Ringkøbing-Skjern energy atlas for analysis of heat saving potentials in building stock

Ringkøbing-Skjern municipality aims to be 100% self-sufficient in renewable energy supply starting from 2020. It is expected that the building sector will contribute by reducing energy demand by 25-50%. Technical, economic, environmental and geographical aspects need to be considered when analysing such drastic change of municipality's energy system. For that purpose, GIS-based Ringkøbing-Skjern Energy Atlas has been developed. The present paper utilises Ringkøbing-Skjern Energy Atlas together with the Heating Model to calculate potentials and costs of heat saving measures. The results show that the reduction of heating demand by 25% and 35% can be achieved at the annuitized full cost lower than 1.7 and 2 DKK/kWh, respectively. The results also show that significant heat saving potential lies in farmhouses and detached houses as well as in buildings built before 1950. Over 75% of very cheap heat saving potential can be harvested by insulating floors, while majority of heat saving potential cheaper than 2 DKK/kWh can be utilised by insulating floors and installing mechanical ventilation systems. After heat savings and heat supply options are compared from a private-economic perspective, it is concluded that heat savings should be directed towards buildings supplied by oil boilers, natural gas boilers and ground-source heat pumps.

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