



सत्यमेव जयते

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

संख्या: उ.क्षे.वि.स./वाणिज्यिक/209/आर.पी.सी.(44वीं)/2019/5266-5360 दिनांक: 21.05.2019

सेवा में,

उ.क्षे.वि.स./तकनीकी समन्वय उप-समिति के सभी सदस्य
Members of NRPC/TCC

विषय: उत्तर क्षेत्रीय विद्युत समिति की 44^{वीं} तथा तकनीकी समन्वय उप-समिति की 41^{वीं} बैठक का कार्यवृत्त।

Subject: 44th meeting of Northern Regional Power Committee and 41st meeting of TCC - Minutes.

महोदय,

उत्तर क्षेत्रीय विद्युत समिति की 44^{वीं} बैठक दिनांक 19 मार्च 2019 को तथा तकनीकी समन्वय उप-समिति की 41^{वीं} बैठक दिनांक 18 मार्च 2019 को उदयपुर, राजस्थान में आयोजित की गई थी। इन बैठकों के कार्यवृत्त की प्रति आपकी सूचना व आवश्यक कार्यवाही हेतु इस पत्र के साथ संलग्न है।

The 44th meeting of Northern Regional Power Committee was held on 19th March 2019 and 41st meeting of Technical Coordination Sub-Committee (TCC) was held on 18th March 2019 in Udaipur, Rajasthan. Copy of the minutes of meetings is enclosed herewith for information and necessary action.

संलग्नक: यथोपरि

नरेश भंडारी
(नरेश भंडारी) 21/5/19
सदस्य सचिव

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44. Sh. C.N. Singh, COO, Talwandi Sabo Power Ltd. Distt: Mansa, Punjab-151302(Fax: 01659-248083)
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48. Representative of Prayagraj Power Generation Co. Ltd.
49. Representative of BRPL (Delhi Private Discom)
50. Representative of Bajaj Energy Pvt Ltd (Member IPP < 1000 MW)
51. Representative of Kreate Energy Pvt Ltd (Member Trader)

List of TCC Members

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21. Director (Technical), RRVUNL, Jaipur-302005, (Fax-0141-2740633)
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23. Director (Opn), UPPTCL, Lucknow-226001, (Fax-0522-2286476)
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39. DGM (Commercial), Jhajjar Power Ltd., Haryana, (Fax-01251-270105)
40. WTD, Lanco Anpara Power Ltd., (Fax-124-4741024)
41. Addl. Vice President, Rosa PSCL , (Fax-05842-300003)
42. Director (Technical) JSW Energy Ltd., New Delhi (Fax: 48178740)
43. Station Head, Adani Power Rajasthan Ltd., Ahmedabad-380006 (Fax No- 079-25557176)
44. GM(Corporate Affairs), Talwandi Sabo Power Ltd. Distt: Mansa, Punjab-151302(Fax: 01659-248083)
45. President, Lalitpur Power generation Company Ltd., Noida-201301(Fax: 0120-4045100/555, 2543939/40)
46. ED (Marketing), PTC India Ltd., New Delhi (Fax- 011-41659144,41659145)
47. Head (O&M), Nabha Power Limited, (Fax: 01762277251 / 01724646802)(email: ravindersingh.lall@larsentoubro.com)
48. Representative of Prayagraj Power Generation Co. Ltd.
49. Representative of BRPL (Delhi Private Discom)
50. Representative of Bajaj Energy Pvt Ltd (Member IPP < 1000 MW)
51. Representative of Kreate Energy Pvt Ltd (Member Trader)

Special Invitee:

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

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उत्तर क्षेत्रीय विद्युत समिति

NORTHERN REGIONAL POWER COMMITTEE

MINUTES

OF

41st MEETING OF TECHNICAL COORDINATION SUB-COMMITTEE

&

44th MEETING OF NORTHERN REGIONAL POWER COMMITTEE

41st TCC & 44th NRPC meetings were held on 18th & 19th March 2019 respectively at Udaipur, Rajasthan. The meeting was hosted by APCPL, Jhajjar. The list of the Participants is enclosed at **Annex-I and II**. Shri A. K. Kapoor, Director (Technical), PSTCL chaired the TCC meeting. Shri A. Venu Prasad, CMD, PSTCL, chaired the NRPC meeting.

PROCEEDINGS of 41st TCC MEETING

Shri C.K Samanta, GM, APCPL, Jhajjar welcomed the members and participants to the 41st TCC meeting and stated that it was their privilege to host this meeting. Shri Pankaj Mendiratta, AGM, APCPL Jhajjar gave a brief presentation regarding the history of APCPL and various CSR activities being carried out by them. He also gave a presentation on the Tariff Regulations 2019-24 issued by CERC on 7th March 2019.

Shri A.K. Kapoor, Director (Technical), PSTCL and Chairperson TCC extended his hearty welcome to all the delegates attending the 41st TCC meeting. He expressed satisfaction that during winter season, the Northern region was successful in meeting the demand without any significant event affecting grid security, despite few incidents of fog related trippings. He requested all SLDCs to ensure that in normal day to day operation, staggering of load, especially the agricultural load must be adopted to avoid sudden variation of load in large quantum, which is violation of Indian Electricity Grid Code.

Shri. Kapoor also pointed that a lot of utilities have raised issues regarding implementation of DSM 4th amendment in the TCC agenda. Punjab is also bearing the brunt of sustained deviation charges introduced in DSM 4th amendment mostly due to SEM and SCADA mismatch. He expressed hope that the forum can give concrete suggestions to tackle this issue.

Shri. M.A.K.P. Singh, Member Secretary, NRPC welcomed all the participants of 41st TCC meeting of NRPC. He highlighted that the issue of non-reliable communication and telemetry system is under discussions, since a long time, in NRPC forum. Efforts are being

made but, the intended results are yet to be achieved. The SCADA & telemetry is eye & ear of the power system. The crucial decisions of real time grid operation are taken on the basis of information from this system only. Non-availability of complete and correct information may result in wrong decision resulting in compromise in grid safety as well as severe financial repercussions after implementation of DSM 4th amendment. He requested that more concerted efforts be made to ensure the reliable telemetry, keeping in view it's operational as well as commercial importance.

In the end he thanked Shri C.K. Samantha, GM, APCPL, Jhajjar and his team of officers for hosting the meeting and for making excellent arrangements for comfortable stay of the members and participants at Udaipur.

PROCEEDINGS OF 44th MEETING OF NRPC

Member Secretary, NRPC welcomed the members and participants to the 44th NRPC meeting. He informed the forum that the agenda items were discussed in details in the TCC meeting. He expressed hope that most issues raised by utilities have been resolved.

Shri A. Venu Prasad, CMD, PSTCL and Chairperson NRPC expressed his happiness over the fact that during the past few months, no major grid incident has occurred in the northern region. Considering the ensuing summer, he requested all the utilities to adhere to the plan highlighted by NRLDC in the TCC meeting so that the peak demand in summer season can be met without load shedding.

He highlighted that several policy & regulatory developments have taken place in the Indian power sector in the last few months like DSM 4th amendment, Tariff Regulations 2019-24, SCED pilot project to be implemented from 01st April 2019. He urged NRPC Sectt and NRLDC/NLDC to share the details of these developments with the members during the meeting for a healthy deliberation.

Shri P.S. Mhaske, Member (GO&D) and Chairperson, Central Electricity Authority expressed his happiness at attending the NRPC meeting and felt like a homecoming on account of his long association with NRPC. He stated that the Northern region has proved to be a leader in adoption of technology in the Grid, particularly that of ULDC scheme and polymers insulators in high pollution pockets and now the Grid is more safe secure and reliable as compared to a decade earlier. However new challenges keep coming in the power sector. To cope up the challenges of large-scale integration of renewable, CEA has recently notified amendment in the connectivity standards. Provisions of LVRT, which were applicable to 66 kV and above have been modified so as to be applicable for 33 kV voltage level as well. The wind and solar plants shall also provide primary frequency response in future.

Further amendments in the Distributed Generation Resources Regulations have also been notified in Feb 2019. The name of these regulations has also been changed now and

they will be now called technical standards for connectivity below 33 kV. The emphasis in the said amendments has been largely on power quality, visualizing future grid scenario with advent of Charging stations of Electrical Vehicles.

Shri Mhaske highlighted that in FY 2018-19 a growth of 5.3 % in energy requirement and 7.9 % in peak demand was observed till Feb 2019. However, during Jan – Feb 2019 the demand has not picked up due to extended winters. He stated that one of the important agenda points is islanding of Delhi. With de-commissioning BTSPS and commissioning of Tughlakabad S/s, Delhi islanding needs designing. Further GTs are also going to complete their PPA in March 2020. The old units may be utilized as synchronous condenser mode in the interest of Grid security. A study in this regard may be undertaken.

CONFIRMATION OF MINUTES (TCC)

A.1 Minutes of 40th meeting of TCC

Member Secretary, NRPC informed the Committee members that the minutes of 40th meeting of TCC held on 29th October, 2018, were circulated vide letter No. NRPC/Comml/209/RPC(43rd)/2018/1066-1113 dated 06th February, 2019.

POWERGRID vide letter dated 28.02.2019 (enclosed as Annexure–A.1.1 of Agenda) has requested to amend the point C.28.2. MS, NRPC informed that minutes are recorded as informed by representative of POWERGRID in the meeting. However, additional information as provided would also be recorded as along with original statement in minutes. Accordingly, C.28.2 is amended as under:

Representative of POWERGRID informed that work at Kishanganga work held up due to non-payment of outstanding by J&K. MS NRPC requested POWERGRID to complete the pending work and assured to take up the payment issue with J&K authorities. Representative of POWERGRID informed that availability of communication equipment at Kishanganga are to be provided by NHPC, for integration of communication equipment installed at POWERGRID, Wagoora sub-station.

Representative of NLDC also submitted comments on the minutes during the meeting, which were to be incorporated in minutes. Accordingly, B.2.9 and B.2.10 amended as under:

*B.2.9 MS, NRPC clarified that all details sought by TESG has already been considered by CPRI in their previous study and details made available with the proposal for PSDF funding submitted by the utilities. **If TESG wants the input file of the study, the same shall be made available.***

*B.2.10 **Based on the decisions of TESG, NLDC have written to all RPCs to work out the requirement of the capacitors similar to the initiative taken by NRPC for working out requirement of capacitors banks based on the system studies***

Members concurred the amended minutes.

CONFIRMATION OF MINUTES (NRPC)

A.2 Minutes of 43rd meeting of NRPC

Member Secretary, NRPC informed the Committee members that the minutes of 43rd meeting of NRPC held on 30th October, 2018, were circulated vide letter No. NRPC/Comml/209/RPC(43rd)/2018/1066-1113 dated 06th February, 2019.

Further, it was intimated that proposed amendment of point C.28.2, B.2.9 and B.2.10, as per the comments of POWERGRID and NLDC, has been concurred by TCC

Members confirmed the amended minutes.

B. OPERATIONAL ISSUES

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

TCC Deliberation

B.1.1 Representative of POWERGRID informed that implementation revised SPS for 765 kV Agra-Gwalior line has been completed. MS, NRPC requested POWERGRID that mock testing for the scheme may be carried out at the earliest in coordination with NRPC/NRLDC and other concerned utilities.

NRPC Deliberation

B.1.2 NRPC noted the deliberations of TCC and advised POWERGRID to carry out mock testing at the earliest.

B.2 System Study for Capacitor Requirement in NR for the year 2019-20.

TCC Deliberation

B.2.1 MS, NRPC informed that agenda is being discussed since long, but no fruitful solution has been reached. He told that it was decided in 157th OCC meeting that all utilities would submit the data to CPRI in the required format by 30th March, 2019. Else, manpower would be engaged to collect the data for which charges has to be paid by the concerned utility.

B.2.2 Representative of Delhi informed that data would be submitted by the end of March. Representative of HP and Haryana stated that they had submitted to CPRI as sample, once it was ratified, complete data would be shared.

B.2.3 It was requested to all the utilities that data to be submitted by the end of March. MS, NRPC informed that utilities which fails to submit the data, manpower would be engaged to collect the data for which charges has to be paid by the concerned utility,

B.2.4 Representative of NLDC told that Capacitor DPRs which were deemed returned may be submitted again with clarifications/inputs on all the concerns raised by TESG (*Techno Economic Sub Group*). He further informed that regarding PSDF funding

status of bus reactor at Nakodar & Dhuri, PSTCL, concurrence from CERC has been received on 13.03.2019 and sanction order may be issued by MoP anytime.

- B.2.5 MS, NRPC requested all utilities that clarification as sought may be submitted at the earliest, so that DPR may be processed further.

NRPC Deliberation

- B.2.6 NRPC noted the deliberations of TCC.

B.3 Reactive compensation at 220/400 kV level

TCC Deliberation

- B.3.1 Representative of PSTCL informed that tender has been cancelled for Nakodar and Dhuri reactors on 28.02.2019 due to pending PSDF approval. NLDC informed that monitoring committee has approved the reactors, further concurrence has also been given by CERC and sanction order would be issued shortly by MoP.
- B.3.2 PSTCL intimated that process of retendering would be done within 3 months, once funding from PSDF is received.
- B.3.3 Representative of POWERGRID informed that few of the reactors as mentioned in annexure B.3.1 of agenda are to be done by POWERGRID, instead of through TBCB as per the order of MoP and details of the same would be shared with NRPC/NRLDC.
- B.3.4 It was also informed that completion schedule for 500 MVAR TCR is 24 months and efforts would be taken to squeeze the same into 22 months.
- B.3.5 Representative of DTL informed that Peeragarhi, Mundka and Harsh Vihar reactors were approved in their Board, and would be further processed for PSDF funding. He informed that proposal for remaining reactors have been prepared and it would be approved in their board at the earliest.
- B.3.6 Representative of Rajasthan informed that clarifications as sought by TESSG were submitted vide letter dated 01.03.2019.

NRPC Deliberation

- B.3.7 NRPC was briefed about the status of Reactive compensations and noted the deliberations of TCC.

B.4 Creation and maintenance of web-based Protection Database Management and PC based Protection setting calculation tool for Northern Region Power System Network.

TCC Deliberation

- B.4.1 MS, NRPC informed that retendering has been done as 2 bids out of 3 bids received were found to be non-responsive at the time of Bid opening. The retendering has been done on 10.12.2018. The bid was opened on 11.01.2019 wherein 2 bids are received which are under Technical evaluation.

NRPC Deliberation

- B.4.2 NRPC noted the deliberations of TCC.

B.5 LVRT compliance by wind generation

TCC Deliberation

- B.5.1 Rajasthan informed that petition has been filed by Rajasthan Gum Pvt Ltd in RERC and next hearing for the petition is scheduled to be held on 26.03.2019. He told that petitioner has requested to allow funding through PSDF as cost for LVRT is very much high.
- B.5.2 MS, NRPC stated that as matter is already under consideration at regulatory commission, hence it shouldn't be deliberated in this forum. He further informed that on 6th February 2019, CEA Technical Standards for connectivity to the Grid (amendment) regulations 2019 has been notified. As per the amended regulation, wind generating stations, wind-solar PV hybrid systems, energy storage systems and stations using inverters, getting commissioned after six months from the commencement of amended regulation, are required to have frequency response capability (generating stations with installed capacity of more than 10 MW connected to 33 kV & above), LVRT facility, HVRT facility and SCADA facility (Generating stations of 500 MW & above capacity). For remaining generating stations, earlier regulation will be applicable.

NRPC Deliberation

- B.5.3 NRPC noted the deliberations of TCC.

B.6 Augmentation of 1 x 1500 MVA, 765/400 kV ICT (3rd) at Moga S/s and Provision of 125 MVAR bus reactors each at Jalandhar & Patiala

TCC Deliberation

- B.6.1 Representative of PSTCL strongly objected augmentation of 1×1500 MVA, 765/400 kV ICT (3rd) at Moga S/s and informed that matter has been reverted back to Northern Region Standing Committee on Transmission (NRSCT) vide letter dated 06.12.2018. He informed that there are 2 no. of 500MVA, 765/400 kV transformer at Moga S/s which are have loading of 18% at present and further informed if 3rd transformer as proposed is commissioned, the fault level will breach 50kA as per studies. Further, he told that currently, entire ISTS injection is in west of Punjab, due to which entire 220kV network is strained. He stressed that this proposal isn't suitable for Punjab.
- B.6.2 He raised a question on how regulators were approached when minutes of the meeting were yet to be confirmed. He requested that approval for the augmentation might not be granted by NRPC forum until issue is resolved.
- B.6.3 Representative of POWERGRID informed that there is no conversion of substation into GIS, it is only GIS switchgear with GIB interconnections. He also told that with existing system, LTA of 3330 MW has been granted at Bhadla and Fatehgarh and power flow would be Bhadla-Bikaner-Moga and 3500 MW power flow is expected on 765kV Bikaner-Moga. As there is no evacuation at 765 kV level at Moga S/s, the power has to be flown through 400 kV and 3rd ICT requirement couldn't be ruled out.

B.6.4 TCC chairperson stated that as matter has been already referred back to NRSCT, it couldn't be approved by this forum.

NRPC Deliberation

B.6.5 NRPC was apprised about the concerns of PSTCL and it was informed that matter has already been referred back to NRSCT. Representative of POWERGRID stated that detailed studies have been carried out for proposing the augmentation and there was no conversion of substation into GIS, it was only GIS switchgear with GIB interconnections. He requested for in-principle approval of NRPC subject to decision of standing committee considering timeline to follow.

B.6.6 NRPC in-principle approved 125 MVA bus reactors subject to final approval regarding AIS or GIS reactor and their location from standing committee considering space constraint. NRPC referred issue of 3rd ICT at Moga S/s back to Standing Committee for its approval after which it may be deliberated again.

B.7 Issue of evacuation constraints in Chhabra, Kalisindh & Kawai Generation Complex

TCC Deliberation

B.7.1 Representative of Rajasthan informed that they agree with the proposal as approved in 2nd NRSCT and they would further study the proposal for planning work execution.

NRPC Deliberation

B.7.2 NRPC noted the deliberations of TCC.

B.8 Downstream network by State Utilities from ISTS Stations (Agenda by POWERGRID)

B.8.1 Augmentation of transformation capacity in various existing substations as well as addition of new substations along with line bays for downstream network are under implementation at various locations in Northern Region. For utilization of these transformation capacities, implementation of downstream 220 kV system needs to be commissioned:

S. No.	Substation	Downstream network bays	Commissioning status of S/s / Transformer	Planned 220 kV system and Implementation Status
1	400/220 kV, 3x315 MVA Samba	2 nos. bays utilized under ISTS. Balance 4 Nos. to be utilized	Commissioned (1 st & 2 nd –Mar'13 3 rd –Oct'16) Bays-Mar'13	<ul style="list-style-type: none"> LILO of 220 kV Bishnha – Hiranagar D/c line. Target completion - Nov, 2019. 220 kV D/c Samba (PG) – Samba (JKPDD) approved in 1st NRSCT.
2	400/220kV, 2x315 MVA New Wanpoh	6 Nos. of 220 kV bays to be utilized	Commissioned in Jul'14 Bays-Jul'14	<ul style="list-style-type: none"> 220 kV New Wanpoh -Mirbazar D/c line. Target completion – March, 2019. 220 kV Alusteng - New Wanpoh Line.

S. No.	Substation	Downstream network bays	Commissioning status of S/s / Transformer	Planned 220 kV system and Implementation Status
				Target completion - March, 2019.
3	400/220 kV, 2x315 MVA Parbati Pooling Station (Banala)	2 Nos. of 220 kV bays to be utilized.	Commissioned in Dec'17	<ul style="list-style-type: none"> • 220 kV Charor- Banala D/c line (18 km). Target completion –yet to be updated.
4	400/220 kV, 2x500 MVA Kurukshetra (GIS)	8 nos. of 220 kV bays to be utilized	Commissioned in Mar'17.	<ul style="list-style-type: none"> • LILO of one circuit of Kaul-Pehowa 220 kV D/c line at Bhadson (Kurukshetra). • LILO of one circuit of Kaul-Bastara 220 kV D/c line Bhadson(Kurukshetra). Target completion – 31.12.2018. • 220kV D/c Bhadson (Kurukshetra) – Salempur with HTLS conductor equivalent to twin moose. Target completion - 31.03.2020.
5	400/220 kV, 2x500 MVA Bagpat GIS	8 nos. of 220 kV Downstream lines commissioned . Balance 3 Nos. of 220 kV bays to be utilized.	Commissioned in Mar/Jun'16	<ul style="list-style-type: none"> • Bagpat(PG) - Modipuram-II 220 kV D/c line. Target completion - Jan'20. • LILO of 220 kV S/c Muradnagar II –Baghpat (PG) at Baghpat SS. Target completion- Mar'19
6	400/220 kV, 2x315 MVA Saharanpur	All 6 nos. 220 kV bays utilised.	Commissioned in May'16	<ul style="list-style-type: none"> • LILO of Khara-Shamli 220 kV S/C line at SRN(PG). • 220 kV SRN(PG)-Sarasawa D/C Line. • LILO of SRN-Nanauta 220 kV S/C line at SRN(PG).
7	400/220 kV, 2x315 MVA Dehradun	Out of 6 bays, only two bays used. Balance 4 bays to be utilised.	Commissioned in Jan'17	<ul style="list-style-type: none"> • 220 kV Dehradun-Jhajra line. Target completion: Nov, 2021
8	400/220 kV, 2x315 MVA Sohawal	4 Nos 220 kV bays utilized. 2 Nos 220 kV bays to be utilized.	Commissioned in Jun'12	<ul style="list-style-type: none"> • 220 kV D/C Sohawal (PG) – New Tanda line. Target completion- yet to be updated.
9	Shahjahanpur, 2x315 MVA 400/220 kV	Partially utilized. Balance 5 Nos. of 220 kV bays to be utilized.	Commissioned in Jun/Sep'14	<ul style="list-style-type: none"> • 220 kV D/C Shajahnapur (PG) - Azizpur D/C line. Target completion - Sept, 2019. • 220 kV D/C Shahjahanpur (PG) - Gola Lakhimpur line. Target completion - Sep, 2019.
10	02 nos. bays at Moga	Partially utilized.	Commissioned in Jun'15.	<ul style="list-style-type: none"> • Moga–Mehalkalan 220 kV D/c line.

S. No.	Substation	Downstream network bays	Commissioning status of S/s / Transformer	Planned 220 kV system and Implementation Status
		Balance 2 nos. of 220kV bays to be utilized.		Target completion – yet to be updated.
11	Hamirpur 400/220 kV 2x 315 MVA Sub-station (Augmentation by 3x105 MVA ICT)	2 nos. bays utilized under ISTS. Balance 6 nos to be utilized	1 st -Dec'13, 2 nd – Mar'14 & 3 rd - Mar'19. 4 bays-Dec'13, 2 bays-Mar'14 2 bays-Mar'19	<ul style="list-style-type: none"> 220 kV D/C Hamirpur-Dehan line. Target completion - Apr, 2020.

Members were requested to update the status and expedite the downstream system.

B.8.2 Establishment of new 400/220 kV substations in Northern Region:

Sl. No.	Name of Substation	MVA Capacity	Expected Schedule	Downstream connectivity furnished by States in 40 th SCSPNR
1	400/220kV Dwarka-I GIS (8 nos. of 220kV bays)	4x 500	Sep'19	DTL to update.
2	220/66kV Chandigarh GIS (8 nos. of 66kV bays)	2x 160	Jun'19	Chandigarh to update.
3	400/220kV Jauljivi GIS Out of these 8 nos. 220kV Line Bays, 4 nos. (Pithoragath-2, & Dhauliganga-2) would be used by the lines being constructed by POWERGRID and balance 4 nos. (Almora-2, Jauljivi-2) bays would be used by the lines being constructed by PTCUL.	2x315	Dec'2019	<ul style="list-style-type: none"> 220kV Almora- Jauljivi line. 220kV Brammah- Jauljivi line PTCUL to update.
4	400/220kV Sohna Road Sub-station (TBCB) (8 nos. of 220kV bays)	2x500	May'19	<ul style="list-style-type: none"> LILO of both circuits of 220kV D/c Sector-69 - Roj Ka Meo line at 400kV Sohna Road. LILO of both circuits of 220kV D/c Badshahpur-Sec77 line at 400kV Sohna Road. HVPNL to update.
5	400/220kV Prithla Sub-station (TBCB) (8 nos. of 220kV bays)	2x500	May'19	<ul style="list-style-type: none"> LILO of existing 220kV Palwal–Rangala Rajpur D/c line at Prithla. Target completion -

Sl. No.	Name of Substation	MVA Capacity	Expected Schedule	Downstream connectivity furnished by States in 40 th SCSPNR
				March 2020. • 220 kV D/c Prithla (400) –Sector-78, Faridabad S/s. Target completion - July 2020. HVPNL to update.
6	400/220kV Kadarapur Sub-station (TBCB) (8 nos. of 220kV bays)	2x500	May'19	• M/s Sterlite has been asked to change the orientation of LILO in order to ensure the proper emanation of 220 kV line. HVPNL to update.

States were requested to update the details of planned downstream network along with implementation status for utilisation of the ISTS substation.

B.9 Certification of Non-ISTS line for inclusion in PoC Charges

TCC Deliberation

- B.9.1 MS, NRPC requested all the utilities except Rajasthan to submit the claims/re-claims of Non-ISTS lines carrying ISTS power for inclusion in PoC charges for FY 2019-by 31.03.2019. He informed that in the 156th OCC meeting, HPPTCL has brought an agenda item seeking to amend the methodology for certification of non-ISTS lines for carrying ISTS power by considering the scenario of all the 04 quarters of previous year. Accordingly, NRLDC was requested to carry out the studies by considering the scenario of all the 4 quarters of previous year.
- B.9.2 Representative of NRLDC informed that 4 quarters were considered for calculations; however, it was found that usage for the transmission lines as ISTS in less than 50%.
- B.9.3 Representative of HPPTCL told that they would like to sit with NRLDC and go through the study, look through procedure etc. TCC, Chairperson suggested that study may be carried out for 4 quarters only. Representative of HPPTCL concurred with the same.

NRPC Deliberation

- B.9.4 NRPC approved that studies may be carried out considering all 4 quarters for certifying non-ISTS lines carrying ISTS power for inclusion in PoC charges. MS, NRPC requested that Non-ISTS lines carrying ISTS power for inclusion in PoC charges for FY 2019 may be submitted by 31st March, 2019.

B.10 Phase nomenclature mismatch between BBMB and some interconnected stations of other power utilities

TCC Deliberation

- B.10.1 MS, NRPC informed that site visit couldn't be planned due to inadvertent reasons. He assured that site visit with all the members would be planned at the earliest. He also requested if any financial implications were included in the works, same need to be brought up by POWERGRID/BBMB, so that same could be discussed for earliest completion of the work and might be taken care by POWERGRID or BBMB.
- B.10.2 Representative of POWERGRID stated that there might be some issues in the work such as design constraint of tower, de-stringing and re-stringing of conductors etc. which would be clarified at the time of site visit and decision of committee would be implemented

NRPC Deliberation

- B.10.3 NRPC noted the deliberations of TCC.

B.11 Follow up of Major Decisions of NRPC

Sl. No.	Name of the Project /Decision taken	Meeting in which Approval was granted/ Decision was taken	Updated Status
1.	Automatic Meter Reading (AMR) for SEMs	13 th NRPC meeting held on 24 th June 2009.	<p>Total SEM/locations as per LOA, phase-I: 1250 SEM/220 Locations phase-II: 575 SEM/150 DCU</p> <ul style="list-style-type: none"> No. of Energy meters for which AMR commissioned: 1320 SEM/266 DCU Total locations for which data is received: 150 locations No. of Energy meters for which data is being received at NRLDC: 1065 SEM <p>Percentage availability of data: 82% on SEM basis and 73% on location basis.</p> <p>In the 139th OCC meeting on the issue of provision of the prospective plan of 5 minute' scheduling in the AMR, POWERGRID representative expressed their inability to get modifications done for 5 minutes' scheduling. They further stated that once the regulation is notified they will take further necessary action.</p> <p>In 37th CSC meeting, it was decided that POWERGRID will complete the project by 31st Oct-2018. However, at present only 1409 out of 1825 meters have been integrated. NRPC had requested POWERGRID to expedite work progress to complete AMR integration project by Dec'2018 as agreed in 37th CSC meeting.</p> <p>As per point C.19.1 & C.19.2 of 42nd NRPC & 39th</p>

Sl. No.	Name of the Project /Decision taken	Meeting in which Approval was granted/ Decision was taken	Updated Status
			<p>TCC minutes of meeting, it was decided that POWERGRID will arrange the demonstration of integration of Elster meter by 15th July 2018. Further, in the 37th CSC meeting, it was intimated by M/s Kalkitech that they have completed all the activities for integration of these meters through AMR and are ready for testing the same and testing is scheduled to be completed by 31.10.2018.</p> <p>In the 37th CSC meeting, POWERGRID informed that switching work is in progress to connect 70 stations of POWERGRID where minimal cost is required. Work completed at 19 stations. Cost estimate can be submitted only after survey of complete stations.</p> <p>In 41st TCC/44th NRPC, POWERGRID informed that they have engaged another party for integrating meters and they would be testing at 3 sit at the earliest.</p>
2.	Provision of Bus Reactors in Northern Region to Control Over Voltages	Provision of Bus Reactors in Northern Region to Control Over Voltages	<p>Out of 17 no. reactors at 15 locations, 12 no. reactors at 10 locations have been commissioned. The status of reactors was as under:</p> <p><u>Nathpa-Jhakri (1x80 MVAR):</u> Scheduled Commissioning – yet to be updated.</p> <p><u>Chamera-I (1x125 MVAR):</u> Charged on 25 August 2018</p> <p><u>Parbati-II (1x125 MVAR) and Parbati-III (1x80 MVAR):</u> NHPC informed that there is no space at Parbati-III and as such reactors will be installed at Parbati- II. Reactors at Parbati-II will be commissioned along with the commissioning of the project in 2018-19. The case for purchase of reactor is under tendering process.</p>
3.	Transmission system associated with Kishenganga HEP. Kishenganga – Wagoora 220 kV D/c	33 rd Standing Committee Meeting held On 23/12/2013	<p>POWERGRID had informed that completion schedule of Transmission system associated with Kishenganga HEP had been delayed due to unrest in Kashmir.</p> <p>The revised schedule was:</p> <ul style="list-style-type: none"> • Kishenganga – Wagoora 220kVD/c line - (expected by April, 2019)
4	Unified Real Time Dynamic State Measurement (URTDSM) Scheme.	Approved in 27 th NRPC meeting held on 13 th July, 2012 & 30 th November,	<ul style="list-style-type: none"> • Supply: Completed (114 Sub-stations). • PMUs at 112 S/S have been installed and 102 S/S are integrated with NRLDC/SLDCs. • WAMS System Commissioned in NRLDC & SLDCs of Northern Region.

Sl. No.	Name of the Project /Decision taken	Meeting in which Approval was granted/ Decision was taken	Updated Status
		2012	<ul style="list-style-type: none"> • Out of 6 Analytic Software which are being developed by IIT Bombay, 4 have been deployed at NRLDC, Prototype for one application is being tested and remaining one is under development. • In 41st TCC/44th NRPC, NRLDC informed that bugs are being observed in software and they are still in testing version. • POWERGRID informed that software was rectified in SR and 5 out of 6 are expected to be functional in NR by April, 2019. • Installation of Line Parameter Estimation, Vulnerability Analysis of Distance Relay, Supervised Zone-3 Distance Protection, Linear State Estimator is done for NRLDC & Delhi, installation at SLDCs under progress.
5.	Fiber Optic based communication system in NR and Additional OPGW connectivity in Northern Region under fiber optic expansion project	18 th NRPC meeting held on 27th November, 2010 and 28th NRPC meeting held in 22nd March, 2013	<p>POWERGRID informed that Work on all packages would be completed by August 2017.</p> <ul style="list-style-type: none"> • Fibre Optic Connectivity under Central sector (5193/5203 Kms) has been completed. Uri-Uri-II link (10kms) could not be completed due to severe ROW issues. • OPGW connectivity under State Sector & Additional requirement of Central Sector is under progress and same shall be completed progressively. <p><u>NR-I & NR-III :</u> State Sector Completed - 621 Kms Central Sector (Addi. Req): 1350 Kms out of 1643 completed.</p> <p>The agenda was deliberated in detail at C.8.</p>
6.	Rectification of deficiencies coming out of Basic Protection Audit carried out by CPRI in association with POWERGRID	27 th NRPC meeting held in November 2013	-
7.	Third party Protection audit of intra-state system / balance system not covered in Basic Protection Audit	27 th NRPC meeting held on 30th November, 2012.	In 40 th TCC/ 43 rd NRPC meeting, representative of UPPTCL informed that CPRI is working on this and detailed report will be submitted by June, 2019.

Sl. No.	Name of the Project /Decision taken	Meeting in which Approval was granted/ Decision was taken	Updated Status
8.	Planning, procurement and deployment of Emergency Restoration System.	In the 34 th NRPC meetings 20 th held on March, 2015	<ul style="list-style-type: none"> • DTL, PSTCL, UPPTCL and J&K - 02 nos. of ERS procured. • RRVNL - Rajasthan informed that NIT has been floated on 10.01.2019 for procuring ERS and bids were opened on 10.03.2019 for technical evaluation. • HVNL - BOQ finalization is under process. • PTCUL - DPR finalization is under process • HPSEBL - The process of arranging funds for procurement of ERS has been initiated. HPSEBL representative intimated that they were coordinating with PTCUL. He was advised to coordinate with J&K, citing the status of PTCUL • BBMB - BBMB representative stated that the issue will be taken up in the Power Sub – Committee as the partner states do not have their ERS from which it was earlier proposed to be utilized. <p>Note: CEA (Grid Standards) regulations 2006, regulation No. 22 stipulates that each transmission licensees shall have an arrangement for restoration of transmission lines of 400 kV and above & strategic 220 kV lines through the use of ERS in order to minimize the outage time of transmission lines in case of tower collapse. Also Ministry of Power has directed that for each 5000 ckt km, ERS is required.</p>

B.11.1 Planning, Procurement & Deployment of Emergency Restoration System (ERS) – (Agenda by BBMB)

TCC Deliberation

B.11.2 MS, NRPC stated that as per CEA (Grid Standards) regulations 2006, regulation No. 22, each transmission licensees shall have an arrangement for restoration of transmission lines of 400 kV and above & strategic 220 kV lines through the use of ERS in order to minimize the outage time of transmission lines in case of tower collapse. Also, Ministry of Power has directed for at least one ERS for each 5000 Ckt. Km. Hence, it was advisable that BBMB may have separate ERS in the case of emergency.

B.11.3 Representative of BBMB stated that cost for ERS would be borne by partner states, if they agree ERS may be procured. Rajasthan proposed that if partner agrees, additional ERS would be procured by them and cost for which would be borne by all partner states. Haryana agreed for the same; however, representative of Punjab

declined to bear any expenditure and stated that they would share the 2 sets of ERS which were already procured by them, and spare them in case of any emergency.

NRPC Deliberation

B.11.4 It was informed that 2 sets of ERS were already procured by partner states which would be shared with BBMB in case of emergency. NRPC concurred with the TCC deliberations

B.12 Connectivity to Naitwar Mori HEP (NMHEP) (2X30MW) of SJVN Ltd. in Uttarakhand (Agenda by SJVNL)

TCC Deliberation

B.12.1 Representative of SJVNL informed that CTU has given Grant of Connectivity as well as LTA for the project and they have signed TPA with CTU; however, PTCUL hasn't signed it yet.

B.12.2 MS, NRPC informed that PTCUL has filed petition in CERC as advised in 43rd NRPC meeting. Further, he stated that as issue was already sub-judice, it shouldn't be discussed in this forum.

NRPC Deliberation

B.12.3 Representative of POWERGRID informed if PTCUL was in disagreement with the minutes of the meeting held in CEA on 12.09.2018, then they may approach CERC. Representative of PTCUL agreed that they would discuss with CTU and SJVNL to resolve the issue at the earliest.

B.13 Training Programme/Workshop on Protection system Auditors from CPRI

TCC Deliberation

B.13.1 MS, NRPC informed the committee that 1st batch for Training Programme/Workshop on Protection system Auditors is scheduled to be held on 27th March, 2019 to 29th March, 2019. He requested to send the nominations for training program at the earliest. He informed that 2nd batch would be held in the month of April/May, 2019 and nominations for 2nd batch may also be sent.

NRPC Deliberation

B.13.2 NRPC noted the deliberations in TCC.

B.14 Formulation & revision of SPS

TCC Deliberation

A. SPS for ICTs at 765 kV Unnao sub-station:

B.14.1 Representative of UPRVUNL informed that work pertaining to them has been completed and UPPTCL has to do testing of SPS. Representative of UPSLDC informed that a meeting is scheduled on 26.03.2019 wherein issue regarding the SPS like consideration of 3rd ICT at Unnao in SPS would be deliberated. He assured that testing would be completed by the end of March, 2019.

B. SPS for Kawai – Kalisindh - Chhabra generation complex:

B.14.2 Representative of Rajasthan informed that meeting was held on 12.03.2019, wherein it was decided that SPS scheme would be implemented on OPGW and expected to be completed within 9 months.

B.14.3 Considering the time required for implementation and criticality of that complex, Rajasthan was advised that interim arrangement needs to be planned to ensure safe and reliable evacuation of 5000MW complex during this summer.

NRPC Deliberation

B.14.4 NRPC noted the deliberations in TCC.

B.15 Review of Delhi & NAPS Islanding Scheme

TCC Deliberation

A. NAPS Islanding scheme:

B.15.1 Representative of NAPS briefed about the NAPS islanding scheme (Presentation enclosed as **Annexure-III**). He informed that all UFR relays envisaged in modifications of islanding scheme have been installed and commissioned.

B.15.2 TCC recommended NAPS modified islanding scheme for approval of NRPC.

B. Delhi Islanding scheme:

B.15.3 Representative of DTL informed that revised Delhi islanding scheme was approved in 35th TCC and 39th NRPC meeting and all the changes in relay have been completed. He told additional load shedding needs to be done due to decrease in generation and additional panels for the same are to be installed for which matter has been taken up with OEM and it is expected to be completed within 4 months.

B.15.4 He further informed that necessary changes due to 400/220 kV Tughlakabad S/s has been completed and now isolation would be done at 400/220 kV Tughlakabad S/s. MS, NRPC asked if mock testing for the scheme might be carried out to check operational status of scheme. Representative of DTL stated that issue needs to be discussed with OEM and accordingly, mock testing might be carried out.

NRPC Deliberation

B.15.5 NRPC approved modified NAPS islanding scheme and further requested DTL to arrange for the mock testing at the earliest.

B.16 Implementation of Automatic Generation Control (AGC) in India (at Inter-State level)

TCC Deliberation

B.16.1 MS, NRPC informed that AGC is already operational as pilot project in Dadri and Simhadri and issue was also discussed in 7th NPC meeting wherein a concern was raised regarding usage of AGC in cases where Primary response hasn't been utilized

completely as well as 50 paise mark up for AGC. In the meeting, it was deliberated that issue might be discussed in RPC meeting and comments of all stakeholders to be submitted to POSOCO for forwarding to CERC.

B.16.2 Representative of POSOCO highlighted the importance of AGC and stated that 50 paise mark up was decided for RRAS which was also implemented for AGC pilot project which might be reviewed.

B.16.3 TCC Chairperson also stated that there was need to review mark up price for AGC. MS, NRPC proposed that issue related to AGC may be discussed in NRPC meeting in line with meetings held by SRPC and WRPC.

NRPC Deliberation

B.16.4 NRPC noted the deliberations held in TCC meeting.

B.17 Replacement of Porcelain Insulator by Polymer Insulator

TCC Deliberation

B.17.1 SE (O), NRPC informed that it has been noticed in OCC meeting that shutdowns were being requested for insulator replacement. As per the status furnished in the past TCC/NRPC meetings, replacement work under the first four stages has been completed, except Rihand-Dadri HVDC line. It has been observed that shutdowns were being requested of ICT, reactors, bus and lines for insulator replacement work; however, it was noted that replacement work in these elements had not earlier been deliberated in the NRPC forum. Hence, POWERGRID was requested to submit following details based on which replacement of porcelain insulators (not covered under first five stages) has been envisaged:

Element Name & Type; Maximum ESDD (Equivalent Salt Deposit Density) value; Pollution level (as per recommendation of the inquiry committee on grid incident in Northern Region on 27.01.2007); Number of fog related tripping of the element in last one year.

B.17.2 MS, NRPC informed POWERGRID that NRPC approval is required before submitting outage request for insulator replacement and giving its deemed availability & funding through CAPEX. He insisted that it should be ensured that insulators were being replaced in foggy and polluted areas.

B.17.3 Representative of POWERGRID highlighted that due to Polymer insulators no. of tripping have been reduced significantly. He told that they have considered some lines in Phase-VI which would be shared with NRPC/NRLDC. He informed that few insulators were being replaced in substation nearby Delhi for which shutdowns were requested. He informed that insulators for substations were being replaced through POWERGRID fund and not CAPEX.

NRPC Deliberation

B.17.4 NRPC noted the deliberations held in TCC meeting and requested POWERGRID to submit the details as mentioned above.

B.18 Strengthening of Transmission Line Tower by PGCIL

TCC Deliberation

B.18.1 MS, NRPC requested POWERGRID to apprise the forum about the actions taken during strengthening work for which outages are being taken. Further, POWERGRID was also requested to intimate whether the procedure adopted for strengthening of transmission line tower got approved through any reputed agency (ies). He insisted that steps are needed to be taken by POWERGRID to ensure that tower collapse won't take place in high wind season of April-May during the summer.

B.18.2 Representative of POWERGRID agreed that cases of tower failure were encountered during last summer especially in 765kV Delta type towers. He informed that issue was discussed in standing committee of CEA and tower collapse was mainly due to change in the wind zones while towers were designed as per the prevailing standards. In the standing committee, it was decided to put up more members on the existing members by clipping and design was discussed with CPRI who principally agreed with it. He further informed that all suggestions of CPRI were also incorporated and design was also ratified by Manitoba Hydro, Canada who have also suggested to replace some of the members. He stated that work is being carried out and 5252 out of 5513 were completed in NR and 261 towers were remaining which was expected to be completed by April,2019. POWERGRID was requested to share documents related to design certification with NRPC/NRLDC.

NRPC Deliberation

B.18.3 NRPC noted the deliberations held in TCC meeting.

B.19 Incentive schemes for early installation of FGD

TCC Deliberation

B.19.1 MS, NRPC requested utilities to submit views on the options a,b,c as mentioned in agenda of the meeting at the earliest so the same could be forwarded to CEA for considerations. It was informed that UPRVUNL has submitted views on the same.

NRPC Deliberation

B.19.2 NRPC noted the deliberations held in TCC meeting.

B.20 Status of FGD installation vis-à-vis installation plan at identified TPS.

TCC Deliberation

B.20.1 MS, NRPC requested all generators to make serious efforts to meet the deadline of installation of FGD.

B.20.2 Representative of Nabha power informed that PSERC hasn't considered pass through tariff for FGD stating that as space for FGD was already considered while taking project approval from MoEF, it should have been included in the project cost. He informed that they would be approaching APTEL against the order of PSERC. Nabha Power was advised to intimate in this regard to Thermal wing, CEA.

NRPC Deliberation

B.20.3 It was deliberated that Nabha power seems to be a specific case which needs to be examined further. Representative of HPGCL also requested that plant having low PLF may be exempted from FGD. Representative of CEA informed that MoEF was already requested regarding the same, but it has declined for any exemption from FGD.

B.21 Anticipated Power Supply Position of NR-April 2019 to June 2019

TCC Deliberation

B.21.1 MS, NRPC informed that approved generation targets were yet to be received from MoP and this provisional Power supply positions has been made considering the data received from the utilities. He also informed that STOA, Bilateral arrangements, banking arrangements etc. weren't considered due to which all Hydro dependent states were either surplus or deficit by large margins.

B.21.2 Representative of HP stated that corrected Power supply position with inclusion of banking arrangements has been submitted. Representative of Delhi also stated that they have submitted comments on the provisional LGBR. Other utilities were requested to submit the comments at the earliest.

B.21.3 NRLDC representative requested J&K to check the shortage figures which seemed to be on higher side. He also mentioned that J&K is giving substantial shortage almost on daily basis. The same needs to be checked by J&K. Representative of J&K agreed to check the same.

NRPC Deliberation

B.21.4 NRPC noted the deliberations held in TCC meeting.

B.22 New Interface Energy Meters, AMR system and meter data processing system installation

TCC Deliberation

B.22.1 Representative of NRLDC informed that WRLDC has gone forward with preparation of specifications for new Interface energy meters, meanwhile CEA has proposed 3rd Draft Amendment of the Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006. He stated that members may deliberate whether to go forward with finalization of specification or wait until CEA published final regulation.

B.22.2 Representative of POWERGRID informed that they have finalized specification for WR after discussion with WRPC and WRLDC. Further, they have published the tender final date for which has been extended thrice due to non-submission of bid by meter manufacturers.

B.22.3 TCC recommended that after the finalization of regulation further course of action regarding approval of specifications for new interface energy meters may be taken.

NRPC Deliberation

B.22.4 NRPC concurred with the deliberations held in TCC meeting.

B.23 Cyber Security Preparedness Monitoring

TCC Deliberations

B.23.1 MS, NRPC apprised the members that it is very important to conduct VAPT for their ICT infrastructure and requested that status of the same may be shared with NRPC. He further requested POWERGRID to share the draft Crisis Management Plan (CMP) for Transmission sector with CISO, MoP.

NRPC Deliberations

B.23.2 NRPC noted the deliberations held in TCC meeting.

B.24 Timely PTCC clearance of 132 KV & Above Voltage level Transmission lines submitted to Power Telecommunication Coordination Committee (PTCC). (Agenda by PSTCL)

TCC Deliberations

B.24.1 Representative of PSTCL informed that proposals of its 132 KV & above voltage level transmission lines are timely forwarded for PTCC clearance but even after lapse of time frame given as per PTCC manual, route approval certificates are not issued which is eventually resulting into delay in the commissioning of the lines.

B.24.2 He proposed that if Route Approval Certificate for the transmission line is not issued by Power Telecommunication Coordination Committee (PTCC) even after lapse of time frame elaborated in PTCC Manual, 2010 and no reference is pending with the applicant, then the transmission line may be considered as deemed cleared for PTCC. Upon enquiring, POWERGRID also concurred with the proposal of PSTCL.

B.24.3 MS, NRPC advised PSTCL that PCD division, CEA should be approached for this matter. TCC suggested that the issue may be discussed in NRPC meeting.

NRPC Deliberations

B.24.4 NRPC advised PSTCL that matter may be taken up with the concerned division of CEA which would be examined further for resolving at the earliest.

B.25 Interest payable due to delay in payment under PSDF (Agenda by PSTCL)

TCC Deliberations

- B.25.1 Representative of PSTCL informed that there has been delay in release of funds under PSDF. He further stated that as per the provisions of contracts, payments are supposed to be released with 45 days of receipt of supplies/services rendered and due to delay in payment by the PSTCL, interest becomes payable as per the relevant provisions of the MSME Act.
- B.25.2 Moreover, as per the guidelines of PSDF, refinancing is not permissible if utilities pay from their own resources for the projects sanctioned under PSDF. In view of the above, PSTCL proposed that interest due to delay in release of payments under PSDF may be booked to cost of project sanctioned under PSDF. Representative of HP also concurred with the proposal of PSTCL.
- B.25.3 Representative of NLDC informed that they are following guidelines as approved by MoP in this regard. He also assured that they were in the process of disbursing the fund as the approval has been received from MoP. He requested that PSTCL may take up the issue with MoP for further directions.

NRPC Deliberations

- B.25.4 Chairperson, CEA advised PSTCL to raise a concern with NLDC which might be deliberated in one of the Monitoring Committee and MoP may be apprised accordingly. It was also deliberated if payments were done by utilities from its own resources for projects sanctioned under PSDF, refinancing should be allowed by PSDF. NRPC requested that these issues may be discussed in Monitoring Committee and further requested for necessary amendments in the MoP guidelines for disbursement of PSDF.

B.26 Funding for the scheme “Provision of STATCOM at Nalagarh & Lucknow in Northern Region” (Agenda by POWERGRID)

TCC Deliberation

- B.26.1 Representative of POWERGRID informed that as per the decisions in 39th TCC/42nd NRPC meetings, NRPC requested PSDF Appraisal Committee to allow PSDF funding for the scheme as a special case vide NRPC letter dated 05.10.2018. Further, POWERGRID also requested the Appraisal Committee (vide letter dated 18.10.2018) to reconsider PSDF funding for the scheme.
- B.26.2 The Appraisal Committee deliberated on the request of NRPC/POWERGRID during its 21st meeting held on 15.11.2018. However, the committee did not agree to fund the scheme through PSDF and same was communicated vide letter from dated 14.02.2019 from NLDC (Copy attached in Annexure-B.26.1 as agenda 41st TCC/44th NRPC meetings).
- B.26.3 Representative of POWERGRID proposed that the charges for the implemented scheme “Provision of STATCOM at Nalagarh & Lucknow in Northern Region” may be considered as per norms of CERC Tariff Regulations including the debt equity ratio as scheme is expected to be commissioned by March 2019.

B.26.4 Representative of PSTCL argued that beneficiaries should not be financially burdened with the scheme. TCC suggested that issue may be discussed in NRPC meeting.

NRPC Deliberation

B.26.5 MS, NRPC apprised the committee regarding deliberations held in the TCC meetings. It was also informed that scheme has already been approved in 29th NRPC meeting and POWERGRID on its own had brought the proposal for PSDF funding in 39th NRPC meeting, which was later disallowed as LOA was already placed.

B.26.6 NRPC requested Powergrid to fund the scheme.

B.27 Augmentation of transformation capacity in Northern Region (Agenda by POWERGRID)

B.28 2 nos. of 400 kV line bays (GIS) at 400kV Chamera (PG) S/s (Agenda by POWERGRID)

B.29 2 nos. of 220kV line bays (GIS) at 400kV Samba (Jatwal) (PG) S/s (Agenda by POWERGRID)

TCC Deliberation (For B.27, B.28 and B.29)

MS, NRPC informed that CE, PSPA-II vides later dated 08.03.2019 has requested if any issue related to transmission planning is brought to the notice of RPC Secretariat, then same may be referred to Member (Power System), CEA. In view of the same, POWERGRID was advised to refer issues related to transmission planning, if any, to Member (Power System), CEA first.

NRPC Deliberation (For B.27, B.28 and B.29)

NRPC noted the TCC deliberations.

B.30 Transmission Schemes for Solar Energy Zones (SEZs) in Rajasthan (Agenda by POWERGRID)

TCC Deliberation

B.30.1 Representative of Rajasthan raised a concern stating that ISTS is being setup for evacuating RE power in order to fulfil the RPOs of other states, as Rajasthan is already fulfilling its RPO. Hence, he requested that no financial implications should be there on Rajasthan. He proposed that banking of RE may be disallowed and 10% battery storage may be made compulsory for RE generators. He also proposed that RE generators may be connected to STU system which would be then converted into ISTS.

B.30.2 Representative of CTU informed that all REs connected to ISTS are free as per the policy of MoP and they are working within the guidelines of the MoP. He stated that proposal for connecting RE generators to STU network wasn't submitted.

B.30.3 TCC Chairperson requested to review the entire scheme but Representative of CTU informed that they have gone to CERC for regulatory approval to which

representative of Punjab objected and stressed that each proposal should be ratified in NRPC before approaching CERC for regulatory approval for tariff. Representative of Rajasthan proposed that before approval of schemes in standing committee, distribution utilities needs may be taken into consideration.

B.30.4 Representative of Punjab proposed that financial implications on PoC should be highlighted well in advance before finalizing or approving large scheme.

B.30.5 As Rajasthan and Punjab objected to the scheme, TCC recommended that proposal shouldn't be approved.

NRPC Deliberation

B.30.6 NRPC was apprised regarding objections of Rajasthan and Punjab. It was agreed that issue may be referred back to Standing Committee.

B.31 Early Commissioning of 1X500 MVA ICT at 400/220 kV Lucknow Substation (Agenda by POWERGRID)

TCC Deliberation

B.31.1 Representative of POWERGRID informed that Director (Commercial & Planning), UPPTCL, vide letter Ref. No. 754 dated 01/10/2018 (Annexure – B.31.1 of 41st TCC/44th NRPC agenda) requested POWERGRID that aforesaid work may be implemented on PRIORITY latest by March'19, as the large demand is likely to show up in March'19 itself. Accordingly, on the request of UPPTCL for early commissioning of ICT, POWERGRID put its best effort & same is expected to be charged by Mar'19 at 400/220kV Lucknow Substation.

B.31.2 He further informed that additional RoE for early commissioning wouldn't be claimed. TCC appreciated efforts of the POWERGRID for Early commissioning.

NRPC deliberation

B.31.3 NRPC noted the deliberations held in the TCC.

B.32 Elements that are anticipated to be commissioned shortly (Agenda by POWERGRID)

TCC Deliberation

B.32.1 Representative of POWERGRID informed that agenda is for information of members and additional RoE for early commissioning wouldn't be claimed. TCC appreciated efforts of the POWERGRID for early commissioning.

NRPC deliberation

B.32.2 NRPC noted the deliberations held in the TCC.

B.33 Shut down requirement for 220 kV Sarna-Hiranagar line due to critically damaged foundation caused by change in river flow (Agenda by POWERGRID)

TCC Deliberation

B.33.1 Representative of POWERGRID informed that JKPDD was requested for the shutdown for 220 kV Sarna-Hiranagar line in 40th TCC/43rd NRPC meetings as well as vide letter to Development Commissioner Power (J&K) dt 05.12.2018 & dt 19.02.2019. However, consent for Shut Down is still pending from JKPDD.

B.33.2 JKPDD was again requested to give consent for shut down. Representative of JKPDD agreed to give confirmation of the same shortly.

NRPC Deliberation

B.33.3 NRPC noted the deliberations held in the TCC.

B.34 Summer preparedness 2019

TCC Deliberation

B.34.1 Following salient points in respect of summer preparedness were presented by representatives from NRLDC:

a. Load-Generation balance

i. Weather Monitoring

- ***Dedicated weather monitoring website by IMD:*** Constituents to utilize the dedicated weather portal of NR in forecasting. Constituents agreed for monitoring of weather information through weather portal.
- ***Monitoring of temperature & humidity telemetry:*** The availability of telemetry of Temperature and Humidity in indicating the real time weather scenario and monitor these telemetries regularly for demand estimation & subsequent actions were stressed upon. Constituents appreciated the need for the same.

ii. Demand Forecast

The continuous improvement in demand forecasting with incorporation of historical trend/ weather information/Special events/ Holidays/Natural occurrence/load growth/load group/Govt policy etc. was stressed upon so that deviations on daily basis can be minimized. In view of above, following important actions agreed in previous OCC/TCC meeting were reiterated:

- Load forecast on daily basis based on weather, festival, peak, off-peak hours, public holidays, special days, events etc.
- Load ramping forecast especially during peak hours
- Continuous effort to reduce the forecast error.
- Develop the tools that incorporate weather related information, historical trend, growth factor, ramping of load etc.

Recent forecasted data being received from states was also presented. In addition to submission of daily forecast by states, reduction in forecast error was also emphasized. States agreed to reduce the actual and forecast error through improved forecasting.

iii. Portfolio Management

The concern was expressed over sudden load changes on account of weather change or switching of load group or sudden generation outage or unmatched ramping of generation with load or any other contingency etc. large deviations occurred lead to sharp change in frequency / voltage poses challenges for grid operation.

Frequency excursions at hourly boundary at the time of sudden load changes especially by Haryana and Rajasthan were presented. NRLDC representative stated that high frequency may result in high voltage which has led to overvoltage tripping in past also. On the other hand, it has been observed recently that low frequency led to the tripping of ICTs on over flux.

The following measures were suggested:

- Technical minimum operation of thermal units in case of load crash.
- Tie up with neighbor states or hydro rich states etc. to bridge the load-generation gap in real time.
- States to avoid connection/disconnection of large quantum of load at hourly boundaries and do proper load staggering.
- Frequency spikes and instantaneous over voltages.
- Monitor coal stock position of thermal plants in advance as agreed earlier in TCC/NRPC meeting.

Members agreed to look into the employment of above measures.

iv. Maintenance of reserves

Maintaining adequate reserves were stressed upon to take care of following:

- Sudden outage of hydro station on silt
- Sudden outage of wind generation
- Any big generation/transmission contingency

Following actions were suggested:

- Proper forecasting of load and planning for load management
- Increasing/Decreasing the internal generation within state control area
- Making power purchases from the market through bilateral Power Exchange
- Re-starting of units under reserve shutdown at state as well as Inter-state level / keeping hot reserves

Members agreed to look into the employment of above measures.

v. Furnishing of coal stock position

As discussed in earlier meetings, following points were again emphasized:

- Advance information of coal stock of TPS ensure generating units' availability
- Sudden information of above poses challenges to meet high demand
- In 139th OCC, furnishing of fuel stock in advance was decided. In 37th TCC-40th NRPC meeting, TCC concurred decision of OCC that stations shall not reduce

their DC during the day due to coal shortage and shall keep at least two days stock and declare DC accordingly.

MS, NRPC also expressed concern that generators declare Day ahead DC without having adequate coal stock due to which it become difficult for beneficiary to manage its portfolio.

TCC decided the following in respect of generating entities:

- Furnishing coal stock available at the plant
- Coal in transit likely to be available next day
- Expected coal availability for next day peak hours
- To keep at least two days stock and declare DC accordingly so that no reduction in their DC during the day due to coal shortage would occur

vi. Hydro Generation & Silt monitoring

During summer of NR, hydro generation would be at peak and load requirement of NR would also be high. During summer, sudden & frequent hydro plant shutdown due to high silt is a major issue. Major Hydro stations like N. Jhakri, Karcham, Rampur, Baspa, Dehar, Bairasuil, Salal, Parbati-3 underwent forced outage on silt. More than 4500-5000 MW of generation in 2018 and 5000-6000 MW in 2017 went under forced outage on several instances due to silt resulting in frequency drop, congestion of some corridor, over drawal, voltage change etc.

Following actions were suggested:

- Action for Generator
 - Silt monitoring/Silt forecasting for planned hydro outage [Advance information]
 - Reduction of Generation/Tripping of Units as per protocol (Staggering of units)
 - Slow ramping down of generation on the units to be closed as per protocol.
- Action by SLDC/Constituents
 - Generation reserve to be maintained
- Own Generation
- Contracted Generation from Other State/Traders
 - Load management to be planned
 - Optimization of Hydro generation as per demand requirement

HP representative stated that arrangements are in place to tackle silt along with arrangements of as and when power availability. The arrangements also contain the as and when available arrangements as well.

b. Load crash

Sudden thunder storm during summer in NR is probable phenomenon and subsequent load crash in range of 7-15 GW in region as a whole. Such fast reduction of large load causes frequency/voltage excursions, line loading etc. The following preparatory actions

were suggested during such eventualities as discussed in 30th TCC-34th TCC, 31st TCC-35th NRPC, subsequent TCC & OCC meeting and other special meeting also:

- Weather monitoring and warning/alert issuance within control centers for taking advance & fast actions
- Backing down of thermal generation up to technical minimum in order to control high frequency operation besides containing over voltages.
- Fast ramping down during reduction in generation.
- Immediate actions to surrender power from ISGS generating stations
- Synchronous condenser mode operation of HEPS to contain high voltage
- NRLDC issued flash / preliminary report to inform all stakeholders, other utilities are also requested to report as early as possible to NRLDC.
- Exercise fast restoration of line out on high voltage or manually opened etc.
- The tower strengthening and availability of Emergency Restoration System (ERS) [for early restoration of supply] as mitigation tools.

Members assured to look into the employment of above measures.

c. Reactive power management

It was stated that since last summer, it has been observed that voltage profile during summer has been improved. Low voltages have been experienced at some locations. To maintain the voltage profile of Grid within IEGC band during summer, following actions were suggested:

- i. Switching ON Capacitor/Switching OFF reactor as per system requirement
- ii. Tap Optimization at 400/220kV by NRLDC and 220/132kV by respective state control area based on scatter plots of ICTs, offline studies, NRPC RE account etc.
- iii. Dynamic reactive support from Generator as per their capability curve.
- iv. Synchronous condenser operation [in case water can be stored]
- v. SCADA Displays for better visualization

Members assured to look into the employment of above measures.

d. Defense Mechanism

NRLDC representative stressed the need for maintaining healthiness of defense schemes like UFR, df/dt, SPS, islanding schemes etc.

Further the following were suggested as approved earlier:

- Mapping of SPS feeders CB status, analog data in SCADA or Station Event log.
- Periodic mock testing of SPS schemes (at least once in half year) and certification of healthiness by utility.
- Timely updating the scheme in case of any network or schematic changes.

Members agreed for the same.

e. Telemetry

NRLDC representative stated that Real time data is utmost important for monitoring & supervision purpose and therefore, it is very essential to ensure the data availability at control centers for smooth Grid operation. NRLDC representative stressed upon availability of Telemetry for smooth operation of grid.

Members assured affirmative actions for the summer preparedness in line with above points.

NRPC Deliberation

B.34.2 NRPC noted the deliberations held in the TCC.

B.35 Reliability Issues

TCC Deliberation

Computation of TTC/ATC of respective control areas

B.35.1 NRLDC representative stated that Punjab, Uttar Pradesh SLDC are active in assessing their state control area import capability in co-ordination with NRLDC. However, computation of transfer capability on monthly basis is yet to be done. Other states e.g. Haryana, Rajasthan, Delhi, are exchanging the base cases with NRLDC; TTC computation report is still awaited from these SLDCs. All the other states i.e. Uttarakhand, Himachal Pradesh, Jammu & Kashmir & Chandigarh are yet to start the TTC/ATC study.

B.35.2 It was requested to start the computation of transfer capability of its own state control area, sharing the base case & reports along with likely reliability issues under N-1 contingency, preventive action plan to mitigate such reliability issues, feedback to planner etc. for better Grid operation.

B.35.3 Punjab stated its willingness to visit NRLDC for a joint study of assessment of ATC/TTC. Other State representatives also agreed to carry out the simulation studies and sharing results with NRPC, NRLDC.

NRPC Deliberation

B.35.4 NRPC noted the deliberations held in the TCC.

B.36 Increasing fault level

TCC Deliberation

B.36.1 NRLDC representative stated that as per simulation studies carried out and actual fault scenarios observed, Fault level at 400kV nodes in Northern region has increased above 40kA at various locations. He stated that based on simulation studies carried out by NRLDC, the recent commissioning of Series line reactor (single phase unit of 75 MVar, 12 ohms) of 400kV Dadri-Mandola-I & II at Mandola end along with Series Bus reactor at Mandola & Ballabgarh end has brought down the three phase short circuit level at Dadri, Mandola & Ballabgarh by ~ 10, 20 & 14kA respectively.

B.36.2 On submitting the pre-charging study of above reactors, POWERGRID agreed to share the same.

B.36.3 Members appreciated the inclusion of series reactors at above locations.

NRPC Deliberation

B.36.4 NRPC noted the deliberations held in the TCC.

B.37 Mock testing of SPS at 765kV Agra-Gwalior D/C

TCC Deliberation

B.37.1 POWERGRID stated that all work w.r.t. revised load group has been done and mock exercise can be planned. It was decided to conduct mock test on 26.03.2019.

B.37.2 NRLDC representative also requested POWERGRID to log the signals sent to different load group stations as also stated in earlier OCC meetings as well. POWERGRID agreed to look into it.

NRPC Deliberation

B.37.3 NRPC noted the deliberations held in the TCC.

B.38 Requirement of power flow and dynamics data for modeling renewable energy generation in Indian grid

TCC Deliberation

B.38.1 NRLDC representative stated that in order to ensure security of the interconnected power grid, it is imperative to conduct stability studies in both operational (short-term) and planning (long-term) horizons in the power grid. To gain confidence in the stability studies that adequately represent system performance, fit-for-purpose models of power system elements are of utmost importance.

B.38.2 NLDC representative highlighted the importance of dynamic data both from conventional and unconventional resources in view of large renewable integration. Accordingly, guidelines for collection of data for modelling utility scale wind and solar generation were discussed.

B.38.3 SLDCs agreed to provide the details of state control area generators in line with fit-for-purpose model.

NRPC Deliberation

B.38.4 NRPC noted the deliberations held in the TCC.

B.39 Grid Events in Northern Region during Oct'18-Jan'19 period

TCC Deliberation

B.39.1 NRLDC representative stated that total of 79 number of Grid Events occurred in NR during Oct'18 to Jan'19 period. The number is more than 1.5 times than the last years' figure of same period.

B.39.2 Constituents were requested to discuss plans for reducing such tripping events and for quality analysis and implementation of remedial measures. Constituents agreed to carry out the same.

NRPC Deliberation

B.39.3 NRPC noted the deliberations held in the TCC.

B.40 Frequency response characteristic of NR control area from Oct'18-Jan'19:

TCC Deliberation

B.40.1 NRLDC representative stated that three FRC based events occurred during Jun-Sep'18.

B.40.2 The following was summarized from the response of Central, State generators and State control area response presented:

- Among the State control area, Punjab, Rajasthan and UP have showed improvement in the FRC.
- Among the central generators, Koldam HEP, Uri-I HEP, Chamera-I HEP, Jhajjar TPS, Karcham HEP showed good average FRC of more than 75% of ideal response. The response of almost all other hydro stations is less than 40% of ideal response.
- Among the state control area generators, Goindwal Sahib TPS, Kawai TPS showed good response.

B.40.3 SLDCs were requested to impress upon the generators for delivering adequate primary response. The central generating entities were also requested to improve the same.

B.40.4 Members agreed to look into the same.

NRPC Deliberation

B.40.5 NRPC noted the deliberations held in the TCC.

B.41 Capacity Building for Power System Engineers

TCC Deliberation

B.41.1 Agenda was discussed in NRPC meeting.

NRPC Deliberation

B.41.2 Director (HR), POSOCO gave the detailed presentation on POSOCO's initiatives on "Capacity Building for Power System Engineers". She requested all constituents of Northern region to discuss & share their views as POSOCO is in process of finalizing training programmes of HRD calendar for 2019.

B.41.3 She highlighted that capacity building program will be free of cost for all SLDCs. She also requested all the constituents to participate in capacity building program to be scheduled in 2019 with full strength and enthusiasm.

B.42 Agenda proposed by NRPC in 8th NPC of CEA

TCC Deliberation

B.42.1 MS, NRPC apprised committee about the agenda proposed by NRPC in 8th NPC meeting held on 30.11.2018 and decision taken thereof. SE(O), NRPC further briefed members about CERC tariff regulations 2019-24 regarding transmission system availability and its timelines.

B.42.2 Regarding Automatic Under Frequency Load Shedding (AUFLS) Scheme and Mapping of Feeders, MS, NRPC informed that 8th NPC has agreed for the AUFLS scheme with 4 stages and raising the frequency by 0.2 Hz viz. 49.4, 49.2, 49.0 & 48.8 Hz. He stated that as Punjab and Haryana have peculiar load demand, MS, NRPC proposed in 08th NPC meeting for study on “Determination of quantum for AUFLS” for All India–Region as well as State wise.

B.42.3 In this regard, it was informed that CPRI was requested to share information about technical procedure for carrying out the study. CPRI opined that a committee consisting CPRI -Nodal role of study team, Experts regarding designing the AUFLS and ROCOF load shedding carried out, expert from CEA/NPC/RPC may be constituted for in-depth involvement during the study & time to time discussion/clarification and necessary technical guidance.

B.42.4 Regarding NEA, TCC recommended for National Pool account to be maintained by NLDC for settlement of inter-regional and cross border transactions and NRPC would issue net deviation.

NRPC Deliberation

B.42.5 NRPC concurred with the deliberation regarding agenda point put forth by NRPC in 08th NPC meeting.

B.43 Implementation of multisite configuration between BBMB, SLDC Chandigarh and SLDC Patiala (Agenda by BBMB)

TCC Deliberation

B.43.1 Representative of BBMB informed that issue was discussed in 13th TeST meeting held on 24.04.2018, wherein Sub-Committee advised PGCIL to take necessary action for resolving the issues and to ensure multisite configuration functioning by 15.06.2018. However, some of the multisite configuration of SCADA/EMS system installed at BBMB SLDC under ULDC phase-2 scheme are pending till date.

B.43.2 TCC requested POWERGRID to take up the matter for implementing the pending Multisite configuration without further delay.

NRPC Deliberation

B.43.3 NRPC noted the deliberations held in the TCC.

B.44 OPGW connectivity in Northern region under Fiber Optical expansion project-ULDC Ph-II OPGW package-I(a)

TCC Deliberation

B.44.1 Representative of BBMB informed that work of OPGW connectivity between Bhakra-Jamalpur was yet to be started. TCC requested POWERGRID to expedite the work.

NRPC Deliberation

B.44.2 NRPC noted the deliberations held in the TCC.

B.45 Installations of AMR meters by Haryana DISCOMs (Agenda by HVPNL)

TCC Deliberation

B.45.1 Representative of HVPNL informed that Haryana DISCOMs are installing AMR meters in parallel to the existing SEMs at the interface boundaries for which consent from POWERGRID is still awaited. He requested POWERGRID to give consent and allow the shutdowns for installations AMRs in their area of jurisdiction. TCC requested POWERGRID to give the consent at the earliest.

NRPC Deliberation

B.45.2 NRPC noted the deliberations held in the TCC.

B.46 Augmentation of Transformation capacity at Tanakpur

TCC Deliberation

B.46.1 MS, NRPC briefed the Committee about the following decision taken in the 6th meeting of the Joint Steering Committee (JSC) on Nepal – India Cooperation in Power Sector, held on 24th January, 2019:

“Indian side stated that the existing 50MVA transformer would be replaced with 100MVA transformer by NHPC and the charges of the same would be recovered from NEA as per CERC Regulations. It was also agreed that available spare 220/132kV, 100MVA transformer in the Northern Region of India could be installed at Tanakpur by the end of March, 2019 as an interim arrangement. Necessary action in this regard would be taken by CEA and POWERGRID.”

B.46.2 As the procurement and installation of new transformer would take some time, the possibility of interim arrangement was explored. POWERGRID intimated that there is one spare 220kV/32kV, 100MVA, 3-Ø transformer (manufactured in 2006) available at Sitarganj sub-station of POWERGRID. The matter regarding replacement of 50MVA transformer with 100MVA transformer was discussed in

156th OCC meeting of NRPC. NHPC intimated that no role of NHPC has been assigned for making interim arrangement. It was mentioned that there was no clarity about the responsibility for implementation of the interim arrangement of utilizing the spare transformer viz., cost of transfer of spare transformer from Sitarganj to Tanakpur, responsibility for commissioning of ICT and associated CT. It was decided to take up the matter expeditiously with CEA and POWERGRID regarding the interim arrangement of shifting of spare transformer available at Sitarganj S/S (PG).

B.46.3 A meeting was subsequently held under the chairmanship of Chairperson, CEA, attended by the representatives of CEA, NRPC, CTU and NHPC on 13.03.2019 at CEA, wherein following was decided:

- i. Member Secretary, NRPC will take up the issue in the forthcoming NRPC meeting to allow the use of spare transformer available at Sitarganj (PG) for supply of power to Nepal till the commissioning of new 100 MVA transformer by NHPC. Conditions for the shifting of ICT for supplying power to Nepal may be discussed. The conditions may include that, whether the transformer may be given for interim arrangement as a goodwill gesture or monthly tariff would be charged from Nepal. In case, tariff is to be charged, POWERGRID has to work out the likely tariff. POWERGRID agreed for the same. Accordingly, NHPC shall be intimated to initiate action for installation of new 100 MVA transformer. In this case, NHPC would recover charges from NEA as per CERC norms.
- ii. Simultaneously, POWERGRID may explore the possibility of shifting the new transformer (100 MVA, 220/132kV) to Tanakpur, which may be under procurement for some other purpose. This will also avoid power shutdown twice of one months' duration to Nepal and transportation charges would also be reduced. In this case, POWERGRID would recover charges from NEA as per CERC norms. This option shall be considered if NRPC declines for shifting of spare ICT and also in consultation with NEA.

B.46.4 Members agreed to transfer the 100MVA, 220/132kV ICT available at Sitarganj S/S of POWERGRID, which being spare for NR constituents, to be commissioned at Tanakpur HEP for transfer of power to Nepal. The tariff presently being recovered from NR constituents, along with shifting, commissioning and cost for additional equipment like 132kV side CT will be recovered by POWERGRID from Nepal.

B.46.5 MS, NRPC asked members whether the offer would be an interim arrangement or permanent arrangement. Members confirmed that this can be permanent arrangement if Nepal government agrees to accept this spare ICT instead of new one. If they want a new one then this will be till the new transformer is commissioned by NHPC.

B.46.6 TCC recommended that 100MVA spare transformer, available at Sitarganj sub-station of POWERGRID can be permanently shifted to Tanakpur for supplying power to Nepal instead of making interim arrangement and transmission charges including transportation charge, commissioning cost, and cost of additional equipment like 132kV side CT, etc to be charged from Nepal. If Nepal government want a new ICT, then this ICT will remain in service till new ICT is procured by NHPC.

NRPC Deliberation

B.46.7 The matter was again discussed in detail and Chairperson, CEA requested all members to give their final views on the arrangement agreed in the TCC.

B.46.8 NRPC noted the deliberations and concurred with the decision of TCC.

C. COMMERCIAL ISSUES

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

TCC Deliberation

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

C.1.2 Utility-wise updated status as intimated during the meeting is mentioned below:

THDC

C.1.3 Representative of THDC informed that in the last meeting, all utilities were requested to submit their liquidation plan for their outstanding dues. However, no utility has submitted such plan as on date.

C.1.4 Representative of BRPL and BYPL were not present in the meeting. Representative of THDC informed that BYPL has only paid Rs 49 crore in this financial year which is very alarming.

C.1.5 Representative of PDD J&K informed that they were in the process of issuing bonds for raising funds and pending dues would be cleared after that.

C.1.6 Representative of UPPCL stated that they have prepared a framework for clearing outstanding dues of all utilities. For THDC, they would be releasing Rs 175 crore per month till all dues are cleared. UPPCL is further hopeful of getting some money from Government of UP in the month of March 2019, after which they would be in a position to release more than Rs 175 crore per month.

C.1.7 Representative of THDC also informed that UPPCL has stopped the verification of LPS bills since October 2018 and urged the representative of UPPCL to look into the matter.

C.1.8 Representative of PSPCL informed that they have released the payment till August 2018 and payment is pending for the months of September to November 2018. Representative of THDC informed that some payment of FY 2016-17 is still pending. Representative of PSPCL stated that they would check with their finance department and resolve the issue.

C.1.9 Representative of Rajasthan DISCOM stated that Jaipur and Ajmer DISCOMs have been making regular payments. However, recovery in case of Jodhpur DISCOM is less, due to its consumer mix which is resulting in delays. DISCOMs are planning to issue bonds and plan to clear all dues by March-April 2019.

NHPC

C.1.10 Representative of NHPC informed that most of their dues are pending with PDD J&K and UPPCL due to which they are facing issues in meeting their regular O&M expenses. Also, UPPCL is not verifying LPS bills for the past 2 years.

C.1.11 Representative of PDD J&K stated that they would be in a position to clear pending dues only after issuance of bonds.

C.1.12 Representative of UPPCL informed that they have planned to release Rs 175 crore each in the months of March, April and May 2019. With regard to verification of surcharge, he would take up the matter with his management.

C.1.13 Representative of NHPC urged Jodhpur DISCOM to clear dues of Wind Power regularly since the dues are comparatively less.

SJVNL

C.1.14 Representative of SJVNL informed that a total of Rs.637 crore is outstanding with all beneficiaries. Himachal Pradesh has a total outstanding of Rs.339 crore out of which Rs.24.6 crore is principal and rest as LPS. Out of the principal amount, Rs.8.3 crore of arrear is under dispute.

C.1.15 Representative of HPSEB stated that a meeting was held with representatives of HPSEB, Govt of HP, SJVNL and PTC and most of the outstanding issues have been resolved. The segregation of outstanding dues between HPSEB and Govt of HP has also been resolved and they are working towards settling the dues at the earliest.

C.1.16 With regard to PDD J&K, representative of SJVNL informed that the total outstanding is around Rs.200 Crore. SJVNL had regulated power of J&K and withdrew the regulation on the assurance that all dues would be cleared. However, no progress has been made so far and payment is pending since October 2018.

C.1.17 Representative of PDD J&K reiterated that they would be in a position to clear dues only after raising funds through issuance of bonds.

C.1.18 Representative of UPPCL informed that principal outstanding of SJVNL would be cleared by the end of March 2019.

C.1.19 Representative of SJVNL expressed concern over non-payment of LPS by most of the utilities. Since LPS is a part of the energy bill, he urged all utilities to clear their outstanding LPS dues at the earliest.

NPCIL

C.1.20 Representative of NPCIL informed that a total of Rs.1872 crore is outstanding with various utilities which is leading to serious financial implications since NPCIL has to borrow money to make payment to its vendors.

C.1.21 Most of the outstanding dues are with UPPCL, PDD J&K and BYPL.

POWERGRID

C.1.22 Representative of POWERGRID stated that around Rs.800-900 crore is pending with various utilities, mainly with UPPCL and PDD J&K.

C.1.23 TCC urged all utilities to clear their outstanding dues at the earliest.

C.1.24 All payable utilities were asked to bring a liquidation plan in the next meeting, explaining how they plan to clear their outstanding dues.

NRPC Deliberation

C.1.25 NRPC expressed concern over non-payment of dues by defaulting entities and advised all members to clear the dues in a timely manner.

C.2 Opening of Letter of Credit (LC)

TCC Deliberation

C.2.1 Representatives of SJVNL, NPCIL and NHPC gave the list of beneficiaries that are yet to submit the requisite Letter of Credit for the FY 2018-19. The details of the same were enclosed in the Agenda note of this meeting

C.2.2 Representative of SJVNL informed that letter for opening LC for FY 2019-20 has also been issued by their office.

C.2.3 MS, NRPC urged the utilities, to mandatorily open LC as it is regulatory requirement.

NRPC Deliberation

C.2.4 NRPC advised all constituents to open the LC as per provisions in their PPA and CERC regulations.

C.3 Recent CERC Orders/draft Regulations

TCC Deliberation

C.3.1 MS, NRPC informed that Fast Response Ancillary Services (FRAS) pilot project has been implemented in NR w.e.f. 26th November 2018. The approved procedure for the same was attached in the agenda note of the meeting.

C.3.2 Representative of NLDC informed that the pilot project has been a success so far. As per the approved procedure, FRAS up and FRAS down has to be squared off over the day, which may not be possible every time. The same would be incorporated in the feedback to be sent to the Commission.

C.3.3 Since a lot of utilities had expressed concern over huge financial implications due to DSM 4th amendment, NRPC Sectt. gave a presentation highlighting issues being faced by various utilities (Annexure IV). The agenda points of TPDDL, PSPCL, Delhi SLDC and UP SLDC were also incorporated in the presentation. NRPC Sectt. gave some suggestions regarding how certain clauses of DSM 4th amendment may be modified to address the issues of the utilities.

- C.3.4 Representative of UP was of the view that states should be allowed to change their requisition from CGSs one-time block prior to despatch instead of the present four.
- C.3.5 Representative of Delhi SLDC stated that they were facing issues with regard to sign reversal since no load shedding is allowed in Delhi. Also, Delhi has 5 DISCOMs and sign reversal of Delhi as a regional entity may not take place even if all DISCOMs individually manage their sign reversals.
- C.3.6 Representative of Punjab highlighted that SEM vs SCADA mismatch has resulted in huge financial penalties on the state.
- C.3.7 Representative of POWERGRID informed that they have already filed a case in CERC with regard to applicability of additional charge due to sustained deviation on HVDC substations.
- C.3.8 ED, NRLDC suggested following measures to be adopted in view of new DSM regulations:
- Improvement in load forecasting.
 - Reserves to be maintained by all states either within states or in ISGS.
 - Matching of SCADA and SEM data.
- C.3.9 He also stated that the new changes in the system viz. DSM, SCED, RRAS are a part of transition phase and requested constituents to cooperate and adjust with the system for smooth implementation and adoption of the above changes in the system.
- C.3.10 MS, NRPC urged all utilities to again submit their issues and suggestions with regard to DSM 4th amendment so that the same may be forwarded to CERC for consideration.
- C.3.11 Representative of NLDC gave a presentation on salient features of pilot project on SCED to be implemented w.e.f. 01st April 2019.
- C.3.12 Representative of Delhi SLDC expressed concern over hasty implementation of certain regulations. He urged the forum to advise NLDC/POSOCO to share their discussion papers in RPC forum before submission to CERC so that the views of constituents may be taken before its implementation.

NRPC Deliberation

- C.3.13 MS, NRPC informed that most of the utilities had highlighted the issues being faced by them in the TCC meeting. All utilities were asked to submit their issues/suggestions with regard to DSM 4th amendment which would once again be forwarded to CERC for consideration.
- C.3.14 MD, PSPCL enquired whether the additional charge imposed on Punjab due to sustained deviation during the month of January 2019 would be waived off considering huge mismatch of SCADA and SEM during that month. MS, NRPC stated that PSPCL may approach CERC in this regard.

C.4 Declared Capacity (DC) of SJVN's Generating Stations (Agenda by SJVN)

TCC Deliberation

C.4.1 MS, NRPC informed that revised REAs taking into account revised DC have been issued and hence the agenda may be dropped. TCC agreed for the same.

C.5 4th amendment of Deviation Settlement Mechanism Regulations, 2014 (Agenda by TPDDL)

C.5.1 Discussed along with agenda C.3.

C.6 Mis-match of SEM and SCADA Data -Undue financial liabilities to PSPCL (Agenda by PSPCL)

C.6.1 Discussed along with agenda C.3.

C.7 Double recovery of transmission charges in respect of BBMB Complex by PGCIL & BBMB (Agenda by Rajasthan)

TCC Deliberation

C.7.1 MS, NRPC informed that in the matter of tariff determination of BBMB assets, CERC in its order on Petition no. 16/TT/2017 dated 09.01.2019 has stated that

“The O&M Expenses allowed in the instant order shall not be included in the PoC charges and shall be claimed by the Petitioner from the participating States in proportion to the allocation of power of BBMB.”

C.7.2 Hence, calculation PoC charges and losses for the quarters Q3 and Q4 of FY 2016-17 in which assets of BBMB were included would need to be carried out again.

C.7.3 Representative of POWERGRID informed that CERC in para 39 the same order has stated that the issue of excess payment collected for Q3 and Q4 of FY 2016-17 through PoC would be dealt with separately by CERC on a petition for the same. Hence beneficiary states of BBMB must file a petition in CERC in this regard.

C.7.4 Representative of HP and Rajasthan were of the opinion that since the original petition was filed by BBMB in which order by CERC has been passed, petition for issue of excess payment should also be filed by BBMB.

C.7.5 Representative of BBMB stated that since states were the affected party, they should file the petition in CERC.

C.7.6 The matter was referred to NRPC for deliberation.

NRPC Deliberation

C.7.7 NRPC opined that the states which have been affected due to inclusion of BBMB assets in PoC should file the petition in CERC for recovery of excess payment collected.

C.8 Regarding commissioning of OPGW under Package V and 1(a) on various transmission lines of PSTCL (Agenda by PSTCL)

TCC Deliberation

- C.8.1 Representative of PSTCL informed that OPGW and its terminal indoor equipment under Package-V have already been laid nearly 1 year back but their successful commissioning was still pending. He further told that issue has been raised with PGCIL regarding inordinate delay in commissioning.
- C.8.2 Representative of POWERGRID informed that 12 out of 14 links have been commissioned, however cable has to be connected with OPGW equipment by states. He stated that all other concerned utilities have completed the work. He informed that cable termination wasn't in the scope of the contractor. He suggested if required POWERGRID can give demo at any site as per the suggestion of PSTCL.
- C.8.3 Representative of PSTCL agreed that demo should be given by POWERGRID at the site suggested by Punjab. He stressed if in future POWERGRID has been awarded turnkey projects, they should ensure that end to end commissioning has been included in the project.

NRPC Deliberation

- C.8.4 NRPC noted the deliberations and requested POWERGRID that demo may be given at any site as per the suggestion of PSTCL.

C.9 OPGW connectivity at NHPC Power Stations under Central Sector scheme (Agenda by NHPC)

TCC Deliberation

- C.9.1 Representative of POWERGRID informed that they have exhausted options for Uri-II, alternate mode of communication like V-SAT would be implemented which would be booked under ULDC scheme.
- C.9.2 Regarding Parbati-III, it was informed that RoW issue has been resolved and it is expected to be completed by June, 2019.
- C.9.3 Regarding Sewa-II, J&K was requested to resolve the payment issue at the earliest.

NRPC Deliberation

- C.9.4 NRPC noted the TCC deliberations.

C.10 Replacement of S 900 RTU (Agenda by NHPC)

TCC Deliberation

- C.10.1 During 14th TeST Meeting held on 17th December 2018 POWERGRID informed that the case for purchase of new RTU is under technical evaluation and work order shall be placed by 30th January 2019.
- C.10.2 Representative of POWERGRID informed that award would be placed by the end of the week.

NRPC Deliberation

C.10.3 NRPC noted the TCC deliberations.

C.11 Status of DSM Charges:

TCC Deliberation

C.11.1 Representative of NRLDC gave an update on status outstanding DSM charges

Northern Region Deviation Charges Status as on 11.03.2019 Considering Week-47 (11/02/2019-17/02/2019) of F.Y. 2018-19

All Fig in Rs. Lakhs

S No.	Constituents	Total Deviation Charges Outstanding	Outstanding more than 30 Days	Outstanding more than 90 Days
1	PUNJAB	5264.64	2816.55	
2	JAMMU & KASHMIR	4882.46	1947.84	
3	CHANDIGARH	1545.00	754.20	
4	POWERGRID-NR	225.26	92.64	
5	UTTARAKHAND	292.34		
6	NEPAL (PTC)	64.50		

C.11.2 He further informed that earlier all constituents except J&K were paying DSM charges regularly. However, recently it was observed that there are outstanding payments towards DSM charges from Punjab, J&K, Chandigarh and POWERGRID for more than one month.

C.11.3 Representative of POWERGRID informed that they have already filed a case in CERC with regard to applicability of additional charge due to sustained deviation on HVDC substations. He stated that POWERGRID has decided that they would not be making any payment for DSM charges till the outcome of the case.

C.11.4 ED, NRLDC stated that the payment to the pool needs to be made as no stay has been granted by CERC.

C.11.5 TCC urged all utilities to clear their outstanding at the earliest.

NRPC Deliberation

C.11.6 NRPC noted the discussions and urged utilities to clear outstanding DSM charges to avoid late payment surcharge and regulation of power.

C.12 Status of LC against Deviation Charges delayed payment

TCC Deliberation

C.12.1 Representative of NRLDC informed that entities which defaulted in making payment to DSM pool account at least once during previous financial year have to open LC in accordance with CERC (Deviation Settlement Mechanism and related matters) Regulations, 2014. However, it has been observed that except Chandigarh, no defaulting constituent has not opened LC.

C.12.2 Constituents noted and agreed to look into it.

C.12.3 Representative of HPSEB stated that since HP SLDC is making payment of DSM charges now, HPSEB should be replaced with HP SLDC in the agenda.

NRPC Deliberation

C.12.4 NRPC noted the discussion.

C.13 Reactive Energy charges status

TCC Deliberation

C.13.1 Representative of NRLDC presented the outstanding Reactive Energy Charges status as on 11th March 2019. It was observed that there are outstanding charges of Rs.1.3 Cr. for more than 30 days and Rs.0.12 Cr. for more than 90 days by J&K. He informed that, as per CERC order NRLDC has to invoke regulation 25(A) of CERC (Open Access) regulation 2008. Therefore, NRLDC requested J&K to make timely payment to various pool accounts.

C.13.2 J&K agreed to expedite the payments.

NRPC Deliberation

C.13.3 The committee noted the discussions.

C.14 Congestion Charges

TCC Deliberation

C.14.1 Representative of NRLDC informed that there was some congestion charge delay payment interest outstanding by Haryana, Delhi and HP.

C.14.2 SE(C), NRPC stated that the matter of congestion charges was also discussed during 40th TCC/ 43rd NRPC meeting and 30th Commercial sub-committee meeting. In the CSC meeting, representative of Delhi SLDC had informed that interest on congestion charges had accrued since payable and receivable amount of congestion accounts were equated and Delhi SLDC was under the impression that some of their receivables was still pending. Prima-facie, the mistake seems bonafide.

C.14.3 Considering the issues involved, members agreed to waive off the congestion charge delay payment interest liability.

NRPC Deliberation

C.14.4 The Committee concurred with the TCC deliberations.

C.15 NRLDC Fee & Charges

TCC Deliberation

C.15.1 Representative of NRLDC informed that there is long outstanding (Since Nov'18) of NRLDC Fees & Charges dues (Rs. 19.13lakhs) by PDD J&K and requested J&K to expedite the payment.

C.15.2 Representative of J&K agreed to expedite the same.

NRPC Deliberation

C.15.3 The Committee noted the TCC deliberations.

C.16 Reconciliation of Pool Accounts (Oct-18 to Dec-18)

TCC Deliberation

C.16.1 Representative of NRLDC informed that Reconciliation statement of Deviation Charges and Reactive Energy Charges has been forwarded to entities and uploaded on website by NRLDC on 10.01.2019. Constituents were requested to verify / check the same and send a signed copy to NRLDC for reconciliation.

C.16.2 In case of non-receipt of any communication it would be presumed that reconciliation statement stands reconciled.

NRPC Deliberation

C.16.3 The Committee noted the TCC deliberations.

C.17 Status of AGC & Ancillary Services

TCC Deliberation

C.17.1 Representative of NRLDC presented the status of AGC and Ancillary services accounts.

C.17.2 MS, NRPC enquired about the plan to clear outstanding dues. NRLDC informed that they are making disbursement to RRAS/AGC service providers as per the surplus available in pool account and would also be utilizing the surplus available in other RLDC pool account.

C.17.3 Representative of NTPC proposed that the weekly DSM charges payable by NTPC should be adjusted against its outstanding RRAS dues. ED, NRLDC denied the same stating that there was no such provision of squaring off charges in the regulations.

NRPC Deliberation

C.17.4 The Committee noted the TCC deliberations.

C.18 Reconciliation of STOA (Short Term Open Access) Charges disbursement

TCC Deliberation

C.18.1 Representative of NRLDC informed that NRLDC has sent the reconciliation statement of open access disbursement for the Quarter- 2 of financial year 2018-19 on 24th October 2018.

C.18.2 The applicants/STU/SLDCs were requested to verify / check the statement and send a signed copy to NRLDC for reconciliation. In case of non-receipt of any communication it would be presumed that reconciliation statement stands reconciled.

NRPC Deliberation

C.18.3 The Committee noted the TCC deliberations.

C.19 STATUS of AMR as on 06.02.2019

TCC Deliberation

- C.19.1 Representative of NRLDC informed that out of 1825 SEMs for which AMR contract was awarded, work has been completed in only 1456 SEMs. Data was not even being received in a timely manner from some of the completed meters/ location.
- C.19.2 M/s Kalkitech, had carried the Elster meter integration test with AMR at Bahadurgarh substation. The npc file of the Elster meter was shared by POWERGRID to NRLDC for verification. However, the results were found unsatisfactory NRLDC vide its letter Ref. No. NRLDC/MO/metering/2132 dt 31.12.2018 have intimated POWERGRID to take-up the matter with M/s Kalkitech to complete the integration of all Elster make meters with AMR at the earliest.
- C.19.3 Representative of POWERGRID informed that due to less than satisfactory response from M/s Kalkitech, they have identified other vendor for above purpose.
- C.19.4 TCC showed concern regarding slow progress of AMR implementation and integration with Elster meters and urged POWERGRID to expedite the same.

NRPC Deliberation

- C.19.5 The Committee also expressed concern over the slow progress made in this matter and urged POWERGRID to expedite the same.

C.20 Integration of AMR System with Elster Meters

- C.20.1 Discussed along with agenda C.19.

C.21 AMR data through Fiber Optic Network

TCC Deliberation

- C.21.1 Representative of POWERGRID informed that AMR data communications have been successfully shifted on Optical Fibre Communications at 25 locations in NR.
- C.21.2 Representative of NRLDC stated that in the last meeting, TCC urged POWERGRID to submit the cost estimation for shifting of AMR data on OPGW for all other stations wherever feasible.
- C.21.3 In this regard, POWERGRID informed that they have not received certain information which is required for estimation of cost. The format of the same is attached with the minutes of 37th CSC meeting.
- C.21.4 TCC urged all utilities to provide the data in the format at the earliest. Utilities agreed for the same.

NRPC Deliberation

- C.21.5 The Committee noted the TCC deliberations.

C.22 Time drift Correction in SEMS

TCC Deliberation

- C.22.1 Representative of NRLDC requested all constituents to check the time drift of their respective SEMs. The summary of the same is given in the agenda note of the meeting.
- C.22.2 TCC emphasized that time drift could also lead to mismatch in SCADA and SEM data. It was again requested to check the time drift of the meters in premises on weekly basis.
- C.22.3 Constituents agreed to look into it.

NRPC Deliberation

- C.22.4 The Committee noted the TCC deliberations.

C.23 Failure of AMR Servers (both Main & Standby) at NRLDC

TCC Deliberation

- C.23.1 Representative of NRLDC NRLDC informed about the incident of failure of both main and standby server of AMR system.
- C.23.2 TCC expressed concern regarding failure of AMR servers and requested POWERGRID to ensure that proper AMC (including replacement of parts) with OEM is in place, so that such type of situation does not arise in future and the near 100% availability of AMR servers is maintained.
- C.23.3 POWERGRID informed that both the servers have already been restored and the availability of both main and stand by servers would be ensured in future.

NRPC Deliberation

- C.23.4 The Committee noted the TCC deliberations.

C.24 Reconciliation of old Annual Maintenance Contract (AMC) charges for Alstom System by PTCUL.

TCC Deliberation

- C.24.1 Representative of NRLDC informed that the issue of reconciliation of AMC charges by PTCUL has been discussed in following meeting:
- 39th TCC and 42nd NRPC meeting at Solan HP on 28th June
 - Special meeting between PTCUL, NRLDC & NRPC at Dehradun on 31.08.2017
 - Reconciliation meeting between PTCUL and NRLDC through VC on 07th Jan 2019
- C.24.2 As discussed in 40th TCC meeting, reconciliation meeting was held between NRLDC and PTCUL through VC. After reconciliation an amount of Rs.8, 30,128/- is pending from PTCUL. PTCUL agreed to release the payment at the earliest.
- C.24.3 Representative of NRLDC again requested PTCUL to make pending payment as due to non-payment contract closing is pending.

C.24.4 Representative of PTCUL noted and agreed for balance payment and timely payment in future.

NRPC Deliberation

C.24.5 The Committee noted the TCC deliberations.

C.25 Real Time data telemetry from Renewable Generators

TCC Deliberation

C.25.1 Representative of NRLDC stated that with increasing Renewable generation and necessity for forecasting of Renewable generation, the telemetry from developer's pooling station is required to be available at the concerned load dispatch centre in line with CERC approved procedure. This telemetry is also essential for Renewable Energy Management Centre (REMC).

C.25.2 Representative of Rajasthan raised the concern that even after its continuous pursuance, RE generators are still not providing telemetry.

C.25.3 TCC advised Rajasthan to file petition in SERC in this regard.

NRPC Deliberation

C.25.4 The Committee noted and agreed with the TCC deliberations.

C.26 Non redundancy in wideband network to NRLDC

TCC Deliberation

C.26.1 Representative of POWERGRID informed that a redundant network has been developed and the traffic shifting is under progress.

C.26.2 Representative of NRLDC requested to POWERGRID to expedite the same. POWERGRID assured for expeditious work in this regard.

NRPC Deliberation

C.26.3 The Committee noted the TCC deliberations.

C.27 Redundant communication:

TCC Deliberation

C.27.1 Representative of NRLDC informed that presently, 102 RTU out of 125 are reporting on dual channel. Therefore, redundant communication channels from all RTUs need to be ensured. Similar, situation would be at SLDC level and therefore, all SLDCs/STUs also requested to ensure communication redundancy at their control centres.

C.27.2 He requested members to finalize the timeline for redundancy of communication channel from RTU to NRLDC and from RTUs to SLDCs.

C.27.3 All TCC members assured to look into this issue.

NRPC Deliberation

C.27.4 The Committee noted the TCC deliberations.

C.28 Status telemetry of TCSC / FSC

TCC Deliberation

C.28.1 Representative of POWERGRID informed that the telemetry for FSC at Meerut has been provided.

C.28.2 Regarding, Bareilly and Unnao, he stated that the telemetry would be made available by Apr'19.

C.28.3 TCC noted the progress and urged POWERGRID to expedite the same.

NRPC Deliberation

C.28.4 The Committee noted the TCC deliberations.

C.29 Telemetry from Kurukshetra HVDC as per agreed in the separate meeting

TCC Deliberation

C.29.1 Representative of NRLDC informed that in meeting held at Kurukshetra on POWERGRID had agreed to provide telemetry of additional data of HVDC as shown below which is still to be completed:

S. No.	Description	Clause in MoM dated 12-07-2018
1	Extinction angle (<i>inverter and rectifier stations</i>) and Firing angle (<i>inverter and rectifier stations</i>)	17
2	Telemetry of "real-time mode (<i>bi-polar with both DMR, bi-polar with one DMR, etc.</i>) of operation" and "instance of changeover"	20

C.29.2 Matter was discussed in 40th TCC Meeting also in which NRPC requested PGCIL to explore the possibility.

C.29.3 Representative of POWERGRID informed that it might not be possible to provide the points as OEM is not agreeing to provide the same.

C.29.4 MS, NRPC emphasized the need for above data points for safe and secure grid operation and requested POWERGRID to again take up the matter with OEM. POWERGRID agreed to look into it.

NRPC Deliberation

C.29.5 The Committee noted the TCC deliberations.

C.30 Incorrect analog measurement from many locations

TCC Deliberation

C.30.1 Representative of NRLDC informed that the matter of non-availability/ of correct data from many lines was discussed during 14th TeST (*Telecommunication, SCADA and Telemetry*) Meeting during which NRLDC requested POWERGRID to procure some

transducers and cards to create spare for future requirement also. POWERGRID agreed to purchase the same in consultation with NRLDC and during AMC of RTUs, same shall be replaced at the earliest. Further PGCIL informed that all necessary transducers required would be replaced in next 30 days.

C.30.2 Representative of POWERGRID informed that replacement work has been carried out at Bahadurgarh and Hisar.

C.30.3 TCC noted the same.

NRPC Deliberation

C.30.4 The Committee noted the TCC deliberations.

C.31 Implementation of Deviation Settlement Mechanism (4th Amendment) Regulations (Agenda by Delhi SLDC)

C.31.1 Discussed along with agenda C.3.

C.32 Implementation of Deviation Settlement Mechanism (4th Amendment) Regulations (Agenda by UP SLDC)

C.32.1 Discussed along with agenda C.3.

C.33 Shifting of RLDC's declared peak hours (Agenda by UP SLDC)

TCC Deliberation

C.33.1 Representative of UPPCL informed that the peak hours declared by RLDC are not in consonance with the peak demand of UP. In his presentation, he informed that during the month of Nov'18, morning Demand Peak hours of UP started around 0600 Hrs while NRLDC declared peak started around 0630 Hrs therefore there was a 'delay' of 30 min in activation of ISGS hydro resources. Similarly, evening peak hours of UP started around 1830 Hrs whereas NRLDC activated the ISGS resources 30 min earlier.

C.33.2 He urged that the current practice of declaring only 3 hours as 'Peak Hours' can be modified by spreading the peak hours by accommodating the individual state requirements. The MWh limit can be kept as same. Also, NRLDC may facilitate the platform (under its Web-based Scheduling) where beneficiaries can swap/bank their allocated DCs as per their requirements for day-ahead/intra-day scheduling.

C.33.3 Representative of NRLDC stated that the issue of hydro scheduling and optimization was discussed in previous 156th OCC meeting. He again emphasized upon the following points:

- a) As decided and agreed in previous meetings, ISGS hydro generating stations are normally scheduled based on regional peak hours requirement. This practice is being followed in Northern region since long with the consent of all beneficiaries for better system operation.

- b) Inter-state hydro scheduling as per state demand requirement may not be feasible due to different peaks of different states. Hydro resources should be used optimally & effectively for benefits of the region as whole
- c) Generally, during peak hours, market rates are very high, therefore for certain period, states must manage their requirement either through portfolio management or through energy market.

C.33.4 MS, NRPC stated that in the upcoming OCC meeting, states should share the peak demand pattern. Based on that, NRLDC may shift its peak hours to benefit the region as a whole.

C.33.5 He emphasized that all states may explore possibilities and prepare a methodology to share benefits of unutilized power available with other state.

NRPC Deliberation

C.33.6 The Committee noted the TCC deliberations and opined that all utilities must coordinate to ensure effective utilization of hydro resources.

C.34 Allowing Day Ahead/Intraday Banking for hydro power from RLDC controlled ISGS (Agenda by UP SLDC)

C.34.1 Discussed along with agenda C.33.

C.35 Declaration of DC in consent with Buyer in low stock conditions (Agenda by UP SLDC)

TCC Deliberation

C.35.1 Representative of UPPCL through his presentation highlighted that it has been observed that in many cases that coal stock as per the norms is not being maintained by the Generator but they are still providing full DC knowing that their machines would not be scheduled. He opined that there should be a provision that if the coal stock is less than the provisions of regulations, DC of the generator shall be decided mutually with the buyer depending upon the coal stock.

C.35.2 Representative of NTPC stated that NTPC generators have been declaring DC as per provisions of IEGC depending on the best assessment of availability of fuel. Revision in DC, if any, is also being done as per IEGC regulations.

C.35.3 In respect of coal stock position, he stated that daily coal stock and supply position is also being posted on daily basis on CEA website.

C.35.4 TCC opined that all generators should faithfully declare DC considering all circumstances. Revision in DC during the day on account of low coal stock should be avoided at all costs. NRLDC/SLDCs were asked to give schedule to generators under provisions of IEGC in case they suspect misdeclaration of DC by a generator to avoid gaming.

NRPC Deliberation

C.35.5 The Committee concurred with the TCC deliberations.

D. ITEMS FOR NRPC

D.1 Reimbursement of Expenditure of NRPC Sectt. for FY 2018-19 by the members of NRPC

- D.1.1 In the 42nd NRPC meeting, Rs. 10 Lakh per member was approved as the contribution for the financial year 2018-19.
- D.1.2 In the 40th NRPC meeting held on 28.10.2017, it was decided to contribute the amount of Rs. 10.0 Lakh per member for the year 2017-18 toward reimbursing NRPC expenditure to GoI for the year 2017-18, for meeting the expenditure for meetings at Secretariat and other expenditure as approved by Chairperson, NRPC.
- D.1.3 In the 43rd NRPC meeting All members have agreed to make their payments for current year as well of the past years (if due) by Dec, 2018. But for current FY 2018-19, Contribution received from 12 members only and is still awaited from 30 members.
- D.1.4 Members were requested to expedite the pending payments for the FY 2018-19.

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

- D.2.1 MS, NRPC informed that for reimbursing NRPC expenditure to GoI and meeting the expenditure for meetings at Secretariat and other expenditure as approved by Chairperson, NRPC, constituent members are to pay annual contribution as decided at NRPC meetings from time to time.
- D.2.2 The contribution for previous years was still awaited from following members:

Sl. No.	Constituent Member	Amount (Rs.)
Financial Year 2017-2018		
1	UT of Chandigarh, Chandigarh	10.0Lakh
2	Dakshin Haryana BijliVitaran Nigam Ltd., Hisar	10.0Lakh
3	J&K Power Development Department, Srinagar	10.0Lakh
4	J & K State Power Development Corp. Ltd., Srinagar	10.0Lakh
5	MadhyanchalVidyutVitrان Nigam Ltd., Lucknow	10.0Lakh
6	Uttarakhand Power Corporation Ltd., Dehradun	10.0Lakh
7	Rosa Power Supply Company Ltd., Shahjahanpur	10.0Lakh

Sl. No.	Constituent Member	Amount (Rs.)
8	LancoAnpara Power Ltd., Gurgaon	10.0Lakh
9	Prayagraj Power Generation Co Ltd., Allahabad	10.0Lakh
10	Lalitpur Power Generation Company Limited, Noida	10.0Lakh
Financial Year 2016-2017		
1.	J&K PDD, Srinagar	7.0 Lakh Each
2.	PVVNL, Varanasi	
Financial Year 2015-2016		
1	J&K State Power Development Corp. Ltd., Srinagar	11.0 Lakh Each
2	Paschimanchal VVNL, Meerut	
3	GMR Energy Trading Limited, New Delhi	
Financial Year 2014-2015		
1	J&K State Power Development Corp. Ltd., Shrinagar	11.0 Lakh Each
2	Dakshinanchal VVNL, Agra	
3	Bajaj Energy Pvt. Ltd., Noida	
Financial Year 2012-2013		
1	Purvanchal VVNL, Varanasi	10.0Lakh

D.2.3 NRPC expressed concern over long pending payments and advised concerned members to make payment immediately.

D.3 HOSTING OF NEXT MEETINGS OF NRPC / TCC

As per agreed roster for hosting of meetings, the next meetings of TCC (42nd) & NRPC (45th), which would become due in June/July, 2019. Representative of NHPC agreed to host next meetings of TCC (42nd) & NRPC (45th) in 1st/2nd week of June, 2019.

Annexure-I**List of Participants of 41st Meeting of TCC on 18.03.2019 at Udaipur, Rajasthan**

S.No.	Name of Officer	Designation	Organization
A	Members of TCC		
1.	Sh. A. K. Kapur	TCC Chairman and Director (Tech)	PSTCL
2.	Sh. Avinash Dubey	Dev. Commissioner (Power)	PDD-J & K
3.	Shri B.M. Sud	Director (Tech.)	HPSEBL
4.	Shri. Ajmer Singh Gill	Director (Tech.)	HVPNL
5.	Shri Rakesh jolly	Chief Engineer/SO&C	HVPNL
6.	Sh. Keshav Singh	Dir(P&C)	HPPTCL
7.	Sh. N K Sharma	Dir (Dist)	PSPCL
8.	Shri Prem Prakash	Director(O)	DTL
9.	Shri. V. B. Bansal	Director	HPGCL
10.	Shri. Harjiwan Vyas	Executive Director(T)	SLDC, Delhi
11.	Shri. N. K. Sharma	CE	HPSLDC
12.	Shri S. P. Chaubay	Chief Engineer (TO)	UPRVUNL
13.	Shri N. S. Parmeshwaran	Executive Director(O&M)	NHPC
14.	Shri K.P. Singh	Chief Engineer (E&T)	NPCIL
15.	Sh. Anil Kumar Garg	GM	ADHPL
16.	Sh. Rajesh Kumar	Head Operations	Nabha Power
17.	Sh. S.S. Barpanda	General Manager	NRLDC
18.	Shri. Jagdish Kumar	Director (T)	IPGCL
19.	Sh. Anil Kumar Garg	GM (B. D.)	ADHPL
20.	Sh. Satish Jinda	CEO	JSW
B	Other Participants		
I	NRPC, Secretariat		
21.	Shri. M.A.K.P. Singh	Member Secretary	NRPC
22.	Shri Saumitra Mazumdar	Superintending Engineer	NRPC
23.	Shri R. P. Pradhan	Superintending Engineer	NRPC
24.	Shri Vikrant Singh Dhillon	Asst. Executive Engineer(C)	NRPC
25.	Shri. Kaushik Panditrao	Asst. Engineer(P)	NRPC
II	CEA		
	-		
III	BBMB		
26.	Shri. Anil Gautam	Director (PR)	BBMB
27.	Sh. Rajesh Gupta	CE/TS	BBMB
28.	Sh. H. S. Chugh	CE/SO	BBMB
IV	DELHI		
29.	Shri S.M. Verma	Executive Director (T)	IPGCL/PPCL
30.	Shri. Naveen Goel	Manager	SLDC, Delhi
V	HARYANA		
31.	Sh. Neeraj Ahuja	SE	SLDC
32.	Shri. Ashok Garg	Dy Secy. Gen.	HPGCL
VI	HIMACHAL PRADESH		
33.	Shri Deepak Uppal	Chief Engineer (ALDC)	HPSEBL
34.	Shri. Joginder Singh	Dy. CE	HPSEBL

VII	J&K		
VIII	PUNJAB		
35.	Sh. Y. P. S. Baath	CE	PSTCL
36.	Sh. Sanjeev Gupta	CE/TS	PSTCL
37.	Sh. Parmjeet Singh	CE/PPR	PSPCL
IX	RAJASTHAN		
38.	Sh. A. K. Arya	SE/SLDC	RVPNL
39.	Sh. C. L. Koli	SE(PP)	RVUNL
40.	Sh. Purshottam Dhariwal	SE	RVUNL
X	UTTAR PRADESH		
41.	Sh. Ashutosh Kumar	Ex. Director	UPPCL
42.	Sh. Brijesh Kr. Singh	EE (TO)	UPRVUNL
43.	Shri Mithilesh K Gupta	EE (SO)	UPSLDC
44.	Sh. S. C. Rawat	EE	UPSLDC
XII	NHPC		
45.	Shri Virendra Kumar	SM	NHPC
46.	Sh.S.K.Mishra	DGM(E)	NHPC
XIII	NTPC		
47.	Shri H. Harchandani	General Manager (Comml)NRHQ	NTPC
48.	Sh.A. basu Roy	GM	NTPC
49.	Sh. S.P.Kesarwani	DGM(Comml)	NTPC
XIV	PGCIL		
50.	Sh. Mukesh Khananna	GM(CTU-Plg)	POWERGRID
51.	Sh. Y. K. Dixit	GM(AM)	POWERGRID
52.	Sh. R.K. Tyagi	GM(AM)	POWERGRID
53.	Sh. K.N. Singh	CGM	POWERGRID
XV	SJVNL		
54.	Sh. Rajeev Agarwal	DGM	SJVNL
XVI	THDCIL		
55.	Sh. Rajeev Jain	DGM	THDCIL
56.	Sh. S. S. Panwar	GM	THDCIL
XVI.	NRLDC		
57.	Shri M M. Hassan	GM	NRLDC, POSOCO
58.	Sh. M. K. Agarwal	GM	NRLDC, POSOCO
59.	Shri Ankit Gupta	Deputy Manager	NRLDC, POSOCO
XVIII	Adani Power Raj. Ltd.		
60.	Shri Manoj Taunk	General Manager	Adani Power Ltd.
61.	Sh. Anshul Garg	AGM	Adani Power Ltd.
XIX	NLDC		

62.	Sh. N.Nallarasan	DGM	NLDC, POSOCO
XX	APCPL		
63.	Shr. P. Mediratta	AGM	APCPL
64.	Sh. Amit Hooda	Manager	APCPL
XXI	Uttarakhand		
65.	Sh. Sanjay Kumar Tamta	CE Coml	UPCL
XXII	Jhajar Power (CLP)		
66.	Sh. Om Prakash	Dy. Mgr.	JPL (CLP)

Annexure-II**List of Participants of 44th Meeting of NRPC on 19.03.2019 at Udaipur, Rajasthan**

S.N	Name of Officer	Designation	Organization
A	Members of NRPC		
1.	Shri A. Venu Prasad	Chairperson, NRPC and CMD	PSTCL
2.	Shri. Prakash Mhaske	Chairperson	CEA
3.	Shri. Vineet Garg	MD	HPGCL
4.	Shri. Kunji Lal Meena	CMD	RRVNL
5.	Smt. J. P. Kalta	MD	HPSEBL
6.	Shri Harjiwan Vyas	Executive Director(T)	SLDC, Delhi
7.	Shri Rakesh Jolly	Chief Engineer /SO&Comml.	HVPNL
8.	Shri Sunil Grover	MD	HPSLDC
9.	Shri M.A.K.P. Singh	Member Secretary	NRPC
10.	Shri. R. K. Sharma	MD	HPPTCL
11.	Sh. Sandeep Singhal	MD	PTCUL
12.	Sh. Janardan Choudhary	Director (T)	NHPC
13.	Sh. Anil Kumar Garg	GM	ADHPL
14.	Sh. Satish Jindal	CEO (Trading)	JSW Energy Ltd.
B.	Members of TCC		
15.	Sh. A. K. Kapur	TCC Chairman and Director (Tech)	PSTCL
16.	Sh. Avinash Dubey	Dev. Commissioner (Power)	PDD-J & K
17.	Shri B.M. Sud	Director (Tech.)	HPSEBL
18.	Shri. Ajmer Singh Gill	Director (Tech.)	HVPNL
19.	Shri. Y. K. Raizada	Director (Tech.)	RVPN
20.	Shri Rakesh jolly	Chief Engineer/SO&C	HVPNL
21.	Sh. Keshav Singh	Dir(P&C)	HPPTCL
22.	Sh. N K Sharma	Dir (Dist)	PSPCL
23.	Shri Prem Prakash	Director(O)	DTL
24.	Shri. V. B. Bansal	Director	HPGCL
25.	Shri. Harjiwan Vyas	Executive Director(T)	SLDC, Delhi
26.	Shri. N. K. Sharma	CE	HPSLDC
27.	Shri S. P. Chaubay	Chief Engineer (TO)	UPRVUNL
28.	Shri N. S. Parmeshwaran	Executive Director(O&M)	NHPC
29.	Shri K.P. Singh	Chief Engineer (E&T)	NPCIL
30.	Sh. Anil Kumar Garg	GM	ADHPL
31.	Sh. Rajesh Kumar	Head Operations	Nabha Power
32.	Sh. S.S. Barpanda	General Manager	NRLDC
33.	Shri. Jagdish Kumar	Director (T)	IPGCL
34.	Sh. Anil Kumar Garg	GM (B. D.)	ADHPL
C	Other Participants		
I.	NRPC, Secretariat		

S.N	Name of Officer	Designation	Organization
35.	Shri Saumitra Mazumdar	Superintending Engineer	NRPC
36.	Shri R. P. Pradhan	Superintending Engineer	NRPC
37.	Shri Vikrant Singh Dhillon	Asst. Executive Engineer(C)	NRPC
38.	Shri. Kaushik Panditrao	Asst. Engineer(P)	NRPC
II.	CEA		
39.	Sh. B. K. Sharma	PCE	CEA
III.	BBMB		
40.	Sh. Anil Gautam	Director (PR)	BBMB
41.	Sh. Rajesh Gupta	CE/TS	BBMB
42.	Sh. H. S. Chugh	CE/SO	BBMB
IV.	DELHI		
43.	Sh. S.M.Verma	E.D(T)	IPGCL/PPCL
44.	Sh. Naveen Goel	Manager	SLDC Delhi
V.	HARYANA		
45.	Sh. Neeraj Ahuja	SE	SLDC
46.	Shri. Ashok Garg	Dy Secy Gen	HPGCL
VI.	HIMACHAL PRADESH		
47.	Shri Deepak Uppal	Chief Engineer (ALDC)	HPSEBL
48.	Shri. Joginder Singh	Dy. CE	HPSEBL
VII.	J&K		
VIII.	PUNJAB		
49.	Sh. Y. P. S. Baath	CE	PSTCL
50.	Sh. Sanjeev Gupta	CE/TS	PSTCL
51.	Sh. Parmjeet Singh	CE/PPR	PSPCL
IX.	RAJASTHAN		
52.	M. M. Ranwa	CEO	RUVNL
53.	Sh. A. K. Arya	SE/SLDC	RVPNL
54.	Sh. C. L. Koli	SE(PP)	RVUNL
55.	Sh. Purshottam Dhariwal	SE	RVUNL
X.	UTTAR PRADESH		
56.	Sh. Ashutosh Kumar	Ex. Director	UPPCL
57.	Sh. Brijesh Kr. Singh	EE (TO)	UPRVUNL
58.	Shri Mithilesh K Gupta	EE (SO)	UPSLDC
59.	Sh. S. C. Rawat	EE	UPSLDC
XI.	NHPC		
60.	Shri Virendra Kumar	SM	NHPC

S.N	Name of Officer	Designation	Organization
61.	Sh.S.K.Mishra	DGM(E)	NHPC
XII.	NTPC		
62.	Shri H. Harchandani	General Manager (Comml)NRHQ	NTPC
63.	Sh.A. basu Roy	GM	NTPC
64.	Sh. S.P.Kesarwani	DGM(Comml)	NTPC
XIII.	PGCIL		
65.	Sh. Mukesh Khanna	GM(CTU-Plg)	POWERGRID
66.	Sh. Y. K. Dixit	GM(AM)	POWERGRID
67.	Sh. R.K. Tyagi	GM(AM)	POWERGRID
68.	Sh. K.N. Singh	CGM	POWERGRID
XIV.	SJVNL		
69.	Sh. Ashok Kumar	DGM(C&SO)	SJVN
70.	Sh. Rajeev Agarwal	DGM	SJVN
XV.	THDCIL		
71.	Sh. Rajeev Jain	DGM	THDCIL
72.	Sh. S. S. Panwar	GM	THDCIL
XVI.	NRLDC		
73.	Shri M M. Hassan	GM	NRLDC, POSOCO
74.	Sh. M. K. Agarwal	GM	NRLDC, POSOCO
75.	Shri Ankit Gupta	Deputy Manager	NRLDC, POSOCO
XVII.	Adani Power Raj. Ltd.		
76.	Shri Manoj Taunk	General Manager	Adani Power Ltd.
77.	Sh. Anshul Garg	AGM	Adani Power Ltd.
XVIII	JSW Energy		
78.	Sharad Mahendra	COO	JSW
XIX	NLDC		
79.	Smt. Meenakshi Davar	Director (HR)	POSOCO
80.	Sh. N.Nallarasan	DGM	NLDC POSOCO
XX	APCPL		
81.	Shr. P. Mediratta	AGM	APCPL
82.	Sh. Amit Hooda	Manager	APCPL
83.	C. K. Samanta	GM	APCPL
XXI	Jhajjar PL		
84.	Sh. Om Prakash	Dy. Mgr.	JPL (CLP)
85.	Sh. Divyadeep	Mgr	JPL
XXII	Uttarakhand		

S.N	Name of Officer	Designation	Organization
86.	Sh. Sanjay Kumar Tamta	CE Coml.	UPCL
XXIII	TPDDL		
87.	Sh. Praveen Verma	Addl. GM	TPDDL
88.	Sh. Subrata Das	GM (O&S)	TPDDL

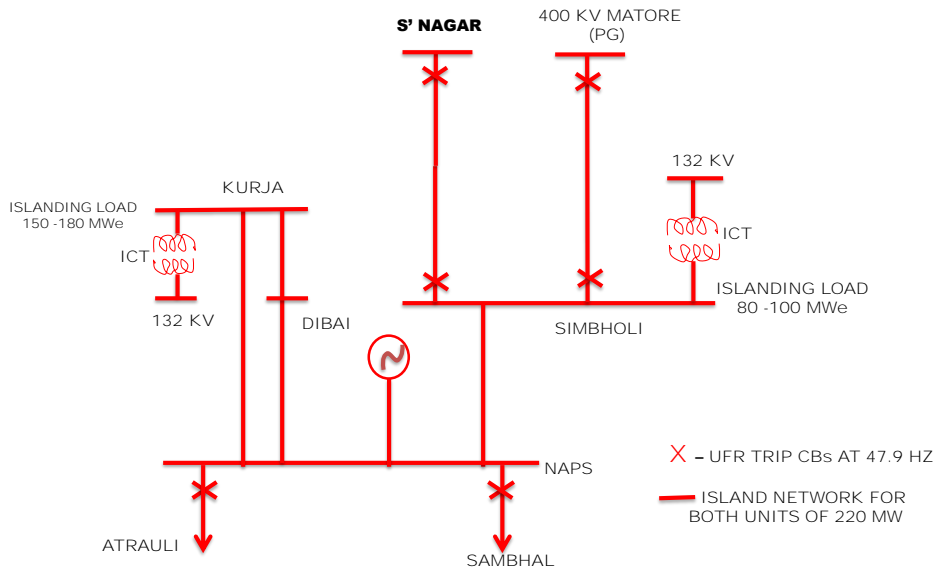
**PROPOSAL FOR MODIFICATION IN NAPS
ISLANDING SCHEME SUBSEQUENT TO LILO
OF 220 KV S'NAGAR LINE AT HAPUR AND
ADDITION OF NEW LINES AT 220 KV
SIMBHOLI SUB STATION OF UPPTCL.**

**K.P.SINGH
ASSOCIATE DIRECTOR, NPCIL, MUMBAI**

SALIENT FEATURES OF NAPS ISLANDING SCHEME

- **NAPS ISLANDING SCHEME TRIGGER AT 47.9 HZ.**
- **RATED CAPACITY OF EACH UNIT IS 220 MW.**
- **EXTERNAL LOAD REQUIREMENT FOR ISLANDING OPERATION IS ABOUT 90-100 MW FOR EACH UNIT.**
- **AT 47.9 HZ, NAPS FORMS AN ISLAND WITH SIMBHOLI, DIBAI & KHURJA SUB STATIONS.**
- **IF FREQUENCY DROP TO 47.5 HZ, ALL THE 220 KV LINES WOULD TRIP AT NAPS END AFTER 1 S DELAY.**
- **UNITS WOULD COME ON ITS OWN HOUSE LOAD AT 47.5 HZ AFTER 3 SECOND DELAY.**

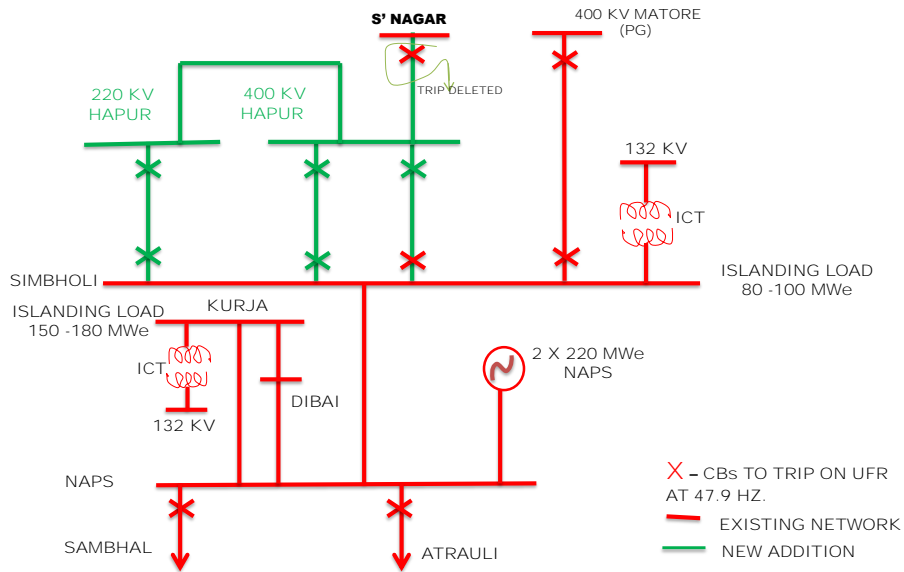
ORIGINAL NAPS ISLANDING SCHEME



RECENT MODIFICATIONS AT SIMBHOLI S/S AFFECTING NAPS ISLANDING SCHEME

- **SIMBHOLI-SHATABDINAGAR 220 KV LINE LOOPED IN AND LOOPED OUT AT NEW 765 KV / 400KV / 220KV S/S AT HAPUR .**
- **NEW 220 KV LINE INTRODUCED BETWEEN SIMBHOLI AND NEW S/S AT HAPUR.**
- **NEW 220 KV LINE INTRODUCED BETWEEN UPPTCL 220 KV HYBRID S/S AT HAPUR.**

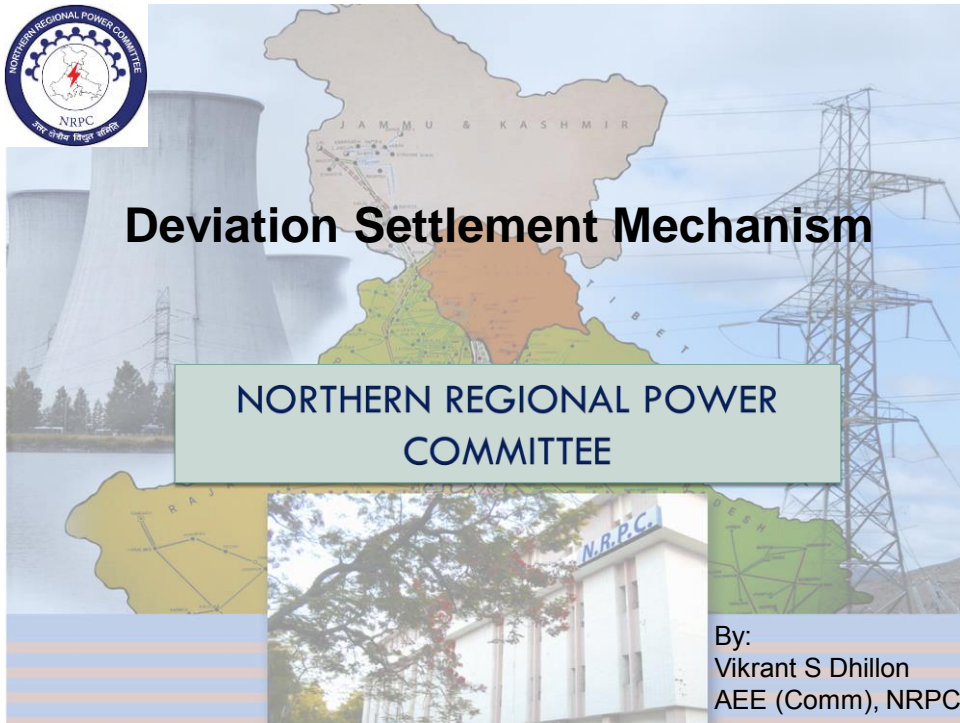
MODIFIED ISLANDING SCHEME POST LILO OF S'NAGAR 220 KV LINE AT HAPUR S/S AND ADDITION OF TWO MORE LINES BET. SIMBHOLI & HAPUR



MODIFICATIONS INCORPORATED IN ORIGINAL NAPS ISLANDING SCHEME IN OCTOBER 2018.

- U/F TRIP PROVIDED IN 220 KV HAPUR LINE 1&2 AT SIMBHOLI AT 47.9 HZ.
- U/F TRIP PROVIDED IN 220 KV HAPUR HYBRID LINE AT SIMBHOLI.
- NEW UFR INSTALLED AT HAPUR 220 KV S/S TO TRIP SIMBHOLI LINE 1&2 AT HAPUR END.
- NEW UFR INSTALLED AT HAPUR HYBRID S/S TO TRIP 220 KV SIMBHOLI LINE AT HAPUR S/S OF UPPTCL.
- UFR AT S'NAGAR 220 KV S/S TO TRIP S'NAGAR- HAPUR 220KV LINE REMOVED.

THANK YOU ALL

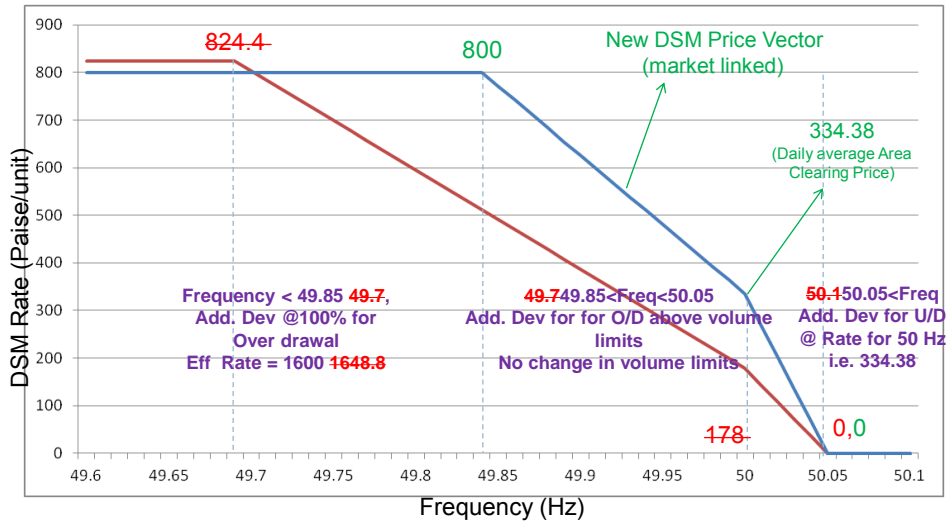


CERC DSM 4th Amendment

- Issued on 20th November 2018
- Came into force w.e.f 01.01.2019
- Major Changes:
 - ▣ Frequency band narrowed down to **49.85-50.05**
 - ▣ **DSM price vector** to be **linked to** price discovered in day ahead **energy market**
 - ▣ **Cap Rate for all Generating Stations**
 - ▣ **Additional charge** in case in the event of sustained deviation in one direction for more than 6 time blocks



DSM Price Vector-Illustration



Cap Rate

- Cap Rate introduced for all generators
- Earlier cap rate of 303.04 paisa/kWh was applicable for generating stations using coal, lignite or gas under APM.

CAP RATE	
Tariff Determined by Commission – ECR of last month	Others- 303.04 paisa/kWh
NTPC	NPCIL
NHPC	BBMB
SJVN	IPPs -ADHPL, Budhil, Malana 2, Sainj, SCL Bewar
THDC	
APCPL	
IPP- Karcham Wangtoo	



Additional Charge

- Clause (10) of Regulation 7 substituted as
 - “In the event of **sustained deviation** from schedule in **one direction** (positive or negative) by any regional entity, such **regional entity** (buyer or seller) shall have to **make sign** of their deviation from schedule changed, **at least once, after every 6 time blocks.**”
- Similar provision for 12 time blocks in previous regulation, but no provision of penalty.
- Violation of the requirement under this clause shall attract an **additional charge of 20%** on the **daily base DSM** payable / receivable as the case may be.



Additional Charge

- Illustration

Entity, starting from time block t1, should change the sign after time block t6. In case, sign change does not take place immediately after time block t6, but takes place from time block **t7 upto time block t12**, additional charge shall be levied equivalent to **one violation**. In case, sign change does not take place immediately after time block t12, but takes place from time block **t13 upto time block t18**, additional charge shall be levied equivalent to **two violations**.

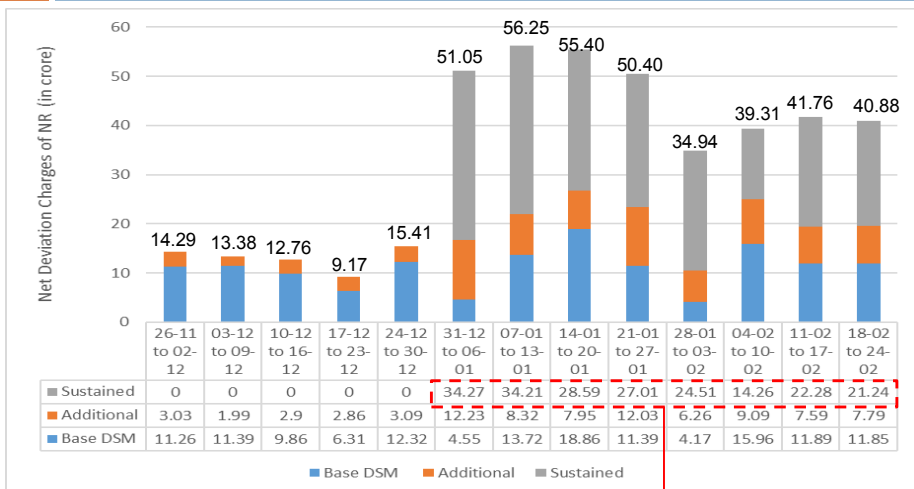


CERC DSM 4th Amendment-Issues

- DSM 4th Amendment
 - ▣ Financial Implications
 - ▣ Performance of various states
 - ▣ SEM vs SCADA: Punjab and Haryana
 - ▣ Grid Performance
 - ▣ Suggestions



Financial Implications



206.37 crore in 8 weeks through sustained deviation only



Financial Implications

Calculation without considering DSM 4th amendment

Northern Regional Power Committee
Deviation Settlement Account For The Week 31/12/2018 To 6/01/2019
ABSTRACT OF UTILITY WISE DEVIATION CHARGES
(All Figs. in Rs. Lakh)

Utilities	Amount Payable	Utilities	Amount Receivable
NER-NR	1771.27771	ER-NR	3557.76026
WR-NR	1106.05263	HARYANA	126.44988
RAJASTHAN	322.12533	NEPAL	3.45563
PUNJAB	290.84576	N.F.L.	0.50314
UTTAR PRADESH	223.56716	POWERGRID_NR	13.53231
JAMMU AND KASHMIR	173.54141	NHPC	122.52895
HIMACHAL PRADESH	171.59623	SJVN	45.11769
CHANDIGARH	105.88786	THDC	43.23066
RAILWAYS	83.71331	BBMB	20.67802
UTTARAKHAND	79.74126	HBPCL	17.59870
DELHI	45.39235	HPPCL	3.82235
NTPC	40.84800	ADHPL	3.44853
APCPL	16.20184		
SCL	2.96057		
NTPC SOLAR	2.86138		
GREENKO BUDHIL	1.72390		
EPPL	0.60650		
Total	4438.94320	Total	3958.12612

Net receivable in pool ~ 4.8 crore

NOTE : Additional Deviation Amount Payable By Utilities : 288.68678



Financial Implications

Calculation AFTER DSM 4th amendment

Northern Regional Power Committee
Deviation Settlement Account For The Week 31/12/2018 To 6/01/2019
ABSTRACT OF UTILITY WISE DEVIATION CHARGES
(All Figs. in Rs. Lakh)

Utilities	Amount Payable	Utilities	Amount Receivable
NER-NR	2846.65196	ER-NR	5665.00756
WR-NR	1636.46887	NHPC	60.00215
PUNJAB	1267.59636	SJVN	11.14466
JAMMU AND KASHMIR	958.62552	BBMB	9.30785
RAJASTHAN	837.51065	THDC	7.80201
HIMACHAL PRADESH	542.90459	HBPCL	3.45770
UTTAR PRADESH	522.36904	ADHPL	1.89261
RAILWAYS	506.37545	HPPCL	1.67652
UTTARAKHAND	480.15342		
CHANDIGARH	468.78325		
DELHI	357.83705		
HARYANA	99.93582		
NEPAL	30.17172		
N.F.L.	2.29954		
POWERGRID_NR	38.94527		
NTPC	224.74839		
APCPL	26.95039		
NTPC SOLAR	6.95212		
SCL	4.98642		
GREENKO BUDHIL	3.99394		
EPPL	1.43383		
Total	10865.69360	Total	5760.29106

Net receivable in pool ~ 51.05 crore

NOTE : Additional Deviation Amount Payable By Utilities : 1223.33649



Financial Implications- Statewise

Calculation for week 311218 to 060119 (Rs crore)

State	Base+ Add+ Adj Devi charges	Base+ Add +Adj Devi charges (after 4 th amendment)	Sustained deviation charges	Net Deviation Charges (after 4 th amendment)
Chandigarh	1.06	1.87	2.82	4.69
Delhi	0.45	1.23	2.35	3.58
Haryana	-1.26	-1.24	2.24	1.00
Himachal Pradesh	1.72	3.11	2.32	5.43
J&K	1.73	3.74	5.85	9.59
Punjab	2.91	5.43	7.25	12.68
Rajasthan	3.22	6.59	1.77	8.36
Uttar Pradesh	2.24	4.56	0.66	5.22
Uttarakhand	0.80	1.83	2.97	4.80

Higher than Base + Additional Deviation charges for most states



Sustained Deviations- State wise performance

State/ Week	Wk-41	Wk-42	Wk-43	Wk-44	Wk-45	Wk-46	Wk-47	Wk-48	Avg
Chd	65	79	80	74	75	83	80	69	76
Delhi	49	57	55	56	60	47	48	49	53
Haryana	28	32	29	38	24	23	14	9	25
HP	28	38	23	25	14	21	11	19	22
J&K	50	49	60	60	67	71	76	79	64
Punjab	51	63	53	46	35	15	11	9	35
Rajasthan	18	10	14	18	14	17	15	10	15
UP	9	17	8	15	6	22	20	13	14
UK	50	59	48	16	56	53	51	51	48
Total	348	404	370	348	351	352	326	308	



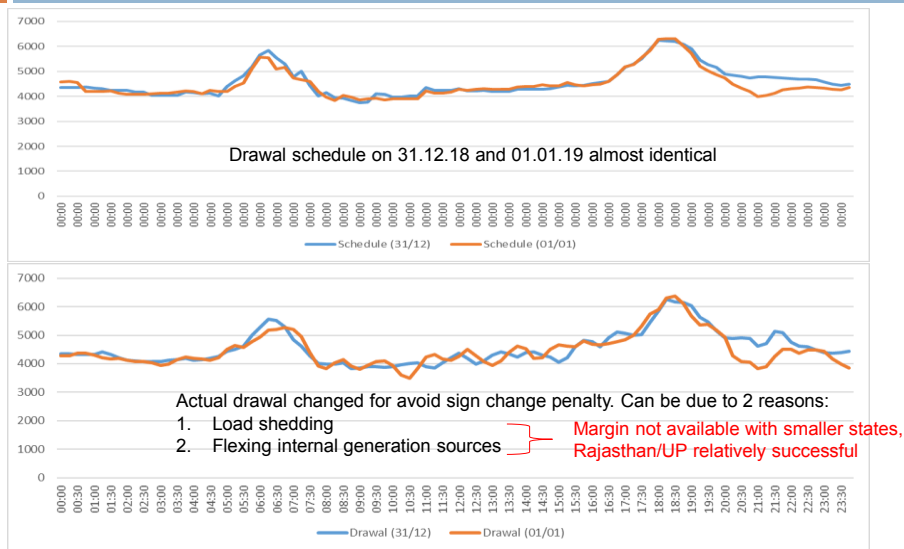
Sustained Deviation Charges- State wise performance

State/ Week	Wk-41	Wk-42	Wk-43	Wk-44	Wk-45	Wk-46	Wk-47	Wk-48	Total (Rs Lakh)
Chd	281.81	190.15	143.91	119.05	151.05	71.01	50.35	77.43	1,084.75
Delhi	234.82	369.21	171.90	200.56	378.41	136.00	201.69	277.16	1,969.74
Haryana	223.65	278.84	142.65	282.47	205.78	90.12	115.98	28.42	1,367.91
HP	232.15	263.19	73.25	83.88	105.32	90.90	83.05	176.50	1,108.24
J&K	585.12	211.50	609.95	623.13	665.36	464.65	999.47	1,003.95	5,163.13
Punjab	724.92	953.87	773.99	333.13	201.02	48.98	31.53	10.86	3,078.29
Rajasthan	176.54	53.65	73.98	127.65	41.37	99.06	51.86	64.07	688.18
UP	65.77	146.60	53.83	83.82	17.93	60.95	335.57	208.41	972.88
UK	297.00	191.92	163.69	137.27	219.20	154.85	194.34	166.22	1,524.50

More than total DSM charges paid for entire FY 2017-18 for some states



Success of UP?





SEM vs SCADA: Punjab and Haryana

Date	Haryana		Punjab	
	SCADA	SEM	SCADA	SEM
01-Jan-19	1	3	3	8
02-Jan-19	1	3	3	9
03-Jan-19	1	7	4	7
04-Jan-19	1	5	2	7
05-Jan-19	0	5	2	10
06-Jan-19	3	5	3	10
07-Jan-19	2	4	3	8
08-Jan-19	3	8	2	9
09-Jan-19	1	2	0	11
10-Jan-19	2	4	1	6
11-Jan-19	1	4	1	10
12-Jan-19	1	8	3	10
13-Jan-19	2	2	0	9
14-Jan-19	3	5	1	8
15-Jan-19	3	4	0	9
16-Jan-19	0	1	1	7
17-Jan-19	1	2	3	13
18-Jan-19	0	5	1	7
19-Jan-19	0	5	1	5
20-Jan-19	1	7	1	4
TOTAL	27	89	35	167

SCADA vs SEM Punjab : 01.01.2019

■ U/D ■ Deviation SCADA (3)
■ O/D ■ Deviation SEM (8)

Time Block	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Schedule	978	980	980	986	888	888	888	888	887	879	882	882	931	933	930	930
Drawal (SCADA)	950	920	899	896	825	859	997	1000	967	950	940	953	956	986	1003	1036
Deviation (SCADA)	-28	-60	-82	-90	-62	-29	109	112	80	71	59	71	25	52	73	106
Drawal (SEM)	1026	990	974	966	896	930	1063	1068	1031	1013	1013	1016	1026	1057	1075	1107
Deviation (SEM)	48	10	-6	-19	9	42	175	180	144	134	131	134	95	123	146	178
Time Block	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Schedule	970	965	1011	1104	1229	1358	1563	1850	1852	1885	1860	1926	1727	1779	1500	1328
Drawal (SCADA)	1043	1031	1024	999	1105	1390	1636	1788	1864	1977	2035	1905	1864	1735	1569	1408
Deviation (SCADA)	73	66	13	-105	-124	32	73	-62	12	93	175	-21	137	-45	69	79
Drawal (SEM)	1104	1087	1077	1082	1177	1475	1735	1856	1944	2021	2061	1961	1903	1793	1562	1410
Deviation (SEM)	134	122	66	-22	-52	117	172	6	92	136	202	35	176	14	63	82
Time Block	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
Schedule	1343	1283	1117	1054	916	943	946	911	1029	1038	1040	1042	975	965	950	946
Drawal (SCADA)	1235	1284	1251	1143	964	968	969	866	887	976	928	959	947	972	993	979
Deviation (SCADA)	-108	1	134	89	48	25	23	-44	-143	-62	-112	-84	-28	8	42	33
Drawal (SEM)	1283	1304	1269	1173	963	1050	1077	992	1000	1092	1060	1089	1057	1110	1148	1150
Deviation (SEM)	-60	21	152	119	47	107	131	81	-29	54	19	46	82	145	198	204
Time Block	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
Schedule	956	940	936	937	927	926	926	943	952	951	944	952	984	983	986	981
Drawal (SCADA)	979	928	932	991	1041	976	861	858	883	891	938	956	937	954	1025	1046
Deviation (SCADA)	22	-12	-5	55	114	50	-65	-85	-69	-59	-7	4	-48	-29	40	65
Drawal (SEM)	1127	1070	1081	1193	1154	1010	897	926	950	952	1018	1051	994	986	1094	1112
Deviation (SEM)	171	129	145	256	227	84	-28	-17	-2	2	74	98	10	3	108	131
Time Block	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
Schedule	959	1084	1151	1309	1436	1481	1403	1533	1502	1509	1519	1471	1367	1094	924	758
Drawal (SCADA)	1000	1043	1096	1089	1394	1434	1373	1475	1574	1563	1497	1384	1220	1094	876	799
Deviation (SCADA)	41	-40	-55	-220	-41	-48	-31	-58	72	54	-22	-87	-146	-1	-48	41
Drawal (SEM)	1074	1125	1182	1350	1525	1550	1488	1551	1634	1633	1538	1422	1242	1122	940	823
Deviation (SEM)	115	41	31	41	90	69	84	17	132	125	18	-49	-124	28	16	65
Time Block	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96
Schedule	1099	1079	1060	1043	1208	1208	1224	1273	1284	1177	1189	1185	1149	1148	1148	1162
Drawal (SCADA)	892	1005	1044	1128	1180	1133	1089	1141	1126	1172	1225	1205	1159	1124	1075	1031
Deviation (SCADA)	-207	-74	-16	86	-28	-74	-135	-132	-158	-5	35	20	9	-24	-73	-131
Drawal (SEM)	841	980	1093	1201	1257	1207	1203	1247	1237	1267	1320	1297	1248	1210	1161	1125
Deviation (SEM)	-258	-99	33	159	49	-1	-21	-25	-47	89	131	111	99	62	13	-37



Additional Sustained Deviation Charges due to SEM vs SCADA Mismatch

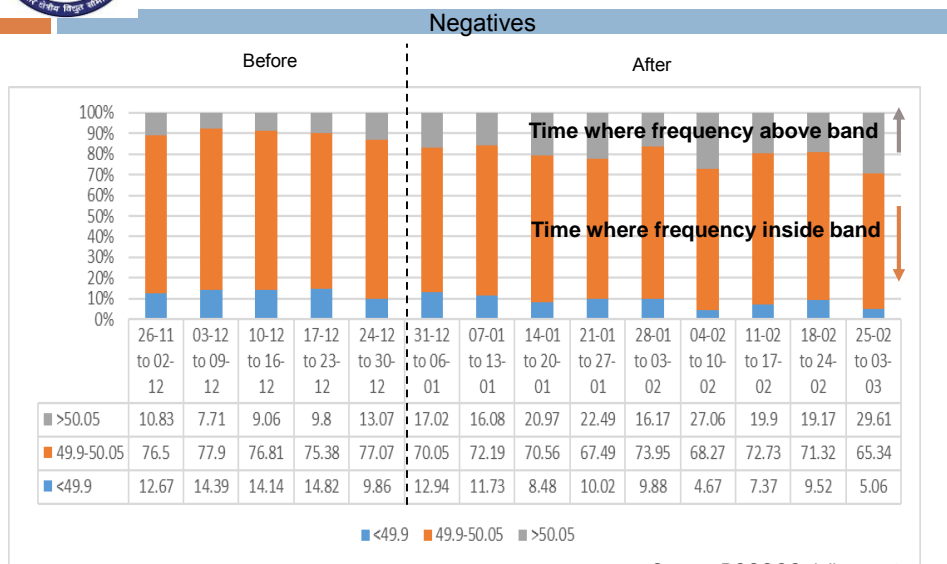
Date	Haryana		Punjab	
	SCADA	SEM	SCADA	SEM
01-Jan-19	0.34	1.01	37.16	99.10
02-Jan-19	8.31	24.92	41.26	123.79
03-Jan-19	11.40	79.77	68.22	119.38
04-Jan-19	13.09	65.43	33.54	117.38
05-Jan-19	0.00	42.91	26.91	134.54
06-Jan-19	5.76	9.60	39.74	132.46
07-Jan-19	5.31	10.62	44.92	119.78
08-Jan-19	27.32	72.85	32.21	144.95
09-Jan-19	6.80	13.60	0.00	198.11
10-Jan-19	20.85	41.70	11.44	68.64
11-Jan-19	11.97	47.90	14.10	141.02
12-Jan-19	10.47	83.78	50.79	169.30
13-Jan-19	8.40	8.40	0.00	112.09
14-Jan-19	2.36	3.94	11.80	94.40
15-Jan-19	7.92	10.56	0.00	99.68
16-Jan-19	0.00	2.00	14.49	101.46
17-Jan-19	6.90	13.80	82.02	355.42
18-Jan-19	0.00	44.55	10.01	70.08
19-Jan-19	0.00	37.85	9.38	46.88
20-Jan-19	4.28	29.95	1.51	6.03
TOTAL	151.47	645.12	529.49	2454.49

Rs 4.94 crore

Rs 19.25 crore



Grid Performance after 4th Amendment



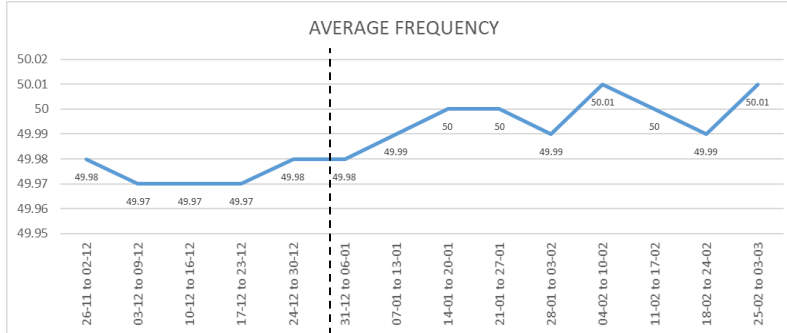
Source: POSOCO daily reports



Grid Performance after 4th Amendment

Positives

- Average frequency has improved



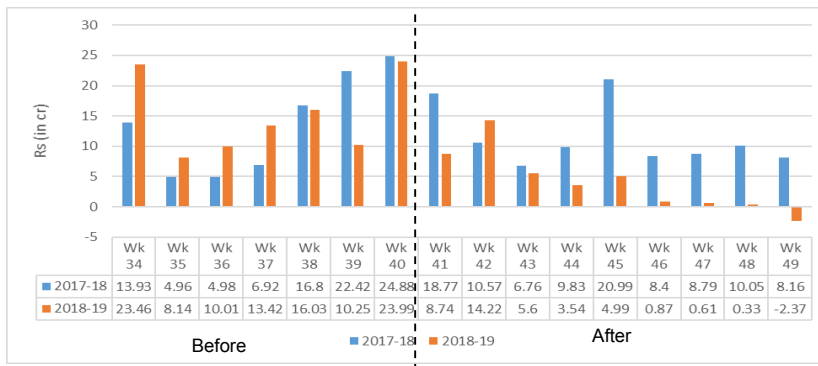
- No. of units on bar - ↑



Grid Performance after 4th Amendment

Positives

- Amount being spent on ancillary services- ↓



2017-18 - 94.90 cr
2018-19 - 105.30 cr

2017-18 - 102.32
2018-19 - 36.53



Issues with Sustained Deviation Charges

- Charges (20% of daily base DSM per violation) unreasonably high
- Objective of DSM regulations :
“maintain grid discipline and grid security as envisaged under grid code through commercial mechanism of Deviation settlement”.
- Reason why deviation charges at lower frequency are higher, since overdrawal at lower frequency harms grid security more compared to overdrawal at higher frequency.
- However, Commercial mechanism of sustained deviation charges may force utilities to act in a manner which is against grid security.



Issues with Sustained Deviation Charges

□ Illustration-

Time Block	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12
Freq	49.99	49.93	49.99	50.02	50.02	49.97	49.96	50	49.96	49.98	49.99	49.93
Deviation	UD	UD	UD	OD	OD	OD	UD	OD	OD	OD	OD	UD
Time Block	D13	D14	D15	D16	D17	D18	D19	D20	D21	D22	D23	D24
Freq	49.99	50.01	50.03	49.99	49.97	49.99	49.96	49.91	49.9	49.95	49.97	49.98
Deviation	UD	UD	UD	OD	UD	OD	UD	OD	OD	OD	OD	UD
Time Block	D25	D26	D27	D28	D29	D30	D31	D32	D33	D34	D35	D36
Freq	50.02	50.02	50.01	49.95	49.97	49.95	49.8	49.84	49.92	49.76	49.79	49.81
Deviation	UD	UD	OD	OD	UD	UD	UD	UD	UD	UD	OD	OD
Time Block	D37	D38	D39	D40	D41	D42	D43	D44	D45	D46	D47	D48
Freq	49.79	49.87	49.9	49.93	50.03	50.01	50.02	50.01	50.01	50.01	50	50.06
Deviation	UD	OD	OD	OD	OD	UD	UD	UD	OD	OD	OD	UD

Utility being forced to overdraw to avoid sustained deviation charges

Forced to pay deviation charges @ Rs 16/unit

Commercial mechanism may sometimes act against grid security which is the stated objective of DSM regulations.



Issues with Sustained Deviation Charges

- In case Drawing entity **Overdraws** continuously for **first 48** time blocks and then **Underdraws** continuously for **next 48** time blocks in such a way that Net **Base DSM** charge = **zero**, **Sustained Deviation Charges** would be **zero**, despite **14 violations** in a day.



Suggestions

- Sustained deviation by utilities should be discouraged as it is against grid discipline.
- However, the commercial mechanism to discourage sustained deviation should be fair and reasonable.
- The commercial mechanism should be such that grid security is not compromised just to achieve sign reversal.



Alternative Methodology

- 4.19 of DSM 4th amendment states:

“In the event of sustained.....
from positive to negative or vice versa as the case may be. “

Provided that violation of the requirement under this clause shall attract an additional charge of 20% on the **daily base DSM payable / receivable** as the case may be.

- Instead of levying an additional charge of 20% on the daily base DSM, this additional charges **may be levied** on the base DSM payable/ receivable of the **particular block**.
- Additional charges should not be levied in case of UD/OI at frequency below 49.85 and OD/UI at frequency above 50.05



Alternative Methodology

- Illustration:

Time Block	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
UD/OD	OD	OD	OD	OD	OD	OD	OD	OD	OD	OD	OD	OD	OD	OD	OD	UD
Base DSM charges	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16
Violations (existing method)							V						V			
Violations (proposed method)							V1	V1	V1	V1	V1	V1	V2	V2	V2	

- After 6th time block, sustained additional charge may **be levied** for all the time blocks **till sign reversal is achieved**.
- From **t7 to t12**, additional charge equivalent to **one violation** may be levied, from **t13 to t18- two violations** and so on...
- Additional charges should not be levied in case of UD/OI at frequency below 49.85 and OD/UI at frequency above 50.05
- Additional Charge =

$$[\{ |D7| + |D8| + |D9| + |D10| + |D11| + |D12| \} \times 1$$

$$+ \{ |D13| + |D14| + |D15| \} \times 2]$$

$$\times 0.2$$

Illustration Punjab: 01.01.2019

Time Block	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Frequency	49.99	49.93	49.99	50.02	50.02	49.97	49.96	50	49.96	49.98	49.99	49.93	49.99	50.01	50.03	49.99
Schedule	978	980	980	986	888	888	888	888	887	882	882	931	933	930	930	930
Drawal	1026	990	974	966	896	930	1063	1068	1031	1013	1013	1016	1026	1057	1075	1107
Deviation	48	10	-6	-19	9	42	175	180	144	134	131	134	95	123	146	178
Violations											V1	V1	V1	V1	V1	V1
Time Block	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Frequency	49.97	49.99	49.96	49.91	49.9	49.95	49.97	49.98	50.02	50.02	50.01	49.95	49.97	49.95	49.8	49.84
Schedule	970	965	1011	1104	1229	1358	1563	1850	1852	1885	1860	1926	1727	1779	1500	1328
Drawal	1104	1087	1077	1082	1177	1475	1735	1856	1944	2021	2061	1961	1903	1793	1562	1410
Deviation	134	122	66	-22	-52	117	172	6	92	136	202	35	176	14	63	82
Violations	V2	V2	V2									V1	V1	V1	V1	V1
Time Block	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
Frequency	49.92	49.76	49.79	49.81	49.79	49.87	49.9	49.93	50.03	50.01	50.02	50.01	50.01	50.01	50	50.06
Schedule	1343	1283	1117	1054	916	943	946	911	1029	1038	1040	1042	975	965	950	946
Drawal	1283	1304	1269	1173	963	1050	1077	992	1000	1092	1060	1089	1057	1110	1148	1150
Deviation	-60	21	152	119	47	107	131	81	-29	54	19	46	82	145	198	204
Violations								V1								V1
Time Block	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
Frequency	50.04	49.99	50.02	50.01	50.06	50	50	49.99	50.05	50.02	49.97	49.99	49.99	50.01	49.98	49.96
Schedule	956	940	936	937	927	926	926	943	952	951	944	952	984	983	986	981
Drawal	1127	1070	1081	1193	1154	1010	897	926	950	952	1018	1051	994	986	1094	1112
Deviation	171	129	145	256	227	84	-28	-17	-2	2	74	98	10	3	108	131
Violations	V1	V1	V1	V1	V1	V2										V1
Time Block	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
Frequency	50.03	50.04	50	50.02	50.05	50	50.02	50.01	50.02	49.91	49.98	50.02	50.07	49.99	50.01	50.02
Schedule	959	1084	1151	1309	1436	1481	1403	1533	1502	1509	1519	1471	1367	1094	924	758
Drawal	1074	1125	1182	1350	1525	1550	1488	1551	1634	1633	1538	1422	1242	1122	940	823
Deviation	115	41	31	41	90	69	84	17	132	125	18	-49	-124	28	16	65
Violations	V1	V1	V1	V1	V1	V2	V2	V2	V2	V2	V2					
Time Block	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96
Frequency	50.08	50.04	49.94	49.94	49.94	50.01	50.03	50.14	50.02	49.99	49.91	49.94	50	50.03	50.08	50.03
Schedule	1099	1079	1060	1043	1208	1208	1224	1273	1284	1177	1189	1185	1149	1148	1148	1162
Drawal	841	980	1093	1201	1257	1207	1203	1247	1237	1267	1320	1297	1248	1210	1161	1125
Deviation	-258	-99	33	159	49	-1	-21	-25	-47	89	131	111	99	62	13	-37
Violations																



NET DEVIATION CHARGES

Punjab (01/01/2019)	Without considering 4 th amendment	Existing calculation as per 4 th amendment	Calculation as per proposed methodology (22*1+10*2 violations)
Schedule (LUs)		273.73518	
Actual (LUs)		290.06401	
Capped Deviation (Rs Lakh)	37.60115	61.93981	61.93981
Additional Deviation (Rs Lakh)	1.49405	15.2833	15.2833
Sustained Deviation (Rs Lakh)	Nil	99.1037	6.81054
Total*	39.09520	176.3268	84.03365

*Excluding Adjusted Deviation Amount from Nuclear Plants



Advantages of Proposed Methodology

- Utilities that do not make sign change are still disincentivized through commercial mechanism, but the quantum of penalty is fair and reasonable.
- Commercial mechanism does not force utilities to act against grid requirement just to achieve sign reversal.
- The amount of sustained deviation penalty would be a function of the quantum of deviation after 6th time block unlike present methodology where it depends on quantum of base DSM charges.



Modifications required in regulation

- 4.19 of DSM 4th amendment states:

“In the event of sustained.....

.....from positive to negative or vice versa as the case may be. “

Provided that violation of the requirement under this clause shall attract an additional charge of 20% on the ~~daily~~ base DSM payable / receivable as the case may be.

(WORD DAILY MAY BE DELETED)

- Following exception may be added in 4.20 of DSM 4th amendment:

Provided that sign change requirement shall not be applicable in case of UD/OI at frequency below 49.85 and OD/UI at frequency above 50.05 .



THANK YOU..!!!