

GEAA is a not-for-profit organisation offering leadership and a dialogue in the energy transition debate. It is open to all those interested in advancing geothermal energy and its role in transitioning to a world using less petroleum. GEAA is a stakeholder driven Association that advocates increased investment in geothermal energy and increased awareness of this sustainable source for near zero-carbon power, heat and hot water.

Geothermal Opportunities in The Netherlands

Significance

Geothermal energy continues to gain prominence in the Netherlands as a sustainable and reliable source of heat. With national targets to phase out natural gas by 2050, geothermal offers a stable, local, and low-emission solution for district heating, horticulture, and industry. National strategies like the Masterplan Aardwarmte aim to scale to over 700 geothermal doublets by 2050 with up to 25% of national heat demand met by geothermal. As of 2024 there are 36 doublets in operation meeting less than 1% of heat demand. Local Dutch geothermal operators together with mandatory participation by Energie Beheer Nederland (EBN) are seizing the opportunities needed to achieve national targets.

Technical aspects

The Dutch subsurface supports medium to deep geothermal development (1,500–4,000 m), primarily in porous sandstone formations. Doublet systems circulate water at 70–100°C. Modern seismic imaging, real-time monitoring, and regulatory compliance ensure operational integrity. Some technical hurdles remain including subsurface uncertainty (though this is being addressed through the The SCAN Geothermal Exploration Project) and drilling risks. Geothermal projects do compete with oil and gas for a diminishing pool of service and engineering expertise.

Commercial advantages

Geothermal projects benefit from long-term heat contracts and government support through the SDE++ (Stimulerend Duurzame Energieproductie) subsidy. Exploration risk is partially mitigated via insurance schemes. High heat demand, particularly in greenhouse horticulture, provides strong commercial drivers. Despite the challenges, several emerging opportunities exist for "fit for purpose" drilling rigs and specialist service providers.

Community sustainability

Geothermal energy supports regional energy independence, with minimal surface impact. It aligns with local sustainability goals and fosters public trust through community engagement and strong environmental safeguards. Geothermal energy aligns closely with community and social sustainability goals.

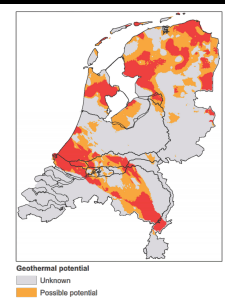
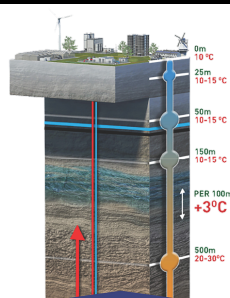
Policy & regulatory implications

Geothermal is a strategic energy pillar in the Netherlands. It is already embedded in the Dutch Climate Agreement and National Heat Strategy with targets to scale up its contribution to decarbonise heating. Despite many commercial advantages regulatory challenges do remain. Geothermal projects can face long, sequential permitting processes with responsibility split between local, provincial and national authorities. Stringent requirements from water authorities aimed at protecting drinking water can overlap or conflict with geothermal drilling regulations especially in shallow or urban areas.

Way forward & solutions

Future actions needed to meet geothermal targets include improved permitting process, expanding subsurface exploration data and deploying modular drilling technology. Coordinated action is needed to streamline the permitting process to reduce project lead times, expand heat networks to unlock both residential and commercial markets and guarantee long term investment frameworks.

Photo Courtesy :



Key Takeaways

- Geothermal is key to the Netherlands' heating transition, providing 25% of national heat demand by 2050
- Over 700 doublets needed by 2050. As of 2024 only 36 doublets in operation
- Geothermal in the Netherlands is technically and commercially viable with need for further streamlining of regulations
- Dutch geothermal operators include: Ennatuurlijk Aardwarmte, Aardyn, HVC Aardwarmte, Gaia Energy, Minewater Energy, Yeager Energy and EBN
- Sources of useful information on Dutch geothermal include: <https://www.nlog.nl/geothermie>, <https://geothermie.nl/>, <https://www.ebn.nl/en/ebn-and-geothermal-energy/>
- Opportunities for: "fit for purpose" drilling rigs, specialist service providers and engineering expertise.

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