

1 General information

Seaport: Port of Antwerp-Bruges

Country: Belgium

Project title: Antwerp North Heat Network: reusing residual heat

WPSP theme: Climate and Energy



Symbolic push of the button for the first delivery of waste heat in the Port of Antwerp-Bruges between Indaver and Boormalt malting plant.

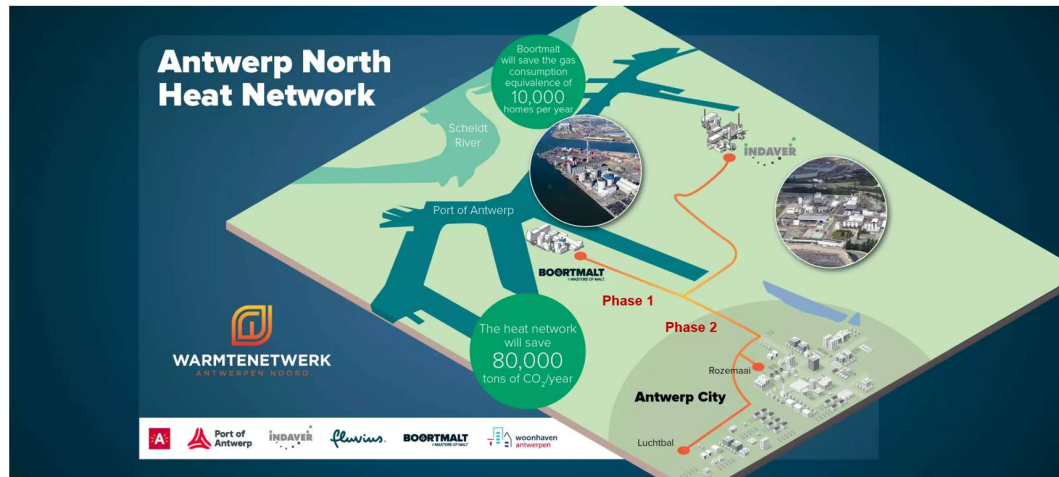
2 Introduction

The city of Antwerp envisions a future where buildings are heated in a sustainable manner, with a significant role played by district heating networks. These networks, known as heating networks, transport heat in the form of warm water through underground pipelines, connecting to heat sources such as industrial companies with surplus heat. Other buildings can then tap into these networks, utilizing the heat for their heating and hot water needs.

As part of its commitment to sustainability and reducing carbon emissions, the city of Antwerp aims to connect 33,500 residential units to a district heating network by 2030. This initiative, known as the Antwerp North Heat Network (i.e. Warmtenetwerk

Antwerpen-noord) project, represents a significant step towards achieving the city's climate goals.

3 Description of the project



The Antwerp North Heat Network project is a cornerstone of the city's efforts to heat buildings sustainably, aligning with ambitious climate goals and significantly reducing CO₂ emissions. The Port of Antwerp-Bruges, in collaboration with Indaver, constructed the first segment of the network (i.e. phase 1), which now delivers heat to Boortmalt. Symbolically launched on February 29, 2024, the heat network connects Indaver's waste treatment plant with the Boortmalt malthouse via a pipeline route traversing the Antwerp port area. This pioneering initiative leverages surplus heat from industrial processes at Indaver's site, representing a significant milestone in sustainable heating efforts.



Building of the pipeline from Indaver to Boortmalt

The surplus heat generated by Indaver's rotary kiln furnaces, essential in processing industrial waste, is channeled through insulated pipelines to Boortmalt's malthouse, the world's largest malthouse, located approximately 10 km away. This transition of surplus heat enables Boortmalt to substitute natural gas and Combined Heat and Power (CHP) with a sustainable heat source, contributing to substantial reductions in CO₂ emissions.

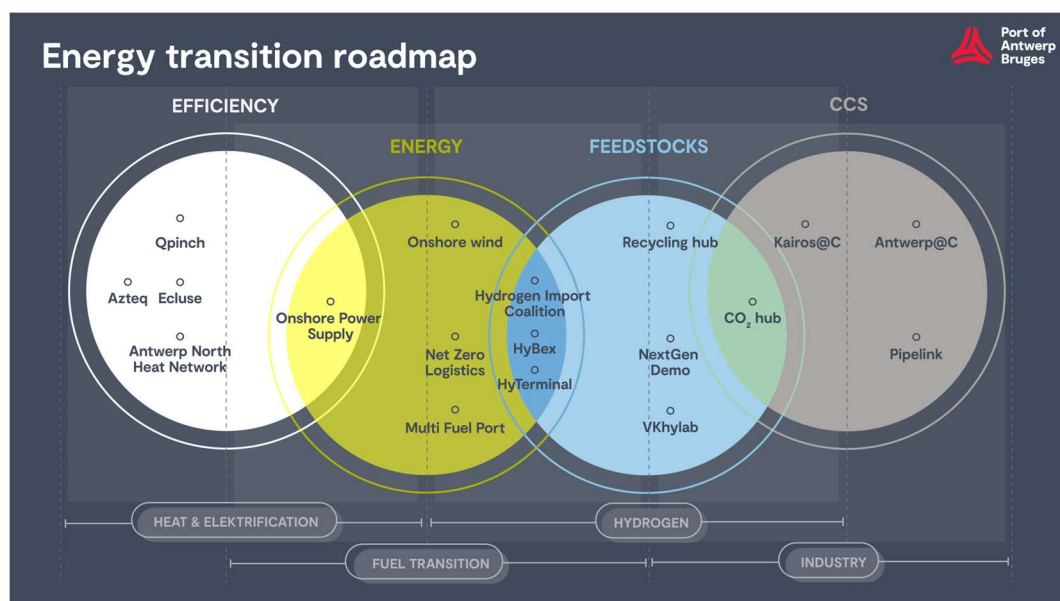
The completion of the industrial heating network in phase 1 lays the necessary groundwork for the subsequent development of the residential network. Fluvius, under the direction and collaboration of the City of Antwerp, will build the second, residential network from the industrial heat network (i.e. phase 2). Agreements were concluded for this purpose with, among others, the social housing company 'Woonhaven Antwerp'. It will extend the benefits of surplus heat to schools, public buildings, and 3,200 households in two neighborhoods in northern Antwerp. By eliminating the need for natural gas or electricity and minimizing heat loss, these district heating networks significantly reduce CO₂ emissions, aligning with Antwerp's ambitious climate goals. The city aims to decrease CO₂ emissions by 71,000 tons per year by 2030, equivalent to the annual heating demand of 33,500 households. By embracing district heating networks and other renewable energy solutions, Antwerp is paving the way towards a more sustainable and environmentally friendly future, reducing its carbon footprint while ensuring the comfort and well-being of its residents.

The strong synergy between industrial offtakers with a high baseload and residential offtakers with mainly peak demand in winter period, makes this project economically

viable. This balance helps ensure efficient utilization of resources and cost-effectiveness.

4 Vision and leadership deployed by the port's management

The Antwerp North Heat Network initiative epitomizes the Port of Antwerp-Bruges' commitment to advancing a circular economy by repurposing surplus industrial heat, which would otherwise be wasted, for sustainable industrial and urban heating solutions. Strategically integrated into the port's Energy Transition Roadmap under the efficiency pillar, this project signifies a proactive step towards achieving long-term environmental sustainability goals. By harnessing surplus heat and incorporating it into their strategic energy plan, the port not only addresses immediate environmental challenges but also establishes a precedent for innovative, circular practices in industrial operations. The management's forward-thinking approach ensures that the port remains a frontrunner in sustainable development, fostering economic growth while minimizing environmental impact. This project not only enhances the port's operational efficiency but also underscores its dedication to creating a sustainable future through the strategic reuse of resources.



5 Contribution to sustainability and the UN SDG's

The heating network project makes significant contributions to sustainability and aligns with several United Nations Sustainable Development Goals (SDGs). By

leveraging surplus industrial heat to provide a sustainable heating solution, the project directly supports **SDG 7: Affordable and Clean Energy**, by ensuring access to reliable and modern energy services. This innovative approach also addresses **SDG 9: Industry, Innovation, and Infrastructure**, as it integrates advanced technologies and sustainable practices, fostering a resilient infrastructure that supports inclusive and sustainable industrialization. Furthermore, the project contributes to **SDG 13: Climate Action** through substantial reductions in carbon emissions, advancing efforts to combat climate change and its impacts. The emphasis on collaboration with local authorities, businesses, and the community aligns with **SDG 17: Partnerships for the Goals**, promoting effective partnerships to enhance sustainable development initiatives. Through these concerted efforts, the port demonstrates how industrial innovation can coexist with ecological responsibility, setting a global example of sustainable progress.



6 Engagement of societal and commercial stakeholders

Antwerp North Heat Network exemplifies a robust engagement with societal and commercial stakeholders. Key partnerships with companies like Indaver and Boortmalt have been instrumental in utilizing surplus industrial heat, showcasing how commercial collaboration can drive environmental innovation. Additionally, the port has engaged local communities through information sessions, consultations, and transparent communication strategies, ensuring that residents and local businesses are well-informed and supportive of the project.

The 'open access' nature of this heating network also encourages participation from various industries within the port, fostering a collaborative ecosystem for sustainable heating solutions. This network is unique as the first of its kind in Belgium, allowing any company in the port that produces or wishes to use heat to join. The pipeline network runs through the Next-Gen District, where the Port of Antwerp-Bruges will cluster companies active in the circular economy. These companies can contribute additional surplus heat to the network or draw from it, further enhancing the collaborative and sustainable nature of the project.

The involvement of Fluvius, Indaver, Boortmalt, the Port of Antwerp-Bruges, the City of Antwerp, and Woonhaven Antwerpen highlights a multi-stakeholder approach, leveraging the strengths and resources of various entities to achieve common sustainability goals. This collective effort not only enhances the technical and operational aspects of the heating network but also builds a sense of shared responsibility and commitment to environmental stewardship among all participants.

Financial support from the Flemish government underscores its commitment to promoting the adoption of surplus heat and the expansion of heating networks, advancing the region's sustainability goals.

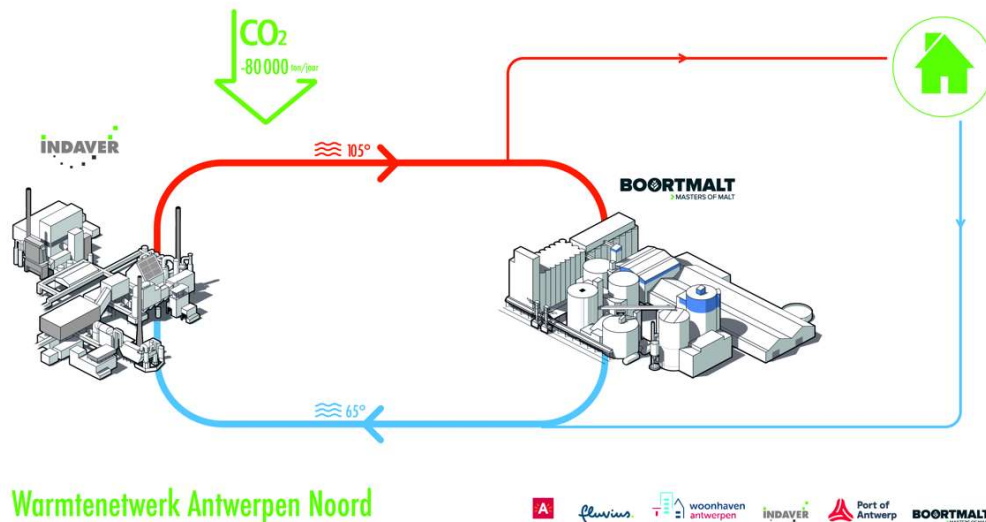


7 Results

Antwerp North Heat Network has achieved significant milestones, demonstrating its effectiveness and potential for sustainable impact. The network spans 9.6 kilometers, connecting Indaver's industrial incinerators with Boortmalt's malthouse, efficiently repurposing surplus heat. This initiative marks Belgium's first open-access heating network, allowing companies to request connections through a regulated procedure, fostering broader participation and utilization of the system.

Operational since February 1, 2024, the network operates at a supply temperature of 103°C and a return temperature of 63°C. In its first year, the project has already saved 30,000 tons of CO₂ annually, with the potential to reach an annual reduction of 80,000 tons as the network expands. The system currently supports an average demand of 15MW, with further expansions planned to include social housing districts in Luchtbal and Rozemaai and additional companies in Luithagen by 2025.

The project's capital expenditure (CAPEX) is 41 million euros, supplemented by a 12 million euro subsidy. As part of City of Antwerp's climate plan, the heating network contributes to the sustainability of heat supply in social housing neighborhoods, aligning with the city's Roadmap 2030. The link between the port and the city creates a win-win scenario, enhancing both industrial efficiency and urban sustainability.



8 Relevant information

[Warmtenetwerk Antwerpen Noord levert eerste koolstofvrije warmte aan Boortmalt \(portofantwerpbruges.com\)](https://portofantwerpbruges.com)

[Warmtenetwerk \(warmtenetwerkantwerpennoord.be\)](https://warmtenetwerkantwerpennoord.be)

9 Contact information



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