

Joint Press Release

Berlin, March 25, 2021

Press release by Vattenfall Wärme Berlin AG and Siemens Energy

Vattenfall and Siemens Energy help advance a climate-friendly heating supply for Berlin with large-scale heat pump

- Joint trial of a large-scale, high-temperature heat pump in district heating network
- Waste heat and renewable electricity utilized to achieve heating transition in Berlin
- Federal government-funded project links heat, cooling, and electricity

Vattenfall Wärme Berlin AG and Siemens Energy signed an agreement today to demonstrate and trial a new large-scale, high-temperature heat pump in Berlin. In the Qwark³ project (the German acronym represents “coupling of district heating, power, and cooling”), they will test the use of this new technology for the first time at Berlin’s Potsdamer Platz to generate green district heating using waste heat and electricity from renewables, and feed it into Berlin’s district heating network. The project is funded by the German Ministry of Economic Affairs and Energy as part of its 7th Energy Research Program: The aim of the pilot project is to establish robust claims regarding the technical and economic potential of generating heat using large-scale and high-temperature heat pumps.

Since 1997, the cooling plant on Berlin’s Potsdamer Platz has been reliably supplying locally and efficiently generated cooling power to some 12,000 offices, 1,000 housing units, and numerous cultural facilities in the vicinity. This has previously generated unused waste heat, which has been dissipated into the surrounding air via cooling towers. Putting a new high-temperature heat pump into operation, however, will provide a more environmentally friendly way of linking heating, cooling, and electricity in the future. The new technology turns waste heat into a usable product, improving the energy-efficiency of the cooling power generation process while providing the urban district in Berlin with green heat from renewable electricity. The use of the heat pump will



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substantially reduce the amount of heat being dissipated into the environment and provide additional heat for the district heating network, amounting to about 55 GWh per year, with an estimated annual saving of about 6,500 metric tons of CO₂ emissions and 120,000 m³ of cooling water.

Siemens Energy is delivering this new type of large-scale, high-temperature heat pump to provide thermal capacity of up to 8 MW, which will be capable of flexibly delivering flow temperatures in the district heating network of between 85°C and about 120°C, depending on ambient conditions. This is one way in which technology can make a further contribution toward replacing fossil-based heating in urban district heating networks. In addition to more efficiently linking energy resources at a local level, this project represents the first trial of the large-scale, high-temperature heat pump at a practical scale under real conditions.

"If we want to achieve the transition to a new energy mix in the cities and rely more on the potential of renewables, we need to take an integrated view of heating, cooling, and the electricity supply," comments Tanja Wielgoss, CEO of Vattenfall Wärme Berlin AG. "That's the only way we can make the best possible use of the available resources. We're proud that we can join forces with Siemens Energy to take our cooling plant, which has provided efficient cooling in the Potsdamer Platz neighborhood for more than 20 years, and make our system even better with this new large-scale, high-temperature heat pump."

"Decarbonizing our heating supply is a key precondition for successfully achieving the objectives of the Paris Accords," says Jochen Eickholt, Member of the Executive Board of Siemens Energy. "Large-scale heat pumps can play an important part in the medium to long-term conversion of our heating supply system. We're very pleased to be working with Vattenfall to advance the heating transition in Berlin and trial this potentially key technology for the first time."

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VATTENFALL The Vattenfall logo, consisting of a yellow circle above a blue circle.

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Siemens Energy is one of the world's leading energy technology companies. The company works with its customers and partners on energy systems for the future, thus supporting the transition to a more sustainable world. With its portfolio of products, solutions and services, Siemens Energy covers almost the entire energy value chain – from power generation and transmission to storage. The portfolio includes conventional and renewable energy technology, such as gas and steam turbines, hybrid power plants operated with hydrogen, and power generators and transformers. More than 50 percent of the portfolio has already been decarbonized. A majority stake in the listed company Siemens Gamesa Renewable Energy (SGRE) makes Siemens Energy a global market leader for renewable energies. An estimated one-sixth of the electricity generated worldwide is based on technologies from Siemens Energy. Siemens Energy employs more than 90,000 people worldwide in more than 90 countries and generated revenue of around €27.5 billion in fiscal year 2020. www.siemens-energy.com.

As a traditional Berlin company, **Vattenfall Wärme Berlin AG** has been supplying the capital with energy for over one hundred years. Today, 1.3 million residential units in Berlin benefit from locally generated, reliable and environmentally friendly district heating as well as district cooling. Vattenfall Wärme relies on a smartly controlled district heating system, holistically conceived energy concepts and decentralised solutions. The aim for the capital is to become climate-neutral by 2050. Vattenfall supports the state of Berlin in achieving this goal. In a joint climate protection agreement, the company has committed to halving its CO2 emissions by 2020. This goal was already achieved ahead of schedule in 2017. Now, together with the state of Berlin, they are working on the coal phase-out by 2030. In parallel, Vattenfall is working on numerous innovative solutions for its great mission: a life without fossil fuels within one generation.

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