# Geothermal Energy in Dutch Energy Transition



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IRENA / EGEC event

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## Content:

- Short intro to our Association
- Relevance of District Heating for the Netherlands
- Relevance of Geothermal Heating for the Netherlands
- Challenges to overcome and Opportunities
- Conclusions

# The Dutch association 'Geothermie Nederland' Since January 2021



90 members.

#### Mission:

Promote the responsible use of (Dutch) geothermal energy and to defend the collective interests of all geothermal operators in the Netherlands and their associated stakeholders



































































































































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Stralingsupport BV

**T**UDelft



**SPIDRON WECO** 



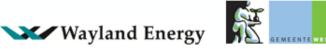


THO innovation for life



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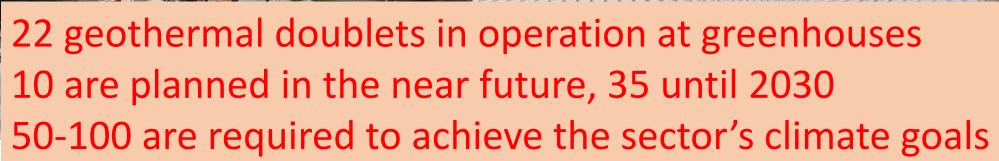








## **Greenhouses and Geothermal**







## District Heating?

Percentage of District Heating in NL is currently quite low!

- Individual solutions (mainly gas): ≈ 94,5% ≈ 438 PJ
- District Heating: ≈ 4,5% ≈ 20,4 PJ

But massive plans due to energy transition / climate agreement:

- No more gas in 2050
- By 2030 1,5 million houses without gas
- District heating estimated to increase to > 35% of total...!



# Geothermal in District Heating?

#### **Currently very low!**

- Den Haag: 1500 houses since January 2021
- Leeuwarden: Drilling just finished...potentially > 10.000 houses

#### But massive plans due to energy transition / climate agreement:

- Geothermal energy to account for 20-25% of all heat for housing (100PJ)
- One doublet in NL is roughly 5500 houses / 0,2 PJ
- So... 500 extra doublets required for only housing sector
- Alternatives: Heat pumps Aquathermal Energy Biomasse Solar Heat



## Short term plans?

### Is it dreaming or reality?

- 20 projects are currently 'ready to go'

- Together with Ministry we agreed they should be operational before 2025

- In current RES planning 100 projects are being developed towards 2030



## Challenges to overcome:

#### **Financial:**

- Bring cost down
- More / better suitable subsidies
- Capacity planning in relation to heat-demand

#### **Technical:**

- Pumping cost must become much lower
- Drilling and well design
- Innovation
- Storage
- Better alternatives?

#### Societal:

- Better legislation
- Social acceptation



# Opportunities:

- 1. Hybrid installations with Greenhouses
- 2. Better / more government support
- 3. Horizontal drilling?
- 4. Better integration geothermal production with distribution and storage



## Conclusions:

It is very likely that Geothermal energy will play a major role in heating the build environment at a large scale in the Netherlands. We foresee double digit growth of district heating in general and Geothermal energy is going to be a key source of heat.



Thank you!

Hans Bolscher