



New Energy

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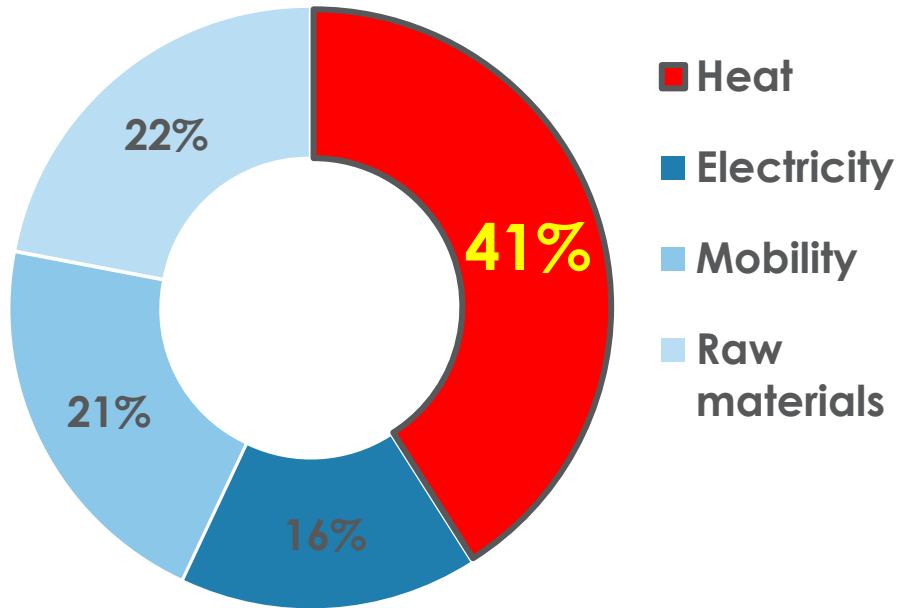
# Geothermal energy in the Netherlands

## Herman Exalto

# Relevance of geothermal in the Netherlands

Heat transition – ultimate use of energy

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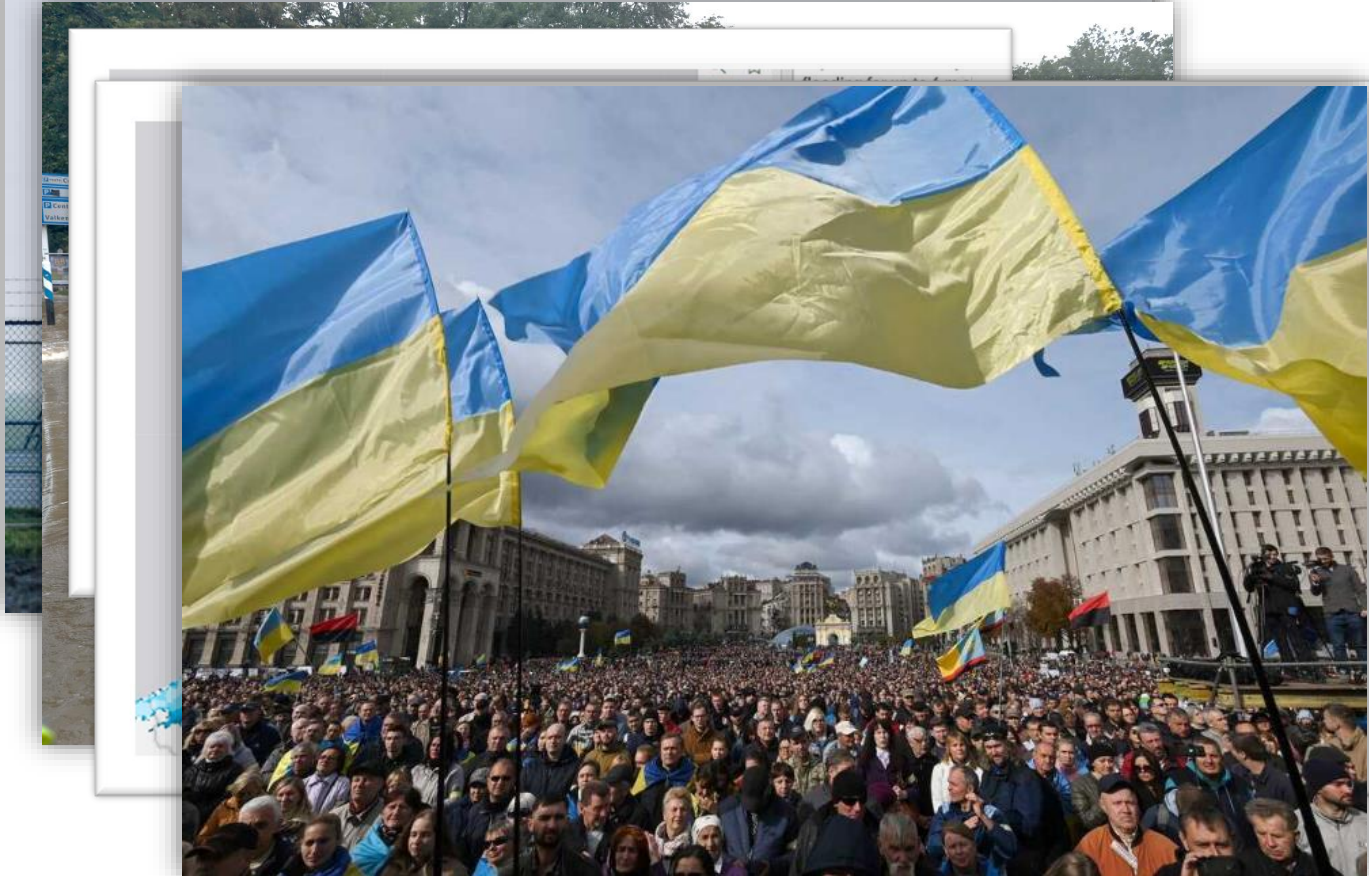
[www.energieinnederland.nl](http://www.energieinnederland.nl)





# Our dependency on natural gas

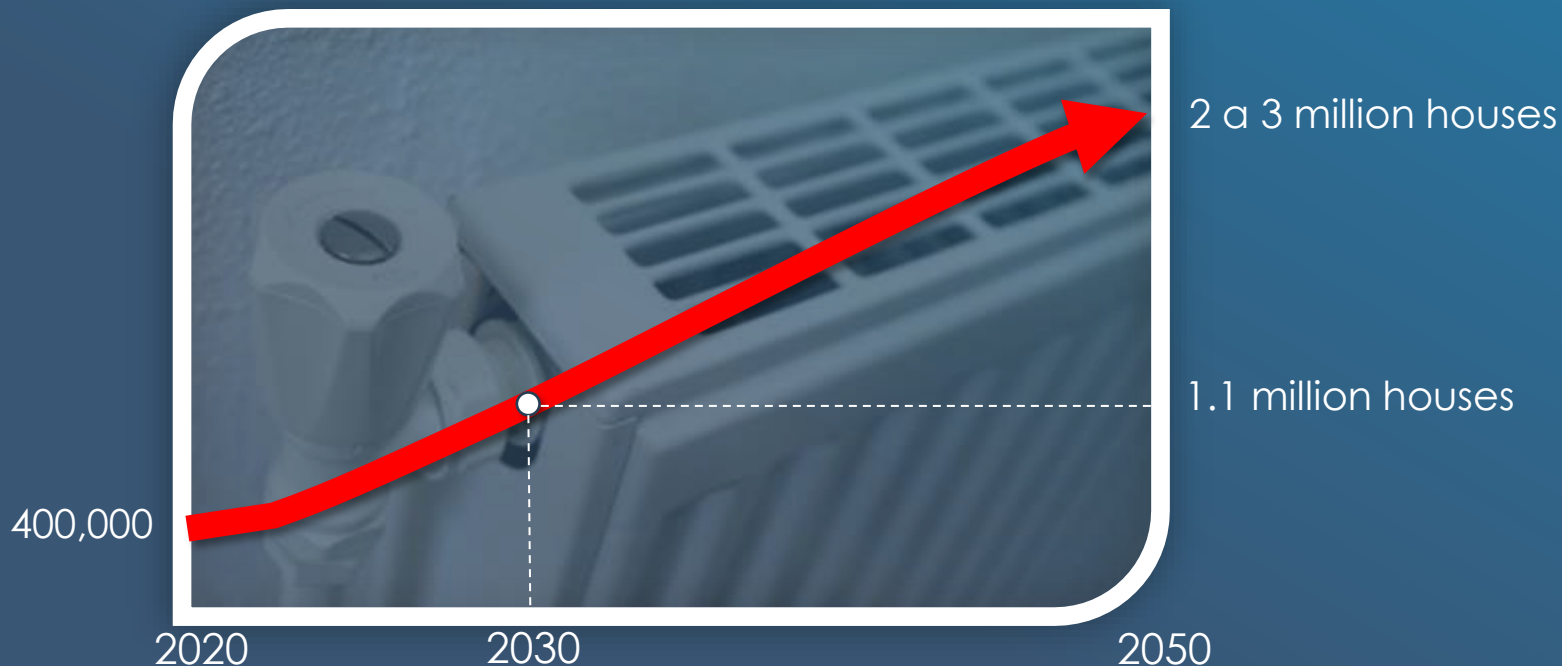
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# District heating - key to the energy transition



Fully renewable source with long term availability – future base of many heat grids



# Potential of geothermal energy in the Netherlands





# History of geothermal in the Netherlands



## **The beginning:**

Pioneers in the greenhouse horticulture

## **Nowadays:**

- 28 operational projects
- 70 projects in development

# Economics of geothermal in NL

- Subsidies
- Competition other technologies
- Risk versus return
- Dependency on growth of heat demand

→ Innovation

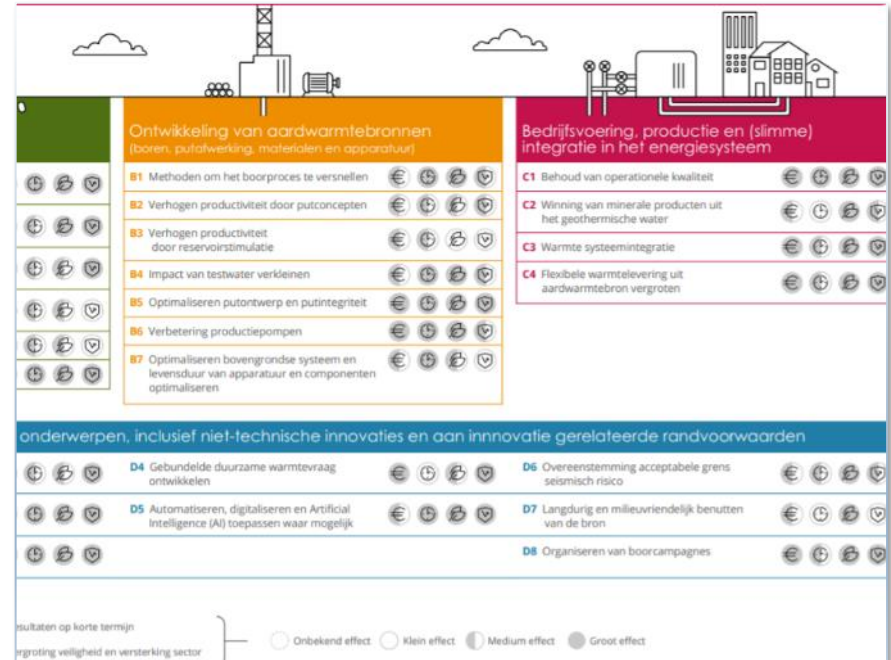
→ SCAN programme



# Need for innovation



Rijswijk Center for Sustainable Geo-energy





# The SCAN programme

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- Seismic data acquisition (1,760 km)
- Reprocessing existing data (5,000 km)
- Scientific drillings (10)



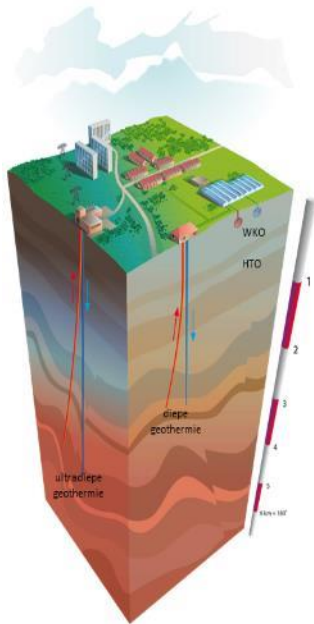
# Learning curve and the role of government

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Policies, laws

Authority

Subsidies



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Advise (local) government

Interconnect between sector  
and government

Knowledge sharing

Standards

Equity participation



# Public engagement

- Project in context
  - Technocratic versus empathic
  - Citizen participation
  - Address the concerns:
    - Seismicity
    - Leakage
- Industry standards
- Protocols





# Conclusions

1. Geothermal is an essential ingredient in the energy transition cocktail in the Netherlands
2. The potential of geothermal is enormous (25% urban areas and 50% greenhouses)
3. Heat demand and district heating grids drive growth
4. The geothermal sector and government have to collaborate to accelerate the learning curve and scale-up to hundreds of projects



# Additional slide re. announcement



# Thank you



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