

## IEEE Power and Energy Society Entity Annual Report

2021

**Entity:** Power and Energy Education Committee (PEEC)

**Website:** <https://site.ieee.org/pes-peec/>

**Chair:** Anurag Srivastava

**Vice-Chair:** Sukumar Kamalasadana

**Secretary:** Aaron St. Leger

**Immediate Past Chair:** Siddharth Suryanarayanan

### 1. Significant Accomplishments:

Many of PEEC activities are generally conducted in person, in conjunction with, conferences (IEEE PES General Meeting (GM), IEEE PES Transmission and Distribution Conference and Exhibition (T&D), and the North American Power Symposium (NAPS)). However, due to COVID pandemic, NAPS 2020 (52<sup>nd</sup> NAPS) was pushed to the spring of 2021 and conducted in a virtual environment. The PES General Meeting was also conducted as a virtual conference. The 53<sup>rd</sup> NAPS was held in person, with a virtual attendance option for the PEEC meeting to allow wider participation from PEEC members. Despite these disruptions, nearly all traditional PEEC activities for the GM and NAPS were conducted. Maintaining contributions and efforts in the society despite the COVID pandemic and uncertainty involved with travel, planning, and executing activities was a significant accomplishment for PEEC in 2021. Some specific notable activities:

- a. Nine panel sessions, three with pre-recorded presentations and six with live presentations, were conducted and well attended during the virtual 2021 General Meeting. Live question and answer with attendees were performed for all nine sessions. Details of these panels are provided as an attachment.
- b. Eight tutorials conducted during the virtual 2021 GM: [Tutorials - 2021 IEEE Power & Energy Society General Meeting \(pes-gm.org\)](https://www.pes-gm.org/tutorials-2021-ieee-power-energy-society-general-meeting)
- c. All PEEC Subcommittee meetings, the PEEC AdCom meeting, and the PEEC main committee meeting were conducted.
- d. The student program for the GM (poster contest and Student/Industry/Faculty (SIF) Luncheon and panel) were successfully conducted in a virtual environment. The student poster session was conducted with 66 students and 127 judges. Winners were announced at the live SIF panel on 7/28/2021. The student housing support program was cancelled due to the lack of need. Certificates were sent via email via email, and plaques mailed out to winners.
- e. The Faculty/Industry live panel was held on 7/28/21, 11:30-12:30 ET, and was also recorded. Dr. Alex Flueck from Illinois Institute of Technology was the moderator. The panelist were Eyad

Abed, University of Maryland, Shay Bahramirad, Quanta Technology, Barbara Tyran, Women's Council on Energy & the Environment, and Hao Zhu, University of Texas at Austin.

- f. The student housing support program was not needed because of the virtual nature of the conference.
- g. Task Force on “Innovative Teaching Methods for Modern Power and Energy Systems” continues work on a PES Technical report, wrote multiple papers, conducted a panel session, and garnered 60-70 respondents to a questionnaire on assessment and teaching methods.
- h. The University Education Subcommittee developed an online portal for courses and resources than can provide educational material to the PES community. To continue support of this, and to provide continued benefits to PES members, a working group formation has been proposed.
- i. The PEEC Survey, traditionally conducted every two years, is a valuable resource to PES members pertaining to status and evolution of power engineering curricula. Due to COVID the Survey was delayed. However, a working group has been formed and significant efforts underway to conduct this survey in the coming year.
- j. Updated PEEC Operations manual to codify student participation in PEEC, clarify subcommittee chair and PEEC officer rotation process, update organization structure, and clarify voting processes.
- k. Conducted an election for PEEC Secretary. David Wenzhong Gao was voted by PEEC to become the next PEEC secretary effective in January 2022.

## **2. Benefits to Industry and PES Members from the Committee Work:**

PEEC provides a variety of benefits:

- Creates and improves relationships between all segments of electric power and energy industry and all elements of the engineering education community.
- Formulates recommended PES policy relative to all matters involving engineering and technology curricula accreditation.
- Serves as the primary source of PES recommenders? for service in various activities of ABET.
- Actively engages PES student members and provides a variety of student activities at the PES General Meeting, North American Power Symposium, and PES Transmission and Distribution Conference and Exposition.
- PEEC Survey conducted every two years.
- PES High School Initiative: sponsorship and mentorship of high school students to participate in a Power & Energy design project/competition. They attend the T&D conference and present their results. A successful pilot in 2018, cancelled in 2020 due to COVID pandemic.

## **3. Benefits to Volunteer Participants from the Committee Work:**

PEEC provides a variety of benefits:

- Venue to stay involved in, and up to date on advancements, in Power and Energy Education.
- Volunteer and leadership opportunities.
- Professional networking and professional development through PEEC activities.

#### 4. **Recognition of Outstanding Performance:**

- New IEEE Fellows: Wenzhong Gao, Suresh Srivastava, Kumar Venayagamoorthy, Hamidreza Zareipour
- The outgoing PEEC Chair, Anurag Srivastava, was recognized for his long-term leadership of PEEC with a plaque. Three outgoing PEEC Subcommittee Chairs were recognized for their long-term leadership of subcommittees: Valentina Cecchi (Student Activities), Le Xie (Research), Tim Hansen (Awards)

#### 5. **Coordination with Other Entities (PES Committees, CIGRE, standards, etc.):**

The University Education Subcommittee continued to work on an online portal for courses and resources that can provide educational material to the PES community. PEEC is also working on coordinating and collaborating with PES education initiatives being directed by the VP of Education, Babak Enayati.

#### 6. **New Technologies of Interest to the Committee:**

PEEC is interested in:

- Technology that supports, or drives innovation in, pedagogy
- Innovations in laboratory equipment and structured experimentation for power engineering education

#### 7. **Global Involvement**

PES is looking to increase involvement with members from Regions 8, 9, and 10 (Africa, Europe, Middle East, Latin America, Asia, and Pacific). PEEC will work to obtain this data and report it in the near future.

Total Number of committee members 108	Officers from regions 8,9 and 10 (Not Yet Collected)	Subcommittee officers from regions 8, 9 and 10 (Not Yet Collected)	Subcommittee members from regions 8,9, and 10 (Not Yet Collected)
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#### 8. **Problems and Concerns:**

PEEC has previously voiced concern regarding coordination between PEEC and IEEE PES Governing Board on Power and Energy Education activities. Specifically, PEEC would like to be involved when Power & Energy Education Activities are driven at the Governing Board level and have some input on the selection of PES VP of Education. The present VP of education has been very receptive to the desire to have PEEC more involved and PEEC will continue to work with the VP of Education to improve this synergy.

#### 9. **Significant Plans for the Next Period:**

PEEC has a few focus areas moving forward:

-Continue to improve PEEC involvement and coordination with VP Education and PES Governing Board

-Course links and educational materials: <https://sites.google.com/view/power-course-repository/home>

-Better collaboration and increased PEEC participation from industry and Regions 8, 9, and 10.

-Led by the Awards Subcommittee, an "outstanding doctoral dissertation in power and energy systems" award and panel will be designed to recognize the best emerging academic work that falls under the scope and enhances the mission of the Power and Energy Society

-Led by the Career Development and Workforce Development Subcommittee, a panel session is proposed for 2022 GM on career opportunities in the power and energy industry. A white paper is planned to be written and provided to the PES community on this topic.

-Led by the University Education Subcommittee, the traditional PEEC Survey will be conducted and exploration into expanding the Survey to additional regions will be performed.

**Prepared and submitted by:**

**David Wenzhong Gao, PEEC Secretary-Elect**

**Aaron St. Leger, PEEC Secretary**

**Sukumar Kamalasan, PEEC Vice Chair**

**Anurag Srivastava, PEEC Chair**

**Date: 1/5/2022**



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**PEEC Sponsored Panel Sessions for 2021 IEEE PES General Meeting**

Monday, July 26, 2021

12:00 PM - 12:00 PM	Panel Session	<u>Machine Learning for Power System Modeling and Control</u>	Emerging Technologies	Power & Energy Education	Pre-Recorded
12:00 PM - 12:00 PM	Panel Session	<u>Research and Educational Experiences of NSF CAREER Awardees in Power Systems: Part I</u>	Emerging Technologies	Power & Energy Education	Pre-Recorded
12:00 PM - 12:00 PM	Panel Session	<u>Research and Educational Experiences of NSF CAREER Awardees in Power Systems: Part II</u>	Emerging Technologies	Power & Energy Education	Pre-Recorded
6:00 PM - 8:00 PM	Panel Session	<u>University Research to Advance Solar Integration</u>	Emerging Technologies	Power & Energy Education	Live



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Tuesday, July 27, 2021

6:00 AM - 8:00 AM	Panel Session	<u>Real-time simulation advancing education and training on power and energy systems</u>	Emerging Technologies	Power & Energy Education	Live
7:00 PM - 9:00 PM	Panel Session	<u>Curriculum Development and Gap Analysis via Grid Ready Energy Analytics Training with Data (GREAT) Initiative</u>		Power & Energy Education	Live
7:00 PM - 9:00 PM	Panel Session	<u>Data-driven and ML approaches for enabling resiliency with high DERs</u>	Emerging Technologies	Power & Energy Education	Live

Wednesday, July 28, 2021

7:00 PM - 9:00 PM	Panel Session	<u>Application of Electric Grid Simulators for Education</u>	Emerging Technologies	Power & Energy Education	Live
7:00 PM - 9:00 PM	Panel Session	<u>Interdisciplinary Education and Training in Smart Grid Paradigm</u>		Power & Energy Education	Live