EEEIC 2025 CRETE

JULY 15.18 2025
CHANIA, CRETE
MINOA PALACE RESORT
PLATANIAS

RENEWABLE ENERGY COMMUNITIES: TECHNICAL CHALLENGES AND PROMISING SOLUTIONS

ORGANIZED BY
• **Valentina Consolo** University of Pisa, Italy [valentina.consolo@unipi.it]

A Renewable Energy Community (REC) brings together groups of citizens, organizations, and enterprises with the common goal of producing and sharing renewable energy. The collaboration within these actors provides a range of benefits, including environmental, economic, and social advantages to all members. Moreover, RECs can promote the penetration of renewable energy sources into the electric grid, actively contributing to facilitate decarbonization and to propel a transition to clean energy. Hence, RECs are poised to become key partners in our efforts to create a more environmentally sustainable future involving not only technicians, but also small enterprises, local entities and common citizens, so as to raise public awareness about the impact our actions have on the planet.
Various aspects related to electrical challenges in RECs are worthy deepening: algorithms to estimate fine grained electrical consumption of different kinds of users; control strategies aimed at jointly leveraging different renewable energy plants (photovoltaic, wind, biomass, sea-wave…), thus exploiting the peculiar features of different locations, as well as the impact of climatic conditions and specific constraints; methodologies to overcome electrical challenges related to grid stability, voltage regulation and load balancing. Moreover, economic analysis to assess the feasibility of real case studies and social initiatives to empower citizens and make them aware of the impact of their consumption habits represent topics of significant interest and contemporary relevance.
These and other aspects are going to be investigated in this special session, which aims to disseminate innovative approaches to conduct an optimal design of a REC, and to share insights and best practices to address electrical and economic challenges related to renewable energy communities

Topics of interest of this special session include, but are not limited to:

- Distributed energy sources;
- Optimal design, planning and operation of a REC;
- Energy consumption profile analysis and estimation;
- Mixing of different kinds of renewable sources to sustain a REC;
- Socio-economic impacts and advantages of community-driven electricity initiatives;
- Fair revenue sharing within a REC.

All the instructions for paper submission are included in the conference website:
https://www.eeeic.net/

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