Special Session
AI based Platforms and Cyber security for Smart Energies Communities (AI_CS_SEC 2022)

Description

The smart energy community (SEC), in its broadest sense, can be defined as a set of energy end users (citizens, small/ medium enterprises and local public authorities) that decide to make common choices to meet their energy needs with a sharing approach through distributed generation technologies. The enhancement of the use of renewable sources and the intelligent management of energy flows are part of the emerging paradigm of energy communities. SEC could lead to the spread of highly efficient multi-carrier energy systems (electricity, heating, cooling and hydrogen), integrating different energy storages capable of meeting the energy needs of the community. However, to support the implementation of these systems, a great effort is required in the area of technological innovations, such as the IoT but also Cloud and Big Data, to allow interaction between the infrastructures of smart grids, with the goal of identifying the optimal synergies between them. Furthermore, the platforms for Energy Communities must guarantee efficient and complete management of the data flows of energy communities by exploiting IoT and Big Data technologies, with the aim of encouraging an informed use of energy. The platforms will have to make it possible to optimize the overall efficiency of the energy community by developing customized energy consumption and production plans for each stakeholder in the community, supporting decision-making and forecasting processes with the help of artificial intelligence and cyber security. SECs are also spreading around the world due to the intense regulatory framework on this topic as the Clean Energy Package introduces for all Europeans the concept of SEC into European legislation for the first time. However, such a reorganization of energy systems poses different challenges and opportunities at various levels.

AI_CS_SEC Topic

- Energy and economic analysis of SEC's case studies based on experimental or numerical investigations;
- AI based Platforms for SEC;
- Cyber security for Smart Energies Communities
- AI-based SEC optimization and management techniques;
- Analysis and modeling of the behavior of the users of a SEC;
- Privacy and security in a SEC.

AI_CS_SEC Submission & Publication

Interested authors can submit a full technical paper between 4-6 pages. All submissions should follow the IEEE CS format. Accepted and presented papers will be published in the proceedings of CyberSciTech 2022 by IEEE CPS (IEEE Digital Library and EI-indexed). At least one author of each accepted paper is required to register and present their work at CyberSciTech 2022. Otherwise the paper will not be included in the proceedings. Selected excellent papers, after further extension and revision, will be recommended to special issues of prestige international journals (SCI/EI indexed).

Important Dates

- Submission due: June 30, 2022
- Acceptance notification: July. 15, 2022
- Camera-ready manuscript due: July. 30, 2022

Organizer

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