

Pilot project Heeg - Súdwest-Fryslân

We have been in email contact with members of the [Warm Heeg working group](#) (in Dutch)

Context Heeg

In Heeg, a collective heat supply for the entire village has been in progress since 2018. The source heat for the heat pumps is harvested from the surface water of the Hegermeer lake and from the underground (aquifer thermal energy storage). For the required electricity, solar electricity, among other sources, will be used. The objective is for the heat supply to be owned and managed by the village, united in a newly established heat cooperative. (More information at www.warmheeg.nl in Dutch)

Questionnaire

1. Is there a cooling demand? If so, will it be linked to the heat demand?

The demand/interest is there, but a cold supply will not be installed, as it would be far too costly.

2. Will many heat pumps be used? If so, will some form of peak shaving be done to reduce the load on the power grid?

The project team is not that far along yet. Development of the preliminary design will start soon.

3. Will local energy sources be used. If yes, can this be quantified? If not, what energy sources are used/where does the energy come from? 'Local' we understand here as: an energy source in the same municipality.

Heat is extracted from local surface water and ground heat is used. The surface water is used in the summer months as a direct source for the heat pump and also for regeneration of (or storage of heat in) the aquifer thermal energy storage (ATES). During the rest of the year, the thermal storage is used as a source for the heat pumps. The ATES is supplemented by sustainably generated energy from solar panels, and hopefully wind energy. Ultimately, heat from surface water, supplemented by solar, wind and grid surplus, provides all the energy needed. Thermal storage is just the storage medium. In addition, plans are being developed for on-house local power generation. The assumption is 100% sustainability of all required energy. This is complex because the current policy of the Province of Friesland clusters all wind energy in only three wind farms, which are not near Heeg.

4. Are low-grade energy sources being used for low-grade demand?

Largely, low-grade energy sources are used, namely ambient heat from local surface water and ground heat.

5. Is the system demand-driven?

Yes.

6. To what extent is fossil energy still needed? If fossil energy is still temporarily needed, during what period?

In principle, fossil energy is used as little as possible; only as backup and for peak supply. The supply of 55 °C to the LT grid is done by heat pumps. Peak and backup supply are initially controlled by gas boilers, aiming to run it on natural gas and hydrogen in the ratio 30%/70%. The 30%/70% ratio is necessary because there are no 100% hydrogen boilers yet. The hydrogen needed will be generated locally. As soon as there are 100% hydrogen boilers, we will switch to 100% hydrogen. The possibility of replacing natural gas with biogas is being investigated. Peak boilers represent 20% of the total in the draft design. The aim is to reduce this to a maximum of 10% in the preliminary design, provided this is feasible in the business case.

7. To what extent will the homes be made suitable for LT? (Insulation + ventilation and/or modification of the delivery system)

In the district where an LT network of 55 °C is being constructed, almost all homes are already suitable.