



## PSERC WEBINAR

### Edge Intelligent Devices and Cloud-based Analytical Platform for Behind-the-meter Solar Situational Awareness

**Raja Ayyanar, Bo Yang, Panitarn Chongfuangprinya**

Arizona State University & Hitachi America

Explosive growth of distributed solar generation has created several new challenges for the traditional operation of distribution systems, which are exacerbated by the lack of situational awareness, especially from behind-the-meter (BTM) PV systems. We are addressing some of these main challenges of high PV penetration in an ongoing research project sponsored by the DOE Solar Energy Technologies Office. After a brief overview of the major research tasks of this project, including integrated T&D analysis, deep-learning based dynamic hosting capacity determination, advanced DER control, and attack-resilient PV cyber physical system design, the webinar will focus on two main thrusts related to solar situational awareness – (1) design, integration, features and performance of the developed, UL-listed, edge intelligent device that integrates DERs to the cloud platform through secure, two-way communication, and (2) cloud-based analytics, visualization and control platform called end-to-end solar energy optimization platform (eSEOP) that allows real-time monitoring and control of DERs across the distribution system. The presentation will conclude with a demonstration of some of the current features of the cloud platform corresponding to a real distribution feeder with >200% instantaneous PV penetration.

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**AUGUST 31, 2021**

[LINK TO WEBINAR](#)

**2:00-3:15 P.M. EDT**

(11:00-12:15 P.M. PDT)

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**Raja Ayyanar** is a Professor in the School of Electrical, Computer and Energy Engineering at Arizona State University. He currently leads a multi-university, multi-industry research project on enhancing resiliency and reliability of distribution systems under extreme solar penetration. His expertise is at the intersection of power electronics and power systems. He received a Ph.D. degree from the University of Minnesota, Minneapolis in 2000.

**Panitarn Chongfuangprinya**, Ph.D., is a Principal Research Scientist at Hitachi America, Energy Solutions Lab. He has over 10 years of experience working with electric utilities in North America and Asia. His areas of expertise are Smart Grid Strategy, Data Mining and its utility applications, Power System Analysis, Renewable Energy Impact, Load Forecasting, Reliability Analysis, and Asset Management. He received his Ph.D. in Industrial Engineering from The University of Texas at Arlington.

**Dr. Bo Yang** is Sr. Director with energy solution team in Hitachi America. She has extensive academic and professional experiences on DER integration, distribution automation, smart grid, AI data analytics and enterprise system architecture. Dr. Yang has proven track records on team building, product development and technology incubation. She led the development of pioneer AI and IoT platform at Hitachi, serving utility and industry customers.