

Industrial Energy Cooperation for Waste Heat Recovery in Austria

Austria has energy efficiency, renewable energy and sustainability goals that are supported by various institutions, regulatory framework, roadmaps and subsidy schemes. Nevertheless, legal and regulatory barriers to industrial energy cooperation exist and they cannot be tackled without law/regulatory amendments, possibly influencing a large number of projects despite specific characteristics. S-PARCS aims at providing concrete solutions to overcome these barriers. We provide policy recommendations on the theme of waste heat recovery, based on real experiences from our Austrian Lighthouse industrial parks.

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Further contributions: Chemical Park Linz, Ennshafen business park and industrial port

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Background

Several companies, especially from the energy intensive sectors, generate significant amounts of waste heat that may not be entirely consumed internally. Such waste heat flows may remain constant along the year or may oscillate with seasons.



Ennshafen industrial park

Chemiepark Linz industrial park



Applications where heat flows are demanded are numerous and variegated, either in industrial or civil sites. For example, they can be exploited for space heating purposes, in cascade for other industrial processes or for cooling through adsorption or absorption chillers.

Depending on the site location, feeding waste heat into local district heating networks can be a viable and valuable solution for energy recovery.

The policy challenge

Policy challenges arise when waste heat cannot be recovered internally.

As a matter of fact, in Austria there is no dedicated law for external waste heat utilization and a contractual framework is not established, neither towards a single

private customer nor towards district heating network operators; legal status of participating companies remains unclear. Moreover, there are no norms that regulate how heat as an energy carrier is defined and pressure and temperature levels, heat amounts are usually calculated via temperature differences and additionally, there is no legal claim for building heat pipelines over private ground. Finally, the assessment of waste heat as being a zero-emission source of energy, to be treated as equal to green energy, is also uncertain.

This results in a fragmented situation, in which customer prices, feed-in obligations, metering schemes are not addressed homogeneously and consistently. Compared to the Electricity Market Directive or the Gas Directive for the energy sources of electricity or gas, a private law contract is the basis for heat supply, as a reflection of the absence of relevant regulations.

Despite the presence of these limitations, conventional district heating remains the classic business model to utilize waste heat externally. However, for an industry generating waste heat, the construction of its own district heating network is not lucrative because it is common that the local district heating supplier owns significant customer access.

In this situation, the district heating network operator is a (eventually price-regulated) monopoly to the local end-user and acts as a dominant company with regard to the integration of heat sources, since the potential heat generator that wants to feed-in usually has no other possibility than directly sell its heat. As to antitrust provisions the network operator is obliged to open its network to other market participants if that is factually possible, it also has a legitimate interest in ensuring the economic supply of heat to its customers or to choose the third party. In General, the contracting parties are free to make provisions on the waste heat supply, but they have no guarantees of a successful agreement.

Each case is highly individual and overall contract designs (i.e.: defining the partner who bears the costs of

the components of the waste heat feed-in as well as the definition of feed-in profiles, backup capacities, etc.) vary. Under certain circumstances, a feed-in claim can be derived for antitrust reasons (e.g.: no or minor burden for the network operator). One argument against feed-in might be the so-called “technical or economical impossibility/unreasonableness” (but its legal definition is not given). In any case, the use of waste heat must prove to be economically more favourable for the network operator than using its own generation units.

Thus, negotiations are characterized by high complexity due to multiple parameters analysed and are often associated with low assurances of success, resulting in a major legal barrier to energy cooperation.

Solutions and Policy Recommendations

In this framework, the issue of feed in into local district heating networks can only be resolved by direct negotiations. The best alternative is usually to talk and discuss terms with the network operator and try to reach a private law agreement for selling the waste heat.

As a facilitation to waste heat supply into district heating networks to maximize use of clean energy, the recast of the Renewable Energy Directive obliges district heating networks operators to increase the share of heat from renewable sources and waste heat in their network.

Owing to the lessons learned in S-PARCS when analysing the implementation of solutions for waste heat recovery, and thanks to lessons learnt for the development of this solution, a set of policy recommendations is proposed.

Policy Recommendations

- Facilitate and sustain internal use of waste heat, e.g.: through economic incentives.
- Improve and generate options for waste heat use in order to reduce primary energy demand thanks to the implementation of energy cascades.
- Improve legal basis for waste heat feed-in into district heating network, as waste heat producers have to negotiate with network operators and have no right to privileged feed-in into the network. Guarantees are a policy instrument often demanded in order to cancel out long-term risks.
- Ensure that district heating network operators, in the event of refusal of connection, must inform the third party of the reasons and point out measures that the third party can take to obtain access.

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Further reading

The complete list of policy recommendations based on the results of the legal, regulatory and standardization analysis was developed in Work Package 2 of the S-PARCS project. Detailed information is included in Deliverable 2.1, Deliverable 2.4 and Deliverable D5.4 and is available to download at:

<https://www.sparcs-h2020.eu/results/deliverable/>

The majority of our project reports are freely available online at <https://www.sparcs-h2020.eu/>.

Holzleitner, Moser, Puschnigg (2020) Evaluation of the impact of the new Renewable Energy Directive 2018/2001 on third-party access to district heating networks to enforce the feed-in of industrial waste heat. Utilities Policy, Volume 66, October 2020, 101088.

Moser, Puschnigg, Rodin (2020) Designing the Heat Merit Order to determine the value of industrial waste heat for district heating systems. Energy, Volume 200, 1 June 2020, 117579.

S-PARCS policy briefs

We summarize key findings of the S-PARCS projects in a series of policy briefs, all of which can be found here: <https://www.sparcs-h2020.eu/#results>

Contact information

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