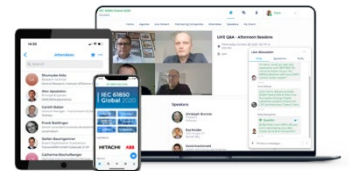


# 8th Annual Conference, Exhibition & Networking Forum

# SMART GRID FORUMS | IEC 61850 Week 2021

Driving the rapid replacement of cybersecure IEC 61850 systems within the substation, inter-substations, to the control room, and across DER infrastructure

1 Day Specification Workshop • 3 Days Conference, Exhibition and Networking Forum • 1 Day Cyber-security Seminar  
Virtual Event: 18-22 October 2021 | Swapcard Virtual Event Platform



## Programme Highlights Include:

- **Specification** – working effectively with suppliers to develop robust technical specifications and drive industrial scale deployment
- **Architecture** – optimising the features and functionalities of station bus and process bus architectures
- **Engineering** – managing the engineering process to ensure timely and cost-effective design, configuration, and testing of industrial level deployments
- **Replacement** – keeping up with the pace of technology change and driving a replacement strategy that strikes the balance between grid resilience and cost-efficiency
- **Cybersecurity** – leveraging the latest standards, solutions, and processes to ensure the cyber-resilience of IEC 61850 architectures and guard the grid against a rapidly growing threat landscape

## 40+ Speakers Including:



**Christopher Brunner**  
Convener  
TC57 WG10



**Alex Apostolov**  
Editor-in-Chief  
PacWorld



**Frances Cleveland**  
President  
Xanthus Consulting  
International



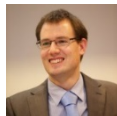
**Anders Johnsson**  
Power Systems Specialist  
Vattenfall



**Mehrdad Vahabi**  
Substation  
Automation Project  
Manager  
Southern California  
Edison



**Thierry Coste**  
Project Manager &  
Research Engineer  
EDF



**Bas Mulder**  
Technologist OT  
TenneT



**Dieter Binon**  
Expert, Digital  
Substations  
EliA



**Réne Troost**  
Grid Strategies  
Stedin



**Swantje Westphal**  
Chief Information  
Security Officer  
EVN



**Birkir Heimisson**  
Project Leader, Smart  
Grid Development  
Landsnet



**David MacDonald**  
System Monitoring  
Lead Engineer  
Iberdrola



**Rannevig Løken**  
Senior Specialist  
Protection & Control  
Systems  
Statnett



**Colin Scoble**  
Senior Protection  
Engineer  
UK Power Networks



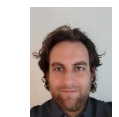
**Marcel Kulicke,**  
Service Manager  
ProductCERT  
Siemens



**Mohseen Mohammed**  
Protection & Control  
Engineering Manager  
SSE



**Helder Barbosa**  
Cybersecurity Project  
Manager  
E-REDES



**Renaud Renaud-Drouin**  
Automation Engineer  
Hydro Quebec



**Deepak Maragal**  
Manager, Protection &  
Control  
New York Power  
Authority



**Rishi Hariram**  
Chief Engineer,  
Operational Technology  
& Cyber Security  
Eskom

## Gold Sponsor:



## Silver Sponsors:



## Strategic Media Partners:



## Media Partner:



## Supporting Partners:



## Produced by:



# 8<sup>th</sup> Annual Conference, Exhibition & Networking Forum

Dear Colleague,

Welcome to the 8<sup>th</sup> annual **IEC 61850 Week 2021** virtual conference, exhibition and networking forum. Our programme research for this year's agenda revealed that Covid-19 has injected urgency into utilities' digitisation plans with profound implications for substation automation teams. This year's event will draw together pioneering IEC 61850 implementation leaders for a week-long review of the latest standardisation developments, pilot project results, large-scale implementation experiences, and future application explorations.

The focus will be on driving the deployment of next generation IEC 61850 architectures through more efficient specification, engineering, testing, operation, maintenance, and innovations in cybersecurity within a more rapid 'replacement' environment. Case-studies will focus on implementations of process bus and station bus architectures, with applications within the substation, inter-substations, from substation to control centre, and across distributed energy resources.

## Monday 18th October: Specification Workshop

The week begins with a practical workshop providing utilities and suppliers with the opportunity to explore how they can leverage IEC 61850 specification guidelines to improve their collaboration, streamline the end-to-end specification process, reduce duplication of effort, and ensure clarity of utility objectives whilst leveraging supplier expertise.

## Tuesday 19th to Thursday 21st October: Implementation Case-Study Conference & Exhibition

Over the course of these three days, participants will hear the latest lessons learnt from pilot projects and large-scale deployments of multi-vendor multi-edition IEC 61850 systems worldwide. This is a unique opportunity to gain a global perspective on real-world deployment activity, future system and component requirements, and to explore brand new partnership opportunities.

## Friday 22nd October: Cybersecurity Seminar

The week wraps up with this deep diving seminar into the cybersecurity issues currently impeding the deployment of IEC 61850. With a thorough exploration of IEC 62351 both on a conceptual level and in terms of its application and evolution, participants will come away with a clear understanding of how they can tighten up system security today and what cybersecurity innovations they can plan to leverage tomorrow.

Due to ongoing travel restrictions and uncertainties, this year's event will take place entirely in virtual format. The digital environment can be challenging in terms of networking ease, and so we will be providing more extensive facilitated networking opportunities during refreshment breaks, lunchtimes, during roundtable discussion sessions and in the week after the event.

So don't delay, book your place today and ensure that you maintain the momentum of your IEC 61850 intelligence gathering, peer networking, and business development.

We look forward to welcoming you to this virtual event in October.

Kind Regards,



**Mandana White**  
CEO | [Smart Grid Forums](#)

## Testimonials

- "Excellent opportunity to share knowledge with people around the world."  
**Nestor Castilla**, TAE Manager, [Doble Engineering](#)  
[@IEC 61850 USA 2021](#)
- "Great event that brings the IEC 61850 community together and allows us to share experiences and latest news."  
**Peter Kreutzer**, Product Manager - [Hitachi ABB Power Grids](#)  
[@IEC 61850 Global 2020](#)
- "An excellent opportunity to look further than the end of your own nose and acknowledge that other people's solutions to shared problems may be far better than yours."  
**Julio E. Dominguez**, SAS Designer - [UFD](#)  
[@IEC 61850 Global 2019](#)
- "Great to see what the market trends and difficult needs of other utilities are and how they were addressed on the challenges facing IEC 61850."  
**Gwennael Delhiere**, Asset Manager Secondary Systems - [Elia](#)  
[@IEC 61850 Global 2018](#)
- "Great for keeping up to date on IEC 1850 standards and real-world application issues."  
**Manuel Pimenta**, Senior Engineer - [Con Edison](#)  
[@IEC 61850 Europe 2017](#)

**Workshop: Monday 18<sup>th</sup> October 2021**  
**IEC 61850 System Specification**

## Workshop Leaders:



**Christoph Brunner**, President of [it4power](#)  
[Convener of TC57 WG10](#)



**Thomas Sterckx**, Engineering Expert Secondary Systems  
[Elia](#)



**Joerg Reuter**, Director  
[Helinks](#)

## Why this workshop?

As more and more utilities embrace 'rapid replacement' strategies over maximising system lifecycles, the pressure is on to develop advanced in-house specification skills and processes that will enable utilities to procure at the speed of the digital age, with the accuracy and cost-efficiency that remains the hallmark of the power grid.

This full-day workshop on System Specification, designed to assist utilities in developing the advanced Specification skills they need to ensure they remain in the driving seat of the end-to-end IEC 61850 implementation process.

**Programme: 10am – 5pm**

## Session 1: Introduction to System Specification for IEC 61850 from the Utility Perspective

- Determining the level of detail required to ensure accuracy of end-user requirements
- Quantifying the benefits of detailed end-user specification in terms of project time and cost savings
- Setting expectations for how suppliers will respond and what they will deliver as part of the tender

## Session 2: Introduction to System Specification for IEC 61850 from a Standards Perspective

- Understanding the history of specification in IEC 61850
- Examining how the specification process has evolved over time
- Reviewing the implications of the latest updates with part 6-100

## Session 3: Understanding the Engineering Process with Enhanced Specification

- Comparing the variations in engineering process specified in IEC 61850-6
- Pinpointing what should be specified for engineering process

## Session 4: Working with Data Models

- Examining the variations in Data Models
- Determining how to specify the Data Model

## Session 5: System and Communication Architecture

- Evaluating variations supported by the Standard
- Understanding the criteria that should be specified for architecture and how this can be done

## Session 6: Practical Demonstration and Lessons Learnt

- Specification demonstration using the Helinks STS including verification of the specification by simulation
- Feedback from various projects including OSMOSE

## Sponsorship and exhibition opportunities

Would you like the opportunity to raise your brand profile, demonstrate your products and services, and share your expertise with a highly concentrated and influential group of IEC 61850 implementation leaders and specialists? Our virtual sponsor area provides the perfect opportunity for you to do this and more! Capped at 20 booths, we ensure a focused and relevant display of state-of-the-art IEC 61850-enabled products and services for our audience, and maximum visibility and interaction levels for each of our sponsors.

Each sponsor will be provided with an online booth via the Swapcard virtual event platform, where you will be able to play your promo video continuously, display your documents and white papers for download, and be available to meet with participants online via the integrated networking tools. Pre-scheduled meetings and facilitated networking rooms will ensure that your time at the event is spent conducting meetings rather than searching for the right participants.

To find out more contact us at:

Call: +44 (0)20 8057 1700

Email: [registration@smartgrid-forums.com](mailto:registration@smartgrid-forums.com)

# Conference Day One: Tuesday 19<sup>th</sup> October 2021

08:00	<b>Registration</b>	
08:20	<b>Welcome address from the chair</b>	
08:30	<p><b>Standards Update – reviewing the latest standardisation activity in TC57 and understanding how it is paving the way for more robust multi-vendor multi-edition IEC 61850 system deployments within TSO and DSO substation environments and beyond</b></p> <ul style="list-style-type: none"> <li>Identifying the IEC 61850 standardisation priorities and how these will enhance existing and planned substation implementations</li> <li>Evaluating the progress being made with new extensions for the substation, inter-substation, and to the control room</li> <li>Determining the latest standardisation to support the DER environment</li> <li>Updating on development with 90-11</li> <li>Creating a roadmap for the deployment of future editions of the standard</li> </ul> <p><b>Christoph Brunner</b>, President of <b>it4power</b> Convenor of <b>IEC TC57 WG10</b></p>	<ul style="list-style-type: none"> <li>Determining the technical challenges to overcome in terms of: <ul style="list-style-type: none"> <li>System architecture</li> <li>Engineering process</li> <li>Testing procedure</li> </ul> </li> <li>Evaluating the potential of centralised protection in combination with cloud</li> <li>Overcoming the workforce mindset challenges around centralised protection to drive its larger scale adoption</li> <li>Applying lessons learnt from working group activity in CIGRE and IEEE to real life implementations</li> </ul> <p><b>Alex Apostolov</b>, Editor-in-Chief <b>PacWorld</b></p>
09:15	<p><b>Rapid Replacement – evaluating the underlying process changes required to support rapid replacement of standardised IEC 61850 systems and components to meet changing regulatory demands</b></p> <ul style="list-style-type: none"> <li>Evaluating investment plans and new regulatory cycles for SAS devices</li> <li>Comparing possibilities of like-for-like replacement and like-for-non-like replacement with flexible product naming</li> <li>Optimising partial SAS replacements with IEC 61850 in operational alongside legacy devices</li> <li>Reconfiguring Goose Messages after device replacement</li> <li>Reconfiguring the Substation Gateway and HMI after device replacement</li> <li>Managing IED replacements during switchgear in-service lifecycle</li> </ul> <p><b>David MacDonald</b>, System Monitoring Lead Engineer <b>Iberdrola</b></p>	<p>15:00 <b>Afternoon break, networking and exhibition forum</b></p> <p>15:30 <b>Process Bus – driving the large-scale deployment of process bus substation architectures to maximise the functionality and minimise the costs of digital substations</b></p> <ul style="list-style-type: none"> <li>Outlining the key benefits of process bus as compared with station bus architectures for both TSOs and DSOs: environmental, safety, technical, cost-efficiency</li> <li>Reviewing implementation experiences to date and identifying lessons learnt to support the large-scale deployment of process bus in the next 3 years</li> <li>Fine-tuning the specification, design and engineering processes to speed up implementation whilst ensuring a highly functional and future proofed deployment</li> <li>Supporting field engineers with effective training and development programmes to ensure that they are able to support the deployment with ease and confidence</li> <li>Working effectively with suppliers to optimise the translation of complex requirements into live systems</li> <li>Measuring deployment progress to ensure a robust roadmap and the ability to stay on track and deliver more intelligent controls with increased communications</li> </ul> <p><b>Birkir Heimison</b>, Project Leader, Smart Grid Development <b>Landsnet</b></p>
10:00	<b>Morning break, networking and exhibition</b>	
10:30	<p><b>System Interoperability Panel – understanding how the major system suppliers are adapting their IEC 61850 integration approaches to ease multi-vendor multi-edition system interoperability</b></p> <p>During this session 3-4 system suppliers will discuss their current IEC 61850 integration strategies, report on the feedback they have received from their utility customers and discuss how they will incorporate these into the next edition of their products. They will elaborate on the work they are currently doing within the IEC working groups to ensure they raise the plug-and-playability of future products. Following the formal presentations there will be ample time for Q&amp;A and panel discussion.</p> <p><b>Stefan Meier</b>, Global Product Manager <b>Hitachi ABB Power Grids</b></p> <p><b>Navdeep Ahuja</b>, Global Product Manager, Engineering Tools, <b>Schneider Electric</b></p> <p><b>Camille Bloch</b>, IEC61850 Expert, Member of IEC TC57 WG10, <b>Schneider Electric</b></p>	<p>16:15 <b>Process Bus – driving system design, specification, installation and operation through innovations in multi-vendor interoperability</b></p> <ul style="list-style-type: none"> <li>Driving improvements in differential protection schemes for multi-ended feeders</li> <li>Replacing GNSS at each end of line protection with more innovative alternatives</li> <li>Overcoming the challenges of adopting process bus architecture in legacy and remote substations with poor communication access</li> <li>Ensuring multi-vendor multi-edition interoperability to drive down system costs</li> <li>Reporting on first-hand experience with the performance of protection relays in process bus environment</li> </ul> <p><b>Mohseen Moheemmed</b>, Protection &amp; Control Engineering Manager <b>SSE</b></p>
12:00	<b>Lunch, networking and exhibition forum</b>	
13:30	<p><b>Centralised Architecture – adopting a centralised IEC 61850 system architecture to maximise the benefits gained from next generation digital substation systems</b></p> <ul style="list-style-type: none"> <li>Determining the drivers to move towards full digitalization</li> <li>Defining the concept for desired end state of secondary systems in a time frame of 10 years</li> <li>Identifying the risks and complexity associated with integration of protection for multiple bays in a centralized protection architecture</li> <li>Optimising the system architecture to enhance efficiency in throughput time of project portfolio</li> <li>Collaborating with suppliers to develop highly reliable and efficient solutions that meet the reliability demands of HV networks in the most ergonomic way</li> <li>Identifying the required features in the engineering process to enable the digitalization of secondary systems</li> </ul> <p><b>Dieter Binon</b>, Expert, Digital Substations <b>Elia</b></p>	<p>17:00 <b>Roundtable Discussions</b> - during this session the audience breaks out into several smaller working groups, each focused on a specific theme that arose during the day's presentations. Each working group will comprise of representatives of the entire IEC 61850 community to ensure a well-rounded and holistic discussion.</p> <p>18:00 <b>Roundtable Feedback</b> – during this session each working group leader will provide a 5-min summary back to the wider group, highlighting the issues raised, the solutions discussed, and the recommendations made to take the matter to the next level.</p> <p>18:00 <b>Close of conference day one</b></p>
14:15	<p><b>Centralised Protection – evaluating the benefits of centralised IEC 61850 protection and identifying the most cost-efficient way to achieve this</b></p> <ul style="list-style-type: none"> <li>Understanding the drivers and benefits of adopting centralised protection within IEC 61850 enabled systems</li> </ul>	<div style="border: 2px solid teal; padding: 10px;"> <p><b>Who Should Attend?</b></p> <ul style="list-style-type: none"> <li>Substation Automation</li> <li>Asset Management</li> <li>Grid Planning</li> <li>SCADA Systems</li> <li>Telecoms</li> <li>R&amp;D</li> <li>Smart Grid</li> <li>Cybersecurity</li> </ul> </div>

# Conference Day Two: Wednesday 20<sup>th</sup> October 2021

08:00	<b>Registration</b>	14:15	<b>Application of Top-Down Engineering workflow to the Full Project Lifecycle – applying vendor-independent specification and engineering processes to optimise IEC 61850 system lifecycle costs and significantly reduce TOTEX</b> Application of Top Down Engineering to the full project lifecycle and its benefits during all lifecycle phases including the operation & maintenance phase
08:20	<b>Welcome address from the chair</b>		
08:30	<b>Top-Down Engineering – overcoming the challenges of adopting top-down engineering to drive time and cost efficiency in the installation of station bus and process bus architectures</b> <ul style="list-style-type: none"> <li>Evaluating the benefits of top-down-engineering as compared with bottom-up-engineering</li> <li>Determining how working the standardised Data Model of top-down-engineering supports vendor-independence</li> <li>Understanding how top-down engineering helps reduce engineering time and in standardization of IEC 61850 configuration</li> <li>Overcoming the challenges of top-down-engineering in terms of: <ul style="list-style-type: none"> <li>Flexible product naming</li> <li>Applying own Data Model into the IED</li> <li>Working with vendor-independent tools</li> </ul> </li> <li>Driving the adoption of top-down-engineering within the utility environment</li> <li>Applying top-down-engineering to Edition 2 onwards and maintaining control of version management</li> <li>Effectively supporting conversion to 104</li> </ul> <b>Bas Mulder</b> , Technologist OT <b>TenneT</b>	<ul style="list-style-type: none"> <li>Understanding how application standardisation coupled with Top Down Engineering process can enable optimized tendering/procurement, engineering, real-time operations and maintenance procedures to enable TOTEX reduction</li> <li>Leveraging improvements on the IEC61850 specification process to enables application standardization with examples</li> <li>Effectively interfacing IEC 61850 with alternative protocols and interfaces</li> <li>Leveraging IEC61850 engineering artifacts for optimised asset management during the maintenance phase</li> <li>Demonstration of EPAS-E: EcoStruxure Power Automation System Engineering (Vendor Agnostic IEC61850 compliant System Specification and Configuration Tool)</li> <li>Demonstration of EPAS-M: EcoStruxure Power Automation System Maintenance ( IEC61850 based System baselining and maintenance tool)</li> </ul> <b>Navdeep Ahuja</b> , Global Product Manager, Engineering Tools <b>Schneider Electric</b> <b>Camille Bloch</b> , IEC61850 Expert, Member of IEC TC57 WG10 <b>Schneider Electric</b>	
09:15	<b>Digital Twin – leveraging the latest advances in digital twin solutions for virtual relay protection testing</b> <ul style="list-style-type: none"> <li>Explanation of what a digital twin in the protection world is</li> <li>Determining the benefits of applying virtual testing with a digital twin approach</li> <li>Understanding how digital twin solutions enhance and complement IEC 61850 model based simulation activity</li> <li>Managing the upskilling and engagement of IEC 61850 workforce to support the transition to digital twin virtual testing</li> <li>IEC standardization interest and activities for the digital twin technology</li> <li>Quantifying the benefits of digital twin testing for the substation</li> </ul> <b>Niclas Wetterstrand</b> , Business Development Director, Protection <b>Megger Group</b> <b>Andrea Bonetti</b> , Senior Specialist, Relay Protection and IEC 61850 <b>Megger Group</b>	15:00 <b>Afternoon break, networking and exhibition</b>	
10:00	<b>Morning break, networking and exhibition</b>	15:30	<b>Real-Time Operations – overcoming the design, installation and operational challenges associated with establishing real-time communication capability for station bus and process bus architectures</b> <ul style="list-style-type: none"> <li>Evaluating the benefits of real-time operations for IEC 61850 substation systems</li> <li>Determining the key challenges operations teams will face when managing IEC 61850 in real-time</li> <li>Designing a system architecture that will be real-time operations friendly in terms of: <ul style="list-style-type: none"> <li>Alarm monitoring</li> <li>Critical information access</li> <li>System diagnostics</li> <li>Communication</li> <li>Data Flow</li> </ul> </li> <li>Embedding cybersecurity into the communication infrastructure from the outset</li> <li>Developing an operations friendly graphically driven user manual to support teams in making effective real-time decisions for a range of scenarios</li> </ul> <b>Deepak Maragal</b> , Manager, Protection & Control <b>New York Power Authority</b>
10:30	<b>Testing Tools Panel – reviewing the latest features, functionalities and cybersecurity effectiveness of 3<sup>rd</sup> party testing tools in supporting multi-vendor multi-edition station bus and process bus installations</b> During this session 3-4 3 <sup>rd</sup> party tool suppliers will discuss how they have been developing their products to support true multi-vendor multi-edition testing within a variety of grid scenarios. Following the formal presentations there will be time dedicated to Q&A and panel discussion. <b>Joerg Reuter</b> , Director - <b>Helinks</b> <b>Juergen Resch</b> , Industry Manager Energy - <b>COPA-DATA</b> <b>Joel Greene</b> , Director of 61850 Development – <b>Triangle MicroWorks</b> <b>Fabrice Strevens</b> , Business Development Manager – <b>Elvexys</b> <b>Scott Short</b> , Director of Protection & Automation Technology – <b>Doble Engineering Company</b>	16:15	<b>System Monitoring – leveraging local and centralised monitoring functionalities to support effective power quality monitoring and efficient condition-based maintenance</b> <ul style="list-style-type: none"> <li>Evaluating the drivers for developing a multi-purpose gateway functionality to retrieve process data to support centralised system monitoring and management</li> <li>Determining the optimal architecture to ensure ease of data access by multiple stakeholders across the entire organisation</li> <li>Developing a robust communication infrastructure to support real-time collection and transfer of critical information from multiple sources within the substation</li> <li>Applying lessons learnt from the IT security domain to fully cybersecure the implementation and operation of new OT systems and functionalities</li> <li>Driving innovation in data analytics to provide a holistic view of the system in a more cost-effective and flexible way</li> <li>Upskilling the substation automation team to ensure their ongoing alignment with the growing demands of the hyperconnected grid</li> </ul> <b>Anders Johnsson</b> , Power System Specialist <b>Vattenfall</b>
12:00	<b>Lunch, networking and exhibition</b>	17:00	<b>Roundtable Discussions</b> - during this session the audience breaks out into several smaller working groups, each focused on a specific theme that arose during the day's presentations. Each working group will comprise of representatives of the entire IEC 61850 community to ensure a well-rounded and holistic discussion.
13:30	<b>Top-Down Engineering – developing tools that support the functional specification of IEC 61850 systems and place utilities at the heart of the engineering and configuration process</b> <ul style="list-style-type: none"> <li>Evaluating the difference between bottom-up and top-down engineering processes</li> <li>Quantifying the benefits of adopting top-down approaches for utilities</li> <li>Surveying the vendor landscape for top-down engineering tools and pinpointing gaps in the functionality of commercially available tools</li> <li>Reviewing the range of functionalities developed into the internal tool and determining how it could benefit a variety of utility scenarios</li> <li>Demonstrating the value of adopting top-down engineering processes to drive rapid adoption by internal and external stakeholders</li> </ul> <b>Thierry Coste</b> , Project Manager and Research Engineer <b>EDF R&amp;D</b> <b>Aurélie Dedouck</b> , Expert Research Engineer <b>EDF R&amp;D</b>	18:00	<b>Roundtable Feedback</b> – during this session each working group leader will provide a 5-min summary back to the wider group, highlighting the issues raised, the solutions discussed, and the recommendations made to take the matter to the next level.
		18:30	<b>Close of conference day two</b>



## Conference Day Three: Thursday 21<sup>st</sup> October 2021

08:00	<a href="#">Registration</a>	13:30	<p><b>Inter-Substation – overcoming the challenges of establishing real-time cyber secure wide area communication between multiple substations</b></p> <ul style="list-style-type: none"> <li>Evaluating the Net Zero situation and challenges we face today</li> <li>Understanding how the Constellation project will enable secure and flexible network operation with less reliance on the control centre</li> <li>Implementing effective cybersecurity measures to better protect inter-substation communication</li> <li>Facilitating smart DSO services through effective local active network management and wide area protection</li> <li>Mapping out the next steps and how the Constellation architecture can be adopted by the wider IEC 61850 community.</li> </ul> <p><b>Colin Scoble</b>, Senior Protection Engineer <a href="#">UK Power Networks</a></p>
08:20	<a href="#">Welcome address from the chair</a>	14:15	<p><b>Substation to Control Centre – tracking the latest developments in IEC 61850 and CIM harmonisation to support effective interworking of IEC 61850 with next generation EMS and ADMS systems</b></p> <ul style="list-style-type: none"> <li>Examining the drivers for extending IEC 61850 to the control centre and determining the cost and technical performance benefits</li> <li>Comparing the suitability of IEC 61850 for the control centre environment with existing standards such as 104</li> <li>Engineering gateways and data concentrators to ensure the smooth transfer of data from substations to the control centre</li> <li>Evaluating the implications of IEC 61850 for existing SCADA infrastructure and how these would need to be adapted to fully support IEC 61850</li> </ul> <p><b>Renaud Renaud-Drouin</b>, Automation Engineer <a href="#">Hydro Quebec</a></p>
08:30	<p><b>Metering – overcoming the challenges of ensuring metering data accuracy and reliability in next generation IEC 61850 digital substations</b></p> <ul style="list-style-type: none"> <li>Reviewing gaps in the regulatory and standardisation frameworks relating to metering functionalities for IEC 61850 enabled substations</li> <li>Understanding the benefits of Sampled Values based metering solutions and mapping the migration path toward these</li> <li>Overcoming the challenges of ensuring data accuracy and reliability for integrated metering solutions</li> <li>Suggestions to cybersecurity measures to reduce the risk of meter tampering</li> <li>Providing robust backup and redundancy to mitigate the risks of system failure</li> <li>Information related to the new CIGRE working group on next generation metering reliability</li> </ul> <p><b>Rannveig Løken</b>, Senior Specialist Protection and Control System <a href="#">Statnett</a></p>	15:00	<p><b>Afternoon break, networking and exhibition</b></p>
09:15	<p><b>Data Management – effectively capturing, storing and transferring rapidly rising volumes of substation data generated by increasing volumes of IoT device</b></p> <ul style="list-style-type: none"> <li>Examining the volume and type of data that will be generated by next generation IEC 61850 enabled digital substations and other IEC 61850 based devices</li> <li>Comparing the different technical approaches to capturing and storing this data in the most cybersecure way</li> <li>Providing secure access to this data to a variety of internal and external stakeholders</li> <li>Upgrading the data management approach in line with changing regulation, organisational objectives, and stakeholder expectations</li> </ul> <p><b>Robin Hageman</b>, Managing Partner <a href="#">Infiniot</a></p>	15:30	<p><b>DER Integration – leveraging IEC 61850 to integrate DER into the grid and provide seamless and cybersecure system monitoring and control of the end-to-end grid</b></p> <ul style="list-style-type: none"> <li>Updating on the status of DER – Grid integration in The Netherlands</li> <li>Mapping out the DER integration Working Group structure and objectives and understanding the timelines for delivering a complete set of technical specifications for the high-level architecture</li> <li>Taking into account the needs of the entire DER ecosystem and determining how all stakeholders are being engaged to ensure a future proofed set of specifications</li> <li>Utilising a reference implementation to ensure that the technical specifications deliver high levels of: <ul style="list-style-type: none"> <li>Reliability</li> <li>Cybersecurity</li> <li>Scalability</li> </ul> </li> <li>Making these specifications available to the international community and ensuring their adherence to broader IEC 61850 guidelines</li> </ul> <p><b>René Troost</b>, Grid Strategies <a href="#">Stedin</a></p>
10:00	<a href="#">Morning break, networking and exhibition</a>	16:15	<p><b>Roundtable Discussions</b> - during this session the audience breaks out into several smaller working groups, each focused on a specific theme that arose during the day's presentations. Each working group will comprise of representatives of the entire IEC 61850 community to ensure a well-rounded and holistic discussion.</p>
10:30	<p><b>Communication Networks – optimising network topology and redundancy to support rapid and secure data transfer and effective remote control and protection</b></p> <ul style="list-style-type: none"> <li>Determining the communication network requirements of IEC 61850 substations for inter-substation, substation to control room, and substation to DER communication</li> <li>Identifying the specification challenges associated with next generation communication systems</li> <li>Building in appropriate levels of network redundancy to ensure a reliable and future proofed infrastructure</li> <li>Enabling accurate real-time communication capability to support increasing levels of remote management</li> <li>Ensuring high levels of cybersecurity at the network design stage to ensure the end-to-end cyber-resilience of IEC 61850 enabled digital substations</li> </ul> <p><b>Dominique Verhulst</b>, Global Energy Practice Leader <a href="#">Nokia</a></p>	17:00	<p><b>Roundtable Feedback</b> – during this session each working group leader will provide a 5-min summary back to the wider group, highlighting the issues raised, the solutions discussed, and the recommendations made to take the matter to the next level.</p>
11:15	<p><b>Remote Maintenance – establishing platforms and procedures to enable cybersecure access to substation assets in support of deeper levels of remote system maintenance</b></p> <ul style="list-style-type: none"> <li>Examining the drivers for remote maintenance in terms of leveraging virtualised relays that deliver flexibility, reliability, and reduced footprint of substation assets</li> <li>Optimising the platform architecture to support cybersecurity, SCADA and protection functionalities in one system</li> <li>Understanding how protection and automation schemes must be developed to better support remote maintenance activity</li> <li>Reviewing the new demands being made of the telecommunication network and the need for increased redundancy to enable rapid data transfer</li> <li>Developing a robust cybersecurity strategy to ensure the resilience of your remote maintenance activity</li> <li>Complementing NERC CIP cybersecurity guidelines with physical security measures to ensure full compliance and effective counter measures</li> <li>Developing new roles and responsibilities to support 24/7 remote maintenance in an IT/OT converged environment</li> <li>Estimating the business benefits achieved through transitioning to remote maintenance for IEC 61850 enabled digital substations</li> </ul> <p><b>Mehrdad Vahabi</b>, Substation Automation Project Manager <a href="#">Southern California Edison</a> <b>Farzad Khalilpour</b>, Lead of Fully Digital Substation Automation System <a href="#">Southern California Edison</a></p>	18:00	<p><b>Close of conference day three</b></p>
12:00	<a href="#">Lunch, networking and exhibition</a>		

# Post-Conference Cybersecurity Seminar: Friday 22<sup>nd</sup> October 2021

08:00	<b>Registration</b>	
08:20	<b>Welcome address from the chair</b>	
08:30	<p><b>Threat Landscape – quantifying the attack surface and determining the threat vectors and actors that are likely to pose the greatest risk to IEC 61850-enabled digital substation assets in the next 2-3 years</b></p> <ul style="list-style-type: none"> <li>Examining lessons learnt from the latest cyberattacks on the energy system globally</li> <li>Determining the risk profile of IEC enabled digital substations and identifying all points of cyber vulnerability</li> <li>Evaluating the risk of IT/OT converged smart utility environments and how this impacts the cyber-physical security of digital substations</li> <li>Understanding how social engineering techniques are evolving to enable cybercriminals to gain access to more critical parts of the grid</li> <li>Quantifying the impact of ongoing geopolitical tensions, the challenges surrounding digital forensics, and the limited rules around cyberwarfare and digital attribution, on the cybersecurity risk profile of digital substations</li> </ul> <p>Lars Erik Smevold, Head of R&amp;D/ Senior Security Analyst KraftCERT</p>	<ul style="list-style-type: none"> <li>Leveraging IEC 62443 to improve cybersecurity processes and solutions and incorporate cybersecurity into every staff member's daily operation</li> <li>Segmenting the network into conduits by type to mitigate localised vulnerabilities and limit threat exposure or propagation</li> <li>Enhancing authentication, data confidentiality and system integrity processes without adversely affecting the system performance and availability</li> <li>Identifying the optimal timeline for IEC 62443 implementation and developing a methodology to demonstrate return on investment</li> </ul> <p>Bas Kruimer, Business Director Intelligent Networks &amp; Communication DNV</p>
09:15	<p><b>Defence-in-Depth - developing a multi-layered defence-in-depth approach to cyber-physical security of substation assets as IEC 61850 gets deployed beyond the substation</b></p> <ul style="list-style-type: none"> <li>Defining defence-in-depth in the context of cyber-physical security for the digital substation</li> <li>Developing effective risk mitigation strategies to support cyber-physical security of next generation substation networks</li> <li>Ensuring effective integration of next generation firewalls for threat mitigation within the station bus</li> <li>Ensuring appropriate levels of cyber-physical intrusion detection to support high levels of responsiveness to live threats</li> <li>Achieving centralised and secure remote access to support the efficient monitoring and management of the substation</li> <li>Implementing ISO27001 across the most critical substations within the network</li> </ul> <p>Helder Barbosa, Cybersecurity Project Manager E-REDES</p>	<p>14:15</p> <p><b>IEC 62531 – ensuring the cybersecurity of IEC 61850 substations and interactions with DER systems through the effective implementation of IEC 62351</b></p> <ul style="list-style-type: none"> <li>Understanding how the power grid threat landscape is evolving</li> <li>The potential impact on the cyber assets in the power grid from nation state actors, other malicious threat agents, and inadvertent errors, failures, and natural disasters</li> <li>The key components of the IEC 62351 series of standards, and how they address security of communication protocols, network management, role-based access control</li> <li>Determining the best way to implement IEC 62351 from the outset with IEC 61850 to fully protect the IEC 61850-enabled grid</li> <li>Translating IEC 62351 into daily operational policies and procedures that are both user-friendly and provide high levels of cybersecurity</li> </ul> <p>Frances Cleveland, President Xanthus Consulting International</p>
10:00	<b>Morning break, networking and exhibition</b>	<p>15:00</p> <p><b>Afternoon break, exhibition and networking</b></p>
10:30	<p><b>EE-ISAC Panel – translating shared incident data into advanced prevention, detection, response strategies to guard against a more complex threat landscape</b></p> <ul style="list-style-type: none"> <li>Outlining the key drivers and benefits of EE-ISAC participation in terms of information sharing, idea generation, and working within a network of trust</li> <li>Understanding the capabilities of the knowledge sharing tool MISP for threat and malware intelligence sharing</li> <li>Evaluating how EE-ISAC participation has enabled more extensive SOC and ASS developments within different utility environments</li> <li>Comparing experiences with cyber prevention, detection and response strategies within IT environments with that of OT environments and quantifying the future risk to evolving IT/OT converged infrastructures</li> <li>Creating a roadmap for more advanced prevention, detection and response strategies for IT/OT converged environments based on insights gathered from EE-ISAC participation</li> <li>Evaluating the drivers for regional collaboration between utility cyber defenders to boost the ability to get ahead of a more complex and unpredictable threat landscape</li> </ul> <p>Alexander Harsch, Head of Cyber Security Resilience &amp; CyberRange-e - E.ON Swantje Westaphl, Director of the Institute of Security and Safety – Brandenburg University Marcel Kulicke, Service Manager ProductCERT - Siemens</p>	<p>15:30</p> <p><b>Cybersecurity Certification – leveraging state of the art testing and certification processes to validate and ensure the cyber resilience of IEC 61850 enabled digital substations</b></p> <ul style="list-style-type: none"> <li>Reviewing current guidelines for the adoption of cybersecurity certification by utilities</li> <li>Identifying gaps in existing cybersecurity certification frameworks and how these must be addressed through the ICCS certification scheme</li> <li>Understanding the role utilities will play in defining the certification scheme to ensure it is fit for purpose and eases the component buying process</li> <li>Determining the type and level of testing and governance required to ensure full compliance in line with the network code</li> <li>Reviewing how the certification scheme will link to standards such as IEC 62443 and IEC 62531</li> </ul> <p>Maarten Hoeve, Researcher ENCS</p>
11:30	<p><b>Substation Cybersecurity Innovation Panel – evaluating state-of-the-art prevention and detection solutions on the market and in development to secure next generation digital substations</b></p> <p>During this session leading cybersecurity solution providers share how their products are being deployed within digital substations, protecting the substation on a cyber-physical level, and further developing them to ensure they keep pace with a rapidly changing threat landscape. At the end of the presentations there will be time for you to quiz the speakers and address the substation cybersecurity issues of greatest concern to you.</p> <p>Klaus Mochalski, CEO, Rhebo Andreas Klien, Head of Business Development Power Utility Communication,OMICRON</p>	<p>16:15</p> <p><b>Incident Response - developing a robust risk management programme to drive early detection, effective response, and speedy recovery of substation assets from the effects of malicious cyber-physical attacks</b></p> <ul style="list-style-type: none"> <li>Identifying best practice in cyber incident response and determining how well these have been executed during the most recent attacks on energy systems worldwide</li> <li>Working with external specialists to set up a robust incident response framework that ensures effective:             <ul style="list-style-type: none"> <li>Collection of forensic data under intense time pressure</li> <li>Stemming the flow of the data bleed in as targeted a manner as possible</li> <li>Resetting systems and software without destroying forensic evidence</li> <li>Transitioning back to normal operations with confidence</li> </ul> </li> <li>Designating clear roles and responsibilities to each individual on your cybersecurity team to eliminate chaos and confusion in-situ</li> <li>Setting out a clearly defined communication and reporting protocol during the incident to balance getting things done with keeping stakeholders informed</li> <li>Applying the lessons learnt to strengthening your security posture and eliminating the possibility of a repeat attack</li> </ul> <p>Rishi Hariram, Chief Engineer, Operational Technology &amp; Cyber Security Eskom</p>
12:00	<b>Lunch, networking and exhibition</b>	<p>17:00</p> <p><b>Closing of seminar</b></p>
13:30	<p><b>IEC 62443 – understanding the framework and determining how it can best be leveraged to secure IEC 61850-enabled digital substations and supporting systems</b></p> <ul style="list-style-type: none"> <li>Analysing the network's current state of security to determine the best strategy for applying IEC 62443</li> </ul>	

## Sponsors

### Gold Sponsors



Megger is an international group which is the largest test equipment manufacturer in the world which makes test equipment for all parts in the electrical network. Megger is present in the IEC 61850 world since 2009, when Megger introduced in the market innovative products and concepts that only in recent times have been produced as well from other vendors: separation of the PC from the IEC 61850 station bus, comparison between network data and SCL data (SCL description and actual network traffic, patented concept), conversion of GOOSE messages in contact signals and binary input into GOOSE messages (the so called today Breaker IED, BIED, that is going to be standardized by TC 95 in the next years). Megger produces test equipment with built in IEC 61850 capability that are safe (cybersecure) for direct connection to the IEC 61850 network as they do not require the use of any computer to operate. These products are FREJA and SMRT and they are used for GOOSE and Sampled Values. Megger is actively working on developing products and concepts for the maintenance of IEC 61850 substations/ Smart Grid systems: procedures and methods for monitoring the operation of the electric power system and for automatic detection of errors. Megger is actively member of many standardisation committees (IEC, IEEE and Cigré).

Find out more at: <https://megger.com/>



Schneider's purpose is to empower all to make the most of our energy and resources, bridging progress and sustainability for all. At Schneider, we call this Life Is On. We believe access to energy and digital is a basic human right. Our generation is facing a tectonic shift in energy transition and industrial revolution catalysed by accelerated digitisation in a more electric world. Electricity is the most efficient and best vector for decarbonisation; combined with a circular economy approach, we will achieve a climate-positive impact as part of the United Nations Sustainable Development Goals. Our mission is to be your digital partner for Sustainability and Efficiency. We drive digital transformation by integrating world-leading process and energy technologies to realise the full efficiency and sustainability opportunities for your business. We provide end-point to cloud integration connecting products, controls, software and services. We enable lifecycle solutions from design and build to operate and maintain phases through a digital twin. We deliver capabilities to transform from site-to-site to an integrated company management. Our integrated solutions are built with safety, reliability and cybersecurity for your homes, buildings, data centres, infrastructure and industries. We are advocates of open standards and partnership ecosystems to unleash the infinite possibilities of a global, innovative community that is passionate about our shared Meaningful Purpose, Inclusive and Empowered values. We are the most local of global companies; our unmatched proximity to you enables us to better understand, anticipate and adapt with agility to support your business continuity with high ethical standards in everything we do.

Find out more: <https://www.se.com/ww/en/product-range/62039-ecostruxure%E2%84%A2-power-automation-system-engineering-%E2%80%93-epas-e/#overview>

### Silver Sponsors



Hitachi ABB Power Grids is a global technology leader with a combined heritage of almost 250 years, employing around 36,000 people in 90 countries. Headquartered in Switzerland, the business serves utility, industry and infrastructure customers across the value chain, and emerging areas like sustainable mobility, smart cities, energy storage and data centers. Hitachi ABB Power Grids is powering good for a sustainable energy future, with pioneering and digital technologies, as the partner of choice for enabling a stronger, smarter and greener grid.

Find out more at: <https://www.hitachiabb-powergrids.com/>



Helinks LLC is a software development company located in Zug, Switzerland. We are strongly specialized in IEC 61850 System Engineering Tools. Our customers are utilities, system integrators, IED manufacturers and academic institutes from every part in the world. In addition to our tools, we are offering IEC 61850 consulting, training and project support. Our IEC 61850 consulting activities allow us to learn about our utility customers' needs and to improve our products and services. In order to stay at the top of technology, we participate actively in IEC TC57 WG10 where the IEC 61850 standard is developed.

Find out more at: <https://www.helinks.com/>



OMICRON is the leading supplier of testing and supervision systems for power utility communication systems utilizing the IEC 61850 standard. OMICRON's products support the whole lifecycle of IEC 61850 Digital Substations from design verification, evaluation, factory testing, commissioning, to operation and maintenance. The applications in protection, automation & control of electrical power systems in connection with IEC 61850 GOOSE, Sampled Values, and C/S communication are covered by a diverse portfolio of tools. The products range from pure software tools to protection test sets and distributed test, measurement, recording, and supervision systems. OMICRON's intrusion detection system has a special focus on IEC 61850 and serves an important role for the cyber security of Digital substations. With OMICRON subsidiaries and service centers on every continent, the OMICRON team serves customers worldwide.

Find out more at: <https://www.omicronenergy.com/en/>



COPA-DATA is the manufacturer of the zenon® software platform, used in the manufacturing and energy industries for the automated control, monitoring, and optimization of machines, equipment, and power supplies. Founded by Thomas Punzenberger in 1987 and headquartered in Salzburg, Austria, the independent, family-owned company employs approximately 270 workers around the globe. The distribution of software on an international scale is made possible through the company's eleven subsidiaries and numerous distributors. In addition, more than 270 certified partner companies ensure efficient software implementation for end users in the food & beverage, energy & infrastructure, automotive, and pharmaceutical industries. In 2019, COPA-DATA generated turnover of EUR 51 million.

Find out more at: <https://www.copadata.com/substation>



As an IEC 61850 expert, our mission is to enable system integrators and utilities to deliver cost effective digital substation projects through dedicated training, project support, and vendor-independent top-down engineering tools. Since 2005, our highly secure and redundant protocol gateways, dedicated to substation automation system, are used by DSO and TSO all over Europe. Coupled with our central configuration file repository installed at customer premise, our solutions ensure standardized and optimized substation retrofit projects.

Find out more at: <https://elvexys.com/en/>



Rhebo develops and markets innovative industrial monitoring solutions and services for critical infrastructures. Rhebo is part of Landis+Gyr AG, a leading global provider of integrated energy management solutions and was awarded the 'IT Security Made in Germany' and 'Cybersecurity Made In Europe'. RAD's ruggedized IIoT gateways with Edge Computing host multiple software functions on the same hardware. With 40 years of innovation and worldwide presence in over 150 countries, RAD is a member of the \$1.5 billion RAD Group of companies. The technology partnership integrates Rhebo's Operational Technology (OT) monitoring and anomaly detection solution within RAD's SecFlow IIoT gateways.

Find out more at: <https://rhebo.com/en/>



Since 1920, Doble Engineering Company has partnered with electric power industry clients to minimize risk, improve operations, and optimize system performance. Doble provides enterprise level solutions, engineering expertise, on-line and off-line diagnostic instruments, consulting and testing services, educational seminars, and the world's premier library of electrical apparatus test data for the benefit of the global power industry. Doble Engineering Company prides itself on the knowledge we offer the power industry, including forums such as client conferences and seminars, technical papers, statistically relevant data, analytical support and the expertise of our engineers and chemists.

Find out more at: <https://www.doble.com/>

## Sponsors & Exhibitors

### Silver Sponsors



Triangle MicroWorks, Inc. provides software libraries and PC-based tools to help implement and maintain systems using industry-standard communication protocols such as IEC 61850 [including: -9-2 (Sampled Values); -7-410 (Hydro); -7-420 (DER); IEC 61400-25 (Wind); and GOOSE]. We also support IEC 60870-6 (TASE.2/CCP); IEC 60870-5 (-101, -102, -103, & -104); DNP3; and Modbus. Our Protocol Test & Verification Tools make it easy to test, troubleshoot and configure communication protocols and devices. Our Software Libraries help equipment vendors cost-effectively implement communication protocols in any device. We also offer OPC Drivers/Translators, Protocol Gateways, Visualization Tools, Web-based Training, and Implementation Services. For more information on the 61850 System Toolkit, [click here](#).

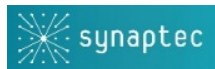
Find out more at: <https://www.trianglemicroworks.com/>



At Nokia, we create technology that helps the world act together. Powered by the research and innovation of Bell Labs, we supply mission-critical communications solutions for 200+ utilities to operate their grids and 50+ to offer broadband services, with the industry's most complete, end-to-end portfolio of products and services. The Bell Labs Future X architecture provides a framework for utilities to accelerate their digitalization and automation journey to Industry 4.0. Nokia has pioneered with industries their deployment of private wireless (4.9G/LTE and 5G) solutions, with 340+ customers and growing quickly.

Find out more at: <https://www.nokia.com/networks/industries/power-utilities/>

### Exhibitors



Synaptec invented the world's first distributed sensor platform for power systems. Our unique arrays of passive sensors compare current, voltage, temperature, vibration and strain in real-time, unifying the visibility and control of complex MV and HV power systems with unmatched speed, accuracy and range. This year we will be demonstrating our technology platform, showing how we reduce the capital cost of instrumentation, improve 61850 interoperability, enable better protection for new grid connections. Additionally we will be showing how we replace scheduled maintenance with our unique condition monitoring systems which avoid the need for 4C, IoT or batteries.

Find out more at: <https://synaptec/>



SAE IT-systems is producer of high-performance telecontrol- and substation automation systems for application areas like electricity, water, natural gas, district heat, traffic infrastructures and industry. Based on our experience gained in more than 45 years we are one of the leading companies in the market regarding know-how and innovation. With 100 employees at our headquarter in Cologne, we offer demand-driven hard- and software products as well as all matching services form a qualified project management to bringing the system into service. On behalf of our clients we are always striving for integral solutions matching their inquiry - we got "solutions in mind". Next to network operators and municipal utilities our clients are well-known industrial groups as well as major system integrator enterprises. Wherever infrastructures need acute supervision or controlling - we offer appropriate solutions! Since 31st January 2019 we are a part of the LACROIX Group. The entry of the French enterprise results in outstanding opportunities and synergies: Through the merger of technological expertise, specific solution competence and market access, both companies expect considerable growth potential - especially on the international market!

Find out more at: <https://www.sae-it.com/>



SISCO provides standards based, real-time communications and integration solutions to end users and OEMs in the energy industry. We specialize in the application of IEC 61850 and CIM to manage the complexity of electric power systems while building a flexible Smart Grid integration architecture that is robust and scalable. Products include source code, off-the-shelf interfaces, remedial action systems, and special protection systems. Services available include use case and model consulting, systems integration, application development, training, support and maintenance.

Find out more at: <https://sisconet.com/>



Fundamentals is a power systems technology specialist, delivering innovative solutions which improve the health and performance of the grid. Based in the UK and Australia, the company has built on its origins as an innovator in Automatic Voltage Regulation (AVR) products, together with its expertise in tapchangers and fault monitoring, to develop new products and services for better grid management. The company is engaged in developing new solutions for grids, embracing artificial intelligence, machine learning and digital substations.

Find out more at: <https://www.fundamentalsltd.co.uk/>



DNV is an independent assurance and risk management provider, operating in more than 100 countries. Through its broad experience and deep expertise DNV advances safety and sustainable performance, sets industry standards, and inspires and invents solutions. We provide assurance to the entire energy value chain through our advisory, monitoring, verification, and certification services. As the world's leading resource of independent energy experts and technical advisors, we help industries and governments to navigate the many complex, interrelated transitions taking place globally and regionally, in the energy industry. We are committed to realizing the goals of the Paris Agreement, and support our customers to transition faster to a deeply decarbonized energy system.

Find out more at: <https://www.dnv.com/>



GridClone team is specialized in understanding and testing of IEC 61850 Modeling, Engineering and Communication. That knowledge enables GridClone to provide its customers comprehensive and high-quality tools for detail testing of IEC 61850 implementation. Whether you are Developing, Conformance testing or Specification testing, SimFlex Testing Tools & Services will give you means and knowledge to do it. GridClone Testing tools are used for many years in accredited laboratories performing UCA certification and by vendors preparing and pretesting their implementations. And we are now focused to deliver same capabilities to Utilities in order to verify functionalities of their systems. Modern Power Automation Systems are continuously evolving and becoming more capable by utilizing information technologies and greater computing power. This puts a pressure on Automation engineers to build multidisciplinary knowledge and keep the pace with industry requirements. We understand that such task is demanding and therefore we provide tools, trainings and services that will help you to upgrade your knowledge and have capability to design and verify your solutions.

Find out more at: <https://gridclone.com/>



GE's Grid Automation, part of GE Grid Solutions, serves customers globally, delivering advancements that help utilities and industries effectively manage electricity from the point of generation to the point of consumption. Leading the way to make new monitoring and diagnostics, protection, control, automation and communication applications possible, we work to solve our customers' toughest challenges. As a key business within GE Renewable Energy, we partner with you in the energy transition to a greener future. Our solutions enable fast, accurate, monitoring, plus protection and control of electrical assets to maximize power system efficiency, reliability and resiliency.

Find out more at: <https://www.gegridsolutions.com/>





# IEC 61850 Week 2021

Driving the rapid replacement of cybersecure IEC 61850 systems within the substation, inter-substations, to the control room, and across DER infrastructure

1 Day Specification Workshop • 3 Days Conference, Exhibition and Networking Forum • 1 Day Cyber-security Seminar  
Virtual Event: 18-22 October 2021 | Swapcard Virtual Event Platform

**Pricing & Discounts**

Package	Standard
5-Day Delegate Pass Main Conference + Specification Workshop + Cybersecurity Seminar	€4,495 + VAT = €5,394.00
4-Day Delegate Pass Main Conference + Specification Workshop	€3,495 + VAT = €4,194.00
4-Day Delegate Pass Main Conference + Cybersecurity Seminar	€3,495 + VAT = €4,194.00
3-Day Main Conference	€2,595 + VAT = €3,114.00
1-Day Cybersecurity Seminar	€995 + VAT €1,194.00
1-Day Specification Workshop	€995 + VAT €1,194.00
Exhibitor (incl 2 x Main Conference Passes)	€7,000 + VAT = €8,400

**Register:**

To find out how you can participate as a Delegate, Exhibitor or Sponsor:  
Call: +44 (0)20 8057 1700  
Email: [registration@smartgrid-forums.com](mailto:registration@smartgrid-forums.com)  
Visit: <https://www.smartgrid-forums.com/iec-61850-week-2021>

**Swapcard Joining Instructions:**

This event will be hosted on the Swapcard virtual event platform. Once you have registered your place, you will receive a Swapcard confirmation email with a link to join the virtual conference a day before the event date, on Friday 15<sup>th</sup> October 2021. To ensure ease of participation please note the following:

1. Save the Swapcard confirmation email somewhere safe for easy retrieval on the scheduled day of the event
2. Log into the platform from 09:30 CET on Monday 18<sup>th</sup> October 2021, and be ready for the Workshop programme to start promptly at 10:00 CET
3. Log into the platform from 08:00 CET on Tuesday 19<sup>th</sup> October 2021 onwards, and be ready for the Main Conference and Cybersecurity Seminar programmes to start promptly at 08:20 CET each day
4. Fill your name, job title and company details in full and upload a JPEG photo of yourself for ease of online recognition
5. Network with participants during the login period and in between sessions
6. Post your questions for the speakers via the interactive Q&A feature
7. Rate other participants' questions to enable the most popular questions to get prioritised for addressing
8. Have your say via the online polls, to help test the temperature of the industry on key issues
9. Participate in the online hang-outs to meet with the speakers, sponsors and other participants digitally face to face
10. Visit the virtual exhibition area and request meetings with suppliers during the breaks
11. Participate in the interactive roundtable discussion sessions at the end of each main conference day
12. Receive the speaker presentation slides after each conference day

**Terms & Conditions:**

**Payment:** for both in-person and virtual event delegate bookings, payment must be made at the time of booking, by credit card or paypal to guarantee your place. For sponsor and exhibitor bookings, the client will be invoiced 100% of the package fee on signature, and this fee must be settled by bank transfer within 7 days or before the first day of the event, whichever falls soonest.

**Participant Inclusions:** the delegate, exhibitor and sponsor fee for both in-person and virtual events covers attendance of the conference sessions, access to the exhibition area, and receipt of the speaker presentation materials. For in-person events this fee also covers provision of lunch and refreshments during the course of the conference and networking reception. This fee does not cover the cost of flights, hotel rooms, room service or evening meals.

**Participant Restrictions:** two or more delegates may not 'share' a place at the conference, separate bookings must be made for each delegate. The exhibitor and sponsor benefit structure detailed in the associated order form may not be sub-divided, shared or distributed with any firm other than the signatory of the order form and therefore excludes but is not limited to partners, affiliates, clients, suppliers and associates. Using the conference as a platform to promote competing events is strictly forbidden, and failure to observe this clause will result in attendees being removed from the event without any entitlement to refunded fees or incurred expenses.

**Event Cancellations:** once booked delegate, exhibitor and sponsor cancellations cannot be facilitated. You may however nominate in writing, another delegate, exhibitor or sponsor to take your place at any time prior to the start of the conference. In the event that Smart Grid Forums Ltd postpones an event, the delegate, exhibitor or sponsor fee will be credited toward the re-scheduled event. If you are unable to participate in the re-scheduled event, 10% refund of your fees will be made but we disclaim further liability.

**Event Alterations:** it may be necessary for us to make alterations to the content, speakers, timing, venue, format or date of the event as compared with the original programme.

**Fortuitous Events:** Smart Grid Forums Ltd shall assume no liability whatsoever if an event is altered, re-scheduled, postponed or cancelled due to a fortuitous event, unforeseen occurrence or any other event that renders performance of this event inadvisable, illegal, impracticable or impossible. For the purposes of this clause, a fortuitous event shall include, but shall not be limited to: an Act of God; government restriction and/or regulations; war or apparent act of war, terrorism or apparent act of terrorism; civil disorder, and/or riots; curtailment, suspension, and/or restriction or transportation facilities/means of transportation; or any other emergency.

**Data Protection:** Smart Grid Forums Ltd gathers personal data in accordance with EU GDPR 2016 and we may use this to contact you by post, email, telephone, fax, sms to tell you about other products and services. We may also share your data with carefully selected third parties offering complementary products and services. If you do not wish to receive information about other Smart Grid Forums Ltd events or products from selected third parties, please write to use at: [registration@smartgrid-forums.com](mailto:registration@smartgrid-forums.com)

**Governing Law:** this agreement shall be governed and construed in accordance with the laws of England and the European Union.