



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

दिनांक: 14.11.2025

सेवा में

As per attached list of Members and Other invitees

विषय: संरक्षण उप-समिति की 64 वीं बैठक की कार्यसूची |

Subject: Agenda for 64th Protection Sub-Committee Meeting.

संरक्षण उप-समिति की 64 वीं बैठक, दिनांक 21.11.2025 को 10:30 बजे से एनआरपीसी सचिवालय, कटवारिया सराय, नई दिल्ली में आयोजित की जाएगी | उक्त बैठक की कार्यसूची संलग्न है | यह उत्तर क्षेत्रीय विद्युत् समिति की वेबसाइट (<http://164.100.60.165/>) पर भी उपलब्ध है | 56 वीं पीएससी बैठक के निर्णयों के अनुसार, आईईजीसी 2023 के सुरक्षा कोड का अनुपालन सुनिश्चित करने के लिए एनआरपीसी सदस्य के अलावा अन्य विद्युत उपयोगिताओं को भी बैठक के लिए आमंत्रित किया गया है। कृपया बैठक में उपस्थिति सुनिश्चित करें।

The 64th meeting of Protection Sub-Committee is scheduled to be held on 21.11.2025 at 10:30 Hrs at NRPC Secretariat, Katwaria Sarai, New Delhi. The agenda for the meeting is attached herewith. The same is also available on NRPC website (<http://164.100.60.165/>). As per decisions of 56th PSC meeting, utilities other than NRPC member have also been invited for meeting for ensuring compliance of protection code of IEGC 2023. Kindly make it convenient to attend the same.

डी. के. मीणा
निदेशक (संरक्षण)

Agenda of 64th Protection Sub-Committee Meeting (21st November, 2025)

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Agenda for
64th Meeting of Protection Sub-Committee (PSC) of
Northern Regional Power Committee

Date and time of meeting : **21.11.2025 10.30 Hrs.**
Venue : **NRPC Secretariat, Katwaria Sarai,**
New Delhi

Part-A: Agenda by NRPC Secretariat

A.1. Confirmation of minutes of 63rd meeting of Protection Sub-Committee

A.1.1 63rd PSC meeting was held on 29.09.2025. Minutes of the meeting were issued vide letter dtd. 15.10.2025.

A.1.2 THDC has commented on the issued minutes at agenda point no. B.3.3 as below-

Agenda Item	Issued Text	Proposed Text
B.3.3 (Frequent elements tripping during August 2025 (agenda by NRLDC)	Most of the tripping were due to VSI problem which has been resolved.	<i>Tripping related to VSI has been referred to the VSI designer at GEPC Germany, and they are working on the same. The solution will be implemented across all units once it is received.</i>

A.1.3 Accordingly, it has been requested to amend the issued minutes.

Decision required from Forum:

Forum may approve the issued minutes along with amendment as requested by THDC.

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A.2. Status of action taken on decisions of 63rd Protection Sub-Committee meeting (agenda by NRPC Secretariat)

A.2.1 Status of action taken on the decisions of 63rd PSC meeting is attached as **Annexure-A.I.**

Decision required from Forum

Status may be deliberated for timely action on issues.

A.3. Submission of protection performance indices of 220 kV and above system along with reason and corrective action taken for indices less than unity to NRPC Secretariat for month of September- October 2025 (agenda by NRPC Secretariat)

A.3.1 As per clause 15 (6) of IEGC 2023;

- Users shall submit the following protection performance indices of previous month to their respective RPC and RLDC on monthly basis for 220 kV and above (132 kV and above in NER) system, which shall be reviewed by the RPC:

a) The **Dependability Index** defined as $D = Nc / Nc + Nf$

b) The **Security Index** defined as $S = Nc / Nc + Nu$

c) The **Reliability Index** defined as $R = Nc / Nc + Ni$

where,

Nc is the number of correct operations at internal power system faults,

Nf is the number of failures to operate at internal power system faults,

Nu is the number of unwanted operations,

Ni is the number of incorrect operations and is the sum of Nf and Nu

- Each user shall also submit the reasons for performance indices less than unity of individual element wise protection system to the respective RPC and action plan for corrective measures. The action plan will be followed up regularly in the respective RPC.

A.3.2 In earlier PSC meeting, it was decided that each utility shall submit the performance **indices of previous month by 7th day of next month.**

A.3.3 Accordingly, the status of the indices reported for the month of **September- October**

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2025 is attached as **Annexure-A.II.**

A.3.4 Further, based on submitted data by the utilities as on date, the summary of events that caused indices less than unity is also attached as **Annexure-A.III.**

A.3.5 **Submitted data has following issues:**

Some Utilities have not submitted data	As mention in Annexure-A.II.
Utilities have submitted data for some plants/regions but not all.	As mention in Annexure-A.II.
Some utilities have sent data after cut-off date of 7 th	As mention in Annexure-A.II.

Decision required from Forum:

- i. Forum may discuss cases where indices are less than 1 and may direct necessary action to be taken.
- ii. Forum may direct utilities to submit the performance indices of previous month by 7th day of next month element wise along with the reason for indices less than unity and corrective action taken.

A.4. Reporting of protection performance indices of SPS by SLDCs/RLDC (agenda by NRPC Secretariat)

A.4.1 As per clause 16 of IEGC 2023;

- *The users and SLDCs shall report about the operation of SPS immediately and detailed report shall be submitted within three days of operation to the concerned RPC and RLDC in the format specified by the respective RPCs.*
- *The performance of SPS shall be assessed as per the protection performance indices specified in these Regulations. In case, the SPS fails to operate, the concerned User shall take corrective actions and submit a detailed report on the corrective actions taken to the concerned RPC within a fortnight.*

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- A.4.2 The agenda was discussed in previous PSC meeting and following has been decided:
- i. Utilities and SLDCs shall report about the operation of SPS immediately and detailed report shall be submitted within three days of operation to the concerned RPC and RLDC.
 - ii. SLDCs may submit protection performance indices for SPS on monthly basis by 7th date of each month in the same format as that of protection performance indices of elements (lines/ICT etc). All utilities shall report their indices to concerned RLDC/SLDCs, then, after verifying SPS operation from all points, SLDC/RLDCs shall report performance indices to the NRPC Secretariat.
- A.4.3 However, it has been observed that reporting of operation/failure of operation of SPS is not being done regularly by the all SLDCs/utilities.
- A.4.4 **Indices for SPS in their control area have been submitted by UPSLDC, HPSLDC for the month of September, 2025 & UPSLDC, Rajasthan SLDC for the month of October, 2025 .**
- A.4.5 Based on submission by utilities, SLDCs' status of protection performance indices of SPS for the months of September- October 2025 is attached as **Annexure-A.IV.**
- A.4.6 NRLDC has informed SPS operation from Apr-October 2025. The same is attached as **Annexure-A.V.**

Decision required from Forum:

Forum may direct SLDC/utilities for compliance of following:

- I. Utilities and SLDCs shall report about the operation of SPS immediately and detailed report shall be submitted within three days of operation to the concerned RPC and RLDC.
- II. SLDCs may submit protection performance indices for SPS on monthly basis by 7th date of each month in the same format as that of protection performance indices of elements (lines/ICT etc). All utilities shall report their indices to concerned RLDC/SLDCs, then, after verifying SPS operation from all points, SLDC/RLDCs shall report performance indices to the NRPC Secretariat.

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A.5. Annual protection audit plan for FY 2026-27 (agenda by NRPC Secretariat)

A.5.1 As per clause 15 of IEGC 2023;

- *Annual audit plan for the next financial year shall be submitted by the users to their respective RPC by 31st October. The users shall adhere to the annual audit plan and report compliance of the same to their respective RPC.*

A.5.2 In view of above, all utilities were requested to submit the annual protection audit plan for FY-2026-27 latest by 31st October 2025 in 63rd PSC & in the 56th TCC & 81st NRPC meeting (held on 30-31 October 2025).

A.5.3 Accordingly, annual audit plans submitted by utilities have been compiled (enclosed as **Annexure- A.VI**).

Decision required from Forum:

Forum may direct utilities who have not submitted audit plan for FY 2026-27 as deadline of 31st October 2025 has already passed.

A.6. Third-party protection audit plan (agenda by NRPC Secretariat)

A.6.1 As per clause 15 of IEGC 2023:

All users shall also conduct third party protection audit of each sub-station at 220 kV and above (132 kV and above in NER) once in five years or earlier as advised by the respective RPC.

A.6.2 In view of above, third party audit plans submitted by utilities have been compiled (enclosed as **Annexure-A.VII**).

A.6.3 It is to mention that two different states may do mutual third-party audit as decided in the 58th PSC meeting.

A.6.4 Further, as per discussion of the 63rd PSC meeting, third party protection auditor has been planned as below-

Organization where audit is to be done	Organizations finalized for performing audit								
	D TL	RV PN	HV PN	UPPT CL	PST CL	HPPT CL	PTC UL	POWER GRID	External Vendor
DTL	-	-	-	-	✓	-	-	-	-
RVPN	-	-	✓	-	-	-	-	-	-

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HVPN	-	✓	-	-	-	-	-	-	-
UPPTCL	-	-	-	-	-	-	-	-	ERDA
PSTCL	✓	-	-	-	-	-	-	-	-
HPPTCL	-	-	-	-	-	-	-	✓	-
PTCUL	-	-	-	-	-	-	-	-	CBIP
UT of J&K	-	-	-	-	-	-	-	✓	-
UT of Ladakh	-	-	-	-	-	-	-	✓	-
UT of Chandigarh									
POWERGRID	-	-	-	-	✓	✓	-	-	✓

- A.6.5 The agenda was discussed in the 56th TCC & 81st NRPC meeting (held on 30-31 October 2025) wherein PSTCL representative informed that PSTCL is not able to conduct third party protection audit for DTL and POWERGRID due to shortage of protection manpower. However, he proposed that DTL may conduct third party protection audit of substations of PSTCL on payment basis.
- A.6.6 DTL representative conveyed that it has come to its notice now and it needs to be discussed with protection team and will be intimated accordingly.
- A.6.7 POWERGRID NR-2 has submitted the 3rd Party protection Audit plan having audit team, from HPPTCL, CBIP & CPRI. Therefore, POWERGRID NR-2 is not going with PSTCL for 3rd Party audit.
- A.6.8 DTL and PSTCL may inform the latest development in this regard at their end.

Decision required from Forum:

Forum may direct utilities to update the status of 3rd party protection audit as per the submitted audit plans. Subsequently, the audit reports along with compliance status may be submitted to NRPC Secretariat regularly.

A.7. Discussion on audit reports submitted by utilities and compliance of recommendations of protection audit (agenda by NRPC Secretariat)

- A.7.1 As per clause 15 (1) of IEGC 2023;

- *All users shall conduct internal audit of their protection systems annually, **and any shortcomings identified shall be rectified and informed to their***

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respective RPC. The audit report along with action plan for rectification of deficiencies detected, if any, shall be shared with respective RPC for users connected at 220 kV and above (132 kV and above in NER).

A.7.2 As per clause 15 (4) of IEGC 2023;

The third-party protection audit report shall contain information sought in the format enclosed as Annexure–1 (IEGC). The protection audit reports, along with **action plan for rectification of deficiencies detected, if any, shall be submitted to the respective RPC and RLDC or SLDC, as the case may be, within a month of submission of third-party audit report.** The necessary compliance to such protection audit report shall be followed up regularly in the respective RPC.

A.7.3 Following utility has submitted the internal audit report based on the audit done at their substations:

S.N.	FY (Audit Date)	Utility	Stations
1	2025-26	Apraava	Jhajjar Power Limited
2	2025-26	THDC	Koteshwar
3	2025-26	PPGCL	Bara
4	2025-26	NPCIL	RAP A
5	2025-26	IPGCL	PPS-III
6	2025-26	HPPTCL	3 Substations (Charor, Dehan, Phozal)
7	2025-26	RVPN	14 Substations (Bagru, Goner, Niwana, NPH, KKD, Mansarovar, Sitapura, Alwar, Rawatsar, Reengus, Balotara, Pindwara, Ramgarh, Sanchoe)
8	2025-26	NTPC	4 Plants (Auraiya, Dadri, Koldam, Tanda)
9	2025-26	Avaada	4 Plants (Avaada RJHN_240MW

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			Avaada sunce energy Pvt limited Avaada Sunrays Pvt. Ltd. Avaada Sustainable RJ Pvt. Ltd.)
10	2025-26	AGEL	4 plants (Adani Hybrid Energy Jaisalmer One Ltd. Adani Hybrid Energy Jaisalmer Two Ltd. Adani Hybrid Energy Jaisalmer Three Ltd. Adani Hybrid Energy Jaisalmer Four Ltd.)
11	2025-26	ABC Renewable Energy	ABC Renewable Energy (Rj-01) Private Limited
FY 2024-25			
1	2024-25	NTPC	5 Plants (Dadri (gas), Faridabad, Singrauli, Unchahar, Rihand)
2	2024-25	APCPL	Jhajjar
3	2024-25	MUNPL	Meja
4	2024-25	NPCIL	RAP B

A.7.4 Following utilities have submitted reports of 3rd Party audit:

S.N.	Utility	Stations
1	NHPC	5 Plants (Dulhasti, Salal, Bairasiul, Chamera-I, Parbati-III)
2	NPCIL	3 Stations (RAP A, B, C)
3	HPGCL	DCRTPP, Yamunanagar

A.7.5 HPSEBL has submitted compliance on observations of external audit team for the

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substations at Baddi, Uperla Nangal. Other utilities have not submitted action plan on recommendation of audit team.

- A.7.6 **The above submitted reports and action plan are available at NRPC website:**
<http://164.100.60.165/meetings/prsub.html>

Decision required from Forum:

Forum may discuss audit report as well as action taken by utilities on recommendations of audit. Further, other utilities may be directed to submit the protection audit report (for audited S/s as per submitted plan) to NRPC Secretariat and may update the compliance status regularly.

A.8. Qualifying criteria for the selection of prospective bidders (Company) for conducting Third-Party Protection Audits (agenda by NRPC Secretariat)

- A.8.1 The agenda was discussed in the 16th NPC meeting held on 04.07.2025 wherein it was apprised that ERPC developed qualifying criteria for the selection of prospective bidders for conducting Third-Party Protection Audits, encompassing technical criteria, personnel requirements, financial criteria, evaluation & selection criteria and disqualification clause with the objective of ensuring authenticity and reliability in the audit process.
- A.8.2 Further, it was decided that the same may be circulated by the NPC Secretariat to all RPCs for their views/comments.
- A.8.3 The agenda was discussed in 63rd PSC meeting, wherein Forum recommended that criteria word should be replaced with 'Guideline' so that it shall not be binding rather it should be reference document only.
- A.8.4 Further, NPC Division, CEA conducted meeting on 13.10.2025 with all RPCs and accordingly, revised qualification requirement was shared by NPC Division vide mail dated 04.11.2025 for comments. The same is attached as **Annexure-A.VIII**.
- A.8.5 All members are requested to submit comments for discussion in the meeting.

Decision required from Forum:

Members may like to discuss.

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A.9. Conducting the Examination for Protection Auditor Certification (Agenda by NRPC Secretariat)

- A.9.1 In 58th PSC meeting, Utilities expressed concerns regarding the quality of third-party protection audits conducted by the currently available vendors, stating that the audits are not meeting the standards and are not up to par. Additionally, the cost associated with these third-party audits is high. There had also been questions raised about the eligibility criteria of the experts conducting these audits.
- A.9.2 Subsequently, it was decided that matter may be taken up with NPC division, CEA. NRPC recommended the formulation of minimum eligibility criteria for protection auditors, along with the development of a formal certification system to evaluate their competency and suggested engaging NPTI to conduct a certification examination for protection auditors. It was also further proposed that the NPC Secretariat may coordinate with NPTI for organizing the examination and managing the overall certification process.
- A.9.3 Accordingly, in the 16th NPC meeting held on 04.07.2025, it was apprised that multiple challenges have been identified by NRPC in conducting the Third-Party Protection Audits. These include difficulties in finalizing vendors, inadequate response from potential vendors, concerns regarding the quality of audits, high associated costs, and lack of clarity concerning the eligibility of audit experts.
- A.9.4 Subsequently, it was decided that Protection Auditor Certification may be issued by CPRI, NPTI, or competent State Training Institutes. RPCs may coordinate with the State Training Institutes in this regard.
- A.9.5 In view of above, all members are requested to express their views on the above in the 63rd PSC meeting. States may inform about State Training Institute having the domain of protection/protection audit. Further, members may provide comments on the process of certification of protection auditor.
- A.9.6 In 63rd PSC meeting, Forum decided that for Protection Auditor Certification, NPTI, CPRI, State training institutes (UPPTCL, DTL, RVPN, HVPN), all CEA recognized private organizations' institutes and PAL, Manesar, PMI, Noida of NTPC (subject to CEA recognition) may be considered as competent. Comments on the process of certification of protection auditor will be discussed in the next meeting.
- A.9.7 Accordingly, members are requested to share the comments on process of certification of protection auditor.

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Decision required from Forum:

Members may like to discuss.

A.10. Procedure for approval of Protection Settings in Northern Region (agenda by NRPC Secretariat)

A.10.1 As per clause 14 (2) of IEGC 2023:

All users connected to the grid shall:

- i. obtain approval of the concerned RPC for (i) any revision in settings, and (ii) implementation of new protection system;*
- ii. intimate to the concerned RPC about the changes implemented in protection system or protection settings within a fortnight of such changes;*

A.10.2 Accordingly, procedure for approval of Protection Settings in Northern Region was discussed in the several PSC and NRPC meetings. Subsequently, Forum finalized the procedure for approval of protection setting as **Annexure-A.IX** in the 75th NRPC Meeting (held on 28 August 2024).

A.10.3 However, during the discussion of agenda 'First Time Charging of transmission lines/Bays/Transformer/Reactor etc. by NRLDC' in the 63rd PSC meeting, it was decided that protection settings of all given FTCs by NRLDC in every month will be considered for final approval in the upcoming PSC. Utility does not need to submit the agenda separately for final approval of protection settings. SLDCs have to share the FTC granted in a month in the same format as reported by NRLDC along with submission of protection settings folder for final approval of PSC forum. "*Procedure for Approval of Protection Settings in Northern Region*" issued in August 2024 may be revised.

A.10.4 In view of above, there is need to amend the earlier finalized procedure. Accordingly, considering the above decisions, draft procedure with amendments is attached as **Annexure-A.X**. The same is put up for approval of PSC Forum for further approval of NRPC Forum in upcoming meeting.

Decision required from Forum:

Members may discuss and approve the amendment in the finalized procedure.

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Part-B: Agenda by NRLDC

B.1 Status of remedial actions recommended during previous PSC meeting (agenda by NRLDC)

- B.1.1 As per the discussion in pervious PSC meetings, necessary remedial actions were recommended based on the analysis and discussion of the grid events. It is expected that necessary actions would have taken place. In view of the same, a mail dt 30.10.2025 has also been sent from NRLDC to constituents requesting to share the status of remedial actions taken. List of points to be discussed in 63rd PSC meeting is attached as **Annexure-B.I**. Constituents can email the details via mail to NRLDC and NRPC.

Decision required from Forum:

Members may like to discuss.

B.2 Multiple elements tripping events in Northern region in the month of September-October 2025 (agenda by NRLDC)

- B.2.1 A total of **24** grid events occurred during the months of **September-October 2025** of which **14** are of GD-1 category, **06** are of GI-2 category and **05** are of GI-1 Category. The tripping report of all the events have been issued from NRLDC. The list of major tripping events occurred during **September-October 2025** is attached as **Annexure-B.II**.
- B.2.2 Maximum delayed clearance of fault observed in event of tripping event at 400/220kV Kishenpur(PG) and 400kV Baglihar(J&K) at 21:58 hrs on 05th September 2025 (As per PMU at Kishenpur(PG) end, at 21:58:43 hrs, B-N phase to earth fault with delayed clearance of ~680 msec is observed).
- B.2.3 Remedial actions taken by constituents to avoid such multiple elements tripping may be shared.

As per IEGC clause 37.2 (c), Disturbance Recorder (DR), station Event Logger (EL), Data Acquisition System (DAS) shall be submitted within 24 hrs of the event and as per IEGC clause 37.2 (e), the user shall submit a detailed report in the case of grid disturbance or grid incidence within one (1) week of the occurrence of event to RLDC and RPC.

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- B.2.4 Members may take necessary preventive measures to avoid such grid incidents / disturbances in future and report actions taken by respective utilities in OCC & PSC forum. Moreover, utilities may impress upon all concerned for providing the Preliminary Report, DR/EL & Detailed Report of the events to RLDC in line with the regulations.
- B.2.5 The list of major tripping events occurred during **September-October 2025** is attached as **Annexure-B.III**. Concerned constituents/utilities are requested to share the detailed analysis of the tripping elements along with status of remedial action taken/to be taken.
- B.2.6 Utilities are requested to prepare detailed analysis report and present the event details during 63rd PSC meeting. Events involving more than one utility may be jointly prepared and presented.

Decision required from Forum:

Members may like to discuss.

B.3 Frequent elements tripping during September-October 2025 (agenda by NRLDC)

- B.3.1 The following transmission elements were frequently tripping during the month of **September'25**:

S. NO.	Element Name	No. of forced outages	Utility/ SLDC
1	250 MW (PSP) TEHRI HPS - UNIT 6	15	Tehri PSP
2	220 KV Debari(RS)-RAPS_A(NP) (RS) Ckt-1	15	NPCIL/ Rajasthan
3	220 KV Khara(UP)-Saharanpur(PG) (UP) Ckt-1	7	UP/PG
4	220 KV Sarna(PS)-Udhampur(PDD) (PDD) Ckt-1	5	Punjab/J&K
5	400 KV Bareilly-Unnao (UP) Ckt-2	5	UP
6	220 KV Gurugram_sec65 (HVPNL)-Kadarpur (GPTL) (HVPNL) Ckt-2	4	Haryana/ GPTL
7	220 KV NAPP(NP)-Simbholi(UP) (UP) Ckt-1	4	NPCIL/UP
8	220 KV Shahjahanpur(PG)-Sitapur (UP) (UP) Ckt-1	4	UP/PG

- B.3.2 The following transmission elements were frequently tripping during the month of **October'25**:

S.	Element Name	No. of forced	Utility/SLDC
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NO.		outages	
1	250 MW (PSP) TEHRI HPS - UNIT 6	15	Tehri PSP
2	250 MW (PSP) TEHRI HPS - UNIT 5	15	Tehri PSP
3	220 KV Pong(BB)-Dasuya(PS) (BBMB) Ckt-1	7	BBMB/Punjab
4	220 KV Bikaner_2 (PBTSL)-Juna_REPL_SL_BKN2 (Juna_REPL) Ckt-1	5	PG/Juna
5	220 KV Debari(RS)-RAPS_A(NP) (RS) Ckt-1	5	NPCIL/Rajasthan
6	220 KV NAPP(NP)-Simbholi(UP) (UP) Ckt-1	4	NPCIL/UP

B.3.3 List of tripping is attached as **Annexure-B.IV**.

B.3.4 It may be noted that frequent tripping of such elements affects the reliability and security of the grid. Hence, **utilities are requested to analyse the root cause of the tripping and share the remedial measures taken/being taken in this respect.**

Decision required from Forum:

Members may like to discuss.

B.4 Details of tripping of Inter-Regional lines from Northern Region for September-October 2025 (agenda by NRLDC)

B.4.1 A total of **12** inter-regional lines tripping occurred in the month of **September-October 2025**. The list is attached at **Annexure-B.V**. The status of receipt of preliminary reports, DR/EL within 24hrs of the event and fault clearing time as per PMU data has also been mentioned in the table. The non-receipt of DR/EL & preliminary report within 24hrs of the event from SLDCs / ISTS licensees / ISGSs is in violation of regulation 37.2(c) of IEGC and regulation 15(3) of CEA Grid Standards. As per regulations, all the utilities shall furnish the DR/EL, flag details & preliminary report to RLDC/RPC within 24hrs of the event. They shall also furnish the detailed investigation report within 7 days of the event if fault clearance time is higher than that mandated by CEA (Grid Standard) Regulations.

Decision required from Forum:

Members may please note and advise the concerned for taking corrective action to avoid such tripping as well as timely submission of the information.

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B.5 Mock testing of System Protection Schemes (SPS) in Northern Region (agenda by NRLDC)

B.5.1 As per IEGC clause 16.2

“For the operational SPS, RLDC or NLDC, as the case may be, in consultation with the concerned RPC(s) shall perform regular load flow and dynamic studies and mock testing for reviewing SPS parameters & functions, at least once in a year. RLDC or NLDC shall share the report of such studies and mock testing including any short comings to respective RPC(s). The data for such studies shall be provided by CTU to the concerned RPC, RLDC and NLDC.”

B.5.2 As per IEGC clause 16.3

“The users and SLDCs shall report about the operation of SPS immediately and detailed report shall be submitted within three days of operation to the concerned RPC and RLDC in the format specified by the respective RPCs.”

B.5.3 There are 58 numbers of System Protection Scheme (SPS) approved in Northern Region. These SPS are implemented at major generation complexes, important evacuating transmission lines and ICTs which are N-1 non-complaint. System Protection Scheme Document of Northern Region has been revised/updated on 31st January, 2025.

B.5.4 SPS is designed to detect abnormal system conditions and take predetermined, corrective action to preserve system integrity and provide acceptable system performance. Therefore, correct operation of SPS as per designed logic is important to serve its purpose. To ensure this, mock testing of SPS needs to be conducted at a regular period. Clause 16.2 of IEGC 2023 also mandates the mock testing of SPS for reviewing SPS parameters & functions, at least once a year.

B.5.5 In this regard, communication has already been sent to constituents through NRLDC letter dated 01.05.2024, 21.02.2025, 05.03.2025, 04.04.2025 & 28.05.2025 and continuous follow up is being done in OCC & PSC meeting since May 2024.

B.5.6 During 2024-25, mock testing of 14 SPS out of total 55 SPS were not conducted. In view of high demand scenario during summer 2025-26, NLRDC vide letter dated 04.04.2025 requested all the concerned utility to conduct the mock testing of pending

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SPS by the end of April 2025. However, as reported, mock testing of 03 SPS out of pending 14 SPS have been done. In this regard, discussion was also held in 60th, 61st, 62nd & 63rd PSC meeting. PSC Forum requested all the members to conduct the mock testing of all the SPS in their respective control area at the earliest.

B.5.7 Status of mock testing of all the SPS in NR is attached as **Annexure-B.VI**.

B.5.8 Status of follow-up actions w.r.t. some of the SPS are as follows:

- i. **SPS of HVDC Rihand-Dadri:** During mock testing of SPS of HVDC Rihand-Dadri on 20.03.2025, issues i.e., faulty SPS hardware at Singrauli TPS (NTPC) and no receipt of SPS signal at 220/132kV Ratangarh(RS) were identified. Further, during recent operation of SPS on 21.05.2025 in incident of outage of both poles, desired SPS actions i.e., generation backdown at Singrauli TPS and load relief in UP, Delhi, Haryana & Punjab were not observed. Desired load / generation relief is important to ensure the security and reliability of grid during such contingency. As per details received, SPS signal was sent to all the mapped stations from POWERGRID end however either due to non receipt of signal or error in SPS system at load / generation, SPS action didn't occur. NRLDC vide letter dated 02.07.2025, requested POWERGRID and Singrauli NTPC to take necessary remedial measures and make complete SPS system healthy.

During 233rd OCC meeting, POWERGRID representative stated that the equipment's at Singrauli TPS end is owned by NTPC and need to be revived by them. SPS system at Rihand(PG) is healthy and operational. NTPC representative stated that as per details received from site, NTPC Singrauli team have initiated necessary actions in coordination with the POWERGRID. SPS operation is crucial as it is planned for special contingencies, and its unavailability may lead to cascade tripping or major grid disturbance especially in case of high demand period.

NTPC Singrauli and POWERGRID(NR-1) may share the details of necessary corrective actions taken / planned to be taken to ensure healthiness of SPS system at Singrauli TPS and load stations.

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- ii. **SPS of Anta, Kawai, Chhabra generation complex:** In one of the SPS cases i.e., N-1-1/ N-2 of 765kV Anta-Phagi 1 & 2, instantaneous generation backdown of ~2100 MW is designed as SPS action. In such scenario, to avoid overloading of WR-NR corridor and over drawl by Rajasthan, it was agreed that RVPNL shall implement the automatic load shedding of ~750 MW by 28.02.2018. However, as per details available, implementation of automatic load shedding as per SPS hasn't been done yet. This matter has already been discussed in PSC as well as OCC meetings on regular basis. The concern of grid security and reliability was also raised during request of shutdown of 765kV Anta-Phagi line. is requested to expedite implementation of the automatic load shedding of ~750 MW as per SPS (N-1-1/ N-2 contingency of 765kV Anta-Phagi-1 & 2).

During 235th OCC meeting, SLDC-Rajasthan representative informed that automatic load shedding of ~750 MW has been implemented.

During 63rd PSC meeting, Rajasthan was requested to conduct the mock testing of load shed part of SPS and share the report. Rajasthan agreed the same.

RVPNL may share the details of load mapped under SPS for automatic load shedding and also share the mock test report.

- iii. **SPS of N.Jharkri, Karcham, Rampur hydro generation complex:** Status of implementation of case-6(i) and corrective actions w.r.t case-6 (ii) need to be shared. During 235th OCC meeting, HPPTCL representative informed that faulty communication card at Wangtoo S/s is to be replaced with new card. The case is at procurement stage, and it is estimated that work will be completed by the end of December 2025.

Karcham(JSW) and HPPTCL may share the update in this regard.

- iv. **SPS of 765kV Agra-Gwalior D/C:** Mock testing of the SPS was conducted on 10.10.2025. During the testing, it was observed that there is communication issue at Bhiwadi(PG), Bamnauli(DTL), Kota, Debari, Chittorgarh, Ratangarh, Nun-amajra, Safidon, Ajitwal, Dandhari-II, Ablowal substations.

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Mock test report has been received from Delhi, Rajasthan and Punjab. UP, BBMB, Haryana and POWERGRID have shared the partial details.

B.5.9 Concerned utilities are requested to share the SPS report of your respective control area at the earliest so that final SPS mock test report can be issued timely.

B.5.10 In view of the above, the following are requested:

- i. Concerned constituents / utility are requested to conduct the mock testing of pending SPS (whose mock testing was not conducted in FY 2024-25) at the earliest.
- ii. In compliance with IEGC clause 16.2, users shall ensure that mock testing along with the review of SPS logic of all the SPS is conducted at least once a year. Hence utilities are also requested to share the tentative schedule and conduct the mock testing of SPS schemes in their respective control area w.r.t. FY 2025-26.
- iii. Further In compliance with IEGC clause 16.3, users shall also share the detailed report of SPS operation in their respective control area within 3 days of its operation. Presently, no such report is being received.

B.5.11 During 60th PSC meeting, Forum also decided to not disable the SPS where ICTs are now N-1 compliant after augmentation. It was decided that SPS may be kept enabled with logic based on loading instead of ICT tripping. Members may share the status in this regard.

Decision required from Forum:

Members may like to discuss.

B.6 Corrective action for healthiness of 500kV Mundra-Mahindergarh SPS (agenda by NRLDC)

- B.6.1 On 17th May 2024 on outage of both pole (carrying total ~1500MW), SPS of 500kV HVDC Mundra-Mahindergarh inter regional link didn't operate. This issue was discussed during 51st PSC meeting and ADANI was requested to share the details w.r.t. SPS operation during the meeting.
- B.6.2 Further, NRLDC in coordination with NLDC conducted an online discussion meeting

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with concerned stakeholders (SLDCs, ADANI, POWERGRID) on 12th August 2024, for further remedial actions required to make this SPS healthy.

B.6.3 Following actions were decided during the meeting:

- i. POWERGRID, ADANI and concerned states were requested to identify the issue in communication links and take expeditious actions to make the all the communication link healthy. POWERGRID & ADANI shall review the healthiness of SPS system at different load centres and communication path between them in coordination with the SLDCs.
- ii. States were requested to go through the details of load feeders mentioned in SPS document and share the changes / modifications as per present scenario and share the inputs w.r.t. unavailability in identified load feeders and load shedding. SLDCs shall share the revised updated feeder details (radial) along with expected average/peak load relief through respective feeders.
- iii. SLDCs in coordination with their transmission and protection team shall share the status and healthiness of existing SPS system along with details of availability of communication path for incorporation of proposed revised/additional feeders.

B.6.4 Load end details have been received from UP, Haryana, Punjab, Rajasthan & Delhi.

B.6.5 ADANI via mail dated 29.08.2024 has submitted the status of healthiness of communication network and hardware system at different locations on the basis of preliminary inspection. As per details submitted, counter status was found OFF at Alwar, Ratangarh, Gobindgarh, Malerkotla, Bamnauli, Shamli and Dhanonda.

B.6.6 Details of nodal officer of different substation involved in SPS scheme has already been shared with ADANI team for coordination and further remedial actions.

B.6.7 During 53rd PSC meeting, ADANI was requested to coordinate with the respective states to rectify the issues in the SPS system and share the status of remedial action taken / planned to be taken. Desired remedial actions need to be expedited.

B.6.8 ADANI agreed for the same and stated that update would be given within 01 week. However, no detail received yet from ADANI.

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- B.6.9 During discussion in 55th PSC meeting it was decided that ADANI shall take lead in rectification work as this SPS scheme was commissioned by them. Protection nodal officers from States will provide possible necessary assistance from their end. Further, states were also requested to ensure incorporation of revised decided feeders during work at their stations. States representative assured to provide all necessary coordination from their end.
- B.6.10 During 56th PSC meeting, ADANI was requested to apprise the forum about the present status of remedial actions. ADANI representative stated that they have raised service order to COMTEL (OEM) for approval. After approval of this service order, COMTEL engineers will visit all the sites in coordination with nodal officers from respective stations. It is expected that identification of issues and estimate hardware requirement will be completed by the end April 2025. Thereafter, after financial approval, rectification of issues will be done. ADANI was requested to ensure completion of whole work before summer 2025. State representatives were also requested to coordinate with the ADANI team and ensure incorporation of identified revised feeders for load relief in SPS.
- B.6.11 Further, through mail dt 3rd April 2025, ADANI has informed that they awarded the rectification work service to M/s COMTEL for survey and restoration of possible elements installed at the locations and engineers from M/s COMTEL shall be visiting respective stations as per the schedule.
- B.6.12 During 57th PSC meeting, ADANI representative informed that visit by COMTEL engineers at all the sites is completed and COMTEL will submit the report within 10 days.
- B.6.13 ADANI was requested to share the report at the earliest and make Action Plan accordingly to ensure completion of whole work before summer 2025.
- B.6.14 ADANI agreed to take expeditious actions and to share the action plan at the earliest.

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- B.6.15 During 58th PSC meeting, ADANI representative shared the observations made by COMTEL engineers and informed that it would at least require 6 months to complete the work.
- B.6.16 NRLDC CGM (SO) highlighted that in view of envisaged growth in demand in next summer season, it is important to ensure rectification of issues and healthiness of SPS.
- B.6.17 ADANI representative further informed that cost implication in this case is estimated as approx. Rs. 1.5 Cr. Till now they conducted technical assessment and made cost estimation. They will look into the regulatory aspect of the same for finalising the action plan.
- B.6.18 During 59th PSC meeting, ADANI representative informed that they are doing discussions with ULDC for allocation of necessary links between locations. They have also initiated internal approval for placing necessary orders to the partner for execution of upgradation activity. They are expecting to complete the execution within 4-5 months in collaboration with all the stakeholders from respective utilities and ULDC team. Communication from ATIL in this regard is also sent to NRLDC through letter dated 10th April 2025.
- B.6.19 PSC Forum emphasized that considering the growing energy demands in summer season, healthiness of 500kV Mundra-Mahindergarh SPS is of utmost importance for secure & reliable grid operation. State representatives were also requested to coordinate with the ADANI team and also ensure incorporation of identified revised feeders for load relief in SPS. Desired remedial actions need to be expedited.
- B.6.20 During 60th PSC meeting, ADANI representative informed that internal approval is taken for placing the order and order will be released to vendor by end of June-July 2025. They have expedited the execution of upgradation activity and now it is expected to get completed by September- October 2025.
- B.6.21 NRLDC representative requested to share weekly progress report once the execution work starts and ADANI agreed for the same.

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- B.6.22 ADANI was requested to apprise the forum about identified issues at various stations, action plan and progress in rectification work.
- B.6.23 During 61st PSC meeting, ADANI representative informed that order will be released by 1st week of July to the vendor for completion of work. The vendor has given 06 (six) months' timeline for completion of whole work however, we will follow up with the vendor and try to complete the whole work within 04 months.
- B.6.24 NRLDC representative requested ADANI to expedite the necessary actions at their end as corrective actions has already been delayed. It was also requested to give action plan of corrective actions for smooth coordination and actions. Weekly progress and status of actions may also be shared.
- B.6.25 Further, through mail dt 30th July 2025, ADANI has informed that order has been placed with vendor for the procurement and development of the scheme on new devices and they also shared the timeline for the upcoming broader steps which has evolved based on discussions held with the vendor.
- B.6.26 During 62nd PSC meeting, ADANI confirmed the following:
- i) The system is expected to be ready by the partner and complete the Factory Acceptance Test (FAT) by 15th September 2025.
 - ii) Following the FAT, the material will be shipped to various sites and installed by 30th October 2025. Concerned constituents need to ensure the material is kept in a safe and secure area till commissioning at original location.
 - iii) Implementation of the communication channel with the assistance of ULDC is also scheduled for completion parallelly by 30th October 2025.
 - iv) Testing of the installation and wiring will be carried out by 15th November 2025. The same shall require support from respective site representatives.
 - v) Testing of the communication link between Mahindergarh and other locations is planned for completion by 30th November 2025.
 - vi) Finally, the testing of the SPS scheme is expected to be completed by 31st December 2025.

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- B.6.27 Further, through mail dtd. 15th September 2025, ADANI has informed that Hardware is expected to be received by the partner by 20th September 2025 and FAT is expected to be carried out by 31st September 2025. The Dispatch and site activities shall be planned based on FAT punch point closures.
- B.6.28 During 63rd PSC meeting, ADANI representatives were not present in the meeting.
- B.6.29 NRLDC through mail dated 30.10.2025, requested ADANI to share the present status and further actions plan.
- B.6.30 ADANI vide mailed dated 05.11.2025 informed the following:
- i. FAT has been completed, and material has been arrived at Mahinderagr S/s.
 - ii. The tentative schedule for visit at different load substations has been planned and shared.
- B.6.31 Details are attached as **Annexure-B.VII**.
- B.6.32 ADANI is requested to take continuous follow-up with the vendor for expeditious corrective actions and share weekly progress and status of actions. State representatives are also requested to coordinate with the ADANI team and provide desired support at site for smooth execution of work and also ensure incorporation of identified revised feeders for load relief in SPS.

Decision required from Forum:

Members may like to discuss.

B.7 Confirmation regarding implementation of proposed Overvoltage protection setting by committee (agenda by NRLDC)

- B.7.1 A committee was formed by NRPC during 52nd PSC meeting held on 20th September 2024 to review the Overvoltage Protection settings of 400kV and 765kV transmission lines in Northern Region. This committee was formed for compliance of the recommendation given by the committee formed by CEA for analysis of Grid incident occurred on 17th June 2024. The committee reviewed the Overvoltage Protection settings of 400kV and 765kV transmission lines in Northern Region, finalized the protection settings for overvoltage protection and proposed the revised overvoltage protection settings. The proposed Overvoltage protection settings were discussed and

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approved in 58th Protection Sub-Committee (PSC) meeting held on 26th March 2025. The PSC forum requested all to implement the proposed overvoltage protection settings in 400kV and 765kV transmission lines in their respective control area. Details of the revised overvoltage protection setting to be implemented is attached as **Annexure-B.VIII.**

- B.7.2 Further, the agenda in this regard was again discussed in 230th OCC meeting and 60th, 61st, 62nd & 63rd PSC meetings. It was observed that many members are yet to confirm the implementation of revised overvoltage settings.
- B.7.3 SLDC Punjab vide mail dt 05th June 2025 informed that over-voltage settings implementation will take 3-4 months.
- B.7.4 During 61st PSC meeting, PSTCL representative stated that due to shortage of manpower in protection team, 3–4-month time is required for implementation of revised OV settings.
- B.7.5 PSC Forum suggested PSTCL to address the issue and propose to form separate protection wing so that protection related compliance and grid event analysis may be done in stipulate time frame.
- B.7.6 During 62nd PSC meeting, PSTCL representative confirmed that implementation work is in progress and partially done, however work will be completed before the next PSC meeting.
- B.7.7 During 63rd PSC meeting, POWERGRID(NR-2) representative informed that revised OV setting has been implemented in almost all the lines except 10 lines. Implementation in remaining lines shall also been done at the earliest.
- B.7.8 All members were requested to ensure the implementation of proposed overvoltage settings in their control area at the earliest to avoid any unwanted tripping during the ongoing high demand scenario. In this regard, e-mail communication was also sent dated 07.05.2025 & 03.06.2025 to all members.
- B.7.9 Status of confirmation received from **BBMB, Rajasthan, UPPTCL, HVPNL, PSTCL (Partial), DTL, NHPC, POWERGRID, Uttarakhand, HP, NUPPL & SJVN.**
- B.7.10 However, status of confirmation from **Harayna(Generation Evacuating lines), Punjab(Partail), J&K, Indigrd, APCPL and NTPC** are yet to be received.
- B.7.11 The list of transmission lines whose confirmation is pending is also attached as **Annexure-B.VIII.**

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- B.7.12 The winter season in Northern region begins from mid-October onwards and remains till February, and the challenges faced during these months are well known to all the utilities. During winter with NR load reducing significantly, the lines become lightly loaded leading to high voltages in Grid. Hence, vide NRLDC letter dated 17.09.2025, it was advised to ensure timely implementation of revised approved overvoltage protection settings in all the 400 & 765kV transmission lines to avoid any unwanted tripping of transmission lines on over-voltage.
- B.7.13 Therefore, all the concerned utilities are once again advised to ensure expeditious implementation of proposed Overvoltage Protection settings in 400kV and 765kV transmission lines in their respective control area and send a confirmation regarding this to NRPC and NRLDC.

Decision required from Forum:

Members may like to discuss.

B.8 Status of connected load relief quantum of UFR and df/dt (agenda by NRLDC)

- B.8.1 UFRs and df/dt are envisaged to take care of sudden contingencies arising out of outage of generation stations or separation of inter-regional lines. UFRs setting are for steady state operation of the Grid at considerably low frequency and df/dt settings are for dynamic change change when frequency falls suddenly with jerks.
- B.8.2 As per IEGC 2023 Clause 29.(13)(d),
“SLDC shall ensure that telemetered data of feeders (MW power flow in real time and circuit breaker status) on which UFR and df/dt relays are installed is available at its control centre. SLDC shall monitor the combined load in MW of these feeders at all times. SLDC shall share the above data with the respective RLDC in real time and submit a monthly exception report to the respective RPC...”
- B.8.3 In view of the above, SLDCs are requested to share the list of feeders mapped for UFR and df/dt along with feeder-wise planned load relief quantum. SLDCs are also requested to share details of mapped/telemetered stage-wise quantum of load relief on UFR and df/dt operation against the planned quantum. Data is to be furnished in the format attached as **Annexure-B.IX**.
- B.8.4 As per IEGC 2023 Clause 30.(1),

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“The National Reference Frequency shall be 50.000 Hz and the allowable band of frequency shall be 49.900-50.050 Hz. The frequency shall be measured with a resolution of +/-0.001 Hz....”

- B.8.5 Further, on 31.10.2025 at 17:51 hrs grid frequency touched **49.41 Hz**. As per PMU, minimum frequency recorded was **49.412 Hz at 17:51:20:840 hrs**. As the frequency was very close to UFR stage-1 triggering frequency i.e., 49.4 Hz, it is requested to review any UFR operation in your respective control area and share the details.



- B.8.6 In view of recent events due to UFR operation, major review of UFR and df/dt settings is required to avoid unwanted tripping of feeders and load loss in states. SLDCs are requested to review UFR settings of the relays (whether frequency settings can be done upto three decimal places or not) and further take up for replacement of the relays, if necessary. SLDCs are also advised to look into any issue in transducer etc to avoid any unwanted tripping on UFR operation in future.

Decision required from Forum:

Members may like to discuss.

B.9 Frequent Tripping of Generating Units of NHPC on Turbine Bearing Temperature High (agenda by NRLDC)

- B.9.1 It is observed in recent past that several generating units of NHPC are tripping

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frequently on Turbine Bearing Temperature High. In 63rd PSC meeting, NRLDC presented the list of tripping of generating units of NHPC control area. Total 36 (number) of tripping have been reported at NHPC generating stations from July 2025 to Sep 2025. NHPC was requested to share the reason of frequent tripping of NHPC generating units on Turbine Bearing Temperature High.

- B.9.2 NHPC representative stated that due to high silt in this monsoon season, shaft seal got leaked and water getting inrush into Turbine Bearing House and displacing the oil from water and affecting lubrication which further leading to high temperature of bearing.
- B.9.3 In 63rd PSC meeting, NHPC was requested to present the issue in detail in next PSC meeting for better understanding of members and further discussion. Additionally, necessary remedial actions need to be taken to minimise the tripping of generating units in NHPC control area.
- B.9.4 In the month of Oct'25 also, a total of four trippings of NHPC units were reported due to the same reason.

Decision required from Forum:

NHPC may update & Members may discuss.

Part-C: Agenda for final approval of protection settings by PSC Forum for FTCs which have been provisionally allowed by NRLDC/SLDCs

C.1. First Time Charging of transmission lines/Bays/Transformer/Reactor etc. by NRLDC

- C.1.1 NRLDC has submitted the FTCs allowed in month of **September-October 2025**. The same may be found on NRPC website: <http://164.100.60.165/meetings/prsub.html>
- C.1.2 All settings for the elements given FTCs in the months of **September-October 2025** accessed from NRLDC portal are available at NRPC website: <http://164.100.60.165/meetings/prsub.html>.
- C.1.3 Further, as per decisions of 63rd PSC meeting, *protection settings of all given FTCs*

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by NRLDC in every month will be considered for final approval in the upcoming PSC. Utility does not need to submit the agenda separately for final approval of protection settings.

- C.1.4 Accordingly, protection settings of the elements given FTCs in the **September-October 2025** are put up for final approval of PSC Forum.
- C.1.5 Similarly, some protection setting of elements for which FTCs given by NRLDC in the month of August, 2025, were approved by Forum in 63rd PSC meeting based on the agenda shared by concern utility for final approval of PSC Forum in line with earlier approved procedure.
- C.1.6 However, some utilities whose agenda for protection settings were not submitted in 63rd for FTCs given by NRLDC in the month of **August, 2025** may be found on NRPC website: <http://164.100.60.165/meetings/prsub.html>.
- C.1.7 Corresponding protection settings accessed from NRLDC portal are available at NRPC website: <http://164.100.60.165/meetings/prsub.html>.
- C.1.8 Accordingly, protection settings of the above cases are also put up for final approval of PSC Forum.

Decision required from Forum:

Members may refer the settings for any correction required. Accordingly, settings may be approved by Forum.

C.2. First Time Charging of transmission lines/Bays/Transformer/Reactor etc. by SLDCs

- C.2.1 HPSLDC has shared the protection settings for 132kV Barsaini- Charor transmission line FTC given by them. The same may be found on NRPC website: <http://164.100.60.165/meetings/prsub.html>
- C.2.2 The same is put up for final approval of PSC Forum.

Decision required from Forum:

Members may refer the settings for any correction required. Accordingly, settings may be approved by Forum.

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