



## Simulation, Analysis, Optimization and New Challenges of District Heating and Cooling Networks

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### Message from the Guest Editors

The challenges in efficiency increases, pollutant emissions, and so on has led to an increased attention to district heating and cooling networks (DHCNs). DHCNs are diffused, since the elimination of combustion systems at the final user stage allows to drastically reduce both pollutant and thermal emissions. To promote an efficient thermal energy production, DHCNs are supplied with heat produced by means of Combined Heat and Power (CHP) units and/or renewable generators. The increasing complexity of the networks makes the management of production system operations importance. New generation of DHCNs introduce the concept of smart thermal grids. The networks operate and install micro-CHP and/or thermal solar panels. This new approach to DHCNs promotes the concept of distributed generation transforming a thermal network into a smart grid.

- district heating and cooling
- smart district heating
- combined heat and power plants (CHP)
- renewable generators integration
- dynamic simulation
- heat exchange optimization
- software for DHCNs design and analysis
- techno-economic analysis





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## Message from the Editor-in-Chief

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