

University of Bath hosts International Energy Agency Hydrogen Implementing Agreement workshop: Power to Hydrogen to X

18 and 19 May 2017

The University of Bath recently welcomed and hosted hydrogen systems experts from Belgium, France, Germany, Japan, New Zealand, Norway, Romania, Spain, and the UK for a two-day workshop on the potential role of hydrogen in future energy systems. The workshop was motivated by the fact that hydrogen often plays little or no role in the scenarios of many energy system models. Therefore, the aim is to understand why this is and to discuss what analysis and modelling should be done in order to gather evidence on whether hydrogen really has a role to play and what it should be.

Most workshop participants are members of the IEA HIA Task 38, which examines hydrogen as a key energy carrier for a sustainable and clean energy system. Task 38 comprises of over 50 experts from more than 15 countries and is coordinated by the French CEA/I-tésé and supported by the French ADEME. The workshop was led by Dr Sheila Samsatli, from the Department of Chemical Engineering at University of Bath, who is the leader of the systems modelling subtask. The workshop was sponsored by the Institute of Sustainable Energy and the Environment (I-SEE) and the International Office at University of Bath.



Members of the Task 38 of the International Energy Agency Hydrogen Implementing Agreement.

The participants included representatives from Air Liquide (France), Bristol Energy (UK), CEA (France), Clean Horizon (France), De Montfort University (UK), Fuel Cells and Hydrogen Joint Undertaking (Belgium), Forschungszentrum Juelich GmbH (Germany), ICSI Rm. Valcea (Romania), Institute for Public Policy Research (UK), ITM Power (UK), National Hydrogen Center (Spain), PersEE (France), Process System Enterprise Ltd. (UK), Institute of Applied Energy (Japan), University of Bath (UK), Université de Lorraine (France), University of Manchester (UK) and WaterstofNet (Belgium).



Some of the participants of the IEA HIA Task 38 workshop held at University of Bath

The participants were welcomed by Professor Davide Mattia (Associate Dean of Research for the Faculty of Engineering and Design) and Professor Tim Mays (Director of I-SEE and Head of Department of Chemical Engineering) who also gave overviews of research at University of Bath, with a focus on energy.

Dr Paul Lucchese, from the French Alternative Energies and Atomic Energy Commission (CEA), introduced the IEA HIA Task 38 and why the workshop is timely and necessary. This was followed by presentations of various energy system models from University of Bath (Value Web Model, Dr Sheila Samsatli); Unitec Institute of Technology, New Zealand (UniSyD, Dr Jonathan Leaver); Institute of Applied Energy (IAE), Japan (GRAPE, Dr Yuki Ishimoto); and Forschungszentrum Juelich, Germany (various models, Dr Martin Robinius).

A PhD poster competition was also held where the participants voted for their two favourite posters. Mr André Prates Pereira (Department of Chemical Engineering, University of Bath) won first prize and Ms Lara Welder (Forschungszentrum Juelich GmbH) won second prize.

The remainder of the workshop involved lively and productive debates about the key issues and future avenues for hydrogen systems research.

“Hydrogen is a versatile energy carrier that can complement renewable energy: it is ideal for large scale and short/long term energy storage and incur less transport losses compared to electricity. Renewable hydrogen can support decarbonisation of the transport, heat and electricity sectors by powering hydrogen fuel cell vehicles and by being injected into the natural gas grid, permitting a higher penetration of renewables. However, there are many challenges that need to be addressed and this workshop has taken a big step towards determining the true role for hydrogen in the future energy systems,” said Dr Sheila Samsatli.

Professor Tim Mays commented “Dr Samsatli and colleagues are to be congratulated on organising and hosting this major energy meeting at Bath. The importance of hydrogen as a future sustainable energy carrier cannot be underestimated, and it was fascinating to welcome experts from around the world to debate and consider the options.”

“Energy transition or energy revolution is unavoidable, whatever wild statements or short term views of some policy makers. In this perspective hydrogen will play a key role by bridging the past energy system and the future emerging system, by bridging the fossils, nuclear and renewables, by bridging the centralized and decentralized energy production, and last but not the least by bring gas, electricity and heat network. Thus the question is not “If” but when and how, and economic aspects are becoming the core issue of hydrogen deployment” according to Dr Paul Lucchese, who is the father and mentor of the IEA HIA Task 38.

“Hydrogen should be considered as a privileged means towards a low-carbon energy system as it makes it possible to interconnect diverse energy carriers. Its versatility is key and the whole value chain should be assessed when developing business cases. Balancing services provided by Power-to-Hydrogen pathways should not be neglected in this respect,” added Dr Christine Mansilla, ExCo member and operating agent of the task.

The IEA HIA Task 38 would like to thank Mrs Carolina Salter, operations coordinator for I-SEE, for her invaluable contribution to the successful organisation of the workshop.