

Tool 7

SUPPORT DHC

# TOOL FOR THE TECHNO-ECONOMIC ASSESSMENT OF DATA CENTRE WASTE HEAT INTEGRATION INTO DISTRICT HEATING SYSTEMS

*INTRODUCTION TO THE TOOL*

Integrating waste heat from data centres and other industrial sources into district heating systems is increasingly recognised as an important way to improve energy efficiency, reduce greenhouse gas emissions and support the transition to sustainable heating. However, establishing the economic value of waste heat and creating viable contractual agreements between providers and operators can be challenging due to their differing cost structures, risk profiles, and return expectations.

District heating operators will only use waste heat if it is cheaper than existing alternatives. Depending on electricity prices and the mix of other heat sources already in operation, such as gas boilers or combined heat and power plants, this may apply to only a fraction of the available hours. In turn, data centre operators justify their investment through avoided cooling costs and, where applicable, earnings from heat sales. Avoided electricity costs for conventional cooling alone often cover a substantial proportion of the business case. Therefore, the central question in any such project is not whether waste heat integration is technically possible, but whether a price can be agreed that makes the project simultaneously viable for both contracting parties. This price is paid by the district heating operator to the data centre operator for the waste heat delivered. If it is set too low, the project becomes unattractive for the data centre operator. If it is set too high, however, it becomes uneconomical for the district heating operator. A mutually beneficial business case only exists if both parties can achieve their required return on investment at the same negotiated price.

This tool was developed within the Support DHC project to address this exact issue. From the outset, the tool was designed not only to be used as an internal planning instrument, but also to provide direct support for negotiations between district heating and data centre operators. This requirement arose from practical experience: waste heat recovery project developers need a tool that is simple enough to use without specialist modelling expertise, transparent enough to share and discuss with counterparts, and flexible enough to test different pricing, cost-sharing, and contract scenarios in real time.

The tool meets all these requirements and works in Microsoft Excel, so no complex modelling software is required. It remains analytically robust, making the share of hours in which waste heat is economically competitive visible and quantifiable for both parties.

The tool is intended primarily for district and data centre operators who are jointly evaluating the feasibility of a waste heat recovery project and seeking a transparent basis for contract negotiations. However, it can also be used by technical consultants, energy planners, public authorities and other stakeholders involved in supporting such projects, as well as in the planning and development of waste heat integration initiatives.