CIGRE–India Study Committee C2 Webinar – Special Report

Webinar on: Grid-Forming Inverters and Possible Applications for the Indian Power System
Organised by: CIGRE India – Study Committee C2
In collaboration with: GRID-INDIA and Forum of Load Dispatchers (FOLD)
Date & Time: 10th January 2026 (Saturday)| [11:00 hrs – 13:00 hrs (IST)]
Platform: Virtual MS Teams
Session Chair: Sh. S.R. Narasimhan, Ex CMD, GRID-INDIA, Distinguished Member CIGRE
No. of participants attended: More than 200 (187 virtual participants together with teams joining from common place)

1. Background

CIGRE India Study Committee C2 organised this webinar to deliberate on *Grid Forming Technology* with a focus on its relevance to Indian power system operation and control in the context of increasing renewable energy integration.

2. Inaugural & Opening Remarks

Sh. Vivek Pandey, study committee C2 India chair welcomed participants and outlined the agenda. He informed that a discussion paper on the subject had been published and invited comments from the stakeholders.

Shri R.K. Porwal, Vice President, CIGRE-India & Director (SO), GRID-INDIA, emphasised the need to address emerging operational challenges with growing renewable penetration while ensuring grid security and reliability. He underscored the importance of collective learning and collaboration among various stakeholders and encouraged continued organisation of such timely technical webinars.

Shri K.V.S. Baba, Co-Chair, Technical Council, CIGRE India, observed that renewable integration has introduced issues related to system inertia, reactive power support, and black-start capability. He noted that grid-forming technologies are expected to play an important role in addressing these challenges

3. Technical Session

Shri Vivek Pandey introduced technical session chair **Shri S.R. Narasimhan**, Ex CMD, GRID-INDIA, highlighting his experience & contributions in the domain.

Sh. Narasimhan noted that inverter-based resources are progressively replacing conventional generation, which traditionally provided essential services such as inertia, system damping, and black-start capability. He highlighted that several power systems, particularly small and islanded grids, are already operating with very high VRE penetration levels, necessitating provision of grid-essential services through advanced inverter technologies. He introduced the speakers of the webinar:

• **Shri Priyam Jain**, Chief Manager, NLDC, GRID-INDIA
• **Shri Gaurab Dash**, Deputy Manager, NLDC, GRID-INDIA

Key points covered:

- Renewable energy integration challenges in the Indian power system
- Fundamentals of grid-forming inverter technology
- Comparison between grid-forming and grid-following control philosophies
- Insights from RMS and EMT-based simulation studies
- International experience in deployment of grid-forming inverters
- Grid code and standardisation aspects relevant to India

4. Q&A and Key Takeaways

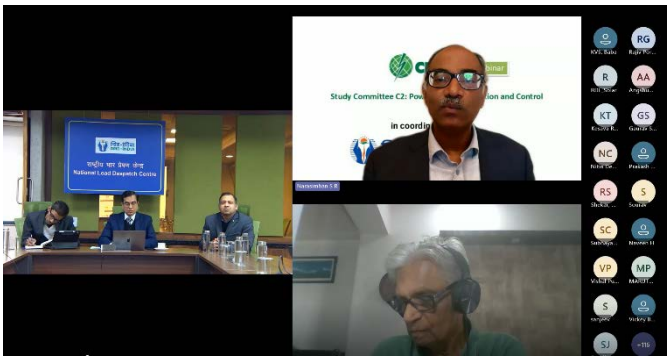
The session included an interactive Q&A with experts from industry and academia moderated by the Session Chair. Key takeaways include:

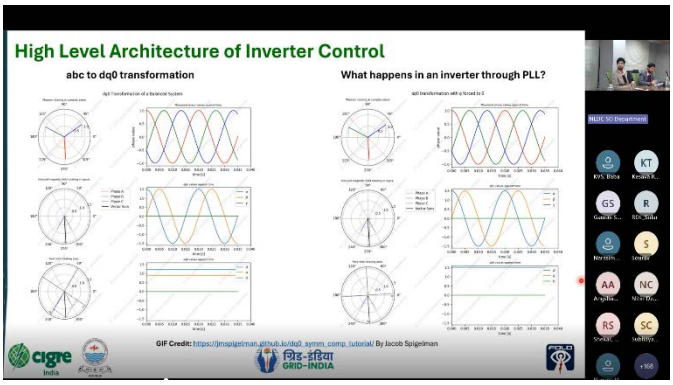
- Grid-forming inverter technology is expected to play a significant role in future low-inertia power systems.
- Detailed system studies and careful evaluation is important before large-scale deployment in the Indian grid. GFM technology may be considered for new BESS projects.
- Concurrent updates to standards and regulatory frameworks will be essential to enable adoption and subsequent incorporation in bid documents.

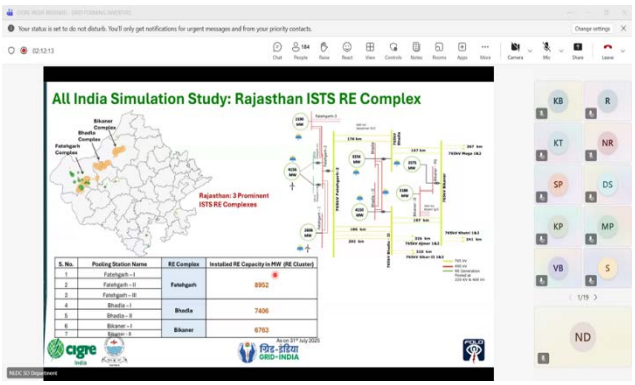
5. Conclusion

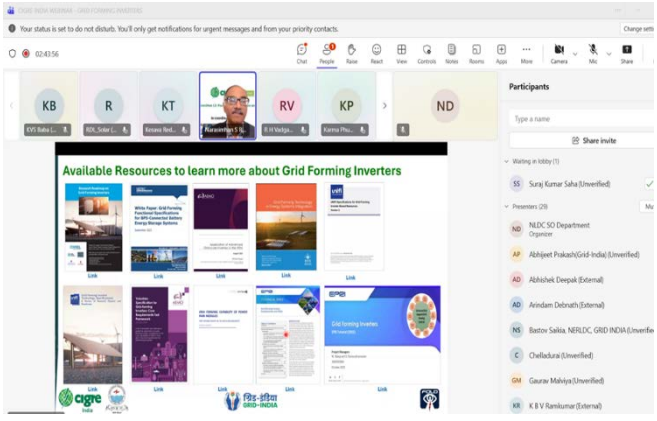
The Session Chair summarised the key discussions and emphasised the need for continued technical engagement under CIGRE India SC C2. Shri Vivek Pandey highlighted the Terms of Reference of the joint IEEE–CIGRE Task Force on the reassessment of power system stability definitions and classification of converter-dominated grids, and invited suggestions from all stakeholders.

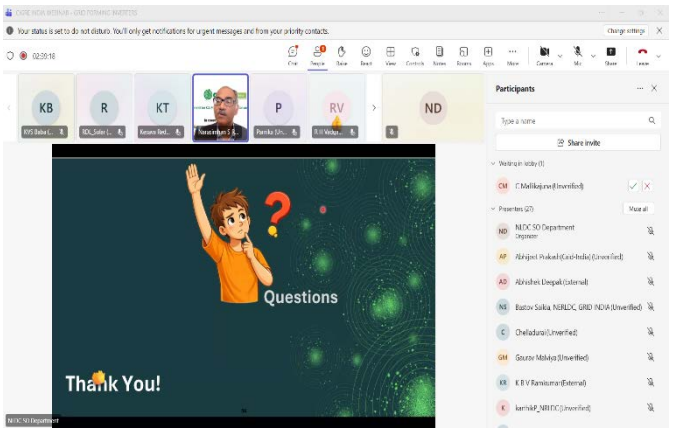
Photo Snips











Special Reporter: [Prabhankar Porwal]
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