

The ClairCity Sosnowiec Action Plan

For citizen-inclusive air quality and carbon policies



Our future with clean air
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ClairCity is an EU research project which aimed to raise awareness about air pollution and carbon emissions in our cities and regions, looking at how our behaviour contributes to the problems and affects the air we breathe. Uniquely, the project put the power in the hands of residents to determine the best local solutions.

Air quality in Sosnowiec is of greater concern than in most European cities. PM10 and benzopyrene are the main air pollutants. Derived from inefficient heating systems and poor-quality fuel (e.g. domestic coal, wood) use in winter, and in some cases household waste, the problem is seasonal. Sosnowiec has important coal reserves and coal is commonly promoted by its national government as a domestic energy source. In addition, coal is also the cheapest fuel option for citizens. Transport emissions (largely NO_x) come from predominantly diesel cars, buses and freight vehicles. In addition to these pollutants, NO₂ is exceeding its limit values in Sosnowiec.

To reduce air pollution from heating, the city is renovating buildings, expanding district heating and offering heavy subsidies (80%) to modernise coal-powered home heating systems. A regional anti-smog resolution has also laid out stricter rules on solid fuel quality. Regarding transport, Sosnowiec has a well-developed tram and bus infrastructure, a programme to upgrade buses and trams, and an online public transport information system. As well as a new city bike-sharing scheme and the construction of the city's first bike paths, new park and ride facilities are planned.

In light of this context, ClairCity examined the possible future impacts of citizens' policy preferences and implementation possibilities against these regional targets. By investigating citizens' current behaviours, their preferred future behaviours and their preferred future policy measures, this brief aims to inform policymaking in the Sosnowiec.



The full report can be accessed here:
www.claircity.eu/reports.



Our current behaviours create air pollution

Current heating and travel practices substantially contribute to air pollution and carbon emissions in the city. The majority (64%) of Sosnowiec citizens are on district heating networks, with gas and solid fuel use at 15% and 14% each, respectively. Solid fuel use is mainly coal and otherwise wood. Meanwhile, a relatively high percentage of citizens 'always' use a car at present for commuting to work (41%) and going shopping (41%). Almost half the population use public transport 'always' for going to work and leisure activities.

Future behaviours encourage sustainability

There is a large mismatch between current heating behaviour and how citizens would like to heat their homes in the future. While district heating (non-renewable) is currently predominant (64%), several citizens would rather heat their homes differently in the future. When asked about their preferences, a strong swing of citizens towards renewable energy is perceived (from 1% now to 38% in the future), away from district heating and solid fuel. The majority of respondents want to stay away from solid fuel. However, citizens are primarily resistant to change as the high costs associated with the sale of new stoves are prohibitive, i.e. the cost of a new heating system and the higher fuel costs of gas compared to coal.

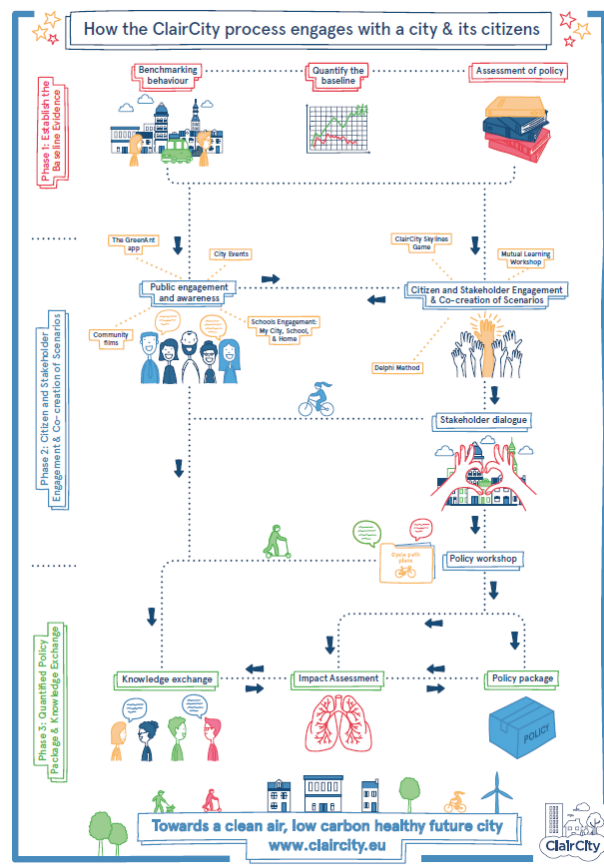
There is continued support for current transport behaviour. Over 40% of citizens go to work, shopping and leisure always by car and there is virtually no willingness to change modes in the future. Virtually the same number of people using a car at present, would like to use a car in the future. The main barrier for car users to switch to alternative modes concern time/distance and a lack of services. For commuting, a latent demand for greener cars was found and several active travellers would like to cycle instead in the future.

Preferred future policies

Using the Delphi survey process, workshops, and innovative Skylines game for mobiles, ClairCity asked citizens about the types of policy measures they would support to reduce air pollution and carbon emissions. A total of 1,500 local stakeholders, primarily citizens, were engaged during this process in Sosnowiec. Their favourite policy measures concerned public transport, including awareness raising to stimulate a modal change towards public transport and active travel.

Sosnowiec citizens are not generally keen on measures that would impact private cars with the exception of restricting the most polluting vehicles. Citizens want the government to incentivise in EVs and also wish to have cycling infrastructure expanded. The pace at which cycling developments are happening will probably lead to realising the citizens' highest ambitions.

The citizens showed ClairCity that there is strong willingness for change regarding heating behaviour provided that the price difference between current and possible future alternative fuels becomes smaller. For them, the replacement of old domestic heating systems is a priority.



Citizen-led policies

Policy area	Detailed policy measure
1 Make public transport free/cheaper	Free public transport on days with high level of air pollution by 2020
2 Reduce emissions from public transport	Replace 10% public transport fleet with zero-emission vehicles by 2030
3 Improve the public transport service/connectivity	90% public transport journeys on schedule and most areas catered for by 2020
4 Create/increase cycle lanes and infrastructure	20 km of new cycle lanes and 15 new cycle parking spaces by 2020
5 Encourage/incentivise electric vehicles	Replace 10% cars with EVs and 100 EV charging points installed by 2025
6 Restrict (polluting) vehicles	Ban diesel cars from city centre on days with level of air pollution by 2050
7 Modal shift from private car to public transport	80% shift to public transport or active travel by 2025
8 Reduce emissions from domestic heating	Ban on domestic coal heating in districts with the highest concentration of air pollution by 2025
9 Replace old domestic heating systems	Replace 100% heating systems >10 years old by 2021
10 Reduce industrial emissions	Reduce industrial emissions by 25% by 2025

Sosnowiec's future air quality and climate

Future health impacts

The policy measures were ratified by local policy makers before their impact was modelled and compared to business as usual (BAU) for 2025, 2035 and 2050. ClairCity found that citizens measures lead to a significant decrease of NOx emissions over time mainly due to decreasing transport emissions, and a similar downward trend of PM emissions until 2050, albeit more moderate. The reduction of residential emissions as a result of the ambitious replacement of residential heating systems adds further to the decrease in NOx. Promisingly, the researchers found that the citizen scenario reduces the number of premature deaths from air pollution by 41% for NO₂, 21% for PM10, and 19% for PM2.5 by 2050.



More to be done

However, neither scenario lead to compliance of legal EU limit values for PM and NO₂ everywhere in Sosnowiec, not even by 2050. For the citizen scenario, this is partly explained by the fact that policy makers choose less ambitious policies for the citizens measures. To ensure the health of Sosnowiec citizens is ensure more stringent measures are required.

Financial barriers – on both the city as well as citizens side – are perhaps the main factor hindering the greening of public transport, private car-fleet and residential heating. There is also little in the way of air quality monitoring, with only a single national air quality monitoring station in Sosnowiec, and a few passive collectors. A shift in priorities to invest in improving local and national air quality is urgently needed.

Action plan for a clean air, zero carbon future

Based on the findings from the ClairCity process, the team suggest the following strategy for Sosnowiec:

Promote renewable energy and raise awareness on the negative health effects of biomass burning.

Measures could include: supporting rooftop solar PV and local citizen cooperatives for renewables and increasing rooftop solar on public buildings; increasing awareness that district heating can be a positive environmental option, if connected to renewables, waste heat or geothermal, alongside information on the dangers of biomass burning for air quality and health.

Improve public transport coverage and frequency, facilitate cycling through expanding the current cycling network and infrastructure and promote these. Measures include: improving services, including connections to suburban districts and neighbouring cities; expanding the urban cycling infrastructure so everyone can access; a transport card/ticketing system covering all public transport; bike rental close to bus and train stops; subsidising bike purchase for poorer groups; campaigns to communicate changes and promote health benefits.

Introduce measures to discourage car use and incentivise electric vehicles (EV). Measures include: restrictions of parts of the city to cars; limiting parking spaces in the city centre and making parking more expensive (fees which can fund further transport measures); subsidising EV and ensuring there are enough charging points; making parking free for EV vehicles (and charging high fees for conventional cars).

The 'health' frame should be as much as possible exploited when implementing air quality and carbon related policies. This is essential in order to encourage citizens to act, and defend and justify any stricter government rules for domestic heating systems and or fuels. 'Climate' can also be used as hook as well for putting policies forward, in addition to the 'seasonality' of domestic heating pollution and 'better living' framing, for example, by stressing the side benefits to overall quality of city life.

Work closely together with NGOs to create citizen awareness. Education and awareness raising are important to motivate and engage with citizens to shift to sustainable mobility and heating modes. NGOs can play an important role in creating public awareness around air quality. Close cooperation of policy makers with the local NGOs (in Sosnowiec, Smog-Alert) can be a way to engage with citizens.

