

DISCUSSION MEETING SUMMARY

Study Committee C2

Power System Operation and Control

Thursday 27 August, 2026

Chair: Dr Renuka G Chatterjee

Secretary: Trevor D. Hines

Special Reporters PS1: Jens Jacobs, Adel Mendonca Souza de Oliveira,

Special Reporters PS2: Vivek Pandey, Ronan Jamieson

Special Reporters PS3: Giorgio Giannuzzi, Oscar Lennerhag (SC C4)

1. INTRODUCTION

During SC C2's Group Discussion Meeting, participants heard contributions spanning more than 17 different countries, underscoring the global engagement in addressing today's power-system challenges. The discussions brought forward insights on evolving operator skill needs, increasing digitalization, flexibility in system operation, and the growing complexity of managing dynamic grid behavior. Together, these perspectives reflected how experts worldwide are adapting tools, procedures, and operational strategies to maintain secure, resilient, and efficient power-system performance during the energy transition.

2. RUNNING OF THE MEETING

The Discussion Group Meeting was chaired by the Study Committee Chairperson, Dr Renuka G Chatterjee, with Special Reporters Jens Jacobs, Adel Mendonca Souza de Oliveira, Vivek Pandey, Ronan Jamieson, Giorgio Giannuzzi, and Oscar Lennerhag (SC C4) and Trevor D. Hines as SC C2 Secretary.

The Chair opened the session by welcoming the audience and presenting them the status of the work of Study Committee C2.

The audience were informed of the format of the General Discussion Meetings that is based on questions from the Special Reporter on the bases of papers for the 2026 Session. Each of the three sessions had an opening report by Special Reporter followed by the prepared contributions presented in 4 minute slots.

Spontaneous contributions from the audience were possible at the end of the sessions. The Special reporter had the closing report at the end of each session.

The Chair closed the session by thanking the audience for their contributions and presenting the Best Paper awards for each Preferential Subject.

3. CONTRIBUTIONS TO PREFERENTIAL SUBJECT 1

PS1 – Advanced decision support, training and skills for control room personnel

Sub-topics

- New requirements for personnel skills, procedures and tools
- Digitalization and use of artificial intelligence for enhancing decision support
- Operational procedures, tools and processes for operating grids during extreme events

Eight questions were proposed in the Special Report to which there were 16 prepared contributions.

During the discussions, contributors emphasized how operator roles are evolving with increasing system complexity, highlighting the need for AI-enabled decision support, improved training, and coordinated operational tools. Spontaneous contributions expanded the dialogue by raising questions about model types, system integrity protection schemes, wide-area monitoring, benchmarking operator performance, and the challenges of retaining skilled engineers. These exchanges reflected a strong interest in practical, experience-based insights to strengthen real-time operational resilience

The best paper award for PS1 was presented to authors of paper ID 12301 “Risk-based Probabilistic System Security Assessment: Swissgrid’s Approach from Operational Planning to Real-time System Operation.”

4. CONTRIBUTIONS TO PREFERENTIAL SUBJECT 2

PS2 – Maintaining operational reliability through flexibility

Sub-topics

- Methods to identify and quantify system services in response to the energy transition
- Operational experience with flexibility services, including demand side response, topology changes, sector coupling and results from pilots

Seven questions were asked in the Special Report to which there were 14 prepared contributions.

During the discussion, participants examined key operational challenges related to system flexibility, including declining inertia, dynamic voltage instability, and limited visibility of distributed resources. Spontaneous contributions added further technical perspectives, addressing real-time health indicators, the role of battery storage, and the use of advanced analytical methods such as machine-learning-based assessments. Overall, the dialogue underscored the need for integrated, adaptive approaches to maintain reliability and resilience during the energy transition.

The best paper award for PS2 was presented to authors of paper ID 10455 “Dynamic Islanding Readiness Schemes (DIRS): Real-time grid resilience through automated load balancing.”

5. CONTRIBUTIONS TO PREFERENTIAL SUBJECT 3 (joint PS with SC C4)

PS3 – Power system dynamics and control in operations

Sub-topics

- Operational experience with managing power system stability, including oscillations
- Monitoring and control of power system dynamics in the control room, including wide area systems
- Impact of adverse interactions between power electronics interfaced devices on system operations

Ten questions were asked in the Special Report to which there were 28 prepared contributions.

During the discussion, participants examined the evolving challenges of power system dynamics and control, emphasizing issues such as variable inertia, oscillation monitoring, voltage stability, and the integration of inverter-based resources. Spontaneous contributions provided additional perspectives on restoration strategies, measurement technologies, and the practical application of advanced simulation and control

methods. The dialogue highlighted the increasing complexity of real-time operations and the need for robust, adaptive approaches to ensure system reliability and resilience.

The best paper award for PS3 was presented to authors of paper ID 11948 “Maximum Loadability Index Adapted for Dynamic Scenarios to Anticipate the Voltage Collapse Events.”

6. CONCLUSION

The wide range of contributions heard during SC C2’s Group Discussion Meeting demonstrated strong global engagement and a shared commitment to advancing reliable and efficient system operations. Participants brought forward diverse insights on operator readiness, flexibility, and dynamic grid behavior, highlighting both common challenges and innovative approaches emerging worldwide. Together, these perspectives reinforce the value of international collaboration in navigating the evolving demands of modern power systems

The session had a total of 58 contributions addressing the 3 preferential subjects, 16 for PS1, 14 for PS2, and 18 for PS3. Contributions were received from over 17 different countries.

Although the agenda was full and focused on the prepared contributions, there was some opportunity for fruitful discussion.

The Chair closed the session by thanking the audience for their contributions, thanking the Special Reporters and SC C2 secretary for their excellent work. The Best Paper awards for each Preferential Subject were also presented to authors of the Full Papers.