



SYMPOSIUM

The Building as the Cornerstone of our Future Energy Infrastructure

The importance of dynamic and real data for reliable assessment

10-11 April 2019, Bilbao, Spain

Introduction

In the transition towards a new energy system, based on minimal carbon use and circular economy principles, the building is a cornerstone of the future energy infrastructure. Energy use in European buildings is still around 40 % of the total final energy use. Decarbonisation of power and heat are high on the agenda of EU Member States. Present initiatives by governments for a proper energy transition are based on reducing energy consumption, increased use of renewable energy resources and making the energy infrastructure more intelligent (SRI as mentioned in the EPBD). Presently, the major part of final energy in buildings is heat. In the near future, this will be converted more from (renewable) electricity. This transition should be an interaction between governments, industry and end-users. Often not considered, the citizen should be at the centre of the energy system; from passive consumers to engaged energy customers. For that purpose digitisation is essential, enabling monitoring and control of optimised energy use for a comfortable living and working environment.

The energy infrastructure needs to address the balancing for energy at different levels (TSO and DSO). The energy markets play an important role in managing the flows of energy in multi-directions. The level of balancing between the building end-user and the climate is not often carefully considered. Also, the energy flow between buildings and the energy networks will become more and more multi-directional. Buildings will produce energy: electricity that is partly delivered to the grid, and heat that is stored in the building or underground. The near future may see more self-consumption in buildings, including the electricity stored in electric car batteries. One may conclude that buildings in which presently 40% of final energy is consumed, will take a more prominent position in the energy infrastructure. Seven invited experts present the challenges and innovation aspects that may facilitate the energy transition.

The aim of the symposium is to present and discuss the challenges that the energy transition may create for companies, governments, researchers and most importantly, the citizen. Will a carbon free society be feasible using innovative technologies? Will the greenhouse gas emissions and final energy consumption be reduced while maintaining the standards of living and working?

To present and discuss these challenges, DYNASTEER has invited 7 international experts on:

- *Measurement of building performance for validation*- Richard Fitton, University of Salford, UK
- *Documentation of performance gaps and energy flexible buildings (Annex 67)* - Søren Østergaard Jensen, DTI – DK
- *Building energy related standards – CEN/ISO* - Jaap Hogeling - EPB Centre, NL
- *Renovation projects for buildings and cities*– César Valmaseda - CARTIF, ES
- *Renewable Energy integration (CITIES)* - Henrik Madsen - DTU, DK
- *Buildings and electric mobility: Monitoring of Mobility Energy with Distributed Sensing and Edge Computing* – Nicola Ferrier, Argonne National Laboratory, USA
- *Urban dimension - A dynamic model for district-scale building demand simulation* - Volker Coors - Hochschule für Technik Stuttgart, DE

During a final panel discussion, these topics will be discussed with IEA – EBC Annex71 “*Building energy performance assessment based on in-situ measurements*”

The symposium is organised in the frame of the IEA-EBC Annex71 6th Expert meeting, 8-11 April 2019 in Bilbao.

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