

Case Study // Round Table SDG 7: Improving the Efficiency of the Energy System

Applying industrial waste heat to supply new city district in Hamburg

Germany

Level: national and local

Summary

The case study demonstrates that policy makers on federal level, local stakeholders and industry representatives need to work together in order to implement large scale energy efficiency projects. Only through the support from federal level, the economic viability of a project to supply a new city district in Hamburg with waste heat from a copper production plant was secured.

Situation

At the port of Hamburg a new city district "Hafencity Ost" is currently under construction. A nearby copper production facility owned by the company Aurubis has so far used water from the river Elbe to cool waste heat from its production. It was considered on local level to utilize this waste heat to supply the new city district with heat by constructing a new heat network and by investing in technical adjustments at the copper plant. Unfortunately the economic viability of the project was not given without further financial support, despite its economic benefit for the local economy and the environmental benefits.

Strategy

As part of the National Action Plan on Energy Efficiency (NAPE) the German Federal Ministry for Economic Affairs and Energy (BMWi) introduced in 2016 a new incentive scheme to promote internal and external utilization of waste heat in industry. The new program aimed to enable projects such as the Hamburg example by providing financial support for the supplier of waste heat as well as for the heat consumer. With the financial incentive from the new program, BMWi was able to secure the economic viability of the project. In this process the Ministry cooperated closely with the City of Hamburg, Aurubis and Enercity Contracting GmbH.

Results and impact

- *An energy delivery contract to supply the new district was signed in February 2017 between Aurubis and Enercity Contracting GmbH.*
- *As a first step Aurubis will utilize 160.000 MWh waste heat. This could lead to annual GHG savings of 32.000 t CO₂.*
- *Investment costs (for the heat network as well as technical adjustments at the copper plant) are at € 33 Mio. BMWi will provide € 8 Mio. via its promotional scheme.*
- *Aurubis intends to supply other Hamburg districts with the remaining waste heat potential of its facilities.*

Challenges and lessons learned

Please identify challenges encountered during the implementation and lessons learned.

- *Need to incentivize heat providers as well as customers: For the successful realization of waste heat utilization projects, it was decided that the program promotes both investments on the part of the waste heat supplier (Aurubis) and necessary infrastructure investments of the waste heat customers (resp. municipal utilities).*
- *Support from the municipal level, in particular a policy that sets strategic and reliable goals for low-carbon heat supply.*
- *Incentives for the industry, in particular promoting of investments for the technical adjustments for the provision of waste heat and securing appropriate heat prices for the heat provider (ROI).*
- *Non-bureaucratic solutions as well as good coordination in the event of challenges occurring during the implementation of a complex long-term project.*

Potential for replication

*The experience shows that there is a **need for local heat supply planning procedures**. Policy makers should support local planning agencies with information and knowledge. Tailored financial incentives are needed that allow local stakeholders to secure the economic viability of large-scale energy efficiency projects.*

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