



National Webinar

On

“Smart Grid Cybersecurity”

July 07, 2023



आयोजक / Organised By



Metering and Utility Automation Division (MUAD)

केंद्रीय विद्युत अनुसंधान संस्थान / Central Power Research Institute
(भारत सरकार की सोसाइटी, विद्युत मंत्रालय) / (Govt. of India Society, Ministry of Power)
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वेब / Web: www.cpri.res.in

About National Webinar:

Smart Grid (SG) is a new and modern power grid, which uses the modern technological innovation and development trend in the 21st century to the efficient and reliable power transmission and distributions. SG is considered as one of the most critical infrastructures, is defined as the classical power grid augmented with a large-scale Information and Communication Technology (ICT) and Renewable Energy integration. A Cyber-attack on devices that protect power and control the power grid could result in power distribution and damaged equipment. Risks from the cyber system as well as non-conventional physical power system contingencies start to contribute to the overall grid security. Cyber security is a growing concern and a key success factor for smart grid deployment. It is therefore imperative to understand the fundamentals and engineering aspects of cyber physical mechanisms that can lead to critical failures. Based on this understanding, system designers and operators may implement robust defenses for attack detection, mitigation, and forensics to improve the grid's reliability and resilience. An understanding of security vulnerabilities and solutions in the Smart Grid and future research scope for Smart Grid security will be covered in this National webinar. Ministry of Power, Govt. of India has released guideline for the Cybersecurity in the Power Sector.

The following topics will be covered in the National webinar:

- **Cybersecurity for Power Generation Stations (Thermal, Nuclear and Hydro)**
- **Cybersecurity issues in Renewable Energy (RE): Wind Farm**
- **Cybersecurity issues in Renewable Energy (RE): Ultra Mega Solar Park**
- **Cybersecurity issues in Renewable Energy (RE): Hybrid-Wind Farm & Ultra Mega Solar Park**
- **Cybersecurity issues in Energy Storage Systems**
- **Cybersecurity issues in Digital Substation/Substation Automation**
- **Cybersecurity issues in IEDs/PMUs and WAMPAC**
- **Cybersecurity issues in Advanced Metering Infrastructure (AMI)**

Pre-requisites

The Participant should have good internet connection and good quality headphone/speaker set with Laptop/Desktop. The participant should also have notepad/pen to note down important points.

Who should attend?

The National webinar is aimed at Engineers, Managers responsible for the operation and maintenance of Renewable Energy Systems, Distribution Systems, Transco's, Discoms, Transmission & Distribution Planners, Consultants, Officers of Power Utilities/Corporations, State Govt./SEBs, Policy makers, Entrepreneurs, Energy Planners, Renewable Energy Providers, Private Entrepreneurs, Manufacturers, Research/Academic Institutions and Financial Institutions, etc.

Registration

Participant fee details		
Sl. no	Organisations/Institutions	Per person per day
State Power Utilities/Government agencies		
1	Upto 5 participants	Rs 1500/-
2	6 participants to 10 participants	Rs 1300/-
3	11 participants to 30 participants	Rs 1200/-
Private sector		
1	Upto 5 participants	Rs 2000/-
2	6 participants to 10 participants	Rs 1500/-
3	11 participants to 30 participants	Rs 1200/-
Educational Institution		
1	Students	Rs 750/-
2	Faculty	Rs 1000/-
3	Lump sum upto 50 people per batch	Rs 15000/-

GST of 18% extra is applicable

Registration form, a part of this brochure, complete in all respect shall be sent to the National webinar Coordinator along with the registration fee.

The payment shall be made in advance by online only through the link provided(https://cpri.res.in/online-testing/pay_online) and share us the payment details.

Kindly use separate form for each participant, Downloaded/ Photo copies of Registration form are acceptable.

The Registration fee includes training material-soft copy and Digitally signed Electronic/Soft Copy certificate will be to the participants.

Metering and Utility Automation Division (MUAD)

The division is equipped with state-of-the-art technology instrumentation to cater the needs of testing and calibration services to customers from India & abroad at the following laboratories.

- Energy Meter Testing Laboratory (EMTL)
- Metering Protocol Laboratory (MPL)
- Calibration Laboratory

Energy Meter testing laboratory caters the services for various customers in Type test, Acceptance test, Tamper test and additional tests as per tender specification of utilities. CPRI has established a comprehensive test facility for Energy Meters at Bangalore and Bhopal. Both laboratories are equipped with State of Art Technology which complies with the requirements of National & International Standards and conforms to ISO/IEC 17025:2017 standard. CPRI has also established Energy Meter Testing lab at Noida.

Metering Protocol Laboratory renders DLMS/COSEM Protocol testing for Static Energy Meters/Smart Meters. By using latest version of Conformance Test Tool - CTT and Functional Evaluation Tool - FET both Static Energy Meters and Smart Meters are verified for their compliance to DLMS/COSEM (IEC 62056) protocol requirements and for their Parameter verification respectively. Also lab conducts communicability tests for Smart Meters. Both the above laboratories are recognized by Bureau of Indian Standards.

The Calibration laboratory is accredited by NABL as per ISO/IEC 17025:2017 standard for both at lab and at site. The calibration laboratory is equipped with high precision Energy Comparator of 0.01 class accuracy to calibrate reference energy meter up to 0.02 class accuracy. The laboratory has facility to calibrate Power source, reference standard energy meter, multi-function meter and power analyzer.

CPRI'S Profile

Central Power Research Institute (CPRI) set up in 1960 by the Government of India, functions as a National organization for applied research in power sector and also serves as an Independent Laboratory for testing and certification of power equipment. CPRI is a member of STI (Short Circuit Testing Liaison) of Europe and is accredited by M/s ASTA of UK. CPRI also provides consultancy services on various facets of power sector. CPRI has expertise in the area of Simulation, Diagnostics, System Analysis and Testing. CPRI laboratories have modern equipment needed for Power system simulation, Short circuit testing, Diagnostics of equipment, Materials engineering, Seismic qualification etc. CPRI has experienced faculty in different subjects concerned to power sector with practical experience in their areas of interest, as well as extensive experience in presenting courses/seminars.

Over the period, CPRI officers have gained lot of practical knowledge concerning to testing and operational problems of the industry. CPRI is a leading provider of Training and Continuing Education to Utilities, PSUs across the country for the past 50 years. CPRI is continually setting new standards in training and continuing education from basic theoretical information to practical hands-on electrical equipment training. CPRI courses have made substantial impact on the level of training and education to India's electricity utilities, manufacturing companies, transmission and distribution companies. By upgrading the occupational skill of technical workers, CPRI training courses have improved the career path of many electrical personnel as well as contributed to an improvement in electricity efficiency, plant productivity, electrical system reliability an overall competitiveness of Indian industry.



Dr Kaliappan Perumal, PhD (NIT, Tiruchirappalli), presently he is holding the post of Joint Director and Head of the Division of Metering and Utility Automation Division of Central Power Research Institute (CPRI), Bangalore, Ministry of Power, A Govt. of India Society. He has 29 years of experience working in the field of Power System Protection, Numerical Protection IEDs, Smart Grid Technology and Applications, Synchrophasor, Wide Area Measurement System (WAMs), Wide Area Monitoring, Protection and Control (WAMPAC) and Renewable Energies: Wind Farm-Solar Plant. His areas of researches are Adaptive Relaying, Computer Relaying, Protection issues in Distributed Generation and DERs, MicroGrid Protection, Assessment of compliance of both M class & P class Synchrophasor, Synchrophasor for Power system Protection and Control applications, Internet of Things (IoT) Enabled Smart Grid, Renewable Energies: Wind Farm, Solar Power and Hybrid Wind Farm-Solar Plant.

Cyber Security for Power Sector, Cyber Physical System Security for the Smart Grid, Information Security Management System for Industrial Control System, Cyber Security for Power Station, Cyber Security for SCADA System, Cyber Security Requirements for Industrial Control System, IT-OT Convergence, OT Cyber security, Cyber Security for Digital Substation, Cyber Security Compliance for IEDs, Cyber Security for Substation Automation, IEC 61850 Cyber Security Compliance, Cyber Security for Synchrophasor, Cyber Security for WAMs, Cyber Security for WASA, Cyber Security for WAMPAC, Cyber Security for Data and Communication system, Cyber Security for Renewable Energies, Cyber Security for Wind Farm, Cyber Security for Solar Plant, Cyber Security for MicroGrid, Cyber Security for DERs, Cyber Security for DERMs, Cyber Security for Smart Distribution System, Cyber Security for Smart Meters, Cyber Security for Advanced Metering Infrastructure, DLMS/COSEM Cyber Security, Cyber Security Standards and CEA Guidelines for Cyber Security in Power Sector.

He has organized more than 119 events including Smart Grid and Cyber Security domain. He has also delivered around 370 expert lectures in PSU, Central, IISc, IITs, NITs and reputed academia colleges/Universities. He is a IEEE Senior member, ISA Senior Member and Fellow IE. **Mobile: +91 94491 49924, Email: kaliappan@cpri.in**



Smt S.Sudha, Joint Director, is working in Metering and Utility Automation Division (MUAD) of CPRI. She has graduated in B.E Electrical Engineering from R.V.College of Engineering, Bangalore. She started her career as Engineering Officer Grade1 in CPRI. She has 25 years of experience in the field of Energy Meter testing as per IS & IEC Standards, Calibration of Reference standard Energy Meters and other measuring instruments. She has conducted pre dispatch inspection on Test Benches and Reference Standard Meters at manufacturer's premises abroad. Having experience in both testing and calibration she has conducted many workshops on Metering technology, Calibration and measurement uncertainty. She has also provided consultancy services to state electric city boards & Third Party Inspection at various manufacturer's premises on behalf of power utilities. Her areas of Research interest include Smart Grid, Smart Meter, Cyber Security, Renewable Energy (RE) and Power Quality. **Mobile: +91 96118 43364, Email: sudha@cpri.in**

**Registration form shall be sent by E-mail to
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