



Shaping Energy for a Sustainable Future

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**First Stage Researcher / Project Engineer - Energy Systems**  
**Thermal Energy and Building Performance Group**

The applicant will work as a first stage research engineer in projects related to Net Zero Energy Buildings and Communities, DER (Distributed Energy Resources) integration and energy management systems in buildings and low-energy infrastructures. He/she will report to the Head of the Thermal Energy and Building Performance Group and to lead-Researcher of Green IT research line.

**The Research Group**

The research will be embedded in the Thermal Energy and Building Performance Group which main research subject is the Integrated and Systemic approach for Zero Energy Communities, Buildings and Industries. The group's special focus is on the Mediterranean and other warm weather regions. The vision is to build an applied research group that contributes to accelerate the reduction of greenhouse gas emissions (GHG) through energy efficiency measures, production of clean energy, and integration of distributed renewable energy sources (RES).

The research group is also managing the Semi-Virtual Energy Integration Laboratory (SEILAB) which provides advanced expertise to assess the development and integration of renewable energy solutions and innovative thermal and electrical equipment that are designed to improve energy efficiency in buildings and energy systems. The laboratory is provided with cutting-edge technology comprising systems for energy generation, heat and cool storage and state-of-the-art facilities for testing HVAC equipment and the interaction of energy systems with the grid. The laboratory operation is based on a semi-virtual testing approach, which allows for real equipment to be operated as a function of the behaviour of a dynamic virtual model. The laboratory is pioneer in addressing the smart integration of electrical and thermal components and aims to become a leading experimental facility for improving the development of Net Zero Energy Buildings.

**Description**

He /she will be involved in tasks such as energy simulation of buildings and HVAC systems, integration of renewable energies in buildings and/or systems. Integrated in a multi-disciplinary team, the candidate is expected to run research activities as part of international projects or projects with industrial partners, as research assistant / research engineer. One of the projects where the applicant will work on is the EU project WEDISTRIC. The overall objective of WEDISTRIC is to demonstrate DHC as an integrated solution that exploits the combination of RES, thermal storage and waste heat recycling technologies to satisfy 100% of the heating and cooling energy demand in new DHC and up to 60-100% in retrofitted DHC. For this purpose, the focus of WEDISTRIC is large-scale replication of best practice: better valorisation of local resources, like renewable and waste heat by making District Heating and Cooling networks more efficient in relation to the use of new resources. IREC's works in the project will be focused on heat re-use from Data Centres using an integrated solution with Fuel Cells. The candidate has to be used ensure deadlines as well of reporting and communication of technical / research results.

**Requirements**

We are looking for excellent and highly motivated candidates with a MSc degree in Mechanical Engineering and/or Energy systems, with some experience in HVAC, thermal renewable systems and generally speaking energy systems in buildings and/or cities. Knowledge in heat and mass transfer phenomena, renewable energy technologies and experience in computational energy systems and simulation tools (specially TRNSYS) is highly valuable.

We are looking for a methodical and rigorous person with a scientific spirit and results oriented. Teamwork and communication and management skills will also be a requirement. Mastery of English on all levels will be essential. Knowledge of other languages will be desirable.

**We offer**

We offer the chance to become part of an exciting and consolidated team, with international recognition, for developing cross-cutting projects in science and technology, oriented towards excellence. We also offer a research environment comprised of highly qualified and motivated professionals. Salaries will be paid in accordance with the IREC's salary policy, depending on the candidate's qualification and professional experience. We offer a temporary contract for at least 9 months (full-time).  
Workplace. Barcelona or Tarragona (IREC facilities)



Shaping Energy for a Sustainable Future

**Application**

Applicants should send a detailed CV and a letter of motivation to [irecjobs@irec.cat](mailto:irecjobs@irec.cat).

The application deadline is February 29th 2020

Please indicate "**2020 –R1 Energy Systems**" in the subject