Interreg Europe
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Down to Earth

Good practice

Regenerative Local Heating Network and Biogas Plants of Pfronstetten

Regional Association Neckar-Alb

1 GP template

As explained above, each PP must complete the template below with potential GPs (3 or 4, at least, one template per GP) identified in its region.

[Regional Association Neckar-Alb – Germany]

1. General information

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Project acronym	DOWN TO EARTH
Policy Instrument	*Regional Plan Neckar-Alb*
PI public authority	*Regional Association Neckar-Alb*
Version	5.0
Date	2024/12/05
GP Code[1]	PP05 RVNA

2. GP basic information

Number and Title of the GP	Regenerative Local Heating Network and Biogas Plants of Pfronstetten
Body responsible for the implementation	*Biogas plants:* Bioenergie Aichelau GmbH & Co KG Franz-Arnold-Str. 24 72539 Pfronstetten-Aichelau *Local heating network:* Municipality of Pfronstetten

[1] Please, fill in the GP code following the next instructions: GP-PARTNER CODE-ACRONYM- GP number (i.e.: GP-LP01-AGADER-01).

PPs CODE and ACRONYMS: LP01-PP02 AGADER-FJDV / PP03 MoC / PP04 NMA / PP05 RVNA / PP06 UPatras PP08 BSC.

Thematic objective of the GP (multiple choice if needed)	☒ Year 1. Environmental risks related with depopulation and aging population in rural areas. ☐ Year 2. All-type of access barriers to young farmers in depopulated rural areas. ☒ Year 3. Policy instruments to foster the role of farmers and land managers in fighting climate change and environmental risks.
Geographical scope of the GP	☐ National ☐ Regional ☒ Local
Location of the GP	Germany, 72539 Pfronstetten-Aichelau

3. GP detailed description

Summary of the GP	In Pfronstetten-Aichelau, a local heating network was established that utilises the heat from biogas plants to supply heat to a company and residents.
Detailed information on the GP	Two biogas plants have been built in Pfronstetten-Aichelau since the 1990s. The plants were intended to create new income opportunities for the operators and surrounding farmers, increase energy security in the community and contribute to climate protection. As electricity from biogas is climate-neutral, biogas plants avoid many climate-damaging greenhouse gases compared to electricity generation from fossil fuels. They also offer farmers in the region the opportunity to make some of their agricultural by-products available as renewable organic raw materials to supply these plants. Over time, a local heating network has developed from the biogas plants, which uses the heat from the power plants to heat neighbouring residential buildings and a commercial building. This offers citizens a secure and climate-friendly energy and heating supply. In 2024, the heat from the combined heat and power plants are used to supply a total of 14 neighbouring residential buildings and one business with local heating. The Biogas Aichelau GmbH & Co KG is planning to further expand the heating network to connect more residents and businesses in the village to the system. The expansion plans are closely linked to the renewal of the heating pipelines. As part of the expansion, three more households, the new village community centre and new buildings of the nearby company are to be connected to the network. This will further increase the concept's contribution to climate protection targets.
Resources needed	The operator and two full-time employees run the facilities in Pfronstetten. Regarding financial investments, no data is available. In 2023, the Ministry of the Environment Baden-Württemberg announced to financially support the expansion of the heating network in the municipality with 300,000 Euro.
Actors involved	Among the main actors that are involved in the initiative are: The Biogas Aichelau GmbH & Co KG: The company operates the biogas plants and the local heating network. The municipality of Pfronstetten: The municipality is responsible for providing the public road areas for laying the pipes. The municipality currently examines whether the new building plots planned in the north-east of the village can already be sold with a local heating connection.

	The Ministry of the Environment Baden Württemberg: In 2023, the Ministry of the Environment Baden-Württemberg announced to provide financial support for the extension of the local heating network in Pfronstetten-Aichelau. Interreg Central Europe: In the framework of the ENTRAIN project, know-how and consulting services were provided to the municipality of Pfronstetten for the planning and implementation of small local heating networks. Additional support for the establishment of a local heating network was provided in the framework of the project "Zukunftsdorf Pfronstetten" by the Klimaschutzagentur Reutlingen, the Clean Energy GmbH and the Zelsius GmbH.
Timescale	1994: The first biogas plant with an output of 40 kilowatts was established by the Bioenergie Aichelau GmbH & Co KG in Pfronstetten-Aichelau. 2001: The capacity for energy production of the fist biogas plant in Pfronstetten-Aichelau was increased from 40 to 120 kilowatts. 2008: A second biogas plant with an output of about 360 kilowatts was set up in Pfronstetten-Aichelau in the eastern part of the village. Until 2008: Two heat pipes had been established in the village connecting the Paravan GmbH and several residential buildings to the heating network. 2010: A new heat pipe was built to connect the residential area in the northern part of the village to the heating system. 2023: The Ministry of the Environment Baden Württemberg announced to provide financial support for the extension of the heating network. According to the authority, up to 50 public and private buildings within the community can be provided with heat in the mid-term. 2024: The local heating network provided heat supply for a total of 14 neighbouring residential buildings and for one company. 2024: The Bioenergie Aichelau GmbH & Co KG is planning to renew and expand the heating network. The first construction phase of the planned expansion is to be realised this year.

4. Evidence of success and transferability

Evidence of success
Biogas plants contribute to climate protection, as electricity and heat from biogas are 100 % climate neutral. Biogas plants can save up to 90 % of greenhouse gas emissions compared to fossil fuels, depending on the type of plant and substrate. The locals benefit from the biogas plants and the heating network, as the installations generate income for the operator, supply 14 households with heat, support 10 farmers who provide raw materials for the plants, and create new employment opportunities.

Regional impact
The impact of the biogas plant and the local heating network in Pfronstetten-Aichelau is primarily limited to the village itself. It is mainly the operator, nearby farmers and the local customers that profit from the initiative. In addition to supplying current and heat to the population, the regional added value in the village is increased with the installation. On top, a contribution is made to climate protection, since the plant helps to save CO2-emissions. To some extent, the biogas plants and the local heating network in Pfronstetten-Aichelau acted as a pioneer or model for the nearby villages in the region. The village of Ehestetten, for example, has also set up a local heating network in the years following its construction.

Potential for transferability (Overview)

Many villages in peripheral rural areas of central Europe have similar climatic conditions and economic structures to those on the Swabian-Alb. It can therefore be assumed that the concept observed in Pfronstetten-Aichelau can also be transferred to similar peripheral rural regions in central Europe.

In this context, it is to note that the use of biogas plants and local heating networks are currently subsidized in Germany. The approach is thus likely to be useful for countries and regions in which the use of renewable and climate-friendly energies is actively promoted.

Rate of potential transferability

☐ *1* ☐ *2* ☐ *3* ☒ *4* ☐ *5*

5. GP methodological viability

Study visit: theoretical session

In your opinion, how likely will it be to have a theoretical session about the GP? ***(1 – very unlikely | 5 – very likely)***

☐ *1* ☐ *2* ☐ *3* ☒ *4* ☐ *5*

The local heating network is a future-oriented approach that promotes the use of renewable raw materials and climate neutrality of rural communities. It can serve as a model for other rural villages in parts of Europe and should thus be included in the study visit.

Study visit: practical session

In your opinion, how likely will it be to visit the experience? ***(1 – extremely unlikely | 5 – extremely likely)***

☐ *1* ☐ *2* ☐ *3* ☒ *4* ☐ *5*

The municipality of Pfronstetten is a small municipality that is located on the low mountain range of the Swabian-Alb. Nonetheless, the biogas plants and the local heating network in Pfronstetten-Aichelau can be reached by bus.

6. GP pictures

GP pictures

If possible, provide pictures of the initiative

Source: RVNA 2ß23