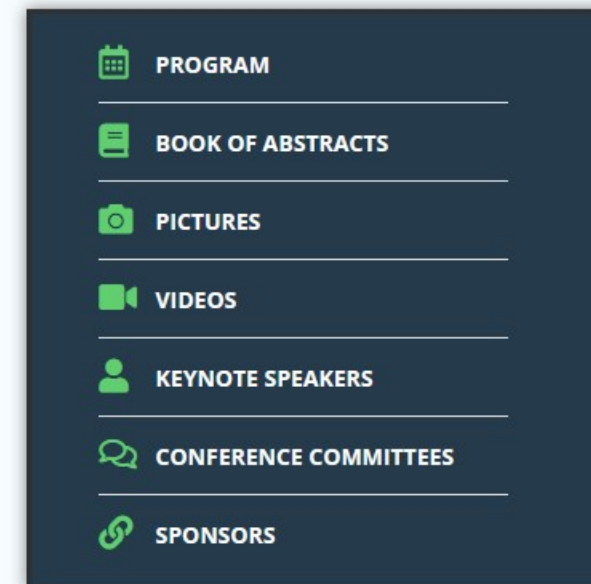


2021



Conference programme

The conference programme 2021 consists of two parts:

1. **ONLINE PROGRAMME** – including both live sessions and recorded presentations.
2. **PROGRAMME COPENHAGEN** – with the sessions taking place in Copenhagen.

A proposed Pathway to future-proof current building stock for upcoming 4th generation district heating in the scope of Positive Energy Districts

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Currently, District Heating systems are mostly supplying heat at a fairly high temperature. Lowering the temperature will benefit the system, allowing higher renewable penetration and lower distribution and transmission losses. This paper analyses the transition from the residential customer side perspective for various building typologies in a Mediterranean and continental climate. The aim is to understand the energy efficiency measures that allow for low-temperature heating in buildings when climate conditions and the building stock's initial state vary significantly. Hence, in this paper, the building is the system boundary of the analysis. U-values, total and specific heat demand will be compared in various scenarios to achieve this goal. First, this paper reviews current space heating technologies by collecting technical data such as emissivity, inlet and outlet temperature. Further, a review of the buildings archetype is performed to categorise the mentioned parameters by age, typology and geographical location. This work is done parallel to the simulations performed with EnergyPlus/OpenStudio to establish each building archetype's baseline. Finally, the energy efficiency measures are applied to reach thermal comfort with low-temperature heat. An analysis of the cost of lowering supply temperature in buildings from a customer perspective is carried out to understand possible pathways and their economic viability.