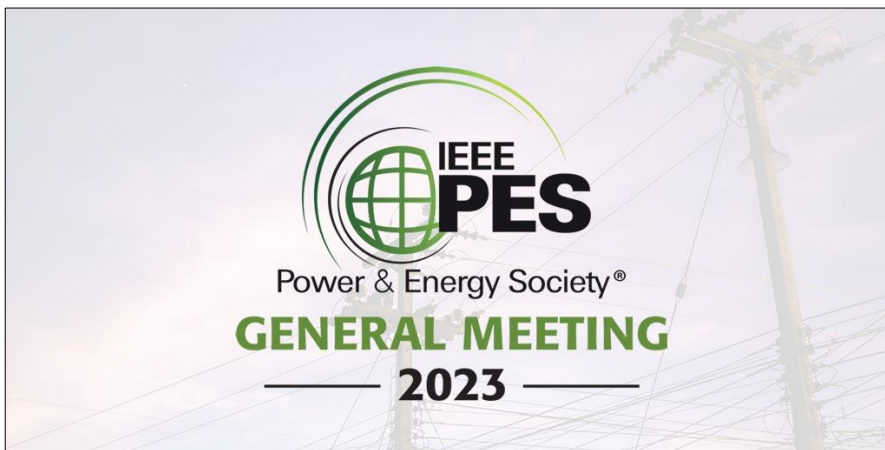


**EDDIE PROJECT PARTICIPATED AT THE
“THE 2023 IEEE POWER & ENERGY SOCIETY (PES) GENERAL MEETING”.**

26th November 2023, EDDIE Consortium

EDDIE representatives participated at the 2023 IEEE Power & Energy Society General Meeting that took place in Orlando, USA, on the 18th of July 2023. Prof. Nikos Hatziargyriou from our NTUA partner also delivered a presentation titled “Navigating the digital energy transition: Emerging skill needs and educational tools”.

The theme of this year’s conference was *Meeting the Energy Needs of a Dynamic World*. The IEEE PES GM is the premier annual power and electrical engineering event that brings together leading PES members, power and electrical engineers, key academics, and engineering students from all over the world. The aim was to provide an international forum for experts to network, promote, share, and discuss vital issues and progressive developments that impact the field of electrical and power engineering.



The meeting included sessions on the Role of Grid Planning to enable Net Zero future, Communications & Cyber Security, Novel Approaches & Emerging Technologies to Support System Operation, Integration of DERs, EVs, and BTM Resources, but also Transmission Advancement for Decarbonization.

Moreover, IEEE Power & Energy Society is fostering and inspiring the next generation of power and energy professionals and, as a result, at the 2023 IEEE Power & Energy Society General Meeting, students benefited by a Student, Industry & Faculty Luncheon and Career Fair, Call for Nominations: Outstanding Doctoral Dissertation and a Student Poster Competition.

With regards to the presentation delivered by Prof. Nikos Hatziargyriou, the first part of it provided insights from the ongoing project EDDIE (Erasmus+), regarding the methodological approach to anticipate skill needs, as well as key takeaways of the emerging skill gaps needed to support the digitalization of the energy sector.

Then, the presentation focused on the national project APEX (funded by H.F.R.I.) and the importance of educating students about energy systems, along with highlights of the project actions. Following, the objectives and operation of IEEE PES Task Force on Innovative Teaching Methods for Modern Power and Energy Systems were introduced.

The Task Force, chaired by Panos Kotsampopoulos and Nikos Hatziargyriou addresses innovative teaching methods and material in modern power and energy systems and promoting advanced technical tools for education and training.

The presentation concluded by highlighting the key takeaways from the hands-on experiences of using advanced technical tools (Hardware In the Loop, virtual and remote labs) gained in the context of the ERIGrid 2.0 project (H2020).

Part of the information presented at the meeting can be seen in the image below:

Skill Gaps identification

A multidimensional methodology was developed to address skill mismatches between the industry and the education and training providers.

European surveys [1]: More than 100 answers (50% industry, 40% education) from major stakeholder organizations in EU addressing challenges and skills in the energy sector.

For the full analysis please refer to the following deliverables on EDDIE webpage:
 D1.1 Current challenges in the energy sector and state of the art in education/training
 D1.2 Current and future skill needs in the energy sector

Education and engagement at a young age

Educating students about energy systems can increase awareness and engagement, which can support the energy transition.

- Create energy aware citizens
- Enhance the engagement of prosumers and active consumers
- Incentivize future professionals to work on energy systems

The APEX project in Greece has created two Smart Management Hubs of Renewable Energy Sources and Energy Efficiency at secondary education schools.

- Students participate in engaging workshops to familiarize with different aspects of smart grids and energy efficiency
- Participatory construction of a small wind turbine.
- Teachers are also trained to perform the workshops.
- Disseminates knowledge to other visiting schools

IEEE PES Task Force on Innovative Teaching Methods for Modern Power and Energy Systems

Aims to investigate, create, and promote the use of innovative teaching methods and material in modern power and energy systems.

Operates in the framework of the University Education Activities Subcommittee of the IEEE PES Power and Energy Education Committee (PEEC)

The TF addresses:

- New trends in laboratory education for modern power and energy system
- Transforming the power and energy classroom: blended learning and e-learning tools
- Advanced teaching methods for power and energy systems based on engineering educational research
- Identification of gaps between the current skill/competence needs of the industry and the output of universities.

70 members from 25 countries
 Will produce an IEEE PES Technical Report in the next months
 Chair: Panos Katsampopoulos, Nikos Hatziargyriou

Experiences of using advanced technical tools

- Hardware in the Loop (HIL) simulation: Connection of hardware equipment (e.g. relays, inverters) to a power system simulated in a digital real-time simulator
 - Provide students with hands-on experience with real hardware, while maintaining the advantages of the digital simulation (flexibility etc.)
 - Experiential education: educators engage their students directly on the object of knowledge and later, go to a focused reflection about that experience.
- Virtual and remote lab: Web-based tool used especially during the pandemic. Mathematical representation (virtual) or access to SCADA (remote) of the NTUA lab.
- Jupyter notebook for power flow analysis: the theory is analytically explained above the source code and the results are being displayed below the code

EDDIE Project is dedicated to identifying the skills needed for the digitalisation of the energy sector in its transition, either through re-skilling, up-skilling, or long-life learning at all levels of education and the Consortium is also supporting initiatives in favour of students (like this one implemented by IEEE Power & Energy Society) that is fostering the next generation of power and energy professionals.