

# PAC WORLD Global Conference 2021

## August 31 – September 1, 2021



### What to Expect in the Live Sessions

- Each Live Session will include 5 presentations with concluding Q&A at the end.
- Each presentation will last 15 minutes (we do try to stay on schedule)
- ALL Live sessions will be recorded and posted as an “OnDemand” recording approximately 3 hours after each session.
- Recorded Sessions & Recorded Papers will be available for 30 days based on your registration type.
- Submit Questions to be asked using the Q&A section within the live session

## General Conference Schedule

### Tuesday, August 31, 2021

09:30 – 11:00 **Live Session 1**  
11:00 – 11:30 **Break**  
11:30 – 13:00 **Live Session 2**  
13:00 – 14:30 **Break**  
14:30 – 16:00 **Live Session 3**  
16:00 – 16:30 **Break**  
16:30 – 18:00 **Happy Hour & Photo Awards**  
18:00 – 19:30 **Break**  
19:30 – 21:00 **Live Session 4**

### Wednesday, September 1, 2021

09:30 – 11:00 **Live Session 5**  
11:00 – 11:30 **Break**  
11:30 – 13:00 **Live Expert Panel**  
13:00 – 14:30 **Break**  
14:30 – 16:00 **Live Session 6**  
16:00 – 16:30 **Break**  
16:30 – 18:00 **Live Session 7**  
18:00 – 19:30 **Break**  
19:30 – 21:00 **Live Session 8**

**Live Conference Platform is open August 31 @9am – September 2 @9am (48 hours)**  
**For 30 days AFTER, ALL Sessions recordings available + booths can still be visited.**

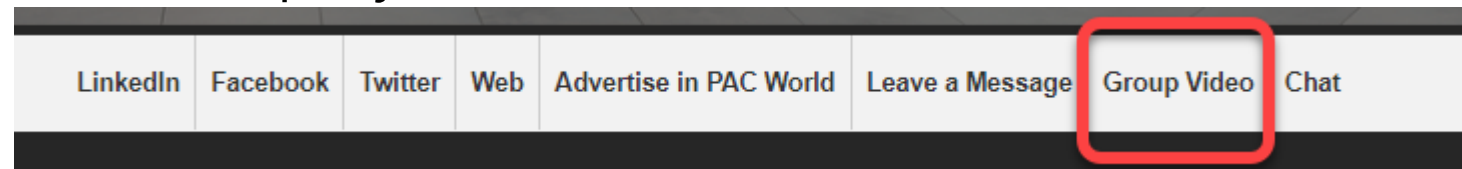
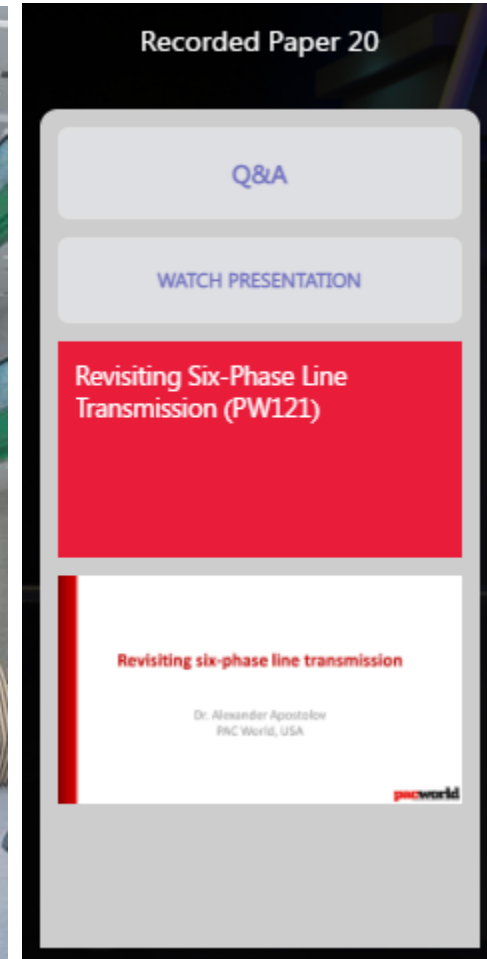
**ALL Times in EDT (same as New York City, NY, USA)**

*Global time zones listed within each session description.*

# Get the Most Out of your Visit

Network – Visit Booths – Watch Recorded Papers

- We have added so many video options to increase the opportunity to have face-to-face conversations.
- **Tip:** when heading to the Network Lounge, put a note in the chat to let others know which virtual room to meet you in.
- Video options are available in the networking lounge, recorded papers, and exhibit hall booths!
- Any questions? Visit the welcome video, go to info booth, or stop by the PAC World booth.



# Live Session #1

Tuesday – August 31, 2021, 9:30 AM – 11:00 AM EDT

09:30 – 09:45  
PW009

TR-IEC61850 6-100 Function Modeling: “The next step towards device independent Engineering”; J. Reuter, HELINKS, Switzerland

*Presenter: Joerg Reuter*

09:45 – 10:00  
PW048

First Experiences with IEC 61850 Edition 2 Amendment 1 - Server Conformance Testing; R. Schimmel, DNV - Energy Systems, the Netherlands

*Presenter: Richard Schimmel*

10:00 – 10:15  
PW069

Practical Aspects of Relay Protection Automatic Monitoring and Analysis; Y. Romanov, P. Voronov, O. Fedorov, RTSOFT, Russian Federation

*Presenter: Yuri Romanov*

10:15 – 10:30  
PW025

Adapt Protection Philosophy to Smart Grid Challenges in DEWA; S. Samadi, H. Al Shamsi, R. Mudhol, A. Al Hammadi, Dubai Electricity and Water Authority, United Arab Emirates

*Presenter: Saeed Samadi*

10:30 – 10:45  
PW034

R#SPACE – Rte’s new approach towards fully digital Protection Automation and Control Systems; T. Michel, V. Leitloff, JM. Boisset, X. Michaut, Rte, France; J. Brengarth, S. Germain, YELE, France

*Presenter: Volker Leitloff*

10:45 – 11:00  
Q&A

Questions and discussions for the different speakers; moderated by the session Chair

## Global Start Times

Los Angeles	6:30am
New York	9:30am
Paris	3:30pm
Dubai	5:30pm
Delhi	7:00pm
Beijing	9:30pm
Sydney	11:30pm

Session Chair:  
Dr. Alexander  
Apostolov,  
USA

# Live Session #2

Tuesday – August 31, 2021, 11:30 AM – 1:00 PM EDT

11:30 – 11:45  
PW104

Application of Binary Process Interface Units (PIUs) in Eskom Transmission; S. Van Zyl, Eskom, South Africa

*Presenter: Stuart Van Zyl*

11:45 – 12:00  
PW123

Testing Methods for Assessing Relay Behavior Under Degraded Packet Delivery in a Process Bus; F. Steinhauser, A. Wiecha, OMICRON electronics, Austria

*Presenter: Alexandra Wiecha*

12:00 – 12:15  
PW100

Protection System Audit for Industrial Power Systems and Data Centers; V.A. Papaspiliotopoulos, PROTASIS S.A., Greece; V.C. Nikolaidis, Democritus University of Thrace, Greece

*Presenter: Vassilis Nikolaidis*

12:15 – 12:30  
PW027

RiseClipse, an Open Source SCL files Validation Tool Conforming to IEC Standards and Based on Machine Processable Rules in OCL (Object Constraint Language); A. Dehouch, T. Coste, E. Lambert, J. Cantenot, EDF R&D, France; D. Marcadet, CentraleSupélec, France; S. Latraverse, Hydro-Québec, Canada

*Presenter: Aurélie Dehouck and Sébastien Latraverse*

12:30 – 12:45  
PW006

"Test GOOSE" and System-based Testing: The Key to Efficient and Simplified Commissioning of Bus-zone Protection Schemes; A. Dierks, R. Louw, C. Venter, Alectrix (Pty) Ltd, South Africa

*Presenter: Alex Dierks*

12:45 – 1:00  
Q&A

Questions and discussions for the different speakers; moderated by the session Chair



## Global Start Times

Los Angeles	8:30am
New York	11:30am
Paris	5:30pm
Dubai	7:30pm
Delhi	9:00pm
Beijing	11:30pm
Sydney	1:30am (+1 day)

*Session Chair:  
Dr. Fred  
Steinhauser,  
Austria*

# Live Session #3

Tuesday – August 31, 2021, 2:30 PM – 4:00 PM EDT

2:30 – 2:45  
PW095

Industrial Control System Device Management and Cybersecurity; A. West, SUBNET Solutions Pty Ltd, Australia; A. Hamdon, SUBNET Solutions, Inc, Australia

*Presenter: Andrew West*

2:45 – 3:00  
PW016

IEC 61850-6 FOR HUMANS ; K. Gray, B. DeShaw, POWER Engineers, USA

*Presenter: Keith Gray*

3:00 – 3:15  
PW085

Analysis of POTT Scheme Misoperation for a Parallel Line Fault at National Grid; Y.I. Lu, S. Ji, National Grid, USA

*Presenter: Yijie-Irene Lu*

3:15 – 3:30  
PW063

Power Factor: "Use with Care"; D. Strickland, Loughborough University, United Kingdom; H. Kirkham, A. Riepnies, Pacific Northwest National Laboratory, USA; R. White, Measurement Standards Laboratory New Zealand, New Zealand; A. Berrisford, Consultant, Canada; J. Britton, Phenix Technologies, USA

*Presenter: Dani Strickland*

3:30 – 3:45  
PW042

Process Interface Units (PIU) and its Advantages for Full Digital Substations; A. Oliveira Pires, H. Leon, L. de Marchi Pintos, GE Renewable Energy, Brazil; P. Montaner, GE Renewable Energy, France; C.P. Teoh, GE Renewable Energy, UK

*Presenter: Adriano Pires*

3:45 – 4:00  
Q&A

Questions and discussions for the different speakers; moderated by the session Chair



## Global Start Times

Los Angeles	11:30am
New York	2:30pm
Paris	8:30pm
Dubai	10:30pm
Delhi	12:00am (+1 day)
Beijing	2:30am (+1 day)
Sydney	4:30am (+1 day)

*Session Chair:  
Rich Hunt,  
USA*



# Happy Hour

Tuesday – August 31, 2021, 4:30 PM – 6:00 PM EDT

**Want to spend some time actually visiting, seeing, and talking with other conference attendees?**

Join us for a happy hour where everyone can use their cameras and microphones as they like.

It's BYOB – Bring Your Own Beverage. As this is a global event, it could be any time of the day, so bring any drinks from breakfast to cocktails – fruit juice, soda, water, beer, wine, coffee, etc.

**We will also be presenting the winning photos from the Photo Contest in both the General and Power categories.**

**How to Join?** Just click the Happy Hour banner in the conference lobby when it's time, as shown in the image to right and you will be directed to the Zoom Meeting.



Global Start Times	
Los Angeles	1:30pm
New York	4:30pm
Paris	10:30pm
Dubai	12:30am (+1 day)
Delhi	2:00am (+1 day)
Beijing	4:30am (+1 day)
Sydney	6:30am (+1 day)

*Photo Contest  
Winners will be  
announced at the  
Happy Hour*



# Live Session #4

Tuesday – August 31, 2021, 7:30 PM – 9:00 PM EDT

7:30 – 7:45 PW001 Verification and Validation of MPLS-TP for Tele-protection (Current Differential) services with existing TDM (SDH & PDH), Radio & WDM technologies through Proof of Concept; U. Parajuli, TransGrid NSW, Australia; K. Kulbhushan, D. Perera, CommTel Network Solutions, Australia

*Presenter: Kulbhushan Kulbhushan*

7:45 – 8:00 PW053 Research for Method of Sampling Timing Synchronization Applied with the Transmission Line Current Differential Protection Relays ; H. Matsumoto, Mitsubishi Electric, Japan

*Presenter: Haruyasu Matsumoto*

8:00 – 8:15 PW032 Case Study - Process Bus Based Protection Operations; C. Cheng, R. Kimura, AltaLink Management Ltd. , Canada

*Presenter: Chu Cheng*

8:15 – 8:30 PW124 What is sustainable design?; E. Udren, R. Hunt, Quanta Technology, LLC, USA

*Presenter: Eric Udren & Rich Hunt*

8:30 – 8:45 PW112 A Novel Maintenance Mode for IEC 61850 Digital Secondary Systems to Improve Protection Availability; A. Shrestha, P. Nadkar, K. Wyszczelski, B. Nalla, Schweitzer Engineering Laboratories, Inc., USA

*Presenter: Arun Shrestha*

8:45 – 9:00 Q&A Questions and discussions for the different speakers; moderated by the session Chair



## Global Start Times

Los Angeles	4:30pm
New York	7:30pm
Paris	1:30am (+1 day)
Dubai	3:30am (+1 day)
Delhi	5:00am (+1 day)
Beijing	7:30am (+1 day)
Sydney	9:30am (+1 day)

*Session Chair:  
Andrew West,  
Australia*

# Live Session #5

Wednesday – September 1, 2021, 9:30 AM – 11:00 AM EDT

9:30 – 9:45  
PW088 Power Quality Event Detection - Standards & Beyond; A. Madhyastha, AMETEK Power Instruments, India

*Presenter: Abhishek Madhyastha*

9:45 – 10:00  
PW046 Testing of Interlockings in Substation Automation Systems; A. Klien; C. Brauner; T. Schossig, OMICRON electronics GmbH, Austria

*Presenter: Thomas Schossig*

10:00 – 10:15  
PW111 Securing the IEC 60870-5-104/101 Protocols, Application and Compliance Testing to IEC 62351; O. Serban, B. Kruimer, DNV – Energy Systems, The Netherlands

*Presenter: Ovidiu-Cristian Serban & Bas Kruimer*

10:15 – 10:30  
PW098 Field Experience With Ultra-High-Speed Protection, Traveling-Wave Fault Locating, and Circuit Breaker Reignition Detection on a 220 kV Line in the Kalahari Basin; F. Shanyata, NamPower, Namibia; S. Sharma, D. Joubert, R. Kirby, G. Smelich, Schweitzer Engineering Laboratories, Inc., USA

*Presenter: Sthitaprajnyan Sharma*

10:30 – 10:45  
PW090 Direct Load Angle Measurement Application for Hydro Generator Loss of Synchronism Detection; I. Višić, I. Strnad, Pro Integris, Croatia

*Presenter: Ivan Visic*

10:45 – 11:00  
Q&A Questions and discussions for the different speakers; moderated by the session Chair

## Global Start Times

Los Angeles	6:30am
New York	9:30am
Paris	3:30pm
Dubai	5:30pm
Delhi	7:00pm
Beijing	9:30pm
Sydney	11:30pm

*Session Chair:  
Rannveig Loken,  
Norway*



# Live Expert Panel


Wednesday – September 1, 2021, 11:30 AM – 1:00 PM EDT

## Ask the Experts Panel

Please continue to send questions/comments via the Q&A option. The Chair will be monitoring them and adding them to the conversation.

We will be using the questions submitted earlier as the kickoff questions to get the discussion started.

Use the menu option “Submit Expert Panel Questions” to submit your own questions ahead of this live session so the chair can watch and promote them

 <b>Global Start Times</b>	
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Delhi	9:00pm
Beijing	11:30pm
Sydney	1:30am (+1 day)

Session Chair:  
Dr. Alexander  
Apostolov,  
USA



My Bag



Submit Expert Panel Questions



Drop Us a Photo

## Expert Panel

### Christoph Brunner

President

It4power

Christoph Brunner is the President of his own independent consulting company it4power LLC based in Switzerland. He has over 25 years of experience with knowledge across several areas within the Utility Industry and of technologies from the Automation Industry. He has worked as a project manager at ABB Switzerland Ltd in the area of Power Technology Products in Zurich / Switzerland where he was responsible for the process close communication architecture of the automation system. He is Convener of WG 10 of the IEC TC57 and is a member of WG 17, 18 and 19 of IEC TC 57. He is member of IEEE-PES and IEEE-SA. He is an IEEE Fellow and is active in several working groups of the IEEE-PSRC and a member of the PSRC main committee and the subcommittee H. He is advisor to the board of the UCA international users group.



### Prof. Dr. Athanasios (Sakis) Meliopoulos

Georgia Power Distinguished Professor

Georgia Institute of Technology

Athanasios (Sakis) Meliopoulos is Georgia Power Distinguished Professor in the School of Electrical and Computer Engineering at the Georgia Institute of Technology, Atlanta, Georgia, USA. He graduated in 1972 with a Diploma in Mechanical Engineering/Electrical Engineering from the National Technical University, Athens, Greece. He later received an M. Sc (1974) and Ph.D. (1976) in Electrical Engineering from the Georgia Institute of Technology, Atlanta, Georgia. He started his career as an Exchange Scholar/Engineer with Western Electric, Atlanta, GA in 1971. He was later Teaching and Research Assistant, Assistant Professor and Associate Professor at Georgia Tech from 1972 until 1989, when he became Professor. Since 2006 until today he is Georgia Power Distinguished Professor. He is also Site Director of the Georgia Tech Power Systems Engineering Research Center, Associate Director of the Institute for Information Security and Privacy, Chairman of the Georgia Tech Protective Relaying Conference and the Georgia Tech Fault and Disturbance Analysis Conference.

Prof. Meliopoulos has published several books and more than 330 papers. He is IEEE Fellow since 1993 and has received many prestigious awards.



### Dr. Normann Fischer

Distinguished Engineer

Schweitzer Engineering Laboratories, USA

Normann Fischer received a Higher Diploma in Technology, with honors, from Technikon Witwatersrand, Johannesburg, South Africa, in 1988; BSEE, with honors, from the University of Cape Town in 1993; MSEE from the University of Idaho in 2005; and PhD from the University of Idaho in 2014. He joined Eskom as a protection technician in 1984 and was a senior design engineer in the protection design department for three years. He then joined IST Energy as a senior design engineer in 1996. In 1999, Normann joined Schweitzer Engineering Laboratories, Inc., where he is currently a Distinguished Engineer in the Research and Development division. He has authored and coauthored more than 70 technical papers and 10 transactions papers. He has 25 patents, with 2 pending, related to electrical engineering and power system protection. He was a registered professional engineer in South Africa and a member of the South African Institute of Electrical Engineers. He is currently a senior member of IEEE and a member of the American Society for Engineering Education (ASEE).



## Expert Panel

### Rannveig Loken

Project manager Statnett, Norway  
Chair for CIGRE SC B5,  
Rannveig Loken received her Master of Science in Electric Power engineering from the Norwegian University of Science and Technology (NTNU) in 1992. She works in Statnett, the TSO of Norway, currently the project manager in Statnett R&D project related to Digital substation. In August 2012, she became the secretary of CIGRE SC B5. She has been the Chair of SC B5 from September 2018. Her special field of interest is protection and control for the transmission system. In addition, working in CIGRE Working groups is of great interest - she is currently a member of WG B5.69. Rannveig is in the Advisory board of PAC world, Committee member of DPSP, and Member of the International Advisory Committee APAP.



### Dr. Damir Novosel, IEEE Fellow

President  
Quanta Technology LLC  
Damir is president and founder of Quanta Technology. Previously, he was vice president of ABB Automation Products and president of KEMA T&D US. Dr. Novosel is a member of U.S. National Academy of Engineers and IEEE Fellow. He served as IEEE PES President and VP of Technical Activities. He is presently member of the IEEE Standards Board and chairs IEEE Smart Cities and Industry Technical Support Leadership Committee. He received CIGRE Attwood Associate and Distinguished Member awards. Damir holds 17 patents, has over 170 publications, and contributed to 5 books. Damir holds PhD and MSc, BSc degrees in EE from Mississippi State University (where he was a Fulbright scholar), the University of Zagreb, Croatia, and the University of Tuzla, Bosnia, respectively. He was selected Mississippi State University Distinguished Engineering Fellow.



### Dr. Alexander Apostolov

Editor-in-Chief  
PAC World, USA  
Dr. Alexander Apostolov received MS Electrical Engineering, MS Applied Mathematics and PhD from the Technical University in Sofia, Bulgaria. He has 45 years' experience in power systems protection, automation, control and communications. He is presently Principal Engineer for OMICRON electronics in Los Angeles, CA. He is IEEE Fellow and serves on many IEEE PES Working Groups. He is member of IEC TC57 working groups 10, 17, 18 and 19. He is Distinguished Member of CIGRE and IEEE Distinguished Lecturer. He holds four patents and has authored and presented more than 500 technical papers. He is Editor-in-Chief of PAC World.



# Live Session #6

Wednesday – September 1, 2021, 2:30 PM – 4:00 PM EDT

2:30 – 2:45

PW086

Synchronised Wide-Area Continuous Point of Wave Disturbance Recording; S. Blair, Synaptec and University of Strathclyde, Glasgow, UK, P. Orr, University of Strathclyde, Glasgow, UK

*Presenter: Steven Blair*

2:45 – 3:00

PW035

Rapid Deployment of IEC 61850 Stations Using Modular Approach and Top-down Engineering; S. Vijayaraghavan, M. Tetteroo, Croonwolter&dros, The Netherlands; B. Mulder, M. van Tol, TenneT, The Netherlands

*Presenter: Sindhuja Vijayaraghavan*

3:00 – 3:15

PW024

Coordinated EV-Charging to Support Low Voltage Networks – Experiences from a Field Test; A. Dammasch, S. Deters, Stromnetz Hamburg GmbH, Germany; F. Zeilinger, A. Schildorfer, Siemens AG Österreich, Austria; W. Fröhner, T. Werner, Siemens AG, Germany

*Presenter: Franz Zeilinger*

3:15 – 3:30

PW102

Experience using Phasor Measurement Unit (PMU) in Statnett; R. Loken, Statnett SF, Norway

*Presenter: Rannveig Loken*

3:30 – 3:45

PW110

IEC 61850 Multi-vendor Digital Substation – Lab-based Trial to Develop a Roadmap for the Deployment of IEC 61850 Digital Substations in Ireland; A. Heffernan, S. Keena, ESB, Ireland

*Presenter: Séamus Keena, Aidan Heffernan*

3:45 – 4:00

Q&A

Questions and discussions for the different speakers; moderated by the session Chair



## Global Start Times

Los Angeles	11:30am
New York	2:30pm
Paris	8:30pm
Dubai	10:30pm
Delhi	12:00am (+1 day)
Beijing	2:30am (+1 day)
Sydney	4:30am (+1 day)

*Session Chair:  
Paul Myrda,  
USA*

# Live Session #7

Wednesday – September 1, 2021, 4:30 PM – 6:00 PM EDT

4:30 – 4:45 IEC61850 Based Distribution Automation System Testing with RTDS and 4G LTE; A. Elandalousi, C. Huff, D.L. Ro, M. Balestrieri - Southern California Edison, USA; A. Smit, A. Stinskiy - Siemens Industry, USA  
**PW017**

*Presenter: Alexandr Stinskiy*

4:45 – 5:00 Redundancy Techniques in a Digital IEC 61850 Substation PAC System: The case of Portugal Digital Substation; A. Rodríguez, C. Polanco, ENEL Codensa, Colombia; I. Otárola, J. Uzategui, SOLTEC Soluciones Teleinformáticas y Control, Peru & Venezuela  
**PW075**

*Presenter: Iván Otárola*

5:00 – 5:15 Leveraging Cellular Networks for Communications Assisted Anti-Islanding Protection; B. M. Dob, Hubbell Power Systems, USA; T. J. Schwartz, GE Renewable Energy MDS, USA  
**PW105**

*Presenter: Brian Dob*

5:15 – 5:30 Dynamic vs Static Test Methodology for Validation of Protection Systems: Test Considerations, Challenges and Recommendations; S. Kuber, A. Gonzalez, Megger, USA  
**PW091**

*Presenter: Abel Gonzalez, Sugghosh Kuber*

5:30 – 5:45 Alarming Experience with Ungrounded Tertiary Bus Ground Detection ; G.L. Kobet, Tennessee Valley Authority, USA  
**PW036**

*Presenter: Gary Kobet*

5:45 – 6:00 Questions and discussions for the different speakers; moderated by the session Chair  
**Q&A**

 Global Start Times
Los Angeles 1:30pm
New York 4:30pm
Paris 10:30pm
Dubai 12:30am (+1 day)
Delhi 2:00am (+1 day)
Beijing 4:30am (+1 day)
Sydney 6:30am (+1 day)

*Session Chair:  
Prof. Dr. Sakis  
Meliopoulos  
USA*



# Live Session #8

Wednesday – September 1, 2021, 7:30 PM – 9:00 PM EDT

7:30 – 7:45 Substation SCADA Retrofit at Silicon Valley Power; A. De, Silicon Valley Power, USA; G. Antonova, A. Piatniczka, Hitachi ABB Power Grids, USA and Canada  
PW074

*Presenter: Galina S. Antonova*

7:45 – 8:00 Cost and Time Efficient Methodologies for Evaluation of the CT Saturation Impact on Bus Differential Protection Using Real-Time Digital Simulator Testing ; M. Khanbeigi, A. Hangilipola, M. Leung, Hydro One Network Inc., Canada; J. Holbach, H. Khani, A. Momeni, A. Davari, Quanta Technology, Canada & USA  
PW031

*Presenter: Juergen Holbach & Mohsen Khanbeigi*

8:00 – 8:15 Monitoring of IEC 61850-Based Fully Digital Substations: Challenges and Solutions; N.Perera, C. Adewole, René Midence, A. Oliveira, ERLPhase Power Technologies Ltd., Canada  
PW083

*Presenter: Anderson Oliveira*

8:15 – 8:30 Recent Applications of Impedance, Time-domain, and Transient Monitoring for Carrier Relaying Channels; C. Palmer, A. Jayson, PowerComm Solutions, USA; J. Brown, Georgia Transmission Corporation, USA  
PW014

*Presenter: Craig Palmer*

8:30 – 8:45 Revisiting Six-Phase Line Transmission; Alexander Apostolov, PAC World, USA  
PW121

*Presenter: Alex Apostolov*

8:45 – 9:00 Questions and discussions for the different speakers; moderated by the session Chair  
Q&A



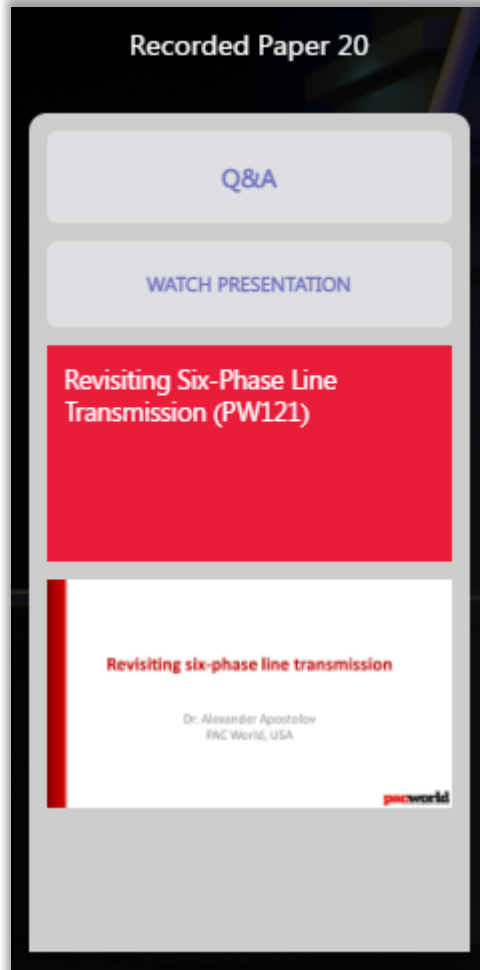
## Global Start Times

Los Angeles	4:30pm
New York	7:30pm
Paris	1:30am (+1 day)
Dubai	3:30am (+1 day)
Delhi	5:00am (+1 day)
Beijing	7:30am (+1 day)
Sydney	9:30am (+1 day)

*Session Chair:  
Rene Midence,  
Canada*

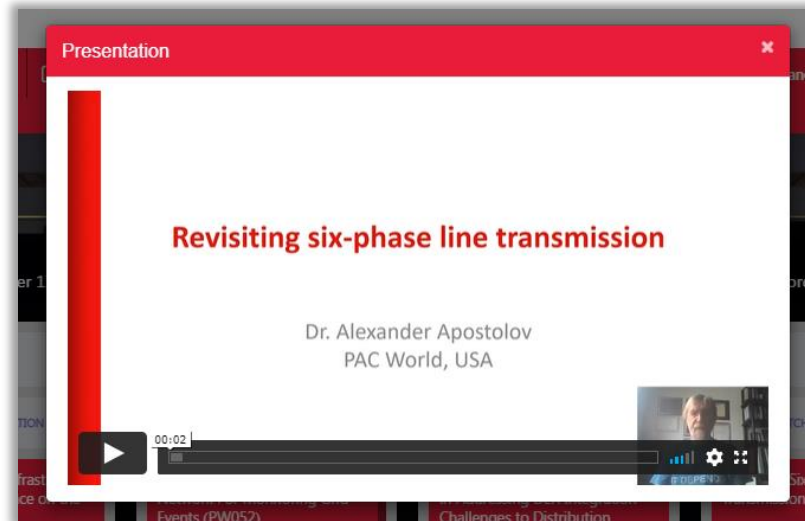
# OnDemand Presentations

Available from the start of the conference and until 30 days after



Click "Watch Presentation" to watch the recording

Click "Q&A" or title slide image to view slides & access Q&A (chat & video)



	Global Start Times
Los Angeles	OnDemand
New York	OnDemand
Paris	OnDemand
Dubai	OnDemand
Delhi	OnDemand
Beijing	OnDemand
Sydney	OnDemand

Presenters will be available- Join them in the Video Q&A - Reach out for any questions or discussion!

# OnDemand Presentations

Available from the start of the conference and until 30 days after

Recorded-01 (PW043)	WAMPAC Test and Planning Setup for Large System Response Analysis; P. Wiest, C. Heyde, C. Romeis, A. Litzinger, R. Krebs, Siemens AG, Germany
Recorded-02 (PW013)	Application of Artificial Neural Networks to Power System State Estimation; J. P. Carmichael, Y. Liao, University of Kentucky, USA
Recorded-03 (PW015)	Geomagnetic Disturbances (GMD) Impacts on Protection Systems; Q. Qiu, American Electric Power, USA; V. Madani, GridTology LLC, USA; T. Manna, Burns & McDonnell, USA; T. Raffield, Duke Energy, USA; S. Klecker, MidAmerican Energy, USA; Y. Liao, University of Kentucky, USA; S. Meliopoulos, GeorgiaTech, USA; D. Fontana, Eversource Energy USA;
Recorded-04 (PW040)	ZIP load Modeling for Single and Aggregate Loads and CVR Factor Estimation; Y. Zhang, Y. Liao, University of Kentucky, E. Jones, University of Kentucky, N.s Jewell, LG&E and KU, D. M Ionel, University of Kentucky
Recorded-05 (PW118)	Role of Protective Relaying in the Smart Grid; J. Anderson, ComEd, USA; Alex Apostolov, Omicron Energy, USA; R. Fowler, Southern California Edison, USA; J. Gers, GERS USA, USA; R. Kazimier, Beckwith Electric, USA; S. Klecker, MidAmerican, USA; Y. Liao, University of Kentucky, USA; M. Majidi, San Diego G&E, USA; P. Myrda, EPRI, USA; T. Raffield, Duke Energy, USA
Recorded-06 (PW064)	Chronological Overview, Challenges, and Forthcoming Tendencies of the IEC 61850 Implementation in Bulgaria; N.D. Ignatovski, Electricity System Operator EAD, Bulgaria
Recorded-07 (PW094)	Using Analytics to Understand the Evolving Electric Grid; R. Hunt, D.G. Hart, J. Holbach, Quanta Technology LLC, USA
Recorded-08 (PW049)	Common Substation Platform – Utility Requirements; P. Myrda, EPRI, USA; H. Falk, OTB Consulting, USA
Recorded-09 (PW029)	Improved Protection Reliability With PTP Master Implementation In Protection Relays; E. Vundekari, GE Grid Solutions, India; H. Vardhan, GE Grid Solutions, USA

	Global Start Times
Los Angeles	OnDemand
New York	OnDemand
Paris	OnDemand
Dubai	OnDemand
Delhi	OnDemand
Beijing	OnDemand
Sydney	OnDemand

Presenters  
will also attend  
the conference –  
Join them in the  
Video Q&A – Reach  
out for any  
questions or  
discussion!

# OnDemand Presentations

Available from the start of the conference and until 30 days after

Recorded-10 (PW003)	Use of Engine Thermal Wizard for Accurate Setting and Commissioning of Motor Protection Relay; J. Vainionpää, ARCTEQ Relays Ltd, Finland
Recorded-11 (PW096)	Importance of Common Information Model (CIM), a Basis for Interoperability; M. Akoury, DNV – Energy System, United Kingdom; B. Kruimer, DNV – Energy Systems, Netherland
Recorded-12 (PW097)	Experiences in Remote Protocol Testing during COVID-19; N. Heijker, DNV – Energy Systems, the Netherlands
Recorded-13 (PW116)	FLISR When Communications Fail; D. St. John, K. Johnson, Ampirical Solutions, USA
Recorded-14 (PW030)	Protection Relay Configuration Challenges for Different Voltage Unbalance Definitions; V. Rokkam , M. Chakravarthy, E. Vundekari, GE Grid Solutions, INDIA
Recorded-15 (PW066)	Stray Flux Impact on Performance of T-off Connected Shunt Reactors' Protection in Offshore Wind Farms; A. Tsylin, P. Prasad, THC Protection Systems, Denmark
Recorded-16 (PW103)	How IEC 61850 can Help Improve Substation Cybersecurity; Andreas Klien, OMICRON electronics GmbH, Klaus, Austria; Steel McCreery, OMICRON electronics Canada Corp., Canada
Recorded-17 (PW002)	Building a National Infrastructure For Artificial Intelligence on the Grid; S. Murphy, PingThings, USA; K. Jones, Dominion, USA; T. Laughner, Lifescale Analytics, USA
Recorded-18 (PW052)	High-Density Distributed Sensor Network For Monitoring Grid Events; R. King, Good Company, USA; T. Laughner, Lifescale Analytics, USA; B. Marshall, C. Sloop, Whisker Labs, USA; J. Wellingshoff, Grid Policy, USA
Recorded-19 (PW079)	Role of Modeling and Simulation in Addressing DER Integration Challenges to Distribution System Protection; F. Maigha, A. Brandt, Commonwealth Edison, USA

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Recorded-22 (PW062)	Reactive Power; H. Kirkham, Pacific Northwest National Laboratory, USA; D. Strickland, Loughborough University, United Kingdom; R. White, Measurement Standards Laboratory New Zealand, New Zealand; A. Riepnieks, Pacific Northwest National Laboratory, USA; A. Berrisford, Consultant, Canada; D. Lavery, Queen's University Belfast, Northern Ireland
Recorded-23 (PW115)	Distribution Bus Protection - Taking a Simplistic Approach to a Complex Problem; D. Trotter, K. Johnson, Ampirical Solutions, USA
Recorded-24 (PW077)	A New Approach for Separating Physical and Numerical Steady-State Instability; M. Vaiman, M. Vaiman, V&R Energy, USA
Recorded-25 (PW078)	An Analytical Approach to Determining Initial Values of Variables for Modeling Synchronous Generators; M. Vaiman, M. Vaiman, V&R Energy, USA
Recorded-26 (PW011)	Impact of Wind Generation on Line Protection; A. Castañón, R. Cimadevilla, ZIV Automation, Spain; P. Eguia, E. Torres, R. Ibarra, Universidad del País Vasco, Spain
Recorded-27 (PW010)	Automated Creation and Testing of Substation HMI; C. Brandauer, Salzburg Research, Austria; F. Prösl Andrén, T. I. Strasser, AIT Austrian Institute of Technology, Austria; J. Resch, COPA-DATA GmbH, Austria
Recorded-28 (PW050)	A Comprehensive Setting Guide for Common Shunt Capacitor Bank Protection Schemes; S. Pabbathi, P. Gautam, R. Sao, S. Srivastava, Hitachi ABB Power Grids, India

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Recorded-31 (PW033)	An Advanced Automation Tool for Testing Electrical Performances of Phasor Measurement Units; D. Rangana Gurusinghe, S. Kariyawasam, D.S. Ouellette, RTDS Technologies Inc., Canada
Recorded-32 (PW019)	RSTP Network Emulation and Visualization ; R. Wellborn, J. Postma, POWER Engineers, USA
Recorded-33 (PW099)	Understanding the Impacts of Time Synchronization and Network Issues on Protection in Digital Secondary Systems ; A. Shrestha, M. Silveira, J. Yellajosula, S. Kumar Mutha, Schweitzer Engineering Laboratories, Inc., USA
Recorded-34 (PW004)	Future of PACS Ethernet Communication: Benefits and Challenges of Today's Technologies; Marcelo Zapella, GE Grid Solutions, USA
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Recorded-38 (PW005)	Enhancement of IEC 61850 with data models for Thermal Energy Systems; A. Schröder, C. Kahlen, FGH e.V., Germany; V. Katsiki, Hypertech SA, Greece; T. Otani, CRIEPI, Japan; L. Guise, Energy Semantic, France

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Recorded-42 (PW044)	Substation Automation Examples Achieved with EFACEC Automation Studio Software for Relays Configuration; A. Vizireanu, M. Popa, J.C. Ferreira, EFACEC Central Europe, Romania
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Recorded-51 (PW012)	Types of System Oscillations and Their Detection - Concepts and Applications; J. Byerly, American Electric Power, USA; Z. Zhang, GE Grid Solutions, Canada; M. Adamiak, Adamiak Consulting LLC, US
Recorded-52 (PW089)	Increasing Reliability Through the Use of Single-Phase Automation; Nic DiFonzo, Erik Brandstaedter, G&W Electric, USA
Recorded-53 (PW071)	Feeder Automation System Based on Advanced Protection technology; X. Dong, S. Shi, B. Wang, Tsinghua University, China
Recorded-54 (PW120)	Integrated Asset Management Solution (IAMS): The Paradigm Shift of the Utilities' Future Maintenance and Management ; N. Ji, OMICRON electronics Asia Limited, Hong Kong; A. Apostolov, PAC World, USA
Recorded-55 (PW022)	Artificial Intelligence-based Visual Detection of Switching States in Low Voltage Networks; Sigrid Plötz, Jan-Patrick Linossier, Rheinische NETZGesellschaft mbH, Germany; Tobias Kornrumpf, RheinEnergie AG, Germany; Ulli Waltinger, Yi Huang, Yinchong Yang, Subbu Rajaram, Siemens AG Technology, Germany; Thomas Werner, Wiebke Fröhner, Klaus Schmidts, Siemens AG Digital Grid, Germany

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