Simplify the availability of areas for SDH

Subject:	Simplify the availability of area for large-scale solar thermal plants
Description:	Identifying and presenting possibilities for using affordable areas to install solar thermal systems
Date:	27.04.2017
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Document download:	www.solar-district-heating.eu/

Summary description of the instrument

Region: Styria, Austria

Partners involved: Province of Styria, S.O.L.I.D.GmbH, AEE INTEC

Short description of the measure: Identifying and presenting possibilities for using affordable areas to install solar thermal systems.

Initial situation

In Styria, nearly all of the large-scale district heating systems that also have a significant demand for heating for warm water during the summer are built in urban areas. The municipal utilities or larger energy suppliers who operate these systems have to face the challenge that in and around cities land is relatively expensive, especially if it can be used for building or commercially. The owners of property that could potentially be used for a solar thermal system expect values to rise further in the future and therefore ask for higher rent or purchasing prices. This substantially deteriorates the economic feasibility of solar thermal plants.

Fig. 1: Example for a ground mounted SDH system in Denmark

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In the past, several attempts have been made to install large-scale solar thermal plants for district heating on roof surfaces. However, this has rarely led to systems being implement because of uncertainties about long-term availability, discrepancies between appropriate feed-in points and having large, connected roof surfaces available, roof statics (wind and snow load) etc. This is why it is indispensable to have open spaces for the solar thermal heat generation in the future, especially considering the combination with seasonal storage which basically requires open spaces.

Objectives

The objective of this measure is to make areas available for energy generation use, especially keeping areas free in the form of ‘green zones’ and ‘agricultural priority zones’ to be able to use these areas for efficient heat generation.

Measures and actions

In order to implement this new approach for reserved areas for energy generation, it is necessary to first find a wider consensus about the necessity of the future energy supply being covered by regionally available renewable energy sources. For this purpose it is also necessary to know the energy demand which is why the first, essential step is to implement spatial energy planning. For this purpose experiences from other states (e.g. Salzburg) are exchanged and the implementation of the first pilot projects in Styrian municipalities with district heating will be initiated. Within the framework of these initial spatial energy planning concepts the integration of solar thermal systems for providing renewable heat will form a substantial part.

Barriers and opportunities

Currently only few energy providers in Austria are aware of the need for generating renewable energy locally and relieving the energy grid this way. Some still believe that electricity, heat and natural gas grids can be expanded further and that the market will decide which energy source will be prioritised in the end. They, knowingly or unknowingly, ignore the fact that this way we will not be able to back out of fossil energy sources any time soon, like the Nordic countries have already shown us.

If it is possible to support decision-makers with future investment decisions by using spatial energy planning, technologies like solar thermal will have good chances of being implemented. This type of technology has high initial investment costs and barely any operational costs and is discriminated by current approaches.

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Results

After completing the project, a minimum of three municipalities in Styria should have local planning. This will provide the basis for investors to build new district heating networks or expand already existing ones with the support of communal decision-makers. The integration of a solar thermal system shall be considered and, where possible, implemented for all projects.

Lessons learned

The project is still ongoing which is why at this point there are no final results.

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