DECARB CITY PIPES 2050

Winterthur

On the way to decommissioning half of its gas grid in the next 10 years

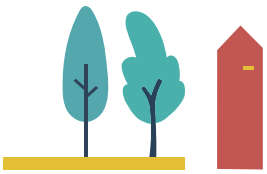
A strong consensus around Climate neutrality by 2040

Climate neutrality in 2040 is a goal on which everyone agrees in **Winterthur**. The Swiss city enforced this net-zero emissions goal through a referendum on 28th November 2021. An interim goal for 2033 of 1 t CO2eq/year/pers should also be achieved. This standard was already approved in 2012 when a clear majority voted in favor of the 2000-watt society. The commitment of Winterthur is a long-lasting one with the first Municipal Energy Plan in 2011, an Energy and Climate Strategy for 2050, and the signature of the Climate and Energy Charter of Swiss Cities and municipalities. This latter charter includes the adoption of a Climate Action Plan with 54 climate protection measures.

Intermunicipal work to build agreement and conviction

The elaboration of the Heating and Cooling Plan in Winterthur has given great importance to cooperation between the municipality and the municipal energy company which owns the grids. New ways of working, such as lateral thinking, were introduced in the local working groups set up to develop this strategy. The result was greater agreement and conviction of the utility to achieve this transition. The local working groups helped to gather around the table different departments of the municipality (building permits, environment, and health). The main topics discussed were the drafting of a master plan for heating networks and their extension, and the monitoring of the implementation of the energy plan.

A transition towards an extended district heating and a downsized gas grid



To achieve the high objectives, the way is clear: the city is saying goodbye to gas, at least for heating needs. The decarbonization in Winterthur requires retrofitting of buildings, and the extension of the district heating in dense areas (more than 400 MWh/ha/year of heating consumption). The district heating extension will be combined with the installation of heat pumps using surface geothermal heat or ambient air in the less dense areas. The city already had an existing district heating which eases the transition. Decommissioning of gas infrastructure is another important part of

Winterthur's plan, as the gas grid will represent only around 20% of its current length by 2040. The main reason for this strategy is the lack of potential for green gases' production to cover the heating demand. Biogas will be used for the peak demand in the district heating network and for industrial processes. By 2033, the city aims to largely replace fossil natural gas especially by an increased proportion of green gas. These high ambitions are going to contribute to the goal of 100% renewable energy sources by 2050.

Comprehensive planning of the implementation

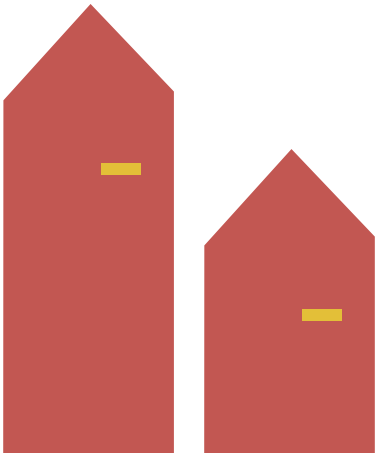
There are four key elements in the energy transition of Winterthur. The first one is planning. The city has a long-lasting data-based spatial energy planning but the development of a "building-specific" energy cadaster plan will be added. The second element is information, and especially coordinating information to customers and landowners on an area-specific basis about the planned gas supply and expansion of thermal grids. Information campaigns are also expected to increase the rate of energy-related renovations. The third element is control over the implementation. The city aims to monitor the impact of the implementation periodically, with suitable indicators including those provided by the environmental and health department to prepare energy and climate balance. The fourth and final key element is flexibility. Indeed, property owners need to find transitional solutions until the planned thermal networks are built. For instance, the utility will launch leasing contracts of gas boilers to consumers until they can connect to district heating.

Winterthur's barriers to the transition

Many barriers to the transition are shared with other cities of the Decarb City Pipes 2050 project like the elevated price to build the district heating and the risk of stranded gas assets. Local working groups are working on solutions to overcome these obstacles. Funding programs that could maintain the demand for heat pumps, biomass boilers and district heating connections are measures that would help. Winterthur also needs a change in regulations. Adding mandatory refurbishment of houses with very high energy consumption or mandatory replacement date for existing fossil energy-based heating systems could be a great help to speed up the transition. However, in the canton of Zurich where Winterthur is located, there is already a ban on fossil fuel boilers, making it impossible to replace existing boilers with new ones once they break.

An exemplary municipality

For the municipality, the development of such a decarbonization strategy has made it possible to regain energy independence, minimize CO2 and pollutant emissions, and encourage other municipalities to do the same. It is also highly advantageous for the city to exploit the potential of existing regional waste heat. Other stakeholders, like building owners and heat suppliers, also benefit from additional planning certainty and greater investment security. As a result, investments can be easily channeled into the new district heating system.



The sooner the better

That is the advice that Winterthur would give to other cities eager to decarbonize their heating and cooling systems. The more time a city has, the easier and the cheaper the transition is, according to Winterthur experience. It is no surprise that the city has announced the decommissioning of the gas grid 10 years in advance. This gives the vast majority of the customers enough time to implement a new solution, step by step. To ease this transition, the city recommends creating advisory services and developing long-term zoning planning to foster economic efficiency and spatial coordination.

Want to know more about Winterthur?

- *Winterthur Transition Roadmap*
- *Climate neutrality in Winterthur (in German)*
- *2000-Watt society*

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