

Geothermal Energy in Dutch Energy Transition



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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



Greenhouses and Geothermal



22 geothermal doublets in operation at greenhouses
10 are planned in the near future, 35 until 2030
50-100 are required to achieve the sector's climate goals



District Heating?

Percentage of District Heating in NL is currently quite low!

- **Individual solutions (mainly gas): $\approx 94,5\%$ ≈ 438 PJ**
- **District Heating: $\approx 4,5\%$ $\approx 20,4$ 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 acceptance

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.



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Thank you!

Hans Bolscher