



Industrial Visit to Grid India (NERLDC)

Report

Industrial visit on 3rd
November, 2023 in NERLDC,
Meghalaya

Under the Supervision of

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Industrial Visit Report: North Eastern Regional Load Despatch Centre (NERLDC), Meghalaya

ABSTRACT

This report documents the visit to the North Eastern Regional Load Despatch Centre (NERLDC) on November 3rd with a group of 24 B.Tech students from electrical and electronics engineering of the National Institute of Technology, Meghalaya. The visit aimed to deepen our understanding of power grid management, real-time operations, and the critical role played by NERLDC in ensuring uninterrupted electricity supply.

INTRODUCTION

North Eastern Regional Load Despatch Centre (NERLDC), Grid Controller of India Limited (GRID-INDIA) is located at POWERGRID Complex, Dongteih, Lower Nongrah, Lapalang, Shillong - 793006, Meghalaya, India.

Grid Controller of India Limited, formerly known as Power System Operation Corporation Limited (POSOCO) is a critical organization responsible for managing the power grid in the northeastern region of India. Our visit aimed to gain insights into NERLDC's operations, infrastructure, and its pivotal role in ensuring reliable electricity supply.



Image: PowerGrid Entrance

Objective of the visit

- Understand the infrastructure and technologies involved in power system operation & control.
- Learn about the role of Power Grid in ensuring grid stability and reliability.

NERLDC Overview

- NERLDC serves as the nerve center for load dispatch and grid management in the northeastern region of India.
- We explored its cutting-edge infrastructure, including control rooms equipped with advanced technology.



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KEY OBSERVATIONS

Load Dispatch and Grid Stability

- Witnessing load dispatch activities firsthand, we learned how NERLDC balances power supply and demand across states.
- The center's role in maintaining grid stability during contingencies impressed us.



Image: Control room of NERLDC

Infrastructure and Technology

- NERLDC's facility boasts state-of-the-art technology, including SCADA systems and synchronized phasor measurements.
- We explored the control room, where operators monitor grid parameters, respond to contingencies, and optimize grid performance.

Interactions with Experts

- Engaging in discussions with NERLDC engineers provided insights into load forecasting, congestion management, and grid stability.
- We learned about the challenges specific to the northeastern grid, such as geographical constraints and seasonal variations.

Emergency Preparedness and Contingency Plans

- NERLDC demonstrated its robust emergency response protocols, ensuring grid resilience during natural disasters or equipment failures.

- We observed how they reroute power during contingencies to minimize disruptions such as during brownouts.

Grid Operations and Real-Time Management

- NERLDC oversees real-time grid operations, ensuring efficient power flow, stability, and reliability.
- We witnessed load dispatch activities, where NERLDC balances electricity supply and demand across states.
- Ancillary services like frequency control, reactive power support, and reserve management are meticulously handled.



Image: Slideshow on the conference room

Observations from Student:

- Familiar with the technologies equipped in the load dispatch center.
- Under how load monitoring and forecasting are performed.
- Got ideas about power flow between different busses and transmission network capacities.
- A SCADA software is shown to us where an employee is seen to be monitoring the grid by seeing the data that is being collected from the substation. We have also seen the network voltage profile and frequency profile and change in the range of the frequency in the giant screen where we can see all the buses in the NERs Region and how the transmission network is connected.

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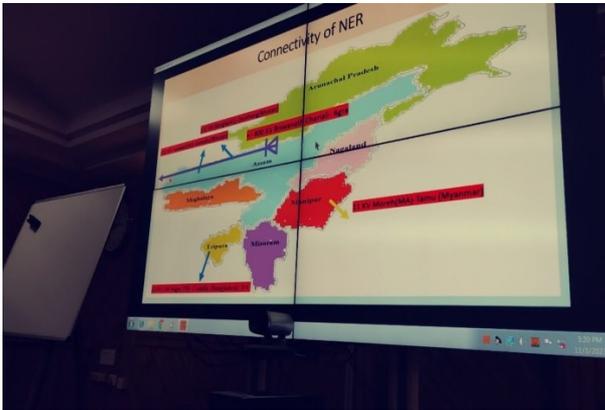


Image: Connectivity Of North-East Regional Grid in the Slide.



Image: Conference room of Grid India.

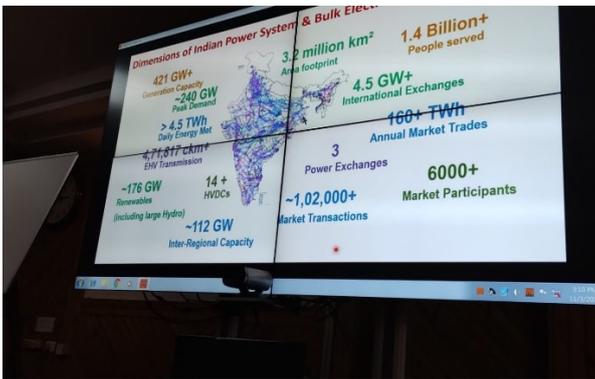
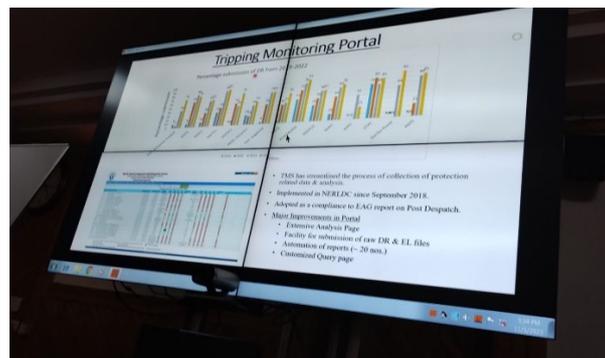


Image: Students of electrical engineering along with the employees of GRID INDIA.



CONCLUSION

The industrial visit to the Power Grid Corporation proved to be an enriching experience, offering valuable insights into the intricate workings of the transmission system operator. The corporation's commitment to adopting advanced technologies and ensuring grid reliability was evident throughout the visit.

