

## Best Practice #11: Involvement of citizens in the energy transition

<b>Name:</b>	Winterthur involvement of citizens
<b>Geography:</b>	Switzerland, Winterthur city
<b>Organization interviewed:</b>	Stadtwerk Winterthur
<b>Organization interviewing:</b>	Trinomics
<b>Website:</b>	<a href="https://decarbcitypipes2050.eu/wp-content/uploads/2023/10/Winterthur-CityNarratives.pdf">https://decarbcitypipes2050.eu/wp-content/uploads/2023/10/Winterthur-CityNarratives.pdf</a> <a href="https://decarbcitypipes2050.eu/wp-content/uploads/2023/09/D4.4_Transition-Roadmaps-Winterthur.pdf">https://decarbcitypipes2050.eu/wp-content/uploads/2023/09/D4.4_Transition-Roadmaps-Winterthur.pdf</a>
<b>Category:</b>	Planning/ Stakeholder involvement
<b>Description:</b>	<p>When the energy plan comes into force, the property owners are to be informed on an area-specific basis about the gas supply and the planned expansion of thermal grids. Periodic, targeted information campaigns should support the transition and increase the rate of energy-related renovations.</p> <p>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. Decommissioning of gas infrastructure is another important part of Winterthur's plan. The main reason for this is the lack of potential for green gases' production to cover the heating demand.</p> <p>There are four key elements in the energy transition of Winterthur:</p> <ol style="list-style-type: none"> <li>1. <b>Planning.</b> The city has a long-lasting data-based spatial energy planning but the development of a "building-specific" energy cadaster plan will be added.</li> <li>2. <b>Information.</b> Especially coordinating information to customers and landowners on an area-specific basis about the planned decommissioning of the gas supply and expansion of thermal grids. Information campaigns are also expected to increase the rate of energy-related renovations.</li> <li>3. <b>Control over the implementation.</b> 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.</li> <li>4. <b>Flexibility.</b> Property owners need to find <i>transitional solutions</i> until the planned thermal networks are built.</li> </ol>
<b>Questions:</b>	
<ol style="list-style-type: none"> <li>1. Please briefly describe the Winterthur's trajectory towards arriving at a decarbonised heat supply and where in the process you are right now.</li> <li>2. Can you please describe some of Winterthur's underlying conditions (infra, public awareness) that are important to consider for other localities wishing to replicate Winterthur's approach</li> </ol>	

A **good regulatory framework is crucial**. Overall, this is probably the most important aspects. Cities often don't have other options to decarbonise if they don't have a good regulatory framework.

Brief timeline of decarbonisation process:

November 2021 – Public voting on 2 options:

1. Decarbonisation goal for the city – net zero by 2050, this translates to a goal of ~ 1 tonne GHG emissions/person/year by 2035.
2. Decarbonisation goal for the city - net zero by 2040, translates to ~ 1 tonne GHG emissions/person/year in 2033.

The more ambitious target was adopted for the city.

Same day canton of Zurich had a voting. Energy Law – can't replace fossil heating with new fossil heating with some very restrictive exceptions.

- Gas supply regulation in Winterthur (city level) → **Don't have obligation to bring gas to the people**. Gas supply in Switzerland (public utility with private) can be regulated at city level. Energy Law is at Canton level. Electricity supply is an obligation.
- Starting point in 2021: 50% of city was heated by gas. 15%-20% district heating (mostly based on waste incineration and to a lower extent wood heating), 30-40% oil heating, small percentage of Heat Pumps.
- Frame for the energy planning. Assume ~ 30-35% emissions being emitted by each person are coming from buildings. If by 2033 each person can emit 1 tonne/yr, this corresponds to ~ 300 kg GHG emissions/yr from the building sector in 2033. Checked for heat demand and density. If there is density for DH then, in those areas there is more time to transition. For those areas gas grid to be disconnected by 2040 (because the DH won't even be built by that time). For other areas – 2033 is the end time from disconnecting from gas supply. If possible, it's good to **notify people of gas disconnection plans 10 years in advance**.
- Last summer, 2/3 of customers, most of them single-family ones, were notify that gas is going to be disconnected for them. Around 4,000 letters were sent. Not everybody was amused. But anyways, many citizens would have switched from fossil heating naturally (due to old equipment. Lifespan of fossil heaters is ~ 20 years). Last year ~ 7% of citizens disconnected from gas heating naturally, due to above reason.
- Increasing the strain on the electricity grid due to increased demand from new HP is not really a concern. Standards of buildings are relatively high, good insulation. HP performance, not too much electricity – not so much demand (~1.6 KW demand, like cooking with one flame).
- A bigger problem for the electricity grid will be the electrification of vehicles, 10 kW or more needed. Time tariffs (from 8 pm to 7 am electricity is cheaper) exist already. Smart meter deployment- it's not yet the majority, expect that by 2027 ~ 80% of citizens will be equipped with smart meters. **Behavioral changes are also important**. Currently, most people continue with usual behaviour and are not much influenced by the time tariff.
- People vote for ambitious goals, but **implementation is more challenging**. ~40 to 50% of eligible voters during the 2021 public vote voted. 60% voted for the ambitious climate goals. Thus, overall, less than half of the inhabitants voted.

Although democratically the votes are legitimate, there is resistance during implementation when the goals have to be translated into actions. E.g. a different vote that would translate into fuel being more expensive by 8 cents/L, did not pass.

- District Heating infrastructure: total amount currently 180 GWh/ yr. For future need to double 350 GWh/yr. DH will constitute about 1/3 of the energy demand. Starting is one of the big challenges, 5 to 10 KM of new networks/ year is very ambitious. As a priority build in streets where pipes of other grids e.g. Water are old.
- Stadtwerk is a public utility. DH networks are owned by the city as well as electricity, water, waste incineration. District Heat is expected to come mostly from waste incineration. It will be topped up with fossils only when needed. The Canton has 5 incineration plants.

A study looked at the future of the gas infrastructure in the metropolitan area of Zurich. Potential of green gas – biogas in Switzerland is from waste and can substitute ~ 15% of the current gas consumption, 15% could come from other green sources. So 30% of total gas consumption can be replaced by green gas. So city does not plan to cut down all gas – leave up to 30% for green gas. But primary use will be for industry.

3. What are some of the key challenges/barriers you've faced so far? Are there any anticipated barriers for the future?

Elevated price to build the district heating and the risk of stranded gas assets. 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.

4. Can you please provide more details on the information campaigns and what has worked particularly well?

In advance of a public voting, there are many discussions on TV, radio, etc. People interest can **have access to information**. Together with letters announcing future disconnection from gas, an offer for a professional consultation on replacement options is provided. **Consultations from energy experts are for free** if you have a heat system older than 10 years. The Country offers this.

5. Can you please talk more about your experience with 'transition technology'/planning? How to minimize stranded assets? What are some good practices that might be transferable for other cases?

There is a problem when gas-heating breaks now, but DH will only be available in a few years.  
If this happens you might be able to buy a new gas-based heater if you sign a contract that when DH is available, you will connect to it (Expectation). However, in practice, it is too expensive to purchase a new heating system that will only be used for 5 to 7 years.  
Standard of the buildings are high – so air HP are good. Often cheapest option.  
For customers to connect, DH must be cheap enough. A lot of customers needed to be able to make the provision of DH cheap. This is a little bit of a 'chicken and egg' problem.  
There is a **need to be fast and offer a good price**.

6. What, in your experience, are some of the best practices that can be taken up by local governments based on the experience of Winterthur?

**The sooner you start the transition the better.** The more time a city has, the easier and the cheaper the transition is.

7. Can you identify 3 key success factors for transitioning into a RE based heating system based on the experience of Winterthur?

**Time is very important.**

In the case of Winterthur, in 2016, we communicated for an initial area that we would switch off the gas supply in 2025 this was the first time we informed the customers, based on the old energy plan. It was challenging. Before, climate change was not realised as a big problem.

Currently, there are no new connections to the gas grid. This ended in 2019. Gas is not the future.

By Jan 2022 people have been advised to not replace gas heaters with new ones (since Sept 2022 it is forbidden). You won't get money back. There is possibility for compensation for 'lost years' payment from government in certain cases.