility. The matter was discussed in 35<sup>th</sup>TCC and 39<sup>th</sup>NRPC, where concerns were expressed over non-compliance of CEA & CERC Regulations /Orders. NRPC suggested the concerned utilities to find out action by generators in other regions, regarding LVRT, and to pursue with wind generators in NR, accordingly, for compliance of Regulations / orders by CEA/CERC
- B.18.3 He further informed that in the 138<sup>th</sup> OCC meeting, Rajasthan SLDC informed that the case has been forwarded to the REMC wing to submit a petition to RERC for non-compliance of the regulations. In 140<sup>th</sup> OCC meeting he informed that the matter was under approval.
- B.18.4 Representative of RVPNL informed that the proposed petition has been submitted to the management for its consent and it would be submitted to the RERC by next month.
- B.18.5 TCC advised all the STUs not to allow connection of any new wind generator if it is not LVRT compliant as it is the connectivity regulation which mandates for LVRT and should be checked at the time of connecting them to the grid.

#### **NRPC Deliberations**

- B.18.6 NRPC agreed with the deliberations of TCC.

### **B.19 Charging of 50 MVA line reactor at Jaipur (South) as a Bus Reactor**

### **TCC Deliberations**

- B.19.1 POWERGRID informed that 50 MVAR line reactor for 400 kV RAPP-Jaipur(South) line at 400/220 kV Jaipur(S) end along with bay was ready however the line was not ready at that time. Considering that the voltage profile at Jaipur (S) has been more than 410 kV for about 55% of the time, the line reactor may be charged as bus reactor using the ready line bay at Jaipur(S). The bus reactor would provide a relief of about 1 kV in the area. This bay is for LILO of one ckt. of 400kV D/c RAPP-Kota Line at Jaipur(S). POWERGRID informed that the reactor would be commissioned by November 2017.
- B.19.2 TCC recommended the POWERGRID proposal of using line reactor as bus reactor.

### **NRPC Deliberations**

- B.19.3 NRPC agreed with the recommendation of TCC.

## **B.20 Green Energy Corridor – Commissioning of ISTS Scheme**

### **TCC Deliberations**

- B.20.1 CTU representative stated that in the 32<sup>nd</sup> Standing Committee meeting of Northern region held on 31.08.13, a comprehensive ISTS strengthening for envisaged renewable generation capacity in WR & NR was discussed & agreed. Subsequently in the 36<sup>th</sup> Standing Committee meeting of Northern region held on 13.07.15, on the request of RRVN it was decided to establish 765/400 kV substation near Bikaner in place of Suratgarh due to solar generation potential near Bikaner. The scheme was also agreed in the 36<sup>th</sup> NRPC meeting held on 24.12.15.
- B.20.2 Ministry of Power assigned POWERGRID for implementation of above scheme, considered in KFW loan in compressed time schedule.
- B.20.3 Subsequently CEA vide letter dated 15.01.14 to MOP, prioritized the above transmission scheme for implementation through KFW funding, with phasing of ISTS scheme in line with the KfW tranche wise funding (Tranche-I :Euro 250 million, Tranche-II: Euro 500 million & Tranche-III: Euro 250 million) availability. Accordingly scheme was taken up for implementation in four parts, GEC-Part A to C being financed through KfW, Germany (KfW Tranche-I to III) & GEC-Part-D being financed through ADB, details are as under:

### **GEC-PART-A under KfW TRANCHE-I**

#### **Northern region**

- Ajmer (New)- Ajmer (RVN) 400kV D/c (Quad)
- Chittorgarh (New)- Chittorgarh (RVN) 400kV D/c (Quad)
- Establishment of 2x1500 MVA, 765/400kV S/s at Chittorgarh
- Establishment of 2x1500 MVA, 765/400kV S/s at Ajmer (New)

- Associated reactive compensation (Bus reactor each at 765kV Ajmer & 765kV Chittorgarh S/s)

#### **Southern region**

- Tirunelveli Pooling Station - Tuticorin Pooling Station 400 kV 2xD/c (Quad)
- Establishment of 2x500 MVA, 400/230kV S/s at Tirunelveli Pooling Station
- Associated reactive compensation (Bus reactor)

#### **GEC-PART-B under KFW TRANCHE-II**

- Chittorgarh – Ajmer(New) 765kV D/c
- Banaskantha – Chittorgarh 765kV D/c
- Banaskantha-Sankhari 400 kV D/c
- Establishment of 2x1500 MVA, 765/400kV S/s at Banaskantha
- Associated reactive compensation (Bus reactor at 765kV Banaskantha& line reactors)

#### **GEC-PART-C under KFW TRANCHE-III**

- Establishment of 765/400/220kV (765/400 kV-2x1500 MVA & 400/220kV-2x500MVA) sub-station at Bhuj Pool
- Bhuj Pool – Banaskantha 765kV D/c
- Associated reactive compensation (Bus reactor at 765kV Bhuj Pool S/s & line reactors)

#### **GEC-Part-D under ADB**

- Ajmer(New) – Bikaner(New) 765 kV D/c
- Bikaner(New) – Moga(PG) 765 kV D/c
- LILO of one circuit of 400kV Bhadla- Bikaner(RVFN) line at Bikaner(New)
- Establishment of 2x1500 MVA, 765/400 kV S/s at Bikaner (New)

B.20.4 CTU representative further stated that the above Green Energy corridor- Inter state transmission scheme is under various stages of implementation by POWERGRID. Out of above, 765/400 kV Ajmer & Chittorgarh substation along with interconnecting lines as part of GEC-Part-A scheme & 765kV Ajmer - Chittorgarh line as part of GEC-Part-B (scheme details as under) are being implemented for commissioning by December'17.

#### **GEC-PART-A under KfW TRANCHE-I (part scheme)**

- Ajmer (New)- Ajmer (RVPN) 400kV D/c (Quad)
- Chittorgarh (New)- Chittorgarh (RVPN) 400kV D/c (Quad)
- Establishment of 2x1500 MVA, 765/400kV S/s at Chittorgarh
- Establishment of 2x1500 MVA, 765/400kV S/s at Ajmer (New)
- Associated reactive compensation (Bus reactor each at 765kV Ajmer & 765kV Chittorgarh S/s)

#### **GEC-PART-B under KfW TRANCHE-II (Part scheme)**

- Chittorgarh – Ajmer(New) 765kV D/c
- Associated line reactors

B.20.5 TCC noted and agreed to the above.

#### **NRPC Deliberations**

B.20.6 NRPC noted deliberations in TCC.

### **B.21 OPGW connectivity at NHPC Power Stations under Central Sector scheme**

#### **TCC Deliberations**

- B.21.1 POWERGRID informed that OPGW rectification work for Uri-I would be completed by Nov., 2017. The OPGW laying for Uri-II Power Station has been deleted from the scope of the project due to severe ROW problem. Revised cost estimate of the project has already been submitted.
- B.21.2 On the request of NHPC, POWERGRID representative agreed to take up the work of OPGW connectivity of URI-II Power Station with the support of NHPC.
- B.21.3 POWERGRID informed that the OPGW fibre is available but the installation would now be got done through the AMC contractor and amount for the same would be charged by POWERGRID to NHPC separately. NHPC agreed for the same.
- B.21.4 TCC advised POWERGRID to implement the work with the support of NHPC by involving local administration for facilitating OPGW connection of Uri –II through the 10 Km stretch of the line under severe RoW problem. NHPC agreed to provide all the support in resolving the RoW problem.
- B.21.5 POWERGRID informed that Chamera I, II and III data was being provided to RLDC through NHPC leased line. POWERGRID had also informed commissioning of the OPGW connectivity of different power stations as under:
- Dulhasti, Bairasul and Sewa-II by Dec 2017
  - Parbati III by June 2018
  - Salal by October 2017 end.

B.21.6 TCC noted the information and advised POWERGRID to complete the work in given time lines.

#### **NRPC Deliberations**

B.21.7 NRPC concurred with the deliberations in TCC.

### **B.22 Winter Preparedness**

B.22.1 TCC & NRPC noted the information furnished by NRLDC, highlight of presentation at **Annexure-IV**.

### **B.23 Major issues experienced during Summer/Monsoon**

B.23.1 TCC & NRPC noted the information furnished by NRLDC, highlight of presentation at **Annexure-V**.

### **B.24 Important regulatory changes**

B.24.1 TCC & NRPC noted the information furnished by NRLDC, highlight of presentation at **Annexure-VI**.

### **B.25 Reliability issues of Kashmir Valley (Agenda by NRLDC)**

#### **TCC Deliberations**

B.25.1 Member Secretary, NRPC informed the Committee that Kashmir Valley is connected to the rest of grid through 400/220 kV Kishenpur substation with 400 kV Kishenpur-New Wanpoh-Wagoora 2xD/C and 220 kV Kishenpur-Ramban/Mirbazar-Pampore D/C (one circuit from Kishenpur presently being out of service due to tower collapse since 08<sup>th</sup> Feb 2017 revived for a brief period for 14 days in the month of July 2017).

B.25.2 Following issues with Kashmir valley power system are observed with the onset of winter months:

- i. High MW loading & MVar drawal at 400/220 kV Wagoora 4x315 MVA ICTs (main supply point) during winter months and therefore N-1 non-compliant and consequent low voltages in inter-connecting wagoora system.
- ii. 220 kV lines from Wagoora (220 kV Wagoora-Ziankote D/C and 220 kV Wagoora-Pampore D/C) remain loaded upto 200-250 MW and therefore N-1 criteria gets violated.
- iii. Low voltages are experienced due to high loading of intrastate network of valley power system.

- B.25.3 Various tripping of connecting 400 & 220 kV lines during inclement weather of high snowfall/storm leading to valley islanding/collapsing has been experienced in the past.
- B.25.4 Reliability & connectivity issues related to Kashmir valley have been flagged in many previous OCC & TCC meetings. Load in the valley area has been increasing over the years and therefore reliability concerns have also been increasing. In past years, there have been multiple elements tripping incidents and collapse of valley system during winter months/ high demand period on N-1 contingency in the Kashmir valley power system.
- B.25.5 CEA approved System Protection Schemes (SPS) after 06<sup>th</sup> January 2012 tripping to improve reliability/saving valley from collapse during such conditions and system strengthening are yet to be put in place.
- B.25.6 NRLDC representatives also mentioned that New Wanpoh substation is not being utilised due to non-commissioning of 220 kV links. Small 220 kV links from new Wanpoh substation would be of immense help as they would not only result in additional connectivity to the valley but would also result in lowering the loading from Wagoora.
- B.25.7 He also stated that 220 kV connectivity from Amargarh shall also be done in order to utilize the upcoming 400 kV Samba- Amargarh ISTS link.
- B.25.8 Apart from above, NRLDC representative also raised following issues:
1. Single Main bus operation at some of the substations in J&K which requires for shutdown of entire substation during shutdown of the busbar.
  2. Non availability of interconnection between Baghlihar stage-1 and stage-2 leading each state stage being connected to grid through one line and thus N-1 issues.
  3. Issues in computation of shortage figures for state of J&K.
- B.25.9 The Secretary (Technical), PDD J&K stated that work on some of the issues is being taken up but for others there is need for funds. Shortage computation would be looked into. The 220 kV Kishanpur-Ramban would be normalized within short time of 10-15 days. He highlighted the issues at 132 kV transmission level especially in Rajouri, Poonch and adjoining areas. He emphasized that with anticipated fast increasing load demand of the region, construction of a new 2x315 MVA, 400/132 kV Grid substation along with LILO of under construction 400 kV Jalandhar-Samba-Amargarh Transmission Line, somewhere in Rajouri is required. He also expressed the need for financial package from central Govt. for strengthening of intra-State transmission system in the State.

B.25.10 He added that as per the system studies got conducted under the guidance of CEA there is a requirement of around 5 Thousand Crore for upgradation of transmission infrastructure of the state of J&K out of which there is availability of only around Rs. 12 Hundred Crore provided under PMDP 2015. The remaining requirement needs to be arranged for which MoP, GoI may be approached with a request to provide special grant.

#### **NRPC Deliberations**

B.25.11 NRPC noted the deliberations of TCC and advised to take action by the concerned utilities at the earliest.

### **B.26 Cyber Security Preparedness Monitoring**

#### **TCC Deliberations**

B.26.1 Chief Engineer IT, CEA and Chief Information Security Officer, MoP, Sh. Vijay Menghani, gave a detailed presentation on potential cyber threats for power sector, the agencies working on this aspect, recent incidents of cyber attacks on and the action points to prevent the cyber threat. He shared a format (enclosed at **Annexure-VII**) for providing information by utilities on cyber security preparedness. He stated that in view of increasing incidents of cyber-attacks and threat to the integrated grid operation, all utilities need to monitor action being taken in regards to following points and report the status to respective Computer Emergency Response Teams (CERTs):

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

B.26.2 TCC advised all the concerned utilities to take action on the suggested action points and provide information to NRPC Sectt. and Chief Engineer , IT, CEA on regular basis.

#### **NRPC Deliberations**

B.26.3 NRPC noted the deliberations in NRPC and advised all the concerned utilities to ensure timely action as per decision in TCC.

### **B.27 Follow up of Major Decisions of NRPC.**

B.27.1 The Committee noted the information given in the agenda.



## C O M M E R C I A L I S S U E S

### **C.1 Procedure for finalization of Regulatory Accounts**

#### **TCC Deliberation**

- C.1.1 SE(C), NRPC explained the procedure to finalise/freeze the regulatory accounts issued by NRPC Sectt. as finalised in the 33<sup>rd</sup> Commercial sub-Committee (CSC) meeting held on 28.07.2017. He proposed the procedure to be implemented w.e.f. 1<sup>st</sup> January, 2018.
- C.1.2 Member Secretary, NRPC stated that in para 4 of procedure (Annexure-VII of agenda) “...other than CT/PT...” may be read as “...otherwise CT/PT...”
- C.1.3 **The Committee recommended for approval of procedure by NRPC.**

#### **NRPC Deliberation**

- C.1.4 NRPC concurred to the recommendation of TCC regarding approval of Procedure for finalization of Regulatory Accounts prepared by NRPC Secretariat and its implementation from 1<sup>st</sup> January 2018. The approved procedure is enclosed at **Annexure-VIII**

### **C.2 PoC Charges**

#### **TCC Deliberation**

- C.2.1 Member Secretary, NRPC stated that in the 33<sup>rd</sup> meeting of Commercial Sub-Committee (CSC) of NRPC held on 28.07.2017, the issue related to PoC charges were discussed.
- C.2.2 He informed the committee that views of utilities, mentioned in agenda had been forwarded to CERC as CERC was reviewing the sharing regulation and has sought comments from the utilities for the same.
- C.2.3 He advised all utilities to submit their comments, if any, so that the same can be forwarded to CERC.
- C.2.4 Further, he informed that a meeting regarding review of PoC Charges was held on 20<sup>th</sup> Sept. 17, in CERC. As per decision in the meeting 10 no. of licences of PoC software are proposed to be purchased by RPC for the state utilities. The estimated expenditure for the same as intimated by IIT Bombay was 32 Lakh plus taxes/year.
- C.2.5 Members of TCC recommended for purchase of the 10 no. licences of PoC software and expenditure to be met through NRPC Fund.

#### **NRPC Deliberation**

NRPC concurred with the TCC recommendation for purchase of the 10 no. of licences of PoC software from IIT Bombay at the estimated expenditure of 32 Lakh plus taxes/year, to be met through NRPC Fund.

### **C.3 Workshop on PoC Mechanism for the DICs of NR.**

#### **TCC Deliberation**

- C.3.1 Member Secretary, NRPC stated that in the 33<sup>rd</sup> meeting of Commercial Sub-Committee (CSC) of NRPC held on 28.07.2017, it was decided that a two days' workshop will be organised for Designated ISTS customers (DICs) of NR on Point of Connection (PoC) Mechanism. Accordingly, the workshop was conducted on 26.09.2017 and 27.09.2017 at NRPC Conference Hall and POWERGRID, Gurugram, respectively.
- C.3.2 Representative of POWERGRID stated the all the DICs were present in the workshop except Rajasthan. She further stated that any query regarding computation of PoCrates may be taken up with NLDC and queries regarding Billing, Collection and Disbursement may be addressed to POWERGRID.
- C.3.3 Members noted the information.

#### **NRPC Deliberation**

- C.3.4 Members noted the TCC deliberations.

### **C.4 Default in payment of outstanding dues and surcharge by beneficiaries**

#### **TCC Deliberation**

- C.4.1 Representative of NHPC informed that UPPCL, PSPCL and BYPL were the major defaulters in payment of energy charges. He further expressed concern over non representation some of the defaulting entities in the meeting due to which matter could not be taken up.
- C.4.2 Representative of PDD-J&K stated that they had cleared the outstanding amount for the dues till August' 17.
- C.4.3 Representative of Punjab stated that they had released the outstanding amount.
- C.4.4 No representative from BYPL was present during the meeting. TCC advised NHPC to take up the issue with the BYPL directly.
- C.4.5 TCC expressed concern over non-payment and non-representation of utilities in the meeting and advised all the members to ensure timely payment of dues as well as representation in the meeting.

#### **NRPC Deliberation**

- C.4.6 Committee concurred with the TCC deliberations.

## **C.5 Opening of Letter of Credit (LC)**

### **TCC Deliberation**

- C.5.1 Representative of NHPC stated that PDD-J&K, Rajasthan Discoms and BRPL had not provided LC of requisite amount.
- C.5.2 Representative of PDD, J&K stated that they were in process of establishment of Power Trading Company. After formation of Trade Co. the LC would be opened.
- C.5.3 As BRPL is not the member for this FY and representatives of Rajasthan Discoms were not present in the meeting, TCC advised NHPC to take up the issue with them directly.

### **NRPC Deliberation**

- C.5.4 Committee noted the TCC deliberations.

## **C.6 Signing of PPA of Tawang HE Projects Stage-I & II**

- C.6.1 Representative of NHPC stated that beneficiaries had been requested to convey their consent for signing of PPA of Tawang HE Projects, Stage-I (600 MW) & Stage-II (800 MW). However, consent had not been received from HPPC (Haryana), PDD (J&K), UPPCL(UP) and UT Chandigarh.
- C.6.2 Representative of Haryana stated that they would check commercial viability and revert to NHPC.
- C.6.3 TCC advised NHPC to take up the issue directly with the concerned utilities.
- C.6.4 Representative of NHPC further stated that J&K hasn't signed PPA for Kishanganga HEP, even though it is in J&K only. Representative of J&K stated that they would call a meeting and intimate their decision shortly.

### **NRPC Deliberation**

- C.6.5 Committee noted the TCC deliberations.

## **C.7 Request for immediate release of THDCIL's overdue payments by its beneficiaries**

- C.7.1 Representative of THDCIL stated that despite their sincere efforts, BSES Delhi, UPPCL (UP), PDD-J&K had been making part payments and much beyond the due dates. He requested the aforesaid beneficiaries for early liquidation of all the dues.
- C.7.2 Representative of PDD-J&K stated that they had cleared the outstanding amount for the dues till Aug.'17.
- C.7.3 Since the representatives of concerned department of UPPCL, BYPL and BRPL were not present in the meeting, TCC advised THDCIL to take up this issue directly with them.

### **NRPC Deliberation**

C.7.4 Committee noted the TCC deliberations.

### **C.8 Request for opening of Letter of Credit.**

C.8.1 Representative of THDCIL stated that PDD-J&K, Rajasthan Discoms and BRPL had not provided LC of requisite amount.

C.8.2 Representative of PDD, J&K stated that they were in process of establishment of Power Trading Company. After formation of Trade Co. the LC would be opened.

C.8.3 As BRPL is not the member for this FY and representatives of Rajasthan Discoms were not present in the meeting, TCC advised THDC to take up the issue with them directly.

### **NRPC Deliberation**

C.8.4 Committee concurred with the TCC deliberations.

### **C.9 Default in payment of outstanding dues by beneficiaries of NPCIL**

#### **TCC Deliberation**

C.9.1 Representative of NPCIL informed that Rajasthan Discoms, BSES Delhi, UPPCL, HPSEBL and PDD-J&K were the major defaulters in payment of energy charges.

C.9.2 Representative of PDD-J&K stated that they had cleared the outstanding amount for the dues till Aug.'17.

C.9.3 TCC expressed concern over non-payment of dues and advised all the concerned utilities to clear the dues at the earliest.

#### **NRPC Deliberation**

C.9.4 Committee noted the TCC deliberations.

### **C.10 Delay in release of payment of SJVN bills by the beneficiaries of NJHPS &RHPS**

#### **TCC Deliberation**

C.10.1 Representative of SJVN stated that as on 09.10.2017, an amount of Rs. 1095.29 Crore was outstanding for a period more than sixty (60) days from some of the beneficiaries of NJHPS & RHPS. The beneficiaries who had not cleared their outstanding dues were Govt. of HP, UPPCL, BYPL, HPSEB, PDD J&K, BRPL, UPPCL, Rajasthan Discoms and DTL. It was requested that NRPC may intervene in liquidation of outstanding dues from the above defaulting entities as it was affecting the cash flow of SJVN and was jeopardising the growth of the organisation.

C.10.2 Representative of PDD-J&K stated that they had cleared the outstanding amount for the dues till Aug.'17.

C.10.3 Representative of HPSEBL stated that they were making regular payments for current bills and outstanding dues would be liquidated as soon as fund is received from GoHP.

C.10.4 Since representatives of Rajasthan Discoms and BYPL were not present in the meeting and BRPL is not a member of NRPC in the current year, SJVNL was advised to take up with them directly.

C.10.5 TCC advised the concerned members to liquidate their outstanding at the earliest.

**NRPC Deliberation**

C.10.6 Committee noted the TCC deliberations and advised concerned utilities for early liquidation of outstanding.

**C.11 Non Opening of Letter of Credit by certain beneficiaries for power supplied from NJHPS**

**TCC Deliberation**

C.11.1 Representative of SJVN stated that as per provisions of CERC regulations and terms and conditions of power purchase agreement, beneficiaries were required to submit a Letter of Credit (LC) before start of the relevant financial year. However, PDD J&K, BYPL, BRPL, Rajasthan Discoms and GOHP had not submitted the LC of requisite amount. He requested for opening of LC at the earliest.

C.11.2 TCC requested the concerned beneficiaries to open their LC at the earliest.

**NRPC Deliberation**

C.11.3 Committee noted the TCC deliberations and advised concerned utilities to expedite to opening of LC.

**C.12 Non Opening of Letter of Credit by certain beneficiaries for power supplied from RHPS.**

**TCC Deliberation**

C.12.1 Representative of SJVN stated that GoHP, HPSEB, PDD -J&K and Rajasthan Discoms were yet to submit their LC for the FY 2017-18. He requested these beneficiaries to open the LC as per CERC regulation and PPA terms.

C.12.2 TCC requested the beneficiaries to submit their LC at the earliest.

**NRPC Deliberation**

C.12.3 Committee noted the TCC deliberations and advised concerned utilities to expedite to opening of LC.

### **C.13 Execution of Tri-partite Agreement (TPA) as proposed by Ministry of Power, Govt. of India**

#### **TCC Deliberation**

- C.13.1 Representative of SJVN informed that Ministry of Power, Govt. of India in its letter dated 22.11.2016 and further reminders dated 19.12.16, 17.1.2017 and 16.3.2017 had requested the State Governments / UT Administrators to sign / execute the TPA and return the same to Ministry of Power, GoI for further necessary action at their end. It was further informed by the Ministry of Power through its letter dated 30.5.2017 that beneficiary states of Northern Region viz. Punjab, Haryana and Uttar Pradesh were yet to sign / execute the TPA.
- C.13.2 Member Secretary, NRPC advised SJVNL to take up the issues with the respective State Governments or the authorized agency.
- C.13.3 TCC advised all the concerned States to execute TPA at the earliest.

#### **NRPC Deliberation**

- C.13.4 Committee noted the TCC deliberations and advised all the concerned States to execute TPA at the earliest.

### **C.14 Payment of late payment Surcharge by the Beneficiaries of SJVNL**

#### **TCC Deliberation**

- C.14.1 Representative of SJVN informed that CERC regulation provides for charging of LPS on delayed payments released by the beneficiaries beyond due dates. Since, LPS is an integral part of energy bills which is imposed / charged in view of CERC regulation and provision contained in the Power Purchase Agreement, non-payment of same is violation of CERC regulation & PPA terms, which attracts penal provision for encashment of letter of credit and regulation of power. While releasing the payment of energy bill, the amount of late payment surcharge is being excluded by the beneficiaries despite the fact that the payments have been delayed by them.
- C.14.2 He requested beneficiaries to release the LPS amount along with the energy bill payments and intimate the status.
- C.14.3 TCC advised the concerned beneficiaries to release their payment at the earliest.

#### **NRPC Deliberation**

- C.14.4 Committee noted the TCC deliberations and advised the concerned beneficiaries to release their payment at the earliest.

### **C.15 Double recovery of BBMB transmission charges by PGCIL & BBMB**

#### **TCC Deliberation**

- C.15.1 Representative of HPSEBL stated that Himachal Pradesh has share of 168.171 MW in BBMB projects. Till Sept, 2016 the transmission charges for this share to HP were being raised by BBMB and accordingly paid by HPSEBL to BBMB. In the PoC bill raised by Powergrid for the month Oct, 2016, the above MW Share of HP in BBMB projects was added to the total Long/Medium Term MW entitlements of HP. HPSEBL has paid the PoC charges to Powergrid as per the bill, included the charges for BBMB projects. BBMB also continued to raise transmission charges bill on HPSEBL for transference of HP share in BBMB project. There was double billing and payment to Powergrid as well as BBMB for the period Oct-Mar, 2017 and from April'2017 onwards only BBMB is raising bill.
- C.15.2 He added that for the period 01.10.2016 to 31.03.2017 HPSEBL have paid Rs. 13 Cr. to Powergrid under PoC mechanism, for transference of its share of 168.171 MW in BBMB projects.
- C.15.3 Representative of BBMB stated that by the next month they would release the amount for the period from Jan'17 to Mar'17.
- C.15.4 Regarding the period from Oct'16 to Dec'16, TCC was apprised that as the matter was under consideration of CERC, the action would be taken in accordance with the decision of CERC in the matter.

#### **NRPC Deliberation**

- C.15.5 Committee concurred with the TCC deliberations.

#### **C.16 Review on exemption on levy of Transmission Charges for PGCIL assets when downstream system due to legitimate constraints could not be developed on or before COD**

##### **TCC Deliberation**

- C.16.1 Representative of HPSEBL requested the Committee to consider exemption on levy of transmission charges on DISCOM and include the same in PoC till the commissioning of downstream system for following systems:
- **2 No. 220kV bays at 400/220 kV Sub -Station Hamirpur:**
    - 2 No. bays out of 4 No. bays of the said substation are still not being used by HPSEBL.
  - **6 No. bays of 400/220 kV Sub Station Kala Amb.**
    - Due to forest clearance and land acquisition related issues HPSEBL could not develop downstream system for usage of 6 No. bays of said substation of PGCIL.
- C.16.2 He further stated that on account of several constraints it was not possible to commission the downstream network exactly matching with the commissioning of ISTS system. It was also highlighted that the commissioning of ISTS system benefit

the regional power system in form of improved reliability. He suggested that the tariff of the ISTS system should be included in PoC charges instead of charging the same from a single utility.

C.16.3 The views of HPSEBL were supported by other members including POWERGRID.

C.16.4 In view of consensus in the matter, TCC agreed that the opinion of the members may be forwarded by Member Secretary, NRPC to CERC for consideration

#### **NRPC Deliberation**

C.16.5 Committee concurred with the TCC deliberations.

### **C.17 Deemed Availability Certification requiring outage for new infrastructure development projects of Rail & Road networks etc.**

#### **TCC Deliberation**

C.17.1 Representative of POWERGRID stated that the new works of infrastructure strengthening and development of new corridors for Rail and Road transportation facilities by Central & State Govt. utilities like NHAI/DFCC/GAIL/DMRC/Railways/UPEIDA etc. is in full swing. Diversion of existing 765/400/220kV & HVDC power-line is essentially required for above new infrastructure projects. POWERGRID is having a vast network of such lines and is also essentially required to take up the diversion work of its lines, on top priority, in the national interest, to facilitate the said new construction projects for meeting their time line.

C.17.2 He further stated that in view of other new infrastructure development construction works of various agencies, deemed availability be extended to these new other than transmission scheme also.

C.17.3 TCC advised POWERGRID that this agenda should be first discussed in Commercial Sub-committee meeting, and then the views of CSC to be placed before NRPC.

#### **NRPC Deliberation**

C.17.4 Committee concurred with the TCC deliberations.

### **C.18 Default in payment of outstanding dues by beneficiaries**

#### **TCC Deliberation**

C.18.1 Representative of POWERGRID intimated that UPPCL, PDD-J&K, Punjab and BYPL etc. had outstanding dues of transmission charges for more than 60 days.

C.18.2 TCC advised the concerned utilities to release outstanding dues at the earliest.

#### **NRPC Deliberation**

Committee concurred with the TCC deliberation and advised defaulting utilities for early liquidation of dues.



## **C.19 Opening of Letter of Credit**

### **TCC Deliberation**

C.19.1 Representative of POWERGRID informed that PDD-J&K, Rajasthan Discoms, Himachal Sorang, Lanco Budhil, BRPL and BYPL had not opened Letter of Credits, which was mandatory as per CERC Regulations despite repeated reminders/notices & personal meetings.

C.19.2 TCC requested the concerned utilities to open the LC at the earliest.

### **NRPC Deliberation**

C.19.3 Committee noted the TCC deliberations and advised concerned utilities for early action.

## **C.20 Signing of TPA by State Govt. with GoI & RBI**

### **TCC Deliberation**

C.20.1 Representative of POWERGRID stated that during 2000-01, Tri-Partite Agreement (TPA) was signed by GoI with State Govts. and RBI. The TPA facilitates GoI to settle the dues of CPSUs in case of default by any State Utility in making payment.

C.20.2 She further stated that so far the TPA had not been operated and presently the validity of TPA is only upto 31.10.2016, this should be extended upto 31.12.2030. She informed that UP, Punjab, Haryana and Chandigarh were to sign the TPA.

C.20.3 She further added that in case the same was not done, State Utilities had to open LC for 210% of average billing (instead on 105%) as per the provisions of BCD Procedures of CERC Sharing Regulations, 2010.

C.20.4 Member Secretary, NRPC advised POWERGRID to take up the issues with the respective State Govts.

C.20.5 TCC advised all the concerned States to execute TPA.

### **NRPC Deliberation**

C.20.6 Committee concurred with the TCC deliberations and advised all the concerned States to execute TPA.

## **C.21 Status of LC against Deviation Charges delayed payment**

### **TCC Deliberation**

C.21.1 Representative of NRLDC informed that defaulting entities against the payment of Deviation Charges viz. UPPCL, UPCL, HPSEB, PDD J&K, EPPL, GreenkoBudhil, Punjab, UT Chandigarh, Rajasthan, APCL, BBMB and NHPC were requested to

open the LC against Deviation Charges as per the Regulations of CERC. The matter had already been communicated vide NRLDC letter dated 27<sup>th</sup> June 2017 to the aforesaid entities.

C.21.2 TCC advised the defaulting entities to open the LC on priority as per the Regulations of CERC.

#### **NRPC Deliberation**

C.21.3 Committee concurred with the TCC deliberations and advised the defaulting entities to open the LC on priority as per the Regulations of CERC.

### **C.22 NRLDC Fee & Charges**

#### **TCC Deliberation**

C.22.1 Representative of NRLDC stated that NFL (National Fertilizer) has allocation from Bhakra complex and Pong as such NFL was being treated as regional entity. NFL had not registered itself with NRLDC and had also not released any payment against NRLDC Fee & Charges. DSM Charges payable to NFL were under hold.

C.22.2 TCC suggested that a meeting may be arranged with NFL, BBMB, NRLDC and NRPC Secretariat along with any other concerned utility to resolve the issue.

C.22.3 Representative of NRLDC stated that truing up of NRLDC Fee and Charges for financial year 2016-17 had been completed & amount refunded on 28.09.2017. The details of disbursement was available on NRLDC web site link “<https://nrldc.in/commercial/truing-up-details/>”

C.22.4 He further added that NRLDC Fee and Charges bills was also being mailed to all users on the day of billing and soft copy of bills was also available to the link “<https://nrldc.in/commercial/bill-details/>” NRLDC intends to go for paperless billing.

C.22.5 Member Secretary, NRPC informed the Committee that a meeting with NFL was held at Nangal on this issue and NFL had agreed to become the user of NRLDC. As till date NFL has not applied for user of NRLDC one more meeting may be held with NFL to sort out the issue.

C.22.6 TCC agreed to the suggestion of Member Secretary, NRPC.

#### **NRPC Deliberation**

C.22.7 Committee noted the information and concurred with the TCC deliberations.

### **C.23 Congestion Charges**

#### **TCC Deliberation**

C.23.1 Representative of NRLDC informed that amount received in the congestion charges account was disbursed to the receivable parties. He also informed outstanding amount against each entity.

C.23.2 TCC advised payable utilities to release outstanding Congestion Charges at the earliest.

**NRPC Deliberation**

C.23.3 Committee concurred with the TCC deliberations and advised payable utilities to release outstanding Congestion Charges at the earliest.

**C.24 Reconciliation of Pool Accounts ( July-17 to Sep-17)**

**TCC Deliberation**

C.24.1 Representative of NRLDC stated that reconciliation statement of Deviation Charges and Reactive Energy Charges had been forwarded to entities and was uploaded on NRLDC website on 10.10.2017. The constituents were requested to verify /check the same & comments, if any, on the same were to be reported to NRLDC by 31.10.2017. In case of non-receipt of any communication it would be presumed that reconciliation statement stands reconciled.

**NRPC Deliberation**

C.24.2 Committee noted the information.

**C.25 Status of Ancillary Services**

**TCC Deliberation**

C.25.1 Representative of NRLDC updated the members about the Status of Ancillary services from week 01 to 25 of FY 2017-18.

**NRPC Deliberation**

C.25.2 Committee noted the TCC deliberations.

**C.26 TDS Certificates against STOA Charges**

**TCC Deliberation**

C.26.1 Representative of NRLDC stated that STOA charges were being deposited by the applicants in the STOA account maintained by the Nodal RLDCs. Applicants were deducting TDS in the PAN of POWERGRID for PoC Charges and in the PAN of POSOCO for STU/ SLDC/ RLDC charges. The major portion of bilateral transaction charges pertains to CTU (POWERGRID), STUs & SLDCs as compared to RLDCs operating charges

C.26.2 He further stated that as such applicants had been requested to deduct TDS in PAN of concerned PoC Charges (POWERGRID PAN), STU/SLDC Charges (concerned STU/SLDC PAN) & operating charges / application fee (POSOCO PAN) for approvals issued on and after 1<sup>st</sup>October-2017. Applicants were also requested to

submit the TDS details Monthly & Quarterly as per formats available in NRLDC website.

C.26.3 TCC advised the members to submit the details as per format.

**NRPC Deliberation**

C.26.4 Committee concurred with the TCC deliberations.

**C.27 Status of Outstanding STOA Delay Payment Interest**

**TCC Deliberation**

C.27.1 Representative of NRLDC informed that as per Regulations 19(2) of Open Access Inter State Regulations 2008, the person committing default in payment shall pay simple interest @ of 0.04% for each day of default. The outstanding interest amount for Provestment and RDPPC was intimated in the agenda. Representative of NRLDC intimated that they had blocked the portal for punching of application for the defaulting entities as per regulatory provisions.

**NRPC Deliberation**

C.27.2 Committee noted the TCC deliberations.

**C.28 Petition No. 150/MP/2016 to resolve the issue of declared capacity of NJHPS and RHPS of SJVN Ltd.**

**TCC Deliberation**

C.28.1 Member Secretary, NRPC informed that SJVN Ltd. had filed a petition vide petition no. 150/MP/2016 regarding the consideration of declared capacity of Nathpa-Jhakri Hydro Power Station (6 x 250 MW) aggregating to 1500 MW and Rampur Hydro Power Station (6 x 68.67 MW) aggregating to 412 MW. Further, as per direction of the Hon'ble Commission vide ROP for the hearing dated 09.02.2017, Chief (Engg.) had submitted a report to the Commission regarding the aforesaid petition. The report was enclosed as Annexure-VIII of the agenda. Hon'ble Commission had directed to submit the view/comments, if any, on the report.

C.28.2 Members Secretary, NRPC requested the utilities to submit their comments to CERC for consideration.

C.28.3 TCC noted the information.

**NRPC Deliberation**

C.28.4 Committee noted the TCC deliberations.

**C.29 Regional Co-operation for Grid Integration of Renewable Energy**

**TCC Deliberation**

- C.29.1 SE(C), NRPC stated that the first meeting of Sub-Group under Technical Committee for Implementation of Framework on Renewable at the State level (IFRSL) of NR was held on 16.08.2017 and minutes of the meeting was enclosed at Annexure-X of the agenda.
- C.29.2 He further stated that in the meeting a draft overarching commercial agreement, in line with that discussed in SRPC, for short-term transactions of electricity among NR utilities was discussed and comment from all concerned was invited to finalise the agreement. The similar agreement has been signed by SR constituents. A copy of the same was enclosed at Annexure-XI of the agenda.
- C.29.3 Member Secretary, NRPC requested members to give their views on the overarching agreement signed in SR and to sign a similar overarching agreement in NR to facilitate short term transaction.
- C.29.4 He further stated that a meeting of the Heads / Representatives of the Sub-Groups was convened under the Chairmanship of Shri A.S.Bakshi, Member, CERC on 18.8.2017 in CERC, New Delhi to review the progress on framework for regional co-operation. In the meeting various options, other than overarching agreement, for handling intra-day load / generation variation due to RE or otherwise were also discussed. The same was enclosed at Annexure-XII of the agenda. During the meeting, it was decided to share these options with all RPCs and seek feedback. Members were also apprised about the options suggested in CERC meeting for short term transaction. Members were requested to convey their views on the above options to NRPC secretariat for forwarding the same to CERC for consideration.
- C.29.5 TCC in principle agreed for signing the overarching agreement and advised members to send their views, if any, for modification in overarching agreement as well as on the option No. 5 for short-term transaction options given by CERC within 15 days to NRPC Sectt.

#### **NRPC Deliberation**

- C.29.6 NRPC concurred with the TCC deliberations.

### **Additional Agenda**

#### **C.30 Long Term Access for Vishnugad Pipalkoti HEP (444 MW)**

##### **TCC Deliberation**

- C.30.1 Representative of THDCIL stated that THDCIL was implementing Vishnugad Pipalkoti HEP (444 MW) in Garhwal, Himalayas. The construction work at the project was in full swing. The Power generated from the project shall be supplied to all state/UT of Northern Region. The PPAs for the entire power had been signed

with Haryana, Rajasthan, UT of Chandigarh, Punjab, Rajasthan, J&K, Uttarakhand, Himachal Pradesh Delhi's Discoms viz. BRPL and TPDDL.

C.30.2 He further stated that in accordance with the applicable Connectivity Regulations 2009 of the Hon'ble CERC the beneficiaries are required to apply for Long Term Access (LTA) and subsequently sign Long Term Access Agreement (LTAA) with PGCIL which is laying the transmission system in association with PTCUL for the Vishnugad Pipalkoti HEP (VPHEP). He informed that the beneficiaries had been requested to apply for the LTA through various correspondences. He requested members to either apply for LTA or allow THDC for applying LTA on behalf of beneficiaries the delay in applying for LTA is delaying the transmission system work.

C.30.3 TCC advised THDCIL to apply for LTA on behalf of beneficiaries of VPHEP.

#### **NRPC Deliberation**

C.30.4 NRPC concurred with TCC deliberations.

### **D. ITEMS FOR NRPC ONLY**

#### **D.1 Special TCC meeting for Preparation of Phasing Plan for implementation of new Environmental Norms for Thermal Plants in Northern Region**

D.1.1 Member Secretary, NRPC apprised NRPC about the proceedings of the 36<sup>th</sup> (Special) TCC meeting held in Delhi on 14.09.2017. He informed that the Ministry of Environment, Forest & Climate Change (MoEF& CC) had notified the revised environmental norms for SPM, SO<sub>x</sub> and NO<sub>x</sub> emission from Coal-based Thermal Power Plants in the country, with the primary aim of minimising pollution. These norms are to be implemented in a phased manner.

D.1.2 He added that subsequently, a Committee, headed by Chairperson, CEA, was constituted by Ministry of Power, Govt. of India for preparing a phasing plan for implementation of new environmental norms issued by MoEF& CC in December 2015 for SPM, SO<sub>x</sub> and NO<sub>x</sub> emissions. As decided by the Committee, NRPC had been given responsibility of preparing phasing plan for identified units in Northern Region for FGD installation and ESP Up-gradation in consultation with concerned Power Utilities, SLDCs & POSOCO.

D.1.3 He mentioned that the issue was discussed in various meetings held at NRPC. To prepare the final phasing plan for implementation of new Environmental Norms for Coal based thermal power plants in Northern Region a special TCC meeting of NRPC was held on 14.09.2017 at NRPC, New Delhi. Minutes of the meeting were enclosed at -IX of the agenda.

- D.1.4 He further informed that during the meeting, representatives of some entities stated that they had filed petitions with their respective Regulatory Commissions for tariff revision on account of cost to be incurred for FGD installation, incremental O&M charges and Auxiliary Power Consumption. They requested NRPC and CEA to take up the issue with Regulatory Commissions for expediting the approval process as funds for procurement of FGDs would only be mobilized after concurrence of CERC/SERC for tariff revision.
- D.1.5 Representative from Nabha Power Ltd. mentioned that for progress of FGD installation work, some issues like finalisation of most suitable technology and normative cost by CEA need to be resolved at the earliest as SERC had asked these details.
- D.1.6 Member Secretary, NRPC informed that NRPC Sectt. had written letters to the concerned SERCs/CERC requesting that petitions /Applications on the above matter by the generators in their jurisdiction may be considered on priority, so that the requisite action for compliance of new environmental norms may be taken by respective generating companies within the stipulated timeframe.
- D.1.7 **NRPC noted the deliberations held on the subject in the special TCC meeting and advised all the concerned utilities to take necessary action for installation of FGD and up-gradation of ESP as per agreed time line. NRPC emphasised that concerned SERCs, CERC and CEA may take appropriate action on the request of utilities to expedite FGD installation process.**

## **D.2 Status of Deviation Settlement Charges**

- D.2.1 NRLDC representative presented the status of payment of Deviation charges payable/Receivable by the utilities. He mentioned that non-payment of deviation charges is non-compliance of CERC Regulations.
- D.2.2 **Members noted that few states had large outstanding. NRPC advised concerned utilities to clear the payable deviation charges at the earliest.**

## **D.3 Status of Reactive Energy (RE) Charges**

- D.3.1 NRLDC representative presented the status of payment of Reactive Energy charges payable/Receivable by the utilities.
- D.3.2 **Members noted that few states had large outstanding. NRPC advised concerned utilities to clear the payable Reactive Energy charges at the earliest.**

**D.4 Reimbursement of Expenditure of NRPC Sectt. for the year 2017-18 by the members of NRPC**

D.4.1 Member Secretary, NRPC informed that keeping in view the budget estimates approved by GoI for the financial year 2017-18 and expenditure likely to be incurred towards outsourcing of staff, conduct of various meetings, leasing of vehicle, IT up-gradation in NRPC Sectt., Procurement of PoC charges Software, purchase of vehicles, AMC of software and training etc. through NRPC fund and balance amount available in the NRPC Fund, the per member contribution for the year 2017-18 would be Rs.10.0 lakh.

D.4.2 He explained that the estimated expenditure for 2017-18 inter-alia includes following items in addition to regular expenditure of secretariat, capacity building, meetings etc.

- a) PoC software licences: Estimated Expenditure for 10 Licences is Rs. 40 Lakh
- b) IT infrastructure upgradation of NRPC secretariat: Estimated Expenditure for Procurement of Server, desktop, laptop, printer, scanner etc.is Rs. 25 Lakh
- c) Vehicle purchase for NRPC secretariat: Estimated Expenditure for two nos. is Rs. 20 Lakh

D.4.3 He requested members to approve the contribution of Rs. 10 Lakh per member for the year 2017-18 and to approve these additional expenditures to be made from NRPC fund.

**D.4.4 NRPC approved the contribution of Rs. 10.0 Lakhs per member for the FY 2017-18 and advised members to ensure timely payment of the contribution. NRPC also concurred to the proposal for purchase of 10 numbers PoC charges software license, IT up-gradation in NRPC Sectt. and purchase of 2 nos. Vehicle for NRPC Sectt from NRPC fund.**

**D.5 Reimbursement of Expenditure of NRPC Sectt. for the year 2016-17 by the members of NRPC**

D.5.1 Member Secretary, NRPC informed that in the 38<sup>th</sup> NRPC meeting held on 25.10.2016, it was decided to contribute the amount of Rs. 7.0 Lakh per member for the year 2016-17 toward reimbursing NRPC expenditure to GoI for the year 2016-17, for meeting the expenditure for meetings at Secretariat and other expenditure as approved by Chairperson, NRPC.

D.5.2 He mentioned that contribution from following members were awaited:

Sl. No.	Constituent Member
1	UHBVNL, Panchkula
2	AVVNL, Jaipur
3	J&K PDD, Srinagar
4	J&K State PDC, Srinagar
5	PSPCL, Patiala



6	PVVNL, Varanasi
7	LancoAnpara Power Ltd., Gurgaon
8	Aravali Power Company Pvt. Ltd., Noida
9	Jhajjar Power Ltd., Haryana
10	Talwandi Sabo Power Ltd., Punjab

D.5.3 NRPC advised concerned member to make contribution at the earliest, as financial year 2016-17 is already over.

#### **D.6 Reimbursement of Expenditure of NRPC Sectt. by the members of NRPC for the previous years**

D.6.1 Member Secretary, NRPC informed that contribution from following members for past years were awaited:

Sl. No.	Constituent Member	Amount (Rs.)
<b>Financial Year 2015-2016</b>		
1	J&K State Power Development Corp. Ltd., Shrinagar	11.0 Lakh
2	Paschimanchal VVNL, Meerut	
3	GMR Energy Trading Limited, New Delhi	
4	JPVL, Noida	
<b>Financial Year 2014-2015</b>		
1	JdVVNL, Jaipur	11.0 Lakh
2	J&K State Power Development Corp. Ltd., Shrinagar	
3	Dakshinanchal VVNL, Agra	
4	Bajaj Energy Pvt. Ltd., Noida	
<b>Financial Year 2012-2013</b>		
1	Purvanchal VVNL, Varansi	10.0 Lakh

D.6.2 NRPC advised concerned member to make contribution at the earliest.

#### **D.7 Regular Membership of NRPC**

D.7.1 Member Secretary, NRPC informed that the amended resolution dated 09.05.2008 of GoI, MoP regarding establishment of the NRPC, provides for regular representation for Generating companies other than central generating companies or State Government owned generating companies.

D.7.2 He proposed that NABHA POWER Ltd. with (2X700 MW) capacity in Punjab may be included as a regular member of NRPC in 2017-18. Prayagraj Power Generation Co. Ltd.(3X660 MW) capacity in UP may be included as a regular member of NRPC 2017-18.

D.7.3 NRPC concurred the proposal for regular membership of NABHA POWER Ltd. and Prayagraj Power GenerationCo. Ltd. w.e.f. FY 2017-18.

## **HOSTING OF NEXT MEETINGS OF TCC/NRPC**

Member Secretary, NRPC informed that as per agreed roster for hosting of meetings, the next meetings of TCC (38<sup>th</sup>) & NRPC (41<sup>th</sup>), which would become due in Jan. 2018 are to be hosted by Haryana.

**\*\*\*\*\***

**Annexure-I****List of Participants of 37<sup>th</sup> Meeting of TCC on 27.10.2017 at Srinagar**

<b>S.No.</b>	<b>Name of Officer</b>	<b>Designation</b>	<b>Organization</b>
<b>A</b>	<b>Members of TCC</b>		
1.	Shri Gul Ayaz	Chairman, TCC and Secretary (Tech.), PDD-J&K	PDD-J&K
2.	Shri B.M. Sud	Director(Tech.)	HPSEBL
3.	Shri R.K. Sharma	Director(O)	HPSEBL
4.	Shri Ajmer Singh	Director (Tech.)	HVPNL
5.	Shri Rajesh Gupta	Chief Engineer/SO&C	HVPNL
6.	Shri O.K. Sharma	Chief Engineer	HPPC
7.	Shri Rajesh Kapoor	Chief Engineer	SLDC,HP
8.	Shri K.S.Sambyal	Superintending Engineer	SLDC,HP
9.	Shri Prem Prakash	Director(O)	DTL
10.	Shri Harjiwan Vyas	Executive Director(T)	SLDC, Delhi
11.	Shri N. K. Sharma	Director (Distribution)	PSPCL
12.	Smt. Shashi Prabha	Director (Tech.)	PSTCL
13.	Shri Sanjaya Mittal	Director(O)	PTCUL
14.	Shri S.P.Chaubay	Chief Engineer (TO)	UPRVUNL
15.	Shri Janardan Choudhary	Executive Director(O&M)	NHPC
16.	Shri Jagdish Kumar	Director (Technical)	IPGCL
17.	Shri K.P. Singh	Chief Engineer (E&T)	NPCIL
18.	Shri P.K. Agarwal	Executive Director	NRLDC
19.	Shri Amit Mittal	General Manager	TSPL
<b>B</b>	<b>Other Participants</b>		
<b>I</b>	<b>NRPC, Secretariat</b>		
20.	Shri. M.A.K.P. Singh	Member Secretary	NRPC
21.	Shri Upendra Kumar	Superintending Engineer	NRPC
22.	Shri Hemant Kumar Pandey	Superintending Engineer	NRPC
23.	Shri B.S. Meena	Executive Engineer (O)	NRPC
24.	Shri Akshay Dubey	Asst. Executive Engineer(O)	NRPC
25.	Shri Vikrant Singh Dhillon	Asst. Executive Engineer(C)	NRPC
26.	Shri Manish Maurya	Asst. Engineer(C)	NRPC
<b>II</b>	<b>CEA</b>		
27.	Shri Vijay Menghani	Chief Engineer	CEA
28.	Shri Vikram Singh	Director	CEA
<b>III</b>	<b>BBMB</b>		
29.	Shri R.S. Jalta	Spl. Secretary	BBMB
30.	Shri Anil Gautam	Director (PR)	BBMB
31.	Shri Kuldeep Singh	Power Controller	BBMB
<b>IV</b>	<b>DELHI</b>		
32.	Shri S.M. Verma	Executive Director (T)	IPGCL/PPCL

<b>V</b>	<b>HARYANA</b>		
33.	Shri Naresh Sardana	Director (Tech.)	UHBVN
34.	Shri S.K. Khungar	Chief Engineer (Planning)	HPGCL
35.	Shri S. Bhatnagar	Chief Engineer (OP & Fuel)	HPGCL
36.	Shri Amit Uppal	Superintending Engineer (T)	HPGCL
37.	Shri Rajesh Goel	Executive Engineer (Comml)	HVPNL
<b>VI</b>	<b>HIMACHAL PRADESH</b>		
38.	Sh. Keshav Singh Attri	Director(P&C)	HPPTCL
39.	Shri Deepak Uppal	Dy. Chief Engineer (ALDC)	HPSEBL
40.	Shri Rajender Sharma	DGM (P)	HPPTCL
<b>VII</b>	<b>J&amp;K</b>		
41.	Sh. Asgar Ali Majaz	Dev. Commissioner (Power)	PDD-J & K
42.	Sh. Ajay Gupta	Executive Director (E)	JKSPDC
43.	Shri S.K. Kaul	Chief Engineer (C&S)	PDD-J & K
<b>VIII</b>	<b>PUNJAB</b>		
44.	Shri S.S. Mal	Chief Engineer, SLDC	PSTCL
45.	Shri. H. S. Saluja	Chief Engineer (PP&R)	PSPCL
<b>IX</b>	<b>RAJASTHAN</b>		
46.	Shri Kamal Jain	CE(PP&D)	RVPNL
47.	Shri C.L. Koli	Superintending Engineer (PP)	RVUNL
48.	Sh. A.K. Arya	Superintending Engineer (SOLD)	SLDC
<b>X</b>	<b>UTTAR PRADESH</b>		
49.	Shri C.K. Shukla	Chief Engineer (PSO)	UPSLDC
50.	Shri Arshad Jamal Siddiqui	Superintending Engineer	UPSLDC
51.	Shri Brijesh Singh	Executive Engineer	UPRVUNL
52.	Shri Mithilesh K Gupta	Executive Engineer	UPSLDC
<b>XII</b>	<b>NHPC</b>		
53.	Shri Chander Mohan	Executive Director (Comml.)	NHPC
54.	Shri Janesh Sahani	Chief Engineer (O&M)	NHPC
55.	Shri Samir Kumar	Manager	NHPC
<b>XIII</b>	<b>NTPC</b>		
56.	Shri Rakesh Chopra	General Manager (Comml)NRHQ	NTPC
57.	Sh. E.P. Rao	AGM(Comml)	NTPC
<b>XIV</b>	<b>PGCIL</b>		
58.	Shri P.N. Dixit	Executive Director (AM)	POWERGRID
59.	Shri Y.K. Dixit	General Manager	POWERGRID
60.	Shri Mukesh Khanna	General Manager (CTU,Plg.)	POWERGRID
61.	Shri R.V.S. Khushwaha	General Manager	POWERGRID
62.	Smt. Manju Gupta	AGM(Comml.&Rg.cell)	POWERGRID
63.	Shri Gurdeep Singh	Sr. Engineer	POWERGRID

<b>XV</b>	<b>SJVNL</b>		
64.	Shri Romesh Kapoor	Chief General Manager (C&SO)	SJVNL
65.	Shri Rajeev Agarwal	Sr. Manager	SJVNL
<b>XVI</b>	<b>THDCIL</b>		
66.	Shri L.P.Joshi	Addl.General Manager (Design)	THDC
67.	Sh. Sarosh Majid Siddiqi	Deputy General Manager	THDC
<b>XVII</b>	<b>NRLDC</b>		
68.	Sh. P.K. Agarwal	Executive Director	NRLDC, POSOCO
69.	Shri Rajiv Porwal	Deputy General Manager	NRLDC, POSOCO
70.	Shri H. K. Chawla	Deputy General Manager	NRLDC, POSOCO
<b>XVIII</b>	<b>Adani Power Raj. Ltd.</b>		
71.	Shri Manoj Taunk	General Manager	Adani Power Ltd.
<b>XIX</b>	<b>Nabha Power Ltd.</b>		
72.	Shri Rajesh Kumar	JGM	NPL

**Annexure-II****List of Participants of 40<sup>th</sup> Meeting of NRPC on 28.10.2017 at Srinagar**

S.N	Name of Officer	Designation	Organization
<b>A</b>	<b>Members of NRPC</b>		
1.	Shri Dheeraj Gupta, IAS	Chairperson, NRPC and Commissioner/Secretary, PDD J&K	PDD J&K
2.	Shri Ravindra Kumar Verma	Chairperson and Member GO&D, CEA	CEA
3.	Dr. Shah Faesal, IAS	Managing Director	J&K-SPDC
4.	Shri Harjiwan Vyas	Executive Director(T)	SLDC, Delhi
5.	Shri Rajesh Gupta	Chief Engineer /SO&Comml.	HVPNL
6.	Shri P.K. Agarwal	Executive Director	NRLDC
7.	Shri Rajesh Kapoor	Chief Engineer	SLDC,HP
8.	Amit Mittal	General Manager	TSPL
9.	Shri MAKP Singh	Member Secretary	NRPC
<b>B</b>	<b>Members of TCC</b>		
10.	Shri Gul Ayaz	Chairman, TCC and Secretary (Tech.), PDD-J&K	PDD-J&K
11.	Shri B.M. Sud	Director(Tech.)	HPSEBL
12.	Shri R.K. Sharma	Director(O)	HPSEBL
13.	Sh. Keshav Singh Attri	Director(P&C)	HPPTCL
14.	Shri Ajmer Singh	Director (Tech.)	HVPNL
15.	Shri Rajesh Gupta	Chief Engineer/SO&C	HVPNL
16.	Shri O.K. Sharma	Chief Engineer	HPPC
17.	Shri K.S.Sambyal	Superintending Engineer	SLDC,HP
18.	Shri Prem Prakash	Director(O)	DTL
19.	Shri N. K. Sharma	Director (Distribution)	PSPCL
20.	Smt. Shashi Prabha	Director (Tech.)	PSTCL
21.	Shri Sanjaya Mittal	Director(O)	PTCUL
22.	Shri S.P.Chaubay	Chief Engineer (TO)	UPRVUNL
23.	Shri Janardan Choudhary	Executive Director(O&M)	NHPC
24.	Shri Jagdish Kumar	Director (Technical)	IPGCL
25.	Shri K.P. Singh	Chief Engineer (E&T)	NPCIL
26.	Shri P.K. Agarwal	Executive Director	NRLDC
27.	Shri Amit Mittal	General Manager	TSPL
<b>C</b>	<b>Other Participants</b>		
<b>I.</b>	<b>NRPC, Secretariat</b>		
28.	Shri Upendra Kumar	Superintending Engineer	NRPC
29.	Shri Hemant Kumar Pandey	Superintending Engineer	NRPC

S.N	Name of Officer	Designation	Organization
30.	Shri B.S. Meena	Executive Engineer (O)	NRPC
31.	Shri Akshay Dubey	Asst. Executive Engineer(O)	NRPC
32.	Shri Vikrant Singh Dhillon	Asst. Executive Engineer(C)	NRPC
33.	Shri Manish Maurya	Assistant Engineer(C)	NRPC
<b>II.</b>	<b>CEA</b>		
34.	Shri Vijay Menghani	Chief Engineer	CEA
35.	Shri Vikram Singh	Director	CEA
<b>III.</b>	<b>BBMB</b>		
36.	Shri R.S. Jalta	Spl. Secretary	BBMB
37.	Shri Anil Gautam	Director (PR)	BBMB
38.	Shri Kuldeep Singh	Power Controller	BBMB
<b>IV.</b>	<b>DELHI</b>		
39.	Shri S.M. Verma	Executive Director (T)	IPGCL/PPCL
<b>V.</b>	<b>HARYANA</b>		
40.	Shri Naresh Sardana	Director (Tech.)	UHBVN
41.	Shri S.K. Khungar	Chief Engineer (Planning)	HPGCL
42.	Shri S. Bhatnagar	Chief Engineer (OP & Fuel)	HPGCL
43.	Shri Amit Uppal	Superintending Engineer (T)	HPGCL
44.	Shri Rajesh Goel	Executive Engineer (Comml)	HVPNL
<b>VI.</b>	<b>HIMACHAL PRADESH</b>		
45.	Shri Deepak Uppal	Dy. Chief Engineer (ALDC)	HPSEBL
46.	Shri Rajender Sharma	DGM (P)	HPPTCL
<b>VII.</b>	<b>J&amp;K</b>		
47.	Sh. Asgar Ali Majaz	Dev. Commissioner (Power)	PDD-J & K
48.	Sh. Ajay Gupta	Executive Director (E)	JKSPDC
49.	Shri S.K. Kaul	Chief Engineer (C&S)	PDD-J & K
<b>VIII.</b>	<b>PUNJAB</b>		
50.	Shri S.S. Mal	Chief Engineer, SLDC	PSTCL
51.	Shri. H. S. Saluja	Chief Engineer (PP&R)	PSPCL
<b>IX.</b>	<b>RAJASTHAN</b>		
52.	Shri Kamal Jain	CE(PP&D)	RVPNL
53.	Shri C.L. Koli	Superintending Engineer (PP)	RVUNL
54.	Sh. A.K. Arya	Superintending Engineer	SLDC

S.N	Name of Officer	Designation	Organization
<b>X.</b>	<b>UTTAR PRADESH</b>		
55.	Shri C.K. Shukla	Chief Engineer (PSO)	UPSLDC
56.	Shri Arshad Jamal Siddiqui	Superintending Engineer	UPSLDC
57.	Shri Brijesh Singh	Executive Engineer	UPRVUNL
58.	Shri Mithilesh K Gupta	Executive Engineer	UPSLDC
<b>XI.</b>	<b>NHPC</b>		
59.	Shri Chander Mohan	Executive Director (Comml.)	NHPC
60.	Shri Janesh Sahani	Chief Engineer (O&M)	NHPC
61.	Shri Samir Kumar	Manager	NHPC
<b>XII.</b>	<b>NTPC</b>		
62.	Shri Rakesh Chopra	General Manager (Comml)NRHQ	NTPC
63.	Sh. E.P. Rao	AGM(Comml)	NTPC
<b>XIII.</b>	<b>PGCIL</b>		
64.	Shri P.N. Dixit	Executive Director (AM)	POWERGRID
65.	Shri Y.K. Dixit	General Manager	POWERGRID
66.	Shri Mukesh Khanna	General Manager (CTU,Plg.)	POWERGRID
67.	Shri R.V.S. Khushwaha	General Manager	POWERGRID
68.	Smt. Manju Gupta	AGM(Comml.&Rg.cell)	POWERGRID
69.	Shri Gurdeep Singh	Sr. Engineer	POWERGRID
<b>XIV.</b>	<b>SJVNL</b>		
70.	Shri Romesh Kapoor	Chief General Manager (C&SO)	SJVNL
71.	Shri Rajeev Agarwal	Sr. Manager	SJVNL
<b>XV.</b>	<b>THDCIL</b>		
72.	Shri L.P.Joshi	Addl.General Manager (Design)	THDC
73.	Sh. Sarosh Majid Siddiqi	Deputy General Manager	THDC
<b>XVI.</b>	<b>NRLDC</b>		
74.	Shri Rajiv Porwal	Deputy General Manager	NRLDC, POSOCO
75.	Shri H. K. Chawla	Deputy General Manager	NRLDC, POSOCO
<b>XVII.</b>	<b>Adani Power Raj. Ltd.</b>		
76.	Shri Manoj Taunk	General Manager	Adani Power Ltd.
<b>XVIII.</b>	<b>Nabha Power Ltd.</b>		
77.	Shri Rajesh Kumar	JGM	NPL



**Annexure-III**

**Relevant Extract of Minutes of 37<sup>th</sup> meeting of Empowered Committee on Transmission**

.....only part of evacuation system (under ISTS) has been dropped and the balance transmission system is sufficient for evacuation of power from Tanda TPS which is being implemented by UPPTCL as their Intra-State transmission scheme. UPPTCL has also agreed to take up necessary augmentation at 220 kV level required to meet contingency condition.

- 3.5 The Committee members agreed that the scheme may be denotified.
- 3.6 PFFCL stated that since the bid process for the transmission scheme was completed and only transfer of SPV could not take place, they have incurred substantial expenses in the bidding process for the scheme. In the event of de-notification of the scheme, the same cannot be recovered. There should be some mechanism for recovery of expenses incurred by BPC's in case of abandonment/de-notification of transmission schemes.
- 3.7 The Committee members opined that this is financial issue and does not fall under purview of Empowered Committee. It was decided that BPC may take up the matter with Ministry of Power. Ministry of Power agreed to look into the matter.
- 4.0 Issues raised by STUs in Standing Committees due to implementation of schemes through TBCB:
- 4.1 CEA stated that during the 39<sup>th</sup> meeting of SCPSPNR, following issues were raised by STUs especially with respect to sub-stations being implemented through TBCB.
- i) While planning a substation, upfront fixing of detailed scope of down stream works is not always possible as STU may require outgoing feeder bays at different point of time.
  - ii) Implementating agency for the Upgradation / augmentation in the existing sub- stations, addition of reactors, conversion of fixed reactors to switchable reactors at existing sub-stations should be the owner of the substation.
- 4.2 CEA added that members of the SCPSPNR had suggested that provisions should be made in the tariff policy for augmentation work at existing substations to be done by existing Transmission System Provider (TSP) under regulated tariff mechanism.

- 4.3 ***With regard the issue at (i) above the Empowered Committee suggested that 220 kV bays to be included in the scope of TBCB should be as per the requirement indicated by the drawing entity.***

Regarding (ii) above it was informed that as per the existing tariff policy, all future inter-state transmission projects shall ordinarily be developed through competitive bidding process. The Central Government may give exemption from competitive bidding for a) specific category of projects of strategic importance, technical upgradation etc. or b) works required to be done to cater to an urgent situation on a case to case basis.

- 4.4 Member (E&C), CEA stated that only those projects needs to be exempted from TBCB, which clearly falls under defined categories. In case of any doubt, the project should be implemented through Tariff Based Competitive Bidding. Therefore, as per the prevailing Tariff Policy, augmentation in existing sub-station is to be implemented through TBCB.
- 4.5 CTU stated that the basic objective of Tariff Based Competitive Bidding was to bring in economics and enable reduction in cost. The cost of above elements like transformer augmentation, reactor installation etc are very low and major cost is towards the supply of equipments and therefore no cost saving is expected if the substation augmentation is carried out through TBCB route,. In fact this would result in many implementation issues.
- 4.6 CTU futher stated that as per the present practice, the augmentation of works in any substation are generally carried out by the owner of the substation. In case these works are implemented through TBCB, there would be additional cost towards the consultancy charges of the order of about 15% for implementation /supervision which would be paid to the owner of the substation and basic objective of cost optimisation would be compromised. It would therefore be prudent that the substation augmentation may be carried out by the owner of the substation. Other EC Members were not in agreement with CTU views and observed that Empowered Committee should comply with the mandate of the Tariff Policy rather than reinterpreting it.
- 5.0 Status of transmission schemes under bidding process - briefing by BPCs
- 5.1 Details of transmission projects awarded through TBCB route by RECTPCL and PFCCL is given at Annexure-II (A) and II (B) respectively.
- 5.2 Members noted the same.

**Annexure-IV****Winter Preparedness**

NRLDC representative stated that at the onset of winter, all the users had been sensitized about the winter issues and actions required during 139<sup>th</sup> OCC meeting. He stated that the major issues and actions agreed in NRPC meeting during winter for safe and secure grid operations are as:

- a) Less demand especially during night of winter. Load factor of NR remain in range of ~0.6-0.7. Sharp Morning and evening peak during winter.

Actions agreed in NRPC meetings	Remarks
<p>Load generation portfolio management accordingly to avoid overdrawal or under drawal from the grid and to maintain the Grid discipline.</p> <p>Avoid disconnection of large chunks of load to prevent frequency and voltage excursion.</p> <p>Fast ramping up and ramping down of generation to meet the morning and evening peak smoothly</p>	<ul style="list-style-type: none"> <li>Weather monitoring and precise load forecast is very essential for planning of load generation portfolio management.</li> <li>A dedicated website for weather monitoring of Northern and other regions has been developed to check the current and next days weather information.</li> <li>Transducers of temperature and humidity at various stations in NR for real time monitoring of weather and therefore their telemetry must be ensure available for better visualization in real time.</li> <li>Hydro generation in NR are mostly snow fed and therefore, major hydro generation depleted during winter. The efficient use of hydro during winter is very important as it is fast for ramping up the generation to meet the peak hours load.</li> </ul>

- b) High voltage: Due to relatively less demand during winter and especially during winter nights, various EHV lines remain lightly loaded and consequences to high voltages in the Grid. It has been observed that high voltage is more prevalent in Punjab, Haryana, Delhi NCR, East UP, west Rajasthan etc.

Actions agreed in NRPC meetings	Remarks
<ul style="list-style-type: none"> <li>Ensure switch-off the capacitor</li> <li>Status of operational reactor (Line reactor, Bus reactor, tertiary reactor)</li> <li>List of LR that can be used as BR when line is not in service</li> <li>Tap optimization study based on scatter plots, simulation study, NRPC reactive energy account, last year experiences etc.</li> <li>Reactive power absorption by Generator</li> <li>Synchronous condenser operation</li> </ul>	<ul style="list-style-type: none"> <li>Capacitor monitoring in real time not available</li> <li>Ways to explore monitoring of capacitor status.</li> <li>Better SCADA displays for visualization bus/line reactor status for quick action based on grid conditions.</li> <li>Tap optimization at 765 or 400/220kv level already done by RLDC/NLDC.</li> <li>For 220/132kV transformer and tap co-ordination to be done by SLDC/STU. However, information in this regard from SLDC/STUs is still pending.</li> <li>SCADA monitoring of Reactive power absorption of major generators, Following was observed:</li> </ul>

<p>especially of hydro units</p> <ul style="list-style-type: none"> <li>List of EHV lines based on studies (MVAR of line, Long line, parallel ckts, without LR or with LR, cable, cable connectivity, impact on reliability, its connectivity in switching diagram (SLD), line with other dia, etc.) that can be manually opened with less impact of grid reliability.</li> </ul>	<ul style="list-style-type: none"> <li>a. Reactive power absorption is not as per the capability curves. Hence, enough margins seem available to explore in real time.</li> <li>b. Telemetry (magnitude and direction) of MVAR of units is not correct or reliable.</li> <li>c. Mapping in SCADA of MVAR Vs voltage against capability curve of generating machine to better utilization for reactive management.</li> </ul> <ul style="list-style-type: none"> <li>Synchronous condenser mock testing of few units has been trial operated last year. OCC has confirmed the use of hydro machine as synchronous condenser mode as and when required:             <ul style="list-style-type: none"> <li>a. Tehri unit # 1 &amp; 2 of 250 MW (limitation of only one unit operation for limited time of 2 hrs is the reason for non-frequent operation of this facility.</li> <li>b. Larji Unit#3, HP</li> <li>c. Chamera-2 unit#3</li> <li>d. RSD Punjab is yet to confirm the test operation.</li> <li>e. Uttarakhand has been requesting to confirm the synchronous operation of its gas generating stations.</li> </ul> </li> </ul> <p>NRPC/OCC meeting emphasized the frequent operation of generating units as synchronous condenser mode to absorb the reactive power to contain the HV in the Grid. It was also requested to explore other units ready to operate in this mode for dynamic reserves of reactive power as and when required for grid operation.</p> <ul style="list-style-type: none"> <li>Manual opening of EHV lines is the last steps to resort the high voltage in the grid especially during night hours. List of such lines should be kept handy for control room operator based on reliability studies that have least impact on reliability of the grid.</li> </ul>
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c) Tripping due to fog/Smog

Actions agreed in NRPC meetings	Remarks
<p>Tripping of lines due to fog/smog and inclement weather is known phenomenon and various action has been suggested and agreed to avoid the tripping are as:</p> <ul style="list-style-type: none"> <li>Preventive maintenance of EHV lines by cleaning and washing</li> <li>Polymer insulator replacement</li> </ul>	<ul style="list-style-type: none"> <li>All the users are requested to update the status of cleaning and washing of EHV lines as pre-winter maintenance program in the format circulated by NRLDC in regular OCC meeting.</li> <li>Users are also requested to updates the status of replacement of polymer insulator in EHV lines.</li> </ul>

Following was also emphasized by NRLDC:

- Replacement/correction of transducers from all stations so that weather data is correct at control centers in order to monitor fog formation possibilities.
- Usage of all line reactors as bus reactors after opening of the lines during high voltages.

**Annexure-V****1. Major issues experienced during Summer/Monsoon:****a. High demand in NR and subsequent Contingent situation experienced during the month (Monsoon scenario):**

As anticipated and forecast, Northern region experienced its highest demand during Jun-Sept (Monsoon) and this year NR touched its highest demand in the range of ~55-56 GW and energy consumption of more than ~1200 MUs during the June-July'17. Operational planning required, credible contingencies and proposed solution has been discussed in many previous OCC/TCC meetings. Despite continuous effort and interactions, emergent situation arrived in the Grid and Grid discipline were violated number of times. Major issues experienced during these months are as:

**i. Hydro generation outages on silt**

<b>Issues discussed</b>	<b>Major issues experienced</b>	<b>Action taken</b>	<b>Lesson learned</b>
<ul style="list-style-type: none"> <li>• Outages of hydro on silt during monsoon is known phenomenon and operational planning to combat the situation has been discussed in many previous OCC/TCC/Special meeting.</li> <li>• Both Load and Generation side planned &amp; prompt actions are pre-requisite during such scenario. Planned and staggered outage of hydro generation on silt is equally important as per agreed protocol between the generators.</li> <li>• Silt forecasting has also been envisaged to help such outages in more planned way rather than forced and emergent conditions.</li> </ul>	<ul style="list-style-type: none"> <li>• On 18<sup>th</sup>, 19<sup>th</sup> July 2017, 30<sup>th</sup>, 31<sup>st</sup> July and 1<sup>st</sup> August 2017, Major Hydro stations like Karcham, N. Jhakri, Rampur, Baspa, Dehar, Bairasuil, Salal, Parbati-3 comprising more than 4500-5000 MW of generation went under forced outage.</li> <li>• During such contingent condition, HVDC Champa-Kurukshetra (import link from WR) tripped on 18<sup>th</sup> July, 765kV lalitpur-Fatehabad tripped on 19<sup>th</sup> restricted the generation of lalitpur TPS. Therefore, overall contingency of ~ 7000 MW was observed during such events.</li> <li>• HVDC Mundra-Mohindergarh Bipole was under breakdown since 24<sup>th</sup> July 2017 and revived on 5<sup>th</sup> &amp; 8<sup>th</sup> Aug 2017.</li> <li>• Coal shortages has also been reported without advance</li> </ul>	<ul style="list-style-type: none"> <li>• Informed the utilities to manage their portfolio to avoid any Grid indiscipline.</li> <li>• Increased internal generation of NR (Ancillary were triggered, Costly generation also brought on bar)</li> <li>• States asked to increased their generation</li> <li>• Reduction of</li> </ul>	<ul style="list-style-type: none"> <li>• Maintaining Reserves in the system</li> <li>• Silt Forecasting</li> <li>• Handling deviation from schedule by hydro dominant States</li> <li>• Fuel availability at generating station</li> <li>• Handling further contingencies</li> <li>• Pre-arrangement with different state entities to utilize such transaction as and when required in</li> </ul>

<ul style="list-style-type: none"> <li>Hydro generation outage on silt of last five year is enclosed in <b>Annex-II</b>.</li> </ul>	<p>information e.g. Jhajjar unit#2 out since 2<sup>nd</sup> July to 19<sup>th</sup> July due to some coal problems.</p>	<p>Generation/T ripping of Units shall be as per protocol and shall be in a staggered manner to the extent possible.</p> <ul style="list-style-type: none"> <li>Reports on above event has also been issued and enclosed in <b>Annex-II (a) &amp; (b)</b>.</li> </ul>	<p>any eventualities</p>
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ii. Coal shortages during above condition.

During the high demand period, coal shortages have been encountered in real time without advance information. Kawai TPS Unit #2 was out from 4<sup>th</sup> June to 22<sup>nd</sup> June 2017 on Coal shortage, Anpara-C unit#1 was out from 21<sup>st</sup> May to 5<sup>th</sup> Jul 2017 and Jhajjar (APCPL) Unit #2 of 500 MW was also out from 2<sup>nd</sup> Jul to 19<sup>th</sup> Jul 2017 due to some coal problem as reported by respective utility.

As already discussed and informed, adequate coal stock should be maintained to keep the thermal units on bar as per requirement during such high demand period.

Coal shortage issues has been deliberated in monthly OCC meetings and henceforth issue of requirement of the monitoring of fuel positions at different generating stations was raised and discussed in 139<sup>th</sup> OCC. Representative of NTPC stated that coal stock information is available in month advance, however gas availability is known one day before only. Thus, OCC decided that all generators will start giving fuel supply position in the OCC for discussion.

TCC concurred the decision of OCC that stations shall not reduce their DC during the day due to coal shortage and shall keep atleast two days stock and declare DC accordingly.

iii. Transmission element long outages

Tower collapse and subsequent line breakdown has been experienced since last four-five years during summer/monsoon on thunder storm. Various actions plan has been discussed and agreed in OCC/TCC/Special meeting and has been communicated to all the users through various letters also. Ministry of Power (MoP) has also issued guideline to procure at least two ERS for quick restoration for every state.

This year also transmission lines undergo breakdown on tower collapse and are still out thereby, affecting the reliability of the system and aggravated constraints in meeting high demand reliably. List of such line is tabulated below:

S. No.	Transmission Element	Owner	Outage Date & Time	Reason of outage
1	HVDC Mohindergarh-Mundra Pole 2	APL	24.7.2017 & 12:30	Tower collapsed (revived on 09.08.2017 & 01:57)
2	HVDC Mohindergarh-Mundra Pole 1	APL	24.7.2017 & 12:30	Tower collapsed (revived on 05.08.2017 & 04:36)
3	400kV Paricha-Orai(UP) ckt.1	UPPTCL	17.5.2017 & 13:51	Tower collapsed
4	400kV Mainpuri(PG)-Paricha(UP) ckt.1	UPPTCL	17.5.2017 & 13:51	Tower collapsed
5	400kV Jhatikara-Bamnoli ckt.1	DTL	22.5.2016 & 20:29	Dead end tower collapsed at Bamnoli end
6	400kV Bawana-Mundka ckt1	DTL	14.5.2017 & 09:03	Fire below 400kV tower no. 116
7	400kV Bawana-Mundka ckt2	DTL	14.5.2017 & 09:50	Manually opened on emergency (Fire below 400kV tower no. 116)
8	400kV CLP Jhajjar-Dhanonda ckt1	HVPNL	14.6.2017 & 15:00	Tower No. 12 to 17 collapsed
9	400kV CLP Jhajjar-Dhanonda ckt2	HVPNL	14.6.2017 & 15:00	Tower No. 12 to 17 collapsed
10	220kV Orai-Kanpur	UPPTCL	17.5.2017 & 13:51	Tower damaged
11	220kV Kishenpur(PG)-Ramban(JK)	PDD JK	30.7.2017 & 06:55	Tower collapsed
12	220kV Kishenpur(PG)-Mirbazar(JK)	PDD JK	30.7.2017 & 16:55	Tower collapsed

It is understood that during such high demand period accompanied with bad weather condition wherein the system is already under stress, the outage of multiple elements in same area further reduces the reliability/security of the system. Therefore, it has been requested that all the users/constituents shall share preventive and remedial actions taken for revival of lines out on tower collapse.

The TCC expressed concern on large number of lines outages during high demand period and advised all the utilities to revive the lines under long outages and to ensure the ERS systems and other measures for early revival of lines.

**b. Overdrawal by state entities:**

Northern region is used to experience high demand during monsoon and it has been observed that various generating units (especially outage of hydro units on silt) also remain under forced outage during this period. In view of safe grid operation, all users are sensitized regularly to plan & monitor the Grid conditions to take fast action in case of any eventualities. It has been experienced that deviation from schedule was reported on regular basis during this period and especially overdrawal by state even during low frequency conditions.

- Over-drawl by Uttar Pradesh, Haryana, Rajasthan control area seems to be quite high and that too in continuous manner, stretching more than few hours. Very large changes in drawal at hourly boundaries also resulting in sustained grid operation at low frequency. Such high overdrawal resulted in high overdrawal of the region as a whole from neighbouring region.
- Overdrawal issues of HP state control area from the grid has been flagged and discussed at different fora as well as through direct communications. Despite all the effort, HP state control area overdrawal is still continuing. Himachal Pradesh is excessively overdrawing from the grid and at the same time, power sale by the state through Short Term Open Access (STOA).
- It has been observed that such overdrawal is almost continuous and at times causing low frequency as well as congestion. Such overdrawal becomes severe during the outage of large hydro stations in NR due to high silt conditions.

Appropriate measures suggested to avoid such deviation are as:

- Proper forecasting of load and planning for load management
- Increasing the internal generation within state control area
- Making power purchases from the market through bilateral Power Exchange transactions to cover for the shortfall.
- Re-starting of units under reserve shutdown at state as well as Inter-state level through appropriate transactions.

**TCC expressed concern on continued large overdrawals and advised that since now market based instruments are readily available the same shall be used and secure operation of grid shall be maintained.**

c. Reliability Issues:

State	Constraints as per import capability	Actual Constraints observed
Punjab	TTC: 6700 MW ATC: 6100 MW N-1 contingency of Amritsar, Ludhiana and Makhu	<ul style="list-style-type: none"> <li>• N-1 non-compliance was observed at Amritsar, Ludhiana &amp; Makhu.</li> <li>• High Loading of Ludhiana, Malerkotla, Patiala during high load.</li> <li>• High MVAr drawal at Amritsar</li> <li>• High loading of Underlying network of Amritsar, Ludhiana, Dhuri &amp; Jalandhar</li> </ul>
Haryana	TTC: 6500 MW ATC: 5900 MW  N-1 contingency of Kaithal, Gurgaon & 220kV connectivity of Hissar	<ul style="list-style-type: none"> <li>• N-1 non-compliance was been observed at Kaithal, Gurgaon, Dhanoda, occasionally at Kirori ICTs and 220kV interconnection of Hissar.</li> <li>• Isolator rating issues at Dhanoda &amp; Nawada, Outage of 400kV Dhanoda – Daulatabad on tower collapse (since 14<sup>th</sup> June 2017) also poses challenges to evacuation of HVDC Mundra-Mahindergarh / CLP Jhajjar.</li> <li>• On 27<sup>th</sup> June 2017, 00:15 hrs multiple elements tripped in Haryana control area leading to load loss of</li> </ul>



		<p>~ 1700 MW of Haryana. Tripped element were 400/220kV 3x315 MVA ICTs at Kirori, 400/220 kV 2x315 MVA ICTs at Kaithal apart from number of 220 kV lines.</p> <ul style="list-style-type: none"> <li>• On 26<sup>th</sup> June 2017, at 13:08hrs all 400/220 kV ICTs at Kirori tripped indicating a load loss of around 1000MW.</li> </ul>
Rajasthan	<p>TTC: 6200 MW ATC: 5600 MW</p> <p>N-1 contingency of Sikar, Bhiwadi, Jodhpur &amp; Merta</p>	<ul style="list-style-type: none"> <li>• N-1 non-compliance was observed at 400/220kV Bhiwadi, Sikar, Akal etc.</li> <li>• As wind injection increases, voltage becomes extremely low at Akal and Barmer.</li> <li>• N-1 non-compliance at 765/400kV Phagi ICT</li> <li>• N-1-1 non-compliance of Kawai-Kalisindh-Chhabra complex evacuation.</li> <li>• High voltage at Suratgarh, Akal &amp; Jodhpur area</li> </ul>
Delhi	<p>TTC: 5000 MW ATC: 4700 MW</p> <p>N-1 contingency of Bamnoli, Mundka &amp; Harsh Vihar</p> <p>N-1 of 220kV Badarpur-Ballabgarh D/C</p>	<ul style="list-style-type: none"> <li>• N-1 non-compliance was observed at Mundka and Bamnoli.</li> <li>• Split bus operation at Bamnoli leading to asymmetrical loading of ICTs and thus N-1 non-compliant</li> <li>• Tower collapse of Bamnoli-Jhatikara One ckt and other ckt is on ERS, outage of 400kV Bawana-Mundka D/C affecting the reliability of 400kV Delhi ring</li> </ul>
Uttar Pradesh	<p>TTC: 8200-8700 MW ATC: 7600-8100 MW</p> <p>N-1 contingency of 400/220 kV ICTs at Mainpuri, Moradabad, Agra (UP), Meerut, Obra, Sultanpur, Azamgarh, Lucknow (PG), Lucknow (UP), Gorakhpur (PG)</p> <p>Low voltages: 400kV Agra(UP), Muradnagar(UP), Muradnagar New(UP), Sultanpur &amp; several 220kV nodes.</p> <p>On account of various transmission system commissioning and augmentation, UP TTC is under study for subsequent revision</p>	<ul style="list-style-type: none"> <li>• N-1 non-compliance has been observed at 400/220kV ICTs of Azamgarh, Moradabad, Agra (UP), Meerut, Obra, Sultanpur, Lucknow (PG), Mainpuri, Lucknow (UP), Gorakhpur (PG) etc.</li> <li>• Evacuation constraints of Anpara-D, Lalitpur TPS, Paricha TPS and Bara TPS under N-1/N-1-1 compliance have been continuously observed.</li> <li>• In case of Paricha TPS, 400kV Paricha-Mainpuri D/C was under breakdown since 17<sup>th</sup> May 2017 to 21-Aug/ 21 Sept 2017 along with 220kV Orai-Kanpur. (One ckt has now been LILOed at Orai). Under such events, Paricha TPS couldn't evacuate reliably.</li> <li>• On 24<sup>th</sup> June 2017, 20:04 hrs, multiple element tripping at Agra Fatehbad (UP) leading to oscillations in the system and affect the lalitpur TPS generation also.</li> <li>• 400kV Gr. Noida- Nawada line was opened on no. of occasions to control the loading of 400kV Dadri- Gr. Noida line.</li> <li>• Low voltage at 400kV Sultanpur, Gorakhpur, Azamgarh.</li> </ul>
Jammu & Kashmir	<p>TTC: 1800 MW ATC: 1500 MW</p> <p>N-1 contingency of Wagoora ICTs &amp;</p>	<ul style="list-style-type: none"> <li>• N-1 non-compliance has been observed at 400/220kV ICTs of Wagoora.</li> <li>• Underlying 220kV network of Wagoora, Kishenpur i.e Wagoora-Ziankote D/C, wagoora-Pampore D/C, 220kV Kishenpur-Ramban-Mirbazar-Pampore &amp;</li> </ul>

	Underlying network of Wagoora & Kishenpur	220kV Kishenpur-Mirbazar-Pampore.
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Other reliability issues faced during this summer/monsoon:

- Major generation outage in Rihand-Singrauli-Anpara complex, Kawai-Kalisindh complex and Lalitpur-Paricha TPS complex
- Frequent outages of HVDC Champa-Kurukshetra, HVDC Vindhachal b-t-b, 400kV RAPSC-Sujalpur etc.
- Complete sub-station outage i.e. Balia & Mau

**TCC advised all members to take proactive actions to mitigate the reliability issues and also advised all members to focus on protection system such main protection must operate correctly all time in order to avoid multiple element tripping.**

**Annexure-VI**

**Important Regulatory Changes and Directions**

- A. Technical Minimum Schedule for operation of Central Generating Stations and Inter State Generating Stations (4<sup>th</sup> IEGC amendment)

The 4<sup>th</sup> amendment to IECG, 2010 provided for detailed operating procedure for backing down of coal/lignite/Gas units of central generating stations, inter-state generating stations and other generating stations and for taking such units under reserve shutdown on scheduling below technical minimum schedule. The detailed procedure has been approved by CERC vide order dated 5<sup>th</sup> May 2017. The same is effective from 15<sup>th</sup> May 2017.

- B. IEGC fifth amendment effective from 1<sup>st</sup> May 2017

As per IEGC fifth amendment, 5.2 (h) "For the purpose of ensuring primary response, RLDCs/SLDCs shall not schedule the generating station or unit (s) thereof beyond ex-bus generation corresponding to 100% of the Installed capacity of the generating station or unit (s) thereof. The Generating station shall not resort to Valve Wide Open (VWO) operation of units whether running on full load or part load, and shall ensure that there is margin available for providing Governor action as primary response".

To implementation of above regulations following has been implemented and shared with all the stakeholders:

- The generators shall ensure that declared capability on bar doesn't exceed the capacity on bar less normative auxiliary consumption. In case the generator gives the DC value higher than the above figure, the same shall be restricted to the capacity on bar less normative auxiliary consumption.
- In case of hydro station gives DC above 100% of capacity on bar less normative auxiliary consumption, an undertaking stating that the higher DC is given to avoid spillage may be submitted to RLDC. At the end of each day, the hydro generator shall submit the data regarding discharge through turbines and discharge through spillway gates.
- All the generators whose tariff is either determined or adopted by CERC shall give a statement regarding the power available for sale in market, power sold in market for each beneficiary by 2200 hrs on day ahead basis as per the format.
- Primary response:  
As per CERC (IEGC) Regulation, 2010, 5.2(f) provides that generators should provide RGMO/FGMO response. Further vide 5th amendment of IEGC dated 12.04.2017, it has been provided at Regulation 5.2(h) that "RLDCs/SLDCs should not schedule the generating station or unit(s) thereof beyond ex-bus generation corresponding to 100% of the installed capacity of the generating station or unit(s) thereof and that the generating station shall not resort to Valve Wide Open operation of units" so that primary response is ensured.

CERC letter dated 05.06.2017 directed to obtain the status of availability of RGMO/FGMO response from the generators (ISGS as well as intra-state generators) in the region. In line with above, OCC has requested to submit the status of actual response being provided by generators under the primary response since 136<sup>th</sup> OCC in July 2017. In this regard, NTPC, NHPC, NPCIL, PTCUL, UPRVUNL & RRVUNL has submitted the status and the same was enclosed in **Agenda for the meeting**.

OCC has advised NRLDC to map availability of FGMO/FGMO at every generator in their SCADA and the expenditure incurred for facilitating the same is to be borne by the generator. Further, gas generators was requested to confirm putting gas stations in RGMO mode of operation from 1.10.2017

**CERC order on 84/MP/2015:**

CERC in its order dated 31<sup>st</sup> July 2017 in the matter of inadequate primary response from the generator directed the following:

- i. Close monitoring by CERC
  - a. ISGS by RLDC/NLDC
  - b. Intra-state by SLDC
- ii. RGMO/FGMO has to be tested.
- iii. Generator has to compulsorily provide primary response
- iv. Even for old machine, no provision for exemption and have to provide adequate primary response.

**Annexure-VII**

**Quarterly Cyber Preparedness Monitoring Report**

**( Status as on : \_\_\_\_\_ )**

S. No.	State	Sector ( G/T/D)	Utilities	Status of CISO Nomination	Critical Infra Identified	Crisis management Plan Prepared	Status of CS mock drill	Status of Training/ Workshop s organized/ participate d by utility	Action taken on CERT- In/NCIIPC Advisories
1									

**Annexure-VIII**

**Procedure and Timelines for Freezing of Regulatory Accounts Issued by NRPC Secretariat**

1. The objective of finalisation and freezing of accounts within specific time limits is to create/streamline mechanisms of verification, checking, and input data submission etc. of stakeholders so that it is done in a time bound manner by all concerned.
2. The following Regulatory accounts are being issued by NRPC secretariat based on the NRLDC /NLDC input data:
  - i. Regional Energy Account.
  - ii. Regional Transmission Account.
  - iii. Regional Transmission Deviation Account.
  - iv. Deviation Settlement Account
  - v. Reactive Energy Account.
  - vi. Ancillary Services Account (RRAS Account).
  - vii. Congestion Charge Account.
  - viii. Interest Statements of accounts.
3. Any revision request of schedule data, meter/actual data, and data for bilateral exchange, LTA, MTOA, STOA etc. may be done within 15 days from the date of issuance of the account (D). After (D+15)<sup>th</sup> day, the data will be considered as final and after this date no revision of data will be accepted. All Input data used in the preparation of accounts shall be frozen after (D+15)<sup>th</sup> day.
4. The input data shall inter alia include the following:
  - i. Special energy meter/ Interface meter data of NRLDC.
  - ii. Schedule data of NRLDC consisting of inter-regional schedules, long term, medium term, short term, power exchange and transmission loss data etc.
  - iii. CT/PT ratio data as available on NRLDC website. Any discrepancy shall be communicated to NRLDC immediately otherwise CT/PT ratio given at NRLDC website shall be treated as verified and correct and no correspondence on this issue shall be entertained. Therefore, utilities submitting this data must ensure they have mechanisms in their organization that ensures any change in CT/PT is promptly conveyed to NRLDC separately. These utilities are responsible in case they fail to inform the changes in time and accounts get closed.
  - iv. It is the responsibility of the utility concerned to ensure that the time drift is within permissible limit and where ever, the drift is beyond the permissible limit, the same shall be corrected immediately.

v. Approved Injection/withdrawal and PoC slab rate submitted by NLDC.

5. The following timelines shall be followed for the issuance and verification of accounts and input data:

For Weekly & Monthly Accounts:

- All the concerned entities shall verify the data and correctness of the accounts, in all respects. All errors pertaining to the input data shall be intimated to respective nodal agency i.e. NLDC or NRLDC, as the case may be, within 15 days of issuance of the account.
  - If there is any change/revision in input data, then NLDC/NRLDC shall intimate NRPC Secretariat, after receipt of revision request from entities. NLDC/NRLDC shall submit revised/amended data within 7 days after closer of revision request window i.e. within (D+15+7)<sup>th</sup> days. NLDC/NRLDC shall endeavour to develop a mechanism to generate a unique revision request ID for each and every revision request. So that systematic disposal of issues can be ensured.
  - After the receipt of revised data from NLDC/NRLDC, NRPC Secretariat shall issue the final account within 7 days i.e. (D+15+7+7)<sup>th</sup> day (say D<sub>final</sub>).
  - In case of error in account except due to input data (incomplete/erroneous data), the concerned entity shall intimate NRPC Secretariat within D+15 days. NRPC Secretariat shall issue the revised account within 14 days i.e. by D<sub>final</sub>.
  - This final account will be opened for analysis by the concerned entities for 15 days, only for any error in preparation of account. However, no revision of input data shall be considered during this period. NRPC Secretariat shall issue revised account in case any error is reported, within 4 working days of closing of this window or along with the next account. If no comment is received, then the account will be considered as final and frozen on (D<sub>final</sub>+15<sup>th</sup>) day. No revision due to any reason except due to any legal/regulatory changes will be made once the account is frozen.
6. For quarterly interest statements, the revision request window will be open for 15 days from issuance of the statement. Rest of the timelines will remain same as mentioned above.
7. All entities should ensure the verification of their input data and accounts within the time limit as described above and inform immediately to NRPC secretariat/ NRLDC/ NLDC, as the case may be, for any discrepancy.
8. It is the responsibility of every entity to check the correctness of data used in accounting and also point out errors in the accounts/statements if any. In case no representation is received from any entity for the input data and calculation of regulatory accounts before the finalisation of accounts, the input data and regulatory accounts issued shall be deemed as correct/ verified and closed.
9. No correspondence to reopen the accounts shall be entertained once the accounts have been frozen, except in case of regulatory and judicial directions.