case studies

Sustainable energy supply by soil sanitation

Energy | Eindhoven, NL

Photo source: VolkerWessels

The system can extract energy while purifying the soil. It is much cheaper than removing it (5-10 times less expensive).
It is a low cost system which aims at purifying soil in combination with extracting energy from ground water using heat pumps. It is an open system which directly pumps water into the soil, 2.7Mm3/yr. The system works for VOCs (fluorides & chlorides) water soluble.

Measured Impacts

CO_2kg/month reduction
23952,413

project scale **Neighbourhood**

development type **Brownfield development**

Benefits

- ☑ Reducing use of fossils
- ☑ Reducing water pollution
- ☑ Supporting the sustainable use of land
- ☑ Improving the air quality
- ☑ Reducing GHG emissions
- ☑ Purifying soil, less time to reuse a polluted area

Lessons learned

- Extraction of pollutants more efficient than expected
- The groundwater system in the whole area should be studied before designing the system. Public companies should manage influence the groundwater systems in the whole region to reduce the conflicts in the neighbouring systems.

Challenges

- Robust baseline data
- Early identification and engagement of stakeholders is critical to success.
- Investment rationale for existing and emerging energy technologies changes rapidly.

Supporting factors

infrastructural — Industrial areas from the city are being converted to residential areas. Polluted soil is present in such cases. Demand for heating and cooling both nearby (business or houses who have demand).

financial — Energy costs of the area

legal — Dutch law to clean soil and groundwater before constructing on site and also using heat pumps. Polluter of the soil is the one responsible for puryfing the area. Dutch regulation: (energy labels) EPC standard 0.3. Regulation: to extract balanced heating and cooling from the ground.

geographical — Eindhoven – Strijp-S

social — Availability of customers to use the produced energy

partners — VolkerWessels /City of Eindhoven

Contacts

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