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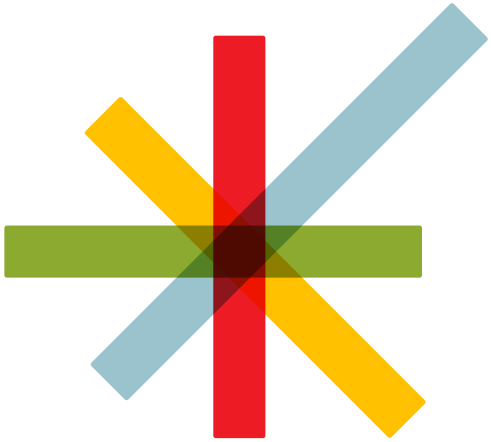

Global System Operations Summit

Ensuring Grid Stability for Tomorrow.

September 17th – 18th, 2026

Design Offices Berlin Humboldthafen, Alexanderufer 3-7, 10117 Berlin

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Global System Operations Summit

Conference Tracks @ Design Offices Humboldthafen

Thursday, 17th September 2026

Track hosted by ESIG · GLOBAL PST CONSORTIUM

	Unlocking Grid Stability through Digital Transformation & Innovative Solutions → Room GRID	Grid Stability: System Security, Market Design and Affordability → Room WIND	Topology Optimizer Symposium – hosted by the German TSOs → Room OFFSHORE	Ensuring Stability in Real-Time Operations under High IBR Penetration → Room SOLAR
9.00 a.m.	**Opening Plenary: Ensuring Grid Stability for Tomorrow** Keynote: Dirk Biermann (50Hertz), Ana Cigarán Romero (50Hertz), Olivier Arrivé (RTE, ENTSO-E), Christian Andreas (50Hertz), Guilherme Mota (ONS), Fred Huang (ERCOT), Karin Wadsack (GPST)			
10.00 a.m.	**Coffee Break / Networking**			
10.20 a.m.	**The Power of Many: Open Source for Critical Infrastructure** Sven Fritzsche (Elia Group), Sebastian Grüner (E.ON), Michael Lindner (TU Berlin), Anika Lange-Drese (dena)	**Beyond the Blackout Reports: Turning Blackout Learnings into Action** Ana Cigarán Romero (50Hertz), Olivier Arrivé (RTE, ENTSO-E), Eammon Lannoye (EPRI), Patricio Valenzuela (Coordinador Eléctrico Nacional de Chile), Aaron Markham & Udayan Nair (New York Independent System Operator)	**Poster Session**	**Observing the System Correctly: Situational Awareness** Karin Wadsack (GPST), Fred Huang (ERCOT), Janio Los (ONS), Ian Dytham (NESO)
12.00 p.m.	**Lunch Break / Networking**			
1.00 p.m.	**Trustworthy AI for Power System Operations** Alex Stefanov (TU Delft), Svein Harald Olsen (Statnett), Herman Carstens & Kris Laermans (Elia Transmission Belgium), Georg Mensah (50Hertz)	**STATCOMs Beyond Reactive Power: Grid-Forming Control, System Strength and Field Experience** Franz Linke (50Hertz), Khaled Almunem (50Hertz), Sebastian Liemann (Amprion), Andrew Owens (Hitachi Energy)	**Poster Session**	**Control Room of the Future: Dynamic Event Detection** Duncan Burt (Reactive Technologies), Balarko Chaudhuri & Gabriel Covarrubias Maureira (Imperial College London), Jin Tan (NLR), Marc Dokus (Tennet), Diana Strauss-Mincu (Fraunhofer IEE)
2.30 p.m.	**Coffee Break / Networking**			
2.50 p.m.	**Making Waves Offshore: Popcorn Sessions on the New Frontiers of HVDC** Ignacio Iriarte Ramirez & Megan Herbert (50Hertz) Karolina Zieba (Carbon Trust)	**Future Capabilities for System Operation to Integrate 100 % RES – Current Challenges, Best Practice and Future System Design** Jürgen Herreiner, Elisa Papadis & Jannis Brodmann (50Hertz)	**Hands-on / Discussion Round**	**Control Room of the Future: Decision Support** Lina Ramirez (GPST), Anne-Katrin Marten (50Hertz), Patricio Valenzuela (CEN), Guilherme Mota (ONS), Fred Huang (ERCOT)
4.15 p.m.	**Coffee Break / Networking**			
4.30 p.m.	**Open, Done Right: What It Takes to Turn Open Code into Trusted Infrastructure** Alex Thornton & Stephan Gross (LF Energy)	**Operating the Grid under Extreme Weather Conditions** Aaron Markham & Udayan Nair (New York Independent System Operator), Richárd Balog (Mavir), Ana Cigarán Romero (50Hertz / ENTSO-E)	**Hands-on / Discussion Round**	
5.45 p.m.	**Day 1 Wrap-up – Cross-Conference Tracks Connections**			
6.00 p.m.	**Dinner @ Design Offices Humboldthafen** – hosted by Global PST (GLOBAL PST CONSORTIUM)			

Satellite Events @ NQT

8.45 a.m. – 6.00 p.m. **Hackathon EMC² (Electricity Market Coupling Compass)** – Grid × Markets Fusion Lab
4.00 p.m. – 5.30 p.m. **Research Challenge 2.0 – Kick-Off** – Research in Action: From Science Desk to Control Center

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Global System Operations Summit

Conference Tracks @ Design Offices Humboldthafen

Friday, 18th September 2026

Track hosted by ESIG Energy Systems Integration Group · GLOBAL PST CONSORTIUM

	Unlocking Grid Stability through Digital Transformation & Innovative Solutions → Room GRID	**Grid Stability: System Security, Market Design and Affordability** → Room WIND	**Ensuring Stability in Real-Time Operations under High IBR Penetration** → Room SOLAR
9.00 a.m.		**Opening Day 2 & Coffee** including results hackathon Keynote: Sylvia Borcheding, Mirko Pracht & Anne-Katrin Marten (50Hertz)	
9.30 a.m.	**Women Powering the Grid. Overcoming the Gender AI Gap.** Sylvia Borcherding (50Hertz), Carolin Böke (SAP), Sirid Böhm (DE&I Advocate), Christian Humborg (Allianz Foundation)	**Battery Storages – Unlocking Economical Grid Stability** Benjamin Braun (Fluence Energy), Robert Ahrens (Mitnetz Strom)	**Measurement and Metrics: Redefining System Strength for the Modern Grid (Led by ESIG) (SCR, Voltage Stiffness, Impedance Scanning and Field Pilots)** Balarko Chaudhuri & Ambuj Gupta (Imperial College London), Andrew Siler (Telos Energy), Beibei Li (MISO)
11.00 a.m.		**Coffee Break / Networking**	
11.20 a.m.	**MCCS Voltcontrol: Practical Insights into the Joint Journey on Development, Implementation and Operational Integration** Dominique Wassermann & Veronika Rammert (50Hertz)	**Workshop Smart Grid KPIs (part of the Viewpoint Study Grid Stability)** Anna-Lena Hock & Matthis Brinkhaus (50Hertz/Elia Group) Parallel Session → Room OFFSHORE **Probably Safe? Rethinking Security Assessment for the future Grid** Cornelius Heck & Mario Kendziorski (50Hertz), Niklas Erle (c.con), Johannes Kruse (Amprion)	**Grid Forming Applications (co-convened GPST GFM Council and ESIG GFM Task Force: Requirements, Testing, Operations and Field Deployment Lessons)** Julia Matevosyan (ESIG), Sebastian Höhn (Tennet), German Kuhn (Siemens), Liang Lu (NESO), Duncan Hughes (Zenobē)
12.30 p.m.		**Lunch Break / Networking**	
1.30 p.m.	**“Monitoring the stability” – Monitoring and Measurement Solutions using Innovative Technologies for Grid Operators and Power Producers. Interesting Examples from Different Parts of the World.** Ignacio Iriarte Ramirez & Ralf Heisig (50Hertz), Gerald Laurence (Aurienergy), Eduardo Soto (Phinet Chile)	**Workshop The Stability Ecosystem: Data, Monitoring & Coordination (part of the Viewpoint Study Grid Stability)** Anna-Lena Hock & Matthis Brinkhaus (50Hertz/Elia Group)	**System Operator RoundTable: Deep Dive on Sub-Synchronous Oscillations** Speakers: System operators from across all conference tracks
3.00 p.m.		**Closing Session**	

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Unlocking Grid Stability through Digital Transformation & Innovative Solutions

10.20 a.m. – 12.00 p.m.

The Power of Many: Open Source for Critical Infrastructure

Speakers:
Sven Fritzsche (Elia Group)
Sebastian Grüner (E.ON)
Michael Lindner (TU Berlin)
Anika Lange-Drese (DENA)

Overall Session Audience Value:
Gain practical insights into successfully adopting, developing, and contributing to open source projects to maximize innovation and shared value in the energy sector.

Impulses & Speeches:
— Intro into Open Source @ Elia Group (*Sven Fritzsche)*
— A strategic View on Open Source from E.ON (*Sebastian Grüner)*
— PyPSA – an open-source Power Modelling Tool (*Michael Lindner)*
— The Relevancy of Open Source *(Anika Lange-Drese)*

This session provides an introduction to the fundamentals of open source and explores how organizations can unlock its full potential. It covers the strategic adoption of energy-related open source tools in large enterprises and offers insights into the development and maintenance of an open source project from a maintainer's perspective. Using PyPSA-DE as an example, the session demonstrates how community collaboration and the open exchange of ideas create value for all stakeholders.

1.00 p.m. – 2.30 p.m.

Trustworthy AI for Power System Operations

Speakers:
Alex Stefanov (TU Delft)
Svein Harald Olsen (Statnett)
Herman Carstens (Elia Transmission Belgium)
Kris Laermans (Elia Transmission Belgium)
Georg Mensah (50Hertz)

Overall Session Audience Value:
Gain practical insights into how trustworthy and explainable AI is being applied across modern power system operations, from cybersecurity and wide-area monitoring to congestion management and grid analytics. Learn how AI, knowledge graphs, and optimization techniques can improve situational awareness, decision support, and operational efficiency while maintaining transparency, reliability, and trust.

Impulses & Speeches:
— Cyber Security of Control Room of the Future (CRoF) using Artificial Intelligence (*Alex Stefanov)*
— Beyond Monitoring: Explainable Power Stability WAMP through Knowledge Graphs and LLM (*Svein Harald Olsen)*
— Explainable Congestion Management (*Herman Carstens & Kris Laermans)*
— AI, Solvers, and the Future of Grid Analytics *(Georg Mensah)*

Artificial Intelligence is rapidly becoming a key enabler for the future of power system operations. This session showcases practical applications of trustworthy and explainable AI in cybersecurity, wide-area monitoring, congestion management, and grid analytics, demonstrating how advanced data-driven techniques can enhance operational awareness, transparency, and decision-making while preserving reliability and operator trust.

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Unlocking Grid Stability through Digital Transformation & Innovative Solutions

2.50 p.m. – 4.15 p.m.

Making Waves Offshore: Popcorn Sessions on the New Frontiers of HVDC

Speakers:
Chair: Ignacio Iriarte Ramìrez (50Hertz)
Megan Herbert (50Hertz)
Karolina Zieba (Carbon Trust)

Overall Session Audience Value:
This session provides a forward-looking perspective on the technological, regulatory, and operational challenges shaping the future offshore HVDC landscape. Participants will gain practical insights into hybrid interconnectors, offshore DC hubs, grid-forming capabilities, system restoration, and resilience measures needed to scale integrated offshore energy systems. The session combines TSO experience with cutting-edge industry R&D initiatives to explore how offshore networks can support a secure, reliable, and decarbonised power system.

Offshore energy systems are evolving rapidly from isolated connections towards integrated HVDC networks and offshore grids. This session explores the technological innovations, market frameworks, and operational capabilities required to unlock this transition, drawing on insights from 50Hertz and the Carbon Trust's leading offshore innovation projects.

4.30 p.m. – 5.45 p.m.

Open, Done Right: What It Takes to Turn Open Code into Trusted Infrastructure

Speakers:
Alex Thornton (LF Energy)
Stephan Gross (LF Energy)

Overall Session Audience Value:
Learn how strong governance, security, and collaborative ecosystems transform open-source software into trusted, long-term infrastructure for the energy sector.

This session explores what it takes to build and sustain trusted open-source projects for critical energy infrastructure. It highlights the importance of governance, security, legal frameworks, and community collaboration, and demonstrates how LF Energy supports organizations in creating and maintaining reliable, long-term open-source ecosystems.

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Grid Stability: System Security, Market Design and Affordability

10.20 a.m. – 12.00 p.m.

Beyond the Blackout Reports: Turning Blackout Learnings into Action

Speakers:
Ana Cigarán Romero (50Hertz, ENTSO-E) Olivier Arrivé, (RTE, ENTSO-E), Eammon Lannoye (EPRI), Patricio Valenzuela (Coordinador Eléctrico Nacional de Chile), Aaron Markham (Operations, New York Independent System Operator), Udayan Nair (New York Independent System Operator)

Overall Session Audience Value:
Participants learn from blackout retrospectives and discuss how ENTSO-E recommendations can be implemented with TSOs and potentially DSOs.

Following the successful blackout session held at the 2025 summit, this session provides a brief recap after the publication of the final reports of the 2025 incidents and the concluding key learning areas. It focusses on how European TSOs are translating these learnings into implementation actions and monitoring processes. The session concludes with interactive discussions on challenges and future solutions in the field of voltage control, system defence, restoration, and operational coordination.

1.00 p.m. – 2.30 p.m.

STATCOMs Beyond Reactive Power: Grid-Forming Control, System Strength and Field Experience

Speakers:
Chair: Franz Linke (50Hertz)
Khaled Almunem (50Hertz)
Sebastian Liemann (Amprion)
Andrew Owens (Hitachi Energy)

Overall Session Audience Value:
Participants will gain practical insights into how STATCOMs and related grid stability assets can support system strength, voltage stability and operational readiness in low-inertia power systems. The session focuses on concise field experience, lessons learned and open exchange between TSOs, manufacturers and the audience.

Impulses & Speeches:
— Towards Advanced STATCOM Control: A 50Hertz Perspective (Khaled Almunem)
— Operational experiences of STATCOMs and synchronous condensers under grid restoration conditions (Sebastian Liemann)
— Innovating STATCOM for Grid Stability Services (Andrew Owens)

This session explores how STATCOMs are evolving beyond classical reactive power support towards advanced control, system strength contribution and operational resilience. Short impulse presentations will share TSO and manufacturer perspectives, with emphasis on lessons learned from field experience, testing and practical integration rather than detailed product presentations.

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Grid Stability: System Security, Market Design and Affordability

2.50 p.m. – 4.15 p.m.

Future Capabilities for System Operation to Integrate 100 % RES – Current Challenges, Best Practice and Future System Design

Speakers:
Jürgen Herreiner (50Hertz)
Elisa Papadis (50Hertz)
Jannis Brodmann (50Hertz)

Overall Session Audience Value:
The Session is designed as an interactive exchange between system operators and industry experts. Participants will be invited to challenge existing assumptions, share operational experiences, identify capability gaps, and jointly brainstorm future measures that will enable secure, reliable and economically efficient operation of a power system based on up to 100% renewable energy sources.

The future challenge is no longer scarcity alone, but also abundance. Periods of excess renewable generation are creating new operational challenges for TSOs, from congestion, voltage, frequency stability to flexibility and adequacy concerns. This session will present emerging European recommendations and invite participants to exchange experiences and jointly develop ideas and control mechanisms for the next generation of system operation capabilities.

4.30 p.m. – 5.45 p.m.

Extreme Weather Conditions: Operating the Grid during heat and cold waves

Speakers:
Aaron Markham & Udayan Nair (New York Independent System Operator), Richárd Balog (Mavir), Ana Cigarán Romero (50Hertz / ENTSO-E)

Overall Session Audience Value:
Participants gain practical insight into how system operators on both sides of the Atlantic prepared for, and operated through, and learned from extreme heat and extreme cold. What held, what did not, and which measures and tools made the difference. The session translates operational experience into transferable lessons under conditions that increasingly fall outside historic planning assumptions.

Extreme heat and extreme cold now test power systems in ways that historic design and planning assumptions did not anticipate — from record demand peaks and derated transmission capacity to reduced cooling water availability and constrained thermal generation. This session brings together first-hand operational experience from North America and Europe, including NYISO's consecutive heat and cold events and the impact of drought and low Danube water levels on Central European system operation. Speakers discuss the technical and operational challenges, and the lessons that shape preparedness for the next event.

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Thursday, 17th September 2026

Topology Optimizer Symposium

Poster-Sessions*

10.20 a.m. – 2.30 p.m.

Optimization Learning for Grid Topology: Opportunities for Operator Support
Frank Häger and Lennart Lahrs (Gurobi)

Graph Neural Networks for Grid Control (GNN4GC): Towards AI-Driven Topology Optimization
Malte Lehna & Mohamed Hassouna (Fraunhofer IEE), Clara Holzhüter (Uni Kassel), Christian Merz (50Hertz), Wiktor Gegelman & Jonas Krauß (TenneT)

Low-rank corrections to a shared reference Jacobian for GPU-parallel AC N-1 contingency analysis
Marc Hunkemöller, Olaf Schmidt (FZ-Jülich)

Scaling Topology Optimization without compromising AC accuracy
Noémie Verstraete, Pierre Artoisenet, Giancarlo Marzano (N-SIDE)

NewGrid Router: NewGrid's "Google Maps for the Grid" Topology Optimization Package
Pablo Ruiz and Sophie Leamon (NewGrid)

Topology Optimization for Real-Time Operations at Amprion
Sebastian Stein & Julian Lichtinghagen (Amprion)

The Dutch node of AI.Effect
Paul Bannmuller (TU Delft)

ToOp - Industrializing Open-Source Topology Optimization
Nico Westerbeck (MCCS)

Constraints for congestion-based topology optimization
Nico Westerbeck (MCCS)

DC Plus - Solving similar AC load flows
Benjamin Petrick (MCCS)

Solving islanding outages using LODF / MODF
Benjamin Petrick (MCCS)

TopRAO: Open-source collaboration for remedial actions optimizer
Valentin Mouradian, Leonard Hilfrich, Nico Westerbeck, Christian Merz, Benjamin Petrick(MCCS)

Co-Optimization of linear and non-linear PSTs together with topology
Sascha Petznick (MCCS)

Learning to Switch: Multi-Agent Deep Reinforcement Learning
Andrea Ewerszumrode, Marco Gehrmann, Philipp Reuber, Martin Schmitz (FGH)

Topology Optimization for German Day-Ahead Congestion Management
Andrea Ewerszumrode, Marco Gehrmann (FGH)

Secure Optimal Transmission Switching with De-energization
Benoît Jeanson (Cresym)

Network Topology Optimisation (NTO) at NESO
Anna Blackwell (NESO)

**Additional sessions will be available for viewing on-site.*

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Thursday, 17th September 2026

Topology Optimizer Symposium

Afternoon-Sessions (Talks and Demos)

14:50 – 15:10

20x faster (N-1)-secure DC Topology Optimization

Olaf Schmidt (Quicopt · Forschungszentrum Jülich, PGI-12)

Switching topology is one of the fastest and cheapest remedies a control room has — what limits its use is the time the search takes, not the idea. Building on 50Hertz's open ToOp benchmark, we show a search strategy that finds equally good or better switching options with up to 20 times fewer security calculations, and that works with the N-1 calculation as a black box — so grid data never has to leave the operator's house. We would like to show what this makes possible inside an operational time window, and to hear which cases matter most to you.

15:10 – 15:30

Toop: Advancing Open Source Topology Optimization towards control-center readiness

Nico Westerbeck (MCCS)

In ToOp, we have been working on advancing our optimization tool significantly since the last Topology Symposium. We went from a successful MVP on historical data towards an integrated tool in the MCCS ecosystem. We want to share the wins and losses on our journey so that outsiders can learn from our mistakes. Furthermore, we talk about open challenges in our project and potentially the field of topology optimization, with the hope that we can learn from somebody else's mistakes.

15:30 – 15:50

Secure Optimal Transmission Switching with De-Energization

Benoit Jeanson (Cresym)

Particular emphasis is placed on the underlying problem formulation, which represents a novel contribution to the network switching literature. The originality of the approach lies in explicitly allowing localized blackouts under N-1 contingency conditions. While such operational policies are already applied by transmission system operators, including RTE, they remain largely unexplored in academic research on switching and reconfiguration problems. This perspective also resonates with emerging concerns related to wildfire risk, particularly in the United States, where preventive network disconnections have become an important operational consideration. As climate-related risks increase, similar challenges may become increasingly relevant for European power systems.

15:50 – 16:10

Practical use-case with N-SIDE RAO (including topology optimization)

Noémie Verstraete, Pierre Artoisenet, Giancarlo Marzano (N-SIDE)

Our platform implement the 70% rule in the South-East Europe Capacity Calculation Region (SEE CCR). The presentation will highlight how the tool increases cross-border capacity while also enabling TSOs to coordinate Remedial Actions (RAs) effectively without compromising grid security. Additionally, as execution speed is critical for these industrial processes, we would be happy to include a brief overview of our new fast AC load flow methodology, currently formalized in a scientific paper.

16:30 – 16:50

Network topology reconfiguration and acausal circuit-based power flow modeling and simulation

Sergio Dorado (Georgia Tech)

Network topology reconfiguration has emerged as a key area of interest for both power system operators and researchers. This presentation will discuss recent empirical findings on incorporating protection-related logical constraints into network reconfiguration optimization problems. In addition, the talk will introduce a modeling framework for power flow analysis based on acausal modeling principles and circuit theory.

16:50 – 17:10

NewGrid Router topology optimization software package

Pablo Ruiz (NewGrid)

Software package (currently used at a few system operators in the US) as well as the topology optimization services NewGrid provides (leveraging case studies).

17:10 – 17:30

Optimization Learning for Grid Topology: Opportunities for Operator Support

Lennart Lahrs (Gurobi)

Topology switching requires operators to evaluate many possible actions under tight time constraints. This talk introduces Gurobi's AI Innovation Lab (GAIL), led by Pascal Van Hentenryck, and explores how AI and mathematical optimization could work together to support this task. The focus is on optimization proxies and related learning-to-optimize methods: using the structure and experience from repeatedly solved LP and MILP models to identify promising candidate solutions more quickly. Exact optimization, security assessment, and operator judgment remain essential parts of the process. The talk will share current ideas, research directions, and open questions. We welcome discussions with TSOs, RCCs, and researchers interested in exploring these approaches for topology optimization and control-room decision support.

17:30 – 17:45

Network Topology Optimisation using DIgSILENT PowerFactory

DIgSILENT PowerFactory Marian Kantor (NESO)

NESO will demonstrate a proof of concept for topology optimisation decision support developed within DIgSILENT PowerFactory, including innovative methods to pre-select candidates to minimise run times.

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Ensuring Stability in Real-Time Operations under High IBR Penetration

10.20 a.m. – 12.00 p.m.

Observing the System Correctly: Situational Awareness

Speakers:
Chair: Karin Wadsack (GPST)
Fred Huang (ERCOT)
Janio Los (ONS)
Ian Dytham (NESO)

Overall Session Audience Value:
Presenters will identify critical real-time stability indicators, the level of observability required and current operator practices.

Impulses & Speeches:
— ERCOT Operations with High IBR Penetration (Fred Huang)
— EMS and WAMS Systems and Technology Specialist (Janio Los)

This session will cover what operators must observe in real time: essential metrics, system strength, inertia awareness, state estimation and real-time simulations

1.00 p.m. – 2.30 p.m.

Control Room of the Future: Dynamic Event Detection

Speakers:
Chair: Duncan Burt (Reactive Technologies)
Balarko Chaudhuri (Imperial College London)
Gabriel Covarrubias Maureira (Imperial College London)
Jin Tan (NLR)
Marc Dokus (TenneT)
Diana Strauss-Mincu (Fraunhofer IEE)

Overall Session Audience Value:
Participants will learn how WAMPAC applications, dynamic event detection and early-warning tools support real-time operational decisions.

Impulses & Speeches:
— Early warning of sub-synchronous oscillations (Balarko Chaudhuri & Gabriel Covarrubias Maureira)
— From Offline to Online: An Oscillation Investigation Framework for Real-World Events (Jin Tan)
— Detection and analysis of sub-synchronous oscillations in real-time and offline application (Marc Dokus)
— Advanced Modular System and New Methods for Near-Real-Time Dynamic Security Assessment (Diana Strauss-Mincu)

Imperial College London will present a bottom-up modular approach to track the evolving operating point-dependent dynamics of IBR-dominated grids. This would enable early warning of incipient SSO and targeted mitigation action.

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Ensuring Stability in Real-Time Operations under High IBR Penetration

2.50 p.m. – 4.15 p.m.

Control Room of the Future: Decision Support

Speakers:
Chair: Lina Ramirez (GPST)
Anne-Katrin Marten (50Hertz)
Patricio Valenzuela (CEN)
Guilherme Mota (ONS)
Fred Huang (ERCOT)

Overall Session Audience Value:
Participants will learn about emerging approaches to deliver the critical decision-support capabilities required for operators to safely manage high-IBR systems in real time, including improved situational awareness, alarm prioritization, integration of dynamic stability information, and human-centered operational interface.

Impulses & Speeches:
— New Control Center Capabilities (Patricio Valenzuela)
— Enhancing Real-Time Decision Making through Data-Driven Applications and AI (Guilherme Mota)
— ERCOT Overview: Advancing Real-Time Operations with High IBR Penetration (Fred Huang)
— Requirements from a Control Centre perspective (Anne-Katrin Marten)

This session will showcase innovations in decision support capabilities such as visualization, EMS/WAMS integration, emerging practices for alarm management, AI-assisted operation, and human-machine interaction. The session will have a special focus on emerging AI applications.

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Satellite Sessions

→ 50Hertz Transmission GmbH, Heidestraße 2, 10557 Berlin

8.45 a.m. – 6.00 p.m.

Hackathon EMC² (Electricity Market Coupling Compass)
→ Closed Session, will be hosted at NQT.

Topic:
Grid × Markets Fusion Lab

Understanding interactions of markets and grids is key to identifying early warning signals of extreme system events. In this hackathon, teams will develop a probabilistic model that estimates the likelihood of extreme system events – measured by activated balancing energy – at different time intervals. The goal is to combine both fundamentals and market signals.

4.00 p.m. – 5.30 p.m.

Research Challenge 2.0 Kick-Off – Research in Action: From Science Desk to Control Center
→ Closed Session, will be hosted at NQT.

Speakers:
Nico Westerbeck (50Hertz)
Eva Schramm (Elia Group)
Martin Lindner (50Hertz)
Kilian Helfenbein (50Hertz)
Jürgen Herreiner (50Hertz)
Georg Mensah (50Hertz)

Overall Session Audience Value:
The kick-off event marks the starting point of the new research challenge. The new research questions will be presented by 50Hertz-Experts, followed by an open discussion phase.

Focus Topics:
— Real-Time Optimal Power Flow for Congestion Management: Innovative methods for maintaining secure and efficient system operation under increasing variability, uncertainty and operational complexity.
— Operational Conformity Monitoring and Evidence-Based Evaluation of Converter-Based Systems: Monitoring, analytics and evaluation frameworks for understanding and validating the contribution of converter-dominated assets to grid stability and resilience.
— Implicit Control under Network Constraints: Mechanisms for coordinating distributed flexibility through implicit, local or market-based signals while respecting voltage, thermal and security limits.
— Fast Load Flow Solvers for Operational Applications: Novel power flow, contingency analysis and parallel computing techniques enabling near-real-time assessment of large-scale power systems.
— Alternative to Map-Elites for Topology Optimization: Identifying and evaluating alternative approaches to the current open-source ToOp framework

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Unlocking Grid Stability through Digital Transformation & Innovative Solutions

9.30 a.m. – 11.00 a.m.

Women Powering the Grid. Overcoming the Gender AI Gap

Speakers:
Sylvia Borcherding (50Hertz)
Carolin Böke (SAP)
Sirid Böhm (DE&I Advocate)
Dr. Christian Humborg (Allianz Foundation)

Overall Session Audience Value:
Exchange experiences, gain new perspectives on the gender AI gap, and connect with peers and experts who are shaping the future of AI in power system operations.

This session brings together women and allies from across the power system community to discuss the opportunities and challenges of AI. Through expert insights, a panel discussion, audience participation, and networking, we will explore how to overcome the gender AI gap and strengthen diversity in the AI-driven energy transition. While the session focuses on empowering women, men are equally welcome and encouraged to join the discussion.

11.20 a.m. – 12.30 p.m.

MCCS Voltcontrol: Practical Insights into the Joint Journey on Development, Implementation and Operational Integration

Speakers:
Dominique Wassermann (50Hertz)
Veronika Rammert (50Hertz)

Overall Session Audience Value:
Gain practical insights into the implementation and operational integration of MCCS Voltcontrol, learn from real-world experiences bringing a new process and tool to control centers and lessons learned, and exchange views on introducing innovative tools into system operations.

MCCS Voltcontrol represents a new approach to supporting voltage management in system operations. This session shares practical experiences from its implementation, including collaboration between development and operational teams, testing and commissioning activities, and the transition into day-to-day operational use.

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Unlocking Grid Stability through Digital Transformation & Innovative Solutions

1.30 p.m. – 3.00 p.m.

“Monitoring the Stability” – Monitoring and Measurement Solutions using Innovative Technologies for Grid Operators and Power Producers. Interesting Examples from Different Parts of the World.

Speakers:
Chair: Ignacio Iriarte Ramírez (50Hertz)
Ralf Heisig (50Hertz)
Gerald Laurence (Aurienergy)
Eduardo Soto (Phinet Chile)

Overall Session Audience Value:
Participants will gain practical insights into how advanced monitoring and measurement technologies are becoming essential enablers of grid stability in increasingly renewable, inverter-based and dynamic power systems. Through perspectives from a TSO, technology providers and renewable-energy specialists, attendees will learn how WAMS, PMUs, digital grid-monitoring platforms, analytics and enhanced forecasting can improve observability, reduce operational risks, support better market participation and ultimately strengthen system stability.

Maintaining system stability in modern power systems requires more than traditional monitoring approaches. This session brings together experts from 50Hertz, Auri Energy and phiNet Chile to showcase how WAMS, PMUs, digital monitoring platforms, advanced analytics and renewable forecasting solutions are helping TSOs, DSOs and power producers improve observability, optimise operations and reduce stability-related risks.

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Global System Operations Summit

Friday, 18th September 2026

Grid Stability: System Security, Market Design and Affordability

9.30 a.m. – 11.00 a.m.

Battery Storages – Unlocking Economical Grid Stability

Speakers:
Benjamin Braun (Fluence Energy)
Robert Ahrens (Mitnetz Strom)

Overall Session Audience Value:
Participants understand battery-connection learnings and how BESS can support stability services, including the DSO/TSO interface.

This session aims to display the potential conflict of interests between grid operators and battery storage owners/operators regarding the connection of battery storages and to find common ground on how future discussions between the stakeholders can be had in a collaborative fashion. The conflict of interests lies in the grid operator's objective to ensure grid stability which may contradict the battery operator's objective to maximize profits.

11.20 a.m. – 12.30 p.m.

Workshop Smart Grid KPIs (part of the Viewpoint Study Grid Stability)

Speakers:
Anna-Lena Hock (50Hertz/Elia Group)
Matthis Brinkhaus (50Hertz/Elia Group)

Overall Session Audience Value:
Participants will contribute with their personal views to the key messages of the Elia Group Viewpoint Study on system stability and affordability. The session will allow an exchange with peers on performance indicators such as SGIs and their usability to improve system stability.

Impulses & Speeches:
— Key messages (drafts) of the Elia Group Viewpoint Study (Anna-Lena Hock)
— Smart Grid KPIs: Regulatory status and methodologies developed (Matthis Brinkhaus)

To increase economic efficiency in electricity grids, Smart Grid KPIs (SGIs) gained a lot of attention on EU level. In this session, we will review if KPIs, such as SGIs and others, are suitable to improve system stability and system security. The results will become part of the Elia Group Viewpoint study.

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Global System Operations Summit

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Grid Stability: System Security, Market Design and Affordability

11.20 a.m. – 12.30 p.m.

Probably Safe? Rethinking Security Assessment for the future Grid

Speakers:
Cornelius Heck (50Hertz)
Mario Kendziorski (50Hertz)
Niklas Erle (c.con)
Johannes Kruse (Amprion)

Overall Session Audience Value:
Participants will gain insights into how security assessment must evolve to cope with increasing uncertainty, system complexity and operational speed. The session explores emerging approaches ranging from probabilistic and risk-based methods to integrated assessment of congestion, voltage and frequency constraints, while discussing how future decision-support and automation capabilities can help operators maintain secure system operation.

Traditional security assessment is increasingly challenged by growing system complexity, uncertainty, flexibility and operational speed. This interactive session explores how future power system operation may evolve from deterministic N-1 assessments towards integrated, risk-based security analysis that simultaneously considers congestion, voltage and frequency related constraints. Participants will discuss future requirements, emerging methodologies and practical implementation approaches from both TSO and research perspectives.

1.30 p.m. – 3.00 p.m.

Workshop The Stability Ecosystem: Data, Monitoring & Coordination (part of the Viewpoint Study Grid Stability)

Speakers:
Anna-Lena Hock (50Hertz/Elia Group)
Matthis Brinkhaus (50Hertz/Elia Group)

Overall Session Audience Value:
Exchange with and learn from peers on various perspectives of data management, monitoring & compliance and related topics.

Impulses & Speeches:
Key messages (drafts) of the Elia Group Viewpoint Study

Data as a precondition to enable and monitor stakeholders' contribution to system stability is a continuous theme in the 2026 Elia Group Viewpoint. Providing the basis for system analyses to plan the systems, monitoring anomalies before incidents happen and learn from them after the fact, TSOs, DSOs, and OEMs have key roles to play.

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Global System Operations Summit

Friday, 18th September 2026

Ensuring Stability in Real-Time Operations under High IBR Penetration

9.30 a.m. – 11.00 a.m.

Measurement and Metrics: Redefining System Strength for the Modern Grid (Led by ESIG) (SCR, Voltage Stiffness, Impedance Scanning and Field Pilots)

Speakers:
Chair: Balarko Chaudhuri (Imperial College London)
Ambuj Gupta (Imperial College London)
Andrew Siler (Telos Energy)
Beibei Li (MISO)

Overall Session Audience Value:
Participants will learn about new applied approaches for evaluating system strength and have the opportunity to participate in a discussion about metrics, methods, and frameworks that will help shape future development of system strength metrics and tools.

Impulses & Speeches:
— System Strength Assessment in IBR-Dominated Power Systems (Ambuj Gupta)
— Large System Stability Screening with Application of the Dynamic Impedance Method (Andrew Siler)
— Assessing Grid Stability under Inverter-driven Technology (Beibei Li)

This session will explore emerging classifications and frameworks, new metrics and methods for evaluating system strength. Presenters will share applied examples.

11.20 a.m. – 12.30 p.m.

Grid Forming Applications (co-convened GPST GFM Council and ESIG GFM Task Force: Requirements, Testing, Operations and Field Deployment Lessons)

Speakers:
Chair: Julia Matevosyan (ESIG)
Sebastian Höhn (TenneT)
German Kuhn (Siemens)
Liang Lu (NESO)
Tom Redfern (Zenobē)

Overall Session Audience Value:
Participants will gain practical lessons learned from early grid-forming deployments, understand key challenges and opportunity spaces, and define priority collaboration areas to accelerate reliable implementation of GFM technologies in real-time power system operations.

Impulses & Speeches:
— Operational experience with the world's first STATCOM with super-cap storage (Sebastian Höhn & German Kuhn)
— GFM Technology Development and Deployment in Great Britain: Policy, Requirements and Future Directions (Liang Lu)
— Supporting GB Transmission System Operability with Grid Forming BESS (Tom Redfern)

GPST's GFM Council and ESIG's newly launched GFM Task Force will share deployment lessons, operational integration challenges, and first-mover experiences.

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Global System Operations Summit

Friday, 18th September 2026

Ensuring Stability in Real-Time Operations under High IBR Penetration

1.30 p.m. – 3.00 p.m.

System Operator RoundTable: Deep Dive on Sub-Synchronous Oscillations

Speakers:
Multiple operators from across the conference tracks
ERCOT, NESO, TenneT, Svenska Kraftnat

Overall Session Audience Value:
Participants will hear from system operators around the world about their approaches to solution development and innovation around the key challenge of sub-synchronous oscillations. Participants will be invited to actively engage in discussion on collaboration for future solution development.

In this session, system operators that are managing the challenges of sub-synchronous oscillations will share examples of new approaches and lessons learned on topics including:

— Emerging approaches for identifying top contributions to SSOs in real time and as part of post-event analysis
— What capabilities are needed to set up early warning systems near real-time
— how operators can efficiently assess SSO risk across a wide range of scenarios during operations planning
— What these approaches, capabilities, and needs suggest for how to improve IBR control schemes and connection standards