BILFINGER TEBODIN





Community initiative investigates a sustainable and collective heating system for their neighborhood in the Dutch city of Groningen.

Bilfinger Tebodin has been working with several stakeholders in a community power-to-heat initiative in part of the northern Dutch city of Groningen. The project is headed up by Stichting 050 Buurtwarmte, a joint initiative by residents, the sustainable energy cooperative Grunneger Power, and Shell New Energies. The foundation hired Bilfinger Tebodin to draft a multidisciplinary design to test the technical, economic, legal, and social feasibility of connecting part of the Paddepoel-Noord neighborhood to a new energy-efficient local-district heating system.

The residents in a relatively densely populated corner of Groningen's Paddepoel district wanted an affordable and sustainable alternative to natural gas. In cooperation with 050 Buurtwarmte, Bilfinger Tebodin recently presented a basis of design so the foundation can learn exactly what the cooperative power-to-heat project will entail for them if they decide to support it. While the project is technically and economically feasible, now residents and the municipality of Groningen must decide whether it meets their demands.

If implemented, the Paddepoel project will reduce the neighborhood's CO₂ footprint considerably without breaking the bank. High-temperature heat pumps will draw water from the nearby Reitdiep and the shallow surface and upgrade it to 70-85 degrees Celsius. A distribution network will bring this hot water to homes for space heating and hot tap water. Only the gas boiler of the houses needs to be replaced by a delivery set. This leaves the existing radiators, pipes, and insulation intact, and causes minimum hassle for residents and homeowners.

LOCAL INITIATIVE

"The residents of Paddepoel are the engine of this project," says André Knol, who first



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got involved in the Paddepoel project as a student almost 7 years ago. He now works as a Project Manager for Bilfinger Tebodin, where he was responsible for the project's engineering process. "The people started it once they recognized their common need and involved local networks and experts to make their neighborhood better," Knol says.

Bilfinger Tebodin contributed engineering expertise from Process (Energy), Pipelines, Architectural, Cost Estimation, and Project Management. "We also had our consultants' support during the process on safety, soil, noise, air, and the necessary permits. In the end we delivered a CAPEX cost estimate that is +/- 25% accurate," says Knol. He is enthusiastic about the small-scale project



partly because cooperation has been fruitful and instructive for everyone involved.

OUTLOOK

With the Paddepoel project already attracting a lot of local and national media attention, this type of cooperative energy project could serve as a model for bringing affordable sustainable energy to the Netherlands through small-scale projects. The Dutch national Climate Agreement and EU legislation set ambitious goals to reduce CO_2 output by 2030 but there is no such thing as a one-size-fits-all solution for communities seeking to leave fossil fuels behind. It's important to harness local resources, from wind and water to local brainpower.

This project demonstrates the potential of local community initiatives in the energy transition. It also shows that bigger is not



always better. According to Peter Breithaupt (Shell New Energies, project investor), a small-scale approach is technically and economically better than larger scale projects. Working with local people and resources can be an excellent starting point to build up to a larger cumulative reduction of national \mbox{CO}_2 output.