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## **Abstract:**

### **Heat saving and district heating potentials for TIMES-DK**

A highly detailed GIS-based energy atlas has been developed for Denmark and is used as a container for storing data about physical properties for 2.5 million buildings in Denmark. Theoretical heat loss from the buildings and hot water consumption is calculated and attached to each building. For each building envelope element for each house possible heat savings are evaluated and the cheapest saving for each building element in each building is chosen and attached to the building in the database with a saving potential and a related cost.

The database also contains information about which buildings are connected to district heating and for buildings not connected, the distance to nearest grid is used to calculate the costs of connecting buildings within and nearby existing district heating grids.

Heat saving potentials and costs; and cost of connecting to district heating, can thereby be created from database and cost curves can be prepared for the TIMES-DK model so heat savings and connection of buildings to district heating systems can compete with other heat supply options in the model.

As we are keeping track of the geographically position of all buildings results from the TIMES-DK model can be returned to the GIS database for illustration of where heat savings have been implemented and which houses have been connected to district heating.