

## Workshop

### **MULTI-CRITERIA DESIGN OPTIMIZATION OF HYBRID RENEWABLE ENERGY SYSTEMS UNDER UNCERTAINTIES-CASE STUDIES USING MOHRES**

Organised by:

**Dr Alireza Maheri, University of Aberdeen**  
[Alireza.Maheri@abdn.ac.uk](mailto:Alireza.Maheri@abdn.ac.uk)

This workshop is designed to be beneficial for energy consultancy and system provider firms as well as research community interested in HRES. The first part of the workshop covers the following topics through running case studies using MOHRES software:

- Critical review of the traditional deterministic size optimisation techniques in producing cost-effective and reliable solutions
  - Why our designed HRE systems do not operate as we expect and the impact of this discrepancy on the end-user/customer trust
  - How nondeterministic multiobjective size optimisation methods can be used to produce cost-effective systems with predictable performance measures
- Formulating and incorporating user-requirements in size optimisation problem
  - Need for new reliability measures to make the system performance understandable by the end-user
  - How new reliability measures can be used to produce more cost-effective and reliable systems
- Incorporating dispatch strategy in size optimisation of systems with multiple storage/auxiliary units
  - The effect of dispatch strategy on the reliability and cost of the system
  - How inclusion of the dispatch strategy in the size optimisation formulation can lead towards producing more cost-effective and reliable systems
- Design of HRES for industrial usage
  - What is a plannable load
  - How inclusion of plannable load in size optimisation formulation can lead towards producing more cost-effective and reliable systems

In the second part of the workshop the attendees will learn about MOHRES and its capabilities and they will have the opportunity to bring their design case studies to be run by MOHRES.

The workshop will end with an open forum in which attendees from industry and research community will discuss the future trend of the market, the research support required from academia and the steps to be taken by companies to be ahead of competitors.

<http://soe.northumbria.ac.uk/efea2018/index.html>