

Parties

SCAN is a national programme made possible by the Ministry of Economic Affairs and Climate (EZK). SCAN is executed by EBN in collaboration with TNO.

EBN is a facilitator in the energy transition and implements part of the climate and energy policy of the Ministry of Economic Affairs. EBN possesses a lot of knowledge of the Dutch subsurface.

TNO is the Dutch organization for applied scientific research and has the ambition to accelerate the energy transition together with knowledge institutions, companies and the government.

SCAN is carried out in collaboration with Dutch provinces and municipalities, among others.

For more information about SCAN, visit:
www.scanaardwarmte.nl

Do you have questions? You can email
info@scanaardwarmte.nl



Ministry of Economic Affairs
and Climate Policy



Photocredits: Second Opinion, CineMakkers Leeuwarden

1 Explore

Before drilling, the subsurface must be thoroughly examined. To this end, SCAN has already carried out seismic surveys. Some additional local seismic surveys may be necessary. Read more on the SCAN website or in the flyer 'Seismic survey'.



2 Building location

A site of approximately 1 to 2 hectares is required to be able to perform a drilling operation. The site will be paved and a drilling rig will be erected temporarily. It is between 35 and 55 meters high, depending on the type of rig. The height can best be compared with that of a tower crane. Mobilization and demobilization (transport) is planned to minimize the effect on the local environment and to avoid potential traffic congestion. It is anticipated that approximately 20 people will work at the drilling site.

3 Drilling and measurements

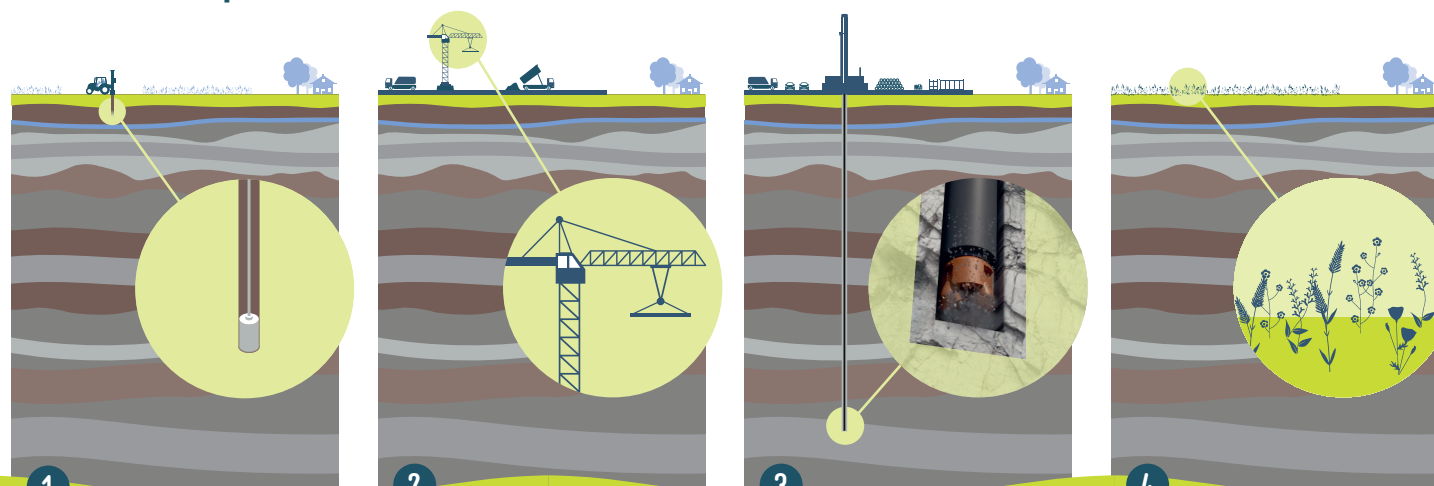
The SCAN drilling is carried out to depths of between 500 meters and 4 kilometers, depending on the local

structure of the subsurface. The hole is about 60 centimeters wide at the top and about 15 centimeters at the bottom. The well is drilled from a so-called well cellar. This may require piling if necessary for the cellar foundation to support the drilling rig. For technical reasons a continuous drilling process is required and therefore work is also continued at night. During the work, the noise at a distance of 300 meters should not be louder than a soft conversation between two people. When the desired depth is reached, the research phase begins. In this phase measurements are performed that can be used to determine the properties of the different earth layers in the subsurface.

4 Clean up and restore

The borehole will be cleaned up after the research. Cement seals are placed on several levels, after which the well cellar is removed to 3 meters below ground level. After that, the site will be returned to its original state. The work on the site will take approximately 6 months in total.

SCAN work process



1

Explore

Exploration is done by means of seismic surveys. Not every well requires additional local seismic surveys.

2

Building location

The construction of the location and construction of the installation takes 8 to 10 weeks. Transporting the drilling rig to the site takes 1 week.

3

Drilling and measurements

Drilling and measurements take between 4 and 10 weeks depending on the depth of the well and the research programme.

4

Clean up and restore

The well cellar and the pavements will be cleared in 4 weeks. Returning the site to its original state and cultural-technical restoration takes 4 weeks plus extra time for regrowth depending on the season.



Subsurface
research for
geothermal heat

SCAN drilling

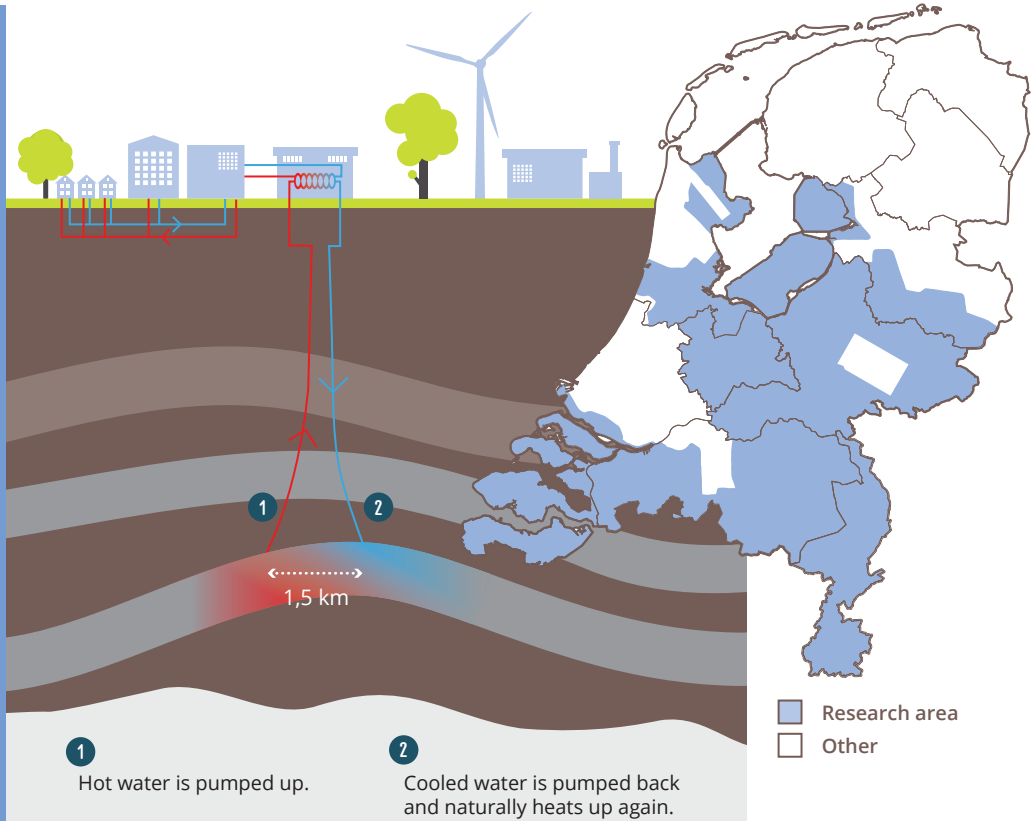


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SCAN investigates where the Dutch subsurface may be suitable for the extraction of geothermal energy. With the data that SCAN collects, a more complete and accurate picture of the Dutch subsurface can be formed. Geothermal projects can be accelerated with this new information. All information from the programme will be made publicly available.

www.scanaardwarmte.nl



What is geothermal heat?

Deep inside the earth it is warm. The deeper you go the warmer it gets. At a depth of 2 to 3 kilometers warm water is present that has a temperature between 70 and 100 °C. If the water is in a permeable rock layer, it can be pumped up. The heat from the water can be used above ground to heat homes, offices or greenhouses. The cooled water is returned to the subsurface where it naturally heats up again over time. Geothermal energy is a sustainable source of energy. The Netherlands already has decades of experience with geothermal energy in the horticulture sector heating greenhouses. SCAN will not be extracting geothermal energy but will conduct research drillings that are temporary and only intended to collect data.

Where will SCAN conduct research?

Within the SCAN programme up to 10 research wells will be drilled. SCAN focuses specifically on the areas where little is known about the subsurface.

To decide on drilling locations we take both the subsurface as well as the above ground heat demand into account. In consultation with provinces and municipalities, land users, land owners and with respect to the environment, the most suitable locations for a possible drill site are then determined. You will find the most recent updates on www.scanaardwarmte.nl.

Environmental impact

The basic principle is that the drilling will have the smallest possible effect on the environment. Therefore, locations that are well away from buildings are preferred. In addition measures are taken to limit any potential disturbances.

The process

Preparing a well is a complex process. In short it looks like this:

Phase A

Phase B

Phase C

Phase D

Determining what areas could be interesting to retrieve data by drilling.

Conducting an environmental analysis to identify what needs to be taken into account.

Consultation with involved parties (such as authorities, land owners and local residents).

Apply for permits from the Ministry of Economic Affairs and Climate, the municipality and any other authorities.

Why drill?

Since 2019, SCAN has been conducting seismic surveys and reprocessing existing seismic data. This provides insight in the earth's subsurface to a depth of about 6 kilometres. The SCAN research drilling will retrieve important additional information.

- The properties of the different earth layers are examined to determine whether they are sufficiently permeable to be able to pump hot water from them.
- It will confirm that layers are present at the depth that we expected them to be at. Drilling also makes it clear what the thickness, composition and structure of the layer is.
- The temperature and composition of the water can be determined by drilling.

