




Activities



Welcome to The 22nd IERE General Meeting and 6th IERE Webinar

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 TIPS for Attendees

Toward Enhanced Resilience for Electric Power Systems

Power system instability caused by climate change, natural disasters, and human factors such as cyber attacks is a serious threat not only to our living environment, but also to the survival of life in the event of a large-scale power outage. This webinar will introduce the latest technologies and countermeasures that are being researched and developed to improve power system resilience.

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The webinar will use the Webex Meetings system and be recorded on the system. VIDEO ON DEMAND will be available after the webinar. Registration is required whether you are attending the webinar or watching the video footage later.

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General Meeting November 10, 2022, 1:00–1:15 p.m. (UTC)



Jan MERTENS
Vice Chair (Acting Chair)
IERE



Katsuhito TAKEI
Secretary General
IERE

IERE activities carried out the past year, ongoing projects and upcoming events will be presented.



Mark McGranaghan

Fellow, EPRI

"Enhancing Grid Resilience"

The issue of resilience to climate-related, physical and cyber events has become one of the most critical issues facing the entire electric power industry. This is becoming even more critical as we electrify more and more of society's critical energy systems (e.g. transportation and heat). There are many research needs associated with improving the electric system resilience and making these investments in the most effective manner. This talk will highlight critical research needs facing the industry right now, such as the value of resilience, the role of customers and communities, and planning and operations tools. Hopefully, this can lead to a discussion around industry coordination to accelerate development of tools and systems to support the grid resilience requirements in the future.

Biography

He provides technical and strategic input and guidance across the organization and for the electric utility industry around the world, working from the EPRI Europe office in Dublin, Ireland.

He has authored more than 70 technical papers and articles on topics ranging from power quality to insulation coordination of extra highvoltage (EHV) systems. He has been a leader in the development of smart grids for the last 20 years. He is an IEEE Fellow and in 2014 received the Charles Proteus Steinmetz Award for his expertise and dedication to power engineering standards development.

>> EPRI



FAN Chen

Power Automation Department, CEPRI

"The wide-frequency measurement technology for Inverter-based power system—Improvement of awareness capability of resilient grid"

"The wide-frequency measurement technology for inverter-based power system—improvement of awareness capability of resilient grid" has three main parts. Firstly, it briefly introduces the research on the concept and the features of resilient power grids in China. Secondly, it presents the widefrequency technology which can realize the measurement of fundamentals, inter-harmonic and harmonic measurement in range DC-2500Hz, and gives description of the method of wide-frequency measurement, the system structure of measurement in substation and the functions of widefrequency measurement devices. Thirdly, the application of wide-frequency technology is described, using the example of oscillation events. It can replace the PMU (Phasor Measurement Unit) and improve the awareness capability of future resilient grids.

Biography

Mr. Fan Chen (Member, IEEE) received his B.E. and M.E. degrees from Southwest Jiao Tong University of China in 2004 and 2007, respectively. From 2007 to 2012, he worked in State Grid Electric Power Research Institute(SGEPRI). In 2012, he joined China Electric Power Research Institute (CEPRI) and currently serves as an excellent expert of CEPRI on smart substation. His research interests include the implementation of IEC61850, smart substation, and power system protection, control, automation and communication. From 2016, his main research area is wide-frequency measurement technology and its application for inverter-based power system. He has published more than 40 papers indexed by EI Compendex and had more than 30 invention patents.

> CEPRI



Omar Méndez Zamora

Product Development Manager for Power Transformers, Prolec GE

"Flexible Power Transformers to Improve Resiliency of Transmission Networks"

Due to Power Transformers are custom-designed components in the transmission network is difficult to replace in emergency situations such as: extreme weather events, unpredictability of natural hazards and deliberate attacks. If a spare is not available, a new power transformer must be manufactured with a process that can span months.

Prolec GE and GE Research developed a solution called Flexible Power Transformer specifically for utilities where different voltages and impedances may be required when considering the purchase of spares. Instead of being solely dependent on a large pool of highly customized spare units, flexible transformers with multiple low voltage ratings and adjustable impedance capabilities could be a simpler and more cost-effective solution, not only for emergencies, but as permanent replacements.

Biography

Received his Bachelor degree in Electrical Engineering from Instituto Tecnológico de Morelia in 1999. Then received his Master of Science in Electrical Power Systems from Universidad Autónoma de Nuevo León in 2001. His employment experience included the Energy Control Center, Mexico, and GE Global Research Center, US. Since 2003 works in Prolec GE held various technology leadership positions, recently he is Manager of the Product Development team. His current research interests include reliability and design for power transformers.

> Prolec GE



Jorge Hollman

Senior Manager, Substations Engineering studies & High Current Lab, Powertech Labs

"Climate change adaptation, new challenges for Substations Equipment Applications"

All over the world electric utilities are experiencing more frequent and extreme weather events due to global climate change. 2021 was one of the worst years in records for storms and severe events ranging from windstorms, heat dome, extensive wildfires, atmospheric rivers, and flooding. The current planning and asset management practices using historical weather data/models to predict future extreme service conditions are not longer robust. These extreme weather-related events and associated impacted load and generation profiles impose new challenges to power system planners and asset managers. In this presentation we will share our experience facing these new challenges. There is a need for developing new supporting tools and application standards to optimize capital investments and operation costs under this new climate paradigm. Some of the topics associated with climate change adaptation for equipment applications included in this presentation are:

- Operation and Planning
- Existing and new equipment
- Stronger and new interdependencies
- Suggested actions to mitigate impacts of climate adaptation

Biography

With over twenty years of experience in the energy sector, Dr. Jorge Hollman is a Principal Engineer and the Senior Manager of the Substations Engineering Studies and the High Current Lab departments at Powertech Labs. He is a recognized power systems expert and has experience in modelling, transients simulation, point on wave switching, equipment specification, planning and operations. At Powertech, Dr. Hollman's teams are specialized in testing, consulting, and investigation services to support electrical utilities, equipment manufacturers, government, and research organizations.

He is recipient of the José A. Estenssoro Award, the Kenneth George Wansacker Memorial Prize, the Industrial Postgraduate Scholarship sponsored by the Natural Sciences and Engineering Research Council of Canada and the BC Hydro 2017 Customer Service Award.

> Powertech Labs Inc.

Program

Program

November 10, 2022, 1:00–3:00 p.m. (UTC)

Opening

1:00–1:05 p.m. (UTC) Opening Address, About IERE webinar
Katsuhito TAKEI
IERE Secretary General

IERE General Meeting Session

1:05–1:10 p.m. (UTC) Welcome Speech
Recent IERE Activities (October 2021–November 2022)
Jan MERTENS
IERE Vice Chair (Acting Chair)

1:10–1:15 p.m. (UTC) Ongoing Projects and Upcoming Events
Katsuhito TAKEI
IERE Secretary General

Webinar Session

1:15–1:40 p.m. (UTC) "Enhancing Grid Resilience"
Mark McGranaghan
Fellow, EPRI

1:40–2:05 p.m. (UTC) "The wide-frequency measurement technology
for Inverter-based power system
—Improvement of awareness capability of resilient grid"
FAN Chen
Power Automation Department, CEPRI

2:05–2:30 p.m. (UTC) "Flexible Power Transformers
to Improve Resiliency of Transmission Networks"
Omar Méndez Zamora
Product Development Manager for Power Transformers,
Prolec GE

2:30–2:55 p.m. (UTC) "Climate change adaption, new challenges
for Substations Equipment Applications"
Jorge Hollman
Senior Manager,
Substations Engineering studies & High Current Lab, Powertech Labs

Closing

2:55–3:00 p.m. (UTC) Closing Remarks
Katsuhito TAKEI
IERE Secretary General

Time Zone

The webinar will take place at 1:00 p.m. in UTC (GMT). Please make the proper time zone conversion to match the start time in your area.

UTC -8:00	5:00 a.m.–7:00 a.m.	Vancouver
UTC -6:00	7:00 a.m.–9:00 a.m.	Monterrey, Mexico City, San Antonio

UTC -5:00	8:00 a.m.–10:00 a.m.	Montreal
UTC +1:00	2:00 p.m.–4:00 p.m.	Amsterdam, Brussel, Essen, Johannesburg, Paris
UTC +8:00	9:00 p.m.–11:00 p.m.	Beijing, Singapore
UTC +9:00	10:00 p.m.–12:00 p.m.	Seoul, Tokyo
UTC +10:00	11:00 p.m.–1:00 a.m.	Brisbane

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Then, the Central Office sends a registration confirmation email, please join the webinar by the link on that email. If you do not see the email in your inbox, please check your junk mail folder.

Please join the webinar 5–10 minutes earlier to avoid last-minute problems.



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MUST-READ

TIPs for Attendees

Be Prepared Before Webinar Starts

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The webinar is recorded on the Webex system and is to be on demand. Webinar registrants will be able to view the video footage after the webinar ends.

Request for Feedback Survey

The Central Office would like to hear your feedback so we can keep improving our logistics and content. Please fill a quick survey after the webinar and let us know your thoughts (your answers will be anonymous)



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