BS 2021 1-3 SEPT BRUGES

INTERNATIONAL BUILDING PERFORMANCE SIMULATION ASSOCIATION

Heat mapping & district heating simulation tool

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Agenda

- Introduction
- Heat mapping tool
- District heating tool

Introduction

Heat mapping & district heating simulation tool

Ir. Pedro Pattijn

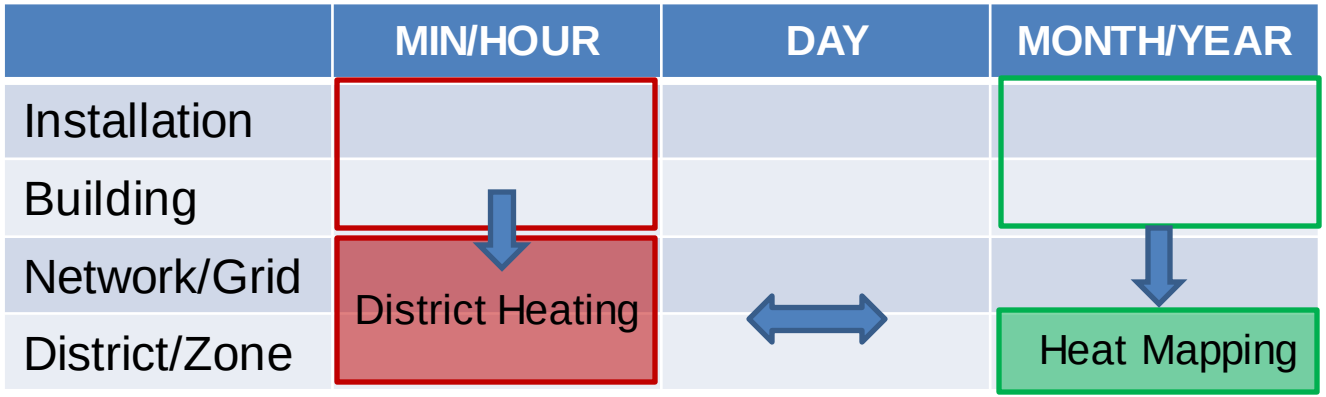
Introduction

Introduction

Introduction

Heat Mapping → Heat Transition Plan → Actions

Introduction



Heat mapping

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

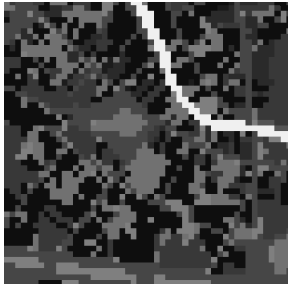
What? **Collective vs Individual heating**

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

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

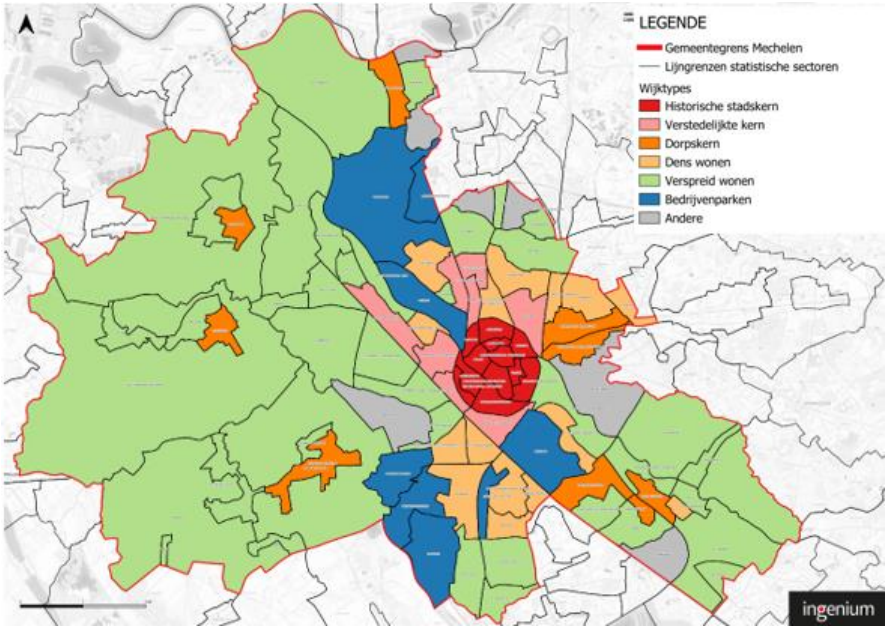
Heat mapping > Heat demand

Land use



Topology

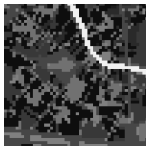
Building typology



Zone typology
(aggregated)

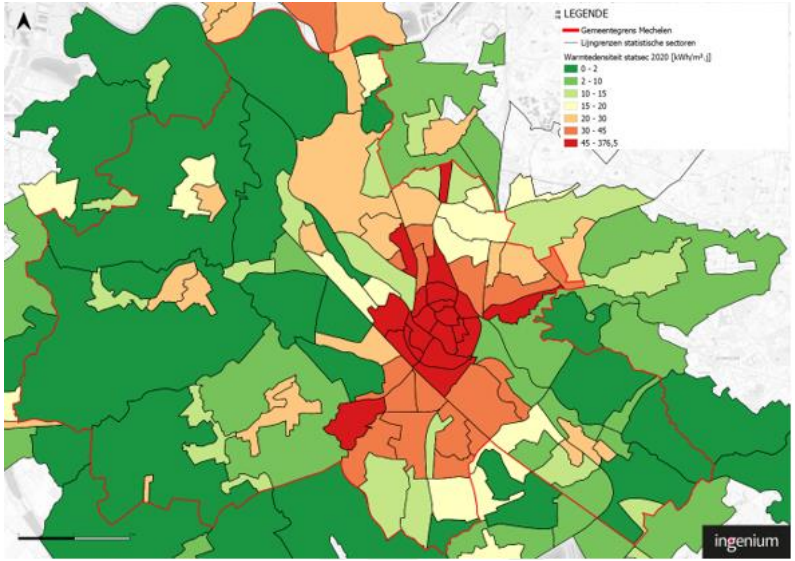
Heat mapping > Heat demand

Building typology



Heat demand (street)

Heat demand buildings
(current)



Heat demand zone
(current)

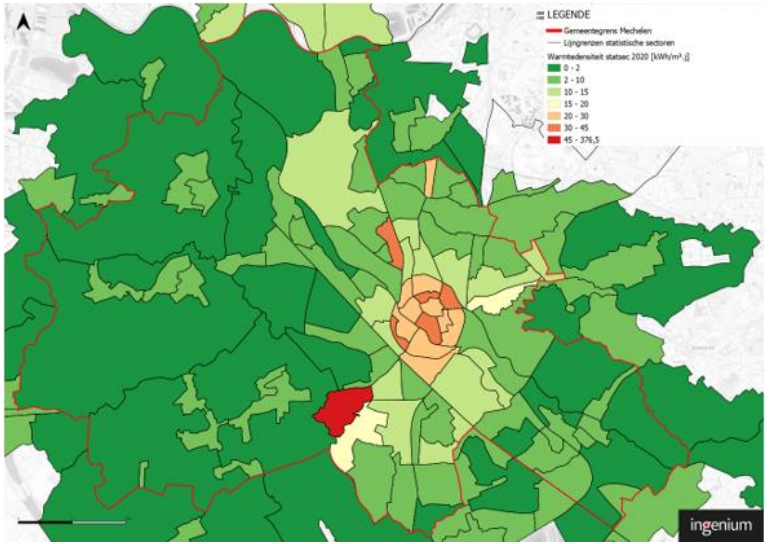
Heat mapping > Heat demand

Heat demand buildings
(current)

Construction year

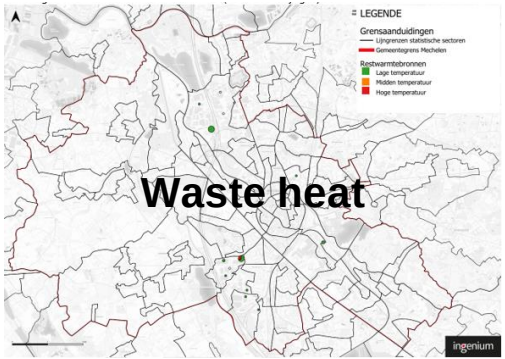
Renovation potential
(linked to building type and construction year)

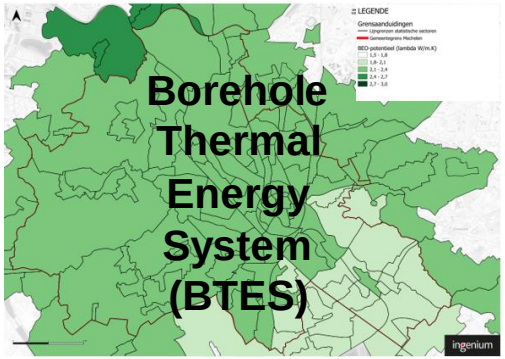
Heat demand buildings
(renovated)

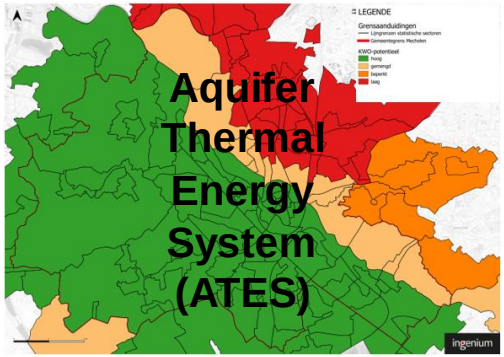


Heat demand zone
(future)

Heat mapping > Heat supply

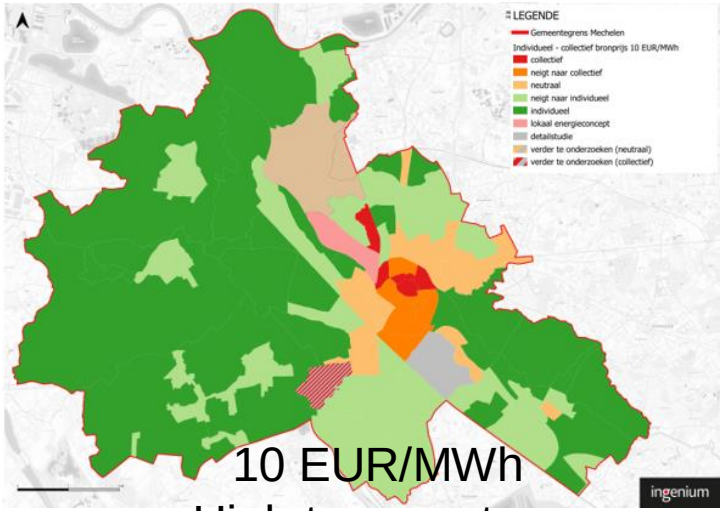




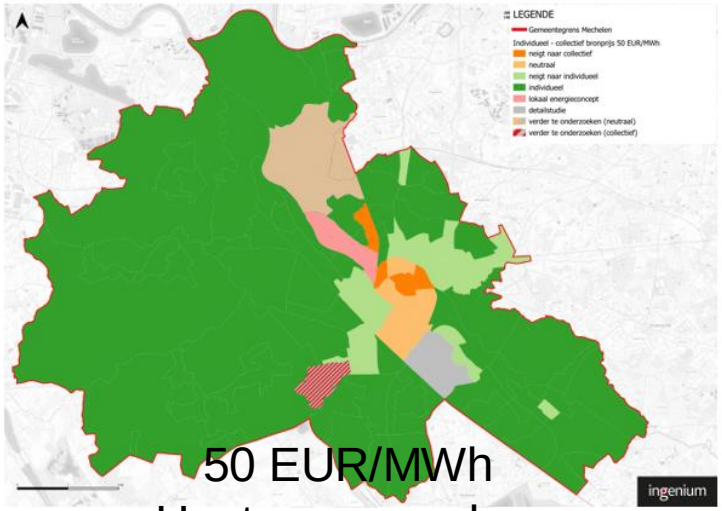


Heat mapping > Output

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



10 EUR/MWh
High temperature waste heat



50 EUR/MWh
Heat pump on low temperature source

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 feasabilty and design study**

How ?

Sizing with simulation of :

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

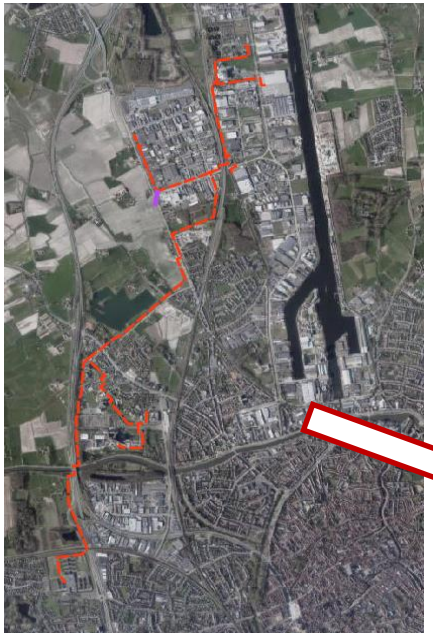
Cost-model with :

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

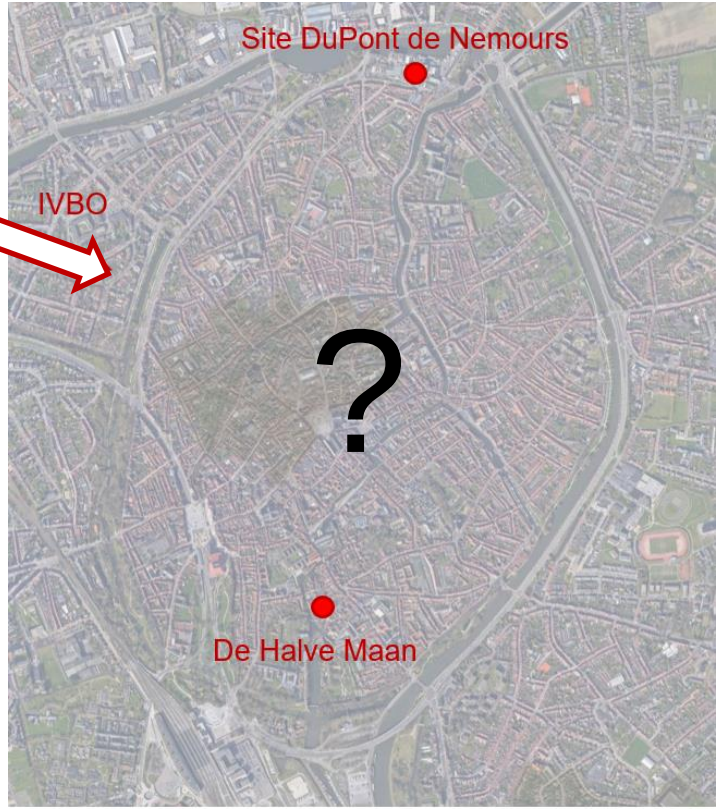
District heating

Incineration IVBO

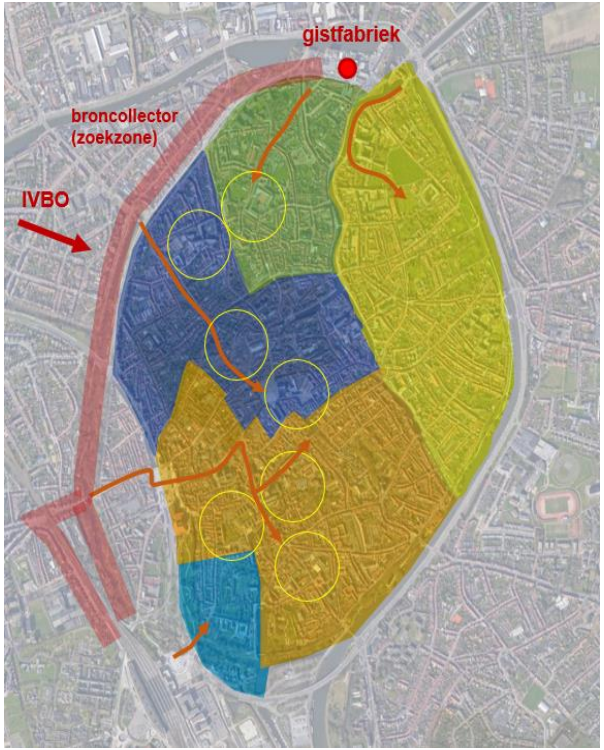
120 °C
34 MW
200 GWh/y



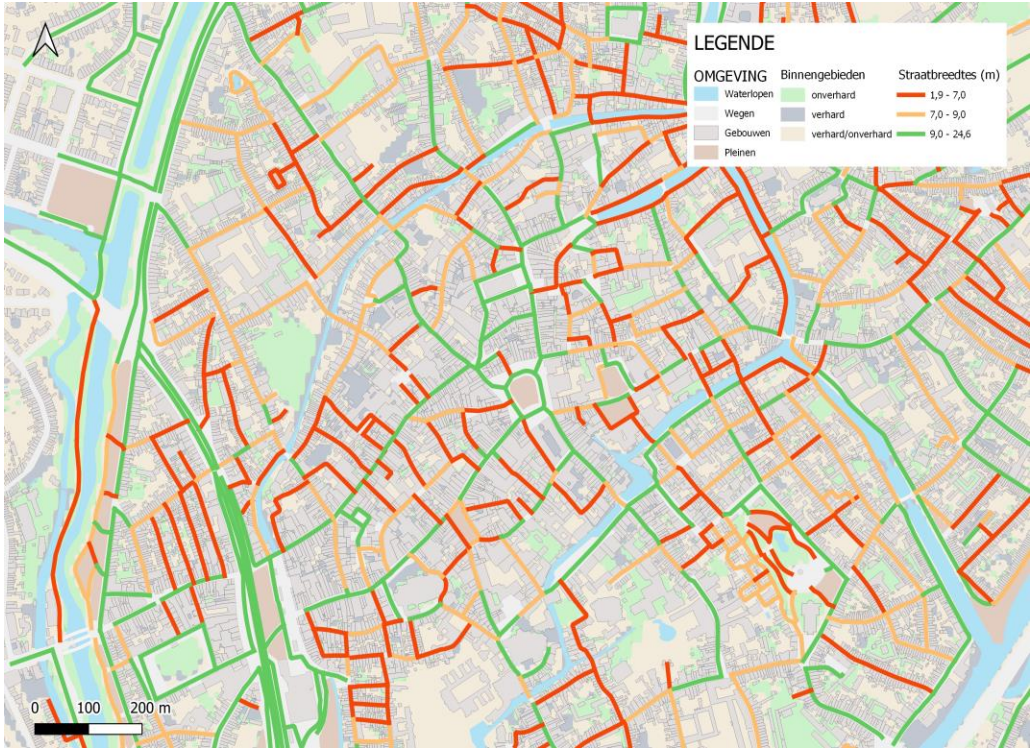
Existing district heating network
15 km



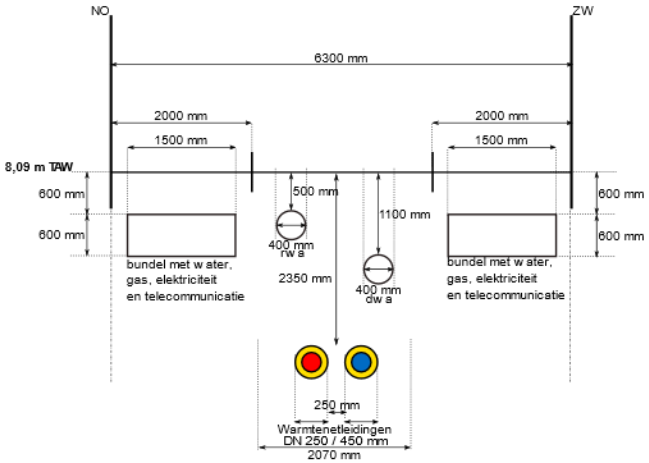
District heating



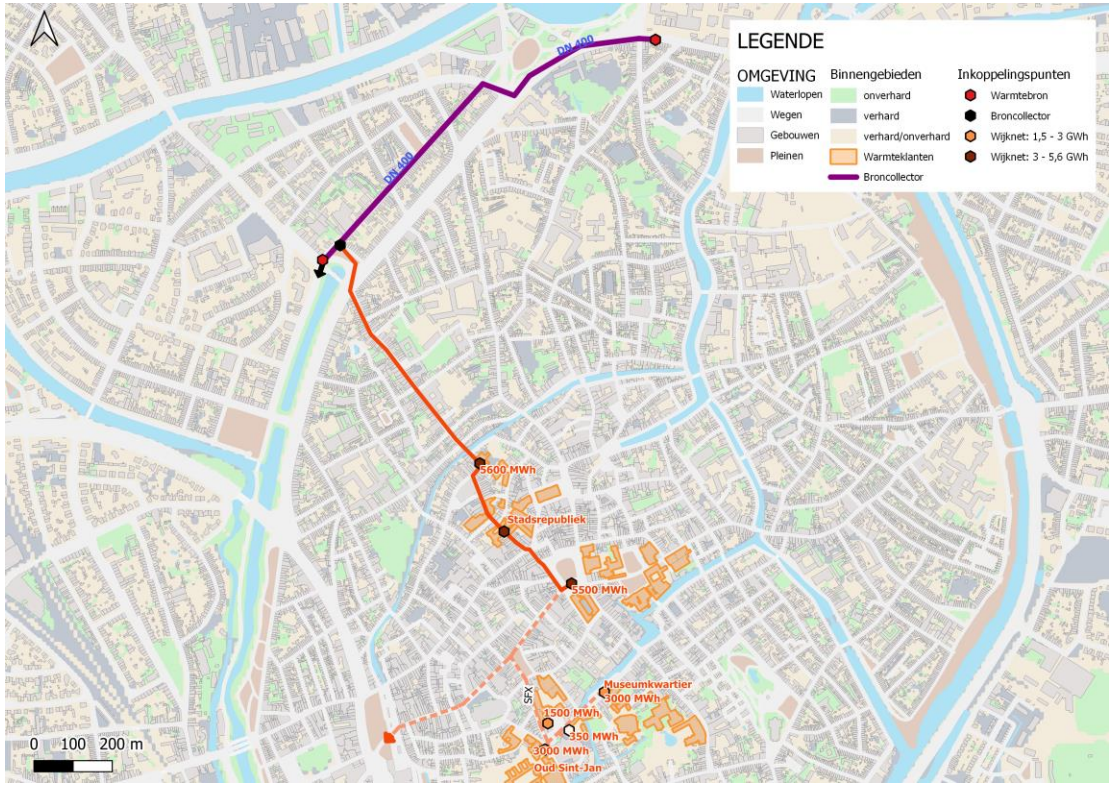
Ingenium streetwidth tool



District heating



Ingenium sizing tool



Heat mapping & district heating simulation tool

Questions and Comments

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