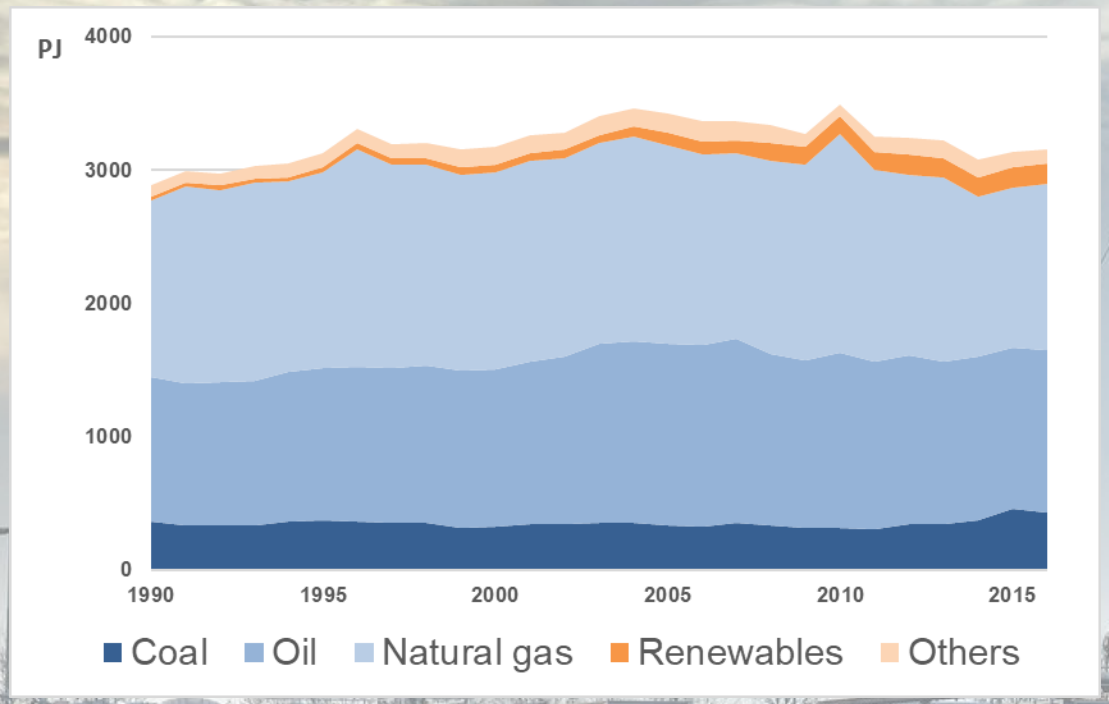
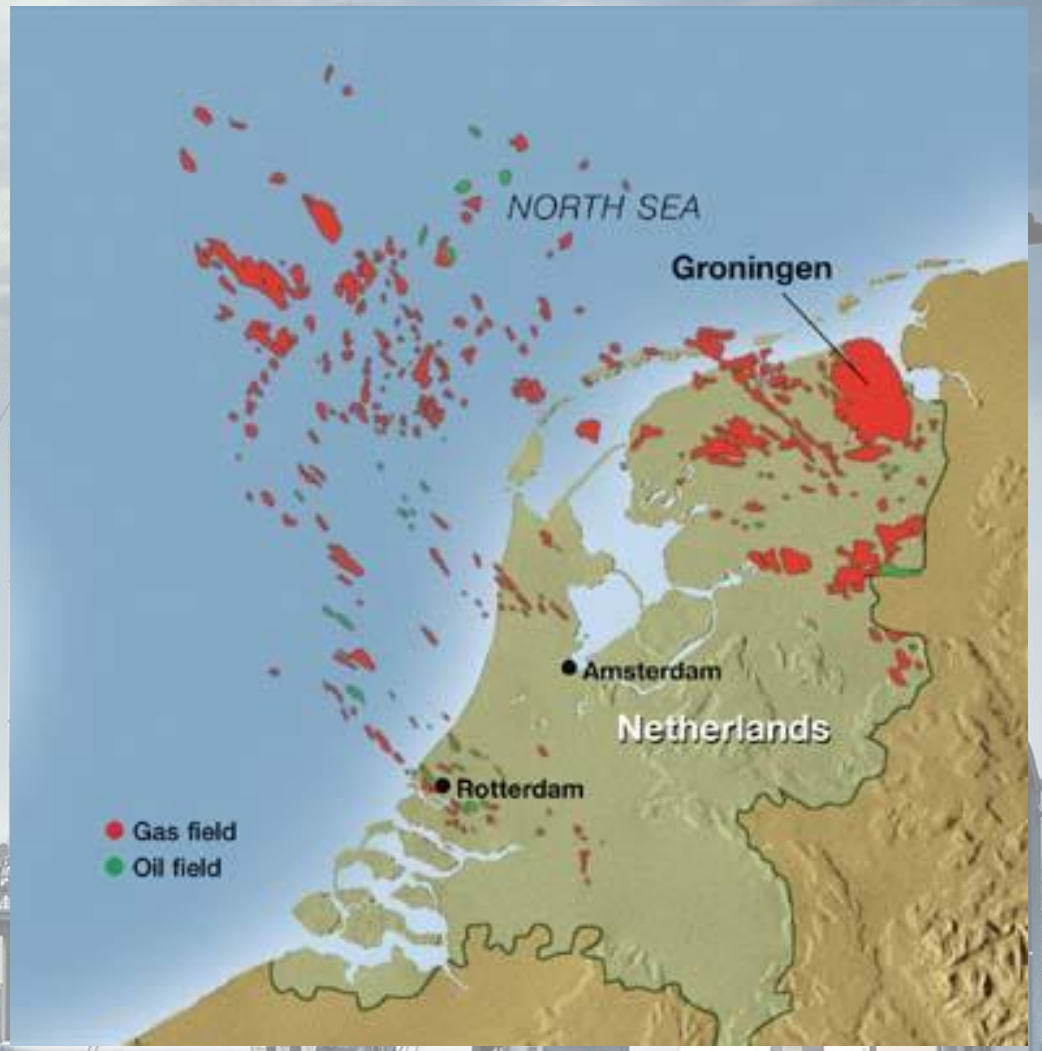
OVER MORGEN

Data-driven planning of geothermal district heating

The case of the The Hague

What's going on in The Netherlands?


PJ
4000
3000
2000
1000
0
1990
1995
2000
2005
2010
2015
Coal
Oil
Natural gas
Renewables
Others


NORTH SEA
Groningen
Amsterdam
Netherlands
Rotterdam
Gas field
Oil field


POLITIE

COMMODITIES MARCH 29, 2018 / 2:28 PM / 7 MONTHS AGO

Netherlands to halt gas production at Groningen by 2030

Netherlands proposes 95% emissions cut by 2050 in draft climate law

Published on 27/06/2018, 4:45pm

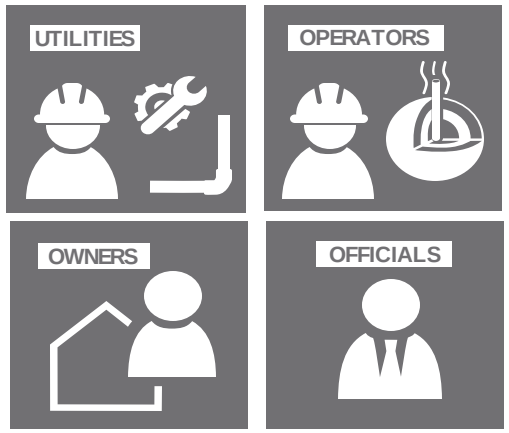
Under proposals backed by seven political parties across the spectrum, the Netherlands could set one of the most ambitious carbon targets in the world

What does this mean for cities and utilities?

- **Heating Transition Plan** by 2021 for every municipality*. The Plan contains:
  - A decision on new heating infrastructure for every neighbourhood based on lowest costs for society
  - A planning of when to start in which neighbourhood
  - In close collaboration with utilities, social housing corporations and private home owners

* 380 municipalities, on average pop. 45000

Our approach for the Heating Transition Plan



Gather the stakeholders

Make a smart planning

Choose from alternatives

All electric

District heating

Renewable gas

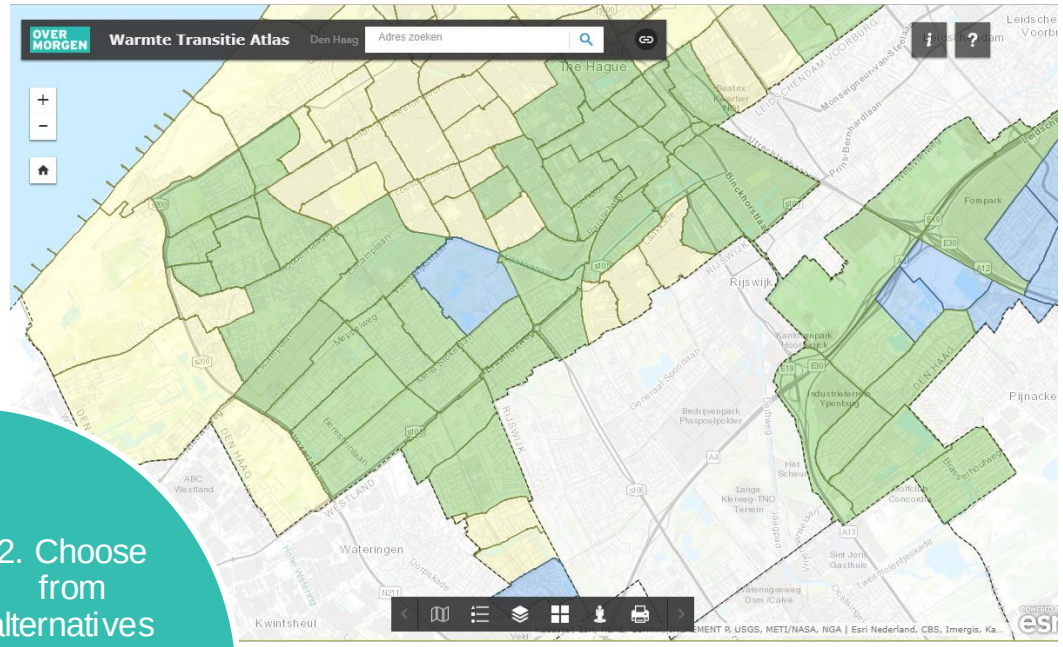
Agree on who does what

Heating Transition Plan for The Hague South West

- 50 thousand homes
- Built in the ’50s and ’60s
- 56% social housing
- Favourable geology for geothermal energy
- Industrial waste heat potential in vicinity

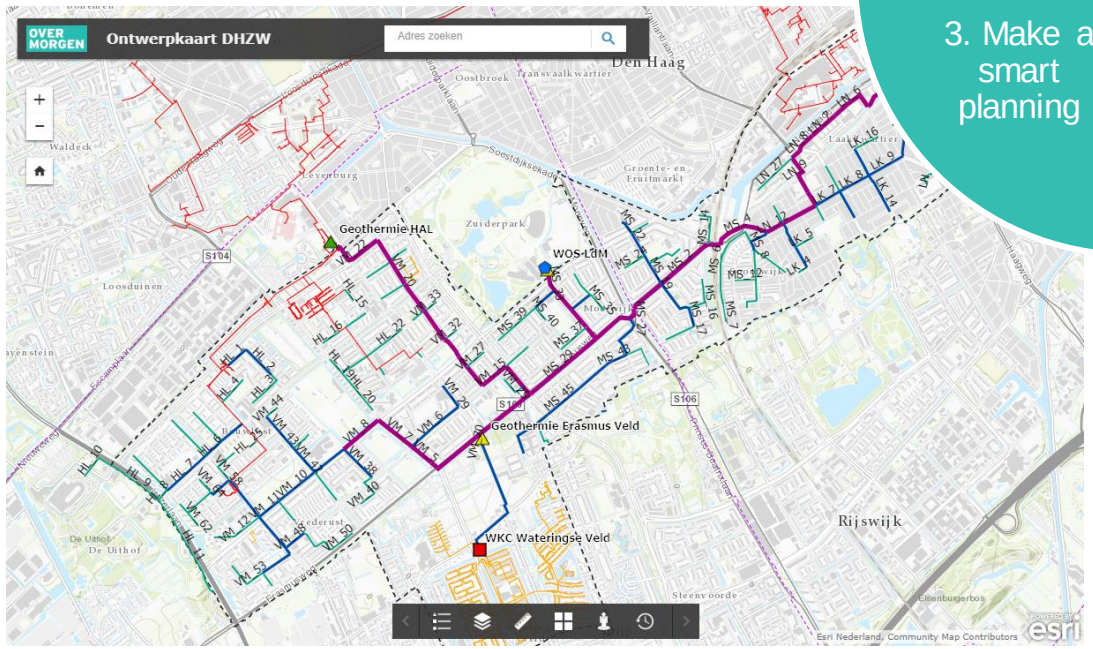
1. Gather the stakeholders

2. Choose from alternatives



3. Make a smart planning

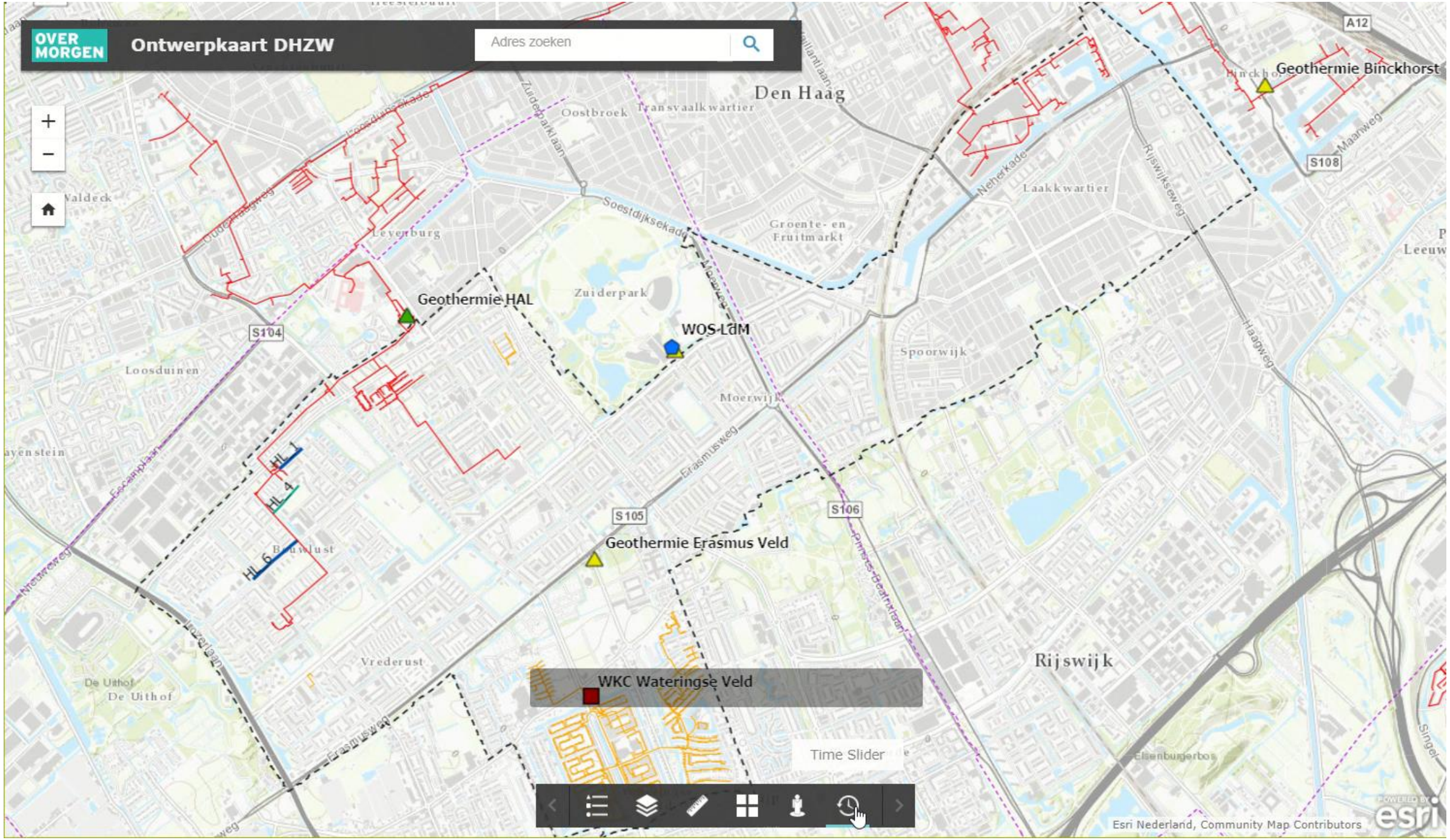
4 .Agree on who does what



How we used data

- **Which buildings are suitable for geothermal heating? (70˚C supply temperature)**
  - Input:
    - Very detailed open building data (square meters, building age, gas usage, building year, etc.)

- **What is a logical design for the district heating network?**
  - Input:
    - Existing and new geothermal plants
    - Existing district heating network
    - Stakeholder planning data (sewerage, housing renovations, etc.)


OVER MORGEN
Ontwerpkaart DHZW
Adres zoeken
Den Haag
Oostbroek
Transvaalkwartier
Laakkwartier
Groente- en Fruitmarkt
Zuiderpark
Spoorwijk
Moerwijk
Leyenburg
Loosduinen
Valdeck
Bouwlust
Vrederust
De Uithof
De Uithof
Rijswijk
Geothermie Binckhorst
Geothermie HAL
WOS-LdM
Geothermie Erasmus Veld
WKC Wateringse Veld
S104
S105
S106
S108
A12
HL 1
HL 4
HL 6
Time Slider
Esri Nederland, Community Map Contributors

What’s next

- First geothermal well operational in 2019
- First 2000 houses will be disconnected from the gas grid in 2019
- Incorporation in city-wide Heating Transition Plan

Take-aways

- Data enables people to make informed decisions
- Data emancipates stakeholders: everyone has the same information and attains the same knowledge level
- Data speeds up processes and reduces need for costly research
- Highly detailed open data about buildings and energy usage and infrastructure is essential

thank you for your attention.

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