

Press release

Ground-breaking GP JOULE project using green electricity to generate heat

A project is taking shape in Mertingen that is the only one of its kind in Germany. The local heating network is being supplied with heat from an industrial air-source heat pump that is powered directly by green electricity from a photovoltaic (PV) system.

Buttenwiesen, 11 September 2023

Leaving fossil fuels far behind and moving towards 100% renewable energy, GP JOULE is leading the way with its innovative projects. In Mertingen, a small town in Germany's Donau-Ries rural district, it is building an industrial-scale air-source heat pump that will draw its power straight from a solar farm and thus feed climate-neutral heat into the heating network. It is the only project of its size anywhere in Germany.

Homes, businesses and municipal buildings in Mertingen in Bavaria have been supplied with sustainable heat from ProTherm Mertingen's district heating network since 2016. The company was founded by GP JOULE and Mertingen municipality, which hold stakes of 45% and 55% respectively. Up until now, the main source of heating has been waste heat from two local biogas plants. With the network expanding and thus heating demand increasing, another generating plant is now being added.

This involves integrating an air-source heat pump system fed by green solar energy into the district heating network, where it can generate heat. The heat pump will also draw power from the mains when there is surplus supply. "We want efficient, zero-carbon heat generation," says Felix Schwahn, Managing Director of GP JOULE WÄRME.

Integrating a directly connected solar farm to power the heat pump system allows renewable energy to be used right where it is generated. This is good for the energy system, because the electricity does not weigh down the grid; good for the region, because value creation is kept local; and good for the climate as well.

"A blueprint for many more district heating networks"

"Putting the first green-electricity-powered air-source heat pump of this kind into operation for a municipal district heating network in autumn 2023 is a ground-breaking project that can serve as a blueprint for many more such networks that GP JOULE is currently developing," Felix Schwahn explains. "Our experience enables us to showcase the wealth of possibilities afforded by smart sector integration at local level.

"The two-stage heat pump is set to go on stream in October. It'll have a thermal output of 700 kW and be able to deliver a flow temperature of up to 80°C. The heating network is being expanded at the same time, with three more PV systems supplying around 30 MWp being developed in Mertingen alongside the existing 750 kWp one. The intention is for

most of the power to be used locally - to provide heat and supply electricity to businesses.”

Two buffer tanks, each holding 84,000 litres of water, will store the heat energy generated by the heat pump in the future. This energy will then be able to be fed as required into the district heating network and the homes connected to it.

A digital twin, which will harness the power of AI to forecast heating demand within the network, the situation on the electricity market and the availability of other heat sources, will control the heat pump in the best possible way to ensure safe, secure and cost-effective operation within the energy system.

Images



The two buffer tanks have recently been erected. They will store the energy generated by the heat pump and solar farm for periods of little or no sunshine in the future, enabling a continuous supply of heat to the heating network.

Image rights: GP JOULE; images can be used for free in conjunction with reports on its Mertingen heat pump.

About GP JOULE

GP JOULE is an integrated energy supplier that covers the entire energy value chain, from generation to use - and from consulting and financing through to project planning, construction and service. GP JOULE produces and sells wind and solar power, green hydrogen and heat and makes use of it where it is most effective: in electric and hydrogen-based mobility, in households and in industry. From its base in Germany, GP JOULE has been shaping the future of energy in Europe since 2009. For a secure, independent and sustainable supply of energy. For 100% renewable energy for everyone.

GP JOULE won the 2022 German Mobility Award for its eFarm hydrogen mobility project.

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