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विद्युत मंत्रालय Ministry of Power

उत्तर पूर्वी क्षेत्रीय विद्युत समिति

North Eastern Regional Power Committee

एन ई आर पी सी कॉम्प्लेक्स, डोंग पारमाओ, लापालाङ, शिल्लोंग-७९३००६, मेघालय
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No.: No. NERPC/SE (O)/OCC/2025/1143-1185

July 02, 2025

To

As per list attached

Sub: 227वीं ऑपरेशन समन्वय उप-समिति (ओसीसी) बैठक का कार्यवृत्त / Minutes of 227th Operation Coordination Sub-Committee (OCC) Meeting

महोदय/महोदया,

कृपया 20 जून 2025 को एनईआरपीसी कॉन्फ्रेंस हॉल, शिलांग में आयोजित 227वीं ओसीसी बैठक के कार्यवृत्त को अपनी सूचना एवं आवश्यक कार्रवाई हेतु संलग्न पाएं। कार्यवृत्त NERPC की वेबसाइट: www.nerpc.gov.in पर भी उपलब्ध है।

कृपया कोई भी टिप्पणी जल्द से जल्द NERPC सचिवालय को सूचित करें।

Sir/Madam,

Please find enclosed herewith the minutes of the 227th OCC Meeting held at NERPC Conference Hall, Shillong on 20th June 2025 for your kind information and necessary action. The minutes is also available on the website of NERPC: www.nerpc.gov.in.

Any comments/observations may kindly be communicated to NERPC Secretariat at the earliest.

भवदीय / Yours faithfully,

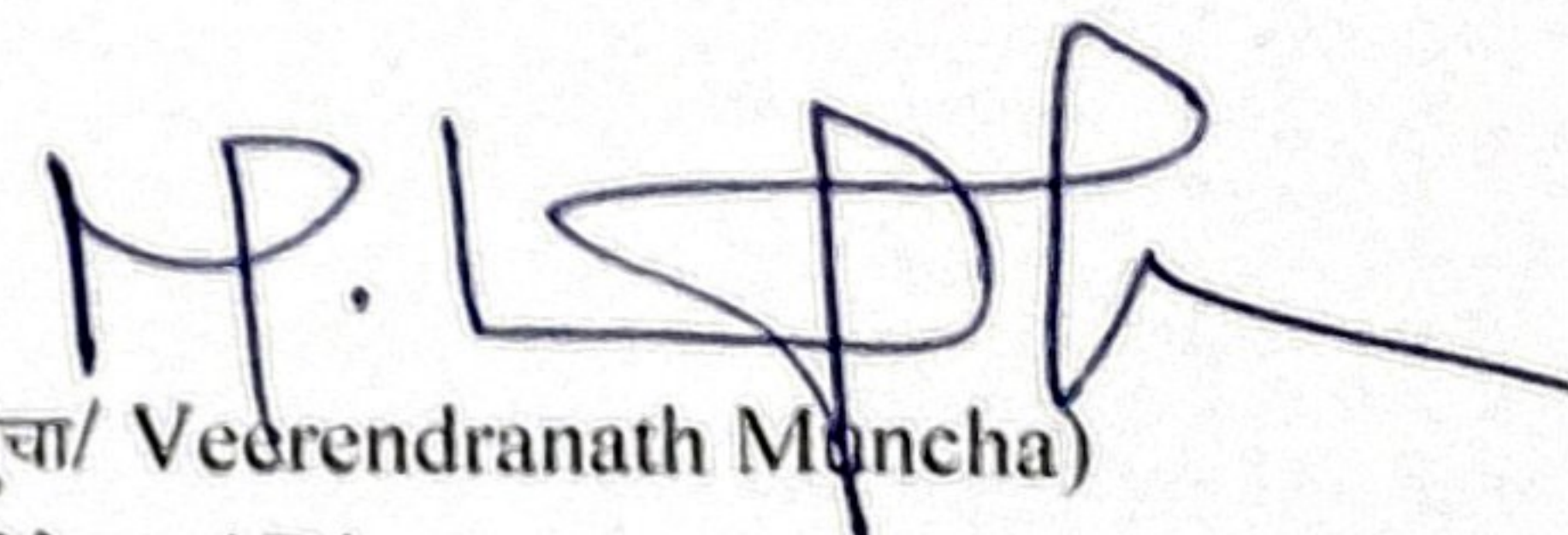
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निदेशक / Director

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(वीरेंद्रनाथ मुंछा/ Veerendranath Moncha)
निदेशक / Director



**MINUTES
OF
227th OCC MEETING**

Time of meeting: 10:30 Hrs.

Date of meeting: 20th June, 2025 (Friday)

Venue: NERPC Conference Hall, Shillong

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NORTH EASTERN REGIONAL POWER COMMITTEE

MINUTES OF 227TH OCC MEETING TO BE HELD ON 20.06.2025 (FRIDAY) AT 10:30 HRS

1. PART-A: CONFIRMATION OF MINUTES

1.1. Confirmation of Minutes of 226th Meeting of OCC Sub-Committee of NERPC

The minutes of 226th meeting of OCC Sub-committee held on 20.05.2025 at NERPC Conference Hall, Shillong were circulated vide letter No. NERPC/SE (O)/OCC/2025/ 951-993 dated 28th May, 2025.

No comments were received from constituents

Sub-committee confirmed the minutes of 226th OCCM

2. PART-B: ITEMS FOR DISCUSSION

AGENDA FROM NERPC

2.1. Outage planning

I. Generation Planning (ongoing and planned outages)

- a.** In 217th OCCM, NEEPCO informed that they would provide daily inflow data for storage-type Hydro PS. NHPC also agreed to provide inflow data as per the NER operational data format. Based on that data provided from NEEPCO and NHPC present per day MU and projected number of days of operation.

Plants	Reservoir Level in meters (as on 17/06/2025)	MU Content	Present DC (MU)	No of days as per current Generation
Khandong STG II	719.65	25	0.593	42
Kopili	606.90	79	3.013	26
Doyang	307.50	2	0.270	7
Loktak	766.66	17	2.474	7

The outage of other generating stations may be approved considering the present water levels in reservoirs. CEA has approved the generation outage plan for FY 2025-26. All the utilities may take note of it and in case of any modification from the Approved Planned Outages, the same may be finalized in consultation with GM Division

b. Outage Planning of Transmission elements

As per the Outage planning procedure of NER the planned outages approved in the OCC forum has to be reconfirmed by the availing utilities on 10:00hrs. of D-4 to 12:00 hrs. of D-3) to NERLDC in order to either avail the approved shutdown or cancel it.

If an outage is to be availed on say 10th of the month, the shutdown availing agency would reconfirm to NERLDC between 10 hrs. of 6th of the month to 1200 hrs. of 7th of the month. This practice is necessary to ensure optimal capacity utilization and the time required for associated system study/coordination by/amongst RLDC/NLDC.

Subsequently NER stakeholders have provided shutdown request for transmission elements for the month of June-2025.

Utilities have submitted the shutdown proposals for the month of July'25 , for discussion in OCC shutdown discussion meeting.

Deliberation

NERPC informed that the shutdown proposal for the month of July'25 of the utilities, including generating utilities and transmission elements) have been discussed in the monthly outage discussion meeting held on 17.06.2025 and the approved the outages. The list of approved shutdowns is attached as annexure 2.1

Further, NERLDC requested all the utilities that while taking the shutdown of 400kV and above elements close the corresponding Dia (CB etc) so the reliability in the Bus scheme is ensured.

AGENDA FROM NERLDC

2.2. Operational Performance and Grid discipline during May 2025:

NERLDC presented the Operational Performance and Grid Discipline Report for the month of May 2025 (annexure 2.2).

2.3. Restoration of 132 kV Sonabil-Gohpur and 132 kV Sonabil-Pavoi line to its original configuration

In the 186th OCC meeting held on 6th March 2020 at Guwahati, it was decided to temporarily bypass the Sonabil substation and operate the 132 kV Pavoi–Sonabil and 132 kV Sonabil–Gohpur lines as a single 132 kV Pavoi–Gohpur circuit. This arrangement was intended as a temporary measure until the 132 kV Biswanath Chariali–Itanagar line was LILO at Gohpur.

As of July 2023, the LILO of the 132 kV Biswanath Chariali–Itanagar line at Gohpur has been successfully completed. Furthermore, the 132 kV Pare–North Lakhimpur double circuit line has also been commissioned in August 2023, significantly strengthening the network in the region. Given these developments, it is now proposed to restore the original configuration of the lines as follows after deliberation:

- 132 kV Sonabil–Gohpur
- 132 kV Sonabil–Pavoi

Considering the significant evolution of the network in this area, it is recommended that a committee be constituted to evaluate the proposal for restoring the original configuration. The committee should assess the technical and operational advantages and disadvantages of the restoration, taking into account both current system conditions and future network expansion plans.

Deliberation

NERLDC presented a study report with reverting to original configuration and including network expansion till the 2032 timeframes and highlighted the following points –

1. With present configuration as 132 kV Pavoï-Gohpur II, study suggest that in present case high loading has been resulted in 220 kV Balipara-Sonabil line, this is being taken care by reconductoring with HTLS conductor.

Considering the future scenarios like commissioning of 400/220/132 kV Gogamukh substation and its downstream loading in other parallel circuit is well within limit

2. With reconfiguration to original condition- i.e 132 kV Pavoï-Sonabil and 132 kV Sonabil-Gohpur line: Study suggest that in present case high loading may be observed

- 132 kV Panyor-Pare HEP line
- Non-compliant of N-1 contingency of 132 kV BNC-Pavoï DC

Considering the future scenarios like commissioning of 400/220/132 kV Gogamukh substation and its downstream loading in other parallel circuit is well within limit. However,

- Under N-1 condition of Sonabil-Gohpur line the loading in 132 kV Pavoï-Sonabil is reaching around 89 MW.
- Non-compliant of N-1 contingency of 132 kV BNC-Pavoï DC

Also, he informed that in the present scenario there is 77Km of line lying unutilized.

Forum decided that a system-study sub-group, with members from CTU, NERPC, NERLDC, AEGCL and SLDC Assam will be constituted and will study the scenario and suggest the way forward. Further the forum noted that the network modifications as recommended by the sub-group will be intimated to CEA.

2.4. Updation of upper Assam Islanding scheme

Due to the integration of the 220 kV Kathalguri–Namsai D/C line on 1st June 2025, the network topology of the Upper Assam system has undergone significant changes. For the survival of the Islanding scheme, it is essential that the island is formed by isolating specific elements at the designated frequency. Accordingly, the 220 kV Kathalguri–Namsai D/C line must be disconnected when the system frequency falls to 48.2 Hz, facilitating the formation of the island.

In view of the revised topology, it is requested that PGCIL implement the necessary settings at the Kathalguri end to enable isolation of the 220 kV Kathalguri–Namsai D/C line as part of the Islanding scheme.

Deliberation

The forum requested PowerGrid to enable UFR on the 220kV Kathalguri–Namsai DC line, at Kathalguri end, with tripping frequency of 48.2 Hz and delay of 300msec. Powergrid assured to do the work shortly.

2.5. Periodic Testing of Power System Elements and Submission of Simulation Model Data as per IEGC 2023

As per IEGC 2023 Clause 40 (1), periodic testing of all the power system elements shall be carried out by the equipment owners for ascertaining the correctness of mathematical models used for simulation studies as well as ensuring desired performance during an event in the system.

These tests must be conducted once every five (5) years or after major retrofits by the equipment owners. The owners shall also submit a testing plan for the next year to the concerned RPC by 31st October to ensure proper coordination during testing. This matter also stands discussed in various earlier OCC meetings.

In this context, all utilities are hereby requested to update and submit their periodic testing plans at the earliest via the link provided in the previous email to both NERPC and NERLDC.

Deliberation

MS NERPC instructed the Generating utilities and Powergrid to update the testing plan and provide the schedule for the next financial year till 31st October.

2.6. Mandatory Submission of OCC Shutdown Requests in Outage Software – Implementation from Next Month

As you are aware, the NER region now has an active Outage Software platform, which is being utilized by all utilities for D-3 consent processes. In alignment with the practices followed in other regions, all outage-related activities in the NER will henceforth be managed exclusively through this platform.

Until now, shutdown details were being submitted to NERPC in Excel format. Transitioning to the Outage Software will bring a more structured and standardized approach across the region.

Effective from the upcoming month, it will be mandatory for all utilities to submit OCC Shutdown (SD) Requests via the Outage Software. For example, shutdown requests for Month M+2 must be submitted during the designated window, i.e., from the 25th day of Month M to the 5th day of Month M+1.

To ensure smooth transition and clarity on the new procedure, a detailed demonstration of the shutdown request submission process will be conducted

during the online outage coordination meeting. The demonstration will cover all key steps including request creation, editing, submission, and common issues faced during entry.

All utilities are requested to ensure:

- Relevant personnel are familiar with the software interface.
- Entries are submitted within the specified time window.
- Timely coordination with internal teams to identify and finalize shutdowns to be proposed for upcoming OCC month.

In case of any technical issues related to login credentials, access rights, or problems in submitting entries, concerned officials are advised to promptly contact the NER Outage Coordinators for assistance.

Compliance with the above guidelines is essential to ensure effective outage planning and system reliability across the region.

Deliberation

Forum agreed to the suggestion of NERLDC and urged all the utilities to submit the shutdown requests on the outage software(portal). Further, the forum requested NERLDC to provide necessary technical assistance to utilities.

2.7. PTCC Clearance for electric supply line of voltage level 11 kV or above

As per the Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2022, Clause 80 (in Chapter VII): "Protection against electromagnetic interference - The owner of every electric supply line of voltage level 11 kV or above shall obtain the clearance of Power Telecommunication Co-ordination Committee to ensure the safety of the personnel and telecommunication line as per the requirement of section 160 of the Act."

Hence, Regulations mandate seeking PTCC clearance for all electric supply line of voltage level 11 kV and above irrespective of it being underground cable or overhead line. Further, Power Communication Development (PCD) Division of CEA is taking up the matter for waiving off the Induced Voltage (IV) calculations on underground cables of 33kV and below during central level PTCC meetings. Until further notice from the CEA, all utilities must obtain PTCC clearance for overhead line and underground cables of 11 kV or above, in compliance with applicable CEA Regulations.

For information of all the members please.

Deliberation

Forum urged the state utilities to take note of the regulation and requested to adhere to the same

2.8. Submission of Bays charging Status Information – ISGS and ISTS Elements

During the recent online element shifting exercise, several utilities encountered difficulties in live switching of elements. A major issue identified was the non-alignment of isolators, which significantly impacted operations.

To monitor and ensure the healthiness of isolators, a Google Sheet format has been shared with all concerned utilities. Some data entries have been pre-filled by NERLDC, which need to be verified by the respective utilities, while the remaining fields are to be completed by the utilities themselves.

It is noted that KMTL has completed the data submission, and NEEPCO has partially updated the required information. The remaining ISTS and ISGS entities are hereby requested to complete the data entry (if not already done), and verify and correct the details already provided, as applicable.

We kindly request all ISTS and ISGS entities to furnish and verify the isolator status details for the elements under their jurisdiction as per the prescribed format available at the link below:

https://docs.google.com/spreadsheets/d/1tCwXxM1fEhcaTGEK5O-qxef7-rWE_JIUxG5xVnQsfc/edit?usp=sharing

The following specific data points are to be provided for each relevant element:

1. **Bus 1 Side Isolator:**

- Charged Status (Yes/No)
- Date and Time since it has been in the current state

2. **Bus 2 Side Isolator:**

- Charged Status (Yes/No)
- Date and Time since it has been in the current state

3. **Bus Scheme Information:**

- Details of connected bus schemes

4. **Transfer bus Isolator Status:**

- Date and Time since it has been in the current non-charged state

5. **Element Side Isolator:**

- Charged Status (Yes/No)
- Date and Time since it has been in the current state

6. **Tie bay Side Isolator:**

- Charged Status (Yes/No)
- Date and Time since it has been in the current state

We urge all utilities to fill in the required information in the Google Sheet at the earliest.

Deliberation

Forum requested the utilities to provide the required data in the google sheet at the earliest.

2.9. Request for Expedited Registration on NOAR Portal by NER Intra-State Generating Utilities:

The Ministry of Power, Government of India, has launched the National Open Access Registry (NOAR) to streamline short-term open access transactions in

the electricity sector. As such, all such transactions, whether inter-state or intra-state must be routed through the NOAR portal.

Data received from Grid India indicates that a large number of intra-state generating stations in the NER region are still unregistered on the portal. It is crucial to note that unregistered generating plants are ineligible to participate in short-term open access transactions via NOAR.

This concern was highlighted during the 6th Meeting of the High-Level Committee on implementation of the Late Payment Surcharge (LPS) Rules, 2022. The Committee strongly recommended that all generating companies (GENCOs) should promptly register their intra-state generation units on the NOAR portal to ensure regulatory compliance and enable seamless scheduling.

NERLDC had previously communicated this requirement through letters dated 03.10.2024 and 03.12.2024 to all NER states. The issue was further emphasized in the 55th Commercial Committee Meeting.

Despite these communications, several intra-state generating utilities from Meghalaya, Tripura, Mizoram, Arunachal Pradesh, and Nagaland are yet to complete the registration process. At present, only the intra-state generating plants of Assam have successfully registered, while others are reportedly in the process.

In line with NLDC's directive (Annexure-2.9.1), we strongly urge all concerned utilities to prioritize and expedite the NOAR registration process at the earliest. This will ensure readiness for upcoming power transactions and avoid any operational or regulatory non-compliance.

Annexure-2.9.2 contains the current status of registration efforts across the region.

Deliberation

NERLDC Informed the Forum that Assam and Nagaland have completed the registration process. The forum exhorted the state generating utilities to register on the portal at the earliest.

2.10. Checklist/Requirements for trial run/commissioning of Pumped Storage Plants (Hydro):

A meeting was held under the Chairmanship of Chairperson, Central Electricity Authority (CEA) on 19th May 2025 to review the status of trial run/commissioning of Pinappuram Pumped Storage Plant (Andhra Pradesh in Southern Region). Vide Minutes of Meeting dated 21-Jun-2025 shared by CEA, Grid-India was directed to formulate and update all checklist/requirements and maintain standard procedures/formats uniformly in all the RLDCs for trial run/commissioning of generating stations specifically for PSPs.

In line with the above, a Checklist was formulated by NLDC in consultation with all RLDCS for issuance of FTC approval and successful trial run certificate for Pumped Storage Plants (Hydro). Any PSPs in future may refer to this checklist for submission of data along with any additional data that may be requested by RLDCs.

NERLDC vide email dated 09-06-2025 circulated the checklist to all the utilities in NER and the same is also available at

<https://www.nerldc.in/first-time-charging-procedure/?lang=en>

For the information of all the members please.

Deliberation

Forum requested all the utilities to take note of the checklist and follow the guideline.

2.11. Secure Access to Web Based Energy Scheduling (WBES) System:

To enhance security and protect against potential cyber threats, physical IP-based access for the WBES system and data retrieval via API has been implemented effective from 11:00 Hrs on 9th June 2025. Accordingly, access and data fetching will now be permitted only through systems or networks with whitelisted IP addresses. Meetings were also held with NER users to facilitate the whitelisting process and ensure seamless access to the WBES system at their respective locations.

For the information of all the members please.

Agenda from NEEPCO

2.12. Review of FRP (Frequency Response Performance) for ROR Plants of NEEPCO.

NERLDC vide its letter no Ref: NERLDC/S.O./20/7780 Dated 16-05-2025 suggested Kameng HPS to take all necessary steps to improve the Frequency Response Performance (FRP) of its control area based on the Median FRP of Kameng HPS (KaHPS) as mandated by **IEGC 2023 Reg 30(10)(q)**. The letter mentioned that the calculated median FRP of KaHPS is 0.21 (Poor as FRP <0.5) based on the 20 reportable events notified by NLDC in FY 2024-25.

In this context, this is to state that out of 18 nos. events (for another 02 events Units were not on bar) considered for FRP calculation, FGMO of Kameng units were in “OFF” condition in 08 (eight) nos. of reportable events and hence, there were no primary response during those 08 (eight) nos. of reportable events.

In this context it is to mention that as per provision of **IEGC-2023 cl.-30.10(h)** sub cl.-2, the hydro generating stations (with pondage up to 3 hours or **run of the river** projects) are exempted from mandatory primary response.

In line with this, the ***Draft NLDC Methodology for computation of Average Monthly FRP, Beta ‘β’*** circulated NLDC/SO/FRP/2024 dated 28.05.2024 vide also mentioned “Hydro generating stations shall not be considered for FRP

calculations during high inflow periods, as notified by the respective RPC in accordance with CERC (IEGC) Regulations, 2023 to avoid spillage” as per the clause 4.5 (c), which was subsequently omitted from the final ***NLDC Methodology for computation of Average Monthly FRP, Beta ‘β’*** circulated vide File No. L-1/268/2022/CERC Date: 23rd October, 2024.

Further, as per **Clause 45.10. (a) and (b)** under Optimum Utilization of Hydro Energy,

(a) During high inflow and water spillage conditions, for Storage type generating station and Run-of-River Generating Stations with or without Pondage, the declared capacity for the day may be up to the installed capacity plus overload capability (up to 10% or such other limit as certified by the OEM and approved by CEA) minus auxiliary consumption, corrected for the reservoir level. In case, the overload capability of such a station is more than 10% as approved, such a station shall declare the overload capability in advance.

(b) During high inflow and water spillage conditions, the concerned RLDC shall allow scheduling of power from hydro generating stations for overload capability up to 10% of Installed Capacity or any other limit as per sub-clause (a) of this clause without the requirement of additional GNA for such overload capacity, subject to the availability of margins in the transmission system.

Considering this, the KaHPS FGMO was switched OFF after taking due permission and requisite code from NERLDC in order to optimal utilisation of hydro energy and minimize spillage to the extent possible.

Therefore, in pursuant of all the Clauses and points mentioned above, it is to further state that if such conditions of IEGC are applied, the reportable events for which the FGMO was ON comes down to only 10 (ten) nos. for KaHPS, for which if the median FRP is calculated it comes to 2.58 which is “Excellent”.

In context to this, it is to mention that –

1. The LOW median FRP should not be attributed to the ability and effectiveness of Primary Control of Governor Response of KaHPS or for any other ROR Plants like PLHPS, PHPS etc.

2. It is also to request for kind re-consideration and reinstatement of the Clause 4.5 (c) of the ***Draft Methodology for computation of Average Monthly FRP, Beta 'β'.***

Deliberation

NERLDC informed the forum that the computation of the average monthly FRP, Beta (β) is carried out in accordance with the methodology approved by CERC. It was further clarified that the median FRP for KaHPS has been calculated based on the 20 reportable events notified by NLDC during FY 2024-25. Additionally, the approved methodology does not provide for the exclusion of any event due to spillage, as long as at least one unit remains on bar. The forum advised that any proposed changes to the existing procedure should be taken up with CERC for consideration.

Agenda from Mizoram

2.13. Exemption/reduction of NPV for projects within the North Eastern States to make the project commercially viable.

According to India State of Forest Report (ISFR) 2023, Ministry of Environment, Forest and Climate Change, the total coverage of Forest area in India is 21.76% which is 7,15,343sq km. Also, the Forest coverage area in the North Eastern State is 53.77 % and 66.52% including Tree coverage area. The Coverage of the Forest Area in the North Eastern State is still very high as compared with other States of India. The Coverage of Forest Area can be seen from the enclosed table from ISFR 2023(Annexure-2.13).

However, in spite of the higher forest coverage of the State, the rates of NPV to be realised in lieu of diversion of forest land have been fixed the same for the whole country which put burden and cost to those States with higher Forest coverage than those with lesser Forest Coverage. For instance, States with lesser Forest coverage will have to pay lesser NPV in spite of the State

having less Forest area. However, in a State like North Eastern States with 70 % to 80 % forest coverage, large amount of NPV have to be paid in spite of the State almost fully covered by the Forest Area. With the NPV come into picture, the project cost shoots up which make the project not commercially viable and ultimately detract developers. If this is not corrected, the development in the North Eastern States will come to a standstill due to the State being rich in Forest, trees and biodiversity.

There are provision for certain projects in the order No. 5-3/2011-FC(Vol-I) dated 6th January, 2022 from Ministry of Environment, Forest and Climate Change to charge NPV with half the rate with prescribed conditions such as Wind projects and Small Hydel Projects. However, these prescribed conditions are rarely meet to reduce NPV with the current forest condition of these North Eastern States.

Therefore, it is suggested that Ministry of Environment, Forest and Climate Change to exercise

- (1) Exemption of NPV for the North Eastern State for boosting the overall development of the States or
- (2) May devise a way of charging of NPV in accordance to the composition (deficiency or surplus) of Forest area within the State or
- (3) To segregate the NPV from the overall cost of the project and meet the NPV cost from the Central Government to make projects viable commercially in order to attract project developer and to pave way for the North Eastern States (with high forest coverage) to grow in other sectors.

Deliberation

Mizoram highlighted that due to higher forest coverage in the north eastern states, compared to other states of India, large amount of NPV have to be paid which shoots up the project costs in the region and makes the project commercially unviable. Other states also echoed the same concern.

It was suggested that Ministry of Environment, Forest & Climate Change may be requested to consider the following points.

1. Exemption of Net Present Value (NPV) of Forest area for NE states.
or
2. Request for Net Present Value (NPV) of Forest area to be paid by Central Government in the NE states.

If the above 1&2 is not possible,

3. To devise a way of charging NPV in accordance with the percentage of Forest area in the state so that states having more percentage of forest cover will pay at lower rates of NPV and vice-versa

The forum noted the concerns of the states. MS NERPC stated that the matter will be referred to the upcoming TCC/RPC meetings for further discussion and necessary action.

Agenda from Manipur

2.14. CONSTRUCTION OF NEW 2X50 MVA, 132/33kV S/S AT AWANG POTSANGBAM WITH ASSOCIATED 132 kV LILO ON YUREMBAM-YAINGANGPOKPI 132 kV LINE ANDii. CONSTRUCTION OF NEW 2X25 MVA, 132/33 kV S/S AT NAMREI, UKHRUL DISTRICT ALONG WITH THE ASSOCIATED 132 kV DC LINE FROM 132/33kV HUNDUNG SUBSTATION

In the 26th TCC and NERPC meeting held on the 4th and 5th of July, 2024 respectively at Sonapur, Guwahati, the forum opined that the proposals of MSPCL for **i) Construction of 2x50 MVA, 132/33kV S/s at Awang Potsangbam with associated 132 kV LI-LO on Yurembam- Yaingangpokpi 132 kV line** and **ii) Construction of 2x25 MVA, 132/33 kV S/S at Namrei, Ukhrul District along with associated 132kV DC line from Hundung Substation** are to be further discussed in Sub-Committee meeting(s) for detailed study/deliberation/clarification and is therefore referred to the Sub Committee(s) of NERPC.

Meanwhile, the proposals were included in the “Intra State Transmission Resource Adequacy Plan for Manipur by the year 2034-35” of CEA and it has been recommended to complete the works for construction of 132/33kV

substation at Awang Potsangbam and construction of 132/33kV substation at Namrei along with the associated lines by 2028-29.

Relevant portion of the **“Report on the Intra State Transmission Resource Adequacy Plan for Manipur by the year 2034-35”** of April 2025 is also enclosed for reference

Considering the above facts and circumstances, the Committee may kindly approve the -

- i) Construction of new 2x50 MVA, 132/33kv S/S at Awang Potsangbam with associated 132 kV LILO on Yurembam- Yaingangpokpi (II) 132 kv line and
- ii) Construction of new 2x25 MVA, 132/33 kV S/S at Namrei, Ukhrul district along with the associated 132 kV DC line from 132/33kV Hundung Substation

Deliberation

The forum in principle agreed the proposal as approved in the CEA report and suggested that for any modification of the approved schemes, a proposal has to be sent to the NERPC and NERLDC, so as it can be deliberated and intimated to CEA. Further it can be referred to ensuing RPC for information.

2.15. CONSTRUCTION OF 2X12.5 MVA 132/33 kV SUBSTATION AT KAMJONG ALONG WITH ASSOCIATED 132KV DC LINE FROM 132/33kV HUNDUNG SUBSTATION

In the 27th TCC and NERPC meetings held at Guwahati on the 7th and 8th of November, 2024, the forum had deliberated that the proposal of MSPCL for “Construction of 2x12.5 MVA 132/33kV substation at Kamjong along with associated 132kV DC line from 132/33kV Hundung Substation” is to be further discussed in Sub-Committee meeting(s) for detailed study/deliberation/clarification and is therefore referred to the Sub-Committee(s) of NERPC.

Meanwhile, the proposal was included in the “Intra State Transmission Resource Adequacy Plan for Manipur by the year 2034-35” of CEA and it has been recommended that the work be completed by 2032-33.

Relevant portion of the “Report on the Intra State Transmission Resource Adequacy Plan for Manipur by the year 2034-35” of April 2025 is also enclosed for reference

Considering the above facts and circumstances, the Committee may kindly approve the construction of 132/33kV substation at Kamjong along with associated 132kV DC line from 132/33kV Hundung Substation.

Deliberation

The forum in principle agreed the proposal of 132/33kV substation at Kamjong along with associated 132kV DC line from 132/33kV Hundung Substation. as the same was already approved in the CEA report. Further it can be referred to ensuing RPC for information.

2.16. RECONDUCTORING AND STRENGTHENING OF 132kV S/C TRANSMISSION LINE FROM 132/33kV JIRIBAM SUBSTATION TO 132/33 kV RENGANG SUBSTATION

The 132/33kV Substation at Rengang was constructed with 132kV LI-LO transmission line on the then existing 132kV Jiribam-Leimatak line. At present, power to the substation is fed from the Leimatak side which is also a generating station under NHPC. The extremely challenging terrain, frequent landslides and ever growing vegetations (especially bamboos) has left the other alternate source of supply i.e. 132kV Jiribam-Rengang transmission line into disuse. The area being susceptible to the recent public unrest in Manipur, timely maintenance of the said line had also been impossible.

The issue was discussed in the 28th TCC and NERPC meeting with MSPCL proposing to re-string the line. It was also discussed in the same meeting that the long outage of the 132kV Jiribam-Rengang line is also causing the

overloading of 132kv Loktak-Ningthoukhong line. The forum also stressed upon the early restoration of 132 kV Rengpang - Jiribam line.

However, the forum opined that the item for “Re-conductoring and Strengthening of 132kv S/C transmission line from 132/33kV Jiribam substation to 132/33 kV Rengpang substation” is to be further discussed in Sub-Committee meeting(s) for detailed study/deliberation/clarification and is therefore referred to the Sub-Committee(s) of NERPC.

The proposal was included in the “Intra State Transmission Resource Adequacy Plan for Manipur by the year 2034-35” of CEA.

Relevant portion of the “Report on the Intra State Transmission Resource Adequacy Plan for Manipur by the year 2034-35” of April 2025 is also enclosed for reference.

Considering the above facts and circumstances, the Committee may kindly approve the reconductoring and strengthening of 132kV S/C transmission line from 132/33kV Jiribam substation to 132/33kV Rengpang substation.

Deliberation

The forum in principle agreed the the proposal as approved in the CEA report. Further it can be referred to ensuing RPC for information.

Additional agenda items

Agenda from Meghalaya SLDC

2.17. Reduction of SRAS and TRAS quantum as calculated by NLDC

Meghalaya maximum demand was around 38 MW during 2024-25. Meghalaya has the highest intra-states hydro generation with the total intra state installed capacity of 367.50 MW. Out of 367.5 MW, 331.5 MW (90%) belongs

to the run off the river (RoR) having maximum two- or three-hours pondage. The total RAS for Meghalaya is 146MW which is 39% of the Peak demand.

As the quantum of RAS for Meghalaya is very high, we prayed that a revised study must be initiated so that the quantum will be reasonably lower and at par with all the states in the country.

Deliberation

Meghalaya SDLC apprised that the reserve requirement for the NER states like Meghalaya, Mizoram and Tripura are 29%, 21% and 13% respectively while that for larger states it is to tune of 4-7 % only. Reduction of SRAS and TRAS quantum as the values assessed by Nodal Agency for the year 2025-26 is very high Further he informed that ensuring such high reserves will increase the cost of power procurement of the state and will ultimately burden the concerned States as well consumers of concerned States.

State representatives from Mizoram and Tripura also echoed the same concern.

NER states unanimously requested that the matter may be taken up with CERC to address the concern of NER states.

Forum opined that NER states being small states, their over drawl has very limited potential on deviating the grid frequency and the whole requirement of reserve is for balancing the grid frequency. Therefore, NER states may be provided some relaxation on reserve requirement.

MS NERPC stated that NERPC will write a letter to CERC on the matter and further the matter will be taken up the upcoming RPC meeting for further discussion and for escalating the matter to the Ministry of power.

Agenda from NTPC

2.18. Scheduling of NTPC Bonagaigaon below MTL

NTPC Bongaigaon is receiving schedule below MTL (Minimum Technical Level) in spite of implementation of IEGC first amendment. It is not feasible to

operate the unit below MTL which is technically and commercially not viable. It is requested to the forum to deliberate the matter and ensure the schedule of NTPC remains above MTL.

Deliberation

NTPC apprised that Bonagiagaon is plant is frequently getting schedule below MTL during Solar -Hours due to surrendering of requisition by beneficiary states, prevailing extremely low price in market and not getting support under SCED up dispatch. OTPC also raised the similar concern for their Palatana plant.

Regarding support in SCED up dispatch, NERLDC stated that the since there is no sufficient SCED down reserve all over India, SCED up margin is limited.

MS NERPC requested the beneficiary states to support the plants in maintaining their schedule up to MTL. Further he stated that NERPC will write a email to the beneficiary states to extend necessary support. He also added that a sub-committee has been formed by CEA under chairmanship of Member (power System) to study the problem and devise solutions for the same and the committee will submit its report shortly.

Agenda from NERPC

2.19. NERPC Sub-group Report on the vulnerable tower locations of 400 kV D/C Palatana-Silchar Transmission Line of NETC

NERPC Sub-group Report on the vulnerable tower locations of 400 kV D/C Palatana-Silchar Transmission Line of NETC is hereby presented for the consideration of the forum (Annexure 2.19). This report was prepared based on the site visit of the sub-group at Agartala on dated 20.01.2025 & 21.01.2025 as per recommendation of the 218th OCCM.

The report was presented to the forum in 223rd OCC meeting and all constituents were requested to provide comments to the report within 10 days.

Since no comments/observations have been received from any constituents, the forum may approve the report.

Deliberation

The forum in principle approved the report.

2.20. Workshop on NER Protection Protocol at Misa SS by Powergrid

MS NERPC stated that in line with the discussion in 80th PCC meeting, PowerGrid (NERTS) will hold one day workshop/training program at Misa SS on NER Protection Protocol for skilling the Protection engineers of state utilities. He added that the dates will be decided in due course and will be intimated to the states. Further he requested the states to provide the nominations for the workshop to NERPC at the earliest.

Sub-committee noted the same.

Agenda form Powergrid

2.21. Reconductoring of 220kV Samaguri-Mariani line

Background- 220KV Misa Samaguri Line: Transmission Line which is responsible for bulk transfer of Power to majority of mid assam, as it steps down from 400KV HVAC/HVDC Circuits at Balipara, Misa and BNC.

DOCO:

Misa Samaguri Circuit-1: 01/03/1997, Line length: 34.43 Km

Misa Samaguri Circuit-2: 01/02/1994, Line length: 34.43 Km {commissioned as Kopili-Samaguri in the year 1984}

- a. Considering the Positioning of Samaguri, the subject Line 220KV Misa Samaguri D/C is responsible for catering huge amount of Power throughout the year.
- b. The strategic importance of it being the load caterer/ balancing of the 400KV HVAC as well as HVDC, stepped down to lower Voltages for further distribution makes it carry high ampacity throughout the year-

The current conductor utilised is ACSR Zebra which on account of high loading faces Jumper Burn, Hotspot issues throughout. The incidences of Emergency Shutdown taken for hotspot rectification are as follows –

Sl.NO	Line	Date	Description
1	Misa Samaguri 1	07-10-2020	S/d for attending Hotspot in conductor
2	Misa Samaguri 2	20-03-2021	S/d for attending Hotspot in Misa Bay at Samaguri end
3	Misa Samaguri 1	28-07-2021	S/d for attending Hotspot B Phase CT terminal at Samaguri end
4	Misa Samaguri 2	28-07-2021	S/d for attending Hotspot B Phase CT terminal at Samaguri end
5	Misa Samaguri 1	25-08-2021	S/d for attending Hotspot in Y-Ph CT terminals
6	Misa Samaguri 2	04-10-2023	S/d for attending Hotspot Y_phase Wave trap terminal
7	Misa Samaguri 2	19-03-2024	S/d for attending Hotspot Y-Phase bottom conductor of Wavetrap
8	Misa Samaguri 1	05-05-2025	S/d for attending Hotspot Y-Phase CT terminal connector at Samaguri end

Such incidences reduce the Line reliability as well as adds to the Repair & Maintenance time of the Transmission Line-

The Power-flow data collected is referred as below for the Year- 2024

220kV Misa Samaguri 1: 156.46 MW on 26.05.2024

220kV Misa Samaguri 2: 156.98 MW on 20.07.2024

Average load on 220kV Misa Samaguri D/C lines for the months of May, June, July, August and September are as below –

Month	Average load on 220kV Misa-Samaguri 1	Average load on 220kV Misa- Samaguri 2
May	85.43 MW	84.76 MW
June	87.66 MW	86.95 MW
July	95.99 MW	96.20 MW
August	98.24 MW	97.39 MW
September	87.88 MW	87.20 MW

Because of the following, is proposed uprating of the Line with HTLS reconductoring to support high ampacity for high loading. Grid-India is requested to study and submit report.

Deliberation

The forum noted that the matter relates to ISTS planning and referred the matter to CMeTS for further action.

PART-C: METERING ITEMS

3.1. Time Drift Issues:

Time drift in SEMs may result in computational errors in Regional energy accounts & Weekly Loss. All constituents in whose premises the meters are installed are required to take corrective action for the same.

Time drift of more than 2 mins observed in the following meters:

S No.	ENTITY	FEEDER NAME	METER NO.	TIME DRIFT	REMARKS
1	MANIPUR	132 kV Ningthoukhong- PGCI-3	NE- 0152-A	Around 04 mins 51 secs	
2	MANIPUR	132 kV Ningthoukhong- PGCI-2	NE- 0151-A	Around 2 mins 34 secs	
3	MANIPUR	132 kV Ningthoukhong- PGCI-1	NP- 9946-A	Around 05 mins	Line Under Shutdown
4	POWERGRID	220 kV Salakati- Alipurduar line Ckt#1	NP- 7581-A	Around 02 mins 29 secs	

Deliberation:

Manipur stated that time drift correction of the said meters will be done and updated by next OCCM. POWERGRID stated that time correction of the meter at Salakati will be completed within two weeks.

3.2. Issue in SEM data of 132 kV Dharmanagar end of Dullavcherra Feeder:

It has been observed that the data received from Dharmanagar end is erroneous and the same neither matches with SCADA data nor with data from

Dullavcherra end. Several follow ups have been initiated regarding the matter with utility; however, matter is yet to be resolved.

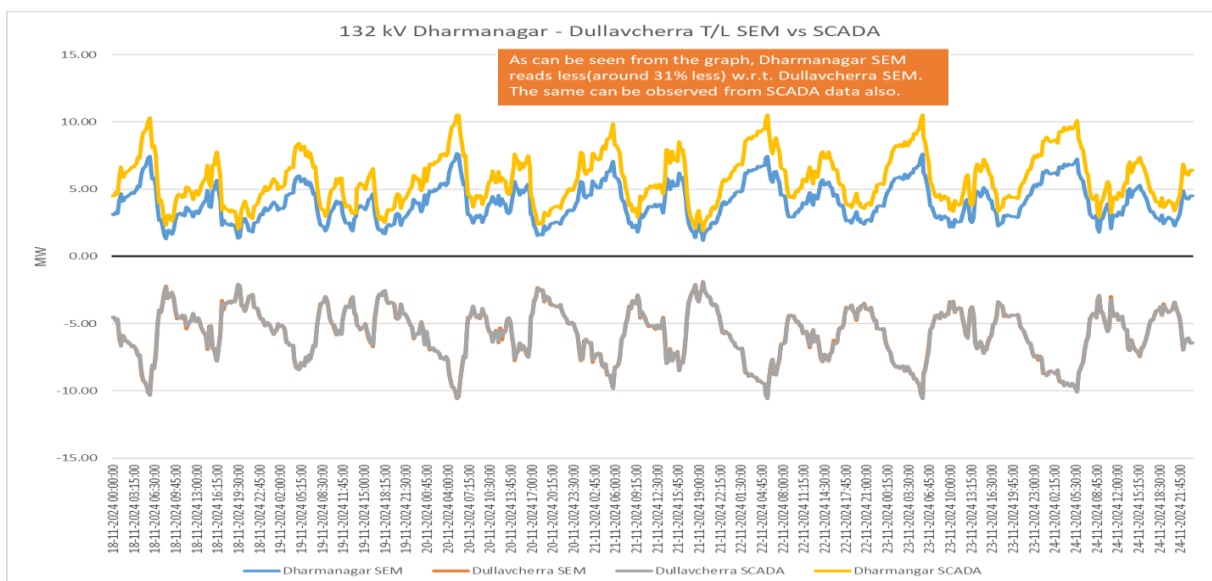
It is also to be noted that since 222nd OCCM, data from Dharmanagar S/S has not been received by NERLDC from said substation. Issue with Vinplus Software had been mentioned by Tripura in the previous OCCM.

In the 225th OCCM, Tripura apprised the forum that DCD data have been received at Ambassa and Dharmanagar substations. However, due to technical issue with Vinplus software, SLDC Tripura is unable to transfer the data to laptop. The forum advised Tripura to carry the laptop along with DCD data to Kumarghat substation where PGCIL will help Tripura to resolve the issue.

In the 226th OCCM, Tripura updated that issue will be tentatively resolved by next week.

However, the same is yet to be resolved. Tripura is hereby requested to provide updates on the issue and also provide contact details of personnel stationed at Dharmanagar S/S for future communication.

Forum may please Discuss.



Deliberation:

Tripura stated that the laptops currently present at Dharmanagar S/S is not able to run and retrieve data from DCD. Hence Tripura is in the process of procurement of 5 nos. of Laptops, which should be completed by 2nd week of July 2025. Installation of L&T based software will be done thereafter. Forum proposed that the matter be taken up in the next TCC/RPC meeting.

3.3. Issue in receipt of data from 132 kV Tipaimukh S/S

Weekly SEM data from 132 kV Tipaimukh (Manipur) S/S is essential for accounting of Manipur Drawal. However, SEM data for said substation is not being received. On query, downloading data from DCD to laptop has been failing.

In 223rd OCCM, Forum requested Powergrid to assist Manipur to rectify the issue. Manipur to send Laptop along with DCD available at Tipaimukh to Aizawl PG S/S for the same.

In the 224th OCCM, Manipur informed that the equipment is ready to be dispatched but due to Law-and-Order condition in the state, movement is restricted. They are unable to send laptop along with DCD to Aizawl S/S. Manipur agreed to do the same as soon as possible.

In the 225th OCCM, Manipur apprised the forum that the DCD data and the laptop are in Manipur and are inaccessible due to the current law and order situation in Manipur. Manipur further apprised the forum that the laptop has developed technical problems and is not functional currently. Member Secretary, NERPC advised Manipur to repair the laptop and resolve the issue at the earliest.

In the 226th OCCM, Manipur updated that the Laptop issue will be resolved by next week. However, data from said Substation is yet to be received at NERLDC end.

Deliberation:

Manipur stated that Laptop procurement is in process and data will be sent to NERLDC by the end of 1st week of July 2025.

Status of the same may be reviewed.

3.4. Issue in Receipt of Data data from Udaipur S/S:

Weekly SEM data from 132 kV Udaipur(Tripura) Substation is not being received since replacement of old LnT Meter with Secure Make Meter on 23-12-2024(for 132 kV Udaipur end of Palatana T/L). In 222nd OCCM, the forum advised Tripura to resolve the issue by next OCC meeting. Data from the replaced meter is yet to be received by NERLDC.

In the 225th OCCM, Tripura apprised the forum that DCD data has been received at Udaipur substation. However, due to technical issue with Vinplus software, SLDC Tripura is unable to transfer the data to laptop. The forum advised Tripura to carry the laptop along with DCD data to Kumarghat substation where PGCIL will help Tripura to resolve the issue.

In the 226th OCCM, Tripura updated that the issue will be resolved by next OCC meeting. Tripura may intimate present status of the same.

Deliberation:

Tripura stated that the laptops currently present at Udaipur S/S is not able to run and retrieve data from DCD. Hence Tripura is in the process of procurement of 5 nos. of Laptops, which should be completed by 2nd week of July 2025. Installation of SECURE based software will be done thereafter. Forum proposed that the matter be taken up in the next TCC/RPC meeting.

3.5. Receipt of SEM data from 132 kV Budhjungnagar, 132 kV Ambassa, 132 kV Dharmanagar, 132 kV PK Bari & 132 kV SM Nagar (TSECL) Substations:

As per 175th OCCM dated 18th Feb 2021 agenda D.12, Indigrid and Powergrid NERTS were given responsibility to collect and send SEM data on weekly basis for Tripura owned substations viz 132kV Ambassa S/s, 132kV Budhjungnagar S/s, 132 kV PK Bari S/s and 132 kV SM Nagar S/s for the

interim period, due to shortage of DCDs. The relevant extracts are furnished below

Quote:

"The forum noted that due to the existing shortage of DCDs, the same cannot be provided to Tripura for some time for new locations. This creates difficulty in getting SEM data from Budhjangnagar, Ambasa, PK Bari and SM Nagar. The Matter was discussed and it was decided that during the interim period Powergrid NERTS will provide readings from PK Bari and SM Nagar of Tripura and Sterlite will provide readings from Budhjangnagar and Ambassa of Tripura."

Unquote

As per IEGC 2023 Clause 49(12)(e) entity shall be responsible to send weekly meter data to RLDC. The relevant extracts are furnished below

Quote:

"Entities in whose premises the IEMs are installed shall be responsible for (i) monitoring the healthiness of the CT and PT inputs to the meters, (ii) taking weekly meter readings for the seven day period ending on the preceding Sunday 2400 hrs and transmitting them to the RLDC by Tuesday noon, in case such readings have not been transmitted through automatic remote meter reading (AMR) facility (iii) monitoring and ensuring that the time drift of IEM is within the limits as specified in CEA Metering Regulations 2006 and (iv) promptly intimating the changes in CT and PT ratio to RLDC."

Unquote

In 221st OCCM, Tripura confirmed the receipt of 3 nos. of DCDs and that the same have been dispatched to Dharmanagar, Ambassa and SM Nagar(State) S/Ss. Tripura further intimated that the remaining works shall be completed by 21/12/2024 and the meters shall be reporting successfully from 23/12/24.

In the 226th OCCM, Tripura updated that the issue will be resolved by next OCC meeting.

However, data is yet to be received from concerned utilities on weekly basis.

Deliberation:

Tripura stated that the laptops currently present at these S/Ss are not able to run and retrieve data from DCD. Hence Tripura is in the process of procurement of 5 nos. of Laptops, which should be completed by 2nd week of July 2025. Installation of LnT based software will be done thereafter. Forum proposed that the matter be taken up in the next TCC/RPC meeting.

PART-D: ITEMS FOR UPDATE/FOLLOW-UP

4.1 Assessment of ERS requirement in NER at different voltage level in compliance with MoP/CEA guidelines

As per the direction of MoP (in 2014) ERS has to be arranged by Transmission Utility as per the following criteria -

- One (1) set of ERS for Transmission Line Lengths upto 5,000 Ckt-kms
- Two (2) set of ERS for Transmission Line Lengths of about 5,000 to 10,000 Ckt-kms
- Three (3) set of ERS for Transmission Line Lengths of about 10,000 to 15,000 Ckt-kms and so on.

Note: Transmission Utility with line length less than 500 Ckt kms (of 400 kV) may be given option either to procure ERS or have arrangement with other Transmission utilities for providing ERS on mutually agreed terms, when need arises.

In this context assessment of ERS requirement for NER may be deliberated upon.

Deliberation of the sub-committee

Some utilities provide the status in the table below –

	Utility/state	Total ckt Km	No. of ERSs set required as the guideline	Availability of the ERS set
	Powergrid	9000	2	2
	KMTL	254	1	NIL
	Sterlite (NBTL+MUML)			
	NTL (Indigrid)			
	NETC			
	Ar. Pradesh			

	Assam	5426	2	2
	Manipur			
	Meghalaya	1048	1	NIL
	Mizoram			
	Nagaland			
	Tripura			

MS NERPC instructed all the remaining utilities to fill up the table and take necessary actions to procure the ERS or have arrangement with other Transmission utilities as the guideline above. Further he apprised the state utilities that PSDF funding can be availed for the ERS and requested them to prepare DPR for the same.

Deliberation

Utilities updated as follow -

	Utility/state	Total ckt Km	No. of ERSs set required as the guideline	Availability of the ERS set
	Powergrid	9000	2	2
	KMTL	254	1	NIL
	Sterlite (NBTL+MUML)			
	NTL (Indigrid)			
	NETC			
	Ar. Pradesh			
	Assam	5426	2	2
	Manipur	955	1	
	Meghalaya	1801	1	NIL
	Mizoram	1034	1	
	Nagaland	517	1	

	Tripura	988	1	
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MS NERPC exhorted the state utilities to prepare DPR for procurement of ERS and submit to PSDF at the earliest.

The forum also requested NERLDC to keep record of lines and line-lengths of intra-state as well as ISTS ownership.

4.2 Implementation/Review of Islanding schemes of NER:

As per Clause 10 of the Central Electricity Authority (Grid Standards), Regulations, 2010: “Islanding Schemes- (1) The Regional Power Committees shall prepare Islanding schemes for separation of systems with a view to save healthy system from total collapse in case of grid disturbance. (2) The Entities shall ensure proper implementation of the Islanding Schemes”. In this regard the Islanding schemes which are being planned/have been implemented in NER are mentioned below, along with the updates from 226th OCCM.

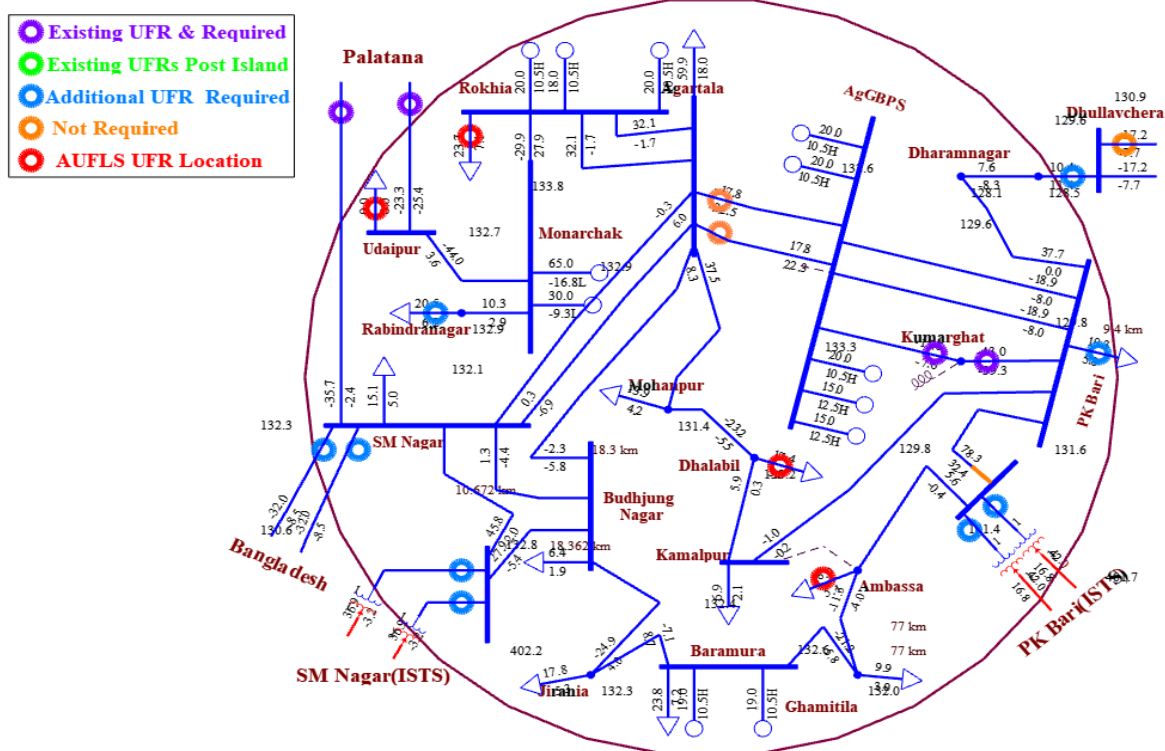
A. Guwahati Islanding Scheme

Being discussed in TESSG meetings. Queries raised by TESSG being replied

B. Tripura/Agartala Islanding Scheme

Scheme finalised in meeting held on 16.05.2025. Implementation to be done by Stakeholders

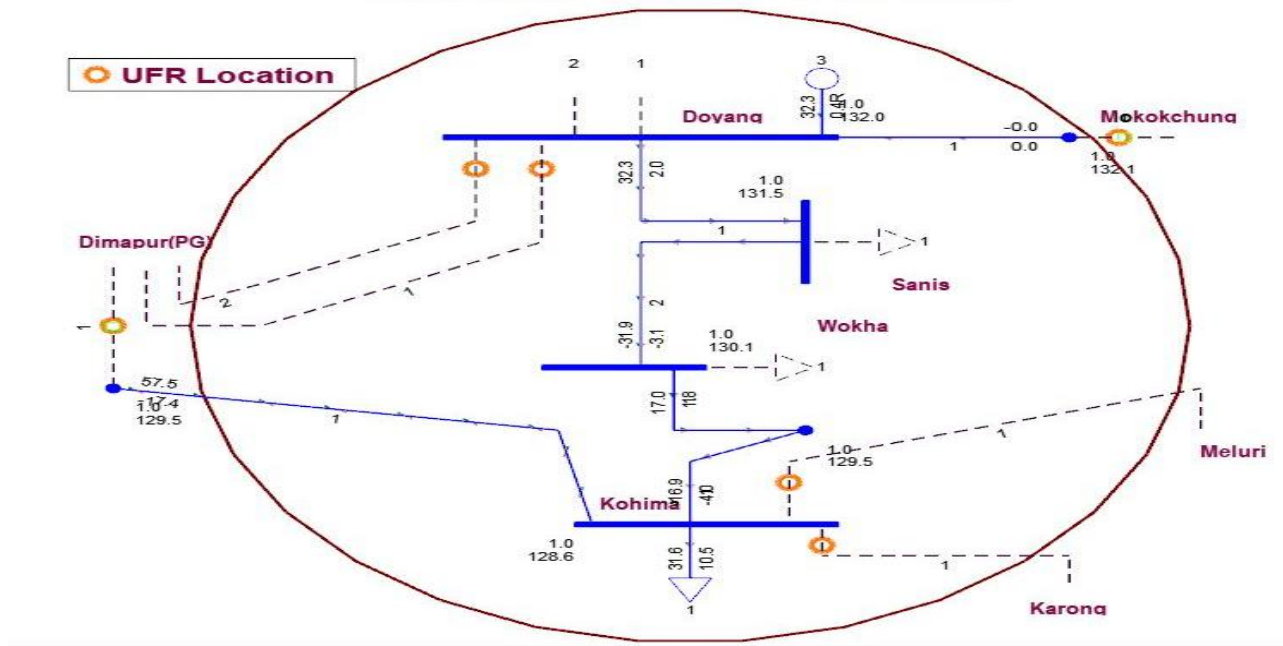
Tripura Islanding Scheme



C. Kohima Islanding scheme

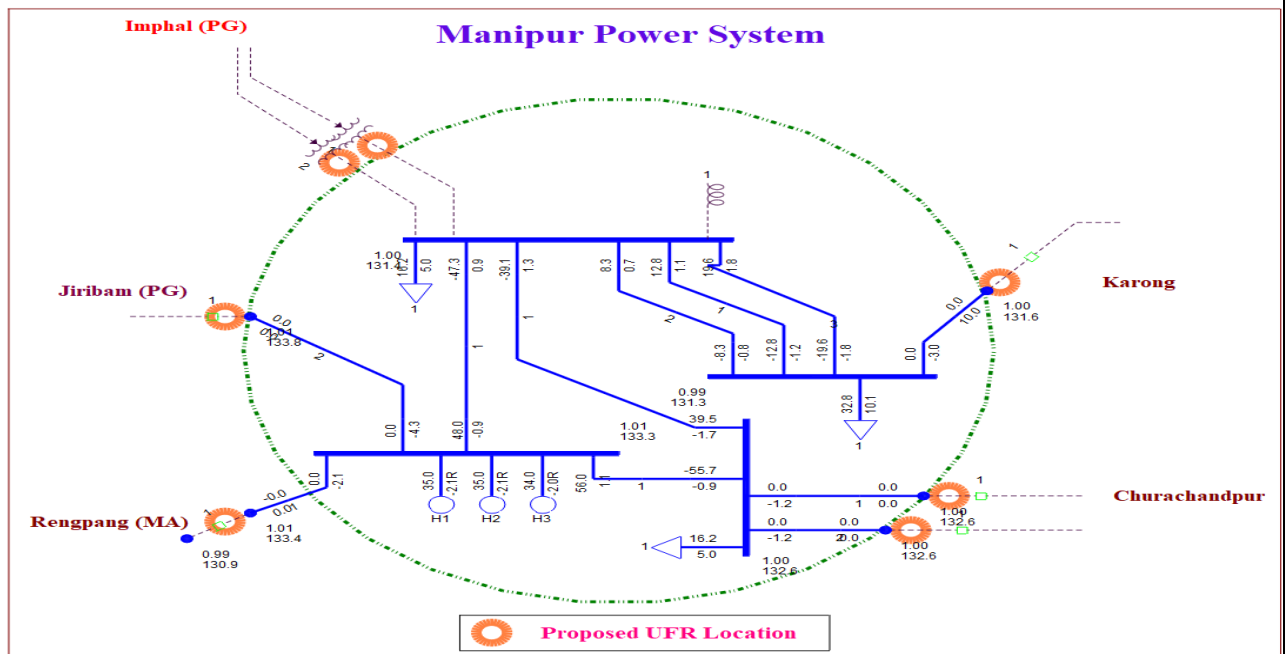
DoP Nagaland updated that the DPR preparation was underway, as they have not received budgetary offer from vendor. MS, NERPC urged DoP Nagaland to take the budgetary offer from a vendor at the earliest so that the same may be got approved in the upcoming RPC meeting.

NEEPCO apprised the forum that dynamic data for Doyang generator has been submitted to NERLDC. NERLDC further apprised that dynamic study yet to be done. Stability issue observed due to small units



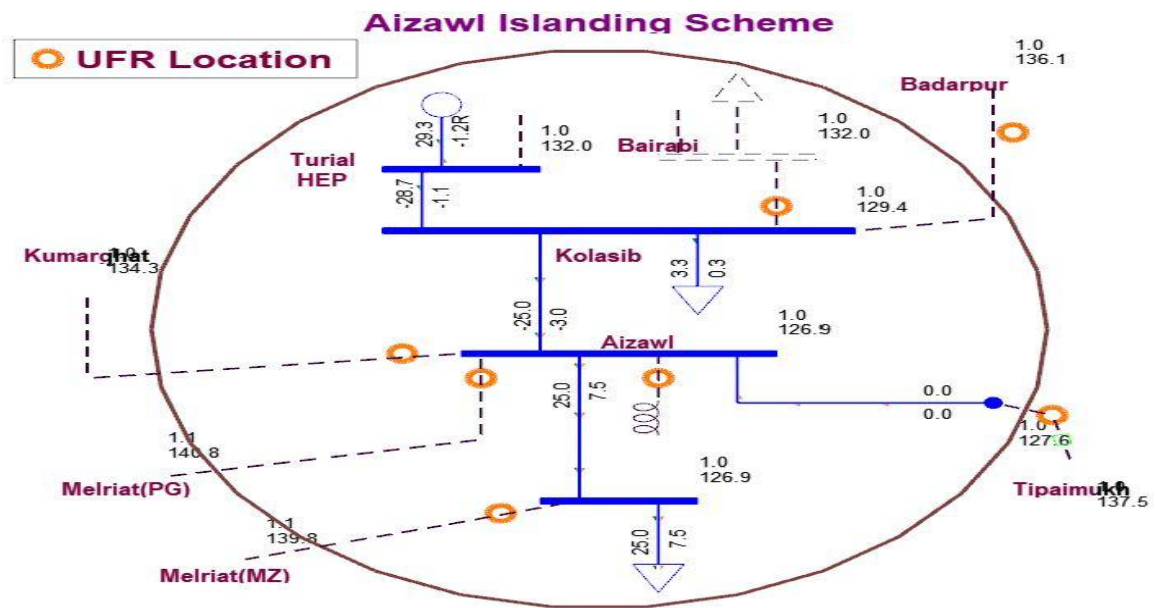
D. Imphal Islanding scheme

NERLDC apprised the forum that data from NHPC Loktak has been received. Dynamic study is going on and is expected to be completed shortly



E. Aizawl Islanding scheme

It was informed that the scheme has been finalised in meeting held on 08.05.2025. Implementation to be done by Stakeholders



F. Meghalaya/Shillong Islanding Scheme

NERLDC informed that Stability issues observed due to small units. Kopili may considered at the place of Umiam generators

Deliberation

Utilities updated as follow –

S.N.	Island	Update (227 th OCCM)
1.	Guwahati	Being discussed in TESG meetings. Queries raised by TESG being replied
2.	Tripura/Agartala	Work allocation has been provided in the minutes of the meeting held on 16.05.2025 which has been attached as annexure 4.2.1 OTPC- done its part Powergrid -will complete shortly NTL: absent Tripura : to buy UFRs. NERLDC suggested to check whether numerical relays are present or not

3.	Kohima	Stability issues observed. Further study to be done
4.	Imphal	Dynamic study to be done. Multi-machine involved, which necessitates real time monitoring of load and generation and load in the machine, therefore PMUs and centralized processors are required, as done for Guwahati Islanding scheme
5.	Aizawl	Work allocation has been provided in the island study report attached as annexure 4.2.2 Under implementation
6.	Meghalay/Shillong	Stability issues observed. Further study to be done

4.3 Automatic Under Frequency Load shedding (AUFLS) scheme of NER:

Status as updated in 226th/225th OCCM

Name of the State/utility	Installation of UFRs	Status of mapping
Ar. Pradesh	Completed	DoP Arunachal Pradesh stated that mapping of feeder at Lekhi SS (Industry feeder, stage 1) completed For rest of the feeders and substations, coordination with GE is underway and will be taken up gradually.
Assam	Completed	Completed
Manipur	UFR installed but not enabled as system integration work is pending with GE. To be completed by June'25 end	Mapping is pending from substations end, which is being hampered due to Law & Order situation in the State.

		Also, system integration work is pending due to payment issue with M/s GE.
Meghalaya	Completed	Completed
Mizoram	Completed	Coordination with GE is underway for mapping. SCADA integration of Shimui completed but mapping left due to fibre issue. Coordination with PGCIL required. Mizoram further apprised that there is problem with SCADA display at Luangmual substation due to RTU issue. Issues to be resolved shortly
Nagaland	Completed	Completed
Tripura	Completed	Tripura apprised the forum that that mapping at Ambassa is completed but integration is left, to be completed by next OCCM

Forum noted the status updated as provided in the above table. NERPC informed that AUFLS quantum has been revised for NER for the FY 2024-25 and presented the revised quantum for load shedding to the forum, which is provided below: –

UFR load shedding for NER States for the FY 2024-25

State	stg I (MW)	Stg II	Stg III	Stg IV
Ar. Pradesh	8.659594937	10.39151392	12.12343291	12.12343291
Assam	112.3419494	134.8103392	157.2787291	157.2787291
Manipur	11.54612658	13.8553519	16.16457722	16.16457722
Meghalaya	18.85556962	22.62668354	26.39779747	26.39779747
Mizoram	7.542227848	9.050673418	10.55911899	10.55911899
Nagaland	8.100911392	9.721093671	11.34127595	11.34127595
Tripura	16.85362025	20.2243443	23.59506835	23.59506835

Total	183.9	220.68	257.46	257.46
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For FY 2023-24 (already under operation)

State	stg I (MW)	Stg II	Stg III	Stg IV
Ar. Pradesh	10	14	12	10
Assam	90	125	113	115
Manipur	10	10	10	10
Meghalaya	25	25	25	25
Mizoram	5	5	5	5
Nagaland	10	10	10	10
Tripura	15	12.2	21.2	30
Total	165	201	196	205

Regarding implementation of revised quantum, Manipur, Mizoram and Tripura left, to be done shortly.

Utilities may further update

Deliberation

Status as updated in 226th/225thOCCM

Name of the State/utility	Installation of UFRs	Status of mapping
Ar. Pradesh	Completed	DoP Arunachal Pradesh stated that mapping of feeder at Lekhi SS (Industry feeder, stage 1) completed For rest of the feeders and substations, coordination with GE is underway and will be taken up gradually.
Assam	Completed	Completed

Manipur	UFR installed but not enabled as system integration work is pending with GE. To be completed by June'25 end	Mapping is pending from substations end, which is being hampered due to Law & Order situation in the State. Also, system integration work is pending due to payment issue with M/s GE.
Meghalaya	Completed	Completed
Mizoram	Completed	Coordination with GE is underway for mapping. SCADA integration of Shimui completed but mapping left due to fibre issue. Coordination with PGCIL required. Mizoram further apprised that there is problem with SCADA display at Luangmualsubstation due to RTU issue. Issues to be resolved shortly
Nagaland	Completed	Completed
Tripura	Completed	Tripura apprised the forum that that mapping at Ambassa is completed but integration is left, OPGW being laid, to be completed by next OCCM

Regarding implantation of revised quantum, Mizoram has revised the quantum and only Manipur and Tripura re left to implement. MS NERPC instructed Tripura and Manipur to complete the work at the earliest.

4.4 Monthly Review of LGBR

PARTICULARS (Peak Demand in MW as per LGBR vs Actual)	Mar-25 (LGBR)	Mar-25 (Actual)	Apr-25 (LGBR)	Apr-25 (Actual)	May-25 (LGBR)	May-25 (Actual)
Arunachal Pradesh	180.30	180	200	172	217	184
Assam	1979.00	1917	2203	2081	2629	2336
Manipur	246.39	213	234	228	247	248
Meghalaya	445.00	343	455	340	439	339

Mizoram	149.00	151	143	138	141	138
Nagaland	180.00	164	185	176	192	187
Tripura (exc. Bangladesh)	304.90	317	384	334	423	347
NER DEMAND (exc. Bangladesh)	3302.70	3273	3689	3344	4066	3606

PARTICULARS (Energy Requirement in MU as per LGBR vs Actual)	Mar-25 (LGBR)	Mar-25 (Actual)	Apr-25 (LGBR)	Apr-25 (Actual)	May-25 (LGBR)	May-25 (Actual)
Arunachal Pradesh	109.61	94.48	82	86.37	82	97.2
Assam	1012.00	945.66	1108	1012.34	1108	1135.9
Manipur	98.00	90.43	94	86.13	94	96.9
Meghalaya	223.00	172.39	195	164.13	195	167.8
Mizoram	78.76	100.81	62	59.72	62	59.9
Nagaland	82.00	73.06	76	75.51	76	82.3
Tripura (excl. Bangladesh)	132.23	108.88	180	165.99	180	169.1
NER DEMAND (exc. Bangladesh)	1735.60	1586.32	1797	1650	1797	1809

LGBR projection for June'25, July'25 and August'25

PARTICULARS (Peak Demand in MW as per LGBR)	Jun-25 (MW)	Jun-25 (MU)	July-25 (MW)	July-25 (MU)	Aug-25 (MW)	Aug-25 (MU)
Arunachal Pradesh	185	93	204	99	214	111
Assam	2586	1312	2787	1543	2835	1521
Manipur	247	105	229	91	261	85
Meghalaya	370	183	401	191	384	190
Mizoram	136	58	141	65	164	59
Nagaland	200	95	205	105	203	92
Tripura (exc. Bangladesh)	380	179	394	205	381	237

NER DEMAND (exc. Bangladesh)	3899	2025	4158	2300	4265	2294
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Deliberation

Forum discussed the demand projection data for the month of May'25 vis-à-vis the LGBR projected data and noted that demand projection of Meghalaya was significantly high.

Meghalaya SLDC informed that the projected data is incorrect and they will send the revised projection to NERPC shortly.

4.5 Non-Functionality of online transfer of elements at Kameng HEP

It has been observed that Kameng HEP reported the inability to perform online transfer of elements at their 400 kV substation, which operates under a Double Main Bus cum Transfer bus scheme, this issue came to light during an emergency shutdown for attending a hotspot on the Bus Coupler isolator connected to Bus-B.

As per the standard protocol, NERLDC Control Room instructed Kameng HEP to carry out the online transfer of all associated elements and proceed with the shutdown of the affected isolator on Bus-B R-phase. However, Kameng HEP expressed its inability to execute the transfer online, citing safety concerns due to high sparking observed in previous attempts. In view of the above, Kameng HEP requested a complete shutdown of both 400 kV buses to facilitate the maintenance activity. Induction voltage of approximately 2.2 kV was reported, further reinforcing the safety risk to personnel and equipment.

It is important to note that the Kameng HEP switchyard is configured under a Double Main Bus cum Transfer Bus scheme, which is typically designed to allow seamless transfer of elements between buses without compromising the continuity of supply to healthy elements. The current limitation in transferring elements online is a cause for concern and needs to be addressed promptly.

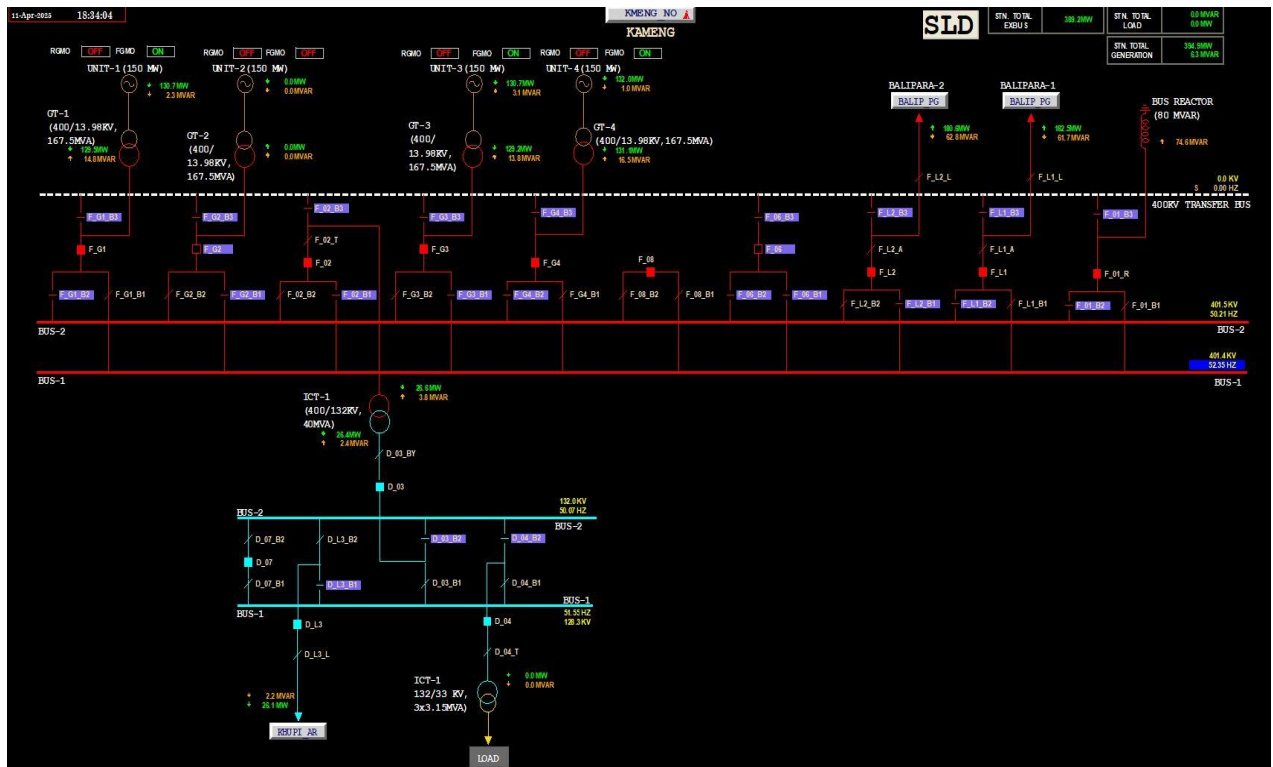


Fig: Kameng HEP Switchyard

Therefore, we request Kameng HEP to take appropriate corrective measures to ensure the reliable and secure operation of the Kameng 400/132 kV switchyard. Given that the Khupi area of the Arunachal Pradesh power system is interconnected with the Kameng system, any unplanned or forced outages at Kameng HEP could severely affect the reliability and stability of the entire North Eastern Region (NER) power grid.

In 225th OCCM, NEEPCO apprised the forum that flashover across isolators have been observed in the previous attempts which may cause safety risks to persons and equipment. He added that the humid weather, which is persistent in the area, is the main reason for the flashover.

NEEPCO requested that online transfer may be attempted during sunny weather in coordination with NERLDC. Forum agreed to the suggestion of NEEPCO. The matter will be taken up the OEM if the issue persists after trial in sunny weather.

In 226th OCCM, the forum noted that as discussed in the 225th OCC

meeting, NEEPCO was to first attempt the transfer in Sunny weather and if the issue persisted, OEM had to be consulted. Further, MS NERPC requested NEEPCO to carry out the exercise at the earliest and the matter will be taken up regularly in the OCC meeting.

Deliberation

NEEPCO informed that the online transfer exercise has been successfully carried out on 13th June'25. Forum noted the above.

4.6 Status Update and Revival Plan for Long-Outage NER Generators & Transmission Lines

The following NER generators & transmission lines have been under outage since long time. Considering the increasing demand trend and reliable power supply in the Region, respective utilities are requested to intimate the updated expected date of revival & take necessary action to restore the mentioned units & lines at earliest:

Generating Units:

As updated in 227th OCC meeting

S. N o.	Element Name	Outage time	Reason	Expected date (as updated in 227th OCCM)
1	Khandong Unit I	10:45 Hrs of 26-03-2022	Flash flood of reservoir causing submergence of the Khandong station	Khandong Unit I-Mid July'25
2	Khandong Unit II	10:45 Hrs of 26-03-2022		Khandong Unit II-July 2025
3	LTPS Unit 7 (20 MW)	17:08 hrs of 08-04-2024	High Vibration issue in Bearing Block-4 turbine bearing of gas turbine	Spare not available, waiting for OEM reply. Process may take significant time.

4	Baramura Unit (21MW)	20:17 Hrs of 26-03-2024	Outage due to low gas pressure.	Machine Ok. Gas availability issue.
5	Baramura Unit 4	23:20 Hrs of 05-06-2024	gear box issue, leakage in auxiliary of gear box, display of control unit is not working due to suspected card issue	Baramura Unit 4. Tripura apprised that there is technical problem in rotor. Nonfunctional due to non-availability of gas. Forum advised to resolve rotor issue in the unit.
6	Rokhia Unit 8	22:13 Hrs of 02-05-2024	Hand Tripped due to low Gas Pressure. Issue of turbine bearing leakage observed.	In service. Gas constraint issue.
7	Rokhia Unit - 7	14:06 Hrs of 06-11-2024	Leakage in Heat Chamber	In service. Gas constraint issue
8	Kameng Unit 2	07:31 Hrs of 17-06-2024	Damage in the stator core & bar, and also on rotor poles due to dislodging of 1no. V-block	RIO inspection done, Machine to come by June-2025

Transmission Lines:

As updated in 227th OCC meeting

S . N o .	Element Name	Outage time	Reason	Expected date (as updated in 227th OCCM)
1	400 kV Imphal - Thoubal I	18-10- 2021	Tripped on DP, ROW issue.	RoW issue. Law and order situation is fragile.
2	132 kV Kohima - Meluri	27-09- 2023	S/D taken by Kohima trans. Div. for dismantling of Tower no. AP 130	Line charged 26.04.2025
3	132 kV Jiribam- Rengpang	17-11- 2023	Tripped on Earth fault	Tower shifting required due to NHIDCL work. Resurvey done in 1 st week of May'25. 16 towers affected. Revival will take significant time.
4	132kV Ningthoukhong - Churachandpu rckt 1	04-08- 2024	Z-1, 18.5 km, O/C	Elements under outage for more than 6 months and as elements is under intra-state jurisdiction, SLDC may follow their FTC procedure (SIO etc may be obtained) and copy may be given to NERLDC.

5	132 kV Imphal-Ningthoukhong line 1	13-02-2025	Stringing and termination of diverted SC 132kV Leimatak-Mao line (MSPCL) from existing tower no. 83 to tower no. 101 (to avoid infringement with proposed Imphal Railway Station under Jiribam-Imphal New Railway line on turnkey basis). The Railway diversion reference is for the old line namely 132kV Leimatak-Ningthoukhong-Yurembam-Mao which is now 132kV Leimatak-Ningthoukhong-Imphal PG-Yurembam-Karong line. The diversion portion presently considered is from tower loc no. 83 to 101 of 132kV Imphal PG -	Charged on 13 th June'25
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			Ningthoukhong line ckt 1.	
6	132kV Srikona – Panchgram	14-01- 2019	-	Survey complete, estimate in process

Sb-committee noted as above

4.7 Submission of Dynamic Model for ± 800 kV MTDC Agra-BNC-Alipurduar

As you are aware, GRID-INDIA is responsible for ensuring the secure and reliable operation of the Indian power system. A critical aspect of this responsibility involves conducting system studies and power system stability simulations to proactively implement measures for grid security.

In this regard, the submission of the dynamic model for the ± 800 kV Agra-BNC-Alipurduar HVDC MTDC has already been communicated by NLDC, GRID -INDIA.

However, we have not yet received the required dynamic model. ***This data is crucial for islanding formation studies, especially considering that the ± 800 kV MTDC Agra-BNC-Alipurduar operates in frequency control mode.***

In 226th OCC meeting, NERTS updated that the response is still awaited from the corporate office and requested NERLDC to take up the matter with NLDC.

MS NERPC stated that NERPC will write a letter to NDLC to facilitate testing of ± 800 kV MTDC Agra-BNC-Alipurduar in frequency control mode.

Deliberation

NERTS informed that the HVDC is of old model and it is difficult to get the dynamic data.

Regarding the testing of frequency control model, NERTS raised the issue that without proper study it might be very risky for the grid security and stability. Further he stated that certain conditions like low loading on the link, high

reactive power generation in the NER grid etc. have to be ensured before carrying out the tests. NERLDC stated that they will study the necessary pre-conditions for the test. NERLDC emphasized that dynamic model data is essential for conducting a comprehensive study on frequency control operations of MTDC link. Thus, Powergrid is requested to provide the dynamic model data for ± 800 kV MTDC Agra-BNC-Alipurduar. Additionally, for testing in RPC mode, it was requested that PGCIL may provide the schedule well in advance, allowing necessary preparations to be made to ensure the success of the test.

Forun noted as above.

4.8 Mock Black Start of Units in compliance with IEGC:

As per IEGC Clause 34 (3), The user shall carry out a mock trial run of the procedure for different sub-systems including black-start of generating units along with grid forming capability of inverter based generating station and VSC based HVDC black-start support **at least once a year** under intimation to the concerned SLDC and RLDC.

Accordingly, Mock Black Start of the following generating plants were conducted for the FY 2024-25:

Sl. No.	Name of Power station	Date of Mock exercise
1	AGBPS GTG 4	14-05-2024
2	Kopili Unit 1, 3 & 4	Completed (U I & III 09 th March 25 & U II & IV 10 th March 25)
3	AgGBPS GTG 2	11-09-2024

All utilities are requested to submit the latest status of planning related to mock black-start trials of **all units** that are pending or yet to be conducted and to complete these activities within FY 2024-25 to ensure compliance with IEGC.

Mock Black Start of the following generating plant are pending:

Sl. No.	Name of Power station	Last date of Mock exercise	Expected date of Mock exercise
1	Doyang HEP	12-05-2023	Unit II Completed on 04/04/2025.
2	Khangdong Stg-2 HEP	-	November-2025
3	Kameng HEP	-	November-2025
4	Loktak HEP	31-07-2023	May-2025
5	Pare HEP	10-01-2024	November-2025
6	Panyor HEP	30-05-2023	May-2025
7	Tural HEP	-	Completed on 08/04/2025.

In 226th OCCM, MS NERPC exhorted the concerned generating utilities to carry out the exercise as early as possible.

Deliberation

NERLDC informed that as per discussion held during the special meeting convened by NERPC on 10.05.2025 regarding the preparedness of islanding and black start capabilities, it was decided to carry out unannounced mock black start exercises for all generating stations equipped with black start facilities. In line with this decision, Loktak and Pare HEP have successfully carried out the unannounced mock black start exercises. However, AGBPS (Kathalguri) was unable to synchronize due to technical issues at the 220 kV Tinsukia substation. The necessary rectification at Tinsukia may be carried out by AEGCL, and the status should be duly communicated to NERPC and NERLDC.

NEEPCO stated that due issues related to online transfer of elements at Panyor HEP unannounced mock black start exercises may not conducted.

Forum noted the same.

4.9 Urgent Review of Online Element Transfer at PLHPS

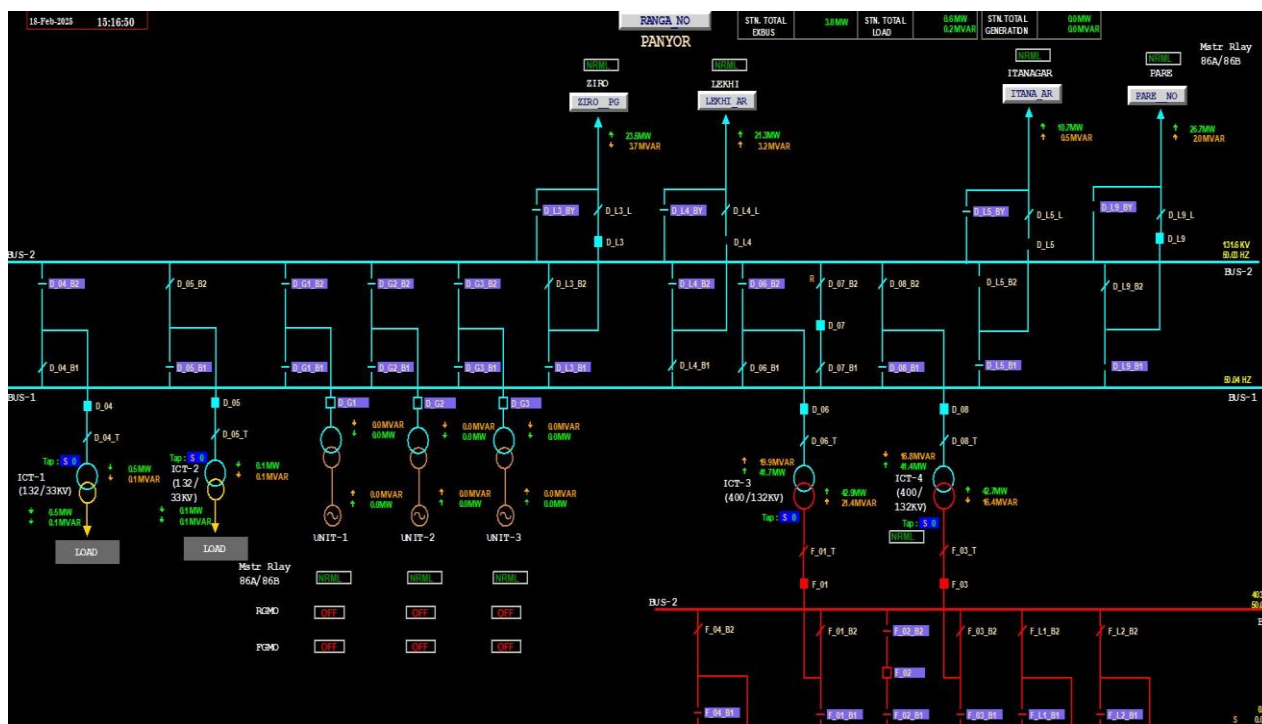
The Bus Scheme of PLHPS at the 132 kV level is a Double Main scheme, as confirmed via email. In this type of bus arrangement, the online transfer of elements from one bus to another can be performed seamlessly without any interruption in power flow.

As per the decision of the previous OCC forum, NERLDC requested PLHPS to transfer of an element to another bus on January 28, 2025, to facilitate the testing and verification of the healthiness of the non-energized element. However, in response to this request, Panyor NEEPCO stated that the existing scheme of PLHPS does not permit the online switching of isolators and that such an operation has never been carried out since the commissioning of the station.

This issue has already been raised with the NEEPCO team, highlighting that online bus transfers of elements are being successfully performed at multiple stations within the NER Grid, including AgGBPS, which is also owned by NEEPCO. However, PLHEP executives have consistently denied such operations, citing that they have never been practiced at their station.

It is important to note that with the commissioning of the 132 kV Roing-Chapakhowa D/C line and the increasing industrial load in the Pasighat area, the 132 kV Panyor-Ziro-Daporijo-Basar-Along-Pasighat-Roing-Chapakhowa link has become vital for Arunachal Pradesh and Assam power systems.

Given the importance of ensuring system reliability, a review of the non-transfer of elements at PLHPS is strongly recommended. If online element transfers are indeed not feasible under the current setup, experienced personnel should be consulted to explore possible solutions and address the issue effectively.



In 225th OCC meeting, NEEPCO informed that there is alignment issue with isolator which is hampering online transfer of the elements. He added that they are expediting the resolution of the matter at the earliest.

In 226th OCCM, forum opined that ensuring the online element transfer facility at the station is critical for reliable operation of the grid and urged NEEPCO to present a plan for rectification/replacement of the isolators before next OCC meeting.

Deliberation:

Forum requested NEEPCO to expedite the plan for rectification/replacement of the isolators and make necessary arrangement for online transfer.

4.10 Compliance with Annual Measurement of Harmonics, DC Injection, and Flicker as per CEA Regulations

As per the CEA (Technical Standards for Connectivity to the Grid) Regulations, Clause B1(4), Measurement of harmonic content, DC injection and flicker shall be done at least once in a year in presence of the parties concerned and

the indicative date for the same shall be mentioned in the connection agreement;

Provided that in addition to annual measurement, if distribution licensee or transmission licensee or the generating company, as the case may be, desires to measure harmonic content or DC injection or flicker, it shall inform the other party in writing and the measurement shall be carried out within 5 working days”;

In accordance with this regulation, all Wind generating stations and generating stations using inverters connected to the grid are required to perform this test annually and submit the test report to the relevant utility authorities. All utilities are requested to provide an update on the current status of test reports and outline their future testing plans as per CEA guidelines.

In 224th OCC meeting, NERLDC apprised that no wind generators or inverter-based generators have provided any test reports so far. Forum requested the SLDCS of the states where such plants are located, to take up the matter with developers of such plants to and provide a testing plan and reports to NERPC and NERLDC at the earliest.

Further, MS NERPC informed that regarding the uniform guidelines on Harmonics measurement by transmission and generating utilities, matter has been put for discussion in the upcoming NPC meeting.

As per 225th OCC meeting, forum noted that agenda for uniform procedure has been put up in NPC for further deliberations. Moreover, the forum advised SLDCs to update the status of the harmonic content contribution from solar and wind generators.

Deliberation of the 226th OCCM

NERLDC informed that a mail has been sent by NERPC to the concerned states to provide testing details and reports for the Solar, Wind and IBR based generators but the reply is still awaited.

Assam informed that the matter is being taken up with the Solar developers.

Mizoram informed that price quotation has been asked from various agencies to carry out the tests at Selrui Solar plant and the reply is still awaited.

Forum exhorted the Asam and Mizoram to provide the required details at the earliest to NERPC and NERLDC. Also, the forum requested state SLDCs to provide the charging clearance for Solar, wind and IBR based plants only after ensuring compliance with CEA regulations on testing of Harmonics, DC injection and flicker. SLDs agreed to the same.

Deliberation

Assam and Mizoram informed that corresponding SLDCs are taking up the matter with Solar developers, but no input has been received yet.

MS NERPC exhorted Assam and Mizoram to ensure compliance with the regulations and timely conduct of the tests.

4.11 Submission of Healthiness Status of Under Frequency Relays (UFRs)

The North Eastern Region (NER) grid incorporates multiple islanding schemes, which are critical for maintaining grid stability during contingencies. These schemes are primarily based on the operation of Under Frequency Relays (UFRs).

For the successful operation of the islanding schemes and protection scheme, it is imperative that the designated UFRs are in a healthy condition and functioning correctly. In this regard, all utilities are kindly requested to submit the healthiness status of their respective UFRs, based on recent tests conducted to assess their performance. Please ensure the following while submitting report to NERPC and NERLDC:

- Clearly indicate the location and identification of each UFR.
- Mention the date and methodology of the last healthiness test.
- Include test results and any corrective actions taken (if applicable)

In 226th OCC meeting, Forum requested all the utilities to periodically test the healthiness of UFRs, used in AUFLS scheme and Islanding schemes, under their domain and send the reports to NERPC and NERLDC. The

Deliberation

Forum also advised NERLDC to prepare a testing calendar for UFR testing, which may be jointly witnessed by NERPC and NERLDC.

4.12 Performance of online network estimation tools at RLDC:

IEGC mandates RLDCs and SLDCs to utilize the network estimation tool integrated in their EMS and SCADA systems for the real time operational planning study. Also, performance of the online estimator tools shall be reviewed in monthly operational meetings as per IEGC Regulation 33(2).
Quote:

“SLDCs, RLDCs and NLDC shall utilize network estimation tool integrated in their EMS and SCADA systems for the real time operational planning study. All users shall make available at all times real time error free operational data for the successful execution of network analysis using EMS/SCADA. Failure to make available such data shall be immediately reported to the concerned SLDC, the concerned RLDC and NLDC along with a firm timeline for restoration. The performance of online network estimation tools at SLDC and RLDC shall be reviewed in the monthly operational meeting of RPC. Any telemetryrelated issues impacting the online network estimation tool shall be monitored by RPC for their early resolution.”

Unquote:

The performance of online network estimation tools at NERLDC is shown below:

Difference & % Error of RTCA and RTNET

Constituents	SCADA	RTCA		RTNET	
		Difference	Error %	Difference	Error %
NER Generation	1495	386	13.00	29	1.00
NER Load	2140	338	12.00	29	12.00
Tripura	231	85	35.00	85	35.00
Assam	1272	553	31.00	553	31.00
Meghalaya	201	29	12.00	29	12.00
Manipur	141	27	23.00	27	23.00
Arunachal	129	41	30.00	41	30.00
Nagaland	84	37	30.00	37	30.00
Mizoram	82	14	12.00	14	12.00

Similarly, SLDC's are requested to present their online network estimation tool performance in the monthly operational meeting of RPC to comply with IEGC regulation 33(2).

In 226th OCCM, NERLDC informed that workshop will be conducted between 4 to 6th June'25. All concerned officers of the SLDCs are requested to participate in the workshop, as the faculty will include industry professionals as well as experts from GRID-INDIA.

Deliberation

NERLDC apprised that said work shop was conducted between 4 to 6th June'25.

Annexure-I**List of Participants in the 227th OCC Meeting held on 20.06.2025**

SN	Name & Designation	Organization	Contact No.
1	Sh.Ojing Jerang, EE (E), SLDC	Ar. Pradesh	08974640622
2	Sh. Tarali Deka, AGM (T), AEGCL	Assam	09864981330
3	Sh. Dipmoni Nath, AM, AEGCL	Assam	08011117393
4	Sh. Chandan Changmai, AM, SLDC	Assam	08876871274
5	Sh. Nisita Baishya, JM, SLDC	Assam	09101067131
6	Sh. Huidrom R.Meetei, Mgre, MSPCL	Manipur	08792153086
7	Sh. B.Narry, SE, MePTCL	Meghalaya	07005298338
8	Sh. T.Gidon, SE (SLDC)	Meghalaya	-
9	Sh. B.Samiam, EE, SLDC	Meghalaya	09862021883
10	Sh. C.Lalsawmliana, SE-PC-II	Mizoram	09436141269
11	Sh, H.Lalruatkima, SE,SLDC	Mizoram	09862925462
12	Sh. Samuel Lalhriatzuala, SDO	Mizoram	08729982857
13	Sh.Lalramchhunga, AE, SLDC	Mizoram	09774251677
14	Sh. Lalsangliana, JE, SLDC	Mizoram	06009605706
15	Sh. C.T.Sangtam, SDO (Trans.)	Nagaland	09862692378
16	Sh. Alex E.Ngullie, JE, SLDC	Nagaland	08837080321
17	Sh. Anil Debbarma, DGM, SLDC, TSECL	Tripura	09612559250
18	Sh. Debabrata Pal, Sr.Mgr, TSECL	Tripura	09436500244
19	Sh. Tarak Lal Saha, Mgr, SLDC, TSECL	Tripura	09436925958
20	Smt. Mamami Talukdar, GM (T)	NEEPCO	09435339690
21	Sh. Manas Pratim Sharma, Sr.Mgr	NEEPCO	08729901871
22	Sh. Neeraj Kumar, GM	NERLDC	09910907949
23	Sh. Sunil Singha, Ch.Manager	NERLDC	08414865365
24	Sh. Sachin Singh, Manager	NERLDC	08826991911
25	Sh. Yogendra Singh, Engineer	NERLDC	07005587509
26	Sh. Asim Das, AM	NERLDC	07576850053
27	Sh. Ashim Paul, DGM	PGCIL	09436602688
28	Sh. Manish Kumar Tiwari, Sr.Mgr	PGCIL	08826896879
29	Sh. Manash Jyoti Baishya, Ch.Mgr	PGCIL	09435555740
30	Sh. Soubhik Choudhury, Head-Operation	OTPC	08837008091
31	Sh. Sanjoy Das, Mgr (E), LOKTAK	NHPC	07044056097
32	Sh. Rakesh Kumar, AGM	NTPC	09131171001
33	Sh. K.B.Jagtap, Member Secretary	NERPC	-
34	Sh. Veerandranath Muncha, Director	NERPC	07358529099
35	Smti Kanchan Chauhan, Dy.Director	NERPC	08375070150

36	Sh.Lenin B, Dy.Director	NERPC	08335905973
37	Sh. Vikash Shankar, Asst. Director	NERPC	09455331756

[illegible]

[illegible]

[illegible]

4	HVDC 800KV-AGRA-BNC-1																															0800 Hrs to 1700 Hrs	Earth Wire SAG rectification at severe ROW area	Existing system improvement related shutdown.	S/D may be availed subject to NLDC consent
SN	Name of Element																															Proposed Time	Reason	Category	
	SHUTDOWNS PROPOSED BY OTPC																																		
1	400kV Steam Turbine Generator-2 Main Bay (407) & Tie Bay(408)																															Continuous Shutdown (8:00 hrs to 17:00 hrs)	Testing and maintenance		S/D may be availed ATC TTC may be revised
2	400kV Gas Turbine Generator-2 Main Bay (413) & Tie Bay (414)																															Continuous Shutdown (8:00 hrs to 17:00 hrs)	Testing and maintenance		S/D may be availed ATC TTC may be revised
3	400 kV OTPC ICT-2 Main bay (415)																															Day Time Shutdown (8:00 hrs to 17:00 hrs)	Testing and maintenance		S/D may be availed SPS to be kept off
4	132 KV ICT-2 bay (201)																															Day Time Shutdown (8:00 hrs to 17:00 hrs)	Testing and maintenance		S/D may be availed SPS to be kept off
5	132/6.6 KV Station Transformer -I																															Continuous Shutdown (8:00 hrs to 17:00 hrs)	Testing and maintenance		S/D may be availed
6	Palatana Module-2																															Continuous Shutdown (8:00 hrs to 17:00 hrs)	Hot gas path inspection.		S/D may be availed ATC TTC may be revised

उ.पू.क्षे ग्रिड प्रदर्शन

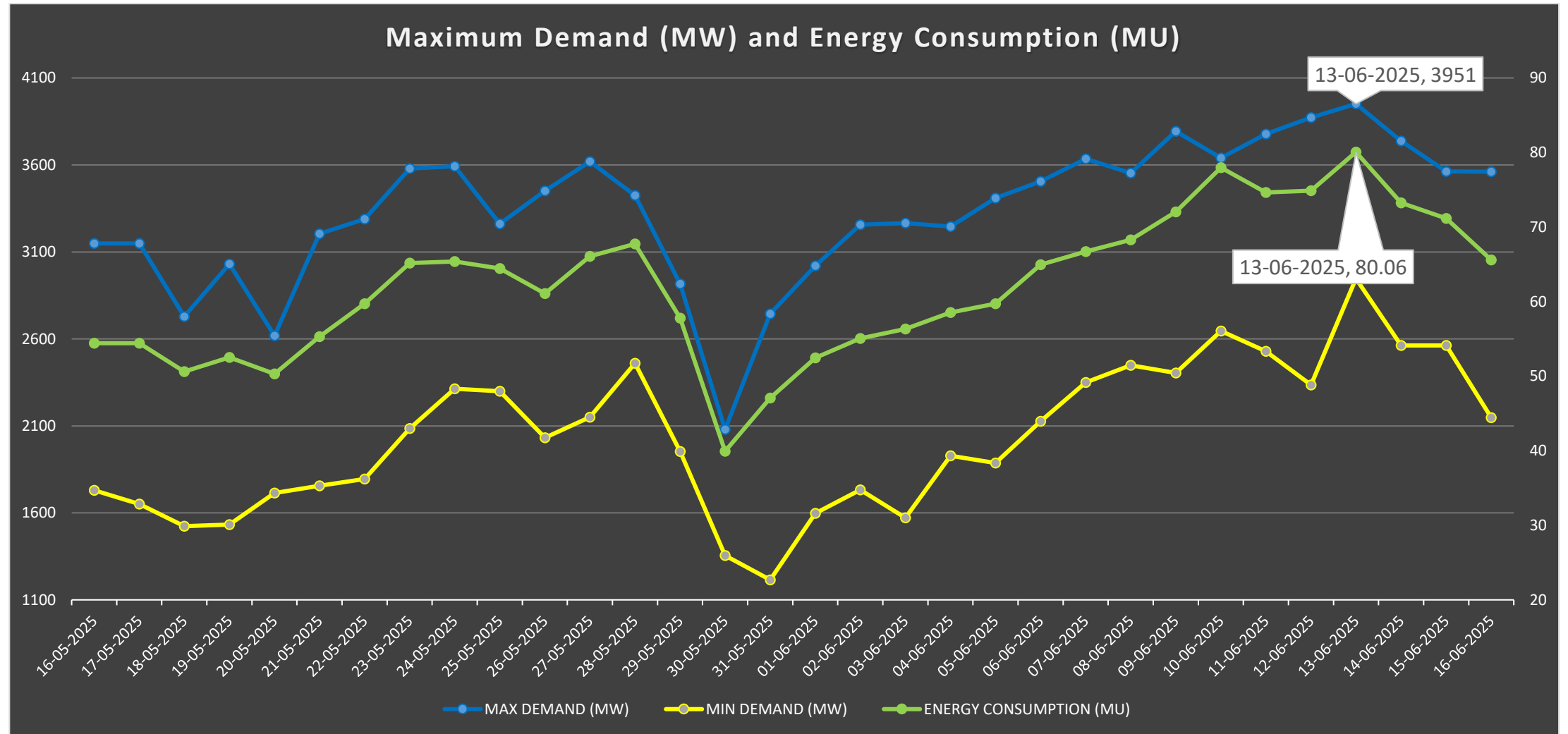
NER GRID PERFORMANCE

For the month May'25-Jun'25

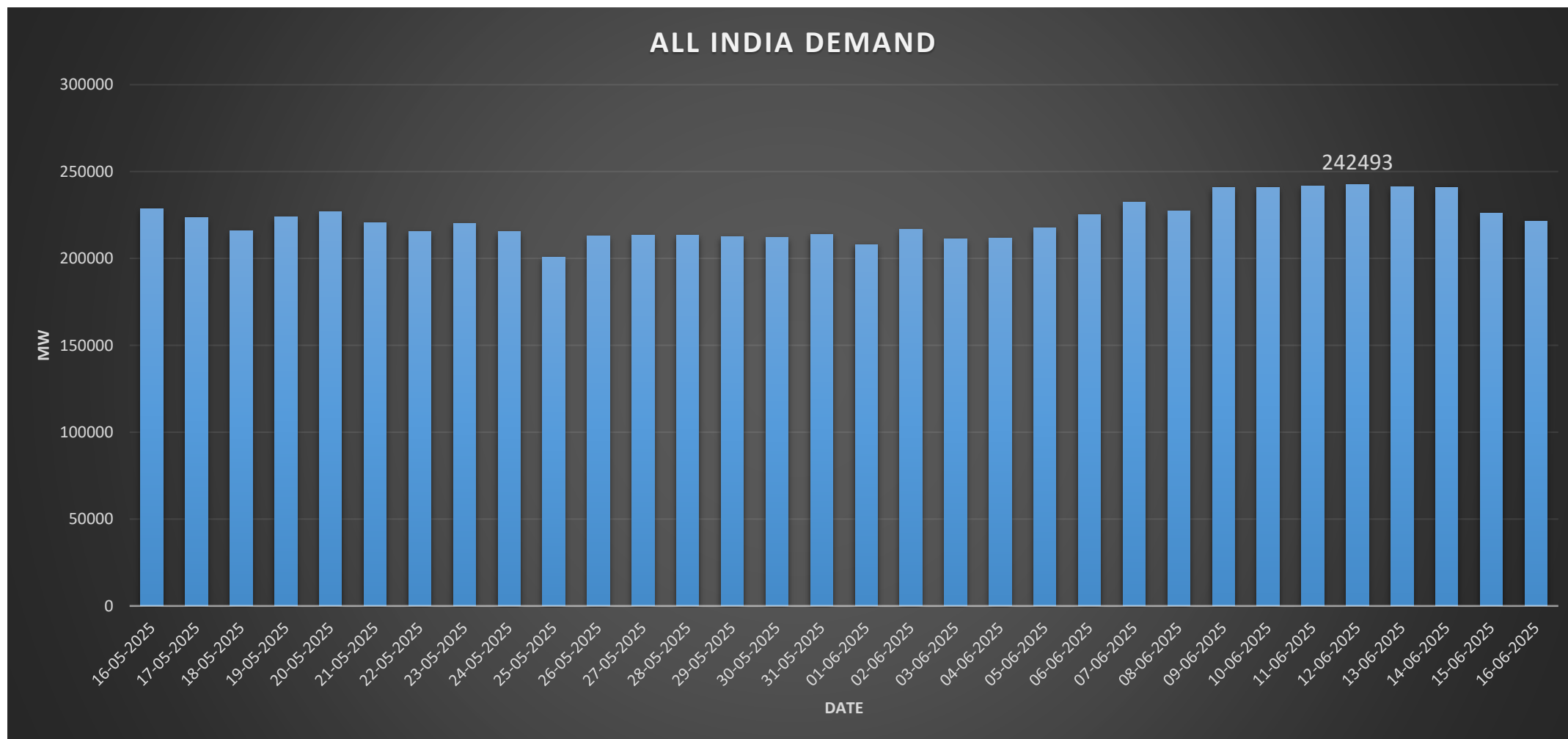
North-Eastern Regional Load Despatch Centre

Grid-India, Shillong

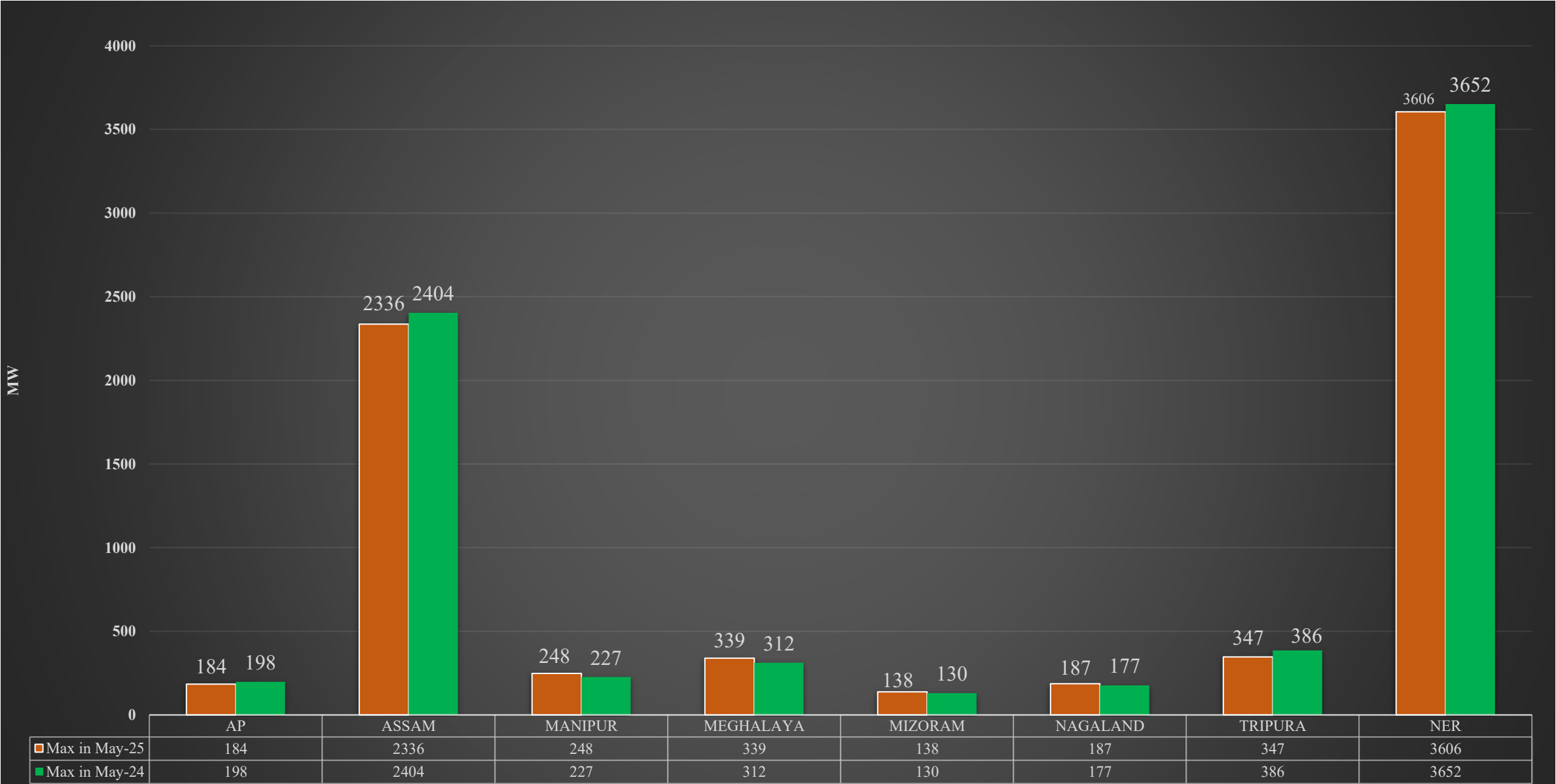
Maximum MW and MU in NER: 16th May'25– 16th Jun'25



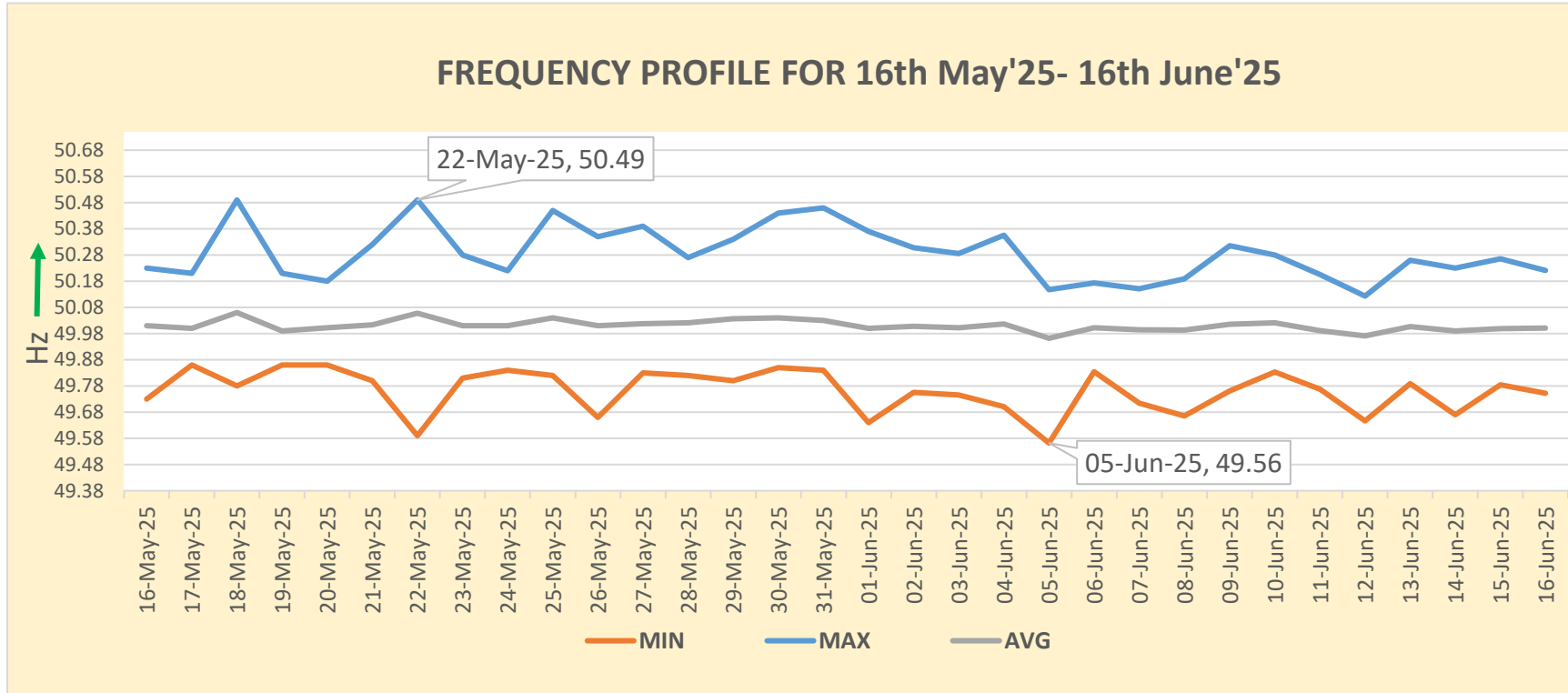
Maximum All India Demand: 16th May'25– 16th June'25



Y-o-Y Maximum Demand Met

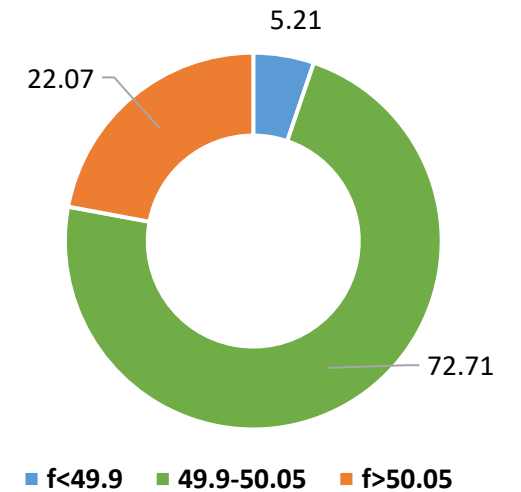


Frequency Profile



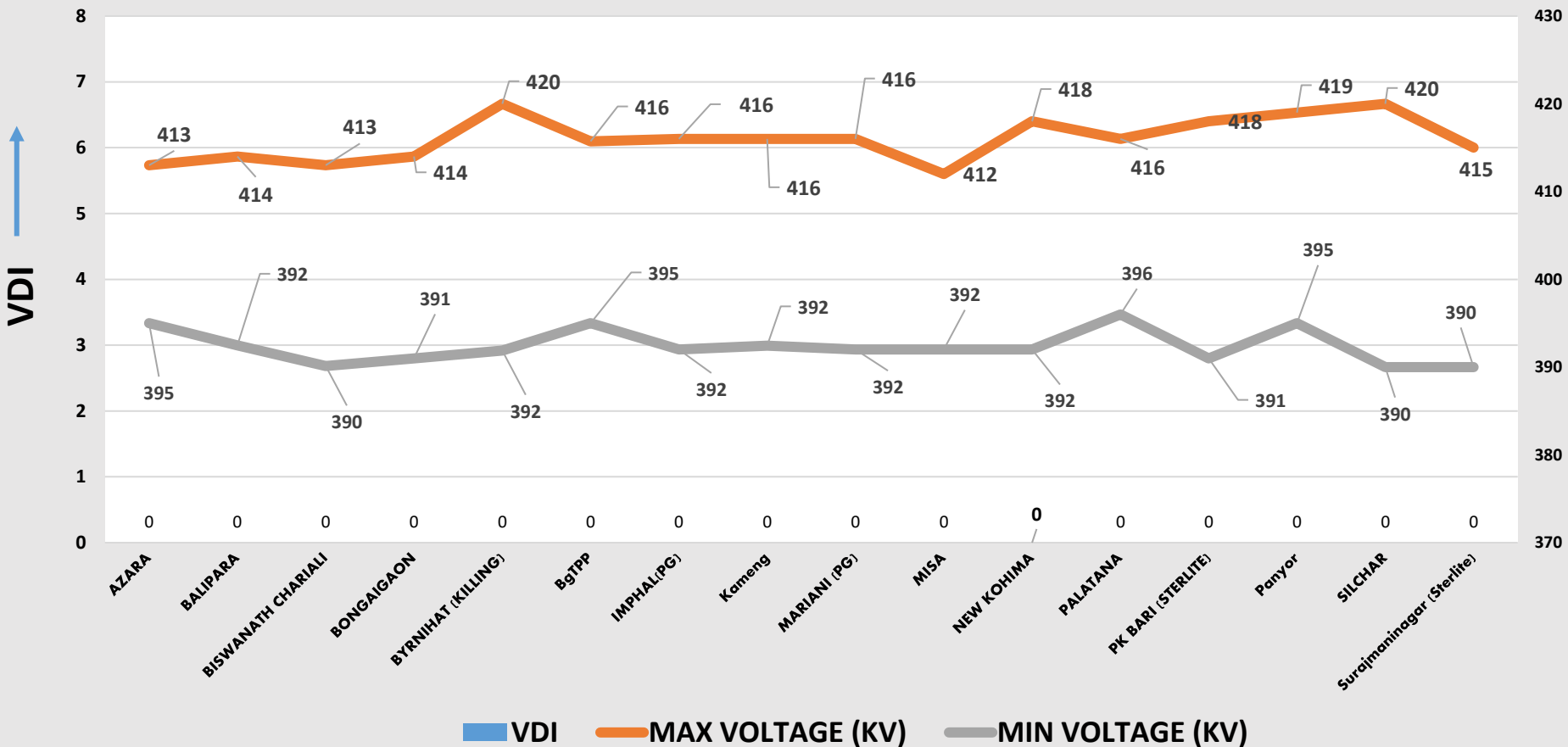
50.49 Hz on 22-May-2025: Due to the non-availability of down margin reserves.

49.56 Hz on 05-June-2025: Due to Overdrawl by states (AP-900 MW, Kerala-600 MW, Gujrat-468 MW, TN-230 MW, Bihar-256 MW) and non-availability of reserves.

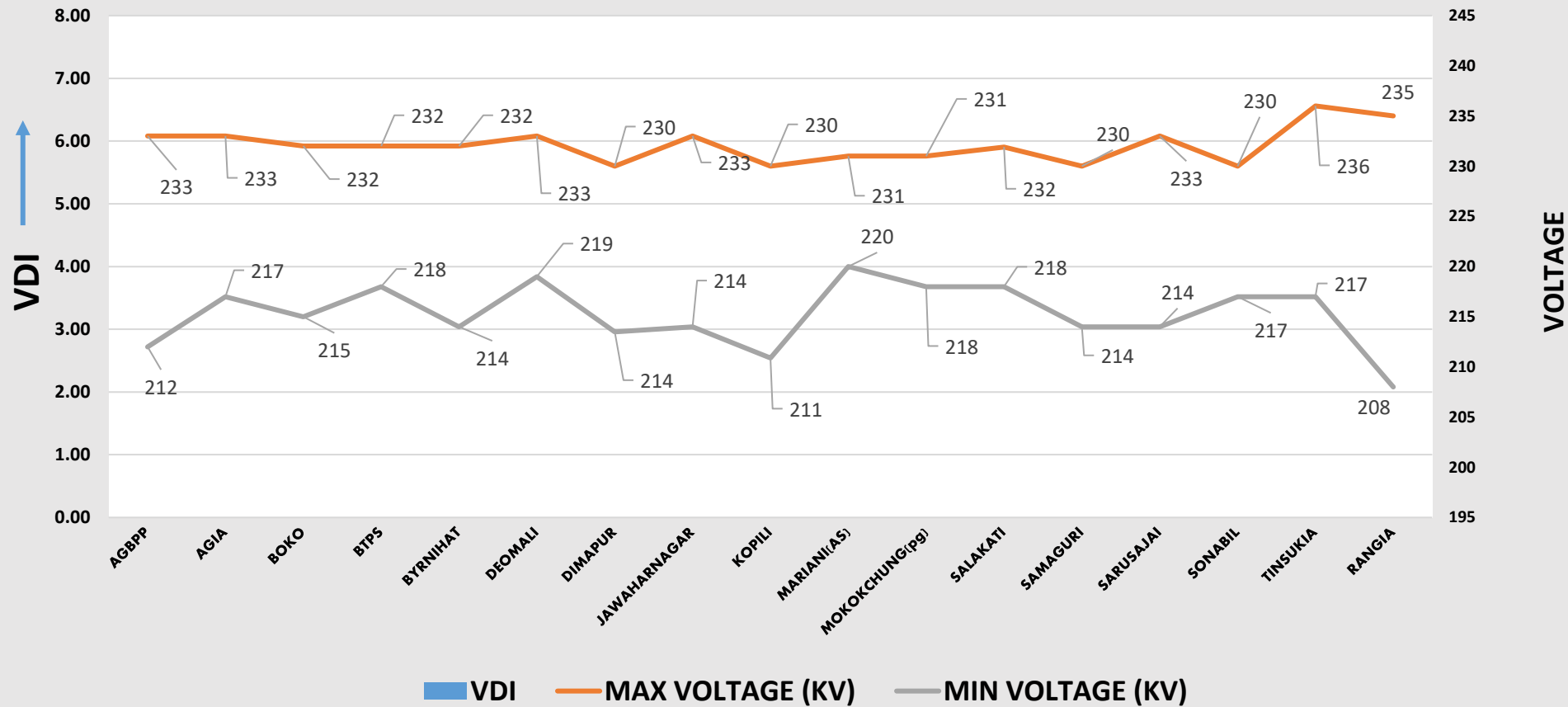


VDI (400 KV) for May 2025

No. of 400 kV lines kept open for over voltage : 0



VDI (220 KV) for May 2025



Projected Hydro Generation Availability

Plants	Reservoir Level in meters (as on 17/06/2025)	MU Content	Present DC (MU)	No of days as per current Generation
Khandong STG II	719.65	25	0.593	42
Kopili	606.90	79	3.013	26
Doyang	307.50	2	0.270	7
Loktak	766.66	17	2.474	7

No. of GD	17
No. of GI	0

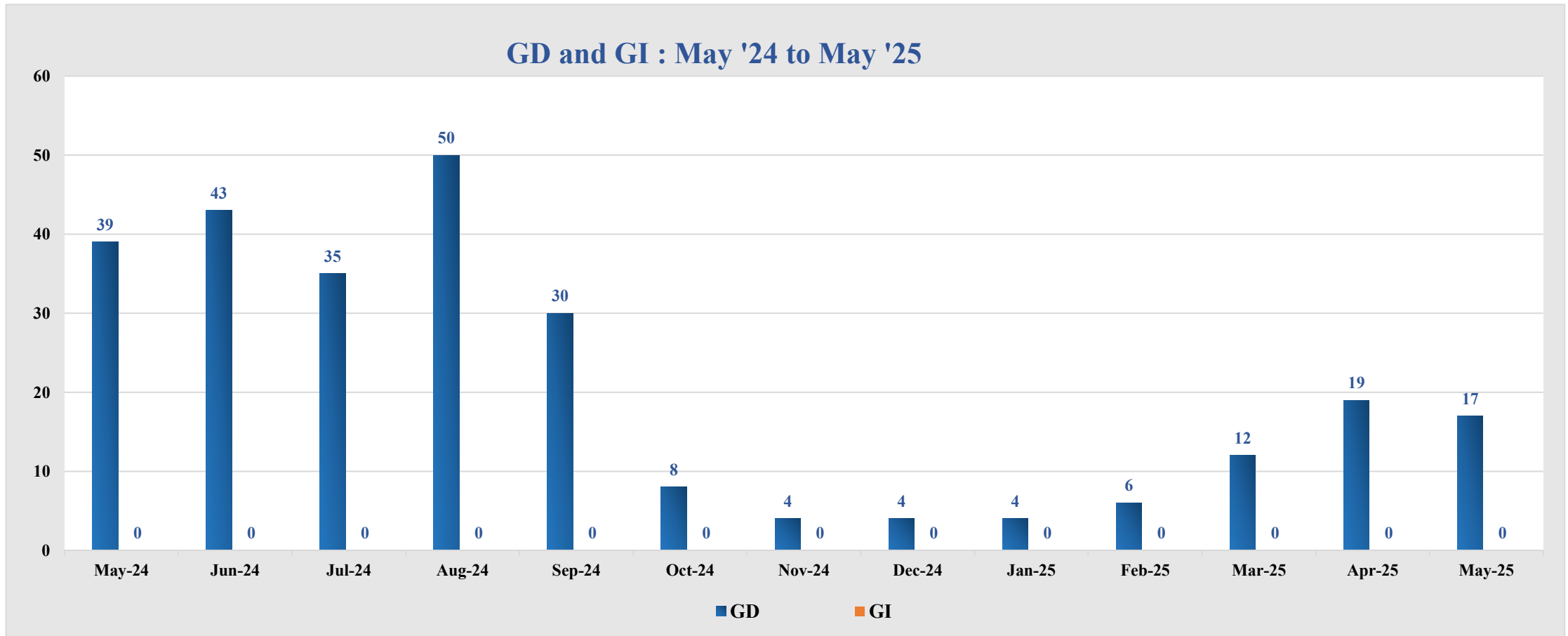
Grid Disturbance during May'25

SI No	Area Affected	GD	Date & Time
1	Grid Disturbance in Pasighat, Napit, Niglok areas of Arunachal Pradesh	GD-I	03-05-2025; 16:01 Hrs
2	Grid Disturbance in Umrangsho and Haflong(AS) areas of Assam Power System & Haflong(PG) S/S	GD-I	04-05-2025; 17:40 Hrs
3	Grid Disturbance in Umrangsho and Haflong(AS) areas of Assam Power System & Haflong(PG)	GD-I	06-05-2025; 17:56 Hrs
4	Grid Disturbance in Rengpang area of Manipur Power System	GD-I	08-05-2025; 06:54 Hrs
5	Grid Disturbance in Amrit area of Meghalaya Power System	GD-I	08-05-2025; 14:30 Hrs
6	Grid Disturbance in Haflong(AS) area of Assam Power System	GD-I	10-05-2025; 12:39 Hrs
7	Grid Disturbance in Cherrapunji area of Meghalaya power system	GD-I	11-05-2025; 11:33 Hrs
8	Grid Disturbance in Rongkhon and Ampati areas of Meghalaya Power system & Hatsingimari area of Assam Power system	GD-I	11-05-2025; 14:24 Hrs
9	Grid Disturbance in Rongkhon, Ampati and Ganol areas of Meghalaya Power system & Hatsingimari area of Assam power system	GD-I	12-05-2025; 04:59 Hrs

Grid Disturbance during May'25

SI No	Area Affected	GD	Date & Time
10	Grid Disturbance in Kolasib, Bairabi and Tural area of Mizoram Power System	GD-I	12-05-2025; 05:52 Hrs
11	Grid Disturbance in Tezu and Namsai areas of Arunachal Pradesh Power System	GD-I	20-05-2025; 07:45 Hrs
12	Grid Disturbance in Chiephobozou area of Nagaland power system	GD-I	22-05-2025; 16:42 Hrs
13	Grid Disturbance in Along and Pasighat areas of Arunachal Pradesh Power System	GD-I	23-05-2025; 14:01 Hrs
14	Grid Disturbance in Sihhmui area of Mizoram Power System	GD-I	26-05-2025; 17:21 Hrs
15	Grid Disturbance in Rengpang area of Manipur Power System	GD-I	26-05-2025; 13:47 Hrs
16	Grid Disturbance in Ziro area of Arunachal Pradesh Power System	GD-I	30-05-2025; 22:06 Hrs
17	Grid Disturbance in Zhadima, Chiephobozou, Wokha and Sanis areas of Nagaland Power System	GD-I	31-05-2025; 01:32 Hrs

Grid Disturbance/Incidences for last 12 Months



OCC approved shutdown availing status for the month of May 2025

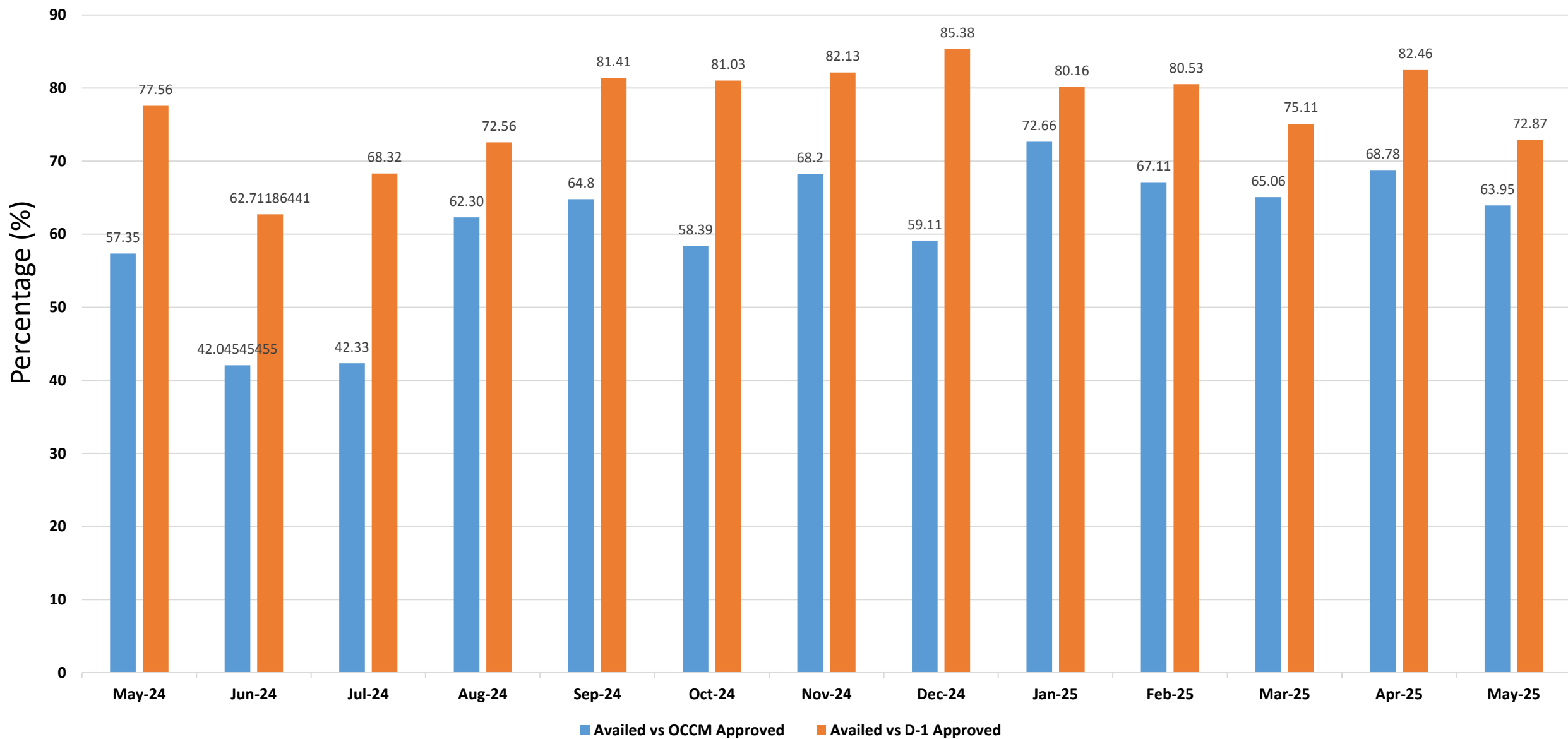
SUMMARY OF NER OUTAGE

MONTH	PLANNED IN OCC	APPROVED IN D-1	AVAILED IN REAL TIME	NOT AVAILED	AVAILED Vs PLANNED %	AVAILED Vs APPROVED %	DEFERRED BY RLDC DUE TO SYSTEM CONSTRAINT
May 25	147	129	94	33	63.95	72.87	4

Shutdown Statistics

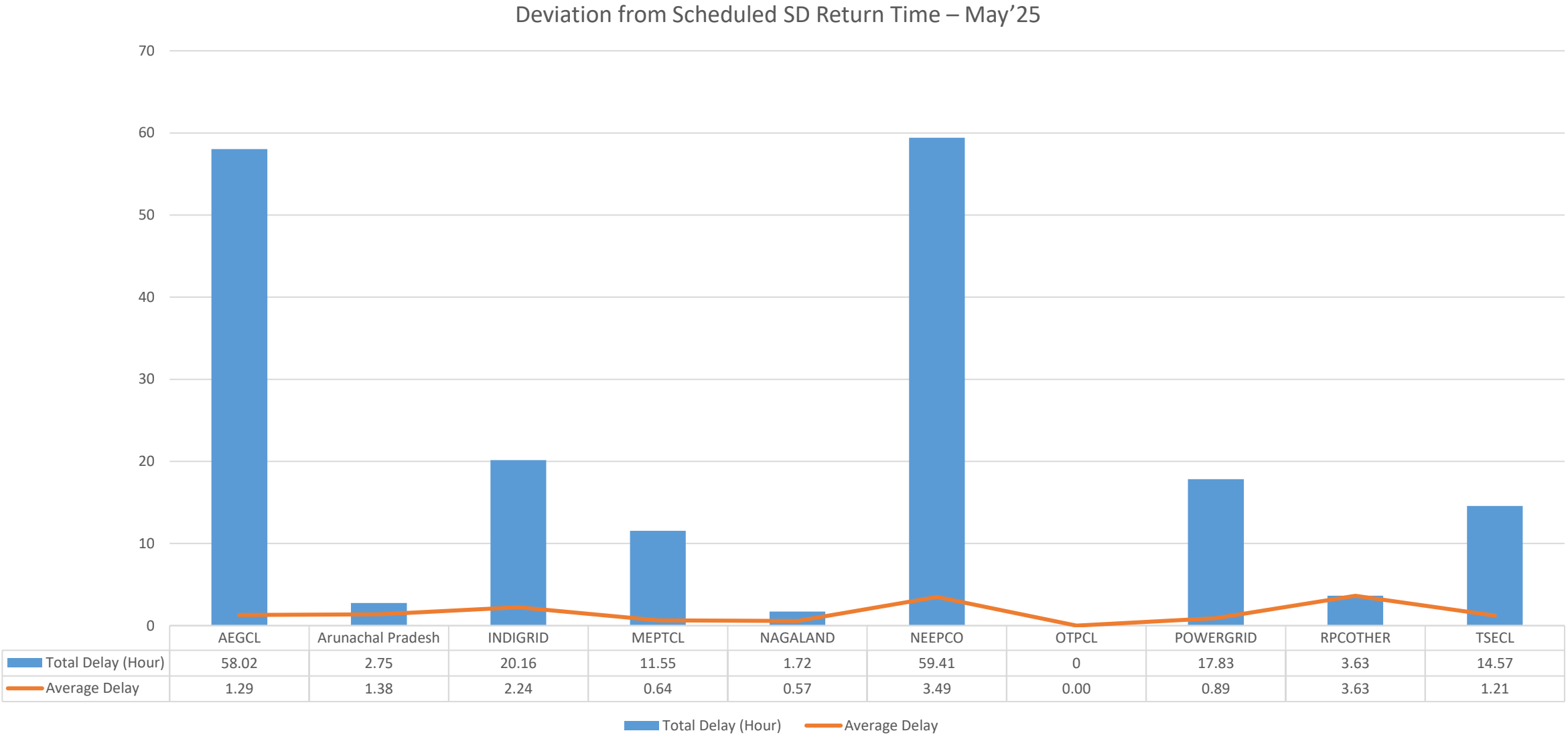
	OCC Approved	D-1 Approved	Availed	Not Availed	RLDC Deferred
NER	147	129	94	33	4
NERTS	40	29	16	13	1
ASSAM	60	54	42	12	2
MANIPUR	0	0	0	0	0
MEGHALAYA	14	13	13	0	1
NAGALAND	3	3	3	0	0
MIZORAM	0	0	0	0	0
TRIPURA	14	14	8	6	0
Arunachal Pradesh	0	0	0	0	0
NETC	0	0	0	0	0
KMTL	0	0	0	0	0
NEEPCO	7	7	5	0	0
NTPC	0	0	0	0	0
OTPC	0	0	0	0	0
INDIGRID	9	9	7	2	0
NHPC	0	0	0	0	0

Approved Shutdown availing trend in percentage



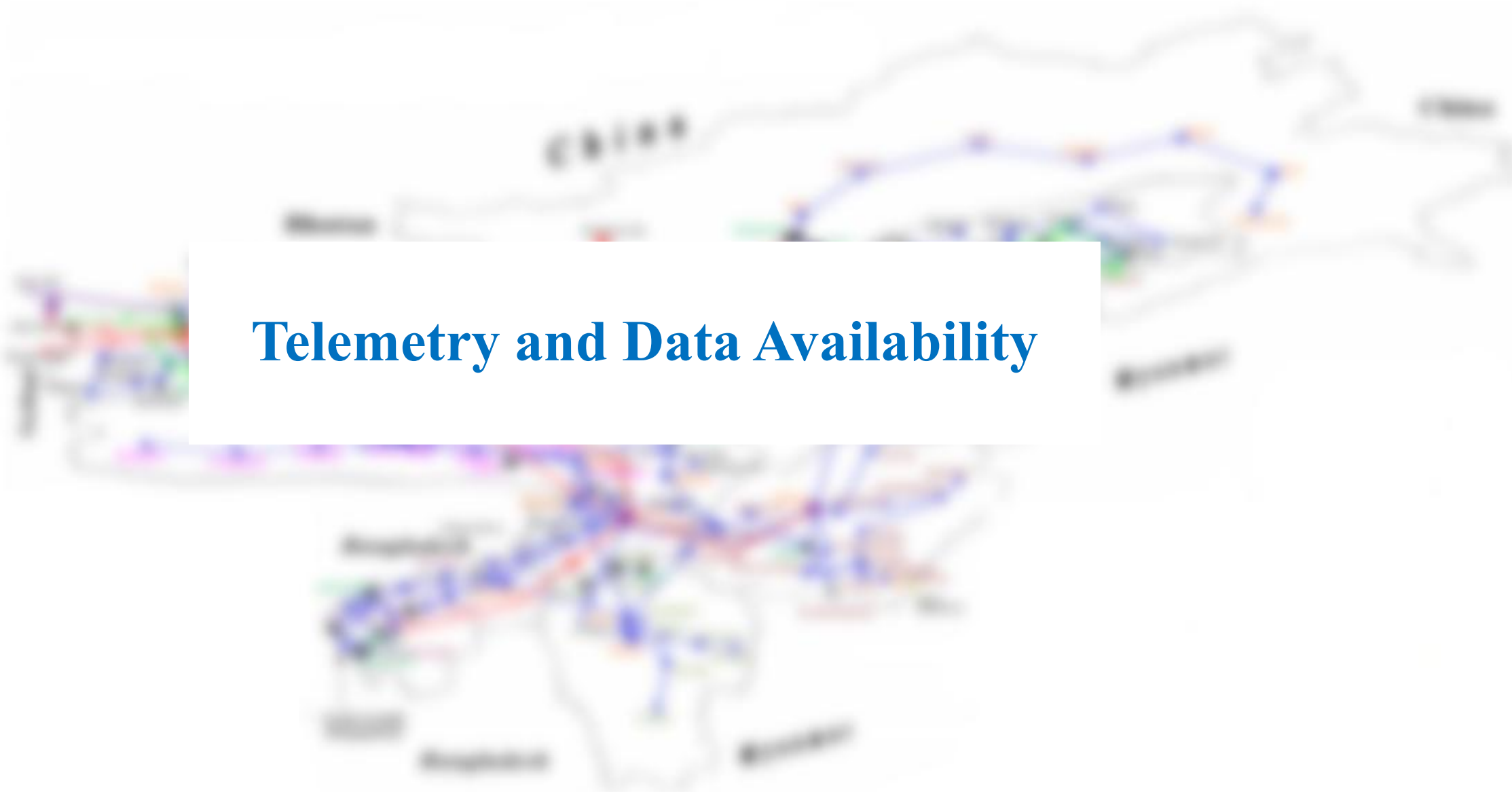
Shutdown Delay statistics

Comparison of delay in returning Shutdown by Entities for the Month of May 2025



Shutdown Delay statistics

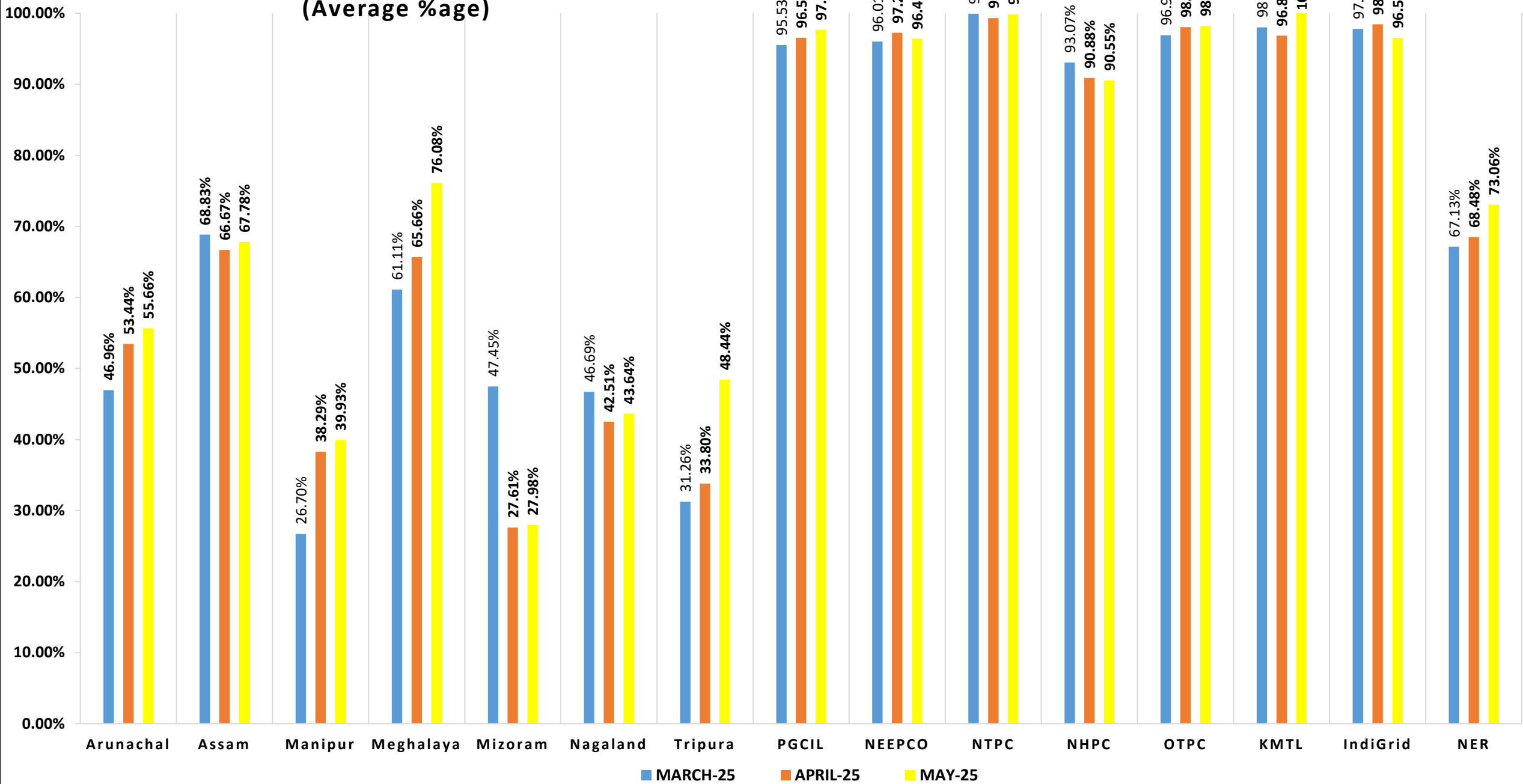
SL.	Availing Utility	Total SD	Total Delay (Hour)	Average Delay
1	AEGCL	45	58.02	1.29
2	Arunachal Pradesh	2	2.75	1.38
3	INDIGRID	9	20.16	2.24
4	MEPTCL	18	11.55	0.64
5	NAGALAND	3	1.72	0.57
6	NEEPCO	17	59.41	3.49
7	OTPCL	2	0	0.00
8	POWERGRID	20	17.83	0.89
9	RPCOTHER	1	3.63	3.63
10	TSECL	12	14.57	1.21



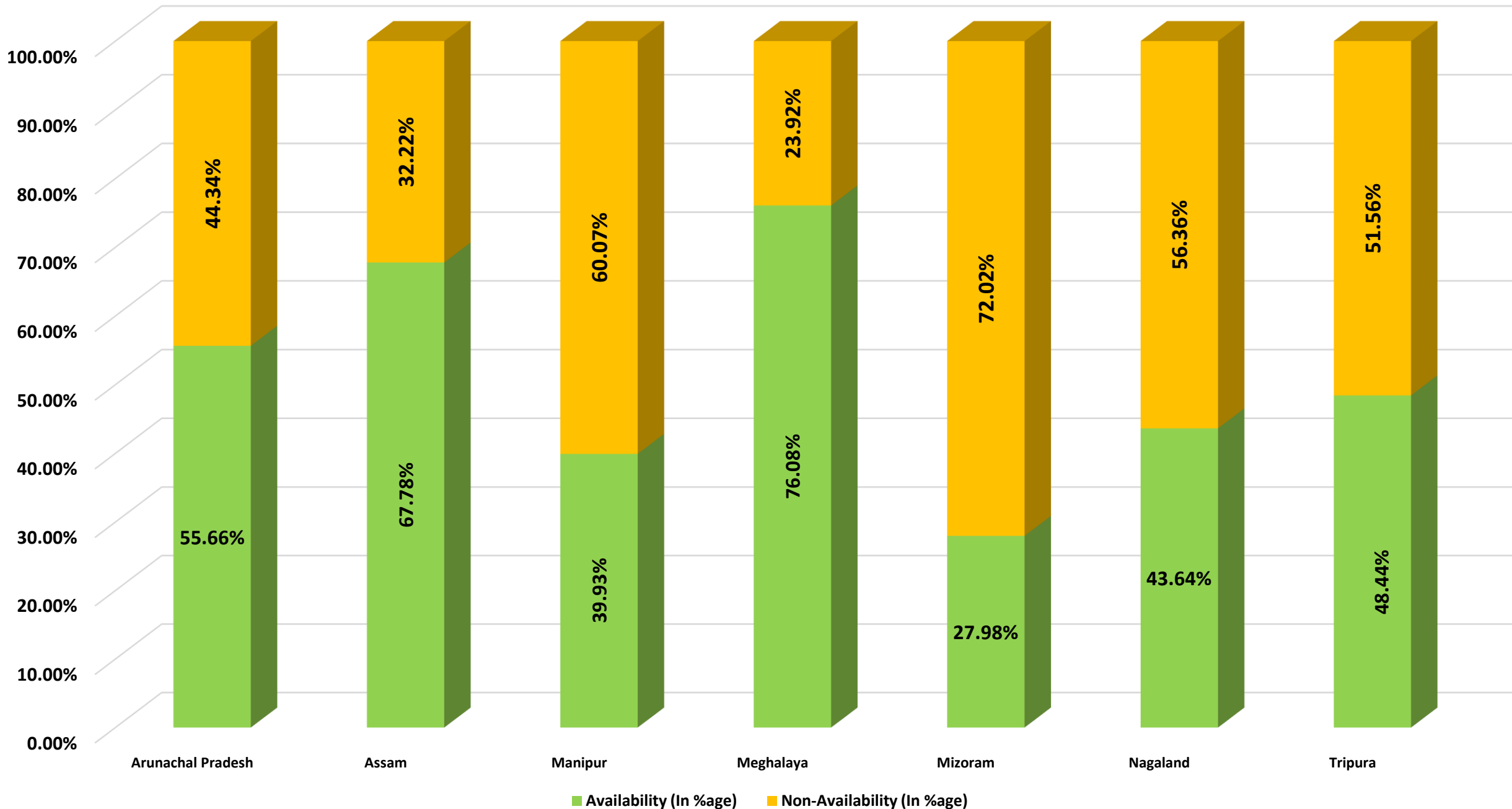
Telemetry and Data Availability

Telemetry Statistics for the month of May 2025						
Sl. No.	Utility	Average Total Percentage	Average Analog Percentage	Average Digital Availability	Average RTU Availability	Target as per 30th NeTEST MOM
1	PGCIL	97.68	97.4	97.82	98.09	
2	NEEPCO	96.41	95.48	96.98	99.36	
3	NTPC	99.83	99.51	100	100	
4	NHPC	90.55	99.45	85.71	100	
5	OTPC	98.21	96.2	99.14	100	
6	KMTL	100	100	100	100	
7	Indi-Grid	96.53	94.03	97.56	100	
8	Arunachal Pradesh	55.66	55.24	55.92	63.86	85
9	Assam	67.78	68.21	67.46	73.28	85
10	Manipur	39.93	38.26	40.93	38.36	70
11	Meghalaya	76.08	87.96	67.11	90.5	80
12	Mizoram	27.98	38.47	19.9	37.27	60
13	Nagaland	43.64	39.4	46.21	52.73	70
14	Tripura	48.44	49.47	47.77	59.31	80
	NER	73.06	74.31	72.03	78.32	

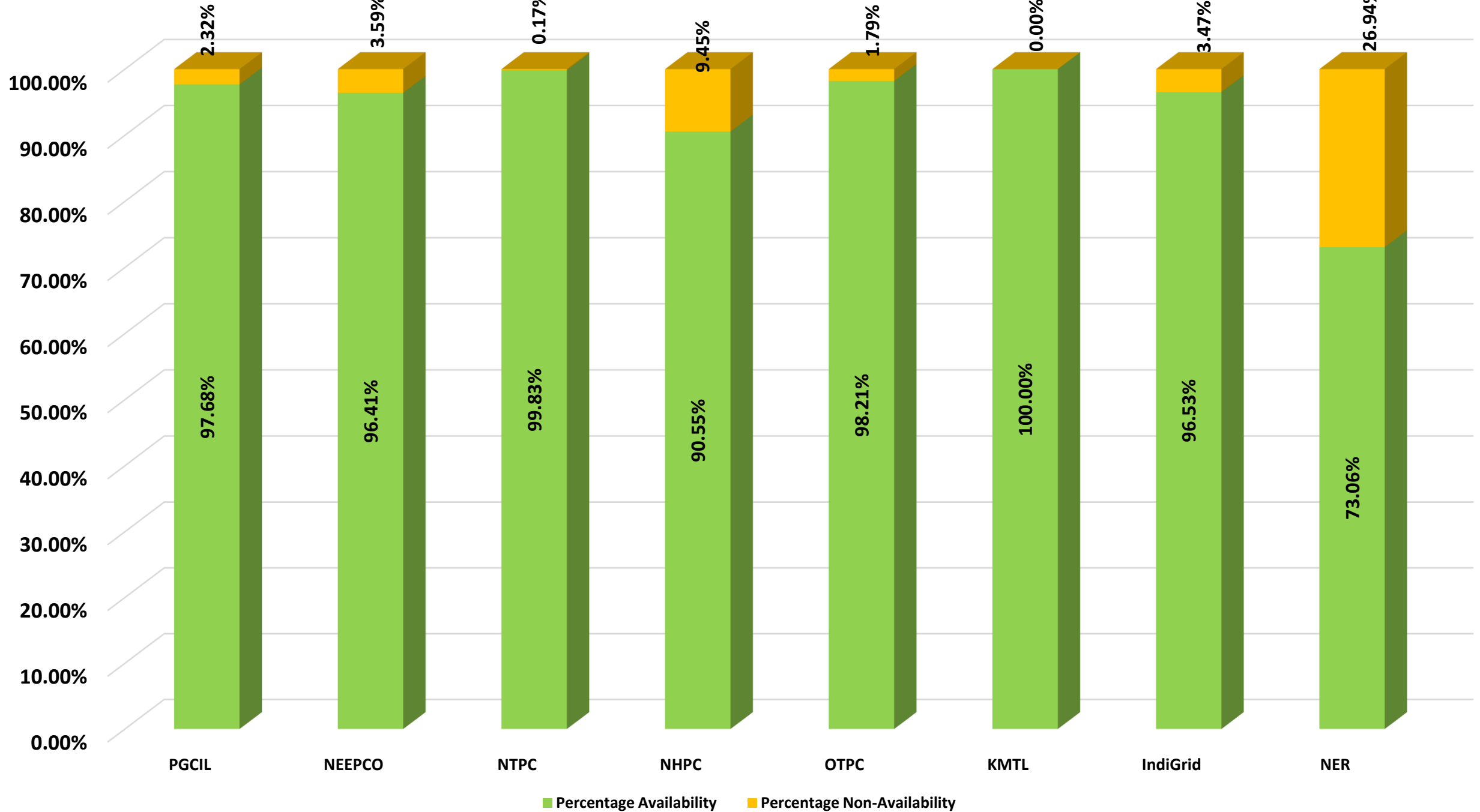
Comparsion of Telemetry Availabilty Statistics
(Average %age)



Telemetry Statistics for NER States(Average availability of data for the month of May '25)



Telemetry Statistics for Central Sector of NER (Average availability of data for the month of May '25)





ग्रीड कंट्रोलर ऑफ इंडिया लिमिटेड
(भारत सरकार का उद्यम)
GRID CONTROLLER OF INDIA LIMITED
(A Government of India Enterprise)



[formerly Power System Operation Corporation Limited (POSOCO)]
राष्ट्रीय भार प्रेषण केन्द्र / **National Load Despatch Centre**

कार्यालय : बी-9, प्रथम एवं द्वितीय तल, कुतुब इंस्टीट्यूशनल एरिया, कटवारिया सराय, नई दिल्ली - 110016
Office : 1st and 2nd Floor, B-9, Qutab Institutional Area, Katwaria Sarai, New Delhi -110016
CIN : U40105DL2009GOI188682, Website : www.grid-india.in, E-mail : gridindiacc@grid-india.in, Tel.: 011- 42785855

Ref: NLDC/SO-I/ 248

Date: 21st Mar 25

To,
Executive Director
NRLDC/WRLDC/SRLDC/ERLDC/NERLDC

Subject: Expeditious Registration of Intra-State Generating Stations in NOAR

Dear Sir,

As you may be aware, a High-Level Committee (HLC) has been constituted under the Chairmanship of the Additional Secretary (Power) to monitor the offering of power by generators and load shedding by distribution licensees. The registration status of GENCOs in the National Open Access Registry (NOAR) has been a recurring point of discussion.

Despite earlier communications to the respective states, advising GENCOs to register in NOAR, no significant progress has been observed. In the last HLC meeting held on 3rd March 2025, Grid-India was directed to request all Managing Directors (MDs) of GENCOs to expedite the registration process on the NOAR portal. Additionally, GENCOs were asked to provide detailed reasons for the delay in registration despite continuous follow-ups.

It is pertinent to mention that registration is also essential for compliance with the Late Payment Surcharge (LPSC) Rules. In this regard, it is requested to kindly ask from each GENCO the following:

- Completion of registration of all generating stations on the NOAR portal at the earliest.
- Reasons for non-registration of the plants until now and a timeline and relevant details (expected date of registration, issues faced, etc.)

As per the minutes of the meeting (annexure-I), Grid-India is asked to present the above details in the next HLC meeting, which is expected to be scheduled soon. Therefore, consolidated inputs from all GENCOs in your region may please be forwarded to NLDC at the earliest, and latest by 28.03.2025 to facilitate compilation for the meeting.

A plant-wise list of stations, not yet registered on the NOAR portal, is attached as an annexure-II for reference.

Your cooperation in ensuring the timely submission of the required details will be highly appreciated.

Regards

S. Usha

Executive Director, NLDC

Encl.: As above

For kind information:

1. Chairman and Managing Director, Grid India
2. Director (SO/MO), Grid India

ANNEXURE-I

No.20/1/2024-DS(271942)

Government of India

Ministry of Power

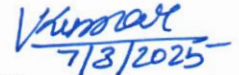
**Shram Shakti Bhawan, Rafi Marg
New Delhi, Date:7th March, 2025**

MINUTES OF MEETING

Subject: Minutes of the 6th Meeting of the Committee to monitor offering of power by Generators and load shedding by Distribution Licensees.

The undersigned is directed to forward herewith the Minutes of 6th Meeting of the Committee to monitor offering of power by Generators and load shedding by Distribution Licensees, held on 03.03.2025 under the Chairmanship of Additional Secretary (Power), for information and necessary action.

Encl. as above


7/3/2025

(Vikash Kumar)

Under Secretary (Distribution)

Tel: 011-23705268

Email: vikash.69@gov.in

To:

All Committee Members

Minutes of 6th meeting of the High-Level Committee to monitor offering of power by Generators and load shedding by Distribution Licensees.

The 6th Meeting of the High-Level Committee was held under the chairmanship of Additional Secretary (Power) on 03.03.2025. The list of participants is at **Annexure I.**

2. Deputy Secretary (Distribution), Ministry of Power welcomed all committee members and other participants from various departments of Ministry of Power, Grid -India, RECPDCL, PFC and Officials from DISCOMs.

3. ATR of 5th Meeting was presented during the meeting. The deliberations during the meeting are summarised below.

3.1. Formation of monitoring cells and automatic compensation process

(i) It was informed that out of 36 States/UTs, monitoring cells have been formed in 5 States/UTs (Gujarat, Madhya Pradesh, Andhra Pradesh, J&K, Ladakh), and remaining States/UTs will constitute monitoring cells by March '25.

3.2. Offering of power by GENCOs under LPS rules. It was informed that 3 new gas plants have been registered on the NOAR portal.

3.3. NFMS report on power outages

It was informed that out of 2.52 lakh feeders, 2.04 lakh feeders are now monitored across all States/UTs. Further, hours of supply data is now shared with the DISCOMs on a daily basis for necessary action.

3.4. Discussion on PIB Reports on Power Outages

(i) **Telangana:** It was informed that outages were due to tree branches falling on lines and routine maintenance of LT lines. Supply was restored the next day.

(ii) **Haryana:** Representative of DISCOM informed that the outage was due to fire in the 220kV Substation, which led to a 36-hour power outage in some sectors of Gurugram.

4. After detailed deliberations, the following recommendations were made:

- a. SERCs/JERCs may be followed up to expedite the formation of monitoring cells.
(Action by: RCM Div)

- b. States/UTs may be followed up to expedite the registration of GENCOs on NOAR portal. Grid India may write to MDs of GENCOs for registration in the portal and present a report in next meeting highlighting the reasons for non-registration. **Action by: GRID-INDIA, RCM Div)**
- c. Correct hours of supply data may be acquired from Rajasthan DISCOMs (JdVVNL, JVVNL) **(Action by: RECPDCL)**
- d. Balance approximately 50,000 feeders may be integrated with NFMS portal expeditiously. **(Action by: RECPDCL)**

The meeting ended with a vote of thanks to all participants.

Annexure-I**List of Participants**

S. No.	Name	Designation
Ministry of Power		
1.	Sh. Srikant Nagulapalli	Additional Secretary (Power)
2.	Sh. Sunil Kumar Sharma	Director (RCM)
3.	Sh. Praveen Kumar Dudeja	Director (OM)
4.	Sh. Aravind Kumar M.K.	Deputy Secretary (Distribution)
Grid-India		
5.	Sh. Suhas Damhare	CGM, NLDC
6.	Sh. Anoop Sharma	Deputy Manager
RECPDCL		
7.	Sh. T. S. C. Bosh	CEO (RECPDCL)
8.	Sh. Jaspal Kushwah	GM, RECPDCL
PFC		
9.	Sh. Mayank Sharma	DGM (PFC)
DISCOMs		
10	Officials from the DISCOMs of state of Haryana and Telengana through VC.	

ANNEXURE-II**Status as on 03-03-25**

Intra-state* Coal (inc. lignite) Plants			
State	Total No.	Registered in NOAR	Name of the plants NOT registered
Haryana	4	0	Panipat, Rajiv Gandhi, Yamuna Nagar, Mahatma Gandhi
Punjab	5	0	Lehra Mohabbat, Ropar, Goindwal Sahib, Rajpura, Talwandi Sabo
Rajasthan	12	3	Chhabra-II, Chhabra-I Ph-1, Chhabra-I Ph-2, Kalisindh, Kota, Suratgarh STPS, Suratgarh TPS, Giral
Uttar Pradesh	16	4	Anpara, Harduaganj, Jawaharpur, Obra, Parichha, Lalitpur, Rosa Ph-I, Barkhera, Khambarkhera, Kundarki, Maqsoodpur, Utraula
Chhattisgarh	5	0	DSPM, Korba-West, Marwa, Katghora, Swastik Korba
Gujarat	12	9	Sabarmati (D-F Stations), Akrimota (Lignite), Surat (Lignite)
Madhya Pradesh	6	2	Amarkantak Ext., Sanjay Gandhi, Satpura, Shree Singaji
Maharashtra	18	13	Bela, Dahanu, Butibori, Mihan, GEPL Ph-I
Andhra Pradesh	5	1	Dr. N. Tata Rao, Rayalaseema, Damodaram Sanjeevaiah, Vizag
Karnataka	6	2	Bellary, Raichur, Yermarus, Adani Power Limited Udupi
Tamil Nadu	8	1	Mettur, Mettur-II, North Chennai, Tuticorin, Neyveli(Z), Tuticorin St-IV, Tuticorin(P)
Telangana	6	0	Singareni, Bhadradi, Kakatiya, Kothagudem (New), Kothagudem (Stage-7), Ramagundem-B
Jharkhand	2	0	Tenughat, Jojobera
Odisha	3	1	IB Valley, Vedanta/Sterlite
West Bengal	12	0	D.P.L., Bakreswar, Bandel, Kolaghat, Sagardighi, Santaldih, Budge Budge, Haldia, Hiranmaye, Southern, Titagarh, Dishergarh
DVC	7	6	Bokaro `A` Exp.
TOTAL	127	42	85 non-registered

*incl. state IPP and plants scheduled by the state (SLDC)

Intra-state* Hydro Plants			
State	Total No.	Registered in NOAR	Name of the plants NOT registered
Himachal Pradesh	12	4	Bassi, Giri Bata, Larji, Sanjay, Integrated Kashang, Shanan, Chanju-I, Baspa
Jammu & Kashmir	6	2	Lower Jhelum, Upper Sindh-II, Chutak, Nimoo Bazgo
Punjab	7	0	Anandpur Sahib-I, Anandpur Sahib-II, Mukerian-I, Mukerian-II, Mukerian-III, Mukerian-IV, Ranjit Sagar
Rajasthan	4	0	Jawahar Sagar, Mahi Bajaj-I, Mahi Bajaj-II, R P Sagar
Uttarakhand	15	1	Chibro (Yamuna), Chilla, Dhakrani, Dhalipur, Khatima, Khodri, Kulhal, Maneri Bhali-I, Maneri Bhali-II, Ramganga, Vyasi, Shrinagar, Vishnu Prayag, Khara
Uttar Pradesh	3	0	Matatila, Obra, Rihand
Madhya Pradesh	11	0	Indira Sagar, Omkareshwar, Bansagar Tons-I, Bansagar Tons-II, Bansagar Tons-III, Bargi, Gandhi Sagar, Rana Pratap Sagar, Jawahar Sagar, Madhikhera, Raighat
Maharashtra	13	0	Bhira Tail Race, Koyna DPH, Koyna-I&II, Koyna-III, Koyna-IV, Tillari, Vaitarna, Pench, Bhandardhara St-II, Bhira, Bhivpuri, Khopoli, Ghatgarh
Chhattisgarh	1	0	Hasdeobango
Gujarat	2	0	Ukai, Kadana
Andhra Pradesh	5	0	Lower Sileru, N J Sagar RBC & Ext., Srisaillam, Upper Sileru-I&II, Srisaillam LBPH, Machkund^
Telangana	6	0	Priyadarshini Jurala, Pochampad, N'Sagar, N J Sagar LBC, Lower Jurala, Pulinchinthala
Karnataka	16	0	Almatti, Gerusoppa (Sharavathy Tail Race), Ghat Prabha, Mahatma Gandhi (Jog), Kadra, Kalinadi (Nagjhari), Kalinadi (Supa), Kodasali, Lingnamakki, Munirabad, Sharavathy, Sivasamundrum, Varahi, Bhadra, T B Dam, Hampi
Kerala	14	0	Idamalayar, Idukki, Kakkad, Kuttiyadi, Kuttiyadi Extn., Kuttiyadi Additional Extn., Lower Periyar, Nariamangalam, Pallivasal, Panniar, Poringalkuttu, Sabirigiri, Sengulam, Sholayar
Tamil Nadu	27	0	Kadamparai, Aliyar, Bhavani Kattalai Barrage-I, Bhavani Kattalai Barrage-II, Bhavani Kattalai Barrage-III, Kodayar-I, Kodayar-II, Kundah-I, Kundah-II, Kundah-III, Kundah-IV, Kundah-V, Lower Mettur-I, Lower Mettur-II, Lower Mettur-III, Lower Mettur-IV, Mettur Dam, Mettur Tunnel, Moyar, Papanasam, Parson'S Valley, Periyar, Pykara, Pykara Ultimate, Sarakarpthy, Sholayar-I, Suruliyar
DVC	4	0	Maithon, Panchet, Subernrekha-I, Subernrekha-II
West Bengal	5	0	Purulia, Jaldhaka, Rammam, Teesta Low Dam-III, Teesta Low Dam-IV
Odisha	6	0	Balimela, Hirakud (Burla), Hirakud (Chiplima), Rengali, Upper Indravati, Upper Kolab
Arunachal Pradesh	2	0	Dikshi
Assam	2	0	Karbi Langpi, Myntreng
Meghalaya	9	0	Umiam St-III, Umiam St. I, New Umtru, Umiam St. IV, Myntdu St-I, Ganol, Lakroh, Sonapani, Umiam St-II
Mizoram	1	0	Serlui-B
Nagaland	1	0	Likimro
Tripura	1	0	Gumti
TOTAL	173	7	166 non-registered

*incl. state IPP and plants scheduled by the state (SLDC) ^Scheduling Jointly with Odisha

Intra-state* Gas Plants			
State	Total No.	Registered in NOAR	Name of the plants NOT registered
Haryana	1	1	
Delhi	4	3	Rithala
Rajasthan	2	0	Dholpur, Ramgarh
Uttarakhand	2	2	
Gujarat	10	6	Hazira, Baroda, Essar, Peguthan
Maharashtra	3	2	Mangaon
Andhra Pradesh	10	1	Jegurupadu Ph-I, Gautami, Grel, Jegurupadu Ph-II, Konaseema, Kondapalli, Peddapuram, Vemagiri, Vijjeswaram
Tamil Nadu	6	0	Kovikalpal, Kuttalam, Valuthur, Karuppur, P. Nallur, Valantarvy
Puducherry	1	0	Karaikal
Assam	3	3	
Tripura	3	0	Baramura GT, Rokhia GT, Monarchak
TOTAL	45	18	30 non-registered

*incl. state IPP and plants scheduled by the state (SLDC)

Annexure 2.9.2

Sl. NO	Name of Power Station	Name of the State	Installed Capacity (MW)	Developer	Connectivity (Intra-stste/ISTS)	Jurisdiction	Registration Status on NOAR
1	LAKWA GT	ASSAM	80.4	Assam Power	Intra-state	SLDC	YES
2	LAKWA REPLACEMENT	ASSAM	69.8	Assam Power	Intra-state	SLDC	YES
3	NAMRUP CCPP	ASSAM	139.4	Assam Power	Intra-state	SLDC	YES
4	Karbi Langpi	Assam	100	Assam Power Generation Corporation	Intra-state	SLDC	YES
5	DIKSHI HEP (3*8)	Arunachal Pradesh	24	Arunachal Pradesh Generation Corporation	Intra-state	SLDC	Under discussion
6	MYNTRENG HEP (3*1.5+3*3)	Assam	13.5	Assam Power Generation Corporation	Intra-state	SLDC	YES
7	Kyrdemkulai/Umain st-III	Meghalaya	60	Meghalaya Power Generation Corporation	Intra-state	SLDC	Under discussion
8	Umiat St. I	Meghalaya	36	Meghalaya Power Generation Corporation	Intra-state	SLDC	Under discussion
9	New Umtru	Meghalaya	40	Meghalaya Power Generation Corporation	Intra-state	SLDC	Under discussion
10	Umiat St. IV	Meghalaya	60	Meghalaya Power Generation Corporation	Intra-state	SLDC	Under discussion
11	Myntdu St-I	Meghalaya	126	Meghalaya Power Generation Corporation	Intra-state	SLDC	Under discussion
12	GANOL HEP (3*7.5)	Meghalaya	22.5	Meghalaya Power Generation Corporation	Intra-state	SLDC	Under discussion
13	LAKROH (1*1.5)	Meghalaya	1.5	Meghalaya Power Generation Corporation	Intra-state	SLDC	Under discussion
14	SONAPANI HEP (1*1.5)	Meghalaya	1.5	Meghalaya Power Generation Corporation	Intra-state	SLDC	Under discussion
15	UMIAM ST II (2*10)	Meghalaya	20	Meghalaya Power Generation Corporation	Intra-state	SLDC	Under discussion
16	SERLUI-B (4*3)	Mizoram	12	Mizoram Generation Corporation	Intra-state	SLDC	COD Certificate of plant not available, few other documents pending, under process
17	LIKIMRO HEP (3*8)	Nagaland	24	nagaland Generation Corporation	Intra-state	SLDC	Under process; documents signing pending from Plant head
18	Gumti (3*5)	Tripura	15	Tripura Generation Corporation	Intra-state	SLDC	No
19	BARAMURA GT	TRIPURA	42	Tripura Power	Intra-state	SLDC	In Process
20	ROKHIA GT	TRIPURA	63	Tripura Power	Intra-state	SLDC	In Process
21	MONARCHAK CCPP	TRIPURA	101	Tripura Power	Intra-state	SLDC	In Process

Table: Forest Cover in North Eastern States

State	Geographi- cal Area	Inside RFA/GW				Outside RFA/GW					Total Forest and Tree Cover (A+B)	Percent (%)	Scrub
		VDF	MDF	OF	Total (A)	VDF	MDF	OF	Tree Cover	Total (in- cluding Tree Cov- er) (B)			
Arunachal Pradesh	83,743.22	19,637.05	26,699.94	11,836.97	58,173.96	1,348.27	2,915.15	3,444.19	1,201.63	8,909.24	67,083.20	80.11	1,058.98
Assam	78,438.00	2,833.31	8,333.78	8,529.64	19,696.73	356.40	1,430.76	6,829.66	2,101.46	10,718.28	30,415.01	38.78	240.93
Manipur	22,327.00	893.52	5,744.86	8,152.43	14,790.81	10.53	472.69	1,311.43	209.82	2,004.47	16,795.28	75.22	973.65
Meghalaya	22,429.00	547.93	7,502.05	6,600.87	14,650.85	46.91	1,521.76	747.32	720.56	3,036.55	17,687.40	78.86	620.41
Mizoram	21,081.00	259.83	8,438.53	8,931.24	17,629.60	1.69	197.23	161.94	567.80	928.66	18,558.26	88.03	314.54
Nagaland	16,579.00	1,156.13	3,168.30	4,195.60	8,520.03	100.25	1,293.51	2,308.68	394.02	4,096.46	12,616.49	76.07	667.27
Sikkim	7,096.00	831.08	879.76	349.79	2,060.63	272.23	676.13	349.41	48.33	1,346.10	3,406.73	48.01	303.49
Tripura	10,486.00	393.77	3,719.84	1,242.58	5,356.19	220.66	1,210.15	797.77	247.56	2,476.14	7,832.33	74.69	173.27
Total	2,62,179.22	26,552.62	64,487.06	49,839.12	1,40,878.80	2,356.94	9,717.38	15,950.40	5,491.18	33,515.90	1,74,394.70	66.52	4,352.54

* Change in Forest Cover has been calculated from the revised figure of ISFR 2021.



NERPC sub-group Report on the vulnerable tower locations of 400 kV Palatana-Silchar transmission line.

A. Background

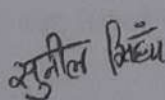
The state of Tripura witnessed very heavy rainfall and unprecedented floods in the month of August 2024, causing loss of human lives and extensive damage, destruction and loss of both public and public infrastructure & properties and subsequently the state of Tripura was declared as "Natural Calamity Affected Area" vide notification dated 27th August 2024 by the Relief, Rehabilitation and Disaster Management, Government of Tripura. A copy of the notification & relevant newspaper clippings is placed as Annexure-1 for reference.

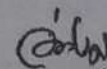
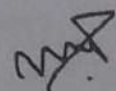
218th OCC Meeting Held on 12th September 2024

NETC submitted an agenda (item no. C.5 - copy enclosed at Annexure-2 for reference) in the 218th OCC meeting held on 12th September 2024 in Guwahati informing about the status of the damages caused and also requesting that NETC being a single project organization with limited resources, will find it difficult to bear such major financial implications for these protection works and tower shifting necessitated due to Force Majeure and proposed that the financial implications incurred on this account may be considered. The agenda was deliberated by the sub-committee and the deliberation of the sub-committee is presented hereunder;

"NETC informed the forum that due to heavy rain in Tripura massive landslides had occurred which left some towers of the line vulnerable and prone to collapse. NETC also informed the forum that immediate action needed to be taken to restore the condition of the affected tower. NETC further requested that a sub-group under aegis of NERPC may be formed so that the same might visit the affected locations and suggest the immediate and long-term solution to the problem. NERTS suggested that on the basis of study and suggestion of the sub-group, some guidelines may be framed for future references.

After detailed deliberation, the forum opined to form a sub-group consisting of representatives of CEA, NERPC, NERLDC, Powergrid, IIT Guwahati, Assam, Meghalaya and Tripura."

NERPC order No.: No. NERPC/SE(O)/OCC/2024/3642-3649 dated 09th January 2025

NERPC vide order No.: No. NERPC/SE(O)/OCC/2024/3642-3649 dated 09th January 2025 (copy enclosed as Annexure-3 for reference) informed the formation of NERPC sub-group to visit the vulnerable towers of the 400 kV Palatana-Silchar TL with the following members to visit and inspect the vulnerable tower locations and suggest remedial measures. The sub-group visit was scheduled for 20th January 2025 & 21st January 2025.

Sl. No	Name	Designation	Organization
1.	Sh. Vikash Shankar	Asst. Director	NERPC
2.	Sh. Sunil Singha	Manager	NERLDC
3.	Sh. Arindam Dam	DGM	PowerGrid
4.	Sh. Asif Iqbal Jahan Mazumder	DGM	AEGCL
5.	Sh. G V Diengdoh, EE (T&T)	EE (T&T)	MePTCL
6.	Sh. Dulal Chakraborty.	DGM	TSECL
7.	Prof. Vivek Padmanabha.	Prof. Civil Engg. Department	IIT Guwahati

It is to mention that the nominated members from MePTCL (Sl no. 5 above) could not join the sub-group during the visit. Further, the representative from TSECL (Sl No. 6 above) requested NERPC to consider the nomination of Sh. Bathe Jamatia, Manager (Civil) in place of himself and the same was concurred by NERPC.

B. Sub-group visit on 20th & 21st January 2025 (photographs of the sub-group visit is enclosed as Annexure-4).

Day-1 (20th January 2025)

The committee visited and inspected 6 tower locations on 20th January 2025 (tower nos. 200, 205, 209, 211, 217 & 222).

Day-2 (21st January 2025)

The committee visited and inspected 6 tower locations on 21st January 2025 (tower nos. 137, 182, 357, 385, 393 & 430).

Sub-group methodology for inspection & recommendation.

The sub-group while inspecting the 12 nos. tower locations considered the profile of the soil, topography of the area, proximity of the tower legs to edge of slope, extent of soil movement and slope failure caused by the extensive rain that occurred in Aug'24, vegetation in the proximity of tower legs etc... and recommended the following measures:

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Sub-group recommendations:

	Date of Visit/ Day	Tower No	Observation & Recommendations
1	20.01.2025	200	Observation: - The tower is located on a hilltop connecting forward and backward spans, both of which cross NH-08. The C leg is situated just 8 meters horizontally from the hillock edge, followed by a gradient slope of height approximately 4 meters, and then a steep slope of 18 meters height from NH-08. The slope appears to consist of loose soil with low shear strength, indicating a risk of landslides and further deterioration of the existing slope. Recommendation: - It is recommended to construct an 8-meter high RRM (Random Rubble Masonry) protection wall along the NH side to protect the existing slope and soil erosion. - Further Based on the soil report, a platform for the construction of the 2nd RRM protection wall is proposed by step-cutting the soil slope along the edge of the hill and gradient sloped areas. The soil test report should be shared with Prof. Vivek Padmanabha by NETC. - The soil area after the RRM wall should be secured by covering it with geo net.
2	20.01.2025	205	Observation: - The B leg is located just 7 meters horizontally from the hillock edge, with a slope of 11 meters height from NH-08. Recommendation: - It is recommended to adopt a "wait and watch" approach without disturbing the existing soil conditions for the time being.
3	20.01.2025	209	Observation: Heavy soil erosion and landslides have occurred on the downhill side of Leg C. The erosion started approximately 8 meters from Leg C. Temporary protection using bamboo palisading and soil-filled

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			gunny bags has been provided in 9 steps along the affected areas. Recommendation: While the temporary measure may help stabilize the soil to some extent, however the tower is not fully stable. Considering the condition of loose soil and low bearing strength It is recommended to construct a 3-step Random Rubble Masonry (RRM) wall along with geo textile reinforcement to provide long-term stability and protection.
4	20.01.2025	211	Observation: - Soil erosion and landslides have been observed near Legs A and D. Erosion has started approximately 9 meters from both legs. Runoff from the uphill side of the tower flows through a natural channel near Leg D, which has formed into a drain. Temporary protection using bamboo palisading and soil-filled gunny bags has been provided in 4 steps along the affected areas. Recommendation: - The temporary measure may offer partial stabilization of the soil, the tower is not fully stable. It is recommended to construct a 3-step Random Rubble Masonry (RRM) wall to ensure long-term stability and protection. - Additionally, two independent stone-pitched /brickbat / cement grout drainage systems should be constructed on both sides of the RRM walls to facilitate natural drainage from the uphill side.
5	20.01.2025	217	Observation: - The tower is approximately 25 meters horizontally from NH-08, with a 20-meter vertical difference between the tower and NH. - The tower foundation has been compromised due to cracking and sinking of the adjacent National Highway (NH-08) and the uphill slope near the tower. This has led to severe structural issues, including bending in some of the tower's bracing members and legs. Recommendation: - A feasibility study should be conducted to assess the possibility of shifting the tower, as the soil in the area is highly susceptible to further movement. During the survey, options should be explored, including replacing the current tower with a suitable monopole structure or relocating the tower at position 216 to a specialized tower and directly connecting it to tower 218, bypassing tower 217.

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			• A Random Rubble Masonry (RRM) wall with an integrated drain should be immediately constructed on the uphill side (towards highway) to prevent the slope failure and redirect the drain water from accumulation the tower foundation area and further avoid sinking. • A profile study of the downstream side of the tower should also be conducted.
6	20.01.2025	222	Observation: • The tower is located adjacent to NH-08, with Legs C and D facing NH. These legs are situated just 8 and 9 meters horizontally from the hillock edge, followed by a steep slope of 15 meters in height from NH-08. The tower connects the forward span (loc 222-223) and backward span (loc 222-221), both of which cross NH-08. Recommendation: • It is recommended to adopt a "wait and watch" approach without disturbing the existing soil conditions for the time being.
7	21.01.2025	137	Observation: • The landslide occurred approximately 10 meters from both Leg A and Leg D. A permanent protection wall was constructed at Leg D during the construction phase. Temporary bamboo palisading has been provided in five steps, and the tower is currently stable. Recommendation: • It is recommended to adopt a "wait and watch" approach without disturbing the existing soil conditions for the time being. Proper drainage for runoff water should also be ensured.
8	21.01.2025	182	Observation: • Soil erosion and landslides have been observed near Legs A and B. Erosion has started approximately 10 meters from both legs, with a 60-degree slope and a height of 25 meters from the foothill level. Temporary bamboo palisading has been provided in 3 steps, and the tower remains stable. Recommendation: • It is recommended to adopt a "wait and watch" approach without disturbing the existing soil conditions for the time being.

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			Observation: - The tower is located on a hillock, with an uphill slope on the A-D leg side, while the B-C and C-D leg sides are situated on a downhill terrain. Soil erosion and landslides have been observed near Leg C. Temporary protective measures consisting of bamboo palisading and soil-filled gunny bags have been provided in five steps along the affected areas. Recommendation: - While the temporary measure may provide partial stabilization, the tower is not fully stable. It is recommended to construct a 2-step Random Rubble Masonry (RRM) wall, along with a dressing platform, to ensure long-term stability with a geotextile layer at the end of each step which would further offer protection of the tower foundation. - Additionally, stone-pitched or brickbat drainage systems, or a cement grout drainage system, should be constructed to divert water away from the tower and prevent further erosion.
9	21.01.2025	357	
10	21.01.2025	385	Observation: - Soil erosion and landslides have been observed on the downhill side of Leg D at a distance of 5 meters, and soil erosion has occurred at a distance of 12 meters from Leg C. Temporary protective measures consisting of bamboo palisading and soil-filled gunny bags have been provided in 5 steps along the affected areas. Recommendation: - While the temporary measure may help stabilize the soil to some extent, the tower is not yet fully stable. - It is recommended to construct a 1-step Random Rubble Masonry (RRM) wall, along with a dressing platform, and to backfill the area with compacted soil. The slope near Leg D should be properly maintained. - Additionally, an additional RRM wall should be constructed along Leg C to provide further stabilization.

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			Stone-pitched or brickbat drains, or a cement grout drainage system, should be installed to effectively divert water away from the tower and prevent further erosion.
11	21.01.2025	393	Observation: - Soil erosion and landslides have been noticed near Leg A. The A leg is situated just 7 meters horizontally from the hillock edge, followed by a steep slope of 18 meters height from ground level. Temporary protection using bamboo palisading and soil-filled gunny bags has been provided in three steps along the affected areas. Recommendation: - While the temporary measure may offer partial stabilization of the soil, the tower is not yet fully stable. It is recommended to construct a 1-step RRM wall, along with a dressing platform. - Further the soil area after the Random Rubble Masonry (RRM) wall should be secured by covering it with geo net.
12	21.01.2025	430	Observation: Soil erosion and landslides have been noticed near Legs B and C. Erosion started at a distance of 9 meters from Leg C and 14 meters from Leg B. Temporary protective measures consisting of bamboo palisading and soil-filled gunny bags have been provided in 9 steps along the affected areas. Recommendation: While the temporary measure may provide partial stabilization, the tower is not yet fully secured. It is recommended to construct a 2-step Random Rubble Masonry (RRM) wall, along with a dressing platform. Additionally, the wall should be reinforced with geo grid in the exposed areas to ensure long-term stability and protection. Further Stone-pitched or brickbat drains, or a cement grout drainage system, should be installed to effectively divert water away from the tower and prevent further erosion.

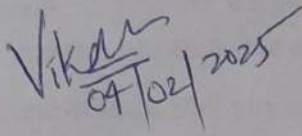
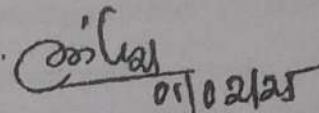
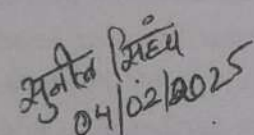
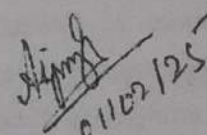
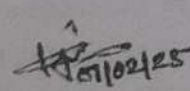
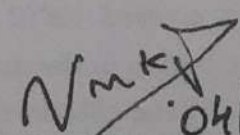
Other observations & recommendations of the sub-group.

NETC also informed the sub-group that a total of 25 tower locations have been affected due to floods & landslides caused due to the heavy rainfall in the month of August 2024 (photographs & profile details enclosed as Annexure-5), however, due to paucity of time, the other 13 affected locations could not be visited by the sub-group. NETC also informed the sub-group members that NETC has undertaken immediate temporary protection measures at 14 affected tower locations and is continuously monitoring the affected locations through extensive patrolling routines. The sub-group appreciated the NETC for its prompt and dedicated action to provide immediate protection measures to the affected towers.

The sub-group after assessing the topography / terrain of the Palatana-Silchar transmission line, general soil characteristics of Tripura and the monsoon rains in the state, also viewed / recommended the following:

1. The sub-group, after assessing the mentioned locations, is of the view that considering the geographical terrain and soil profile of the Palatana-Silchar section in Tripura, similar landslide issues may occur at other tower locations in the future. Given the importance of the 400 kV Palatana-Silchar transmission line for the stability of the entire northeastern grid, the sub-group recommends that, during the monsoon season, if such situations arise, an immediate site assessment by an expert consultant should be conducted. Necessary follow-up remedial measures should then be implemented promptly, with prior intimation to NERPC, to prevent any disruption to the power network.
2. Sub-group advised NETC to continuously monitor the conditions of vulnerable towers in the area adopt a general approach of stabilizing the slopes around the affected towers with geo-mats or geo textiles and ensure vegetation on the slopes.
3. The sub-group emphasized the critical role of the 400 kV Silchar-Palatana transmission line in evacuating power from the Palatana generation and highlighted the vulnerability of its towers, especially during the upcoming monsoon season. Given the risk of landslides in the hilly terrain, any

failure of these towers could severely impact power evacuation and grid stability. To mitigate this risk, the sub-group recommended continuous monitoring of vulnerable towers by NETC and immediate site assessments by expert consultants if instability is detected. Necessary measures should be implemented promptly to ensure the secure evacuation of Palatana generation and prevent major grid disturbance.

 Name: Sh. Vikash Shankar Designation: Asst. Director. Organization: NERPC	 Name: Sh. Arindam Dam Designation: DGM Organization: Powergrid.
 Name: Sh. Sunil Singha Designation: Manager. Organization: NERLDC	 Name: Sh. Asif Iqbal Jahan Mazumder Designation: DGM Organization: AEGCL
 Name: Sh. Batha Jamatia. Designation: Manager, Civil Organization: TSECL	 Name: Prof. Vivek Padmanabha, PhD Designation: Asst. Professor, Civil Engg. Department Organization: IIT Guwahati, INDIA.

Minutes of Meeting to discuss Agartala Islanding Scheme

Date: 16.05.2025

Mode: Video Conferencing

1. Formation of Island at 48.2 Hz and Proposed UFR Locations

- **PGCIL, Indigrid, and OTPC** informed the forum that numerical relays are available at the proposed UFR locations identified in the **Agartala Islanding Scheme (Annexure D)**. These relays can be configured at 48.2 Hz with a time delay of 300 ms. The forum requested PGCIL, OTPC, and Indigrid to enable the UFRs at the designated locations accordingly.
- **SLDC Tripura** stated that they will verify the availability of numerical relays at the identified feeders of the 132 kV substations mentioned in the Agartala Islanding Scheme and confirm at the earliest. It was also informed that certain changes have occurred in the 66 kV network configuration. SLDC Tripura was requested to provide an updated 66 kV network diagram, including its connectivity with the 132 kV substations.

2. Operating Frequency Range of Machines within the Island

- **Rokhia:** SLDC Tripura informed the forum that Stage-I settings of both OFR and UFR for Rokhia units are configured for alarm purposes only, while Stage-II settings are for tripping. OFR setting of Rokhia units is recommended to be set at 52 Hz with a time delay of 1.5 sec.
- **Monarchak:** NEEPCO reported similar settings for Monarchak units, where Stage-I serves as an alarm and Stage-II is for tripping. It was noted that the OFR Stage-II setting for the GTG unit at Monarchak needs to be revised from the existing 52.0 Hz (with 2 seconds delay) to 52.5 Hz with a 2-second delay to comply with the Agartala Islanding Scheme requirements. NEEPCO was advised to make the necessary changes.
- **AGBPP, R.C. Nagar:** The current UFR Stage-I settings for Units I to IV are 47.7 Hz with a 2.4-second delay. These are to be revised to 47.5 Hz with a minimum time delay of 2 seconds. Additionally, it was informed that Stage-I UFR settings for Units V and VI currently initiate a trip signal, which must be changed to alarm-only functionality. NEEPCO is to implement the required modifications.

3. Additional UFRs Required Post-Island Formation (Load > Generation Scenario)

- In scenarios where load exceeds generation after island formation, **two additional UFRs of 15 MW each** are required to be identified by **SLDC Tripura**. These should be located at:
 - **132 kV Udaipur Substation** – to trip at **48.0 Hz** with a time delay of 100 ms.
 - **132 kV PK Bari Substation** – to trip at **47.8 Hz** with a time delay of 100 ms.

4. The following UFR were in previous Islanding scheme which is required to be disabled:

SL No.	UFR Location	Responsible Agency
1	132kV AGTCCPP - Agartala I at Agartala	Tripura
2	132kV AGTCCPP - Agartala II at Agartala	Tripura

Action Points:

- PGCIL, Indigrid, SLDC Tripura and OTPC to enable UFRs at proposed locations.
- SLDC Tripura to confirm numerical relay availability and share the updated 66 kV network diagram.
- NEEPCO and Tripura to revise frequency protection settings as per islanding scheme requirements.
- SLDC Tripura to identify and configure additional UFRs at Udaipur and PK Bari substations.
- SLDC Tripura and SLDC Assam to disable the existing UFR which are not required now.

Note: Details of ‘Agartala Islanding Scheme’ is given in Annexure I. Dynamic study and plots is given in Annexure II.

Members present in the meeting:

SI No	Name	Designation	Organisation
1	Vikash Shankar	AD	NERPC
2	Biswajit Sahu	CGM	NERLDC, GRID-INDIA
3	Babul roy	GM	
4	Sachin Kumar Singh	Manager	
5	Anjan Kumar Pandey	Deputy Manager	
6	Abhi K Varghese	Deputy Manager	
7	Ananya Giri	Engineer	
8	Prabhankar Porwal	Manager	NLDC, GRID-INDIA
9	Anil Debbarma	DGM	SLDC Tripura
10	Tarak Lal Saha	Manager	
11	Joypal Roy	CGM (Tech)	NEEPCO
12	Manas Pratim Sharma	Sr Manager (E/M)	
13	Jayanta Das	GM(Tech)	TGBPS, NEEPCO
14	Pankaj Datta Choudhury	DGM(Tech)	
15	B. Richard Samuel	Sr Mgr(E/M)	
16	Sanjib Pal	Section Head-PME	OTPC, Palatana
17	Soham De	Shift In Charge	
18	Subhajit Ganguly	Lead-EMD	
19	Samriddhi Gogoi	Assistant Manager	IndiGrid
20	Haribabu	DGM	Powergrid

Agartala Islanding Scheme

Frequency of Island Formation: 48.2 Hz with a time delay of 300ms

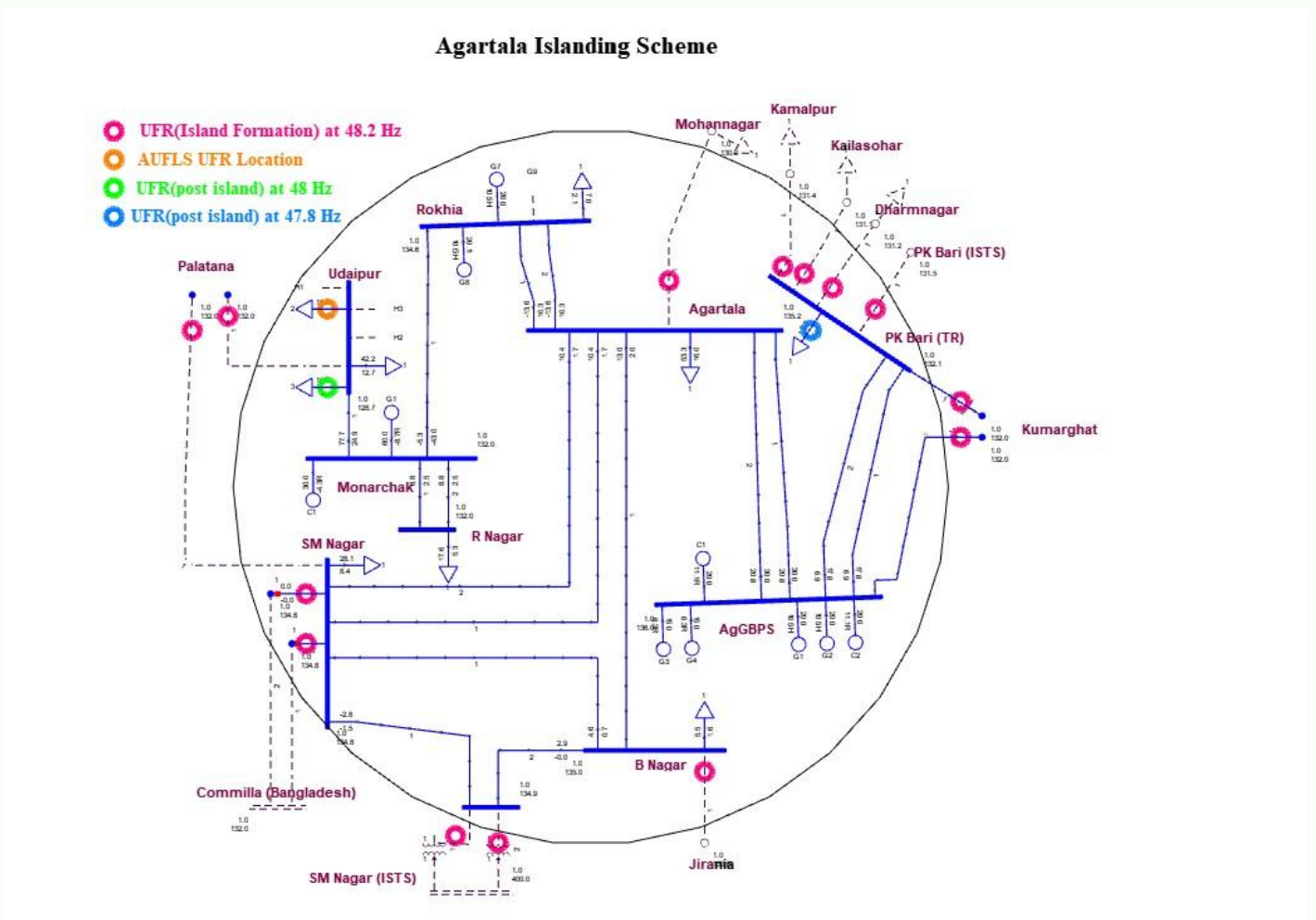
1. Proposed UFR location for Islanding schemes along with the status:

The UFR in the following location will operate at 48.2Hz with a time delay of 300 ms.

Sl. No	UFR Location	Comments on UFR	Status to be updated by Utilities		
			Weather UFR setting are implement(if yes, provide the setting)	Weather Numerical relays are available or not	Implementing Utility
1	132 kV Palatana - Surajmaninagar(TR) line at Palatana(OTPC)	Required	Yes	Yes	OTPC
2	132 kV Palatana - Udaipur line at Palatana (OTPC)	Required	Yes	Yes	OTPC
3	132 kV AGTCCPP - Kumarghat line at Kumarghat (PG)	Required	Yes	Yes	PGCIL
4	132 kV P K Bari(TR) - Kumarghat line at Kumarghat (PG)	Required	Yes	Yes	PGCIL
5	132kV PK Bari(TR) - Kamalpur at PK Bari(TR)	Required			Tripura
6	132kV PK Bari(TR) - Dharmanagar at PK Bari(TR)	Required			Tripura

7	132kV PK Bari(TR) - 132kV PK Bari(ISTS) at PK Bari(TR)	Required			Tripura
8	132kV PK Bari(TR) - 132kV Kailashohor at PK Bari(TR)	Required			Tripura
9	132kV Agartala - Mohanpur at Agartala	Required			Tripura
10	132kV Budhjungnagar - Jirania at Budhjungnagar	Required			Tripura
11	400/132 kV 2x315 MVA ICTs at 132kV Surajmaninagar (ISTS)(LV side)	Required	Yes	Yes	Indigrid
12	132 kV Surajmaninagar (ISTS) – South Comilla D/C at Surajmaninagar (ISTS)	Required	Yes	Yes	PGCIL
13	66kV Agartala(79 Tilla) - Baramura at Agartala	Required			Tripura
14	66kV Udaipur – Jatanbari at Udaipur	Required			Tripura

2. The Islanding schematic is given below:



- UFR at marked location for Island Formation will operate at 48.2Hz in 300 ms.
- AUFLS will also operate instantly within 100 ms.
- Additional UFR at 132kV Udaipur and 132kV PK Bari of 15 MW each to be identified to be operated at 48.0 Hz and 47.8 Hz with a time delay of 100ms.

Data provided by Utilities:

Generator details (Dynamic data, OFR and UFR details, Output range): NEEPCO and SLDC Tripura

Transmission lines (parameter data, AUFLS data): SLDC Tripura, PGCIL, NEEPCO, Indigrid.

Distribution data (load pattern): SLDC Tripura

3. Load and Generation scenarios in Tripura: Details of loads submitted by Tripura in their Power System

Nodes in Tripura Power system									
Sl. No.	Node / Bus	Details of 33 kV or 66 kV Feeders connected	Load		MVAR		Generation		Criticality of Load (I, II, III)*
			Off-Peak	peak	Off-Peak	peak	Off-peak	Peak	
1	MONARCHAK						65	65	
2	DHARMANAGAR	33 KV PANISAGAR, 33 KV DAMCHERRA, 33 KV KADAMTALA, 33 KV DIGHALBAG, 33 KV JUBARAJNAGAR	20.59	28.98					I
3	AGARTALA	33 KV BANAMALIPUR, 33 KV RAMPUR, 33KV COLLEGE TILLA, 33 KV DURJOYNAGAR, 33 KV MES, 33KV CAPITAL COMPLEX, 33 KV PRAGATI	41.66	58.65					I
4	ROKHIA	66KV BOXANAGAR, 66KV BADHARGHAT	5.85	8.23			38	38	III
5	BODHJNNAGAR		14.44	6.25					II
6	JIRANIA	33 KV MANDWI, 33 KV NIT AGARTALA, 33 KV KHAYERPUR, 33 KV ADC FEEDER	12.38	17.43					II
7	BARAMURA	66KV BADHARGHAT, 66KV OMPI	13.08	18.41			19	19	II
8	TELIAMURA		6.89	9.7					
9	PK BARI	33 KV CHAWMANU, 33 KV PECHARTHAL, 33 KV KANCHANPUR, 33 KV DASDA, 33 KV VANGHMUN	13.41	18.88					II
10	UDAIPUR	33 KV KILLA, 33 KV RANI, 33 KV BAGMA, 33 KV MAHARANI, 33 KV POWER HOUSE, 66KV GOKULNAGAR, 66KV BISHRAMGANJ, 66KV JATANBARI	33.99	47.85					I
11	SURJAMNAGAR	33 KV NS RCC, 33KV ADARSHA COLONY, 33 KV TAKARJALA, 33 KV GABARDI, 33 KV AMTALI, 33 KV BISHALGARH, 33 KV MADHUPUR, 33 KV UNIVERSITY	23.04	32.43					I
12	DHALABIL	33 KV TULASHIKHAR, 33 KV AMPURA, 33 KV KALYANPUR	12.08	17.01					II
13	KAMALPUR	33 KV KAMALPUR	4.8	6.76					III
14	KAILASHOHOR	33 KV RANGRUNG, 33 KV KAILASHAHAR TOWN	9.99	14.06					II
15	AMBASSA	33 KV SALEMA, 33 KV MANU, 33 KV GANDACHERRA, 33 KV GANGANAGAR, 33 KV RAISHYABARI	11.74	16.52					II
16	RABINDNAGAR	33 KV MELAGHAR, 33 KV KATHALIA	14.26	20.08					III
17	BANGLADESH		80	100					III
18	MOHANPUR	33 KV MOHANPUR, 33 KV FISHERY COLLEGE, 33 KV HEZAMARA, 33 KV SIMNA	9.68	13.62					II
19	BAGAFA	33 KV SANTIRBAZAR, 33 KV JOLAIBARI, 33 KV BETAGA	7.74	10.9					III
20	BELONIA	33 KV RAJNAGAR	8.33	11.73					II
21	HRISHYAMUKH		2.27	3.2					III
22	SATCHAND		2.73	3.84					III
23	SABROOM		3.98	5.6					III
24	AMARPUR		3.56	5.01					III
			356.49	475.14					
Tripura Demand(excl Bangladesh)			276.49	375.14					

4. AUFLS Implemented in Agartala Island:

Sl. No.	Name of Sub-Station	Location	Name of Feeder	Stage	Load (MW)		Frequency
					Peak	Off Peak	
1	132/66/11 KV Udaipur	66 KV Bagafa		Stage - III (48.8 Hz)	9.1	6	49.2
		33 KV Udaipur Town		Stage - III (48.8 Hz)	4	3.6	
		33 KV Rani		Stage - III (48.8 Hz)	7.1	4.8	
		33 KV Killa		Stage - III (48.8 Hz)	0.95	0.5	
2	132/66/11 KV Rokhia	66 KV Badharghat	33 KV Bishalghar	Stage - I (49.2 Hz)	5.8	4	49
			33 KV Stadium	Stage - III (48.8 Hz)			
		66 KV Rabindranagar	33 KV melaghar	Stage - I (49.2 Hz)	20.5	13.5	
		66 KV Boxanagar		Stage - III (48.8 Hz)	3.8	2	
Total Load					51.25	34.4	

5. Load and Generation details :

A detailed analysis was conducted based on the SCADA data from the past three years, focusing on load duration curve. This analysis helped in identifying the worst-case scenarios and facilitated planning for maintaining adequate load-generation balance during islanding formation.

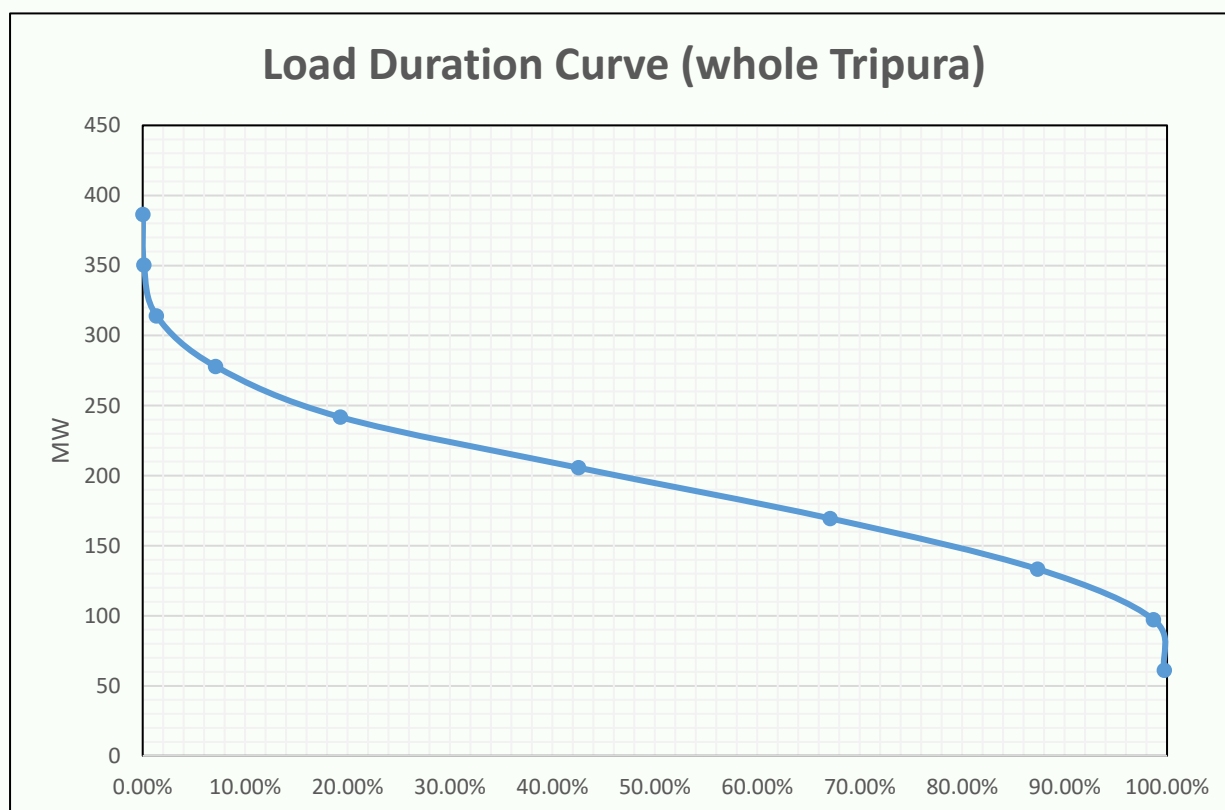


Fig: Load Duration Curve

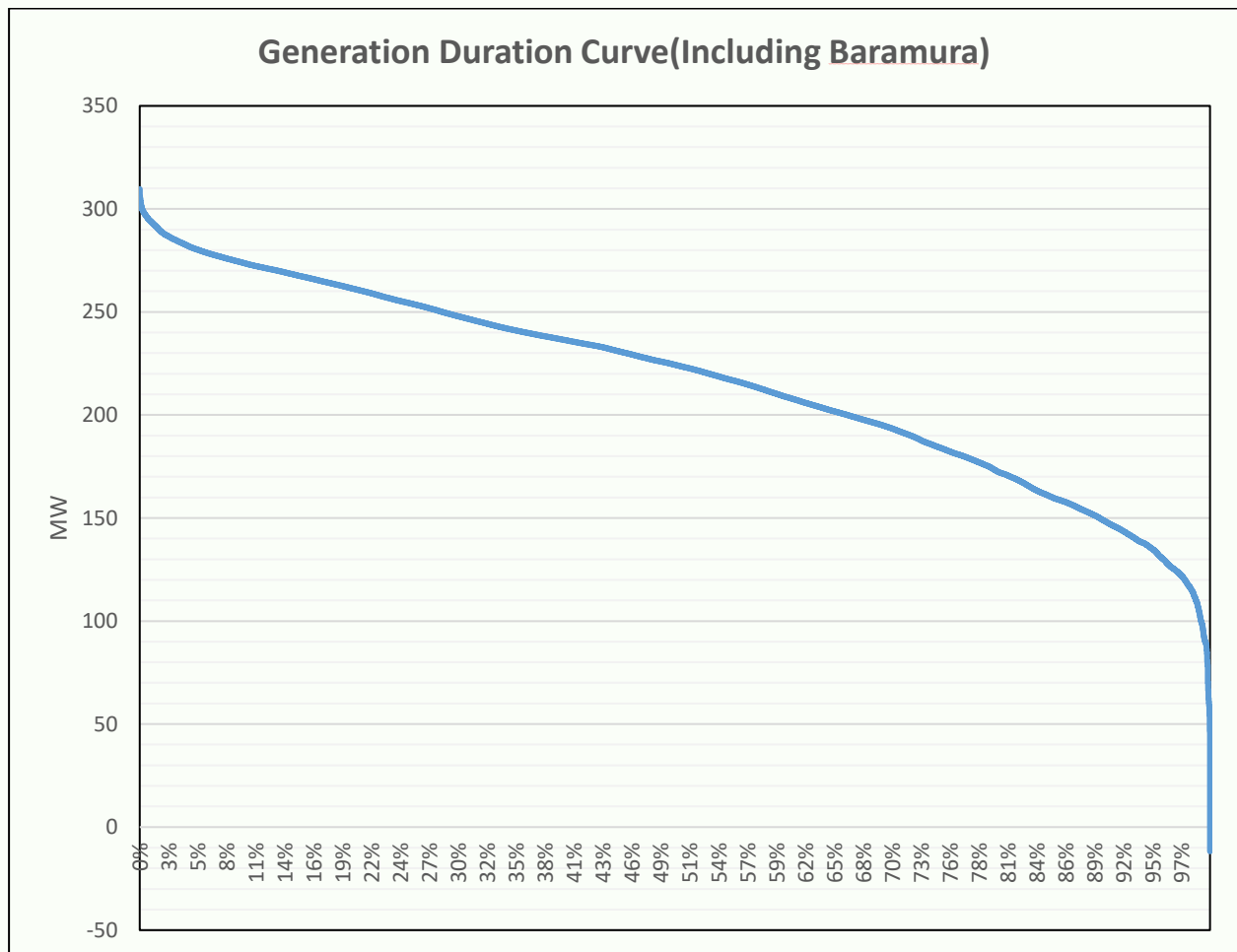


Fig: Generation Duration Curve

Note: The load and generation duration curve is taken for whole Tripura. Later on proportionate load for Agartala Island with respect to island load data provided by Tripura in peak and off peak scenario is taken for study. 40 MW Baramura Generation is reduced in maximum generation for getting maximum generation in Agartala Island.

The different extreme scenarios of Load and Generation in Agartala Islanding Scheme is given below:

Islanding Scenarios(For Simulation Study)				
Load	Generation	Load (MW)	Gen(MW)	Shortfall(-) & Surplus(+) in MW
Min	Min	70	130	60
Max	Min	170	130	-40
Max	Max	170	240	70
Min	Max	70	240	170

Note:The load is considered after deduction of load in stage wise AUFLS.

The dynamic study and plots is given in *Annexure II.

6. Additional UFR required after formation of Island (Load > Generation):

Two additional UFR of 15 MW each to be identified by Tripura at 132kV Udaipur and 132kV PK Bari S/S to be tripped at 48.0 Hz and 47.8 Hz with a time delay of 100ms.

7. Operating frequency range of machines in Islanding scheme:

Data provided by Tripura							
Sl. No	Existing	Status to be updated by Utilities					Remarks if any
		Existing Frequency Setting (Over frequency) in Hz			Existing Frequency Setting (Under frequency) in Hz		
		Stage	OFR Setting	Time delay	UFR Setting	Time delay	
1	Rokia Unit-7	I	51.6	1 sec	48.5	1 sec	Stg1 is for Alarm and Stg II is for Tripping the unit.
		II	off		47.5	1 sec	
2	Rokia Unit-8	I	51.5	1 sec	48.5	1 sec	
		II	off		47.5	1 sec	
3	Rokia Unit-9	I	51	2 sec	48.5	2 sec	
		II	52	0.20 sec	47	0.20 sec	

Data provided by NEEPCO							
Sl. No	Existing	Status to be updated by Utilities					Remarks if any
		Existing Frequency Setting (Over frequency) in Hz			Existing Frequency Setting (Under frequency) in Hz		
		Stage	OFR Setting	Time delay	UFR Setting	Time delay	
1	Monarchak GT	I	51	2 Sec	48.50	3 Sec	Stg1 is for Alarm and Stg II is for Tripping the unit.
		II	52	2 sec	47.50	2 Sec	
2	Monarchak ST	I	51	2 Sec	48.50	3 Sec	
		II	52	2 Sec	47.50	2 Sec	
3	RC Nagar Unit 1	I	--	--	47.7	2.4	overspeed setting to 113.5%
		II	--	--	--	--	
4	RC Nagar Unit 2	I	--	--	47.7	2.4	overspeed setting to 113.5%
		II	--	--	--	--	
5	RC Nagar Unit 3	I	--	--	47.7	2.4	overspeed setting to 113.5%
		II	--	--	--	--	
6	RC Nagar Unit 4	I	--	--	47.7	2.4	overspeed setting to 113.5%
		II	--	--	--	--	
7	RC Nagar Unit 5	I	--	--	48.50	5	overspeed setting to 110.883%
		II	--	--	47.50	2	
8	RC Nagar Unit 6	I	--	--	48.50	5	overspeed setting to 110.883%
		II	--	--	47.50	2	

Note: Dynamic Study of Agartala Island for different extreme scenarios as mentioned earlier suggest that:

- a) Rokhia units are required to trip at 51.5 Hz. **Additionally it is recommended that OFR setting of Rokhia units may be changed to 52 Hz with a time delay of 1.5 sec to give extra time for island to survive in higher frequencies.**
- b) Monarchak STG is required to trip at 52 Hz.
- c) Monarchak GTG is required to trip at 52.5 Hz with time delay of 2 sec. So GTG OFR stg II setting is required to set at 52.5 Hz which is currently 52 Hz.

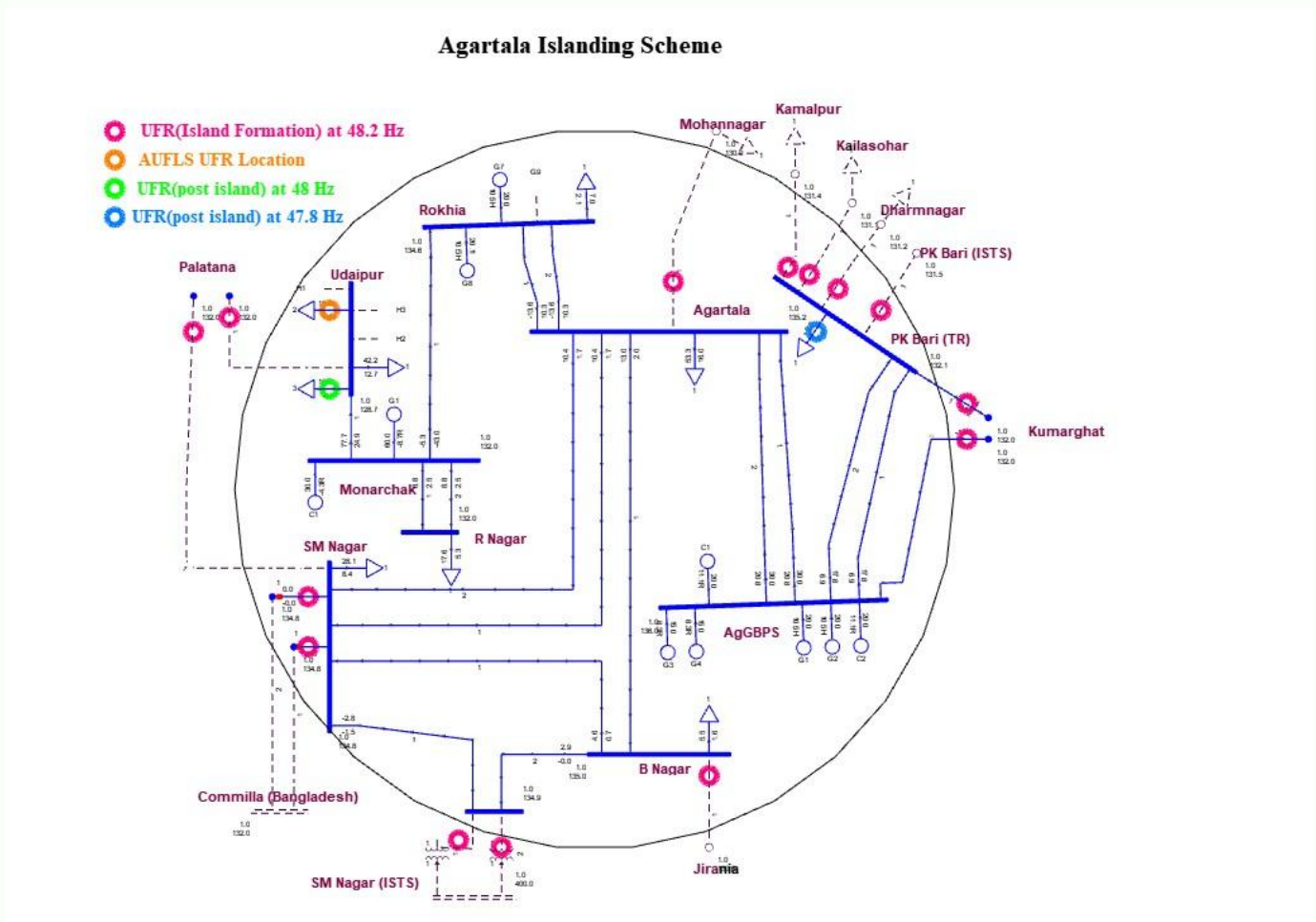
Further, AgGBPS(RC Nagar) Unit V and Unit VI OFR stg I is set at 48.5 Hz with a time delay of 5 sec which is trip signal instead of alarm as per intimation given by NEEPCO. Therefore OFR stg I is required to be changed to Alarm purpose only.

Agartala Islanding Scheme Dynamic Study

1. Introduction:

One of the key features of a resilient power system is robust islanding scheme. Success of an islanding scheme depends on the design as well as implementation of the logic. Logic needs to be robust as well as simple. Extensive study is required to design an effective islanding scheme. For Agartala islanding scheme design various preliminary studies are done and the results are discussed below. However these studies are done based on certain assumption (which will be discussed below) and its purpose is to check the broader feasibility of an islanding scheme. Hence the final islanding logic must be finalized by the respective generating plants in consultation with their OEM.

2. Network:



- UFR at marked location for Island Formation will operate at 48.2Hz in 300 ms.
- AUFLS will also operate instantly within 100 ms.
- Additional UFR at 132kV Udaipur and 132kV PK Bari of 15 MW each to be identified to be operated at 48.0 Hz and 47.8 Hz with a time delay of 100ms.

4. Simulation:

Different LGB scenario is studied in the simulation for checking the robustness of the proposed scheme. Details of different scenario are summarized as follows:

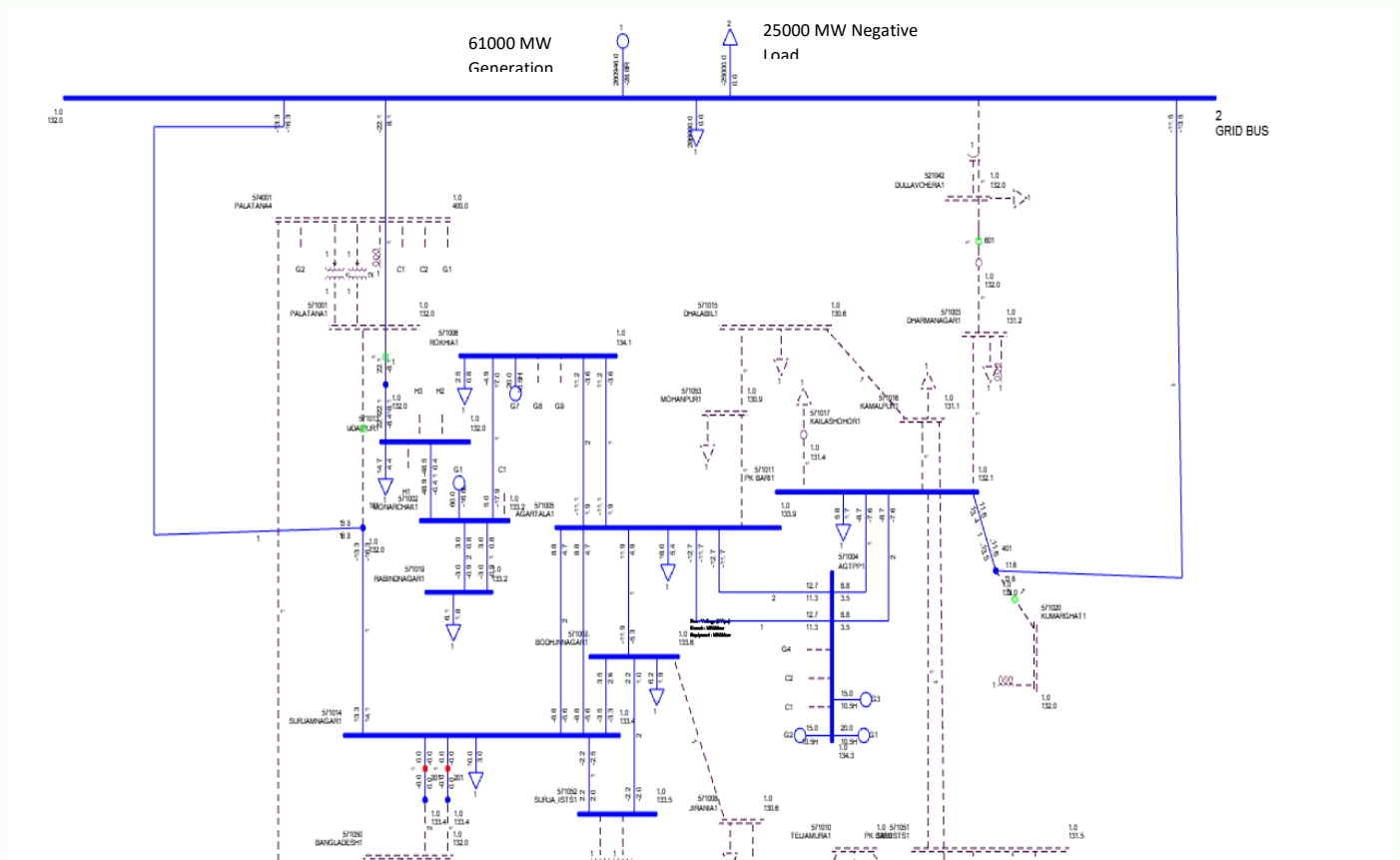
Islanding Scenarios(For Simulation Study)				
Load	Generation	Load (MW)	Gen(MW)	Shortfall(-) & Surplus(+) in MW
Min	Min	70	130	60
Max	Min	170	130	-40
Max	Max	170	240	70
Min	Max	70	240	170

The above LGB is prepared based on input from SLDC Tripura and NER SCADA data.

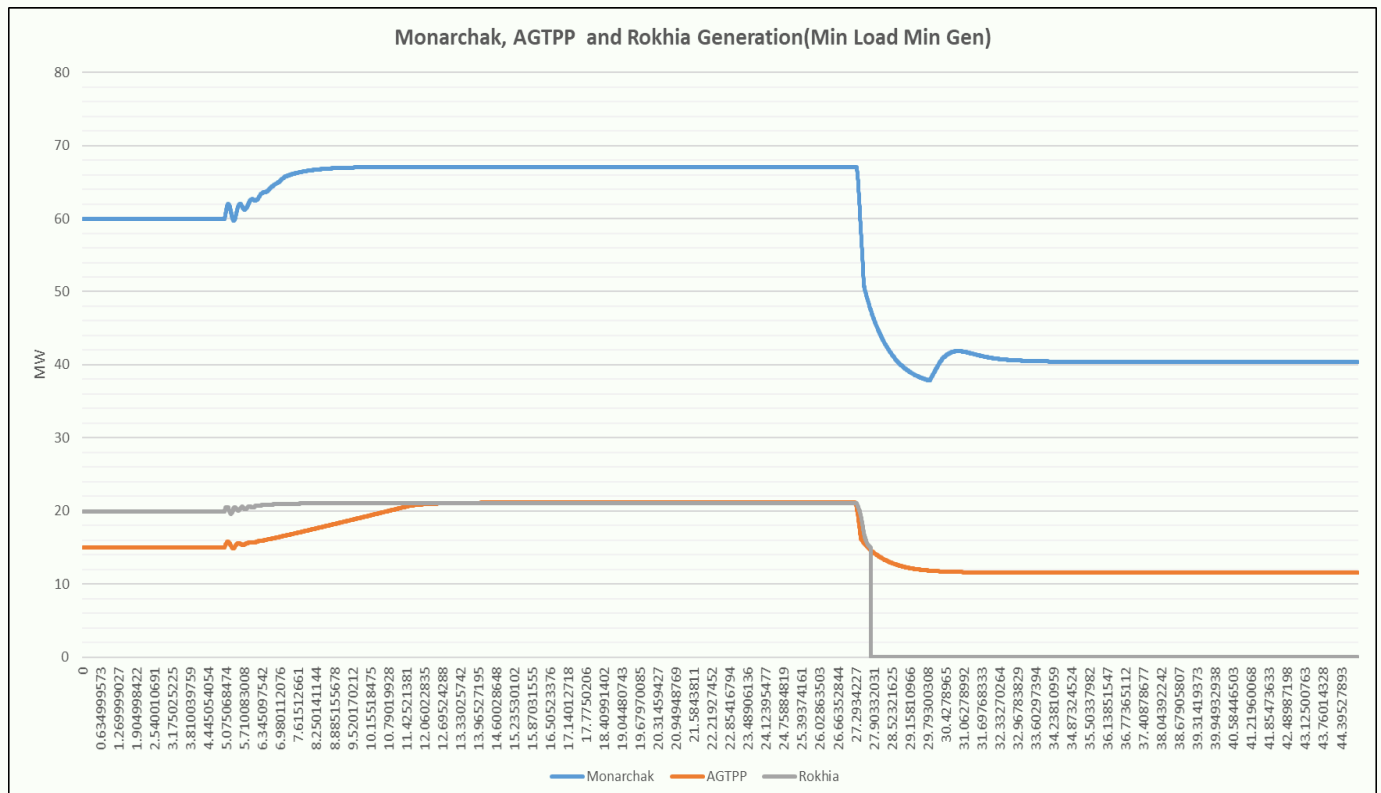
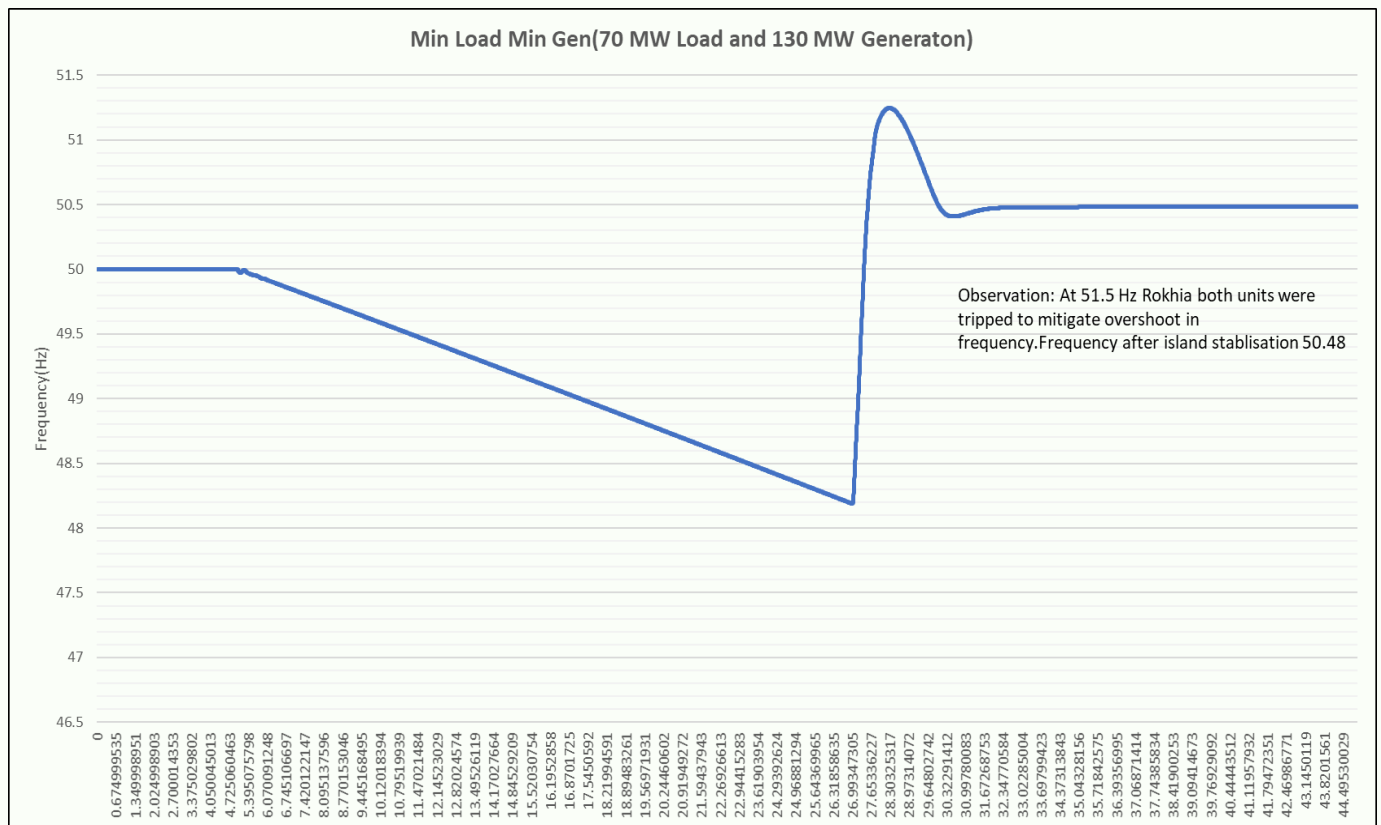
With above islanding logic following steps are followed:

Step-1. First a grid disturbance is created by tripping 25000 MW generation (i.e. the negative load). This triggers the island formation logic in which the equivalent generator or load buses are tripped, 300ms after the frequency drops to 48.2 Hz. And island is formed

Step-2. After formation of island the simulation is further carried out for 45 sec to check stabilization of the island frequency with all generator protection and island UFLS in action.



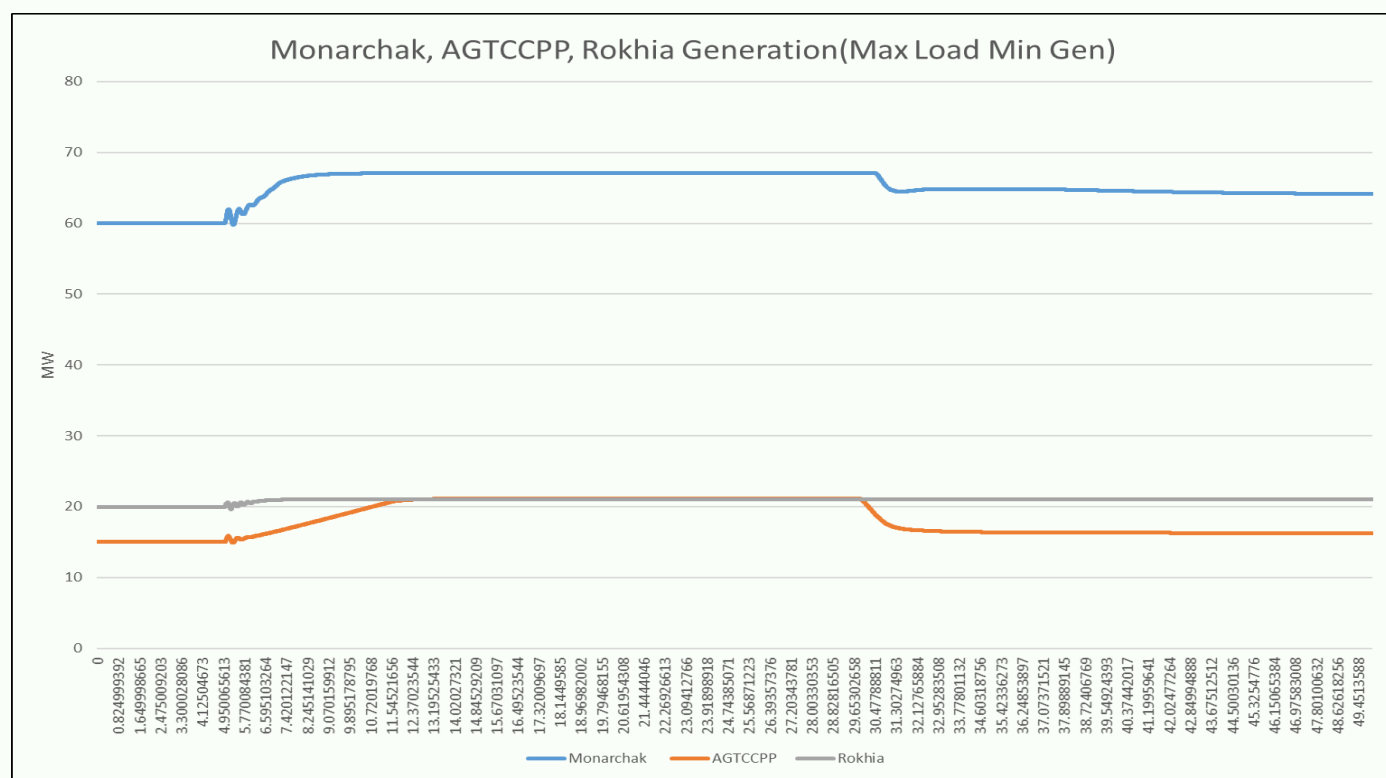
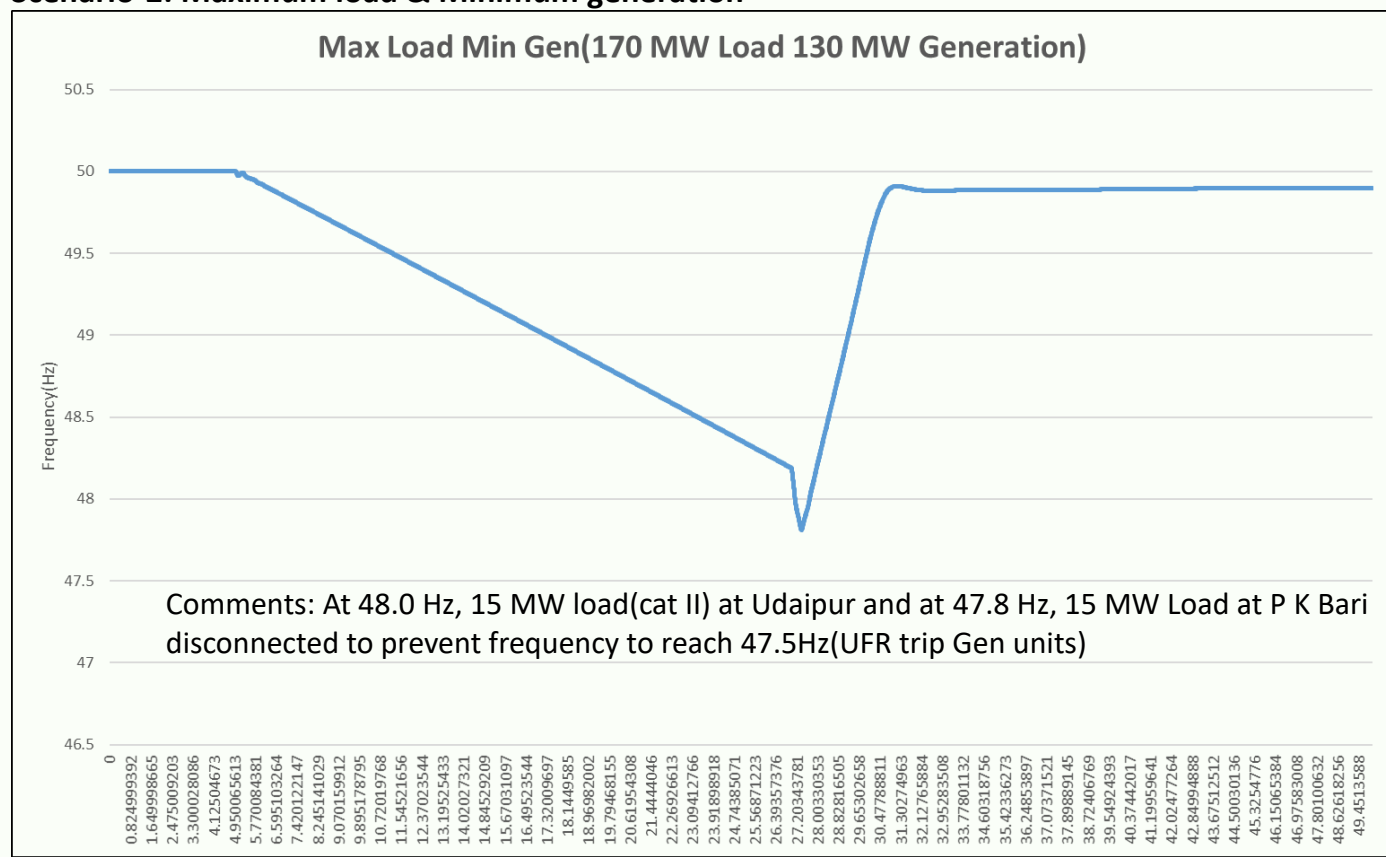
Scenario-1: Minimum load & Minimum Generation:



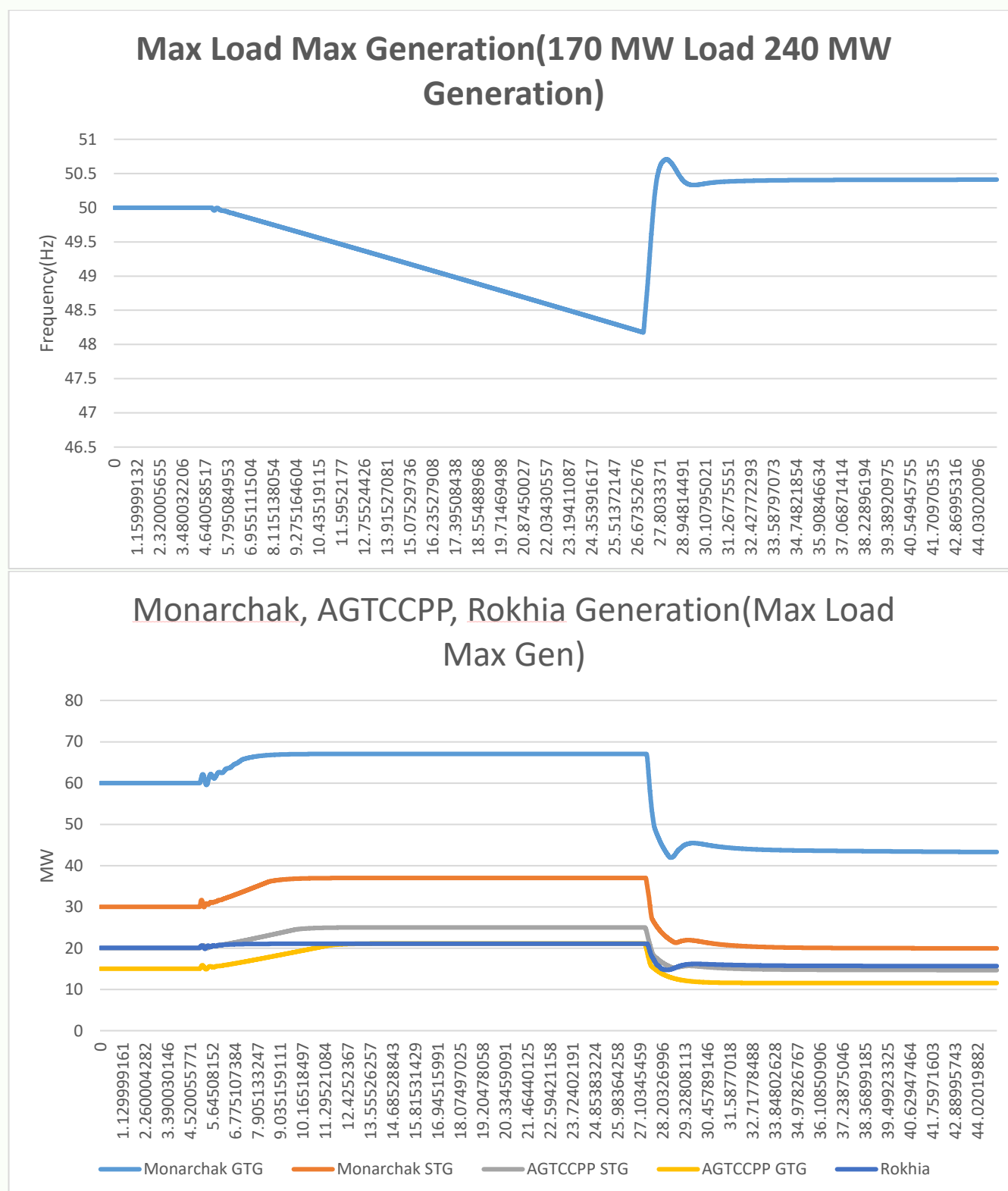
Discussion:

1. In Minimum Load & Minimum Generation, there is 60 MW surplus in generation.
2. After formation of Island, frequency starts increasing too rapid. To prevent overshoot in frequency, Rokhia units is required to trip at 51.5 Hz.

Scenario-2: Maximum load & Minimum generation



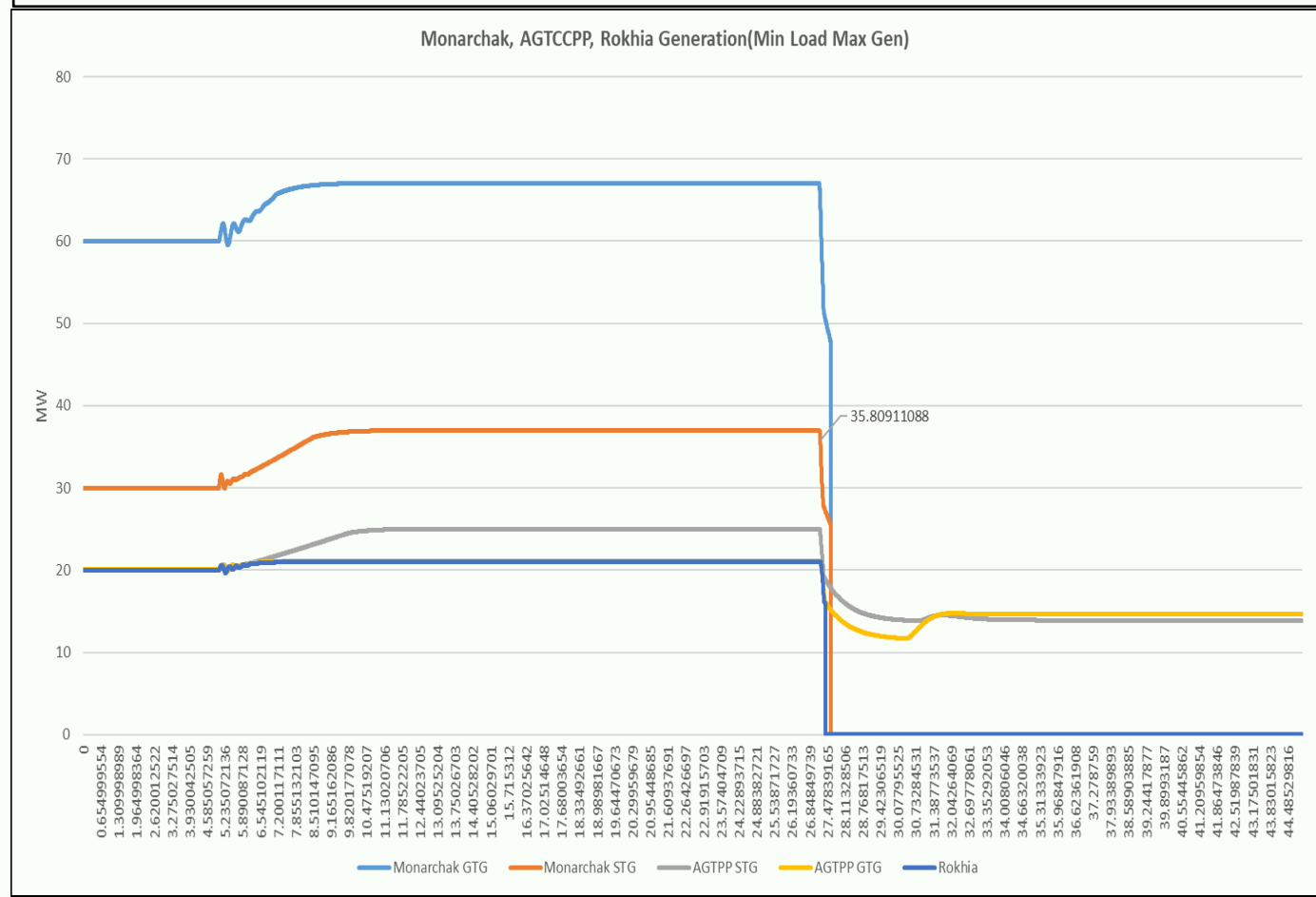
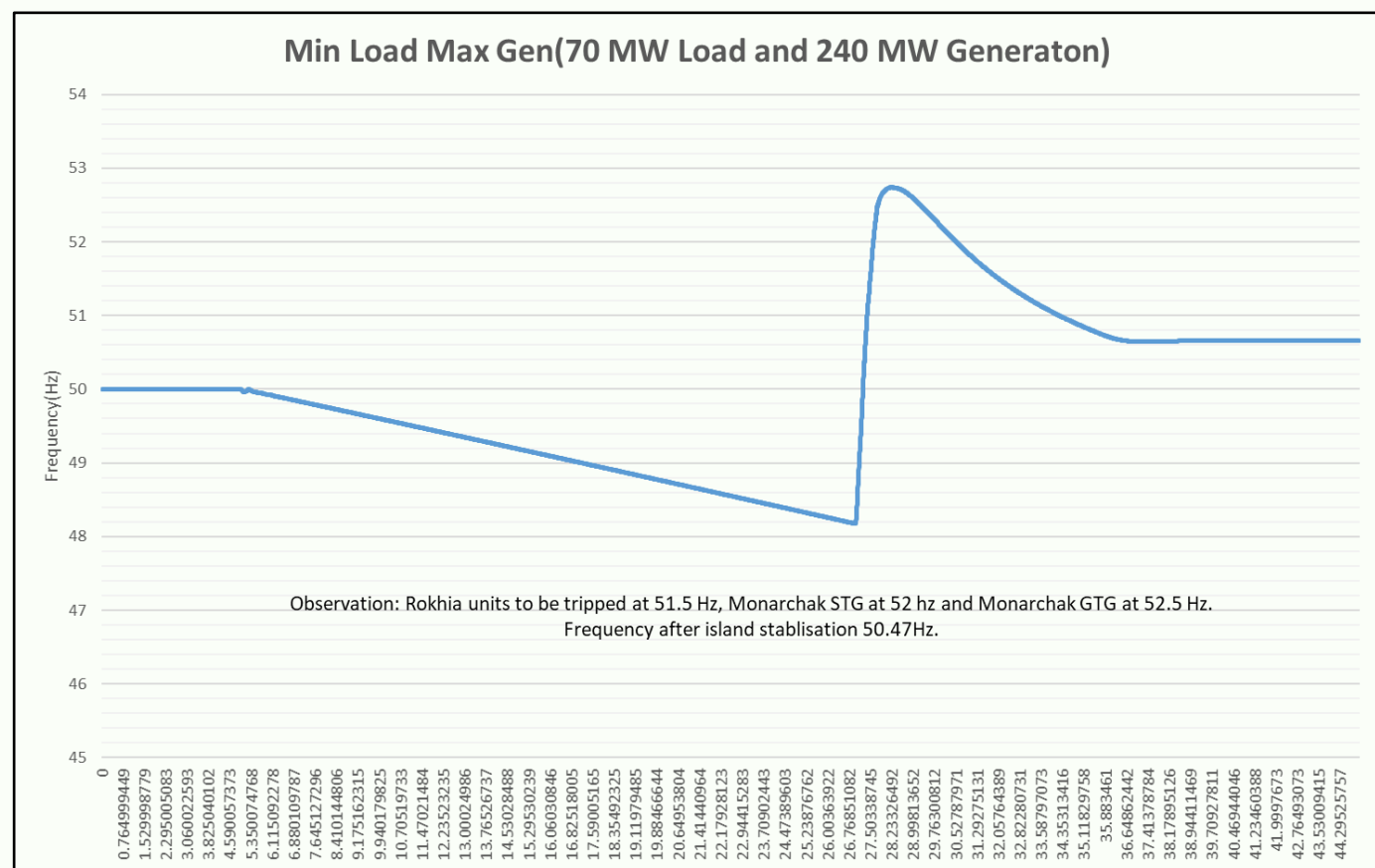
Scenario-3: Maximum load & Maximum generation



Discussion:

1. In max generation max load scenario there is 70 MW Surplus generation inside the Island
2. Post island formation, frequency starts increasing and generating units decrease their generation as per their governor action. Frequency reaches to 50.71 Hz and revert back towards 50 Hz. Island Frequency after stabilization in simulation is 50.41 Hz.

Scenario-4: Minimum Load & Maximum Generation:



Discussion:

1. In Minimum Load Maximum Generation, there is 170 MW surplus Generation.
2. After formation of island, due to surplus generation, frequency surges too rapidly. To prevent overshoot in frequency, Rokhia units are tripped at 51.5 Hz, Monarchak STG at 52 Hz and Monarchak GTG at 52.5 Hz.
3. After tripping of aforementioned units frequency reaches to 52.75 Hz and revert back towards 50 Hz.
4. Island Frequency after stabilization in simulation is 50.65 Hz.

Aizwal Island Study

1. Introduction

The increasing complexity and interdependence of regional power systems necessitate the implementation of resilient operational strategies to ensure grid reliability during contingencies. One such strategy is intentional islanding, which involves the deliberate separation of a portion of the power system to operate autonomously under specific fault conditions or widespread disturbances in the main grid. The primary objective is to preserve supply to critical loads and maintain service continuity in strategically important regions.

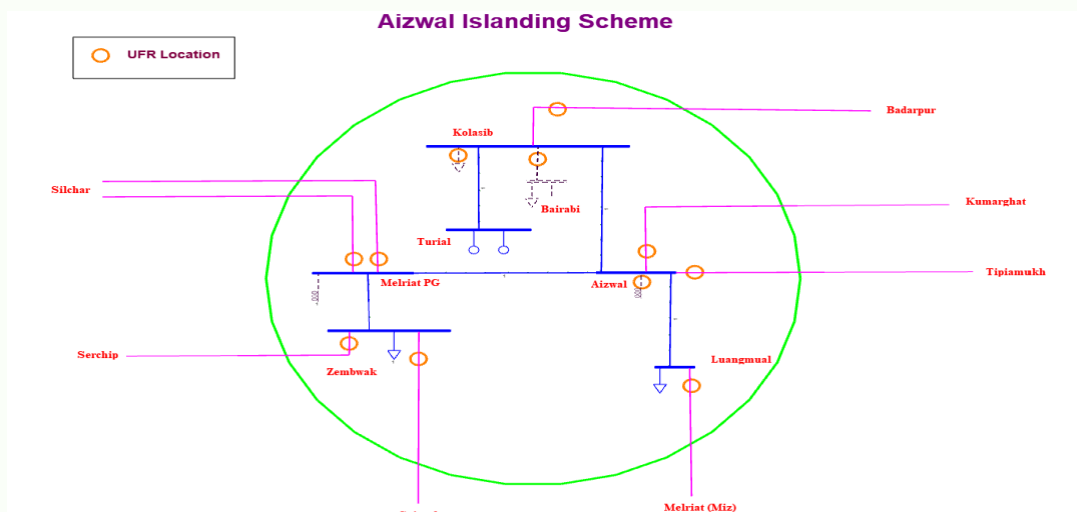
This study focuses on the formulation and dynamic validation of an islanding scheme for a designated pocket within the Mizoram electrical network, particularly around the 132 kV substations at **Luangmual and Zuangtui**, along with their connected 33 kV load centers. The region is characterized by its geographical isolation and limited local generation, making it a prime candidate for an islanding strategy supported by available embedded generation from **Turial (HEP)**.

The scope of this study includes:

- Assessment of the load-generation balance within the prospective island.
- Modelling of the transmission network and dynamic behavior using PSSE simulation tools.
- Analysis of post-islanding system response, particularly frequency dynamics.
- Design and validation of a Under-Frequency Load Shedding (UFLS) scheme to arrest frequency decline and ensure frequency stabilization.
- Evaluation of island stability margins under varying load scenarios ranging from light to peak demand conditions.

The islanding logic must be finalized by the respective generating plants in consultation with their OEM.

Proposed Island SLD is as follows:



Load profile of the nodes in the Island are as follows:

132 kV Luangmual					
33 kV Feeders	Off-Peak (MW)	Peak (MW)	UFR	Load type (Industry, domestic, hospital etc)	Priority list of 33 kV feeders
33 kV West 1 Feeder	1.7	12	YES	Domestic	1
33 kV West 2 Feeder	1.2	5	YES	Domestic	2
33 kV Maumual Feeder	1.1	7.2	YES	Domestic	3

132 kV Zuangtui					
33 kV Feeders	Off-Peak (MW)	Peak (MW)	UFR	Load type (Industry, domestic, hospital etc)	Priority list of 33 kV feeders
33kV Lower - II	2.71	6.24	YES	Domestic	1
33kV DC-II	1.44	4.89	NO	Domestic	2
33kV DC-I	1.95	5.70	NO	Domestic	3
33kV Durtlang	1.25	5.59	NO	Domestic	4
33kV Lower - I	2.30	6.50	YES	Domestic	5
33kV East - I	1.45	6.24	NO	Domestic	6
33kV East - II	1.62	4.51	NO	Domestic	7

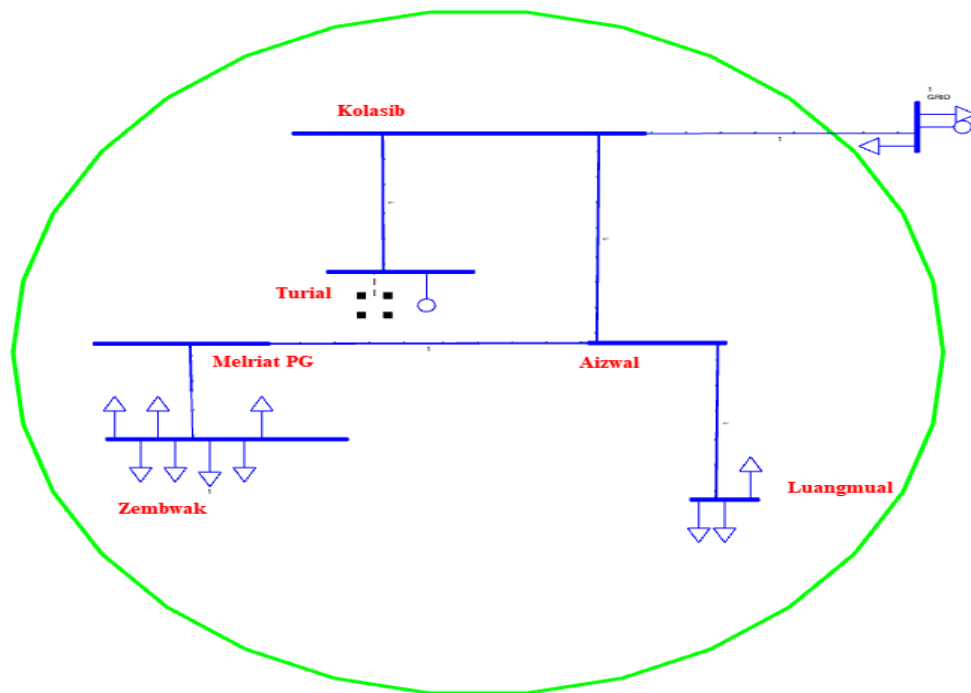
2. Modeling:

A. Network:

Network modelling data is taken from latest All India PSSE base case. Only the part of Mizoram Network which corresponds to the Island to be formed, is taken into consideration. Rest of the grid is modelled as an equivalent generator or load.

In one of the equivalent generator bus(Bus 1) two loads are added: 1) Load 1 is a negative load and used for creating the frequency disturbance during the dynamic simulation. 2) Load 2 is All India load.

Aizwal Islanding Scheme



B. Generator:

Turial unit is modelled as “GENSAL” (salient rotor synchronous machine) based on the OCC magnetization curve. The parameters of “GENSAL” are populated based on the data sheet shared by Mizoram SLDC:

Model CONS Model ICONS Model VARS		
	Con Value	Con Description
1	5.5000	T'do (> 0)
2	0.0500	T'qo (> 0)
3	0.1081	T'qo (> 0)
4	3.6500	Inertia H
5	0.0000	Speed Damping D
6	1.0200	Xd
7	0.6400	Xq
8	0.3300	X'd
9	0.2020	X"q = X"q
10	0.1400	X1
11	0.1000	S(1.0)
12	0.9000	S(1.2)

Figure 1: Turial generator parameters.

The equivalent generator representing the All-India grid is modelled by a simple classical cylindrical rotor “GENCLS” model and its Inertia value is taken as 6.

C. Exciter and PSS:

Excitation system of Tural Unit is represented by AC6C model of PSSE library. Due to unavailability of PSS data, it is taken as none.

Model CONS			Model ICONS	Model VARS
	Con Value	Con Description		
1	0.0200	TR (sec)		
2	120.0000	KA		
3	24.0000	TA (sec)		
4	1.6000	TK (sec)		
5	0.1200	TB (sec)		
6	0.6000	TC (sec)		
7	5.0000	VAMAX		
8	-5.0000	VAMIN		
9	5.0000	VRMAX		
10	-5.0000	VRMIN		
11	0.2000	TE(>0.)(sec)		
12	0.0000	VFELIM		
13	0.0000	KH		
14	100.0000	VHMAX		
15	1.0000	TH (sec)		
16	1.0000	TJ (sec)		
17	0.1400	KC		
18	0.4500	KD		
19	0.5090	KE		
20	4.0000	E1		
21	0.1000	SE(E1)		
22	5.2000	E2		
23	0.5000	SE(E2)		
24	999.0000	VFEMAX		

Figure 2: Tural exciter model AC6C

For the equivalent generator no separate exciter is modelled as our area of interest is only the frequency excursion in the grid side.

C. Governor model:

Governor model of Tural Unit is HYGOV based on the data provided. The parameters values are shown below:

Model CONS			Model ICONS	Model VARS
	Con Value	Con Description		
1	0.0400	R, Permanent Droop		
2	0.3000	r, Temporary Droop		
3	2.0000	Tr (> 0) Governor Time Constant		
4	0.0500	Tf (> 0) Filter Time Constant		
5	0.3000	Tg (> 0) Servo Time Constant		
6	0.2500	VELM, Gate Velocity Limit		
7	1.0000	GMAX, Maximum Gate Limit		
8	0.3000	GMIN, Minimum Gate Limit		
9	0.8000	TW (> 0) Water Time Constant		
10	1.2000	At, Turbine Gain		
11	0.0000	Dturb, Turbine Damping		
12	0.0800	qNL, No Load Flow		

D. Load modelling:

Loads are modelled as below:

Real Power: 100% Constant Current

Reactive Power: 100% Constant Admittance

Frequency dependency of the load is not modelled.

E. Relay Modelling:

UFR Load shedding models has been modelled after island formation

3. Design logic:

Following points are considered in designing the islanding logic:

- i. Frequency setting for last stage of the existing All-India UFLS scheme is 48.8 HZ; therefore island formation should happen below this frequency with sufficient margin.
- ii. Proposed UFR settings are as follows:

Sl. No	Existing	Operating Frequency(Time delay)	Utility Name
1	132 kV Kolasib – Badarpur at 132 kV Kolasib	48.2 Hz (150 msec)	P & ED, Mizoram
2	132 kV Kolasib – Bairabi at 132 kV Koasib	48.2 Hz (150 msec)	P & ED, Mizoram
3	Load feeder at 132 kV Kolasib	48.2 Hz (150 msec)	P & ED, Mizoram
4	132 kV Aizawl – Tipaimukh at 132 kV Aizawl	48.2 Hz (150 msec)	PGCIL
5	132 kV Aizawl – Kumarghat at 132 kV Aizawl	48.2 Hz (150 msec)	PGCIL
6	20 MVAR Reactor at 132 kV Aizawl	48.2 Hz (150 msec)	PGCIL
7	132 kV Luangmol – Melriat(MZ) at 132 kV Luangmol	48.2 Hz (150 msec)	P & ED, Mizoram
8	132 kV Serchip - Zembwak at Zembwak	48.2 Hz (150 msec)	P & ED, Mizoram
9	132 kV Zembwak - Saitual at Zembwak	48.2 Hz (150 msec)	P & ED, Mizoram
10	132 kV Silchar – Melriat(PG) 1 at 132 kV Melriat (PG)	48.2 Hz (150 msec)	PGCIL
11	132 kV Silchar – Melriat(PG) 2 at 132 kV Melriat (PG)	48.2 Hz (150 msec)	PGCIL
12	20 MVAR Reactor at 132 kV Melriat PG	48.2 Hz (150 msec)	PGCIL

ii. Inside the Island it is assumed that there is no UFLS relays as per the above scheme.

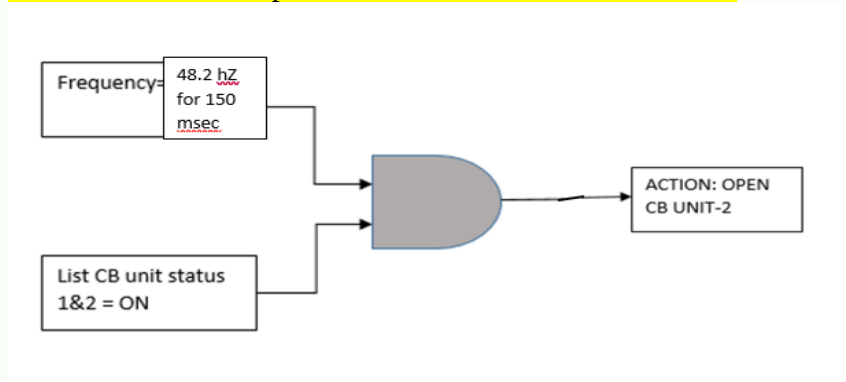
iii. However during few scenarios after the formation of the island, island may be generation deficit. To tackle such some UFLS scheme is designed for island. But this UFLS scheme starts at a lower frequency than the grid side UFLS scheme.

iv. Present frequency protection setting for Turial units are as follows:

Sl. No	Generating Station	Existing Frequency Setting (Over frequency) in Hz			Existing Frequency Setting (Under frequency) in Hz		Unit number
		Stage	OFR Setting	Time delay	UFR Setting	Time delay	
1	Turial HEP	I	52Hz (Trip) Alarm	5 Sec	48Hz (Alarm)	5 Sec	Unit-1
2	Turial HEP	II	55Hz (Trip)	2 Sec	47.5Hz (Trip)	2 Sec	
3	Turial HEP	I	52Hz (Trip) Alarm	5 Sec	48Hz (Alarm)	5 Sec	Unit-2
4	Turial HEP	II	55Hz (Trip)	2 Sec	47.5Hz (Trip)	2 Sec	

Based on the above inputs following islanding logic is proposed:

- i. Islanding should commence before pick up of any of the frequency protection stage of Turial Unit and hence island formation will start at 48.2 Hz, If both units are in service at this point one unit needs to be taken out.



- ii. Under frequency inside the island is proposed as follows:

Bus	Feeder	UFLS Setting	Time delay
Zuangtuai	33kV Lower - II	-	-
Zuangtuai	33kV DC-II	-	-
Zuangtuai	33kV DC-I	-	-
Zuangtuai	33kV Durtlang	47.5 Hz	Inst
Zuangtuai	33kV Lower - I	48 Hz	100 msec
Zuangtuai	33kV East - I	48.1 hZ	150 msec
Zuangtuai	33kV East - II	48.1 hZ	150 msec
Luangmual	33 kV West 1 Feeder	-	-

Luangmual	33 kV West 2 Feeder	48 hZ	100 msec
Luangmual	33 kV Maumual Feeder	48.1 hZ	150 msec

If any AUFLS scheme is implemented in any of these feeders (for $f > 48.8$ Hz), should shift them outside the island

4. Simulation:

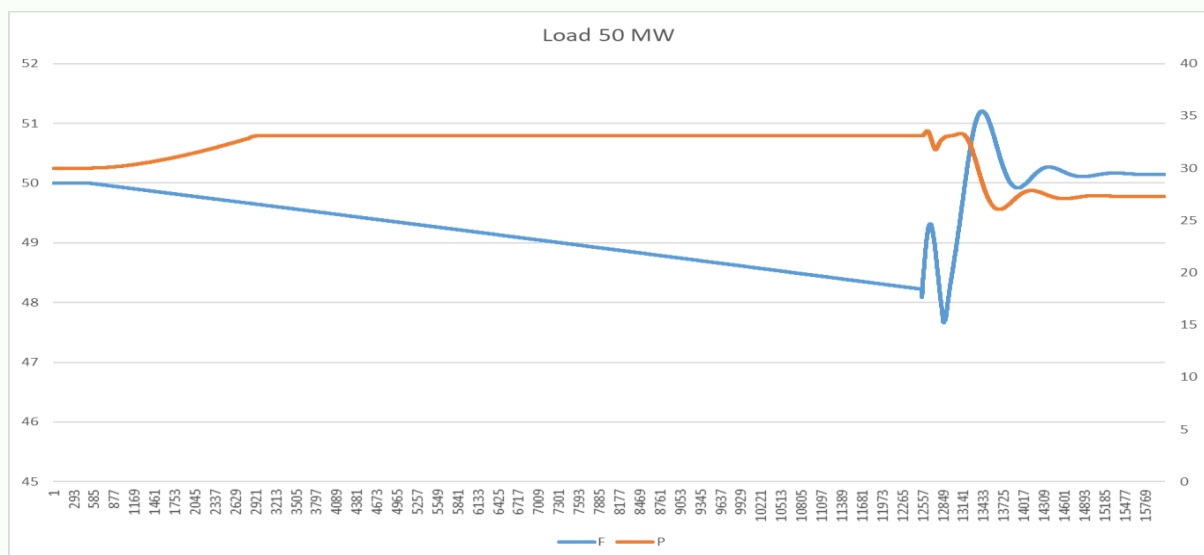
Different LGB scenario is studied in the simulation for checking the robustness of the proposed scheme. Details of different scenario are summarized as follows:

Load	Generation	Approximate load shedding by UFLS	Load served inside island	Island Frequency	ROCO F(Fall) Hz/Sec	Remarks
50	30	23	27	50.148	1.1	Island Stable
45	30	21	24	50.28	0.75	Island Stable
40	30	18	22	50.43	0.4	Island Stable
35	30	0	35	49.47		Island Stable
30	30	0	30	50.04		Island Stable
25	30	0	25	50.28		Island Stable
20	30	0	20	50.54		Island Stable
18	30	0	18	50.65		Island Stable
16	30	0	16	50.76		Machine is operating in forbidden zone, Manual intervention can be done in case of Load in the island is less than 18 MW

Islanding Performance Summary Report

Load Ranges: 50 MW to 16 MW

Load 50 MW:



1. Scenario Overview

The Island had a total load of 50 MW and 33 MW of available generation. Approximately 23 MW of load was shed through the UFLS system, stabilizing the island with a post-shedding load of 27 MW.

2. Frequency Behavior

- Steady-State Frequency: 50.148 Hz
- Max Frequency: 51.18 Hz
- Min Frequency: 47.75 Hz
- ROCOF: 1.1 Hz/s
- Time > 52 Hz: 0 sec
- Time < 47.5 Hz: 0 sec

3. UFLS Operation

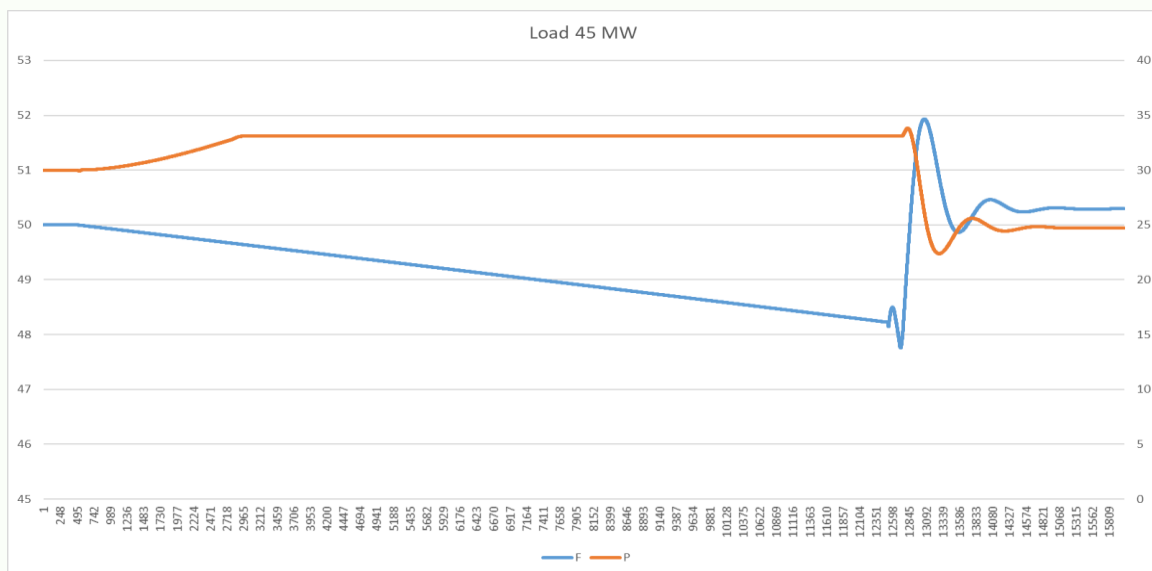
UFLS responded quickly (≈ 400 ms total response time) and disconnected the following feeders totaling ~ 23 MW:

Bus	Feeder	Setting	Load (MW)
Zuangtui	33kV Lower - I	48.0 Hz	5.09
Zuangtui	33kV East - I	48.1 Hz	4.88
Zuangtui	33kV East - II	48.1 Hz	3.53
Luangmual	33kV West - II	48.0 Hz	3.91
Luangmual	33kV Maumual	48.1 Hz	5.64

4. Stability Assessment

The island stabilized with 27 MW load and frequency of 50.148 Hz. UFLS effectively balanced demand and generation.

Load 45 MW:



1. Scenario Overview

An islanded load of 45 MW with 33 MW generation triggered UFLS, shedding 21 MW. Post-UFLS load was 24 MW.

2. Frequency Behavior

- Steady-State Frequency: 50.28 Hz
- Max: 51.9 Hz
- Min: 47.75 Hz
- ROCOF: 0.75 Hz/s
- Time > 52 Hz: 0 sec
- Time < 47.5 Hz: 0 sec

3. UFLS Operation

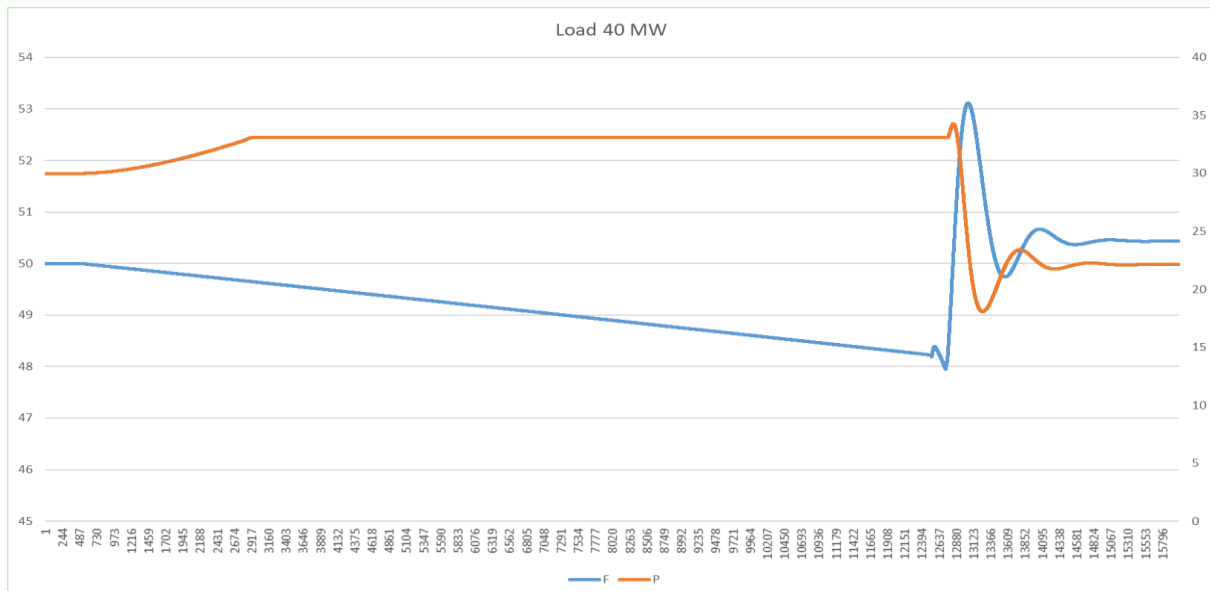
Approximately 21 MW of load was shed using the same response parameters:

Bus	Feeder	Setting	Load (MW)
Zuangtui	33kV Lower - I	48.0 Hz	4.58
Zuangtui	33kV East - I	48.1 Hz	4.40
Zuangtui	33kV East - II	48.1 Hz	3.18
Luangmual	33kV West 2	48.0 Hz	3.52
Luangmual	33kV Maumual	48.1 Hz	5.07

4. Stability Assessment

System settled at 50.28 Hz and remained stable with 24 MW post-islanding load.

Load 40 MW:



1. Scenario Overview

Upon islanding, 18 MW was shed, leaving 22 MW load to match generation.

2. Frequency Behavior

- Initial Frequency: 50.43 Hz
- Max: 53.11 Hz
- Min: 47.95 Hz
- ROCOF: 0.4 Hz/s
- Time > 52 Hz: 2.87 sec
- Time < 47.5 Hz: 0 sec

3. UFLS Operation

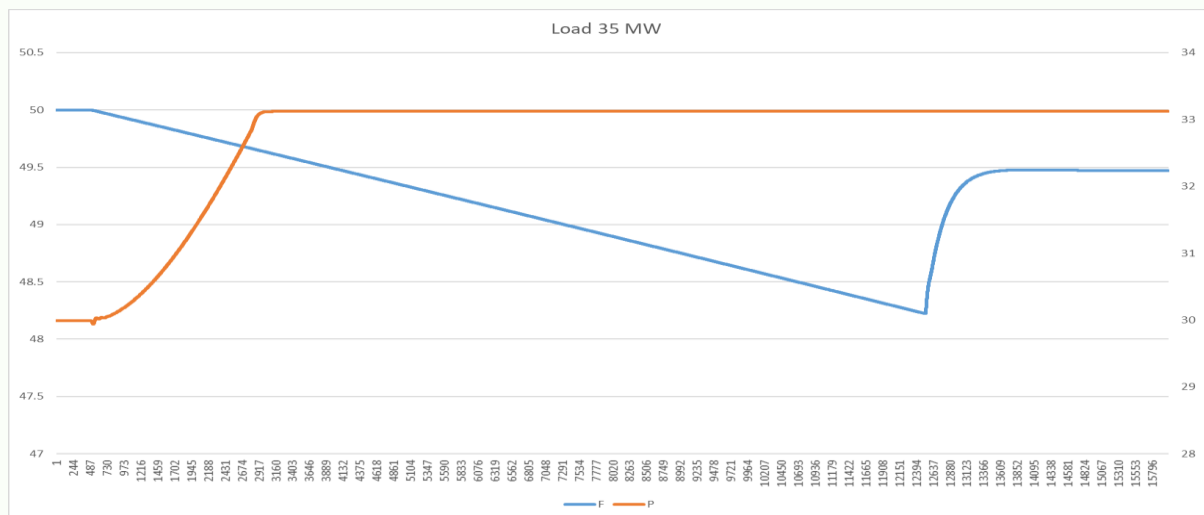
Load shed: ~22 MW

Bus	Feeder	Setting	Load (MW)
Zuangtui	33kV Lower - I	48.0 Hz	4.07
Zuangtui	33kV East - I	48.1 Hz	3.91
Zuangtui	33kV East - II	48.1 Hz	2.82
Luangmual	33kV West 2	48.0 Hz	3.13
Luangmual	33kV Maumual	48.1 Hz	4.51

4. Stability Assessment

System remained stable post-UFLS with no OFR trip (5-second delay); frequency settled at 50.43 Hz.

Load 35 MW:



1. Scenario Overview

Total load was 35 MW, fully supported by available generation. No UFLS actions were needed.

2. Frequency Behavior

- Initial Frequency: 49.47 Hz
- Max: 49.48 Hz
- Min: 48.2 Hz
- ROCOF: 0.15 Hz/s
- Time > 52 Hz: 0 sec
- Time < 47.5 Hz: 0 sec

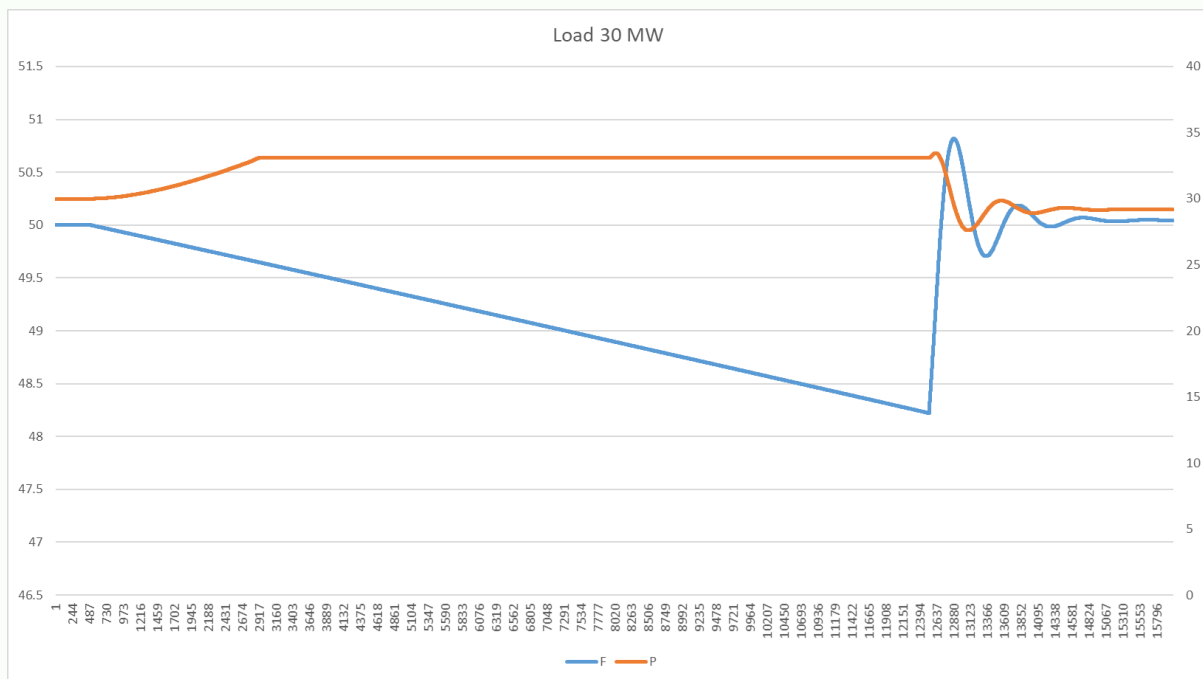
3. UFLS Operation

None triggered.

4. Stability Assessment

System remained stable at 49.47 Hz throughout the event.

Load 30 MW:



1. Scenario Overview

The 30 MW load was balanced by generation. No UFLS activation occurred.

2. Frequency Behavior

- Steady-State Frequency: 50.04 Hz
- Max: 50.81 Hz
- Min: 48.2 Hz
- ROCOF: Within normal range
- Time > 52 Hz / < 47.5 Hz: 0 sec

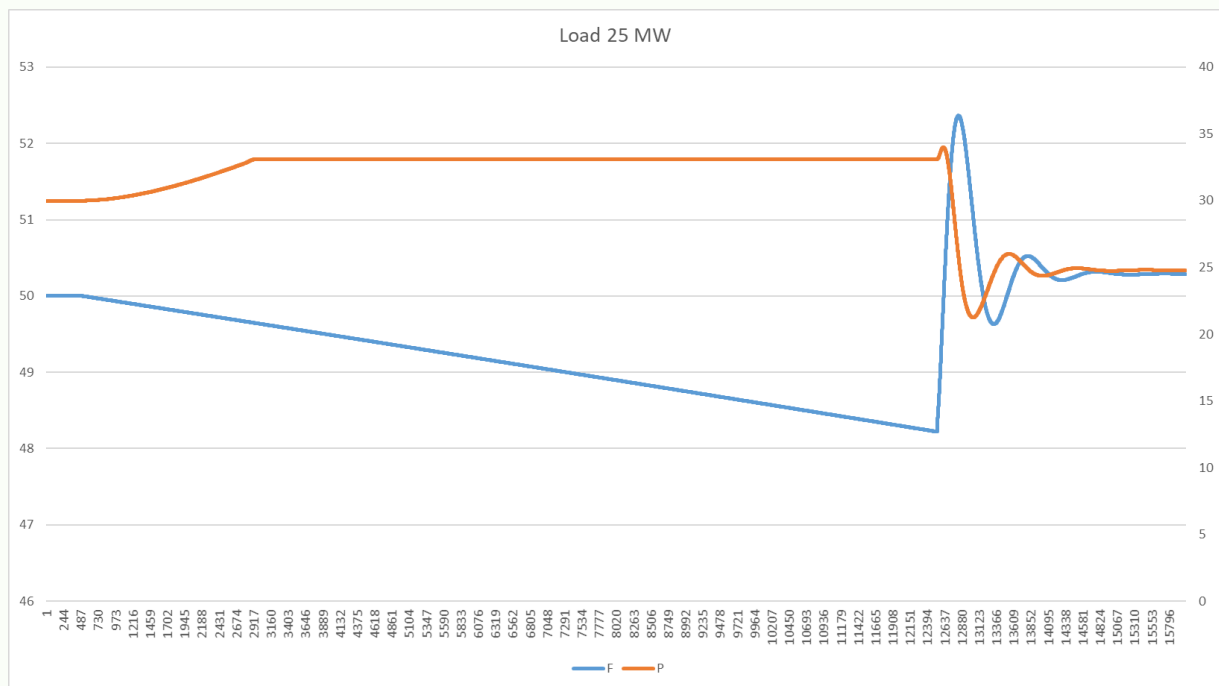
3. UFLS Operation

Not required.

4. Stability Assessment

System operated normally with sufficient generation.

Load 25 MW:



1. Scenario Overview

Islanding occurred with 25 MW load. No UFLS was activated, and the system handled frequency deviations well.

2. Frequency Behavior

- Steady-State Frequency: 50.46 Hz
- Max: 53.98 Hz (for 3.44 sec)
- Min: 48.2 Hz
- Time < 47.5 Hz: 0 sec

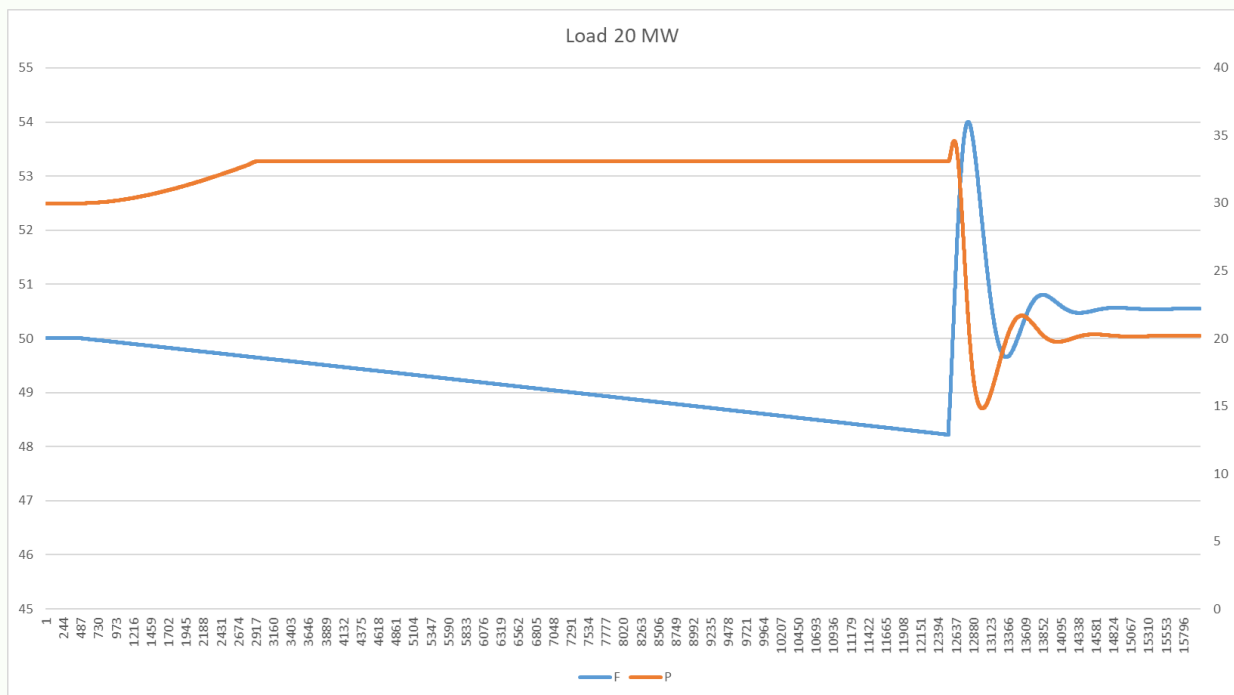
3. UFLS Operation

Not triggered.

4. Stability Assessment

Island remained stable without any UFLS or OFR trips.

Load 20 MW:



1. Scenario Overview

System isolated with 20 MW load. No instability observed.

2. Frequency Behavior

- Initial Frequency: 50.54 Hz
- Max: 54.00 Hz (for 3.51 sec)
- Min: 48.20 Hz
- Time < 47.5 Hz: 0 sec

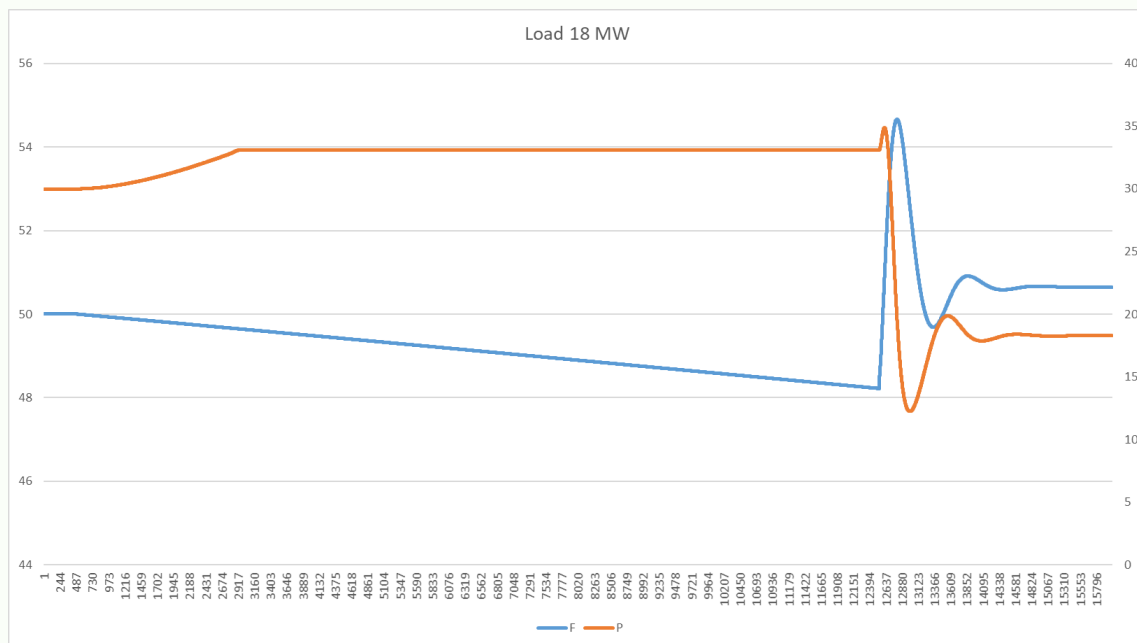
3. UFLS Operation

None required.

4. Stability Assessment

System remained stable despite generator output briefly dipping to 14.82 MW. OFR not triggered due to configured delay.

Load 18 MW:



1. Scenario Overview

With 18 MW load, system maintained stability, though generator output briefly dropped below safety margins.

2. Frequency Behavior

- Steady-State Frequency: 50.65 Hz
- Max: 54.66 Hz (for 4 sec)
- Min: 48.20 Hz
- Time < 47.5 Hz: 0 sec

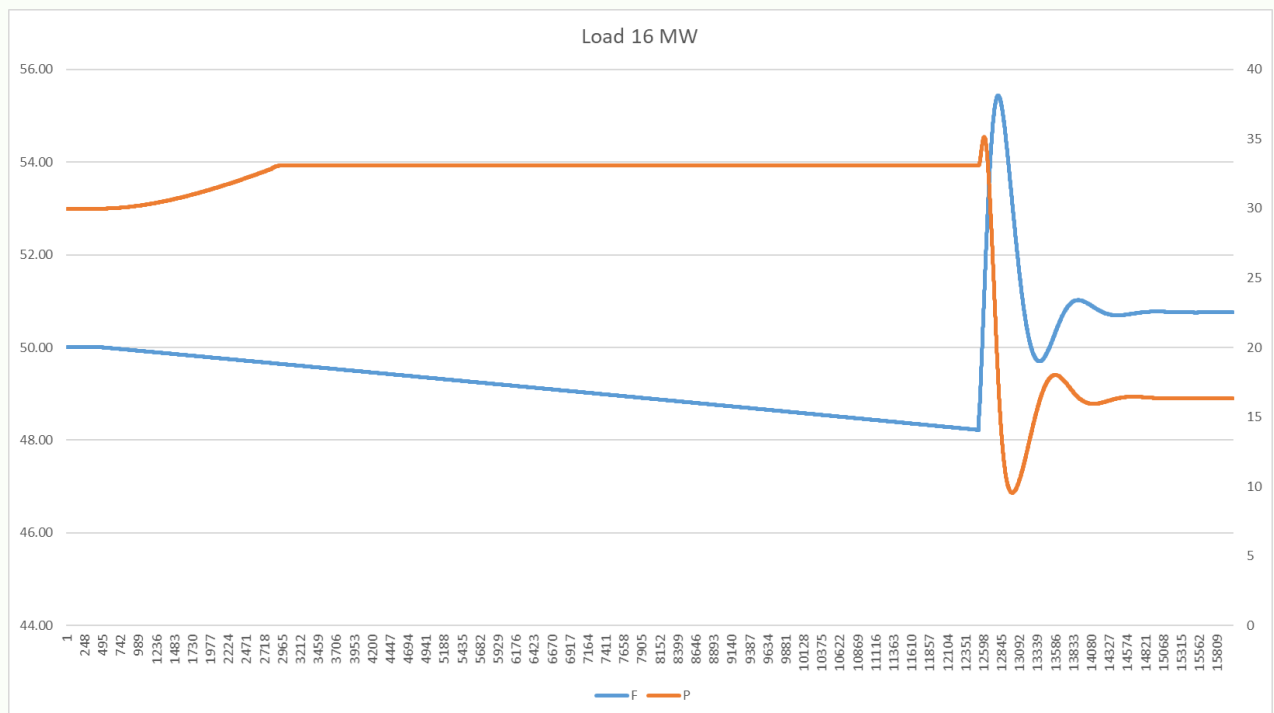
3. UFLS Operation

Not activated.

4. Stability Assessment

Island was stable. Generator dipped to 12.12 MW for ~8 seconds but recovered. OFR was not triggered.

Load 16 MW



1. Scenario Overview

The island operated at 16 MW load. No UFLS was triggered, but the system entered a high-risk “forbidden zone” due to over-frequency.

2. Frequency Behavior

- Initial Frequency: 50.76 Hz
- Max: 55.14 Hz (for 1.3 sec)
- Min: Not below 47.5 Hz
- Time > 52 Hz: 4.34 sec
- Time < 47.5 Hz: 0 sec

3. UFLS Operation

No UFLS action.

4. Stability Assessment

System was stable, but frequency excursion into the forbidden zone suggests Manual intervention is advisable when load drops below 18 MW.

NB:

For load scenarios exceeding 50 MW, numerical solution convergence was not achievable within the simulation environment. However, based on logical assessment, a brief reliability margin is anticipated for system loads up to approximately 55 MW, owing to the instantaneous Under-Frequency Load Shedding (UFLS) action configured at the 33kV Durtlang feeder at Zuangtui. This feeder, carrying approximately 5.2 MW, is expected to trip at 47.4 Hz with a response time of 300 milliseconds. While this event was not explicitly simulated, the assumption is logically grounded in frequency dynamics and system protection behavior, indicating that such an action would briefly stabilize frequency and prevent system collapse under marginally higher load conditions.

Summary:

The Mizoram Islanding Study evaluates the feasibility and stability of an intentional islanding scheme under varying load-generation scenarios. The study focuses on islanding a portion of the Mizoram grid comprising the 132 kV Luangmual and Zuangtui substations and their associated 33 kV feeders. Simulation models were developed using PSSE with appropriate representation of network components, including a detailed model of the Turial HEP generator and excitation systems. The study incorporated an instantaneous Under-Frequency Load Shedding (UFLS) scheme to arrest frequency decline post-islanding.

The island was found to be stable for load conditions ranging from 16 MW to 50 MW, with UFLS effectively mitigating under-frequency risks in higher load scenarios. At a peak load of 50 MW, approximately 23 MW was shed, stabilizing the frequency at 50.148 Hz with a maximum frequency of 51.18 Hz and a minimum dip to 47.75 Hz. ROCOF remained within acceptable margins. For lower load cases (≤ 35 MW), no UFLS action was required, and frequency excursions remained within operational thresholds.

For scenarios exceeding 50 MW, numerical convergence could not be achieved. Nevertheless, logical analysis indicates that the instantaneous tripping of the 5.2 MW Durtlang feeder at 47.4 Hz may provide a brief margin of stability, potentially supporting loads up to 55 MW. Although this action was not simulated, it is a credible assumption grounded in system dynamics and relay behavior. The study underscores the importance of a simple, yet robust islanding logic, complemented by generator-side frequency protection coordination and time-sensitive UFLS deployment.