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ScienceDirect

Energy Procedia 149 (2018) 1–4

Energy Procedia

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Preface

The International Symposium on District Heating and Cooling (DHC) has over the years developed into one of the most well-reputed events world-wide for the communication of academic research in the field of DHC. This Symposium has been the world's meeting place for district heating and cooling experts for more than 30 years now and has steadily been gaining greater significance, particularly in relation to the environmental challenges faced by many countries around the world. In fact, DHC has positioned itself as a vital element for a sustainable energy future. Under the wing of the International Energy Agency's research programme on District Heating and Cooling (IEA DHC), the Symposium is truly global since 2016. The Symposium presents new developments and best practices available on DHC in different countries.

In 2018, the 16th International Symposium on District Heating and Cooling is hosted by the HafenCity University Hamburg. District Heating has a strong history in Hamburg, since it was first implemented in 1893. Today the district heating network of Hamburg has a length of 812 km with 460.000 connected residential units. 8 Power plants have a district heating output of 5TWh per year. Ongoing discussion on ownership models for the district energy grids in Hamburg makes the related topics more visible to the public than in other cities. Furthermore, Hamburg is one of Germany's leading cities for innovation in district energy generation, distribution and sector coupling. Trends of the energy transition in Germany are challenging for Hamburg as well as for many other cities. These trends can be observed also worldwide.

On behalf of the ExCo and the organizers of the Symposium we want to express our sincere thanks to the members of the Scientific Committee, the Local Organizing Committee and the members of the Advisory Committee for their valuable contribution. Through a tough selection process, 66 high quality papers resulted out of the 160 submitted abstracts, and are to be presented at this Symposium and published open access in this edition of Energy Procedia. Of course we also thank the individual authors for their contribution with Abstracts, Papers and Posters and the regular participants of the Symposium.

The international and interdisciplinary approach and its quality assurance makes the Symposium a high level vibrant hub for communication and networking of DHC experts and scholars from the established and aspiring DHC-countries world-wide.

On behalf of the Executive Commitee of IEADHC, the Chairman of the Scientific Committee wants to express a special thanks to all the committees, key note speakers, organizers, administrative staff and supporters for their excellent performance to make the 16th International Symposium on District Heating and Cooling a reality.

Ingo Weidlich, Guest Editor
Chairman of the Scientific Committee

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Selection and peer-review under responsibility of the scientific committee of the 16th International Symposium on District Heating and Cooling, DHC2018.
10.1016/j.egypro.2018.08.163

Research Topics

A. Urban energy systems, planning and development
How does city planning influence the development of district heating and cooling systems and vice versa? Papers in this section explore district heating and cooling as a driving force for city planning and development including development of large or regional heat networks.

B. Resource efficiency and environmental performance
How can district heating and cooling contribute to an efficient and low carbon energy supply? Papers in this section will consider performance and environmental issues in district heating and cooling, including the integration of renewables, primary energy savings, reduction of CO2 emissions, combined heat and power and the use of thermal storage.

C. Key elements in District Heating and Cooling systems
What are the new developments in district heating and cooling technology? Papers in this section consider steps towards the next generation of district heating and cooling. They focus on improving current district heating and cooling solutions and key elements of the technology: for example, piping systems, sub stations and metering techniques. This area includes issues regarding cost reduction, the increase of service life, demand side management and low temperature technologies.

D. Customer relations and market issues
How do customers interact with district energy companies and what is the role of the district energy customers in general? Papers in this area focus on business and infrastructure management and development. A special focus lies on how the challenges for establishing district heating and cooling in an economically viable way can be overcome.

E. Policy and regulation
What policies and regulatory framework can be deployed to assist the establishment and evolution of efficient district heating and cooling networks? How flexible is district heating and cooling to different regulatory environments? What aspects work universally and to what extent do national and regional elements affect the potential of this technology?

F. Open Arena, District Heating and Cooling
What other research can forward the success of district heating and cooling? In line with the broad and multidisciplinary approach needed to overcome the sectors challenges, the organizers offer the opportunity to submit abstracts that do not fit into the above categories but still bear relevance for a successful future of district heating and cooling.

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