INDIN 2023 Special Session on

SS 04 - Renewable Energy Sources and Distributed Energy Resources in the Water-Energy-Food Nexus: Industry Applications

organized by

Organizer 1: Lucas Pereira (lucas.pereira@tecnico.ulisboa.pt)
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Lucas Pereira, is a researcher at Instituto Superior Técnico (IST), University of Lisbon, and an integrated member of ITI/LARSyS. He received an engineering degree in Informatics and a master of science in Computer Science, both from the University of Madeira. In 2016 he received a Ph.D. degree in Computer Science, also from the University of Madeira. Lucas' research applies data science, machine learning, and human-computer interaction techniques toward bridging the gap between laboratory and real-world applicability of socio-technical engineering systems for sustainable development. His current research focuses on future energy systems and sustainable built environments including energy networks and smart cities. His research has led to over 50 peer-reviewed publications in JCR journals and in international conferences (1083 cites, h=20 according to Google Scholar).

Organizer 1: Hugo Morais (hugo.morais@tecnico.ulisboa.pt)
Affiliation: INESC-ID, Instituto Superior Técnico, Portugal

Hugo Morais is an Assistant Professor at the IST, University of Lisbon. He is with the Sustainable Power Systems Group of INESC-ID, where he is a Senior Researcher. He is an IEEE senior member, an expert of IEC, and a member of CIGRE where he collaborates in several working group activities. He received the electrical and computer engineering degree and the M.Sc. degree from the Polytechnic of Porto, and his Ph.D. degree from Trás-os-Montes e Alto Douro University, in 2005, 2010, and 2012, respectively. Since then, he has been actively involved in research and postgraduate course coordination in electrical engineering. He has authored more than 230 papers, including 62 journal papers (55 SCI indexed). Recently, he has been included in the top scientists' list (https://research.com/u/hugo-morais) and in the Stanford/Elsevier List of the most influential scientists. Nowadays, according to Google Scholar, he has an h-index of 44 and an i-10 of 106.

Call for Papers

Drought, population growth, energy use, land use, socioeconomic changes, and a shifting climate increase water demand and exacerbate pressure on water, energy, and food infrastructure. Therefore, it is critical to re-think how energy is produced and consumed in the water and food sectors. Critical thinking is particularly relevant in the industrial sectors, which are responsible for 25.3% of the final end-use of energy, and 40% of the total water abstractions in the EU alone.

Historically, interactions between water, energy, and food have been explored only at the macro-scale, considering only city-to-national-to-international inter-dependencies of the Water-Energy-Food Nexus (WEFN). This approach has proven particularly ineffective in power generation (both traditional and renewable) and several industries such as manufacturing, mining, and agriculture.

Adopting renewable energy technologies such as Renewable Energy Sources (RES) and Distributed Energy Resources (DER) can have substantial positive spill-over effects in the water and food sectors. However, the state-of-the-art is very limited when it comes to understanding the roles that RES and DERs can play in the WEFN.

This special session aims to provide a platform for researchers and participants from academic and industrial sectors to report recent research findings and industrial applications concerning the role of RESs and DERs in the Water-Energy-Food Nexus.

Topics under this session include (but are not limited to):

- WEFN Monitoring and Use of Machine Learning
- Integration of RES and DERs in the WEFN
- Human Factors in the WEFN
- User Experience and WEFN Visualization
- Public Datasets
- Standards for Data Sharing and Re-use
- Decision-Making Tools
- WEFN Integration in Industrial Buildings
- WEFN in Industrial Organization Activities
- Optimization Considering WEFN Global Vision

Submissions Procedure: All the instructions for paper submission are included in the conference website https://2023.ieee-indin.org/index.php

Deadlines:

Deadline for submission of papers:	**March 01, 2023**
Notification of acceptance of papers:	**April 15, 2023**
Final manuscripts due:	**June 05, 2023**