

Integration of digital processes for optimised operation of and efficient inclusion of renewable heat sources into district heating

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Abstract

District heating and cooling (DHC) networks are traditionally operated with a limited number of sensors and actuators to secure the required supply and to optimize economics based on a given high ecologic performance. An optimised heat generation and overall network operation is possible with more information on the demand and flexibility options. An increased deployment of information and communication technologies enables better network management based on real time measurement data and the integration of new digital business processes. For a further development, the promotion of opportunities for the integration of digital processes into DHC systems is required and the role of digitalisation for different parts within district heating and cooling systems needs to be clarified. Digital technologies are expected to make the whole energy system smarter, more efficient and reliable and to boost the efficiency and the integration of more renewables into the system. In the future, digital applications might enable district energy systems to fully optimise their plant and network operation while empowering the end consumer. On the other hand, additional challenges need to be tackled, such as data security and privacy as well as questions about data ownership. The presentation, the paper presents and discusses the first results from the research work within the IEA DHC Annex TS4 on "Digitalisation of District Heating Systems – Optimised Operation and Maintenance of District Heating and Cooling Systems via Digital Process Management".

<https://www.iea-dhc.org/the-research/annexes/2018-2024-annex-ts4>

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