



Heat mapping & district heating simulation tool

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Agenda

- Introduction
- Heat mapping tool
- District heating tool

Introduction



Introduction



Introduction



Introduction



Introduction

	MIN/HOUR	DAY	MONTH/YEAR
Installation			
Building			
Network/Grid			
District/Zone	District Heating		Heat Mapping

The diagram illustrates the relationship between different scales and levels of detail in a simulation tool. The columns represent time scales: MIN/HOUR, DAY, and MONTH/YEAR. The rows represent levels of detail: Installation, Building, Network/Grid, and District/Zone. A red box highlights the 'MIN/HOUR' column and the 'District Heating' cell. A green box highlights the 'MONTH/YEAR' column and the 'Heat Mapping' cell. A blue arrow points from the 'Building' cell in the 'MIN/HOUR' column down to the 'District Heating' cell. Another blue arrow points from the 'Network/Grid' cell in the 'MONTH/YEAR' column down to the 'Heat Mapping' cell. A blue double-headed arrow is positioned between the 'DAY' and 'MONTH/YEAR' columns at the 'District/Zone' level.

Heat mapping

Why? **Input for heat Transition plans for (local) governments**

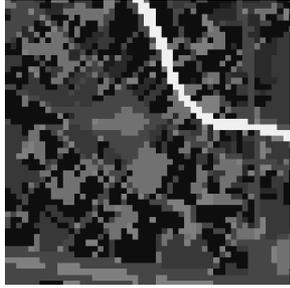
What? **Collective vs Individual heating**

How ? **Cost-model with simulation of**

- **Heat demand**
- **Heat supply**

Heat mapping > Heat demand

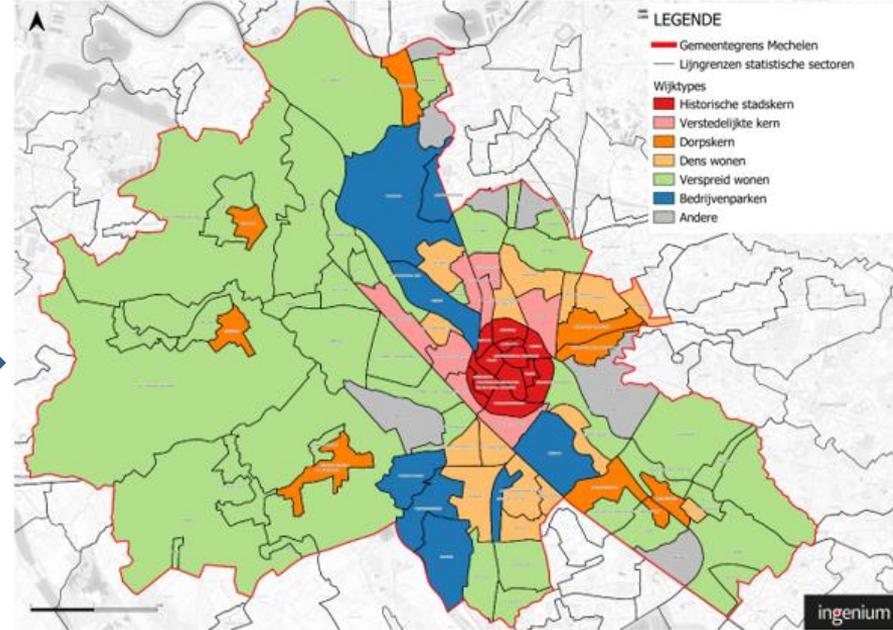
Land use



Topology



Building
typology



Zone typology
(aggregated)

Heat mapping > Heat demand

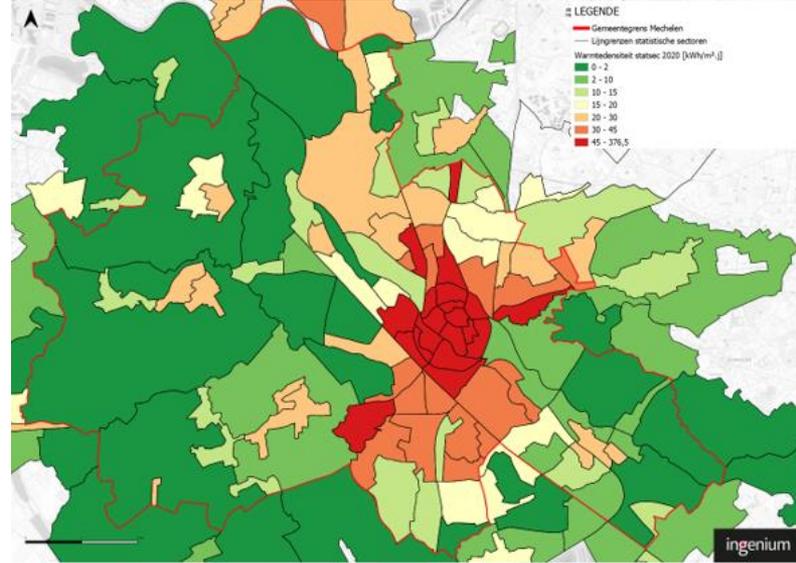
Building typology



Heat demand (street)



Heat demand buildings (current)



Heat demand zone (current)

Heat mapping > Heat demand

Heat demand buildings
(current)

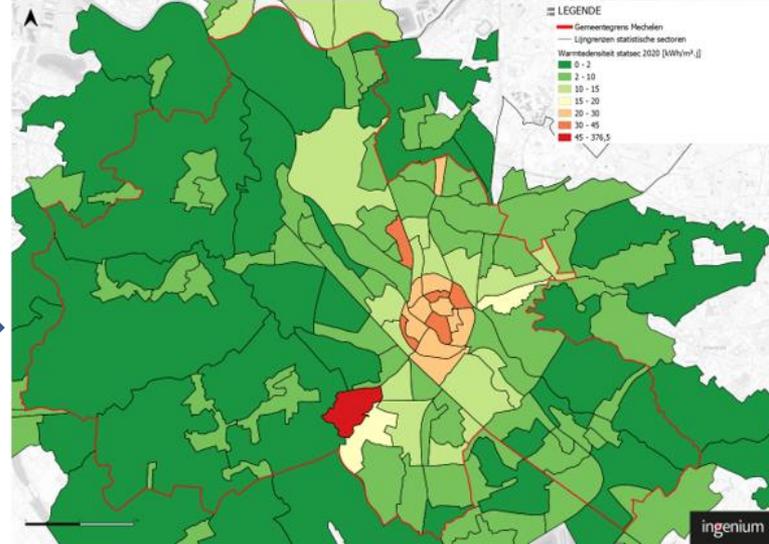


Construction year

Renovation potential
(linked to building type and
construction year)

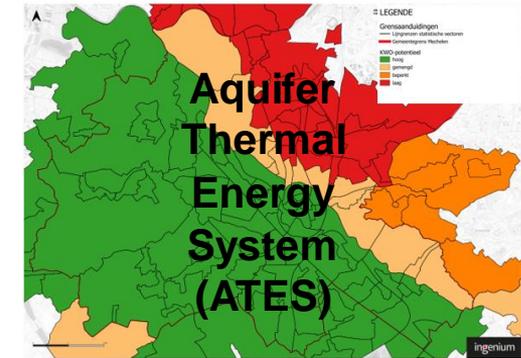
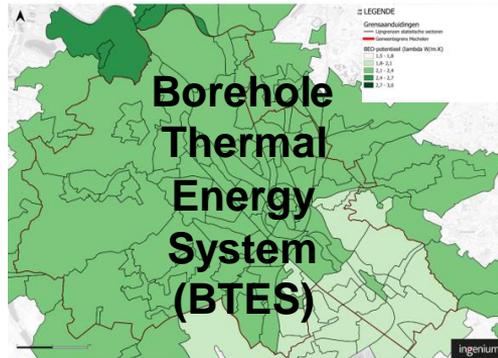
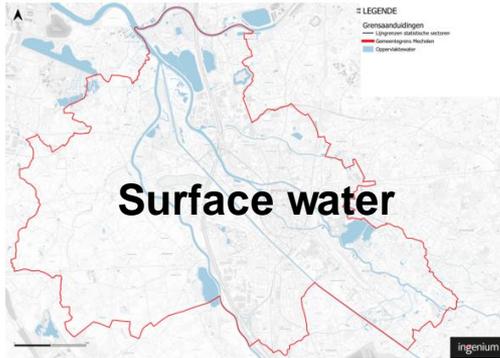
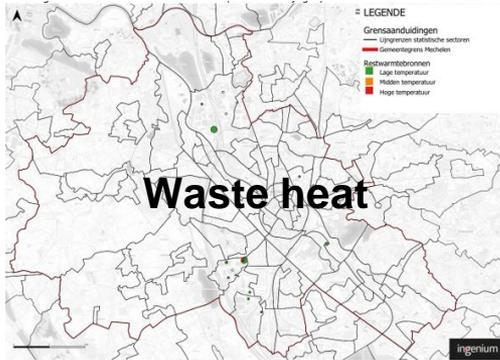


Heat demand
buildings
(renovated)



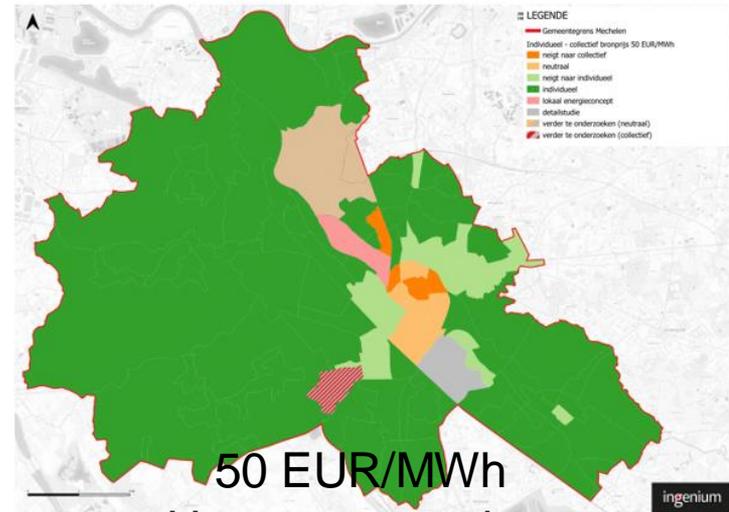
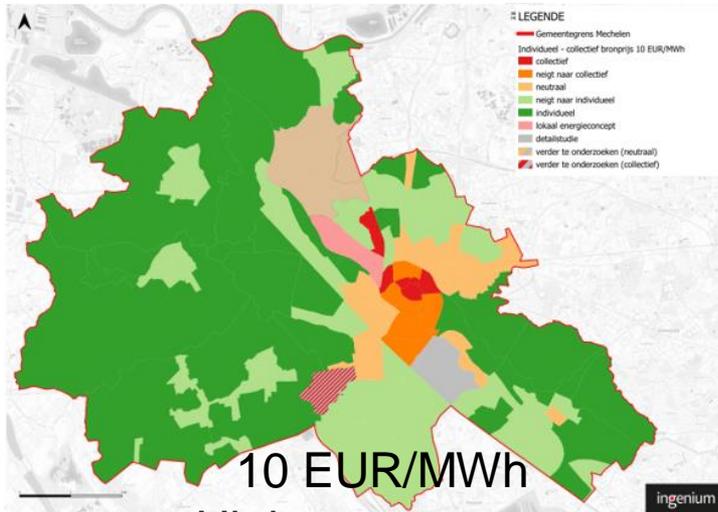
Heat demand zone
(future)

Heat mapping > Heat supply



Heat mapping > Output

- Cost model
- Sensitivity analysis: heat source price (district heating)



Heat mapping

Next steps :

- Detailed open data (cfr CityGML) for detailed simulation of:
 - heat demand
 - renovation potential
- Adding in of user characteristics for
 - heat demand
 - renovation/adaptation speed

District heating

Why? **Roll out of district heating**

What? **Tool for feasibility and design study**

How ?

Sizing with simulation of :

- **Pressure drop**
- **Heat Loss/Temperature drop**
- **Speed**

Cost-model with :

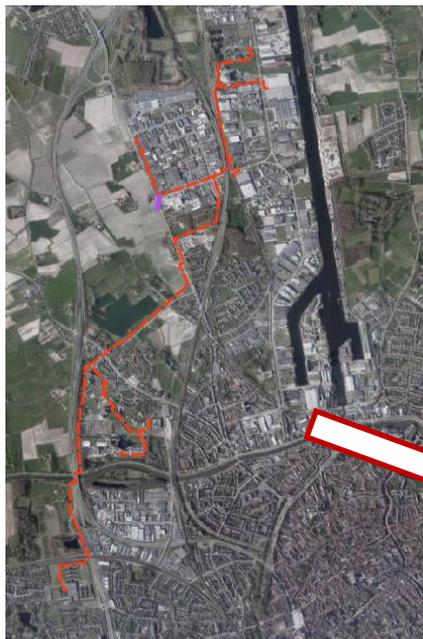
- **CAPEX/OPEX**
- **TCO**
- **Heat pricing**

District heating

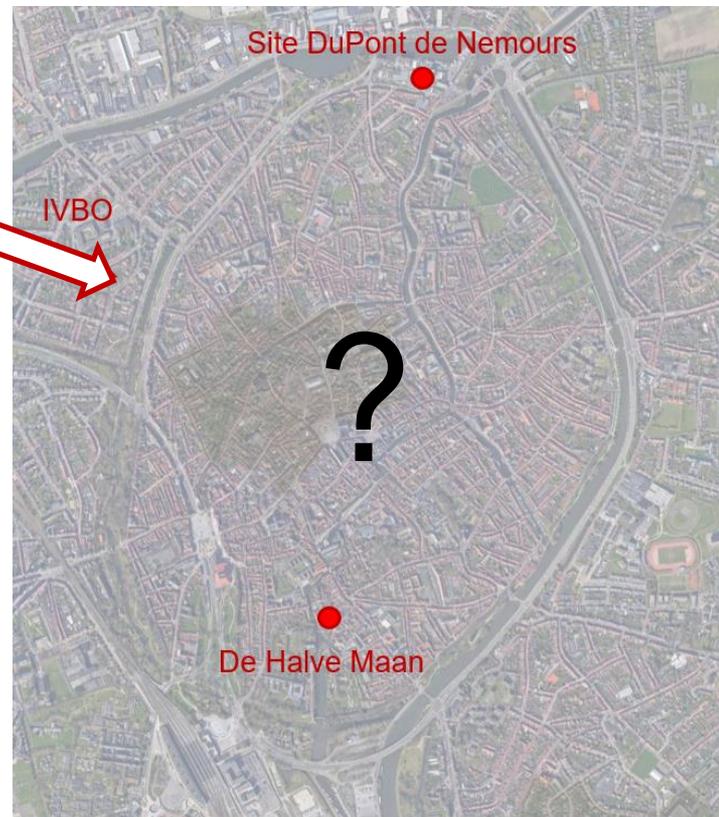
Incineration IVBO



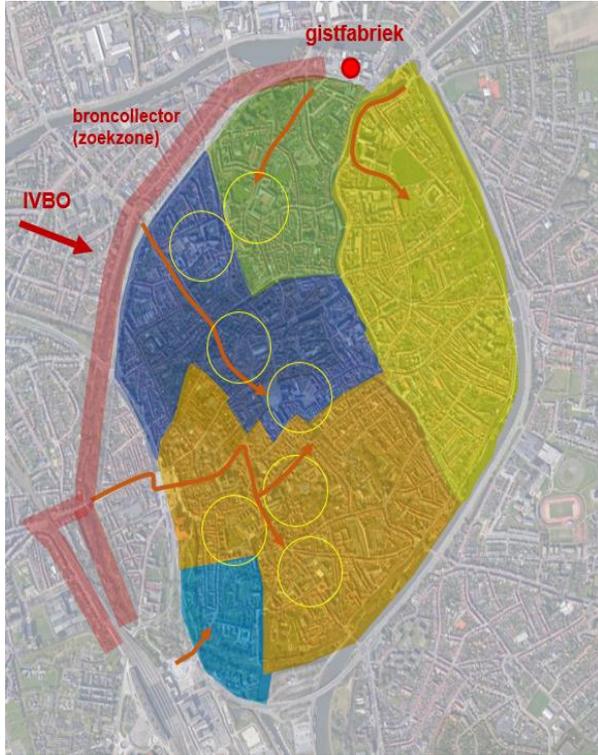
120 °C
34 MW
200 GWh/y



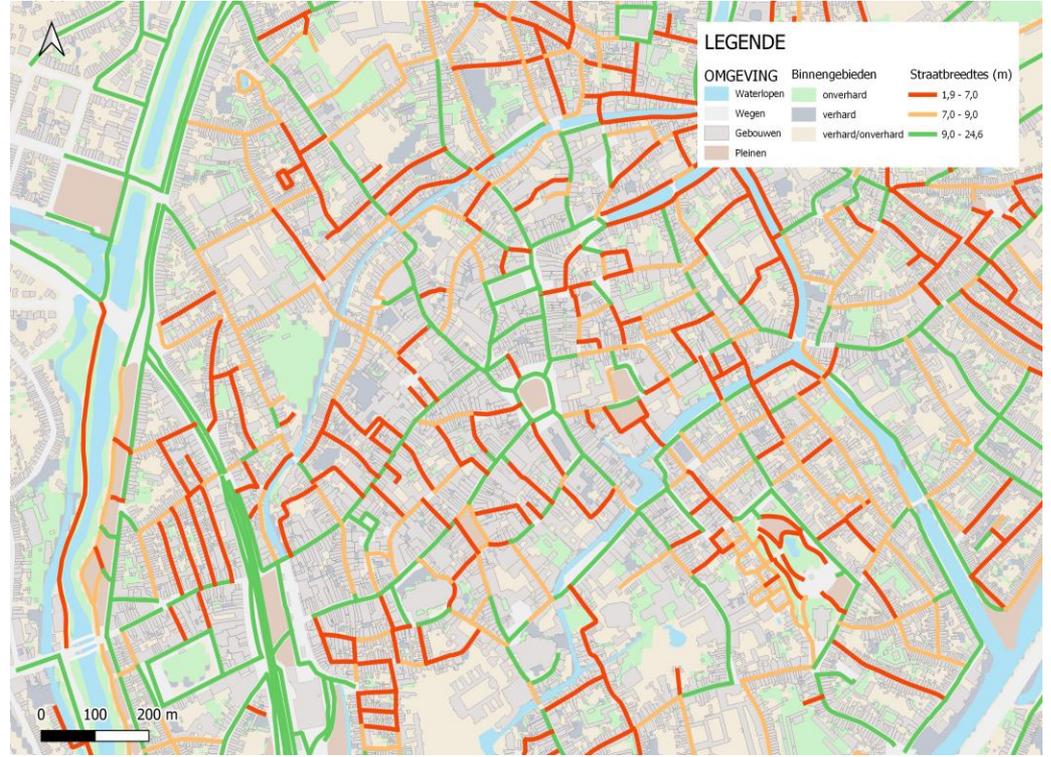
Existing district heating network
15 km



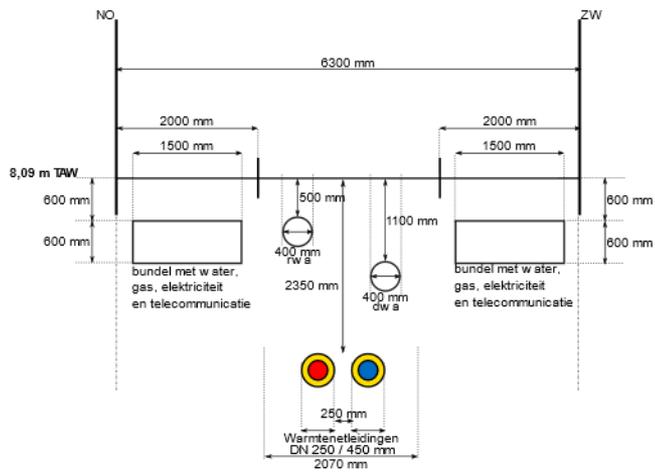
District heating



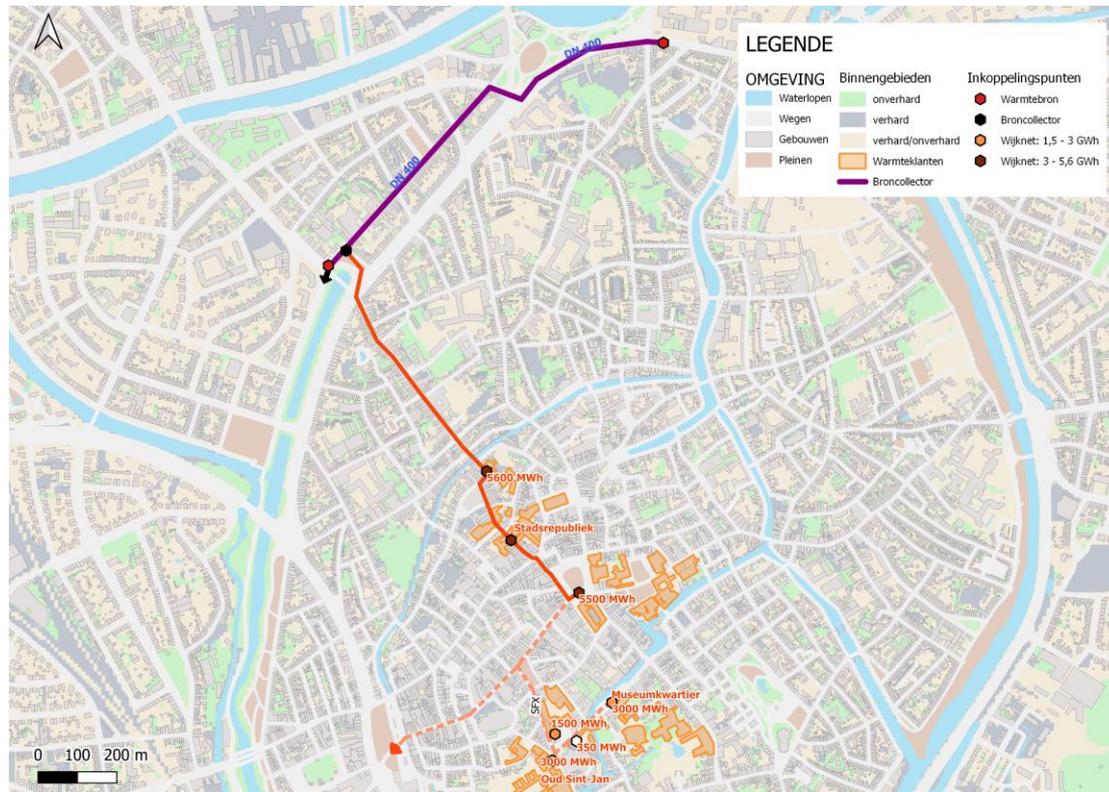
Ingenium streetwidth tool



District heating



Ingenium sizing tool





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Questions and Comments

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