



ClairCity: Citizen-led air pollution reduction in cities

D4.6 Stakeholder Dialogue Workshops Complete – Last city

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Document Details

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Executive Summary

The Stakeholder Dialogue Workshop (SDW) activity is part of WP4 - Citizens and Stakeholder Engagement, Task 4.1: Citizen Delphi Engagement. This report represents the completion of the Stakeholder Dialogue Workshop process for all six city/regions as an update from D4.5 Stakeholder Dialogue Workshop Complete – First city, which represented the completion of the process in Bristol. This report presents the Stakeholder Dialogue Workshop summaries for the five remaining city/regions (i.e. Amsterdam, Sosnowiec, Ljubljana, Aveiro and Liguria). The aim is to synthesise the evidence streams (proposed policy measures) from the ClairCity process such as the Delphi (Task 4.1), Mutual Learning Workshop (Task 4.4.1.) and Skylines Game (Task 4.2.) to allow city/region stakeholders to generate a number of potential scenarios for the city towards 2050.

The report describes the derivation of the policy measures used in the workshop, the participants and the activities that they undertook. Key activities involved defining the level of ambition of the citizen-led policy measures, identifying any constraints/enablers/examples from elsewhere, and indicating a timescale for implementation.

1 Introduction

1.1 Objective of this report

The Stakeholder Dialogue Workshop (SDW) activity is part of WP4 - Citizens and Stakeholder Engagement, Task 4.1: Citizen Delphi Engagement.

The aim is to synthesise the evidence streams from the ClairCity process such as the Delphi, Mutual Learning Workshop and Game to allow city/region stakeholders to generate a number of potential scenarios for the city towards 2050.

Within the Grant Agreement: Description of Actions the SDW was described as follows:

Finally, each city will have a Stakeholder Dialogue Workshop to explore the variety of pathways chosen by the players and to examine and 'crowd-source' a publicly acceptable consensus of a low carbon, clean air pathway in the short-medium and long term to 2050. Workshop participants will undertake a more focused back-casting activity to identify specific emission constraints and other factors that influence the 'collective' future pathway.

This report presents the Stakeholder Dialogue Workshop summaries for the five city/regions (Amsterdam, Sosnowiec, Ljubljana, Aveiro and Liguria) undertaken between January and May 2019. The Bristol Stakeholder Dialogue data can be found in D4.5.

1.2 Where does the Stakeholder Dialogue Workshop sit in the wider ClairCity Project?

The ClairCity Project aims to substantially improve future air quality and carbon policies in European cities by initiating new modes of engaging citizens, stakeholders and policymakers. The latest social science thinking is applied to understand citizens behaviour and source apportion air pollution emissions and concentrations, carbon emissions and health outcomes in order to attribute them not just by technology but by citizens' behaviour and daily activities. By putting people at the heart of both the problems and the solutions (primarily framed around transport and domestic energy use), ClairCity stimulates the public engagement necessary to tackle our challenging problems through the development of a range of citizen-led future scenario and policy packages. Further information on the project can be found at www.claircity.eu.

The four primary objectives of the ClairCity project are:

1. To put citizens' behaviour and activities at the heart of air quality and carbon management and policy making;
2. To develop a suite of innovative toolkits for enhanced quantification, engagement and impact evaluation;
3. To explore the integration of citizens' behaviour in relevant city policies and ensure that future city policies are reflective of citizens' visions for their future city; and

4. To raise awareness of environmental challenges and their solutions through proactive dissemination of the project outcomes.

The ClairCity process has three key process phases with a number of activities which work towards achieving the project aims and objectives. These three phases and related activities are briefly summarised here and illustrated in Figure 1-1 to help the reader understand the flow of evidence and the positioning of the Stakeholder Dialogue Workshop within the wider ClairCity process. This process has been applied across all six ClairCity case study areas with some localisation and adaptation as required.

Phase 1: Establish the Baseline Evidence

The primary aim of Phase 1 is to understand and quantify the baseline status of air quality, carbon emissions and related public health in our cities. Phase 1 is achieved with the following main activities:

1. Understanding the local demographic data and establishing the citizen practice-activity data to feed into the air quality models (WP3).
2. Quantification of the baseline air quality emissions and concentrations, carbon emissions and public health impacts in our city (WP5).
3. Collation and analysis of current policies (local, regional, national and EU) that influence the city (WP6).

Phase 2: Public and Stakeholder Engagement

Phase 2 has three key aims: (1) understand citizens' current behaviours, practices and activities, (2) enable citizens and stakeholder to co-create and visualise their low carbon, clean air, future city and (3) raise awareness of the environmental challenges and their solutions. Phase 2 utilised evidence from Phase 1 to help frame and inform the engagement activities. Phase 2 is achieved with the following main activities:

1. The ClairCity Delphi method uses citizens as local experts to generate qualitative evidence of their entrenched behaviours and what enabling interventions would allow them to act and behave differently in future (WP4).
2. The Mutual Learning Workshop brings citizens and stakeholders together to debate the challenges facing the city and co-create policy interventions for cleaner, healthier futures (WP4).
3. The ClairCity Skylines Game 'crowd-sources' the public perceptions and public acceptability of difference policy interventions (WP4).
4. Citizens and stakeholders come together in a Stakeholder Dialogue Workshop to review and debate the Delphi, Mutual Learning Workshop and ClairCity Skylines evidence and co-create scenarios for a low carbon, clean air, health futures (WP4 and WP7).
5. The scenarios generated in the Stakeholder Dialogue Workshop go through a rapid quantification step (WP5) and are then returned to the local citizens/stakeholders to discuss in a Policy Workshop (WP6) and to agree a single Unified Policy Scenario (WP7).
6. Additional awareness raising activities are also implemented across the project in each city (WP2 and WP4). These include:

- a. The GreenAnt App which allows citizens to become a citizen scientist and monitoring their transport activities, emission generation and exposure using mobile GPS data.
- b. The School Competition: My City, My School, My Home engages young people in the air quality, carbon and public health debate utilising an online platform for the students to select the interventions that influence their housing, transport and use of resources in order to be able to design tools for change towards smart consumption, reduced emissions and healthy lifestyles.
- c. Learning from the elderly filming activity engages the older, potentially vulnerable, community to talk about the changes in their city, their personal mobility and the steps they take to minimise their exposure.
- d. The City Day: Discovering my City helps disseminate the final project results and provide healthy and smart tips to promote non-motorised mobility of citizens by highlighting availability and benefits of walking and cycling routes in the city.

Phase 3: Scenarios, Impact Assessment and Final Policy Package

The primary aim of the final Phase 3 is to collate the evidence and lessons learned from Phase 1 and Phase 2 to generate a quantified, bespoke, citizen-led and citizen-inclusive policy package for each city. Phase 3 is achieved with the following main activities:

1. Rapid quantification of the scenarios generated in the Stakeholder Dialogue Workshop (WP4) and detailed impact assessment of the final Unified Policy Scenario generated in the Policy Workshop (WP6). This quantification includes an assessment of the source apportionment by behaviour or purpose; air quality emissions and concentrations, carbon emissions, air pollution related health impact and interventions' cost analysis (WP5).
2. Development of a bespoke Policy Package for each city drawing together the findings from across the whole project (WP7).
3. Collation of transferrable lessons and steps for better practice based on the experiences of the ClairCity project to inform other environmental and public health practitioners (WP3, WP4, WP5, WP7).

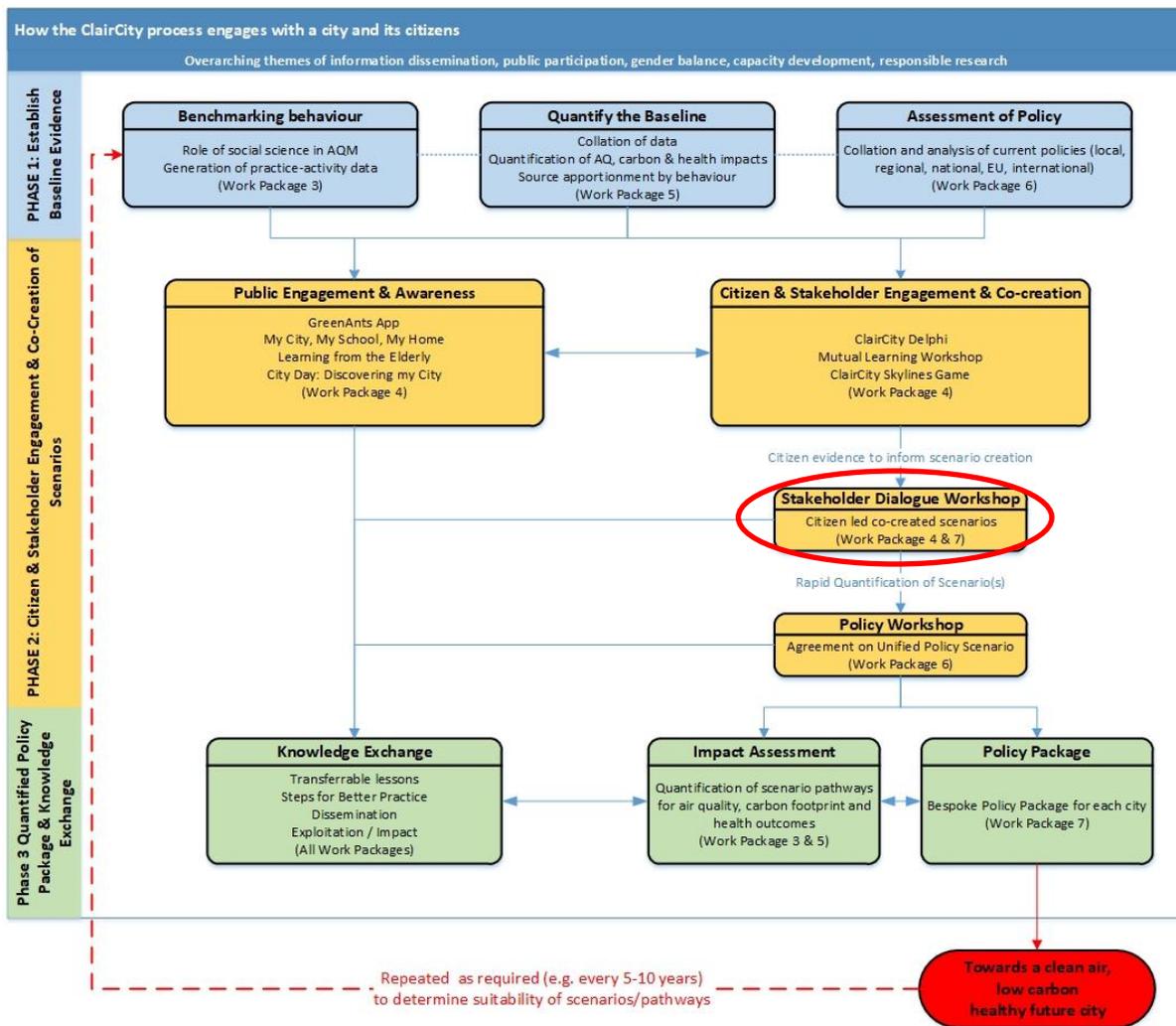


Figure 1-1: Where does the Stakeholder Dialogue Workshop sit in the ClairCity process?

2 Stakeholder Dialogue Workshop design

Based on the experiences of developing and delivering the Stakeholder Dialogue Workshops in Bristol (June 2018) and Amsterdam (January 2019) the workshop design was amended for the last four city/regions. Revised Stakeholder Dialogue Workshop Guidelines (Appendix 1) were created and sent to the city/city buddy partners in March 2019. An integrated session on preparing and implementing the Stakeholder Dialogue Workshop and the Policy Workshop was presented to the city/city buddy partners in Aveiro on 8th April 2019. While the guidelines and training was provided to the project partners their was also some inherent flexibility built into the method to allow for localisation of the process to optimise the outputs.

2.1 Development of the policy measures, ambition levels and baseline impacts

Evidence generated by the ClairCity Delphi, Mutual Learning Workshop process and Skylines Game was used to generate a ‘SDW Policy Box’ of citizen-led policy measures that have been identified as the key policies and/or policy areas that need to be considered in the SDW and scenarios generation. The ‘SDW Policy Box’ was produced by UWE (Delphi/Game) with the support of REC (MLW) and in consultation with the city/region and city/region buddy partners. Details of how the ‘SDW Policy Box’ was derived are depicted in Box 2-1. The evidence from the Baseline Policy Report process (WP6) formed part of the ‘Business as Usual (BAU)’ baseline which underpins all scenarios and incorporates EU

How the ‘SDW Policy Box’ was created for the five city/regions

In the Game:

1. An idea is **presented** to the player and they either chose or reject
2. The **chosen** idea goes into the briefcase and is either stamped or ignored
3. The **stamped** idea becomes policy

To identify the most popular policies from the Game, a simple equation was applied:
(No. of times Chosen/Presented) x (No. of times Stamped/Chosen).

Sorting the resulting list in descending order allowed us to identify the most popular policies. The threshold and hence the number of policies arising may vary across the cities/regions.

In the Delphi:

Question 10 in the Round 2 questionnaire identified which policies citizens think would be **Good/Bad/Neither good nor bad** for their city/region. To identify the most popular policies from the Delphi, therefore, we sorted policies rated as **‘Good’** in descending order to identify the most popular policies. The threshold and hence the number of policies arising may vary across the cities/regions.

In the MLW:

The MLW city summary reports present the key policies arising from stakeholders over the period 2020-2050. These were used as the basis for the MLW contribution.

Box 2-1: Derivation of policy measures for the Stakeholder Dialogue Workshop from the Skylines Game, Delphi and Mutual Learning Workshop

sector roadmaps, national policies and local policies that are already implemented or in the pipeline.

Once selected policies had been identified from each of the Game, Delphi and MLW, these were listed in a spreadsheet and categorised by themes and sub-themes as per the Game Policy Library. Policies were iteratively reviewed by multiple researchers to identify where the similarities occur between those arising from the different activities in a pragmatic way. A short-list of policies was then produced from the policies arising from two or more of the Game/Delphi/MLW, comprising the 'SDW Policy Box'. The number of policy measures in the 'SDW Policy Box' depend on the policies arising, the degree of overlap between measures and the threshold for their selection, however this was restricted to ~10 based on the time limitations in the workshop.

Once the key policy measures had been identified by UWE/REC, and the translation agreed with the city/region and city/region buddy partners, levels of high/medium/low ambition and a qualitative assessment of the likely relative impacts of each measure (stars 1 to 5¹) on health, economy and citizen support were determined to facilitate the discussion. This was led by the city/region and city/region buddy partners to ensure it was based on local knowledge, professional judgement and the Baseline Policy Report.

2.2 SDW Participants

The Delphi and the Game are orientated towards 'citizen' engagement while the MLW and Baseline Policy process are more orientated towards key city 'stakeholder' engagement. It was intended that the SDW should utilise the experience and expertise of all key city/region stakeholders, including the public, to generate scenarios, and ideally involving participants from the Delphi, MLW and Game to ensure that participants with knowledge and expertise on various subject areas were recruited to attend. Policy makers however were not expected to attend as they would contribute to the Policy Workshop. Areas of expertise to be covered were: air quality, low carbon/climate change/resilience/adaptation, transport, land-use, energy use, public health, future cities/smart cities. Approximately 20-30 participants were expected to attend the workshop in each city/region from a range of organisations, including:

- Transport providers e.g. bus companies, train companies, taxis, bike/car hire etc.
- Major employers
- City planners (except policy makers)
- Energy agencies
- Health agencies
- NGOs, e.g. 'air quality guards' (citizens volunteering with Friends of the Earth)
- Local community groups e.g. walking/cycling alliance, energy cooperatives
- Port authority
- Regional economic board
- Knowledge institutes / universities

¹ 1 =low impact of current policies – 5 = high impact of current policies

2.3 Key SDW activities

Details of the key activities are provided in the revised Stakeholder Dialogue Workshop Guidelines, however an outline is provided below.

Participants across a range of expertise (e.g. climate change, transport, health, energy and air quality) were allocated a table with a facilitator/scribe and given:

1. Two large (A0/A1) sheets of paper, one with the measures and ambition levels for Activity 1 and one with the timeline for Activity 2.
2. 'SDW Policy Box' of cards for each policy measure (colour-coded by source²) indicating:
 - a. a qualitative assessment of health, economy and citizen support impact for each policy measure using stars (1 = low impact; 5 = high impact), and
 - b. three (high/medium/low) 'ambition cards' where 'medium' is equivalent to current/planned policy ambition – additional blank 'wild' cards could be used to allow participants to specify an alternative level of ambition (but not additional policies).

The following activities were carried out on each table:

- **Activity 1:** Choosing ambition levels of policy measures – in this activity, the participants were asked to discuss the selected policies to determine what level of ambition they wanted to apply to each policy, i.e.
 - Ambition *below* current policy (LOW)
 - Ambition *same* as current (planned) policy or ambition (MEDIUM)
 - Ambition *higher* than current policy (HIGH)
- **Activity 2:** Timeline, enablers, constraints and actions – in this activity, the participants were requested to place each policy option from Activity 1 onto a timeline and to determine the enablers and constraints/unintended consequences that must be considered by the city to ensure a successful policy in short/medium/long term.

The results from each of the workshop tables generated one scenario. If there were more than two tables in the workshop, hence more than two scenarios generated, the number of scenarios to be sent to the Quantification team (WP5) needed to be reduced to two by merging the results from each table into two scenarios ('LOW' and 'HIGH') by taking all the lowest suggested ambitions for each measure together (Scenario LOW), and all the highest suggested ambitions together (Scenario HIGH). The coordination between SDW scenarios and quantification team was by the Scenario WP7 leader (NILU).

The following sections set out the SDW reports from each of the five city regions sequentially.

² E.g. blue for car related measures, green for public transport and walking/cycling related measures, and red for energy related measures

3 Amsterdam SDW

3.1 SDW Activities

3.1.1 Participants

19 people living in Amsterdam joined the workshop – 11 women and 8 men. The age group was probably above the Amsterdam average although there were a few young people (a woman in the age range 16-24, three women in the age range 25-36 and a man in the age range 25-36). The group was not too diverse but rather homogeneous: all white and Dutch and concerned about air quality / environmental issues.

3.1.2 Agenda

The workshop was held at the GGD Amsterdam headquarters in Amsterdam on 23rd January 2019. The the SDW and the agenda for the day (Box 3-1).

Box 3-1: Agenda for the Amsterdam Stakeholder Dialogue Workshop

Agenda	
9.30 - 9.50	Introduction to the workshop (Stephan Slingerland) - What is ClairCity? (Hans Bolscher) - Current policy in Amsterdam (Imke van Moorselaar)
9.50 - 11.00	Activity 1: Choosing ambition levels of policy measures
11.00 - 11.10	Plenary feedback
11.10 - 11.20	Short break
11.20 - 12.10	Activity 2: Placing policies in a timeline and discussing benefits, hindrances and ways to overcome hindrances
12.10 - 12.20	Plenary feedback
12.30	End of workshop

The content and results of the activities is explained in the following sections.

3.1.3 Activity 1 Choosing ambition levels of policy measures

In this activity, the participants were asked to discuss the selected policies to **determine what level of ambition** they wanted to apply to each policy.

Activity 1 was played with a 44-card deck and a flipchart at each table. Participants got provided with the following 11 measures to work with. These key measures resulted from the Delphi mainly, and were complemented with the insights from the MLW and Game.

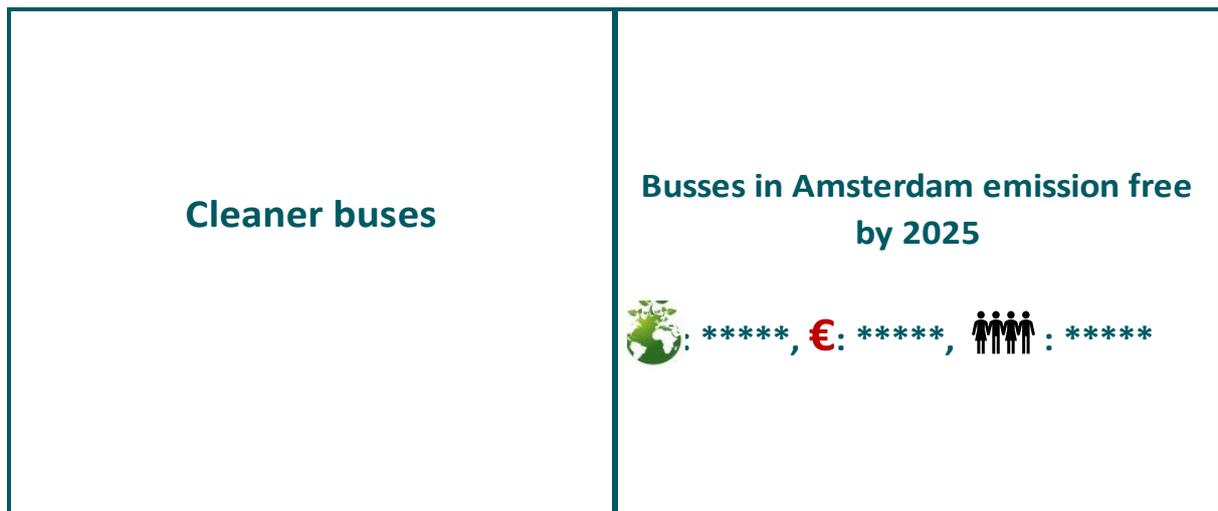
1. Cleaner buses
2. Better public transport
3. More bike paths and bike parking spots

4. Cheaper public transport
5. Environmental zone for polluting cars
6. More parking for cars
7. Limiting car-traffic in the city centre
8. Accelerating energy-efficient house renovations
9. Ban wood stoves and fireplaces in houses and bars & restaurants
10. Accelerate the uptake of solar panels in the built environment
11. Amsterdam gas-free

At all four tables, these measures were numbered from 1 to 11 the same way (e.g. “Cleaner buses” was Measure 1 for all tables). The numbering did not indicate preference or importance (i.e. Measure 1 is not more important than Measure 11). Measures 1-4 addressed public transport, measures 5-7 addressed cars, and measures 8-11 were energy measures.

At the back side of each measure card, **information was provided regarding the current Amsterdam policy ambitions** about that measure together with a qualitative assessment of the impacts of current policies³ on health, economy and citizen support.

Figure 3-1 Front and back side of Measure 1: Cleaner buses (back side = current policy / ambition)



For each of the 11 measures, participants had to **choose from 3 ambition levels**:

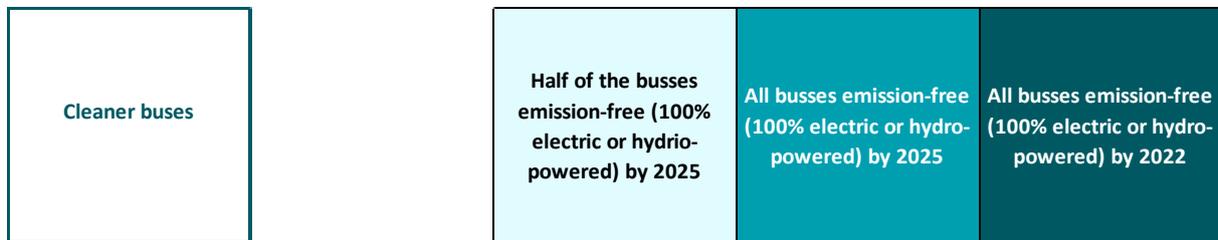
- Ambition *below* current policy (LOW)
- Ambition *same* to current (planned) policy or ambition in Amsterdam (MEDIUM)
- Ambition *higher* than current policy (HIGH)

To avoid every table opting for the highest possible ambition for every measure, and to understand that policymaking involves making choices, every table was required to select:

³ Based on expert judgement (internal team assessment)

- at least *two (2) low ambition* level options and a
- maximum of *six (6) high ambition* level options

Figure 3-2 Example of the three options given for Measure 1: cleaner buses (light blue: ambition below current policy; medium blue: ambition same as current policy; dark blue: ambition above current policy)



In addition to the three options to choose for each measure, each table had a set of 'wild cards' (blank cards). **Wild cards were meant for participants to write down their own ambition level** (ambition and timeline) in the case that participants wouldn't agree with any of the options presented to them. The idea was not for participants to propose new measures although some used those in this way.

In practice, table moderators approached the exercise in two different ways. Two table moderators pulled out the 11 policies one by one in the same order, reading first the policy, then the current status thereof (at the back of the card), and then the three options (ambition levels) given for participants to make a choice. The two other table moderators laid all the cards (11 measures and 33 options) on the flipchart and made decisions on the options starting from there.

Facilitators recorded the key points of the discussions that took place around the table as explained in "Chapter 2 Results" below.

3.1.4 Activity 2: Timeline, benefits, hurdles and actions

Participants were asked to do two things:

1. To **place the policy options selected in Activity 1 onto a timeline**; and
2. To discuss each policy option from Activity 1 with regards to:
 - a. Enablers (green post-its)
 - b. Constraints (orange post-its)
 - c. Actions to overcome constraints (and if possible, *who* should do this) (yellow post-its)

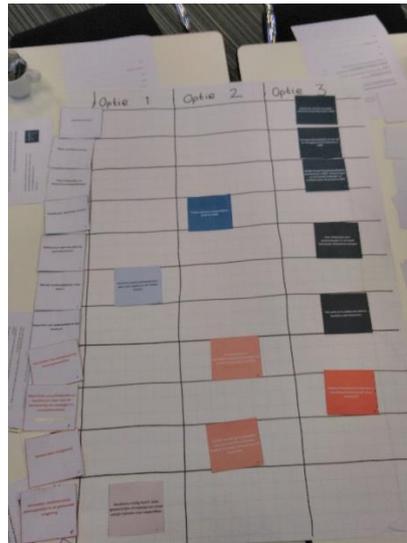


3.2 Results

3.2.1 Activity 1

Table 1

M#	Measure	Chosen measure	Ambition of chosen measure
1	Cleaner buses	All busses emission-free (100% electric or hydro-powered) by 2022	HIGH
2	Better public transport	Increase network density from the net and increase frequency by 2030	HIGH
3	More bike paths and bike parking spots	60 000 new bike parking spots by 2025. Improving current bike pats and fast bike routes (bike highways) by 2022	HIGH
4	Cheaper public transport	Price of public transport remains the same until 2030	MEDIUM
5	Environmental zone for polluting cars	Adding an environmental zone for private cars and making current environmental zones more stringent	HIGH
6	More parking for cars	Maintain the current number of parking spots	LOW
7	Limiting car-traffic in the city centre	Cars in the city centre are only allowed for people living there	HIGH
8	Accelerating energy-efficient house renovations	All houses belonging to housing associations reach an energy label A by 2050	MEDIUM
9	Ban wood stoves and fireplaces in houses and bars & restaurants	Ban wood stoves and fireplaces in both new buildings and existing buildings from 2025	HIGH
10	Accelerate the uptake of solar panels in the built environment	Maintain current regulation. No incentives from the Municipality of Amsterdam to promote solar energy (except for housing associations)	LOW
11	Amsterdam gas-free	€ 5.000 subsidy per household in order to facilitate renovation to become gas-free. Mandatory gas-free building sector by 2040.	MEDIUM



Below the discussion and justification of ambition levels held at the table is explained.

Biking and public transport

The people on the table agreed that making the buses emission-free could contribute significantly to reducing air pollution in the city, but they also thought that the current policies are already quite ambitious. Increasing the network density and frequency in public transport and a maximum ambition level in fast cycling lanes and increased availability of bike parking lots were seen as effective ways to make car alternatives more attractive. Therefore, these two measures were set at the highest ambition level. The price was not considered to be the main barrier for not taking public transport, so therefore a reduction in price was not selected as increased accessibility and speed (network density and frequency) were deemed more effective ways of enhancing the attractiveness of public transport.

Car policy

The people at the table agreed that the level of car traffic in the city centre should be reduced and the cars should become cleaner. Allowing only residents to enter the city centre by car, as well as local entrepreneurs was seen as the most effective means to reduce the amount of car traffic and the inclusion of passenger cars in the environmental zone was chosen as an effective measure to restrict the access to Amsterdam for polluting cars. Active policy making for reducing parking space was seen as unnecessary as restricting car access only to residents and other local traffic would automatically lower the need for parking spaces and thus in a reduction of the number of parking spots over time.

Energy policies

There was unanimous agreement that wood stoves and fireplaces should be banned as the nuisance for the direct environment is too large. Participants thought, however, that a distinction should be made between people using wood stoves for heating their house versus people with fireplaces purely as a luxury. They argued that the former group of people should be supported by the municipality. With regard to solar panels the people on the table agreed that solar panels were already attractive enough by themselves, meaning that subsidies are not needed. They thought this was not the case for renovation of houses to improve the heating system. For the gas-free measure it was agreed that a 5000 EUR subsidy would be best, although everyone agreed that this amount would be by far insufficient to cover the costs, it would be sufficient to get people to seriously consider investing in renovating their homes. Having a subsidy of 10,000 EUR was considered to be not feasible considering the number of houses in Amsterdam that require such a renovation.

The people at the table agreed that it would be important to stimulate the housing cooperatives and private home owners to improve their energy label. However, the only ambition level that included both housing cooperatives and private home owners was the most ambitious option. Participants nevertheless thought that the ambition level of getting all the houses to label A was too high, so they proposed to go for the middle option with the addition that private home owners also increase their energy labels to a minimum of label C.

Overall policy package

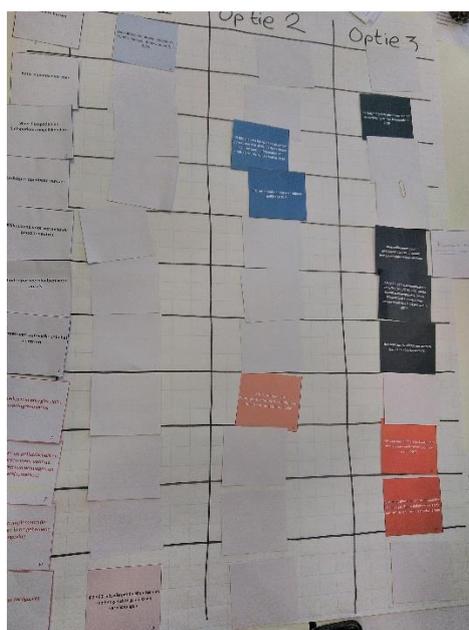
When the group finished choosing an ambition level for each of the measures they had another look at the overall policy package. As they had put 'only' five measures at the highest ambition level, they decided to also increase the target for the emission-free buses to the highest ambition level.

Wild cards

- Introduce a polluter tax for all companies and private individuals;
- Introduce transferia for tourist buses at the edge of the city centre, e.g. in the harbour area so that the dirty tourist buses no longer enter the city center. The tourists can then enter the city via public transport or by (rental) bike.

Table 2

M#	Measure	Chosen measure	Ambition of chosen measure
1	Cleaner buses	Half of the busses emission-free (100% electric or hydrio-powered) by 2025	LOW
2	Better public transport	Increase network density from the net and increase frequency by 2030	HIGH
3	More bike paths and bike parking spots	40 000 new bike parking spots by 2030. Improving current bike pats and fast bike routes (bike highways) by 2025	MEDIUM
4	Cheaper public transport	Price of public transport remains the same until 2030	MEDIUM
5	Environmental zone for polluting cars	Adding an environmental zone for private cars and making current environmental zones more stringent	HIGH
6	More parking for cars	Remove 7.000-10.000 parking spots (approx. 10% of the current parking spaces in the city centre) and charge € 7.5 per hour everywhere in the city by 2020	HIGH
7	Limiting car-traffic in the city centre	Cars in the city centre are only allowed for people living there	HIGH
8	Accelerating energy-efficient house renovations	All houses belonging to housing associations reach an energy label A by 2050	MEDIUM
9	Ban wood stoves and fireplaces in houses and bars & restaurants	Ban wood stoves and fireplaces in both new buildings and existing buildings from 2025	HIGH
10	Accelerate the uptake of solar panels in the built environment	Mandatory solar panels in all suitable roofs and provide subsidies for it	HIGH
11	Amsterdam gas-free	€ 2.500 subsidy per household in order to facilitate renovation to become gas-free. No obligations for the building sector.	LOW



In general there was consensus in the group about the important measures and ambition levels. The group was **highly in favor of measures related to reducing car use and ownership**. They all agreed that measures related to a reduction off cars and cleaner cars were most important. However, these measures should be accompanied by stimulating measures, such as better public transport. According to the group **cheaper public transport was not necessary**. One member of the group mentioned that it is a shame that the city of Amsterdam is planning to cut subsidy on public transport, since the new Noord-Zuidlijn metro line would generate additional revenues for the city that could be used to continue subsidising public transport. The group agreed that the city of Amsterdam is already quite ambitious regarding bikes and they did not think current policies should go any further. The majority of the group was willing to be **strict about measures to tackle the use of wood stoves and fireplaces**. One member did not think wood burning is a big problem in the city, but was convinced by the group to choose the highest ambition level for this measure. **Acceleration of solar panels was considered highly important** since there are so many 'unused' roofs in the city and this a shame. The group spent more time discussing air quality related measures compared to energy related measures.

Table 3

M#	Measure	Chosen measure	Ambition of chosen measure
1	Cleaner buses	All busses emission-free (100% electric or hydro-powered) by 2025	MEDIUM
2	Better public transport	Increase network density from the net and increase frequency by 2030	HIGH
3	More bike paths and bike parking spots	60 000 new bike parking spots by 2025. Improving current bike pats and fast bike routes (bike highways) by 2022	HIGH
4	Cheaper public transport	Price of public transport remains the same until 2030	MEDIUM
5	Environmental zone for polluting cars	Maintain current environmental zones	LOW
6	More parking for cars	Remove 7.000-10.000 parking spots (approx. 10% of the current parking spaces in the city centre) and charge € 7.5 per hour everywhere in the city by 2020	HIGH
7	Limiting car-traffic in the city centre	Cars in the city centre are only allowed for people living there	HIGH
8	Accelerating energy-efficient house renovations	All houses belonging to housing associations reach an energy label A by 2050	MEDIUM
9	Ban wood stoves and fireplaces in houses and bars & restaurants	Ban wood stoves and fireplaces in both new buildings and existing buildings from 2025	HIGH
10	Accelerate the uptake of solar panels in the built environment	Maintain current regulation. No incentives from the Municipality of Amsterdam to promote solar energy (except for housing associations)	LOW
11	Amsterdam gas-free	€ 10.000 subsidy per household in order to facilitate renovation to become gas-free. Mandatory gas-free building sector by 2030.	HIGH



The group approached the problems quite pragmatically. **Accelerating the uptake of solar panels** in the built environment was ranked *low*, as this is happening anyway and the impact is not massive. Introducing an **Environmental zone for polluting cars** was ranked *low* because this is politically not feasible according to participants. The ambition for **cleaner buses** was given *medium* ambition, as high ambition seemed impossible due to the time needed for purchasing busses. **Cheaper public transport** was chosen *medium* as free public transport seemed foolish to them. Participants set the priority for energy efficient houses at *medium* as well, their argument being that the impact on households is too 'disturbing' as to force this further.

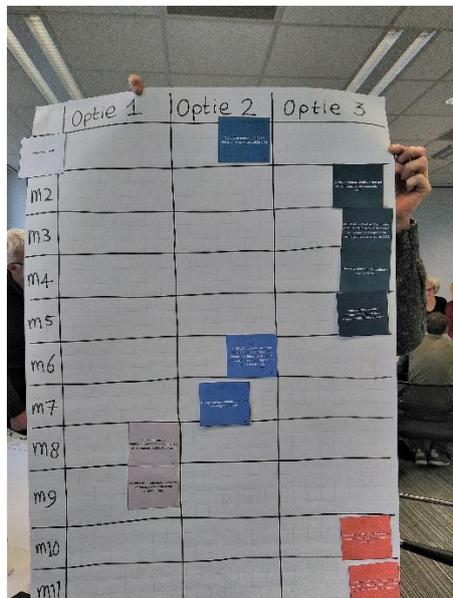


Table 3

M#	Measure	Chosen measure	Ambition of chosen measure
1	Cleaner buses	All busses emission-free (100% electric or hydro-powered) by 2025	MEDIUM
2	Better public transport	Increase network density from the net and increase frequency by 2030	HIGH
3	More bike paths and bike parking spots	60 000 new bike parking spots by 2025. Improving current bike pats and fast bike routes (bike highways) by 2022	HIGH
4	Cheaper public transport	Price of public transport becomes 50% cheaper for everyone	HIGH
5	Environmental zone for polluting cars	Adding an environmental zone for private cars and making current environmental zones more stringent	HIGH
6	More parking for cars	Remove 7.000-10.000 parking spots (approx. 10% of the current parking spaces in the city centre) and increase the highest parking charge to € 7.5 per hour by 2025	MEDIUM
7	Limiting car-traffic in the city centre	Maintain current legislation for cars (i.e. Reducing car traffic by one-way roads and splitting up traffic routes)	MEDIUM
8	Accelerating energy-efficient house renovations	All houses belonging to housing associations reach an energy label B or C by 2050	LOW
9	Ban wood stoves and fireplaces in houses and bars & restaurants	Ban wood stoves and fireplaces in both new buildings and existing buildings from 2025	HIGH
10	Accelerate the uptake of solar panels in the built environment	Mandatory solar panels in all suitable roofs and provide subsidies for it	HIGH
11	Amsterdam gas-free	€ 2.500 subsidy per household in order to facilitate renovation to become gas-free. No obligations for the building sector.	LOW



Ideas and principles varied a great deal among participants of the discussion at Table 4. In general, everyone was quite concerned about air pollution levels and in favour of measures to reduce air pollution. **Measures to improve public transport and bicycle paths were given a 'high' priority.** However, table 4 was the only table to give **only 'medium' priority to limiting car traffic in the city center**, probably because some of the participants regarded restrictions to their own car use as not very pleasant.

One participant especially would have liked to add measures about green space in the city, because she assumed that would also reduce air pollution and the emission of greenhouse gases to a great extent. The other participants at table 4 however did not want to add a wild card about this topic.

General comments of the groups (not table specific)

Some participants at the SDW commented missing a few aspects not included in our card-deck:

- “Greenery” in the city
- Heaters at cafes and restaurants
- Congestion tax
- Tourist buses
- Expansion of the metro
- Hotspots with restaurant chimneys (pizza woodstoves)

3.2.2 Activity 2

Key observations regarding the policy measures and selected ambitions that were made over the four tables are:

- Replacing buses before they are written off completely is costly and therefore unlikely. However, waiting until this moment is incompatible with current policy ambitions (2025). Additional subsidies from the municipality for the bus company are therefore required. The measure is also interesting as it is highly visible and generates ‘free publicity’ for a transition in the city;
- Better public transport by making it more adaptive to demand and cheaper can contribute to reducing social isolation and deprivation of less wealthy neighbourhoods;
- The number of bikes and the way they are parked is an issue. Reducing the number of parking spaces for cars can contribute to solve the bike parking problem, but also a mentality change is needed to let people park their bikes properly;
- Aesthetics and practical use sometimes conflict, as for boulders introduced in the city centre which stress the ancient environment and nudge cars to drive less fast, but are a nuisance for bikes;
- An environmental zone for cars should be accompanied by measures that keep the city centre accessible also for elderly, e.g. electric taxis/ minibuses;
- When making the city centre less accessible for cars it is absolutely necessary to involve entrepreneurs/ businesses/ shops in any actions taken. Business/ goods transport via the canals can be (to a limited extent) an alternative. The measure

should be accompanied by creating more green spaces for a more attractive environment;

- A distinction should be made between wood heaters for necessity and for pleasure (barbecues, restaurants). Opinions on action vary between avoiding patronizing measures to need for direct action due to high hindrance caused. Also contributes to better indoor air quality and health;
- Higher renewables uptake also requires batteries and storage options to be integrated into the built environment and stronger grids to be provided. It might not require more subsidies, as solar PV is already taking off without subsidies;
- Making Amsterdam fully natural-gas free will require an immense effort and also have to include large behavioural changes (energy saving). More information campaigns are needed. Housing cooperations (rented apartments) are an important actor;
- Costs are relatively little mentioned at the four tables. However, a transition is nevertheless seen as requiring huge amounts of money. A major shift in financing can also help, e.g. from asphalt (cars) to public transport would be needed;
- Enforcement is seen as difficult, in particular in a 'freedom-loving' city like Amsterdam;
- Participants generally do not very often suggest nor see possibilities of changing their own behaviour;



Table 1

#	Measure	Year	Opportunities	Limitations	Action
M1	Cleaner buses	2022	When the current fleet needs to be replaced it is a convenient moment to replace the buses immediately with zero-emission options. Creating renewable electricity production spots to supply the buses with renewable energy.	High costs for the public transport company (GVB) and thus the municipality. Buses might need to be replaced before they have been written off completely. There is a short time schedule for the implementation.	Work on a good business case for the GVB. The city should give more money to the GVB to realise this plan.
M2	Better public transport	2030	Technological innovations (e.g. autonomous vehicles) can help to make a higher network density affordable. Make schedule adaptive to demand. Less social isolation. Better exchange between different neighbourhoods. Good for local economy in neighbourhoods.	Too expensive. Hard to get into trains/metro for elderly because of the height. Little space to create more stops.	Introduce fast buses and 'stop buses'. Lower the boarding height to improve accessibility for elderly people. Re-introduce the Westpoort bus line.
M3	More bike paths and bike parking spots	2022/2025	The combination with the car free city center will free up space for bicycle parking. Better bicycle parking spots can also free up space on pavements and improve traffic safety. If car use is sufficiently disincentivised one might be able to turn empty car parkings into bicycle parking spots.	Mentality changes are needed as well to get people to park their bikes in official places and not as closeby as possible (e.g. against houses etc.). There are more bikes than the city can bear. National tax incentives for car leasing are too attractive at the moment.	The municipality needs to build cycling paths and parking spots and remove illegally parked bikes. In new neighbourhoods immediately make fast biking lanes. Bicycle sharing should be promoted more, so that there can be less bikes in the city.
M4	Cheaper public transport		Policy is kept as is, no action needed		
M5	Environmental zone for polluting cars	2022		Elderly people might get isolated because it gets harder for their family to visit them.	Provide options like sharing bikes or small electric scooters or other means of transport for the 'last mile'
M6	More parking for cars		Policy is kept as is, no action needed		
M7	Limiting car-traffic in the city centre	2022	Promote electric bikes for entrepreneurs and create mobility hubs. Less cars in the city centre will create more space for pedestrians, which make the city centre more attractive for visitors.	Elderly people might get isolated because it gets harder for their family to visit them. Stores and small companies in the city centre might be against out of fear of losing customers.	
M8	Accelerating energy-efficient house renovations	2050			
M9	Ban wood stoves and fireplaces in houses and bars & restaurants	2025	High support in neighbourhoods for the ban, due to nuisance.	Aversion for patronizing by the government, freedom to choose your own equipment.	For people who rely on wood stoves for central heating, the municipality should provide financial support to switch to another type of heating installation. Owners of wood heaters need to be made more aware of the environmental impacts.
M10	Accelerate the uptake of solar panels in the built environment		Policy is kept as is, no action needed		
M11	Amsterdam gas-free	2040			

Table 2

#	Measure	Year	Opportunities	Limitations	Action
M1	Cleaner buses	2025			
M2	Better public transport	2030	Less chance of ghetto formation, light rail and expansion metro, more public transport leads to less car use	Expensive, NIMBY, resistance public construction	More subsidy municipality and national government, NGO lobby and pressure, provide info, explain benefits
M3	More bike paths and bike parking spots	2030	Parking is easy so more people take the bike, more comfort	Focus municipality on aesthetics rather than functionality (boulders as cycle path in centrum), underground parking lead to larger walking distance to store	
M4	Cheaper public transport	2030	more people use public transport	GVB wants more money	Municipality should increase subsidy.
M5	Environmental zone for polluting cars	2020	Economic benefits through investment in innovations, less traffic = cleaner air	Enforcement, exchange vehicles, what happens with old cars?	Provide info, explain benefits, raise awareness, camera surveillance for enforcement, put ban on hop on hop off tourist buses
M6	More parking for cars	2019	Possibly more income for city, creates space for green, rainproof, pedestrians, cyclists, parking for cycles	Public support in suburbs (not central areas), little space for loading and unloading, support entrepreneurs	Involve entrepreneurs (early in process), increase space for loading and unloading for entrepreneurs
M7	Limiting car-traffic in the city centre	2025?	Space, living environment, quiet, safety, air quality	Accesible for trucks and people with disability,	Good public transport, transport over water, provide info about where to drive also for tourists, provide clear info about P+R
M8	Accelerating energy-efficient house renovations				
M9	Ban wood stoves and fireplaces in houses and bars & restaurants	2025	Less lung problems, less problems with neighbors, less fire issues	Support, enforcement	Provide info, ban on sale wood burners (also at EU level)
M10	Accelerate the uptake of solar panels in the built environment	2030	Innovation for storing energy, less CO ₂ , less pollution power plant, lower monthly energy bill, commitment higher	Energy net not capable to handle extra energy supply	
M11	Amsterdam gas-free				



Table 3

#	Measure	Year	Opportunities	Limitations	Action
M1	Cleaner buses	2025	Of course	Can't go faster	As is
M2	Better public transport	2020	Good for social cohesion/elderly handicapped/ sport participation / etc. More links between different transport systems	Money / to much attention on market and efficiency	City
M3	More bike paths and bike parking spots	2022	Sharing systems/e bikes via bike parkings Good for health	space	City
M4	Cheaper public transport	2030	See M2	money	City
M5	Environmental zone for polluting cars	2019	More education/informing	/	/
M6	More parking for cars	2020	More education...change the mindset of people	People are afraid for change...but after they are happy Political sensitive	City
M7	Limiting car-traffic in the city centre	2020	See M6		
M8	Accelerating energy-efficient house renovations	2050	Lower energy bill/more comfort Creative positive examples	Housing coops are key	Gov. + coops
M9	Ban wood stoves and fireplaces in houses and bars & restaurants	2025	People have no clue about the real impact Science should lead the way Very positive locally	Need for regulation	City plus Gov.
M10	Accelerate the uptake of solar panels in the built environment	2020	People like this already doesn't need further support Relatively low impact	/	/
M11	Amsterdam gas-free	2030	Good for employment – lots of work related More education needed	Very very expensive and complicated Its about changing in personal life/ behind the frontdoor, not easy	Gov.



Further comments Table 3:

- Money not mentioned so much as an issue;
- Citizens support mentioned as an important issue – citizens need to be involved and above all informed better.
- Enforcement is tricky – how do you enforce that people do not buy a wood stove, how do you enforce an environmental zone for cars?
- Shifting where local government money goes – instead of funding asphalt, ensure money is directed to fostering public transport.

Table 4

#	Measure	Year	Opportunities	Limitations	Action
M1	Cleaner buses	2025	Look at converting conventional buses to emission free, Strong impact on air pollution, Less noise, Nice visible publicity for Amsterdam	Nothing seems to happen, What happens with old buses (no export of dirty buses)	Entrepreneurs, Local government
M2	Better public transport	2030	Reducing use of moped/car, Increasing physical activity of people, Social interaction	Expensive, Could reduce use of bicycle (less physical activity)	Entrepreneurs, Local government, Citizens
M3	More bike paths and bike parking spots	2022	Stimulates physical activity, Possibilities for more green space, More appealing city looks, Combine with bikes sharing	Expensive (when underground), Should not go at the expense of green space	Local government (building, maintaining), Bicyclists should use it
M4	Cheaper public transport	2025	Stimulates use of public transport, More physical activity in combination with cycling and walking	Expensive (city could go bankrupt), Should not affect density or frequency of public transport	Entrepreneurs, local government
M5	Environmental zone for polluting cars	2019	Strong impact on air pollution, Less noise (more EV's)	Should not go at the cost of poorer citizens, Increases support, National government does not like this	Local government
M6	More parking for cars	2025	More space available for bicycles, Green, pedestrians	People visiting citizens and entrepreneurs should not be limited	Local government, Citizens should pay
M7	Limiting car-traffic in the city centre	?	May limit opposition against other measures to improve air quality	Air quality won't get any better	None
M8	Accelerating energy-efficient house renovations	2050	No rushed mediocre measures	Not very ambitious, May not be possible due to National Government Climate Agreement	Social Housing Corporations
M9	Ban wood stoves and fireplaces in houses and bars & restaurants	2025	Cleaner air, also indoors	Enforcement problematic,	Local government, Home owners
M10	Accelerate the uptake of solar panels in the built environment	2035	Possibly reducing carbon footprint	More consciousness and support is needed	Home owners and local government
M11	Amsterdam gas-free	Finished by 2030	Combination with green roofs, thermal insulation, sustainable	Does the electricity network have enough capacity, Ugly	Home owners, local government, national government

Further comments Table 4:

- Measures are interlinked and go hand in hand with each other;

- Environmental zones for private cars could have negative social effects e.g. the elderly receiving less family visits;
- There was an interesting initiative in the past through which someone who would give up their car would get a Green Wheels (shared electric car) subscription for half a year.
- A participant deeply believed that more greenery helps air quality and climate;
- Participants in general do not want to change their behaviour – the same people that want to fight climate through government measures and want no cars in their street, want to continue travelling to Asia for work a few times a year and want to be able to own a car.

3.2.3 Bringing results together: Proposed scenarios

The results of the four tables were merged into two scenarios ('LOW' and 'HIGH') by taking all lowest suggested ambitions for each measure together (Scenario LOW), as well as by taking all highest suggested ambitions together (Scenario HIGH).

As could be expected, ambition levels chosen per measure varied over the four tables. Nevertheless all tables were unanimous in choosing high ambition levels for two measures: 'better public transport' and 'ban woodstoves and fireplaces', suggesting a high public priority for these two measures.

Figure 3: Creating Scenarios LOW and HIGH by combining the outputs of the four tables

Measure #		# times an ambition level was scored at the four tables			Proposed scenario LOW *)	Proposed scenario HIGH **)	Proposed scenario LOW *)	Proposed scenario HIGH **)
		Low	Medium	High				
1	Cleaner buses	1	2	1	Low	High	Half of the busses emission-free (100% electric or hydro-powered) by 2025	All busses emission-free (100% electric or hydro-powered) by 2022
2	Better public transport			4	High	High	Increase network density from the net and increase frequency by 2030	Increase network density from the net and increase frequency by 2030
3	More bike paths and bike parking spots		1	3	Medium	High	40 000 new bike parking spots by 2030. Improving current bike pats and fast bike routes (bike highways) by 2025	60 000 new bike parking spots by 2025. Improving current bike pats and fast bike routes (bike highways) by 2022
4	Cheaper public transport		3	1	Medium	High	Price of public transport remains the same until 2030	Price of public transport becomes 50% cheaper for everyone
5	Environmental zone for polluting cars	1		3	Low	High	Maintain current environmental zones	Adding an environmental zone for private cars and making current environmental zones more stringent
6	More parking for cars	1	1	2	Low	High	Maintain the current number of parking spots	Remove 7.000-10.000 parking spots (approx. 10% of the current parking spaces in the city centre) and charge € 7.5 per hour everywhere in the city by 2020
7	Limiting car-traffic in the city centre		1	3	Medium	High	Maintain current legislation for cars (i.e. reducing car traffic by one-way roads and splitting up traffic routes)	Cars in the city centre are only allowed for people living there
8	Accelerating energy-efficient house renovations	1	3		Low	Medium	All houses belonging to housing associations reach an energy label B or C by 2050	All houses belonging to housing associations reach an energy label A by 2050
9	Ban wood stoves and fireplaces in houses and bars & restaurants			4	High	High	Ban wood stoves and fireplaces in both new buildings and existing buildings from 2025	Ban wood stoves and fireplaces in both new buildings and existing buildings from 2025
10	Accelerate the uptake of solar panels in the built environment	1	1	2	Low	High	Maintain current regulation. No incentives from the Municipality of Amsterdam to promote solar energy (except for housing associations)	Mandatory solar panels in all suitable roofs and provide subsidies for it
11	Amsterdam gas-free	2	1	1	Low	High	€ 2.500 subsidy per household in order to facilitate renovation to become gas-free. No obligations for the building sector.	€ 10.000 subsidy per household in order to facilitate renovation to become gas-free. Mandatory gas-free building sector by 2030.

*) all lowest ambitions over four tables

**) all highest ambitions over four tables

3.3 Reflections on the SDW process in Amsterdam

3.3.1 Reflection from the workshop implementation team (GGD, Trinomics):

Activity 1

Activity 1 (selecting ambition levels) works well and is useful

Possible minor improvements:

- Despite the measures presented at the SDW had resulted from the former ClairCity activities in Amsterdam, people came up with new measures that they would like to add.
 - ➔ *Mitigation measure: At the beginning of the workshop when introducing the project and the workshop, explain clearly that the measures are result of a whole research trajectory involving citizens in the past two years; also explain that measures are the “preferred” measures (thus not fully comprehensive) and that obviously not all measures can be included in the SDW.*
- Although the activity was finished at all tables within the time given, it could be useful to give Activity 1 some little extra time to allow for more discussions on the motivations and choices made regarding the options.
 - ➔ *Mitigation measure: Since making the workshop longer is not desirable, a focus on a maximum of 10 measures for both activities would already give Activity 1 a little extra time.*
- Finding the right formulation (and translation) for the policy measures (derived from the Delphi, MLW and Game) is key to avoid time being wasted on having to clarify terms.
 - ➔ *Mitigation measure: City Buddies and City Partners should sit together to prepare the workshop and find the right formulation (right translation into the local language as well) for the policy measures, defining them as clear as possible and in a language that citizens understand.*
- The most efficient way of approaching Activity 1 is probably to:
 - 1) Lay all the cards (all measures and ambition level cards) on the flipchart, in order to provide the whole picture;
 - 2) Pull out the measures one by one, in such a way that policies addressing similar issues are discussed one after the other i.e. first transport policies, then energy policies or vice versa);
 - 3) When pulling out the policy, the moderator should read the measure out loud, then the current status thereof (at the back of the card) to provide some context, and then the three ambition level cards;
 - 4) Note down discussions and leave only the selected ambition level on the flipchart, sticking it with some blue-tack to state that the decision is taken.
 - 5) Move on to the next measure.

Activity 2

- Activity 2 is meant to provide context to the selected ambition levels. Formulation is important. The formulation ‘opportunities’ and ‘constraints’ was not immediately understood by the participants.

- ➔ *Mitigation measure: reformulate elements of Activity 2 to: 1) Constraints (why has this not been done yet?) 2) Enablers (How to overcome constraints) 3) Who should do this?*
- Activity 2 could have done with a bit of extra time
 - ➔ *Mitigation measure: Focus on a max. of 10 measures for both activities and for Activity 2, start the activity with the measures that scored the highest ambition levels.*

General aspects

- Introducing the activities well takes time and generates questions. This reduces the time left to carry out the activity but it's necessary.
 - ➔ *Mitigation measure: Introduction to the workshop and ClairCity needs to be as short as possible. Be aware of this and just prepare well how to introduce the activities efficiently in a short time.*
- Agree on reporting template (structure of this report) beforehand to ensure moderators write down discussions and results the same way.

3.3.2 Feedback from the participants

Feedback from participants was asked for at the end of the workshop verbally as well as through feedback forms. A summary of the feedback obtained is as follows:

General aspects

In the feedback forms most participants rated the workshop as “interesting/useful” and “very interesting/very useful”. Only three people rated it as “okay”. The activities were also rated “interesting/useful” and “very interesting/very useful” with a few people rating Activity 1 higher, and others Activity 2. Some specific comments were:

- The measures and workshop should be more focused on citizens' behaviour.
 - ➔ *Mitigation measure: We acknowledged that this comment was very valid. Given the measures have been proposed by citizens themselves this may imply that citizens in Amsterdam are not so keen in changing their behaviour (but rather have other stakeholders take measures). Another justification is that the policy measures proposed are also conducive to citizen behaviour change, facilitating such (e.g. more bike paths can encourage more biking; banning wood stoves would result in citizens not using these). No change proposed.*
- Receiving more information upfront would have been useful.
 - ➔ *Mitigation measure: The ClairCity Amsterdam team had provided the agenda and a tailored information sheet prior to the meeting. The information sheet was quite detailed, explaining that the workshop was a follow up of previous activities with citizens and that its aim was to build scenarios by defining ambition levels and the timeline for already preselected measures. The ClairCity Amsterdam team does not think that giving more information upfront would have been useful but it's clear that expectations management is important.*

Activity 1

- At a table there was not enough time to read the state of current policy for each measure or participants did not notice that each measure had the “current state of affairs” at the back of the card, so wouldn’t flip it around to read it.
 - ➔ *Mitigation measure: facilitators need to introduce the measure together with briefly mentioning what the current policy is; Focus on a max. of 10 measures for both activities; consider giving Activity 1 more time.*
- Some participants experienced lack of freedom given the measures to play with were provided.
 - ➔ *Mitigation measure: explain that the measures are result of a research trajectory involving citizens in the past two years; also explain that measures are the “preferred” measures (thus not fully comprehensive) and thus that not all measures can be included in the SDW. Freedom is given through the ‘wild cards’.*

Activity 2

- It was not always clear to participants what we meant by ‘possibilities’ (kansen)
 - ➔ *Mitigation measure: better define the purpose of Activity 2 (see bullet above).*
- Some participants said it was a nice activity, because it allowed them to build on each others’ ideas instead of shooting them down.

4 Sosnowiec SDW

4.1 SDW Activities

4.1.1 Participants

Number of participants: 29

Participants of the workshop:

1. Plenipotentiary of the Mayor of Sosnowiec for Air Quality – Mateusz Kruk
2. Plenipotentiary of the Mayor of Sosnowiec for Electromobility – Robert Milczarek
3. Ecology and Waste Management Department – Joanna Czapla
4. Ecology and Waste Management Department – Anna Dębiec
5. Municipal Economy Department – Rafał Siasta
6. Spatial Planning Department – Krzysztof Kucharczyk
7. Health Department – Halina Czapla
8. Sosnowiec Labour Medicine and Environmental Health Institute – Deputy Director for Science Danuta Mielżyńska-Svach
9. City Hospital – Arkadiusz Żaczek
10. Public Transport Company – Ryszard Reńczuk
11. Public Transport Company – Anna Mikołajska
12. Public Transport Company – Tomasz Różycki
13. Silesian Trams – Grzegorz Woźniak
14. Sosnowiec Public Utility of Housing Resources – Adam Gołąbek
15. Zagłębie Smog Alert – Rafał Psik
16. Senior City Council – Mirosław Chytry
17. Senior City Council – Jerzy Dudek
18. Senior City Council – Grażyna Bialik
19. Senior City Council – Barbara Dyrka
20. Senior City Council – Ewa Kamizela-Baranowska
21. Sosnowiec Science and Technology Park – Anna Rutkowska
22. Timken Poland Ltd. – Mariusz Mazur
23. Timken Poland Ltd. – Łukasz Rozwadowski
24. External Funds and Cooperation Department – Barbara Kossowska – Siwec
25. External Funds and Cooperation Department – Natalia Dziurowicz
26. External Funds and Cooperation Department – Agnieszka Szczerzyńska (facilitator)
27. External Funds and Cooperation Department – Magdalena Kowalik (facilitator)
28. Social Policy Department – Katarzyna Zacharska (facilitator)
29. Social Policy Department – Rafał Domański (facilitator)

The workshop in Sosnowiec was held on 17th April 2019.

4.1.2 Agenda

12.00 - 12.15 – participant registration

All participants of the workshop received Information Sheets, with which they acquainted themselves before signing the Consent Form and the Attendance List.

Introduction

12.15 - 12.25 – Welcome and introduction to workshop , Barbara Kossowska-Siwiec

Explanation of the aim of the meeting and its significance for ClairCity project.

12.25 - 12.30 – Status and challenges of air quality in Sosnowiec, Anna Dębiec

12.30 - 12.35 – Status and challenges of transport policies in Sosnowiec, Robert Milczarek

12.35 - 12.40 – Status and challenges of energy policies in Sosnowiec, Rafał Siasta

Workshop Session (activities in working groups with the participation of facilitators)

12:40 Activity 1: choosing ambition levels of policy measures

13:40 Feedback from working groups

13:50 Activity 2: Defining timeline, enablers, constraints and actions

14:50: Feedback from working groups

15.00 Conclusion of the workshop (drawing gifts for workshop participants)

4.1.3 Activity 1 Choosing ambition levels of policy measures

Table 1.

6 participants + facilitator: Rafał Domański



Measure	Chosen measure	Ambition of chosen measure
Make public transport free/cheaper	Free public transport by 2025	HIGH
Reduce emissions from public transport	Replace 25% public transport fleet with zero-emission vehicles by 2022	MEDIUM
Improve the public transport service/connectivity	90% public transport journeys on schedule and most areas catered for by 2020	MEDIUM
Create/increase cycle lanes and infrastructure (storage, security)	20 km of new cycle lanes and 15 new cycle parking spaces by 2020	MEDIUM
Encourage/incentivise electric vehicles	Replace 50% cars with EVs and 500 EV charging points installed by 2030	HIGH
Restrict (polluting) vehicles	Ban diesel cars from the city centre on days with level of air pollution by 2025	MEDIUM
Raise public awareness of health/environmental impacts of air pollution	80% modal shift from private to public transport or active travel by 2025	HIGH
Reduce emissions from domestic heating	Ban on domestic coal heating in districts with the highest concentration of air pollution by 2025	LOW
Replace old domestic heating systems	Replace 75% heating systems > 10 years old by 2025	LOW
Reduce industrial emissions	Reduce industrial emissions by 25% by 2025	LOW

Measure	Chosen measure	Ambition of chosen measure
Make public transport free/cheaper	Free public transport on days with high level of air pollution by 2020	MEDIUM
Reduce emissions from public transport	Replace 50% public transport fleet with zero-emission vehicles by 2022	HIGH
Improve the public transport service/connectivity	100% public transport journeys on schedule and most areas catered for by 2020	HIGH
Create/increase cycle lanes and infrastructure (storage, security)	40 km of new cycle lanes and 25 new cycle parking spaces by 2020	HIGH
Encourage/incentivise electric vehicles	Replace 10% cars with EVs and 100 EV charging points installed by 2025	LOW
Restrict (polluting) vehicles	Replace 50% cars with EVs and 500 EV charging points installed by 2030 * ATTENTION: participants made a mistake unnoticed by the facilitator and chose the ambition level assigned to another measure 'Encourage/incentivise electric vehicles'	HIGH
Raise public awareness of health/environmental impacts of air pollution	50% modal shift from private to public transport or active travel by 2030 (wild card)	MEDIUM
Reduce emissions from domestic heating	Ban on domestic coal heating in districts with the highest concentration of air pollution by 2025	LOW
Replace old domestic heating systems	Replace 100% heating systems > 10 years old by 2021	MEDIUM
Reduce industrial emissions	Reduce industrial emissions by 25% by 2025	LOW

* ATTENTION: when discussing the measure 'Restrict (polluting) vehicles' the participants at table 2 made a mistake unnoticed by the facilitator and chose the ambition level assigned to another measure 'Encourage/incentivise electric vehicles'. They decided on a high ambition level, so instead of the ambition level chosen by them by mistake 'Replace 50% cars with EVs and 500 EV charging points installed by 2030' it should be '100% ban on fossil fuelled vehicles by 2025'.

Table 3.

6 participants + facilitator: Magdalena Kowalik



3

DZIAŁANIE	NISKI POZIOM WDRÓŻENIA	ŚREDNI POZIOM WDRÓŻENIA	WYSOKI POZIOM WDRÓŻENIA
020 Dotyczy: 7. Planu strategicznego Instytutu Kultury			
Dotyczy: 4. Planu strategicznego Instytutu Kultury			
"Plan strategiczny Instytutu Kultury na lata 2020-2022"			
"Plan strategiczny Instytutu Kultury na lata 2020-2022"			
Dotyczy: 4. Planu strategicznego Instytutu Kultury			
Dotyczy: 4. Planu strategicznego Instytutu Kultury			
Dotyczy: 4. Planu strategicznego Instytutu Kultury			
Dotyczy: 4. Planu strategicznego Instytutu Kultury			
Dotyczy: 4. Planu strategicznego Instytutu Kultury			
Dotyczy: 4. Planu strategicznego Instytutu Kultury			

Measure	Chosen measure	Ambition of chosen measure
Make public transport free/cheaper	Free public transport on days with high level of air pollution by 2020	MEDIUM
Reduce emissions from public transport	Replace 10% public transport fleet with zero-emission vehicles by 2030	LOW
Improve the public transport service/connectivity	90% public transport journeys on schedule and most areas catered for by 2020	MEDIUM
Create/increase cycle lanes and infrastructure (storage, security)	20 km of new cycle lanes and 15 new cycle parking spaces by 2020	MEDIUM
Encourage/incentivise electric vehicles	Replace 10% cars with EVs and 100 EV charging points installed by 2025	LOW
Restrict (polluting) vehicles	Ban diesel cars from the city centre on days with level of air pollution by 2030	LOW
Raise public awareness of health/environmental impacts of air pollution	10% modal shift from private to public transport or active travel by 2030	LOW
Reduce emissions from domestic heating	100% ban on domestic coal heating by 2020	HIGH
Replace old domestic heating systems	Replace 100% heating systems > 10 years old by 2021	MEDIUM
Reduce industrial emissions	Reduce industrial emissions by 50% by 2025	MEDIUM

Table 4.

6 participants + facilitator: Agnieszka Szczerzyńska



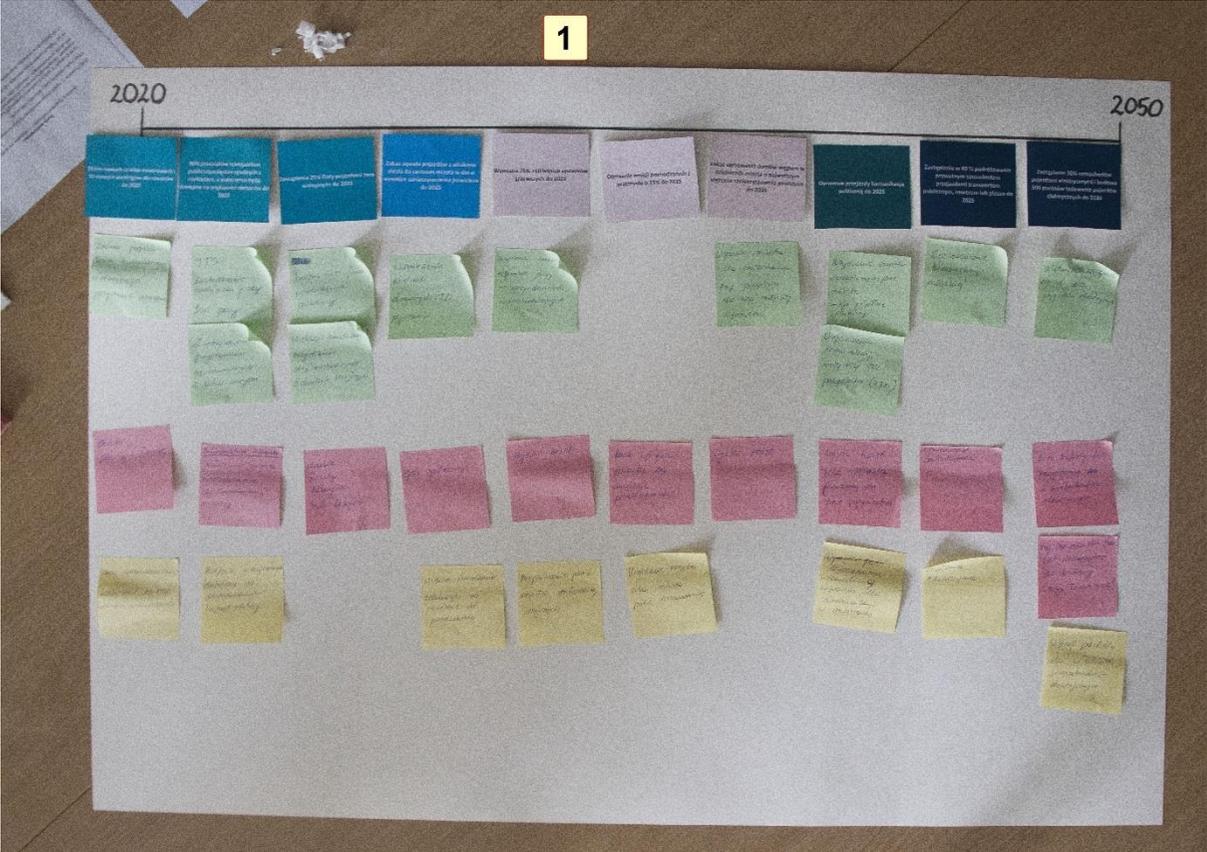
4

DZIAŁANIE	NISKI POZIOM WDROŻENIA	SREDNI POZIOM WDROŻENIA	WYSOKI POZIOM WDROŻENIA
<small>1. Wykonanie analizy SWOT</small>		<small>2. Wykonanie analizy SWOT</small>	
<small>2. Wykonanie analizy SWOT</small>			<small>3. Wykonanie analizy SWOT</small>
<small>3. Wykonanie analizy SWOT</small>	<small>4. Wykonanie analizy SWOT</small>		
<small>4. Wykonanie analizy SWOT</small>		<small>5. Wykonanie analizy SWOT</small>	
<small>5. Wykonanie analizy SWOT</small>		<small>6. Wykonanie analizy SWOT</small>	
<small>6. Wykonanie analizy SWOT</small>	<small>7. Wykonanie analizy SWOT</small>		
<small>7. Wykonanie analizy SWOT</small>	<small>8. Wykonanie analizy SWOT</small>		
<small>8. Wykonanie analizy SWOT</small>			<small>9. Wykonanie analizy SWOT</small>
<small>9. Wykonanie analizy SWOT</small>		<small>10. Wykonanie analizy SWOT</small>	
<small>10. Wykonanie analizy SWOT</small>		<small>11. Wykonanie analizy SWOT</small>	
<small>11. Wykonanie analizy SWOT</small>		<small>12. Wykonanie analizy SWOT</small>	

Measure	Chosen measure	Ambition of chosen measure
Make public transport free/cheaper	Free public transport on days with high level of air pollution by 2020	MEDIUM
Reduce emissions from public transport	Replace 10% public transport fleet with zero-emission vehicles by 2030	LOW
Improve the public transport service/connectivity	100% public transport journeys on schedule and most areas catered for by 2020	HIGH
Create/increase cycle lanes and infrastructure (storage, security)	20 km of new cycle lanes and 15 new cycle parking spaces by 2020	MEDIUM
Encourage/incentivise electric vehicles	100 EV charging points installed by 2020 (wild card)	HIGH
Restrict (polluting) vehicles	Ban diesel cars from the designated zone in the city centre by 2025 (wild card)	MEDIUM
Raise public awareness of health/environmental impacts of air pollution	50% modal shift from private to public transport or active travel by 2025	MEDIUM
Reduce emissions from domestic heating	Ban on domestic coal heating in districts with the highest concentration of air pollution by 2025	LOW
Replace old domestic heating systems	Replace 100% heating systems > 10 years old by 2021	MEDIUM
Reduce industrial emissions	Reduce industrial emissions by 25% by 2025	LOW

4.1.4 Activity 2: Timeline, benefits, hurdles and actions

Table 1



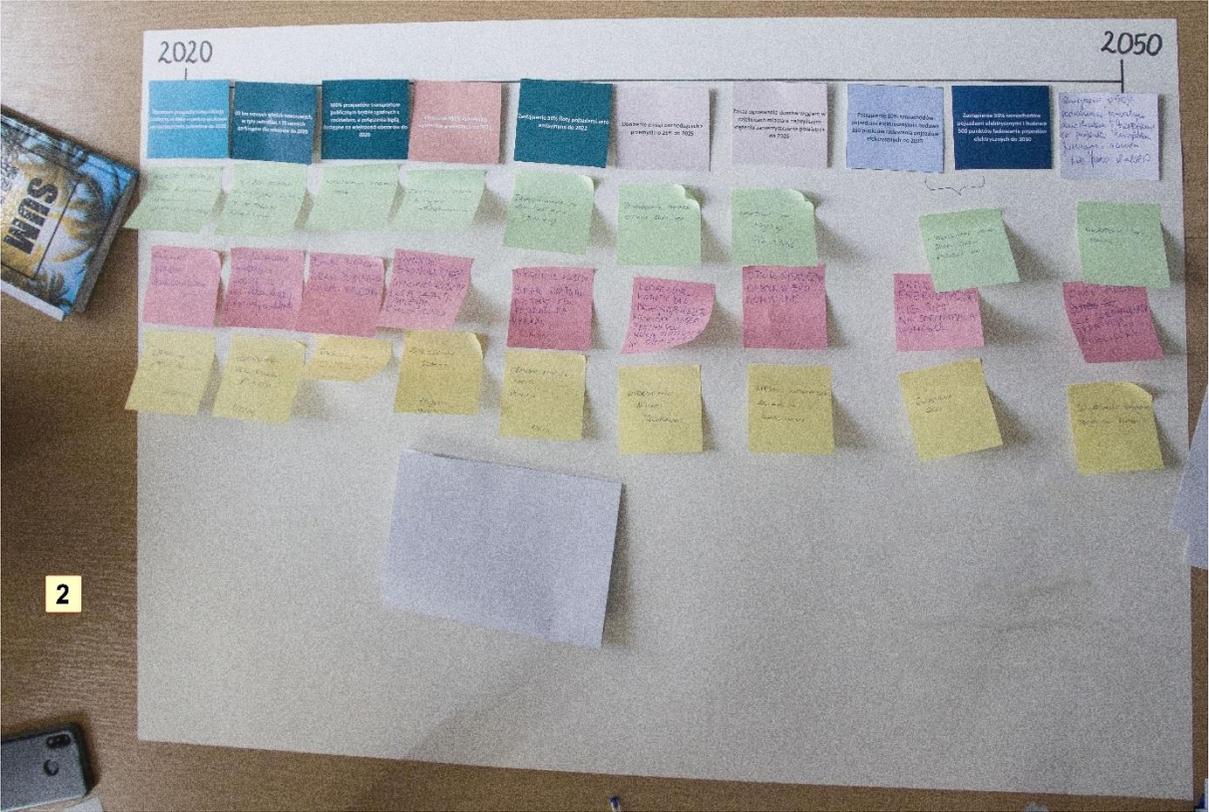
#	Measure	Year	Enablers	Constraints	Actions
M1	Free public transport by 2025	2025	Obtaining additional costs by the city e.g. creating paid parking lots in the city from which the obtained financial resources would be transferred for the organization of free public transport. Organization of public transport without intermediaries allowing to avoid additional costs of public transport. Increasing frequency and number of people using public transport who resign from paid private transport using means of transport with higher emissions than public one. The use of a low or zero pollutant fleet for public transport.	High cost for the city.	Gradual separation of paid parking zones. Impact / lobbying of local authorities on the legislator in order to develop methods of financial support for cities intending to launch free public transport.
M2	Replace 25% public transport fleet with zero-emission vehicles by 2022	2022	Promotion of companies producing transport vehicles with zero emissions and gradual increase of such rolling stock. A greater possibility of obtaining external funds, including the EU, for the organization of zero-emission public transport.	High costs of purchase of such rolling stock. No availability of purchase subsidies.	Education in acquiring financial resources for the purchase of rolling stock. Exerting influence on the central authorities in order to finance municipalities in the purchase of zero-emission rolling stock.

M3	90% public transport journeys on schedule and most areas catered for by 2020	2020	<p>Adjustment of timetables. Integration of timetables performed by various means of transport (buses, trams, railways, etc.) in such a way as to maintain the continuity of the journey.</p> <p>The use of the Intelligent Transport System in such a way that, at intersections or when leaving the stops, signaling devices recognize public transport of people and allow priority of passage.</p> <p>Integration of bus and tram stops in such a way as to ensure a fast change of means of transport without using underground passages or overcoming long distances.</p>	<p>A different infrastructure of public transport organizations in various cities of the agglomeration.</p> <p>Some cities have unsuitable transport infrastructure to organize specific means of transport, which does not ensure smooth operation of longer routes.</p>	<p>Undertaking mutual actions between cities in order to adjust the cohesion of transport infrastructure between them.</p> <p>Skillful adjustment of timetables between individual cities of the agglomeration, so that if it is not possible to continue the route of a given means of transport in one of them, to ensure continuation of the route with another means without having to wait for this transport.</p>
M4	20 km of new cycle lanes and 15 new cycle parking spaces by 2020	2020	<p>Change in the provisions of the construction law facilitating the acquisition of permits for the construction of such infrastructure.</p>	<p>Current regulations and financial resources</p>	<p>Lobbying of legislators for changes in the law regarding the creation of bicycle path infrastructure, including road traffic law and safety aspects in moving around such infrastructure.</p>

M5	Replace 50% cars with EVs and 500 EV charging points installed by 2030	2030	Facilitating the accessibility of cities for electric vehicles.	No incentive to use electric cars. Not adjusted city infrastructure in terms of accessibility of charging points and electrical network infrastructure its strength in the case of high load on the high demand for electricity. Too much cost to buy electric vehicles in relation to the wealth of citizens.	More profits for owners of electric cars.
M6	Ban diesel cars from the city centre on days with level of air pollution by 2025	2025	Frequent inspections of vehicles with suspected diesel drive. Especially the checks of private carriers. Organizing control places for such vehicles by Road Transport Inspection.	Social resistance	Raising awareness of residents, information campaigns. Education in this area basically from kindergarten.
M7	80% modal shift from private to public transport or active travel by 2025	2025	Adequate adjustment of public communication to the extent indicated in M3. Promoting healthy lifestyle and physical activity in movement.	Mentality, awareness of residents	Education activities at various age levels.

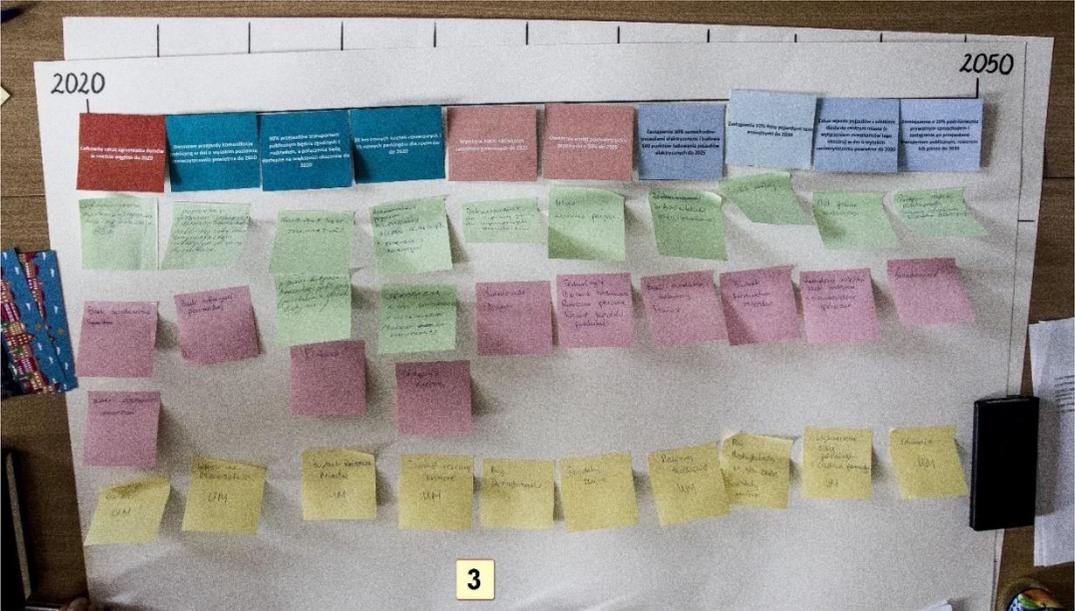
M8	Ban on domestic coal heating in districts with the highest concentration of air pollution by 2025	2025	Resident support for joining the municipal cleaning network. . Elimination of furnaces from multi-family buildings, in which several furnaces can be allocated to one dwelling, replacing them with district network or one common source of heating - a boiler room using low-emission fuel.	High investment cost	Subsidies to change the heating system in connection with substantive support in the preparation of relevant documents in the case of households on private properties.
M9	Replace 75% heating systems > 10 years old by 2025	2025	Financial and substantive support for the city when replacing heating systems, furnaces in private family and multi-family households (as above)	High investment and personnel costs.	Subsidies to change the heating system in connection with substantive support in the preparation of relevant documents in the case of households on private properties. Designation of individual advisers for people intending to use a subsidy to change the heating system.
M10	Reduce industrial emissions by 25% by 2025	2025	Relatively small share of industry at the current level of pollution The industry is often forced to pollute through the need to use fuels from which emissions are inevitable. There is also no possibility that in some cases the fuel could be replaced by others with a lower emission.	No influence of the city on the activities of entrepreneurs.	Providing tools for the city by the legislator so that it has an impact and the ability to react to entrepreneurs contributing to the increase of pollution.

Table 2



#	Measure	Year	Enablers	Constraints	Actions
M1	Free public transport on days with high level of air pollution by 2020	2020	Greater promotion of this solution (Air quality messages)	Variability of pollution levels	Caring for air quality by all residents
M2	40 km of new cycle lanes and 25 new cycle parking spaces by 2020	2020	Bicycle paths that make it easier to get to recreational areas	Location of the area, collision with the road system, architectural obstacles,	Spatial planning of the city (City Hall)
M3	100% public transport journeys on schedule and most areas catered for by 2020	2020	Modernization of connection schedules	lack of bus lanes, lack of smooth traffic	Expansion of the road network with infrastructure (City Hall)
M4	Replace 100% heating systems > 10 years old by 2021	2021	Increase in subsidies	Economic factors, high operating costs of ecological heating	Increase in additional payments (projects, subsidies)
M5	Replace 50% public transport fleet with zero-emission vehicles by 2022	2022	Co-financing for public fleet plants	High costs, no access to this type of vehicles on the market	Reduction of purchase costs, subsidies (State)
M6	Reduce industrial emissions by 25% by 2025	2025	Adjustment of environmental protection regulations	Additional costs for entrepreneurs, some industry branches have to work e.g. energetics	Using new technologies
M7	Ban on domestic coal heating in districts with the highest concentration of air pollution by 2025	2025	Expansion of the CO + GAS district network	Social resistance, economic factors	Information, educational, environmental campaigns
M8	Replace 10% cars with EVs and 100 EV charging points installed by 2025	2025	Acquiring new energy sources, expanding the network	No power network or a network that does not meet the requirements	Expanding the network
M9	Replace 50% cars with EVs and 500 EV charging points installed by 2030	2030	Acquiring new energy sources, expanding the network	No power network or a network that does not meet the requirements	Expanding the network
M10	50% modal shift from private to public transport or active travel by 2030 (wild card)	2030	Expansion of the connection network	Social resistance, poorly organized public transport	Social awareness, reduction of ticket prices

Table 3



#	Measure	Year	Enablers	Constraints	Actions
M1	100% ban on domestic coal heating by 2020	2020	1. At least 85% subsidies for replacement of heating systems	1. Lack of social awareness • 2. Lack of proper enforcement of the regulations by the services	1. Proper education of residents • 2. Conducting inspections of stoves Responsibility: City Hall
M2	Free public transport on days with high level of air pollution by 2020	2020	1. Improving efficiency in informing residents about free public transport • 2. Reduction in the price for journeys in the next period of using transport for people with season tickets (in proportion to the number of days with smog).	1. Lack of efficient information system on air quality and free communication.	Responsibility: City Hall
M3	90% public transport journeys on schedule and most areas catered for by 2020	2020	1. Expansion of the tram network • 2. Improving the accessibility of public communication by expanding the area of accessibility	1. Lack of adequate financial resources for this purpose	Responsibility: City Hall
M4	20 km of new cycle lanes and 15 new cycle parking spaces by 2020	2020	1. The correct deployment and design of the bicycle lane system • 2. Linking current bicycle lanes with the new ones 3. Separation of car and bicycle traffic, e.g. through a green belt	1. Availability of room, urban space to create new bicycle lanes	1. Creating field reserves when planning future land development • Responsibility: City Hall
M5	Replace 100% heating systems > 10 years old by 2021	2021	1. Subsidies for exchanging stoves in order to adapt to the required standards	1. Lack of public awareness • 2. Lack of adequate financial resources for this purpose	Responsibility: distributors
M6	Reduce industrial emissions by 50% by 2025	2025	1. Discounts for entrepreneurs • 2. Change of regulations	1. Outdated technology • • 2. Technical barriers • • 3. Legal barrier	1. Acquisition of funding under EU projects

				<ul style="list-style-type: none"> 4. Increase in general production costs 	
M7	Replace 10% cars with EVs and 100 EV charging points installed by 2025	2025	<ol style="list-style-type: none"> 1. Adequate infrastructure; availability of charging stations 2. Discounts, e.g. for cheaper or free parking for electric vehicles 	<ol style="list-style-type: none"> 1. Lack of possibility to build charging stations due to dense urban development 2. Lack of adequate financial resources 	<ol style="list-style-type: none"> 1. Creating field reserves when planning future land development <ul style="list-style-type: none"> Responsibility: City Hall
M8	Replace 10% public transport fleet with zero-emission vehicles by 2030	2030	<ol style="list-style-type: none"> 1. Opportunity to obtain subsidies under EU projects 	<ol style="list-style-type: none"> 1. 2. Lack of adequate financial resources for this purpose 2. City infrastructure - a problem with the construction of charging stations in the city centre 	<ol style="list-style-type: none"> 1. Active involvement of distributors within the power network 2. Opportunity to obtain subsidies under EU projects <p>Responsibility: distributors</p>
M9	Ban diesel cars from the city centre on days with level of air pollution by 2030	2030	<ol style="list-style-type: none"> 1. Local law acts 	<ol style="list-style-type: none"> 1. Current urban development; lack of parking space in the city centre 2. Social dissatisfaction / lack of acceptance of such a solution 	<ol style="list-style-type: none"> 1. Designating or creating a network of parking lots and transfer centres <p>Responsibility: City Hall</p>
M10	10% modal shift from private to public transport or active travel by 2030	2030	<ol style="list-style-type: none"> 1. Creating an electric bicycle system (rental) 2. Creating the possibility / system of renting electric cars 	<ol style="list-style-type: none"> 1. Lack of public awareness 	<ol style="list-style-type: none"> 1. Proper education of residents <p>Responsibility: City Hall</p>

Table 4



#	Measure	Year	Enablers	Constraints	Actions
M1	Free public transport on days with high level of air pollution by 2020	2020	The use of information boards to communicate the air condition	No information about the air condition	The use of teleinformatic services
M2	Replace 10% public transport fleet with zero-emission vehicles by 2030	2030	Subsidies from external funds	Insufficient financing	Subsidies from the Municipality for Public Transport Company
M3	100% public transport journeys on schedule and most areas catered for by 2020	2020	Optimization of the timetable	Traffic jams, road repairs, rolling stock defects	Exchange of rolling stock, construction of bus lanes
M4	20 km of new cycle lanes and 15 new cycle parking spaces by 2020 (przechowywanie, bezpieczeństwo)	2020	Plan for the deployment of bicycle lanes and the use of bicycle shelters and extension in selected locations	No space for parking lots, increase in number of cars	Transfer and purchase of land by the city
M5	100 EV charging points installed by 2020 (wild card)	2020	Using the electromobility plan, transferring potential locations to TAURON Distribution	Costs, time, location of cable connectors, excavations of streets and roads	Subsidies from external funds, selection of docking stations
M6	Ban diesel cars from the designated zone in the city centre by 2025 (wild card)	2025	Free communication within the zone	No possibility to control all vehicles	Increasing the number of delegated services - city guard, police
M7	50% modal shift from private to public transport or active travel by 2025	2025	Punctual communication, frequency of communication, paid parking zones	Mentality, lack of legal basis	Regulation, act - Sejm of the Republic of Poland and education
M8	Ban on domestic coal heating in districts with the highest concentration of air pollution by 2025	2025	Subsidies for replacing boilers, reducing the costs of alternative fuels, education	Insufficient financial resources of the municipality and population	Information campaign
M9	Replace 100% heating systems > 10 years old by 2021	2021	Increasing subsidies	No current boiler inventory	Information campaign – City Hall
M10	Reduce industrial emissions by 25% by 2025	2025	None (except legal)	No impact on the operations of companies	Communication of companies with city representatives and councillors

4.2 Discussion

Table 1

The facilitator included key remarks from the course of the discussion in table with timeline, enablers, constraints and actions.

Table 2

During the discussion the most attention was drawn to 'Raise public awareness of health/environmental impacts of air pollution'. All participants agreed on the importance of this action, stressing the significance of citizens' awareness.

The issue of reducing industrial emissions was also raised. Participants agreed that there are no major problems of this kind in Sosnowiec. Emissions from industry are not large.

The higher level of pollution comes from the exhaust emissions from households. Replacing furnaces is by all means necessary and should be continued. It also involves making people more aware of the harmful consequences of smoking in the furnaces with the wrong fuel.

The group chose the low ambition 'Ban on domestic coal heating in districts with the highest concentration of air pollution by 2025" in measure 'Reduce emissions from domestic heating' justifying it with the disadvantageous financial situation of the residents. It was considered impossible to introduce ban on domestic coal heating by 2020, because not all residents will be able to go for heating with more expensive gas. On the other hand, it is difficult to mark districts of the city in which there is the highest concentration of air pollution and set specific boundaries. Pollution results for districts are not reliable; pollution can be talked about more globally - on the scale of the whole city.

In case of 'Make public transport free/cheaper' one of participants strongly insisted on the high ambition level 'Free public transport by 2025', while most participants considered that this level is unrealistic to achieve due to too high costs for the city.

In order to limit the number of air polluting vehicles, it will be difficult to introduce entry bans and to observe and control them.

The development of bicycle paths has been set at a high ambition level. The average level is realistic, so a more ambitious indicator has been proposed. The participants unanimously noticed a very good infrastructure of bicycle paths and its significant increase at the turn of recent years.

In the next stage of the activity, the participants identified three main constraints:

- financial - the overwhelming majority of ambition levels will require large financial outlays;
- the second constraint will be social resistance;
- the third constraint is lack of a power network that could cope with increased demand.

During the discussion about bicycle paths, the group noticed a big advantage of Sosnowiec. The city has a favorable infrastructure for creating bicycle paths, comparing for example to Katowice, which can not afford bicycle paths in the city center (narrow pavements, tram lines - no space for paths). Through the implementation of city bikes, residents' interest in this means of communication also increases.

A lively discussion was also raised by the issue of changing timetables. It is impossible to arrange timetables in such a way as to please every resident. Each participant using public transport deplored too long breaks between the rides, there are moments where buses of the same line go one behind the other, followed by a long break and a long waiting time for the arrival of the next bus of the given line.

Important comment for 'Reduce industrial emissions by 25% by 2025' – in some branches like e.g. heat and power stations, which have to work, it will be difficult to zero pollution emissions and it seems impossible to limit the use of coal.

Table 3

1. Make public transport free/cheaper

One of the group members stated that the introduction of free public transport has no impact or has a very minimal impact on the level of air pollution. All members of the group agreed that at the moment there is a lack of proper and efficient information system on the level of air pollution and the possibility of free use of public transport. One participant stated that the above goal is important due to low implementation costs and high benefits. Participants unanimously rejected the highest level due to too high implementation costs. Medium level was selected.

2. Reduce emissions from public transport

Participants admitted that the best choice is the high level. However, too high cost to implement such a solution caused its rejection. Participants pointed to the lack of information on the current structure of the bus fleet and what is the ratio of outdated buses compared to electric ones. The low level was chosen as the most feasible to implement.

3. Improve the public transport service/connectivity

Participants decided that the city has no influence on the timetable. It was considered that 90% of journeys compatible with the timetable are in line with the current state and there is no possibility of its improvement. Participants noticed the connection of this measure with the measure 'Make public transport free/cheaper' - free buses will reduce traffic and traffic jams, and thus improve the compatibility of bus arrivals compared to the plan over 90%.

4. Create/increase cycle lanes and infrastructure (storage, security)

Participants considered that this action is the most important and has the greatest impact on improving air quality. At the same time, it was recognised that 2020 is unrealistic to achieve the abovementioned purpose (i.e. 40 km of lanes). In connection with the above, the medium level was chosen.

5. Encourage/incentivise electric vehicles

One member said that the highest level is the most effective per 1 year. On the other hand, high costs and the current lack of demand have contributed to the rejection of this level. There are also not enough places in the city to set up charging stations. The members of the group decided that in such a short time perspective (by 2020 the medium level) there is no real possibility of replacing 10% of cars with electric vehicles, and therefore the low level was chosen.

6. Restrict (polluting) vehicles

Participants rejected the high level due to the exclusion from traffic throughout the city, which is currently impossible. There are no parking lots in the city where you can park your car. The members of the group considered the costs of implementing all three levels. Ultimately, the group chose the low level.

7. Raise public awareness of health/environmental impacts of air pollution

One of the participants noticed the association of this activity with the number of bicycle lanes in the city. He stated that in the case of having a wide and extensive bicycle network, a high level would be possible. Another participant drew attention to the necessary change in the mentality and perception of the problem by the residents of the city. Another participant stated that replacing 50-80% of private car trips and using public transport is unrealistic due to the prevailing weather conditions in Poland and the comfort of residents. Another participant stated that road transport does not significantly affect low emissions. After a long and heated discussion participants chose the low level.

8. Reduce emissions from domestic heating

One of the participants suggested that in the case of other activities conservative choices were made taking into account the high implementation costs. He decided that funds saved in other activities should be allocated precisely for this purpose due to its strong impact on the level of air pollution. Therefore, the highest level was chosen.

9. Replace old domestic heating systems

The participants unanimously chose the medium level as the most feasible one to introduce.

10. Reduce industrial emissions

Participants analysed the possibilities of subsidies for filters - for both large and small enterprises. One of the participants stated that small enterprises are in no way controlled in terms of low emissions, and taking measures to reduce low emissions is too burdensome for small businesses. In connection with the above, the average level was chosen.

Table 4

1. Make public transport free/cheaper

The group has chosen the medium ambition level and recognised that in our city's conditions, the only feasible solution in such a short time is the introduction of free public transport on days when air pollution is at a high level.

2. Reduce emissions from public transport

Participants discussed the high purchase and operation costs of zero-emission vehicles. Representative of PKM Sosnowiec informed that the company is planning to buy more buses that do not pollute the air, however high costs and disproportionate subsidies from external sources cause that the possible ambition level is low, and thus fleet exchange up to 10% by 2030.

3. Improve the public transport service/connectivity

The point roused a lively discussion among the debaters. Attention was paid to the non-punctuality of urban vehicles. It was decided that in order to encourage residents to use public

transport more and to give up private car travel, the number of connections should be increased and a high level of punctuality should be ensured. It was noted that a good solution is to create a bus lane. Public transport was compared to the great communication in the capital of the country, where there are a lot of connections at short intervals and according to the timetable. The PKM representative explained that the delays do not result from the fault of drivers, but from random events on the road or vehicle faults. The company always has substitute vehicles ready for departure and drivers who are on duty in the event of defects. A high ambition level was considered the best solution.

4. Create/increase cycle lanes and infrastructure (storage, security)

Together, the medium ambition level was decided. It was recognized that the creation of new bicycle lanes is not a legal problem due to the fact that each street can become a lane, however, taking road lanes, which are still narrow or there is few of them, is not beneficial for mechanical vehicles. A larger problem was seen by the participants in car parks, for which the city does not have too many places due to the limited amount of free space. At the same time, the participants positively expressed themselves about city bikes and noticed a great interest in city bikes, and considered parking of cars on bicycle lanes unfavorable.

5. Encourage/incentivise electric vehicles

In this case, none of the available solutions received the support of the participants. Due to the society's poorness, it was recognized that only a few can afford to buy an electric car and even subsidies are not able to compensate for the costs. In addition, maintaining such a car is very expensive and you cannot force anyone to buy. The unanimous decision was to use a "wild card" and it was considered that the only possible solution, at a high level of ambition, encouraging the purchase of an electric car instead of traditionally fuelled ones, is to create many charging points throughout the city.

6. Restrict (polluting) vehicles

As in the previous point, the available solutions were rejected by the participants and they decided on a "wild card" and placed it on the medium level of ambition. It was decided jointly that a reasonable solution is to create a zero-emission zone in the city centre and to ban diesel cars from entering by 2025.

7. Raise public awareness of health/environmental impacts of air pollution

The medium ambition was considered realistic for implementation. It was found that the most important issue is the education of the youngest.

8. Reduce emissions from domestic heating

It was quickly decided to be set at a low level because medium and high were immediately considered impossible to implement. Participants stated that in this case only the act can influence the residents and mobilise them for changes.

9. Replace old domestic heating systems

Group members chose the medium ambition level. It was noticed that the low level is inconsistent with the current legal status because, by 2021, there is a law requiring replacement of old stoves. The problem was seen somewhere else, namely, it is not known how many old stoves there really are in the city because there is no classification. The approximate numbers are 17,000 houses fired with coal, so high level 75% is about 14 thousand exchanges which is impossible for the financial conditions of society.

10. Reduce industrial emissions

The above item roused lively discussion. It has been noticed that it is difficult to influence private entrepreneurs in any way. Only top-down legal arrangements can bring effects, alternatively introducing penalties.

5 Ljubljana SDW

5.1 Introduction

The Stakeholder Dialogue Workshop (SDW) was organized in Ljubljana on the 18th of April 2019 as part of WP4 - Citizens and Stakeholder Engagement, Task 4.1: Citizen Delphi Engagement. The event was entitled as »SKUPAJ Z VAMI ZA ŠE ČISTEJŠI ZRAK V LJUBLJANI« (in translation "Together with you for cleaner air in Ljubljana"). The aim of the SDW was to synthesize the evidence streams from the ClairCity process such as the Delphi, Mutual Learning Workshop and Game to allow city stakeholders to generate a number of potential future scenarios for a low carbon, clean air pathways in the short-medium and long term to 2050. The event was organised on the premises of Ljubljana municipality City Hall.

The SDW was performed according to the agenda, given in Annex 1, and included several parts. In the first part there were several presentations given and linked with activities for cleaner air in Ljubljana. The following five presentations of projects and measures included: Air quality in Ljubljana, Development of bicycling in Ljubljana, EU project ClairCity – for better air everyone can contribute, EU project URBforDAN – governance and use of urban forests as natural heritage in Donau cities, EU project for better air quality Icarus. The second part of the SDW included moderated discussion on the measures for better air quality in Ljubljana among the participants of the event, including the responsible representatives of municipal authorities. The third part of the SDW was dedicated to an interactive workshop to search for and identify solutions for better air quality and to identify possible scenarios for near term and longer future with the participants. As a separate activity there was a guided tour with bicycles and was devoted to sight-seeing of some achievements in bicycling management implementation and planning.

At the SDW there were five speakers coming from Municipality of Ljubljana (four) and one from the Institute Josef Stefan, the Slovene coordinator of EU project ICARUS (a sister project to ClairCity and iSCAPE).

The SDW was attended by 26 participants (Figure 1) as in the List of participants (Annex 2). The invitation was sent to the participants with the expertise in air quality and public health, low carbon and climate changes adaptations, transport and energy, land-use and planners for future smart cities. The following organisations were contacted directly: transport providers (public bus company in Ljubljana and train company, taxis, bike/car hire), major employers in the city, city planners, responsible agencies (national health institute, energy agency, ...), academia, local community groups and NGOs engaged in transport and environmental protection. Invitation and information about the SDW was also published on webpages of municipality and at different webpages of invited institutions.

In total there were 2 persons from academia, 8 from authorities, 1 city councilor, 5 from SME, 4 from NGOs 2 from citizens community biro and 4 from media. The attendees were having background from geography, architecture, health, medicine, economy, landscape and urbanists, security, physics and chemistry.



Figure 1: Participants of the SDW

5.2 Course of the workshop

The SDW started with welcome introduction given by Municipality Ljubljana representative Ms. Vita Kontič. She shortly presented the concept of the workshop and pointed out the ClairCity project, but also other projects in the air quality which are currently ongoing in Ljubljana municipality. She also explained the process of invitation and welcomed all participants. She then briefly presented the main issues to be addressed in the Stakeholder Dialogue Workshop and the agenda. She also provided information on the participants, describing the areas where they are coming from. All participants were invited to complete and sign the statement that they agree that their views will be collected and used for development of the outcomes (SDW Consent Form).

5.2.1 Plenary session

Ms. Nataša Jazbinšek Seršen, head of Sector for environmental protection of the MOL (City Municipality Ljubljana) presented the *air quality in Ljubljana*. The presentation covered the quality of air in Ljubljana and measures which have been adopted for the improvement of the situation. First, the factors impacting temperature, humidity, geographical layout, traffic, industry were discussed. Ljubljana lies in a basin and if there are certain weather conditions, the possibilities for inversion exists. There is a closure layer which impacts and define the quality of air based on meteorological data and relief. Historical data on measurements shows that the most important for air quality in Ljubljana is introduction of remote heating system and gas pipeline system which drastically improve the air quality. The chimney of heating plant was elevated to 150 m. Until 2015 the system of remote heating and gas pipelines was increased to 75% coverage in Ljubljana therefore the emission of SO₂ reduced to very small amounts.

Emission were eliminated from SO₂, the other pollutants which can be still measured are PM₁₀ and NO₂, but are most of the time far below limits. The measurement devices are located in different positions in Ljubljana and provides reliable data on the quality of air. It is

evident that pollution still exists mainly from traffic and individually heating in houses. In Ljubljana centre the trend of PM₁₀ is negative – the allowed values are on average 35 (daily limit is 50 ug/m³), with negative trend from 2006 until now. In the period where is no heating (summer and warmer period), there is no more exceeding of limits. Basically, the sources are old individual heating systems on solid fuel and fire places. For NO₂ the limit values for a year is 40 ug/m³, and the measurements showed that the values stayed below limitations. In the last year a slight increase of concentration was recorded, most probably due to diesel fuel quality.

Measures for improvement of air quality in Ljubljana are linked with sustainable mobility: closure of city centre, introduction and reinforcement of electric public transport system and use of gas, establishment of additional park and drive options, support for cycling. In the future Ljubljana will continue to increase the public heating system and gas distribution, implement energy efficiency renovation and support small modern heating systems.

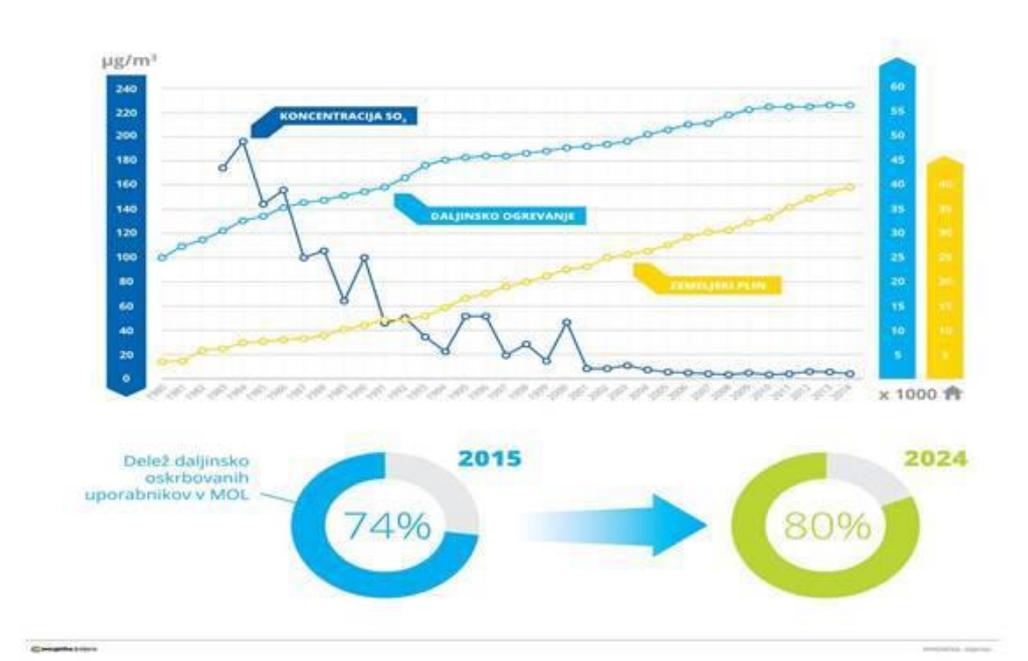


Figure 2: The air quality In Ljubljana – impacts of heat and gas remote supply to SO₂ pollution

Mr Matic Sopotnik from the Sector for economic activities and transport of MOL with support of Ms Vita Kontić discussed the *development of bicycling in Ljubljana*. They pointed out that the strategic vision from 2007 is now implemented and now the focus is on vision until 2025 with two main pillars - sustainable urban strategy program and program of environmental protection. The city is introducing the policy which is friendly for people, so called 1/3 policy: 1/3 pedestrian, 1/3 public transport and 1/3 private transportation, of which the 16% is bicycling (the plan until 2020). Therefore, the city is working on improvements of conditions for bicycling: new infrastructure, public rental of bicycles “Bicikelj Ljubljana”, renovation of black points – dangerous points where the traffic should be improved. The current extent of Bicikelj stations is presented in figure 3, and this network will be introduced also in suburbs.

Infrastructure improvements include mainly construction and establishment of new bicycling pathways, but also sharing and use of joint traffic space. The new stands to park bicycles are

constructed, also new entertainment bike parks are developed. In addition, bike counters are placed in all bigger entrance points to the city, which are used also in campaigns and support actions. Ljubljana city now introduce ways to promote cycling as a means to spend free time, so different bike topic paths are introduced, like Plečnik path, the path of memory and comradeship (Pot Spomina in Tovarištva – is the circle path around Ljubljana where during the WWII fence was placed), water and forest paths. In total 260 km of bike paths are established and Ljubljana got 8th place in Europe in 2017– index of most friendly cities in Europe (from 13 place in 2015) for bicycling. All the relevant information are provided in the special publication devoted to bicycling in Ljubljana published every 2 years. It is clear that the number of users in Ljubljana is increasing and also that the most impacting factor is weather, and also reconstruction of streets.



Figure 3: Current network of stations for Bikelj Ljubljana, <http://en.bikelj.si/>

Dr Sabina Popit from Sector for development projects and investments of MOL presented the EU project ClairCity - Citizen Led Air pollution Reduction in Cities. MOL is included in the research project Clair City in which there are 10 countries in Europe. The project started in 2016 and is focused on the pollution of air where also a lot of attention is given to the stakeholders and citizens involvement. It has several work packages and builds on the decision making which would be supported by effective measures and solutions. So, it includes technical packages as well as engagement of citizens: classical actions like discussion and surveys, and also games, school competition, movie productions, intergenerational collaborations.

The latest product developed is the Game (figure 4) in the form of the ClairCity Skylines application: <https://www.claircity.eu/ljubljana/game-app/>. It is a game where a player can decide how to improve the conditions in their city and make it the best possible place to live.

The data used in the game is real, so player decisions will show the real impact of different choices. The solutions and winning strategies that players find is “crowdsourcing” future scenarios for the city. As the game is played in all Clair cities, it will be able to see differences in the choices that residents of each location make to solve the problems of air pollution and climate change. It is expected that different regions will find different solutions – there’s lots of ways to make the world better, and the aim is to help each city find the right way for them. All data are in fact collected anonymously to find if this method is appropriate innovative tool for citizens to contribute the better decision making in the environmental policy of cities.

Another tool for individual decision making is Green Ants – available only in English for now but will be also in all other languages.



Figure 4: The logo of new game application for planning of better air quality in Ljubljana

Mr Jurij Kobe from the Sector for economic activities and transport of MOL presented the European project *URBforDAN – management and utilisation of urban forests as natural heritage in Donau cities*.

Urban forests are very important part of cities, it impact the air quality and assure the areas for spending free time for citizens. The URBforDAN project (Figure 5) aims to approach actual needs and challenges linked to sustainable management of natural heritage within urban areas of the Danube Region. URBforDAN is designed to deliver a change in urban forest management and utilisation of ecosystem services. They are provided by pre-selected areas in seven project partner cities. The project is intended to keep the current image of urban forests and to make sure that the forest areas become places for socialisation, relaxation, recreation and education. Also, a high-quality experience of natural heritage and green tourism for a diverse set of target groups has to be ensured. URBforDAN aims to improve cooperation between key actors to resolve conflicts and improve management of urban forests.

Ljubljana has its main forest on Golovec hill which includes also the main park called Tivoli. There is the remediation going on in several areas as there are many environmental legacies popping up. The goal is to include the content which would enable citizens to use the forest for their recreation and leisure. The forest has many different owners, and this is one of the major obstacles. In Ljubljana the main partners are MOL and Slovenia forest service (Zavod za gozdove), but many other stakeholders were identified and involved in the project.



Figure 5: Interreg program URBforDAN focus on forests in urban areas

The project will focus on the maintenance of the “green lungs” and biotic diversity so far and will address the preservation of natural values, the sustainable use of natural resources and the development of the social functions of urban forests in the Danube area. The purpose of the project is to create better utilization of forest areas, which are used for various purposes, for example sports and recreation, education, relaxation, sustainable tourism and others. Another aim of the project is to improve the collaboration among key interested parties like forest managers and owners, users and visitors, the professional public and non-governmental organizations.

Dr David Kocman from Institut Jožef Stefan discussed the EU project *Icarus -Integrated Climate forcing and Air Pollution Reduction in Urban Systems*.

The ICARUS objective (Figure 6) is to develop integrated tools and strategies for urban impact assessment in support of air quality and climate change governance in EU Member States leading to the design and implementation of appropriate abatement strategies to improve the air quality and reduce the carbon footprint in European cities. The project will develop detailed policies and measures for air pollution and climate control for the short and medium term (until ca. 2030). For the long term perspective (2050 and beyond) ICARUS will develop visions of green cities and explore pathways on how to start realising these visions.

Project results will be used to carry out integrated assessment of policy options answering the questions:

- What are the most effective and efficient policies for reducing both air pollution and greenhouse gas emissions in the short to medium term? What is the maximum potential for reducing air pollution and greenhouse gas emissions taking into account the climatic, socio-economic and cultural specificities of different European cities and regions?
- Cost effectiveness: which bundle of policies will lead to the simultaneous fulfilment of pollution control limits and targets for the reduction of greenhouse gases with the least cost possible (where costs considered may include both financial and social costs)?
- Cost benefit analysis: which bundle of policies would maximize welfare for society?
- What would be long-term visions for a green sustainable city? Which decisions should we take now so that in the next decade we could be on a pathway to reach these visions?
- Which approaches work better in conducting citizens towards environment-friendly behavior?

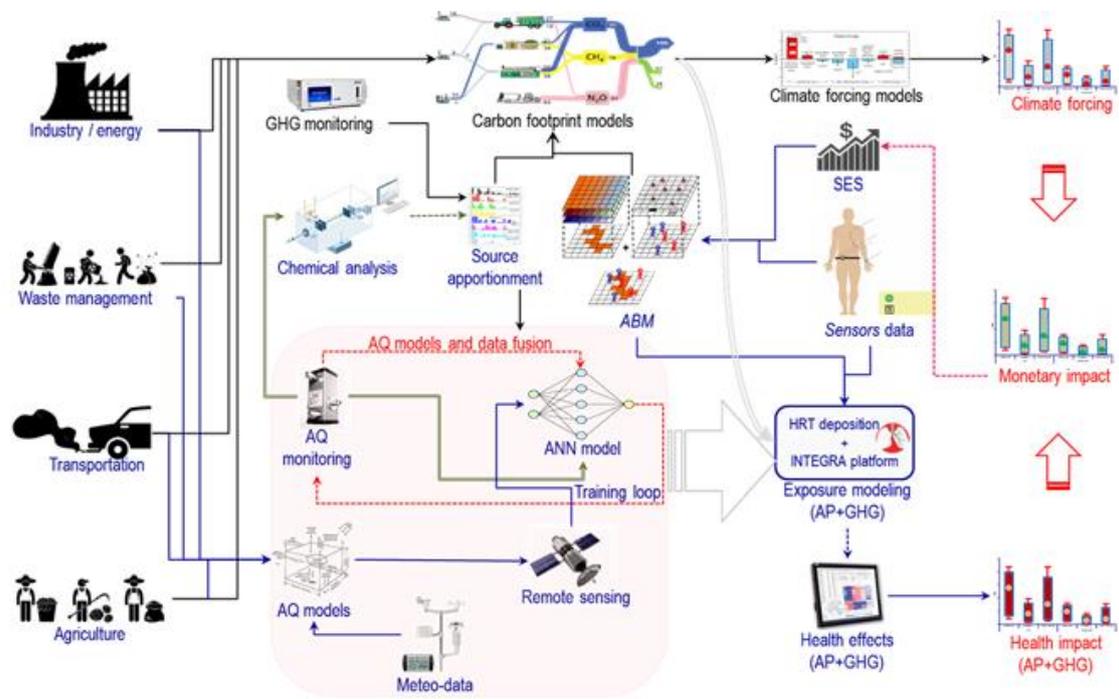


Figure 6: Conceptual model of methodological approach <https://icarus2020.eu/project-overview/>

5.2.2 Moderated discussion on the measures for better air quality

Dr. Sabina Popit from Sector for development projects and investments of MOL moderated the discussion between participants and responsible representatives. The topic of discussion was better quality of air in Ljubljana and all were invited to raise a question (Q) or make a comment. The responsible representatives provide the answers (A).

Q. Congratulations on the presentation of the projects - it can be seen that Ljubljana is devoting a lot of efforts to improve the status and quality of the environment in the city. Ljubljana as a green city is according to data even above Vienna. But there are not many occasions where this can be heard. Therefore, it is recommended to assure more visibility for

activities and to promote good practices. As it was presented now the new challenge will be the smart cities.

A: It is true that good practices are not being promoted enough: a great shift and progress has been made in Ljubljana. They are promoted and well-recognised at institutional level, but there should be more promotion performed with citizens and general public. It is planned to include some actions and to address the citizens. As it can be seen the international exchanges are large and comprehensive. But we need to do more for general public.

Q. What is with protection of the personal data in case of project ICARUS where you include the individuals and record their habits – where they go and move. Does it mean the control of the individuals?

A: The participants are volunteers and are familiar with the methodology and sign a consent to participate in the project. Everything, all collected data are than anonymized, the procedure is established, and all the personal data are therefore collected under the code.

Q. Public transport - the number of passengers is declining, and in addition, MOL takes action such as price increases, reduction of frequency of lines, even suspension of lines. How is it regulated?

A. The closure of the yellow belts for public transport in the city is not case, in fact the public service is looking for new bands where is possible. Now the city has problem in the areas where this is not possible (only 1 path available for all cars and no option for construction of stops for buses). In the city there are options for increase of bicycling and pedestrian, as it is very small and suitable for individual movement. Reducing the frequency of buses was the measure introduce to support the use of bicycles. The price increase of bus tickets was minimal. However, the further measures for increase of public transport LPP use are underway: there will be many and will be presented with the aim to contribute to the quality of the air.

Q. How can MOL regulate the installation of new heating stations.

A. The city has no jurisdiction in this area. It is trying to work with the national level, ministry of environment, which sets the requirements for emissions and which define the control mechanisms. One related service is obligatory inspection of heating systems and chimneys on yearly bases which than provide the current situation. This will make it more clear what measures are possible. The employees of the services do not have appropriate knowledge to properly assess the situation. At the moment, this is actually a problem.

Q. The common knowledge is that the achievements of results are better with incentives for proper behavior, like cheaper transportation. Individual fireplaces - how to improve this with incentives?

A. In fact, the approach is indirect. The ECO fund (it is national environmental fund) is providing the subventions for environmentally friendly heating system and not for polluters. In the next period, a lot of work will be done on awareness, because health effects and impacts are unknown. This is one of the priorities of the state, and in the future, measures will be taken.

Q. Cheaper services are essential, like for district heating. It is perceived that fixed costs of such services are too high, which does not encourage rationalised use.

A. The desire is that the district heating system is fully utilised. The ratio between fixed and variable costs are not under responsibility of the municipality.

Q. A lot of attention is given to forests - about 40,000 new trees planted every year. On the other hand we can see cutting of trees without any reasons. Just recently I noticed that during the renovation, a whole avenue fell, about 15 trees were cut. Why did this happen?

A. The city is actively taking care of the trees, the department for the maintenance of green spaces one employee only works on this. The activities work very well. But in relation to this particular question, it was probably for infrastructural reasons. They had an extensive debate, but it was not possible to do it differently because many energy lines were underneath them. They will be replaced by a parallel line. Protective approaches are being introduced all the time. Problems also with builders who do not act properly, also control is difficult. MOL prepared guidelines to respect nature protection measures and will need to disseminate them more intensively.

Q. Excessive expansion of the ring is planned which will even increase the traffic jams in the city - what is the position of MOL for this?

A. MOL made a position against the extension of ring and introduction of better solutions (like park and ride, other soft measures).

5.2.3 Interactive workshop session

Dr Sabina Popit also invited participants to the Interactive workshop to search and identify solutions for better air quality and to identify possible scenarios for near term and longer future. First the introduction and detailed overview with outlining of the activities that the participants have to perform. There were two tables arranged and at each one facilitator was available for support. The participants were asked to divide in a way to ensure there is diversity of expertise at each table (e.g. in transport, health, energy and air quality at a table) so that each policy can be meaningfully discussed. Some participants registered in advance for the SDW and were allocated to the tables, but some participants just appeared, so they were assigned on the spot (figure 7).

Facilitators were instructed to assure that all participants have an opportunity to contribute and that the focus of each activity, and of the workshop, is not lost. Activities were allocated indicative time periods to enable all activities to be adequately covered. The workshop coordinator should ensure these are maintained to allow the workshop to run to time, but the facilitators will need to ensure that the activity on their table is completed in the allocated time.

Each table was equipped with two sheets of paper A0, one with the measures and ambition levels for Activity 1 and one with the timeline for Activity 2. The city representative prepared in advance the SDW Policy Box cards (in Annex 3 developed for Ljubljana) where a set of cards present the policy measures valid for Ljubljana (colour-coded by source⁴) indicating:

- a. Different “policy cards” with measures in public transport, walking and cycling and in car use with additional information about the criteria established in the city, and

⁴ Legend: green for public transport measures, blue for walking/cycling related measures and red for car related measures

- b. three (high/medium/low) 'ambition cards' where 'medium' is equivalent to current/planned policy ambition – additional blank 'wild' cards were available to allow participants to specify an alternative level of ambition (but not additional policies).



Figure 7: Forming two groups for discussion

5.2.3.1 Activity 1

The participants were asked to discuss the selected policies and to make the list of measures according to their priority and to determine what level of ambition they wanted to apply to each policy. Participants on each table were provided with 'SDW Policy Box' of policy measure cards (10 for Ljubljana – Annex 3). The front of each card states the policy measure in short, and on the back information was provided regarding the current city policy ambitions with regard to that measure together with a qualitative assessment of the impacts of current policies on health, economy and citizen support. For each of the policy measures, participants have chosen from 3 ambition levels:

- Ambition *below* current policy (LOW),
- Ambition *same* as current (planned) policy or ambition (MEDIUM),
- Ambition *higher* than current policy (HIGH).

To avoid each table opting for the highest possible ambition for every measure, and to understand that policymaking involves making realistic choices rather than being overly ambitious only, every table was required to select:

- minimum of *two low ambition* level options and
- maximum of *six high ambition* level options.

In addition to the three options to choose for each measure, each table may also have a set of 'wild cards' (blank cards). Wild cards were meant for participants to write down their own ambition level (ambition and timeline) in case participants do not agree with any of the options presented to them.

The policy cards were placed in appropriate columns representing low/medium/high ambition levels for each policy on the large sheet of paper (Table 1 and 2) for two groups of participants attending the workshop. The photos (Figure 8 and 9) also provided the impression on final results for two tables.

Table 1: Policies and ambitions for group of participates at Table 1

M#	Measure	Chosen measure	Ambition of chosen measure
1	Regional public passenger transport	Implementation of the Railhub solution by 2027.	HIGH
2	Change of parking norms	Parking norms (after OPN MOL) are reduced to 0.5 by 2020.	HIGH
3	Cheaper public transport	Public transport is 50% cheaper for all.	HIGH
4	Independence from the car	Incentives and subsidies for car-free neighbourhoods by 2027.	HIGH
5	New areas for non-motorized traffic (pedestrian and bicycling areas)	Designing new areas with limited access for vehicles.	MEDIUM
6	Higher frequency of buses and inclusion of train transport in city traffic	Increase of public transport for 30% until 2027.	MEDIUM
7	New cycling routes and connections	New and modified cycling routes - 30% by 2021.	MEDIUM
8	E-mobility	Electromobility is left to the market.	LOW
9	Safe cycling and walking in the city	0 dead pedestrians and cyclists (target of 2027) within the ring road.	MEDIUM
10	Green transport park for public transport LPP	Half of transport park fulfils standard EURO VI until 2025.	LOW



Figure 8: Impression of final results at Table 1

Table 2: Policies and ambitions for group of participates at Table 2

M#	Measure	Chosen measure	Ambition of chosen measure
1	Higher frequency of buses and inclusion of train transport in city traffic	Increase of public transport for 10% until 2027.	LOW
2	Regional public passenger transport	Implementation of the Railhub solution by 2027.	HIGH
3	New areas for non-motorized traffic (pedestrian and bicycling areas)	Designing new areas with limited access for vehicles.	MEDIUM
4	New cycling routes and connections	New and renovated cycling routes - 50% by 2021.	HIGH
5	Safe cycling and walking in the city	0 dead or heavily damaged pedestrians and cyclists until 2027 within the ring road.	HIGH

6	Independence from the car	Incentives and subsidies for car-free neighbourhoods by 2027.	HIGH
7	Cheaper public transport	Public transport is 50% cheaper for all.	HIGH
8	Green transport park for public transport LPP	58 new buses until 2021 (EURO VI).	LOW
9	Change of parking norms	Parking norms (after OPN MOL) are reduced to 0.5 by 2020.	HIGH
10	E-mobility	Each neighbourhood has a mobility plan and shared ownership of e-vehicles by 2050.	LOW



Figure 9: Impression of final results at Table 2

5.2.3.2 Activity 2

In this activity, the participants were requested to place each policy option from Activity 1 on a timeline and to determine the enablers and constraints/unintended consequences that must be considered by the city to ensure a successful policy in short/medium/long term. The timeline is defined by the ambition level of the policy measure from Activity 1 and hence that part of the activity should be a rapid exercise, allowing more time for determining enablers and constraints.

Participants were asked to consider:

1. What 'enabling' policies must be implemented and when, to create an enabling chain of actions for each policy ambition to be achieved?

For example, if the level of ambition is '90% fleet to be electric' then an 'enabling' policy might be 'A viable charging infrastructure'.

2. What key 'constraints or unintended consequences' must be considered when considering each policy?

For example, if the policy to be implemented is 'More electric vehicles' then a constraint or unintended consequence might be ensuring that 'Active travel is not negatively impacted by placing charging points on footpaths / cycle paths' or 'Ensure sufficient (renewable) energy available'.

3. Actions to overcome constraints (and if possible, *who* should do this).

Each policy can generate more than one 'enabler/constraint'. In Ljubljana workshop, participants were grouped in one table, and they agreed to take the results from table 1 of the activity 1 as a starting point. Their discussion was supported by city facilitator and is collected in table 3.

Table 3: Opportunities, limitations and actions to fulfil policies

#	Measure	Year	Opportunities	Limitations	Actions
1	Regional public passenger transport	2027	To reduce heavy traffic in city with implementation of the Rail hub solution and with this improve the air quality	Links with national policy decisions Financial resources	Assure financial resources with different resources (national, regional, EU financial perspective 2021-2027) Transit traffic should be better organized (also train transport)
2	Change of parking norms	2020	To set new parking norms (after OPN MOL to 0.5 parking space by 2020) and reduce available parking spaces in the city.	The dependence on the car, New ways of thinking	Part of OPN Guidelines and requirements for investments
3	Cheaper public transport	2020	To increase the number of passengers	Subventions to support the activity	City decree

			using public transport with 50% cheaper tickets.		Investigate the resources for subventions
4	Independence from the car	2027	Provide options for car-free neighbourhoods with sufficient public infrastructure and other soft mechanisms.	Personal habits of citizens and others	City activities and inclusion of NGOs Activities for mobilities plans for neighbourhoods
5	New areas for non-motorized traffic (pedestrian and bicycling areas)	Continues	Stimulate walking and cycling with new attractive areas with limited access for vehicles.	Personal habits of citizens and others Use of space and public spaces	City decree Sustainable mobility plans for neighbourhoods
6	Higher frequency of buses and inclusion of train transport in city traffic	2027	Increase the number of passengers using public transport for 30%.	Transport infrastructure and financial resources Competences and responsibilities on city and national levels and between companies	Business plan City decree Participation of state in next financial perspective 2021-2027
7	New cycling routes and connections	2021	Increase number of bicycle users with new infrastructure, better connections, other soft measures (Bicikelj) for 30 %.	Personal habits of citizens Weather	SUMP BAU
8	E-mobility	2023	Electromobility is left to the market.	High prizes Not enough charging stations	E urban document
9	Safe cycling and walking in the city	2027	Better safety with no dead pedestrians and cyclists within the ring road.	Awareness with the other traffic users (car drivers, others) No enough cycling routes and some dangerous points	SUMP
10	Green transport park for public transport LPP	2025	Increase of zero emission from transport park (half fulfils standard EURO VI until 2025) and better air quality.	High costs	City budget

5.2.4 City tour

As a separate activity there was a guided tour with bicycles lead by vice mayor prof. Koželj and was devoted to sight-seeing of some achievements in bicycling management implementation and planning for improvement of situation in Ljubljana (Figure 10). The tour included the overview of streets reconstruction activities, construction of new pathways for bicycles, planning and constructions for improved infrastructure and traffic signs. The participants were informed about the approach and criteria for several decision taken.



Figure 10: The guided tour in Ljubljana for development of vision

5.3 Conclusions for Ljubljana

The Stakeholder Dialogues Workshop (SDW) in Ljubljana took place on 18th of April 2019 on the premises of Ljubljana municipality City Hall. The workshop was attended by 26 participants from different institutions and non-governmental sectors with the aim to discuss the possibilities for improvement of air quality in the city and to decrease the health impacts for future.

The SDW was divided in several parts, first covering the ongoing projects relevant for the city and presenting some of the recent national and international projects. The second part was devoted to moderated discussions between the representative of the municipality bodies and participants. Third part was focused on the interactive workshop in which participants discussed the policy measures and ambitions which would be in a short, medium and long term implemented in the city. The policy measures were discussed in relation to the public transport, walking and cycling and car use, the policies were evaluated based on the ambition of participants to achieve. Also, the interdependences of measures were taken into account by understanding of the impacts which the implementation of measures can bring and economics behind. The event finished with the guided cycling tour in which the vice mayor of Ljubljana presented some of the challenges and solutions for improvement of cycling in Ljubljana.

The SDW provides a good tool for discussion the possible vision, strategies and measures for improvement of air quality in the city. Therefore, it is advised to be used also on regular basis by the city authority.

5.4 Agenda of Ljubljana SDW



Mestna občina
Ljubljana



PROGRAM DOGODKA V OKVIRU AKCIJE ZA LEPSHO LJUBLJANO 2019

»SKUPAJ Z VAMI ZA ŠE ČISTEJŠI ZRAK V LJUBLJANI«

Četrtek, 18. april 2019, 10.00–14.00

<i>Lokacija: pred Mestno hišo, Mestni trg 1</i>		
10.00–14.00	Brezplačen mobilni servis koles <i>Predstavitve mobilnega servisa, brezplačni pregledi koles, brezplačna manjša popravila in svetovanje</i>	Pravi kolesar, Klemen Mavec s.p.
<i>Lokacija: Mestna hiša, Velika sejna dvorana</i>		
09.45–10.00	Registracija udeležencev dogodka	
10.00–11.00	Predstavitve projektov in ukrepov za boljšo kakovost zraka v Ljubljani 10.00–10.10 <i>Pozdrav udeležencev in uvod</i> 10.10–10.20 <i>Kakovost zraka v Ljubljani</i> 10.20–10.30 <i>Razvoj kolesarjenja v Ljubljani</i> 10.30–10.40 <i>Evropski projekt ClairCity – za boljši zrak lahko prispeva vsak</i> 10.40–10.50 <i>Evropski projekt URBforDAN – upravljanje in raba urbanih gozdov kot naravne dediščine v podonavskih mestih</i> 10.50–11.00 <i>Evropski projekt za boljšo kakovost zraka Icarus</i>	Moderira: Vita Kontić Nataša Jazbinšek Seršen, vodja Oddelka za varstvo okolja MU MOL Matic Sopotnik, Oddelek za gospodarske dejavnosti in promet MU MOL Dr. Sabina Popit, Služba za razvojne projekte in investicije MU MOL Jurij Kobe, Oddelek za gospodarske dejavnosti in promet MU MOL Dr. David Kocman, Institut Jožef Stefan
11.00–11.20	Vodena razprava o ukrepih za boljšo kakovost zraka v Ljubljani med govorniki in udeleženci dogodka	Moderira: dr. Sabina Popit, Služba za razvojne projekte in investicije MU MOL





Mestna občina
Ljubljana



Lokacija: Mestna hiša, Klub 11		
11.20–11.30	Odmor ob prigrizkih in napitkih	
11.30–12.30	Delavnice v skupinah z zainteresiranimi javnostmi in posamezniki – iskanje rešitev za boljšo kakovost zraka v Ljubljani	Moderira: dr. Sabina Popit, Služba za razvojne projekte in investicije MU MOL
Lokacija: zbor kolesarjev pred Mestno hišo, Mestni trg 1		
12.45–14.00	Kolesarjenje po Ljubljani <i>Ogled nekaterih dosežkov na področju kolesarjenja in načrtovanih projektov za izboljšanje razmer za kolesarje v Ljubljani</i> Predvidena trasa ogleda: Mestni trg–Krekov trg (<i>prenova Poljanske ceste</i>)–Streliška cesta–Roška cesta–Karlovska cesta–vstopna točka Golovec (<i>Rakovnik, predstavitev URBforDAN</i>)–Obdolenjski železnici (<i>nova kolesarska steza</i>)–Orlova ulica–Ižanska cesta–Špica–Prule–Grudnovo nabrežje–Hradeckega most–Krakovski nasip (<i>kolesarski žep</i>)–Breg (<i>nove table Kolesarji, pešci imajo prednost</i>)–Zoisova–Slovenska (<i>skulptura Bicikelj</i>)–Gospodsvetska (<i>prenova</i>)–Celovška (<i>Kolopark Šiška</i>)–Drenikova (<i>prenova Drenikove ulice in Vodnikove ceste</i>)–Samova–Dunajska (<i>napoved prenove</i>)–Slovenska (<i>prenova pri Bavarskem dvoru</i>)–Dalmatinova (<i>prenova</i>)–Miklošičeva–Prešernov trg (<i>prenova Trubarjeve</i>)–Mestni trg	Vodi: prof. Janez Koželj

Opombe:

V primeru zelo slabega vremena bomo verjetno posamezne dele dogodka prilagodili ali odpovedali, o čemer bomo sproti obveščali na spletnem mestu www.ljubljana.si.

Za sodelovanje pri kolesarskem ogledu Ljubljane potrebujete kolo, ki si ga zagotovite sami.

Udeležba na dogodku je brezplačna, zaželeno pa so prijave na naslov vita.kontic@ljubljana.si do srede, 17. aprila 2019.

5.5 List of Ljubljana SDW participants



Mestna občina
Ljubljana

»SKUPAJ Z VAMI ZA ŠE ČI
LJUBLJANI

Clair City: Stakeholders di

Mestna hiša, 18.04.

No	Name	Organization
1	J. STARINA	MESTNI SVET
2	ŽIVA LOKAVEC	Dnevnik
3	TIJASATEKAVIČI	MOL
4	Katarina JAZEMNICEK SEZHEN	MOL
5	BARBARA CUMNIK	Radio Slovenija
6	DAVID KOČIČ	IJS
7	MIRO KONTIČ	IJS
8	JUREN KODIČ	MOL
9	LUKA GABRŠEK	LKM
10	Vladimir Andrejcu	ČS RUDNIK
11	Katarina Šinkovec	ČS Rudnik, Razgibajmo
12	JASA JENULIČ	TRETA ROKA
13	Vladimir Gajšek	WORD-PRESS
14	Aleš Stropar	Dol
15	LEA RIČKO RUVIČ	LKM
16	LIDIJA KONČIČ	MOL
17	JAKA A. VOJNČIČ	TRETA ROKA
18	DANI KODIČ	TRETA ROKA
19	MIRKO JUČIČ	#LJNOVI38

20	Jurij.bavcar@gmail.com	LKM
21	MARJA BOVKON	MOL
22	LUKA ŠOŠOL	MOL
23	TEA STUČAR	CRK
24	STEFAN GREGORČIČ	LKM
25	TANJA GERŠAK	MOL
26	MARJETA CUMNIK	MOL
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Ta projekt je financiran v okviru pr
inovacijskega programa Evropske u

5.6 SDW Policy Box for Ljubljana

Green transport park for public transport LPP	Buses in Ljubljana without emissions until 2027. Purchase of buses: cofunding grants 11.000.000 EUR, 2.750.000 EUR from MOL resources. 				Half of transport park fulfils standard EURO VI until 2025	58 new buses until 2021 (EURO VI)	Low-emission transport park until 2027
Higher frequency of buses and inclusion of train transport in city traffic	Purchase of higher number of smaller buses, reconstruction of train stations and increase of frequency of train public traffic. 				Increase of public transport for 10% until 2027	Increase of public transport for 30% until 2027	Increase of public transport for 100% until 2027
Cheaper public transport	In 2019 subvention in the value of 10.270.000 EUR (compensation for transport km), displays 130.000 EUR, purchase of new buses - 2.750.000 EUR from MOL budget (cofunding at ECO fund). 				Public transport is 50% more expensive to finance and co-finance of other sustainable transport solutions in the city.	The prices of public transport will remain the same by 2030.	Public transport is 50% cheaper for all.
New areas for non-motorized traffic (pedestrian and bicycling areas)	100.000 m ² Do you remember how it was? 				Maintaining the current range of pedestrian areas.	Designing new areas with limited access for vehicles.	Designing new areas with limited access for vehicles and straighten requirements for access to existing areas. Safe and pleasant walking on the whole MOL level - eg. introduction of a common transport space in each comune and in neighborhood.
New cycling routes and connections	2019: Cycling infrastructure – CTN – MOL participation (ESRR) 635.224 EUR, CTN – state budget (ESRR) 241.406 EUR, CTN – ESRR 957.619 EUR, CTN – MOL participation (KS) 773.392 EUR. 				New and modified cycling routes - 10% by 2021.	New and modified cycling routes - 30% by 2021.	New and renovated cycling routes - 50% by 2021.
Safe cycling and walking in the city	In 2010 there were 4 dead cyclists or pedestrians, in 2015 there were 7. 				Without increasing the number of dead and injured pedestrians and cyclists until 2027 within the ring road.	0 dead pedestrians and cyclists (target of 2027) within the ring road.	0 dead or heavily damaged pedestrians and cyclists until 2027 within the ring road.
Independence from the car	Development of mobility plan for neighborhoods without cars. 				Car sharing is left to the market.	Mobility plans for neighborhoods until 2027.	Incentives and subsidies for car-free neighborhoods by 2027.
E-mobility	Incentives of ECO fund for purchase and transformation of cars, new networks for car charging. 				Electromobility is left to the market.	47 new charging stations per year.	Each neighborhood has a mobility plan and shared ownership of e-vehicles by 2050.
Change of parking norms	Parking norms are defined 1 parking space for new apartment. 				Parking norms remain the same (after OPN MOL 1: 1).	Parking norms (after OPN MOL) are reduced to 0.5 by 2027.	Parking norms (after OPN MOL) are reduced to 0.5 by 2020.
Regional public passenger transport	Capacities of public transport in LUR in morning 18.000, number of daily migrations 120.000. 				Expansion of motorway and AC ring.	Without AC expansion and building P + R in the region.	Implementation of the Railhub solution by 2027.

6 Aveiro SDW

6.1 SDW Activities

6.1.1 Participants

	Gender	Age	Recruiting process
1	Male	60+	Direct email and formal invitation
2	Female	40-49	
3	Female	40-49	
4	Female	40-49	
5	Male	40-49	
6	Male	40-49	
7	Male	60+	
8	Female	50-59	
9	Female	50-59	
10	Male	18-29	
11	Female	50-59	
12	Female	50-59	

We had 15 participants registered, but 3 did not attend the workshop and 2, as referred in the comments, had to leave after activity 1.

6.1.2 Agenda

The Aveiro SDW was held on 24 May 2019 at CIRA, Intermunicipal Community of Aveiro Region. The workshop represented the whole region of Aveiro.

Agenda

14:15 Arrival and sign in

14:30 Start

14:30 Welcome and Introduction (Myriam Lopes)

14:40 Plenary session

Myriam Lopes (UA) – “Air quality and Climate in the Aveiro Region”

José Eduardo de Matos (CIRA) – “Status and Challenges in the Aveiro Region”

Questions and Answers

15:00 Working Activity I – Choosing ambition levels of policy measures

15:50 Working Activity I – Feedbacks

16:00 Coffee break

16:15 Working Activity II – Timeline, enablers, constraints and actions

17:15 Feedback from groups and discussion

17:25 Conclusions/ closing words

17:30 End

6.1.3 Activity 1 Choosing ambition levels of policy measures

The Policy measures presented to the workshop participants and their ambition levels are presented below.

	Measure	Low ambition	Medium ambition (current policy)	High ambition	Basis of current policy
1	Build segregated urban cycle lanes and create secure cycle storage/parking	75 km of new urban cycle lanes and 100 number of new cycle parking spaces by 2025	150 km of new urban cycle lanes and 100 number of new cycle parking spaces by 2025	300 km of new urban cycle lanes and 200 number of new cycle parking spaces by 2035	Based on CIRA planned mobility strategy and information provided by municipalities
2	Create school and workplace travel plans to increase uptake of active travel and public transport	25% modal shift from private cars to active travel and public transport by 2030	50% modal shift from private cars to active travel and public transport by 2030	50% modal shift from private cars to active travel and public transport by 2025	Based on CIRA planned mobility strategy
3	Reallocate road space to pedestrians and improve safety	25 km of new/renewed pedestrian routes by 2025	50 km of new/renewed pedestrian routes by 2025	100 km of new/renewed pedestrian routes by 2025	Based on information provided by municipalities
4	Ban diesel cars/HGVs in urban centres	10% ban on diesel cars and 25% HGVs in urban centres by 2025	25% ban on diesel cars and 50% HGVs in urban centres by 2025	100% ban on diesel cars and HGVs in urban centres by 2030	Based on information provided by municipalities
5	Allow free parking for electric vehicles only	Switch 25% parking spaces into free parking for EVs only by 2035	Switch 50% parking spaces into free parking for EVs only by 2035	Switch 100% parking spaces into free parking for EVs only by 2035	Based on national policies
6	Promote working from home	5% commuters work from home 1 day a week by 2030	10% commuters work from home 1 day a week by 2030	20% commuters work from home 1 day a week by 2030	Based on information from citizens behaviours and opinions
7	Impose stricter regulation on polluting industries	Reduce industrial emissions by 15% by 2030	Reduce industrial emissions by 30% by 2030	Reduce industrial emissions by 45% by 2030	Based on national policies
8	Encourage replacement of older public transport fleet	Replace 15% public transport fleet with zero-emission vehicles by 2030	Replace 30% public transport fleet with zero-emission vehicles by 2030	Replace 60% public transport fleet with zero-emission vehicles by 2030	Based on CIRA planned mobility strategy
9	Subsidise public transport tickets	Public transport fares reduced by 25% by 2025	Public transport fares reduced by 50% by 2021	Public transport fares reduced by 75% by 2025	Based on CIRA planned mobility strategy
10	Increase provision and reliability of public transport services	50% public transport journeys on schedule with all urban areas catered for by 2025	75% public transport journeys on schedule with all urban areas catered for by 2025	100% public transport journeys on schedule with all urban areas catered for by 2025	Based on CIRA planned mobility strategy

The following sections set out the results from each of the tables for Activity 1.

Table 1

	Measure	Chosen measure	Level of ambition (Low, Medium, High)	Notes by measure	General Notes on the activity
1	Build segregated urban cycle lanes and create secure cycle storage/parking	300 km of new urban cycle lanes and 200 number of new cycle parking spaces by 2035	high	According to current policies and incentives the low ambition is too low and so it was immediately excluded	<p>Opportunity to raise awareness among politicians. First of all we are pedestrians - mobility for all, from the child to the oldest, including people with mobility difficulties.</p> <p>All participants agreed that all measures should go to the "high" ambition and then be distributed at the other levels of ambition, following the constraints of the activity.</p>
2	Create school and workplace travel plans to increase uptake of active travel and public transport	50% modal shift from private cars to active travel and public transport by 2025	high	For this the municipalities must think at the intermunicipal level; make public space more attractive in landscape terms is needed	
3	Reallocate road space to pedestrians and improve safety	100 km of new/renewed pedestrian routes by 2025	high	It was easy to decide for high ambition. The existing ones need a lot of improvements and the safety of the pedestrian always comes first	
4	Ban diesel cars/HGVs in urban centres	25% ban on diesel cars and 50% HGVs in urban centres by 2025	medium	Low ambition is too low; High ambition is too high (it is impossible to ban 100%); Average ambition not to penalize the economy and small traders; The measure should be divided (one measure for diesel cars and another for HGVs)	
5	Allow free parking for electric vehicles only	Switch 25% parking spaces into free parking for EVs only by 2035	low	Many of the car parks do not belong to the municipality but to private companies, which can make it difficult to implement the measure; Do not create more car parks in urban centers.	
6	Promote working from home	10% commuters work from home 1 day a week by 2030	medium	it is important to be present at the workplace. sometimes the people with whom we need to work are not familiar with the new	

				technologies needed to work from home	
7	Impose stricter regulation on polluting industries	Reduce industrial emissions by 45% by 2030	high	Legislation with high parameters already exists, but unauthorized discharges still occur. It is necessary to increase the inspection and application of fines.	
8	Encourage replacement of older public transport fleet	Replace 15% public transport fleet with zero-emission vehicles by 2030	low	Measure difficult to implement.	
9	Subsidise public transport tickets	Public transport fares reduced by 75% by 2025	high	Very important measure to increase the number of public transport users. But it is also necessary to create a single ticket that can be used in all transport companies	
10	Increase provision and reliability of public transport services	100% public transport journeys on schedule with all urban areas catered for by 2025	high	For this measure the high ambition was chosen, based on european examples	

Table 2

	Measure	Chosen measure	Level of ambition (Low, Medium, High)	Notes by measure	General Notes on the activity
1	Build segregated urban cycle lanes and create secure cycle storage/parking	150 km of new urban cycle lanes and 100 number of new cycle parking spaces by 2025	Medium	There was no consensus about the measure. One of the participants selected the low ambition level, while another participant selected the high ambition level. At the end, all the participants agreed to democratically select the medium ambition level. Participants started to present their individual opinions about the measure; Following one participant's opinion the measure focus only on a small part of users, since we have now a	Group of 5 people registered, but only 4 attended the workshop. One of the attendees left after the activity 1, thus only 3 participants contributed for the discussion of activity 2.

				<p>current rate of usage of 4% of the already available cycle lanes, independently of the purpose (cycle lanes for leisure versus urban cycle lanes), this measure will not be the solution for the overall problems of the Region, which have a strong development delay when compared with other regions. We should find/ quantify the purpose behind the mobility patterns to act with specific solutions for the mobility problems. The University of Aveiro plans to build an urban cycle lane connecting the train station to the University Campus, however, at the same time, the institution does not discourage the use of private cars, to reduce the 2000 individual cars that park in and around the campus each day. Therefore, build cycle lanes before deeply thinking about the whole problem is wrong. The cycling NGO explained the numbers, stating that 4% of usage rate refers to primary transport, and not 4% for leisure purposes. It was also mentioned that young people have much more individual cars nowadays, than two or three decades ago, thus cycle lanes may reduce the use of private car, reducing exposure to pollutants. The cycle lanes may also promote the individual health. In addition, it was said that the school programs do not promote the use of the bicycle.</p>	
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2	Create school and workplace travel plans to increase uptake of active travel and public transport	50% modal shift from private cars to active travel and public transport by 2025	High	There was consensus.	
3	Reallocate road space to pedestrians and improve safety	100 km of new/renewed pedestrian routes by 2025	High	There was a consensus to select the ambition level.	
4	Ban diesel cars/HGVs in urban centres	10% ban on diesel cars and 25% HGVs in urban centres by 2025	Low	The new cars today, in 10 years will still be good quality cars, thus it will be hard to change behaviours. It was quite consensual.	
5	Allow free parking for electric vehicles only	Switch 100% parking spaces into free parking for EVs only by 2035	High	There was no consensus to select this ambition level.	
6	Promote working from home	5% commuters work from home 1 day a week by 2030	Low	There was a consensus to select the ambition level.	
7	Impose stricter regulation on polluting industries	Reduce industrial emissions by 30% by 2030	Medium	There was a consensus to select the ambition level.	
8	Encourage replacement of older public transport fleet	Replace 60% public transport fleet with zero-emission vehicles by 2030	High	There was a consensus to select the ambition level.	
9	Subsidise public transport tickets	Public transport fares reduced by 50% by 2021	Medium	There was a consensus to select the ambition level.	
10	Increase provision and reliability of public transport services	100% public transport journeys on schedule and most areas catered for by 2025	High	There was a consensus to select the ambition level.	

Table 3

	Measure	Chosen measure	Level of ambition (Low, Medium, High)	Notes by measure	General Notes on the activity
1	Build segregated urban cycle lanes and create secure cycle storage/parking	150 km of new urban cycle lanes and 100 number of new	medium	The number of kms is not proportional to ambition, because 5 km could be very ambitious if there is	Group of 5 people, but one member registered but did not

		cycle parking spaces by 2025		traffic, and thus the ambition level should be low or medium, never high. In the end they decided for the medium	come, so they were 4.
2	Create school and workplace travel plans to increase uptake of active travel and public transport	50% modal shift from private cars to active travel and public transport by 2025	high	Easy to decide for a high ambition	
3	Reallocate road space to pedestrians and improve safety	50 km of new/renewed pedestrian routes by 2025	medium	the same difficulties of the cycling lanes measure, decided for medium	
4	Ban diesel cars/HGVs in urban centres	100% ban on diesel cars and HGVs in urban centres by 2030	high	Easy to decide for a high ambition	
5	Allow free parking for electric vehicles only	Switch 25% parking spaces into free parking for EVs only by 2035	low	high is too much, very controversial, difficult to decide. In the end decided for low.	
6	Promote working from home	10% commuters work from home 1 day a week by 2030	medium	In industries it is not possible	
7	Impose stricter regulation on polluting industries	Reduce industrial emissions by 15% by 2030	low	very difficult to implement, so quickly decided for low	
8	Encourage replacement of older public transport fleet	Replace 30% public transport fleet with zero-emission vehicles by 2030	medium	zero carbon vehicles have to be recharged, if fuel is used, we are still polluting. Decision between low and medium	
9	Subsidise public transport tickets	Public transport fares reduced by 75% by 2025	high	medium or high... Decided for high	
10	Increase provision and reliability of public transport services	100% public transport journeys on schedule with all urban areas catered for by 2025	high	easy to decide high ambition, it is really needed	

6.1.4 Activity 2: Timeline, benefits, hurdles and actions

This section sets out the results for Activity 2 from each table.

Table 1

	Measure	Year	Enablers	Constraints	Actions	Notes by measure	General notes
1	Build segregated urban cycle lanes and create secure cycle storage/parking	2035	Funding like "Portugal 2020"; Increase awareness of the public health benefit; Existence of bicycle sharing projects.	Funding; No integrated regional network.	Development of cycling mobility plans to ensure continuity systems and link between key locations	There are streets/roads which have enough space that allow the definition of structuring spaces (sidewalks, cycle lanes, traffic lanes, trees, ...).	Give priority to bicycles in traffic (create zones 30); Drawing up a mobility plan to integrate all measures; Raising public awareness, although this is already increasing.
2	Create school and workplace travel plans to increase uptake of active travel and public transport	2025	landscape value of some routes; weather conditions; Equity value	Culture of the user; Waiting time, frequency, comfort and route of public transport; Degradation of public space; No continuity of the public space (sidewalks, bicycle lanes, ...); Poor lighting of walkways; Inadequate and abusive parking on walkways and sidewalks.	Improvement of bicycle lanes and sidewalks; Development of mobility plans; Create incentives for soft mobility (bicycles); Implementation of 30-zones		
3	Reallocate road space to pedestrians and improve safety	2025	flat ground; Existence of good channels / structures / spaces in some areas; European funding.	Roud width; User culture; Construction works.	Reassess spaces (roads, streets, ...); Measures to reduce traffic.	There is space but needs to be rearranged ... less space for cars and more for sidewalks.	
4	Ban diesel cars/HGVs in urban centres	2025	Existence of circular roads, external to urban centers; Existence of local	Lobbies; Resistance to organizational change.	Coordination of common transport system of goods; Existence of parking lots outside the city	There are other measures to reduce traffic	

			markets and products.		served by public transport; Create common structures for distribution of goods	
5	Allow free parking for electric vehicles only	2035	Existence of parking with available spaces.	Cost of vehicles.	Increase the number of charging points; Establish protocols for the use of private parking spaces that are available.	
6	Promote working from home	2030	Information and Communication Technologies.	Lack of conditions for its effective application (equipment, costs, ...); Training	Provide the structures / institutions with qualified physical and human resources.	
7	Impose stricter regulation on polluting industries	2030	Existing legislation.	Non-compliance with legislation (company pay fine)	Inspection; Monitoring; Awareness	
8	Encourage replacement of older public transport fleet	2030	End-of-life fleet; Existing financial incentives.	Cost of investment.	Increase incentives.	
9	Subsidise public transport tickets	2025	Existence of a Regional Transport Authority; Good practices (other cities).	Funding; Inexistence of a strategic mobility plan.	Introduction of measures (municipal taxes or fees); Protocols / cooperation between central and local entities.	Sometimes there is no knowledge of the bus routes and the information on the websites is outdated;
10	Increase provision and reliability of public transport services	2025	Existence of networks of operators.	Activity that only aims at the profit; No single pass.	Articulation between operators and municipalities; Strategic mobility plan; Mobile Application development.	

Table 2

	Measure	Year	Enablers	Constraints	Actions	Notes by measure	General notes
1	Build segregated urban cycle lanes and create secure cycle storage/parking	2025	- to promote bicycle use as transportation mode; - this measure is in-line with the Portuguese national strategy for active travel 2020 (although, the region time-window is 2050); - cycling is a much more equitable transportation mode; - CIRA topography is mostly flat-terrain, which can enable cycling; - this measure may support the growth of local industries of the Region, of which the final product are bikes and bike accessories; - the measure may create/ promote the development of innovative products for inclusive bicycles, making cycling accessible to all.	- the proposed length/ kms may be insufficient to establish an useful network for the entire Region; - This measure requires complementary/ additional measures; - The parking spaces are not enough.	- financial support: european funds or central government; - NGO's and general population should participate in the decision about the location of the parking spaces, as well as the location and configuration of the cycle lanes; - the municipalities have a primordial role for the successful implementation of this measure.		No single measure may be separately implemented. To be successfully implemented most of the measures should be implemented together.
2	Create school and workplace travel plans to increase uptake of active travel and public transport	2025	- improvement of the quality of public transportation services, which needs to satisfy the user expectations and needs; - increase of usage/ profitability.	- there is still a need for individual behaviour shift; - the lack of services offer for user needs & expectations.	- citizens need to change their behaviour (user side); - CIRA and municipalites (service provider side).		
3	Reallocate road space to pedestrians and improve safety	2025	- it contributes to promote pedestrian mobility; - citizens should prioritize this mobility mode.	- high cost; - it requires a transfer of public space, for instance from road space to pedestrian lanes; - it requires complementary measures, such as clearly banning the	- municipalities; - legal instruments owned by municipalities should be adapted to include this measure.		

				illegal car parking over the pedestrian lanes; - it requires agreement between all the institutions and private companies using the pedestrian lanes for urban equipment installation (e.g. energy, water and communications providers).			
4	Ban diesel cars/HGVs in urban centres		- Search for compatible solutions between the two proposed (ban on the circulation of diesel cars and heavy goods vehicles); - Improvement of the quality of life in urban space	Financial availability (individuals and organizations); - Individual behaviour (there is still a need for individual behavior shift); Plans that enable new solutions: (acquisition of vehicles, definition of access schedules, alternatives of distribution of goods and services); - Compatible public transport;	CIRA / Municipalities (Inspection and implementation)		
5	Allow free parking for electric vehicles only		- Incentive to the acquisition of electric vehicles; - Reduction of emissions; - Noise Reduction; Search of measures to sign the circulation of electric vehicles, without high impacts for the population	- Disincentive to the rotation of parking lots; - Promote the continuous occupation of vast areas of urban public space by cars; - Increased risks associated with traffic safety (low noise);	Implementation and Supervision by Municipalities		
6	Promote working from home		- Reduction of commuting and emission of pollutants	- Companies may not join/ weak support by companies; - Possible increase in inefficiency due to non personal presence	Implementation by companies. they should be adapted to include this measure		
7	Impose stricter regulation on polluting industries		- Pollution Reduction; - Development of new technologies; - Incentive to the Circular Economy; -	- Need for funding; - lack of Individual responsibility in detriment of attributing responsibility to industry; -	- inspection by the competent authorities through active monitoring		

			Demonstrate the real costs of producing products; - Creation of new products, new markets with reduced emissions related with production process	Cuts off the consumer-payer principle and turns the producer-payer exclusive			
8	Encourage replacement of older public transport fleet		European and national policies adapted; - Sustainable management of transport networks; - Develop individual awareness; - Encourage the market to improve transport supply; - Increase territorial coverage of transport; - Cut off urban pollution / traffic with high impact	- If there is a high usage of electric vehicles, the measure has high impact; - Lack of regulation	- national strategy from the central government; - CIRA; - municipalities.		
9	Subsidise public transport tickets	2021	- the financial support is already promoted by the central government; - expansion of the public transport network coverage, as an answer to the increasing usage, leading to greater territorial cohesion.	- the measure may create/ promote population inequalities.	- national strategy from the central government; - CIRA; - municipalities.		
10	Increase provision and reliability of public transport services	2025	- level of confidence of public transport users will allow to increase the reliability of the service; - territorial cohesion; - use/ development of diversified and combined solutions for mobility (flexible solutions and on request).	- disperse settlements; - population/ land-use model/planning; - financial investments for implementation and maintenance; -management of the overall system - how and who?	- national strategy from the central government; - CIRA; - municipalities.		

Table 3

	Measure	Year	Enablers	Constraints	Actions	Notes by measure	General notes
1	Build segregated urban cycle lanes and create secure cycle storage/parking	2025	need of change felt by the citizens	network structure; conflict of uses (in the same road there cars, buses, mopeds, bikes...)	select an efficient network; define key routes and schedules for home-school and home-work routes, Built by municipality (local authority)	It was proposed to have specific hours of the day and specific routes where only bikes could pass.	One member of the group had to leave after Act 1, another member left in the middle of Act 2; Measures 2 and 9 were considered to be related and thus with common enablers and actions
2	Create school and workplace travel plans to increase uptake of active travel and public transport	2025	awareness to the use of public transport with flexibility and positive impact in the quality of life of citizens (less delays, stress, ...)	culture of private car use; self indulgence; network structure built for the use of private transport	planning of intermodality, ex. between light transport and public transport	It is possible to take a bike in the interurban trains but not in the urban buses, that could be useful, specially for children, to go to school.	
3	Reallocate road space to pedestrians and improve safety	2025	need felt by the citizens	associated costs; road profile and alignment of buildings	planning of one-way routes; classify the sidewalks according to their use (green, yellow, red)	It was discussed that there are very narrow sidewalks but they are not very used, however, the ones that are more used, even for walking with baggage/trolleys, are not wide enough.	
4	Ban diesel cars/HGVs in urban centres	2030	European legislation	Replacement cost	Funding/ support this replacement; Centers of redistribution in the urban centers		
5	Allow free parking for electric vehicles only	2035	Awareness-raising and existing measures that already induce less parking in city centres	reduction of income	Associate a supply of a charging system for car parks	This measure created some discussion, in general it was considered difficult to implement. Difficult to estimate how many places to consider for electric vehicles and how to control their	

						entrance in the parking and their identification
6	Promote working from home	2030	Legislation; commuting costs; the "Flexisafety" of the work!	Lack of autonomy in assuming and managing responsibilities	Awareness; Valuation of other dimensions beyond work: -Family; - free time (leisure, sport, culture)	In general it was considered to be easy to implement
7	Impose stricter regulation on polluting industries	2030	Strict measures / existing legislation imprints a culture of concrete responses	Technological limitations - requires a change / replacement of processes	Legislation / incentives	The legislation is already strict. There is a lack of inspection. It is difficult for industries to invest even more.
8	Encourage replacement of older public transport fleet	2030	end-of-life of public transport fleet!; Typology of supply (dimension) that justifies a change	Maturity level of the technology	Incentive mechanisms provided by central government	Replace the fleet not only in terms of technology but also considering the size/capacity of vehicles according to needs - use mini buses in some less used routes
9	Subsidise public transport tickets	2025	awareness to the use of public transport with flexibility and positive impact in the quality of life of citizens (less delays, stress, ...)	inflexibility of public transport offers at the level of routes and schedules	planning of intermobility, ex. between light transport and public transport	enablers and actions common between measures 9 and 2
10	Increase provision and reliability of public transport services	2025	Mobile applications to monitor the transports network	costs	planning more effective routes to optimize supply versus demand; use of new technologies with the possibility of dynamic routes	

6.2 Results

6.2.1 Activity 1

	Measure	# times ambition level was scored			Proposed scenario LOW	Proposed scenario HIGH	Proposed scenario LOW	Proposed scenario HIGH
		L	M	H				
1	Build segregated urban cycle lanes and create secure cycle storage/parking		2	1	Medium	High	150 km of new urban cycle lanes and 100 number of new cycle parking spaces by 2025	300 km of new urban cycle lanes and 200 number of new cycle parking spaces by 2035
2	Create school and workplace travel plans to increase uptake of active travel and public transport			3	High	High	50% modal shift from private cars to active travel and public transport by 2025	50% modal shift from private cars to active travel and public transport by 2025
3	Reallocate road space to pedestrians and improve safety		1	2	Medium	High	50 km of new/renewed pedestrian routes by 2025	100 km of new/renewed pedestrian routes by 2025
4	Ban diesel cars/HGVs in urban centres	1	1	1	Low	High	10% ban on diesel cars and 25% HGVs in urban centres by 2025	100% ban on diesel cars and HGVs in urban centres by 2030
5	Allow free parking for electric vehicles only	2		1	Low	High	Switch 25% parking spaces into free parking for EVs only by 2035	Switch 100% parking spaces into free parking for EVs only by 2035
6	Promote working from home	1	2		Low	Medium	5% commuters work from home 1 day a week by 2030	10% commuters work from home 1 day a week by 2030
7	Impose stricter regulation on polluting industries	1	1	1	Low	High	Reduce industrial emissions by 15% by 2030	Reduce industrial emissions by 45% by 2030
8	Encourage replacement of older public transport fleet	1	1	1	Low	High	Replace 15% public transport fleet with zero-emission vehicles by 2030	Replace 60% public transport fleet with zero-emission vehicles by 2030
9	Subsidise public transport tickets		1	2	Medium	High	Public transport fares reduced by 50% by 2021	Public transport fares reduced by 75% by 2025
10	Increase provision and reliability of public transport services			3	High	High	100% public transport journeys on schedule with all urban areas catered for by 2025	100% public transport journeys on schedule with all urban areas catered for by 2025

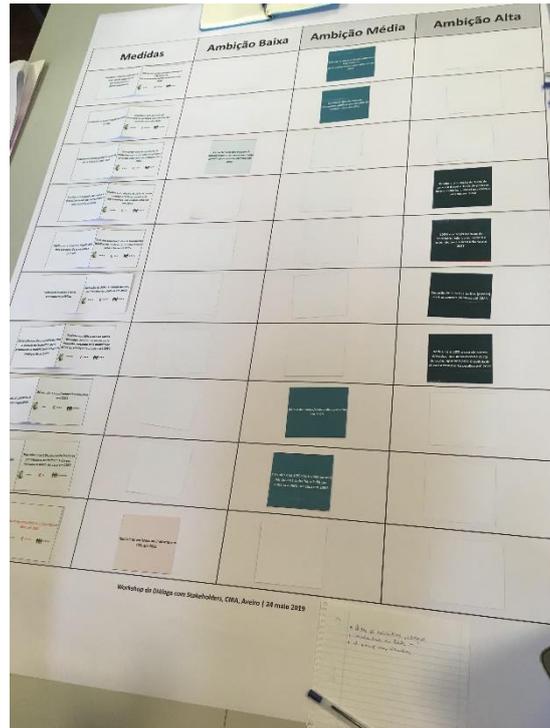
6.2.2 Proposed scenario

	Measure	Proposed scenario LOW	Proposed scenario HIGH	Proposed scenario LOW	Proposed scenario LOW
1	Build segregated urban cycle lanes and create secure cycle storage/parking	Medium	High	150 km of new urban cycle lanes and 100 number of new cycle parking spaces by 2025	300 km of new urban cycle lanes and 200 number of new cycle parking spaces by 2035
2	Create school and workplace travel plans to increase uptake of active travel and public transport	High	High	50% modal shift from private cars to active travel and public transport by 2025	50% modal shift from private cars to active travel and public transport by 2025
3	Reallocate road space to pedestrians and improve safety	Medium	High	50 km of new/renewed pedestrian routes by 2025	100 km of new/renewed pedestrian routes by 2025
4	Ban diesel cars/HGVs in urban centres	Low	High	10% ban on diesel cars and 25% HGVs in urban centres by 2025	100% ban on diesel cars and HGVs in urban centres by 2030
5	Allow free parking for electric vehicles only	Low	High	Switch 25% parking spaces into free parking for EVs only by 2035	Switch 100% parking spaces into free parking for EVs only by 2035
6	Promote working from home	Low	Medium	5% commuters work from home 1 day a week by 2030	10% commuters work from home 1 day a week by 2030
7	Impose stricter regulation on polluting industries	Low	High	Reduce industrial emissions by 15% by 2030	Reduce industrial emissions by 45% by 2030
8	Encourage replacement of older public transport fleet	Low	High	Replace 15% public transport fleet with zero-emission vehicles by 2030	Replace 60% public transport fleet with zero-emission vehicles by 2030
9	Subsidise public transport tickets	Medium	High	Public transport fares reduced by 50% by 2021	Public transport fares reduced by 75% by 2025
10	Increase provision and reliability of public transport services	High	High	100% public transport journeys on schedule with all urban areas catered for by 2025	100% public transport journeys on schedule with all urban areas catered for by 2025

6.3 Reflections on the SDW process in Aveiro

In general, the SDW in CIRA was done in the same way as in Amsterdam. Only 2 slight differences:

- 2 days before the SDW, participants received the final agenda together with the list of 10 measures that were going to be worked in the workshop.
- For Activity 1 we had the measures' cards one-sided, in this way participants could read the measure and current policy while they were discussing the ambition levels, as in the picture below.



6.3.1 Experiences obtained in running the SDW and suggestions of how to do this better.

Participants suggested to include information on current situation and on the trends in the region for each measure, and not only the current policy. For example, for the measure of cycle lanes, they would like to know how many kms of cycle lanes already exist, or for the public transport measures, how many routes are there, how many electric vehicles, how many parks with charging systems. However, this information is not always available because the responsible entities have changed and do not have historical records or are not happy to share it.

7 Liguria SDW

7.1 Introduction

The Stakeholder Dialogue Workshop (SDW) was organized in Genoa on the 27th of May 2019 as part of WP4 - Citizens and Stakeholder Engagement, Task 4.1: Citizen Delphi Engagement. The workshop represented the whole region of Liguria.

The aim of the SDW was to synthesize the evidence streams from the ClairCity process such as the Delphi, Mutual Learning Workshop and Game together with Baseline policy report (WP6) to allow city stakeholders to generate the potential future scenarios for a low carbon, clean air pathways in the short-medium and long term to 2050. The event was organised by Liguria Region with the support of the City buddy.

7.1.1 Agenda

The SDW was performed according to the agenda, given in Annex 1, and included two parts.

In the first part there were a general presentation of the ClairCity project, describing the activities carried out until now, the following steps of the projects and the explanation of the scope of the project. The second part of the SDW included a discussion among the participants of the event on the measures for better air quality in Genoa, in order to identify solutions for better air quality and possible scenarios for near term and longer future.

7.1.2 Participants

The SDW was attended by 14 participants (Figure 1) as in the List of participants (Annex 2). The invitation was sent to the participants with expertise in air quality and public health, low carbon and climate change adaptations, transport and energy, coming from different public organisations and from ClairCity team.



Figure 1: Participants of the SDW

In total 8 persons from Liguria Region, 2 from Genoa City Council, 1 from Genoa Metropolitan City (former Genova Province), 2 from city buddy, 1 from IRE (company of the Liguria Region that deals with infrastructures, building renovation and energy) participated in the workshop.

7.2 Presentation of the project and activities

After registration Patrizia Costi (from ClairCity team: Liguria Region) introduce the workshop describing:

- the overall objectives of the ClairCity project;
- how the SDW workshop is part of the Clair City process;
- Some results of the project activities
 - Delphi Round 1 and 2 questionnaires:
 - breakdown of the current and future modal choice of commuters in Liguria;
 - reasons why commuters in Liguria who want to change from car-only in the present to car and other modes in the future feel unable to change;
 - present and future home heating in Liguria;
 - Citizens' view on the impact that proposed policy options in Liguria would have on their lives;
 - Delphi Round 3 citizens' workshop policy measures identified as "difficult" and recommendations from their facilitation;
 - Mutual learning workshop and stakeholder interview results;
 - Strategies and actions emerged from the Clair City process to discuss in the workshop.
 - Game



Figure 2: Patrizia Costi (Region Liguria ClairCity partner) presentation

Next Carlo Trozzi (from ClairCity team – Techne Consulting), after some general description of the project, recalled the different phases of the scenario definition with the:

- Evaluation of emissions, concentrations and health impacts
 - in the «baseline» (2015)
 - in the Business as usual scenario (2035-50)
 - in the scenarios that emerged in the Stakeholder Dialogue Workshop (2035–50)
- Definition of scenarios with integration of National reference scenario based on Proposal for an integrated national energy and climate plan (PNEC) and NEC with additional local scenario measures
- Evaluation of emissions, concentrations and health impacts in the different scenarios.



Figure 3: Carlo Trozzi (Techne Consulting ClairCity partner) presentation

7.3 SDW Policy Box

Evidence generated by the Delphi, Mutual Learning Workshop process and Skylines Game was used to generate a ‘SDW Policy Box’ of citizen-led policy measures that have been identified as the key policies and/or policy areas that need to be considered in the SDW and scenarios. The ‘SDW Policy Box’ was generated by Region Liguria with the support of city buddy partner (Techne Consulting) and UWE. Details of how the ‘SDW Policy Box’ was derived are depicted in Table 1. In the Table the Low ambition column was mainly created using one of the less ambitious scenarios of the Urban Plan of Sustainable Mobility (PUMS) of the metropolitan city of Genoa while for energy a hypothesis of no modification has been used, based on a consideration that the urban structure of Genoa which makes energy saving measures very difficult. The Medium ambition mainly includes current policies as derived from the selected scenario of the Urban Plan of Sustainable Mobility (PUMS) of the metropolitan city of Genoa and national planning on railways and energy sector. The high ambition scenario includes more advanced measures and was derived from results of previous project activities (Delphi, Mutual Learning Workshop process and Skylines Game) and the discussions inside the Liguria project team.

Table 1 SDW Policy box: Low, medium and high ambition measures used in the Genoa SDW

Measure	Low ambition	Medium ambition (current policy)	High ambition	Basis of current policy	Note
Improve the local public transport service (including sharing); increase the number of metro stops, electrified lines of force on a protected site; reduce tariffs and integrate urban and extra-urban tariffs	Increase in movements in the metropolitan area, on the integrated network of Local Public Transport, from 25,41% to 30,3% by 2029	Increase in movements in the metropolitan area, on the integrated network of Local Public Transport, from 25,41% to 31,46% by 2029	Increase in movements in the metropolitan area, on the integrated network of Local Public Transport (including vehicles sharing), from 25,41% to 31,46% by 2029 and from 31.46% in 2029 to 45% by 2050	Urban Plan of Sustainable Mobility of the metropolitan city of Genoa	Percentages refer to all metropolitan area, if we take into consideration only the city percentage are higher
Improve integration of local public transport service and private transport with new interchange parking lots	No new interchange parking lots	5 new big interchange parking lots	5 new big interchange parking lots	Urban Plan of Sustainable Mobility of the metropolitan city of Genoa	
Ban on most polluting diesel and motorcycle vehicles in the city center	No limits in urban areas for diesel automobiles and light duty vehicles	Traffic limits in urban areas for diesel automobiles and light duty vehicles less than or equal to Euro 5 by 2025	Replace 50% of vehicles circulating in urban areas with electric automobiles and motorcycles by 2050	current regional action plan policy	
Incentivize / encourage the purchase of electric vehicles and the use of shared electric vehicles and increase infrastructure for loading	no EV charging station installation	500 EV charging station installed by 2029	Install an adequate number of charging stations for 50% circulating electric vehicles (including shared ones)	Urban Plan of Sustainable Mobility of the metropolitan city of Genoa	
Create new separate cycle paths and related infrastructures (safe bicycle storage / parking areas, security); adapt public transport (trains, buses / trolleybuses) to bike transport; increase the safety of pedestrian traffic	no increase in % private trips by bicycle or on foot	18 km of new cycle paths and 25 new ordinary parking lots and 15 - 20 bike sharing parking spaces for bicycles and adjustment of TPL network vehicles to transport bicycles by 2029; increase in % private trips by bicycle or on foot from 22.9% to 23.2% by 2029	increase in % private trips by bicycle or on foot from 22.9% to 23.2% by 2029 and from 23,2% by 2029 to 35% by 2050	Urban Plan of Sustainable Mobility of the metropolitan city of Genoa	Percentages refer to all metropolitan area, if we take into consideration only the city percentage are higher
infrastructure construction to transfer part of the road freight traffic to railway	no new infrastructure	30% reduction in heavy traffic at 2035 and 50% at 2050	50% reduction in heavy traffic at 2035 and 70% at 2050	Italian State Railways	
Reduction of energy consumption in the civil sector	only maintaining interventions on building	reduction of final residential consumption by 10% and consumption in the service sector by 16% in 2030	reduction of final residential consumption by 10% and consumption in the service sector by 16% in 2030	Based on national policies	

7.4 SDW Activities

For the limited number of participants, only one table was created.

7.4.1 Activity 1 *Choosing ambition levels of policy measures*

In this activity, the participants were asked to discuss the selected policies. A table tour was held where each participant expressed his general views on the proposed measures and levels of ambition.

In particular, the discussion focused on the long-term perspectives on the modes of transport and on the initiatives already undertaken both at local level (PUMS) and nationally. Furthermore, the situation regarding the Ligurian building heritage and its criticalities was recalled.

7.4.2 Activity 2

In this activity, the participants were requested to place each policy option from Activity 1 on a timeline and to determine the enablers and constraints/unintended consequences that must be considered by the city to ensure a successful policy in short/medium/long term.

Participants were asked to consider:

1. What 'enabling' policies must be implemented and when, to create an enabling chain of actions for each policy ambition to be achieved?
2. What key 'constraints or unintended consequences' must be considered when considering each policy?
3. Actions to overcome constraints (and if possible, *who* should do this).

Each policy can generate more than one 'enabler/constraint'. In the Genoa workshop, participants were grouped in one table, and they agreed to take the results from table 1 of the Activity 1 as a starting point.

Participants were asked to discuss each policy option from Activity 1 with regards to:

- a. Enablers (green post-its)
- b. Constraints (orange post-its)
- c. Actions to overcome constraints (and if possible, *who* should do this) (yellow post-its)



Figure 3: Activity 2

Their discussion was supported by city facilitator and is collected in Table 2.

Table 2: Opportunities, limitations and actions to fulfil policies

Measure	Opportunities	Limitations	Actions	Notes by measure
Improve the local public transport service (including sharing); increase the number of metro stops, electrified lines of force on a protected site; reduce tariffs and integrate urban and extra-urban tariffs	Genoa's strong point: good inclination to the use of Local Public Transport	The costs and the travel times have been identified as one of the major limits to the use of local public transport. Difficulty in connecting the hill districts"	Physical, organizational and tariff integration between urban and extra-urban transport and car sharing; improving the quality and speed of the vehicles; electronic payment system with economic incentives for the use of public transport.	
Improve integration of local public transport service and private transport with new interchange parking lots				
Ban on most polluting diesel and motorcycle vehicles in the city center		Cultural constrains to renounce the use of the motor vehicle	Encourage vehicle sharing (bike, car, motorbike, van)	
Incentivize / encourage the purchase of electric vehicles and the use of shared electric vehicles and increase infrastructure for loading		Considering the global impact on the life cycle of private electric mobility, sharing could be favourable	Encourage vehicle sharing (bike, car, motorbike, van); ban; Prohibit the entry of thermal vehicles into the city center	
Create new separate cycle paths and related infrastructures (safe bicycle storage / parking areas, security); adapt public transport (trains, buses / trolleybuses) to bike transport; increase the safety of pedestrian traffic	diffusion of electric bike technologies	Insufficiency of safe and protected pedestrian and cycle paths. Low consideration by citizens of the benefits deriving from active travel	Create protected routes, remove motor vehicles from the road. Stimulate a change in citizens' habits.	
infrastructure construction to transfer part of the road freight traffic to railway	reduction of acoustic impact			
Reduction of energy consumption in the civil sector	High energy saving targets set at EU and national level	High investments for the re-qualification of the built with high return times High number of condominiums with numerous living families	Introducing incentive elements such as: financing, new types of contracts (energy performance contracts); awareness and training	

7.5 Proposed scenario

The final scenario for modelers to compare with BAU scenario was reported in the following Table 3.

Table 3: Final measures for the scenario for modellers

	Measure	Scenario
1	Improve the local public transport (including sharing); increase the number of metro stops, electrified lines in most polluted areas; reduced pricing with integrated ticket. One ticket one travel.	Increase number of travels on the integrated local public transport system, including vehicles sharing, from 25% to 31% by 2029 and from 31% in 2029 to 45% by 2050
2	Build new parking lots for transfer from private cars to public transport	5 new big interchange parking lots
3	Ban most polluting diesel and motorcycle vehicles in the city centre.	Replace 50% of vehicles circulating in urban areas with electric cars and motorcycles by 2050
4	Encourage the purchase of electric vehicles, the use of shared electric vehicles and increase infrastructure for charging	Install an adequate number of charging stations for 50% circulating electric vehicles (including sharing)
5	Create new separate cycle paths and related infrastructure (safe bicycle storage / parking areas, security); adapt public transport (trains, buses / trolleybuses) to bike transport; increase the safety of pedestrian traffic	Increase active travel from 22% to 23% by 2029 and from 23% by 2029 to 35% by 2050.
6	Provide infrastructure to facilitate transfer of freight from road to rail.	50% reduction in heavy traffic at 2035 and 70% at 2050
7	Reduction of energy consumption in the civil sector	Reduction of residential consumption by 10% and consumption in the service sector by 16% in 2030

7.6 Conclusions for Liguria

The participants discussed the different measures and different options and visions for Genoa up to 2050.

The complexity of Genoa was evidenced during the discussion. All measures are focus on transport, except one regarding the reduction of energy consumption in the civil sector.

Due to limited number of participants only one table and only one scenario was discussed.

7.7 Agenda of Liguria SDW

MEETING ORGANISED WITHIN THE CONTEXT OF

CLAIRCITY PROJECT

(financed by the European Union within the context of the research and innovation programme -HORIZON 2020)

Boardroom – De Ferrari Square 1, 11th Floor

Time 10:30

Agenda

Participants registration

Presentation of the project and activities:

- the ClairCity project, carried out activities and following steps of the project
- explanation of the purpose of the meeting

Workshop

- discussion about the measures aimed at the improvement of the air quality (opportunities, limitations and consequent actions)

7.8 List of Liguria SDW participants

Surname	Name	Company	Job
Andreotti	Marco	Liguria Region	Air quality expert
Ballerini	Marta	Liguria Region	Environmental Impact Assessment expert
Costi	Patrizia	Liguria Region	Air quality expert
Fassone	Irma	Genoa City	Mobility manager
Favero	Marta	Liguria Region	Air quality expert
Garibaldi	Piero	Metropolitan City of Genoa	Sustainable mobility manager
Gerbaudi	Carla	Genoa City	Mobility manager
Marenco	Ludovica	IRE	Energy manager
Merella	Arcangelo	Liguria Region	Transport expert
Murgia	Erika	Liguria Region	Air quality expert
Patrone	Angela	Liguria Region	Air quality expert
Piscitello	Enzo	Techne Consulting	Environment and energy expert
Trozzi	Carlo	Techne Consulting	Chief technical officer
Zannetti	Maria Teresa	Liguria Region	Air quality manager

8 Reflections on the SDW process

The main aim of the SDW, i.e. the translation of citizen-defined policy measures into prioritised strategies for scenario development through stakeholder engagement, has been achieved in each of the ClairCity cities/regions. Before implementation of the SDWs in Sosnowiec, Ljubljana, Aveiro and Liguria, the process was amended and guidelines updated to reflect the experiences gained from running the workshops in Bristol and Amsterdam.

One of the key changes was the introduction of predetermined levels of ambitions for each of the policy measures, based on the policy baseline reports. Stakeholders were therefore asked to choose the ambition levels that they considered appropriate, rather than setting the ambition levels themselves. This meant that each of the city/region partners needed to devise the ambition levels in advance, which added to the workshop preparations; however, the outcome for the workshop implementation was more straightforward as stakeholders were not expected to have insight into policies that may not have been within their areas of expertise.

One of the other key amendments to the SDW methodology was the synthesis of the workshop outputs into 'low and 'high' ambition scenarios. This pragmatically facilitated the quantification of scenarios by WP5 by providing clear distinctions between them, but artificially divided the balanced scenarios devised by the SDW stakeholders. In one SDW with low attendance (i.e. Liguria), only one scenario was created. In most cities/regions, however the methodology was followed or adapted successfully.

If the SDW approach was adopted in other cities/regions, further consideration should be given to how the scenarios within the workshops devised can be quantified in a way that respects the conscious balance struck between high and low levels of ambition created by

stakeholders. In all other aspects, however, the methodology could be adapted and replicated elsewhere.

9 Summary and next steps

This report has presented the summary reports produced by each city/region following their SDW. Although most of the cities/regions followed the guidelines there were local variations reflecting the flexibility built-in to the methodology. It is clear that the number of participants, their respective expertises and the particular issues inherent in each case has influenced the ambition levels set for different policies. The discussions arising regarding the decision-making on ambition setting and on constraints and enablers of these policies should be of significant value in formulating the ClairCity Policy Packages for the city/regions.

Following the generation of High and Low scenarios in the SDWs the two scenarios arising will go through the following steps:

1. The two high/low scenarios from the SDW will be sent to WP5 for quantification.
2. The two quantified scenarios will feed into the Policy Workshop (WP6).
3. In the Policy Workshop a final choice is made between ambition levels for each measure to identify a single optimum scenario, followed by a discussion of what is necessary to implement this ambition.
4. The single optimum scenario will be quantified for the emissions (air quality and carbon)/air quality concentrations/health assessment and written up as the WP7 Scenario Report.
5. The final ClairCity Policy Package, including appendices, containing the evidence which lead to the final outputs (e.g. Delphi, MLW, Game, Baseline Policy, Scenarios, Quantification and Sensitivity Analysis) will be prepared.

Appendix 1: Stakeholder Dialogue Workshop Guidelines



ClairCity - Citizen Led Air pollution Reduction in Cities

WP4.1 – Stakeholder Dialogue Workshop

Revised Guidance Note

Draft

Date: 15 March 2019

Authors: Jo Barnes & Enda Hayes, UWE

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Introduction to the Stakeholder Dialogue Workshop

These guidelines are aimed at the city partners (City of Ljubljana, City of Sosnowiec, Comunidade Intermunicipal da Região de Aveiro (CIRA), Regione Liguria) and the city buddies (REC, University of Aveiro, Techne). They are based on the experiences of developing and delivering the Stakeholder Dialogue Workshops in Bristol (June 2018) and Amsterdam (January 2019).

As guidelines it is recognised that, while the core approach will remain constant, there will be inherent flexibility in the process between cities/regions. To discuss any proposed alterations for your city/region, please contact Jo Barnes at UWE (jo.barnes@uwe.ac.uk) and/or Enda Hayes at UWE (enda.hayes@uwe.ac.uk).

What is the aim of the Stakeholder Dialogue Workshop?

The Stakeholder Dialogue Workshop (SDW) activity is part of WP4 - Citizens and Stakeholder Engagement, Task 4.1: Citizen Delphi Engagement.

The aim is to synthesise the evidence streams from the ClairCity process such as the Delphi, Mutual Learning Workshop and Game to allow city/region stakeholders to generate a number of potential future scenarios.

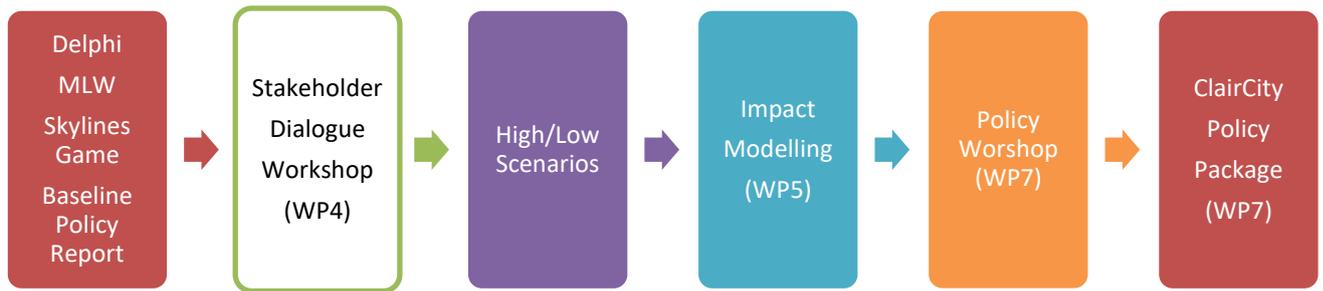
Within the Grant Agreement: Description of Actions the SDW was described as follows:

Finally, each city will have a Stakeholder Dialogue Workshop to explore the variety of pathways chosen by the players and to examine and ‘crowd-source’ a publically acceptable consensus of a low carbon, clean air pathway in the short-medium and long term to 2050. Workshop participants will undertake a more focused back-casting activity to identify specific emission constraints and other factors that influence the ‘collective’ future pathway.

Where does the Stakeholder Dialogue Workshop sit in the wider ClairCity Project?

The SDW is part of Task 4.1: Citizen Delphi Engagement and brings the evidence streams from the Delphi (Task 4.1), the Game (Task 4.3) and the MLW (Task 4.4.1) together with the Baseline policy report (WP6) to create the potential scenarios for the city/region. These potential scenarios will help to define the endpoints or future clean air, low carbon, healthy vision of the city/region and subsequently, the potential scenarios will be screened through our emissions model (WP5), integrated into a single optimum scenario and quantified for the final ClairCity Policy Package. Figure 4 illustrates where the SDW sits in the process.

Figure 4: Where does the Stakeholder Dialogue Workshop sit in the ClairCity process?



Who should participate?

The Delphi and the Game are orientated towards ‘citizen’ engagement while the MLW and Baseline Policy process are more orientated towards key city ‘stakeholder’ engagement. The SDW should utilise the experience and expertise of all key city stakeholders, including the public, to generate scenarios. Policy makers should not be invited however as they will contribute to the Policy Workshop. Ideally you should invite participants from the Delphi, MLW and Game and try to ensure that participants with knowledge and expertise on various subject areas are recruited to attend. In each city/region, we expect 20-30 participants to attend the workshop. To reach these numbers, WP2 will support the city buddy and the city partner to find methods of reaching appropriate participants, although the following activities may be useful to consider:

- Direct email to known key individuals/past participants
- Send formal invitation with a workshop agenda and the information sheet (see Appendices), if possible from a ClairCity email address with logo etc.
- If necessary adapt the information sheet, explaining the trajectory of ClairCity research, where this workshop fits and how the workshop results would be used further in your city/region.
- Follow up systematically with participants confirming their participation as soon as they are registered, sending a reminder one week and the day before the workshop.
- Link with other relevant (city/region) initiatives (e.g. Smart City Amsterdam) to advertise the SDW in their newsletters and on their websites and social media.

Suggested subject expertise and groups to participate include:

Expertise:

- Air quality
- Low carbon / Climate Change / Resilience / Adaptation
- Transport
- Land-use
- Energy
- Public health
- Future cities / Smart cities

Organisations:

- Transport providers e.g. bus companies, train companies, taxis, bike/car hire etc.
- Major employers
- City planners (except policy makers)
- Energy agencies
- Health agencies
- NGOs, e.g. 'air quality guards' (citizens volunteering with Friends of the Earth)
- Local community groups e.g. walking/cycling alliance, energy cooperatives
- Port authority
- Regional economic board
- Knowledge institutes / universities

What is the timeframe?

The SDW happens after the Game has been launched and played in your city/region as the data from the Game contributes to the development of the policy measures used in the SDW (see p. 121). Table 1 shows the key completion dates for each of the cities/regions. City partners and city buddies are given the flexibility to slightly adjust the activities timeframe to fit their context best through negotiation with the WP4/WP5/WP6/WP7 teams, ensuring consistency with the other scheduled WP activities. However, it should be noted that this activity is central to the generation of scenarios and will have a substantial impact on WP5 and WP7.

Table 1: Key SDW completion dates for each city/region (DRAFT)

City/Region	Game Launch	Stakeholder Dialogue Workshop	Impact Modelling	Policy Workshop	Final City Policy Package
Bristol	April 2018	June 2018	Sept 2018	Nov 2018	April 2019
Amsterdam	Oct 2018	Jan 2019	March 2019	March 2019	July 2019
Ljubljana	Dec 2018	April 2019	June 2019	June 2019	Aug 2019
Sosnowiec	Dec 2018	April 2019	June 2019	June 2019	Oct 2019
Aveiro	Dec 2018	May 2019	June 2019	July 2019	Nov 2019
Liguria	Dec 2018	May 2019	June 2019	July 2019	Dec 2019

What are the resources?

In previous guidance (Delphi Guideline) an approximate breakdown of resources was provided with the SDW estimated to require 10% of the available Task 4.1 budget. You will need to be aware of the available person months and resources allocated to you as a city/region and buddy for SDW. It may be helpful for you to know that UWE as Bristol's buddy partner divided our time across the Task 4.1 activities as follows (this split is an approximation and is just for guidance):

- Delphi survey and workshop: 90%
- Stakeholder Dialogue Workshop: 10%

Resources will primarily be required for recruitment, venue/catering, preparation time, delivery, preparing the ambition levels and impacts of each measure, and synthesis of the results.

Stakeholder Dialogue Workshop – How will it work?

Evidence for the SDW

This activity uses the evidence generated by the Delphi, Mutual Learning Workshop process and Game to generate a 'SDW Policy Box' of citizen-led measures that have been identified

How is the 'SDW Policy Box' created?

In the Game:

1. An idea is **presented** to the player and they either chose or reject
2. The **chosen** idea goes into the briefcase and either stamped or ignored
3. The **stamped** idea becomes policy

To identify the most popular policies from the Game, a simple equation is applied:
 $(No. \text{ of times Chosen/Presented}) \times (No. \text{ of times Stamped/Chosen})$.

Sorting the resulting list in descending order allows us to identify the most popular policies. The threshold and hence the number of policies arising may vary across the cities/regions.

In the Delphi:

Question 10 in the Round 2 questionnaire identifies which policies citizens think would be **Good/Bad/Neither good nor bad** for their city/region. To identify the most popular policies from the Delphi, therefore, we sorted policies rated as '**Good**' in descending order to identify the most popular policies. The threshold and hence the number of policies arising may vary across the cities/regions.

In the MLW:

The MLW city summary reports present the key policies arising. These are used as the basis for the MLW contribution.

as the key policies and/or policy areas that need to be considered in our SDW and our scenarios. The 'SDW Policy Box' will be generated primarily by UWE (Delphi / Game) with the support of REC (MLW) and in consultation with the city/city buddy partners.

Development of the policy measures, ambition levels and baseline impacts

Once selected policies have been identified from each of the Game, Delphi and MLW, these are listed in a spreadsheet and categorised by themes and sub-themes as per the Game Policy Library. Policies are iteratively reviewed by multiple researchers to identify where the similarities occur between those arising from the different activities in a pragmatic way. A short-list of policies is then produced from the policies arising from two or more of the Game/Delphi/MLW, comprising the 'SDW Policy Box'. The number of policy measures in the 'SDW Policy Box' will depend on the policies arising, the degree of overlap between measures and the threshold for their selection, however ~10 is recommended based on the time limitations in the workshop. It may be appropriate to identify those measures that come through more strongly, through multiple activities, as 'priority' measures, however the workshop should aim to include all shortlisted measures.

Once the key policy measures have been identified by UWE/REC, and the translation agreed with the city/city buddy partners, levels of high/medium/low ambition and a qualitative assessment of the likely relative impacts of each measure (stars 1 to 5⁵) on health, economy and citizen support will need to be determined to facilitate the discussion (see Activity 1, p. 124). This will need to be based on local knowledge, professional judgement and the Baseline Policy Report and hence will need to be led by the city/city buddy partners.

Key activities

Background and context

The workshop should open with a detailed introduction from the workshop coordinator explaining the purpose of the SDW and the agenda for the day and what the outputs from the workshop will be used for.

A small number of brief presentations (ideally by participants/city policy experts and/or drawing from the Baseline Policy Report) may be provided to illustrate the current ambition for the city. These should be brief but fact heavy presentations that ensure that everyone in the room has as a common understanding of the existing challenges that the city faces and solutions that are already in the pipeline. For example, three short presentations could be provided with very brief Q&A:

⁵ 1 =low impact of current policies – 5 = high impact of current policies

1. Status and challenges of air quality, carbon emissions and health policies in City XX.
2. Status and challenges of transport policies in City XX
3. Status and challenges of energy policies in City XX.

Alternatively, the workshop coordinator could provide a very brief overview of existing policies, based on the WP6 Baseline Policy Report, as details on the current ambition levels of each policy are presented on the cards in the 'SDW Policy Box'.

SDW Activities

The workshop coordinator should give a detailed overview outlining the activities that the participants will undertake. It is important that participants understand their roles as 'experts' in their fields, how the policy measures have been arrived at and how their contribution will feed into the development of a policy package of measures.

The participants should be allocated a table with a facilitator/scribe. It is important to ensure there is diversity of expertise at each table (e.g. transport, health, energy and air quality at a table) so that each policy can be meaningfully discussed and implemented. It is essential that participants register in advance to attend the SDW so that a table plan can be established. Instructions for the workshop activities should also then be sent to participants ahead of the workshop.

Facilitators may need to be strict with participants to ensure everyone has an opportunity to contribute and that the focus of each activity, and of the workshop, is not lost. Activities are allocated indicative time periods to enable all activities to be adequately covered. The workshop coordinator should ensure these are maintained to allow the workshop to run to time, but the facilitators will need to ensure that the activity on their table is completed in the allocated time.

Each table will be given the following:

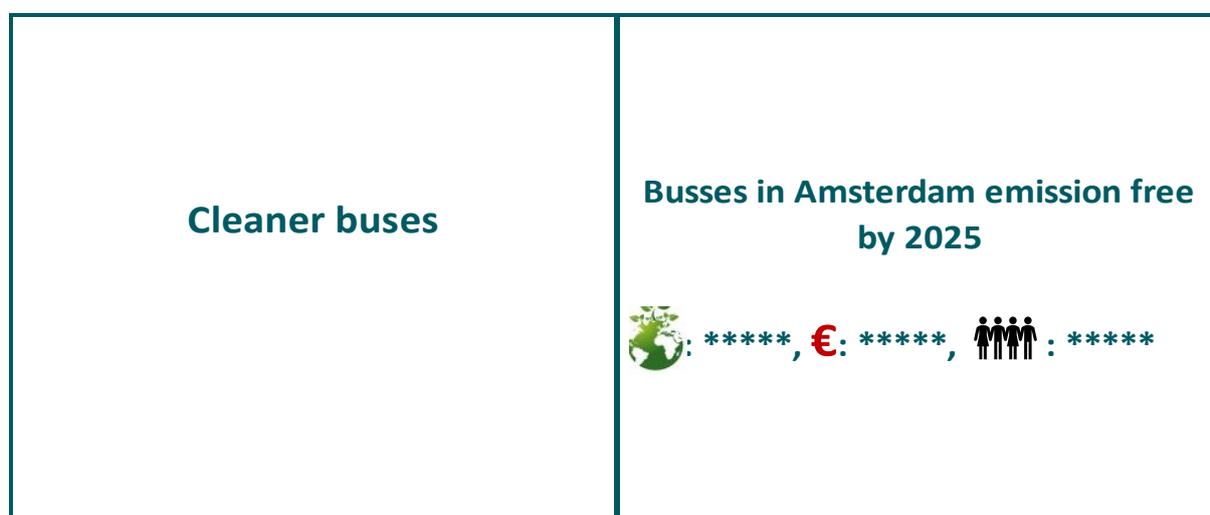
3. Two large (A0/A1) sheets of paper, one with the measures and ambition levels for Activity 1 (Figure 7) and one with the timeline for Activity 2 (Figure 8).
4. 'SDW Policy Box' of cards for each policy measure (colour-coded by source⁶) indicating:
 - a. a qualitative assessment of health, economy and citizen support impact for each policy measure using stars (1 = low impact; 5 = high impact), and
 - b. three (high/medium/low) 'ambition cards' where 'medium' is equivalent to current/planned policy ambition – additional blank 'wild' cards may be used to allow participants to specify an alternative level of ambition (but not additional policies).
5. Blu-tack to attach the options chosen to the flipchart.
6. Post-it notes (3 colours for each table, e.g. green, orange, yellow) for Activity 2.
7. Pens / markers.

⁶ E.g. blue for car related measures, green for public transport and walking/cycling related measures, and red for energy related measures

Activity 1: Choosing ambition levels of policy measures (60 mins + 10 min feedback)

In this activity, the participants are asked to discuss the selected policies to **determine what level of ambition** they wanted to apply to each policy. Participants on each table are provided with 'SDW Policy Box' of policy measure cards (~10 is recommended). The front of each card states the policy measure, and on the back **information should be provided regarding the current city/region policy ambitions** with regard to that measure together with a qualitative assessment of the impacts of current policies on health, economy and citizen support (Figure 6)⁷.

Figure 6: Front and back of an example policy measure card: Cleaner buses (back = current policy / ambition)



For each of the policy measures, participants must **choose from 3 ambition levels** (Figure 7)⁸:

- Ambition *below* current policy (LOW)
- Ambition *same* as current (planned) policy or ambition (MEDIUM)
- Ambition *higher* than current policy (HIGH)

To avoid each table opting for the highest possible ambition for every measure, and to understand that policymaking involves making realistic choices rather than being overly ambitious only, every table was required to select:

- minimum of *two low ambition* level options and a
- maximum of *six high ambition* level options

⁷ This will need to be undertaken between the city/region partner and buddy based on local knowledge and professional judgement.

⁸ Again, this will need to be undertaken between the city/region partner and buddy based on local knowledge, professional judgement and the Baseline Policy Report.

Figure 7: Example of the three options given for Measure 1: cleaner buses (light blue: ambition below current policy; medium blue: ambition same as current policy; dark blue: ambition above current policy)

Cleaner buses	Half of the busses emission-free (100% electric or hydro-powered) by 2025	All busses emission-free (100% electric or hydro-powered) by 2025	All busses emission-free (100% electric or hydro-powered) by 2022
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In addition to the three options to choose for each measure, each table may also have a set of 'wild cards' (blank cards). **Wild cards are meant for participants to write down their own ambition level** (ambition and timeline) in case participants do not agree with any of the options presented to them. The idea is not for participants to propose new measures.

N.B. It is important to recognise that these are citizen-led policy measures. They may not therefore provide a complete or accurate picture of what policies are required to reduce emissions to meet legislative and health-based thresholds. As part of the ClairCity project however, they supplement existing policy proposals and challenge policy-makers to consider more ambitious targets.

The policy cards should be placed in appropriate columns representing low/medium/high ambition levels for each policy on the large sheet of paper (Figure 7) and facilitators should record the key points of discussions that take place around the table.

Figure 7: Example of Activity 1 Choosing ambition levels of policy measures



Activity 2: Timeline, enablers, constraints and actions (60 mins + 10 min feedback)

In this activity, the participants are requested to place each policy option from Activity 1 onto a timeline and to determine the enablers and constraints/unintended consequences that must be considered by the city to ensure a successful policy in short/medium/long term. The timeline is defined by the ambition level of the policy measure from Activity 1 and hence that part of the activity should be a rapid exercise, allowing more time for determining enablers and constraints.

Participants are asked to consider:

4. What 'enabling' policies must be implemented and when, to create an enabling chain of actions for each policy ambition to be achieved? For example, if the level of ambition is *'90% fleet to be electric'* then an 'enabling' policy might be *'A viable charging infrastructure'*. [green post-it notes]
5. What key 'constraints or unintended consequences' must be considered when considering each policy? For example, if the policy to be implemented is *'More electric vehicles'* then a constraint or unintended consequence might be ensuring that *'Active travel is not negatively impacted by placing charging points on footpaths / cycle paths'* or *'Ensure sufficient (renewable) energy available'*. [orange post-it notes]
6. Actions to overcome constraints (and if possible, *who* should do this). [yellow post-it notes]

Each policy can generate more than one 'enabler/constraint'. All of this evidence should be recorded using different coloured post-it notes and through the notes of the facilitator (Figure 8).

Figure 8: Example of Activity 2 Timeline, enablers, constraints and actions



Recording the results

The results of each of the tables will generate one scenario (Table 2). Hence, the number of citizen scenarios as an output is equal to the number of tables in the workshop. If there are more than two tables, the ClairCity team organising the workshop must reduce this number to two scenarios. For how this is done, see the section 'Bringing results together' (p. 132). The two scenarios are used by the Quantification team (WP5) to model the impacts in terms of environment, cost and health. The impacts will be used as inputs for the Policy Workshop. The Activity 1 and 2 results summary tables should be supplemented with narrative summaries of the facilitators' notes to capture the discussions and context for the decisions made.

Table 2: Activity 1 example results summary

M#	Measure	Chosen measure	Ambition of chosen measure
1	Cleaner buses	All busses emission-free (100% electric or hydro-powered) by 2022	HIGH
2	Better public transport	Increase network density from the net and increase frequency by 2030	HIGH
3	More bike paths and bike parking spots	60 000 new bike parking spots by 2025. Improving current bike paths and fast bike routes (bike highways) by 2022	HIGH
4	Cheaper public transport	Price of public transport remains the same until 2030	MEDIUM
5	Environmental zone for polluting cars	Adding an environmental zone for private cars and making current environmental zones more stringent	HIGH
6	More parking for cars	Maintain the current number of parking spots	LOW
7	Limiting car-traffic in the city centre	Cars in the city centre are only allowed for people living there	HIGH
8	Accelerating energy-efficient house renovations	All houses belonging to housing associations reach an energy label A by 2050	MEDIUM
9	Ban wood stoves and fireplaces in houses and bars & restaurants	Ban wood stoves and fireplaces in both new buildings and existing buildings from 2025	HIGH
10	Accelerate the uptake of solar panels in the built environment	Maintain current regulation. No incentives from the Municipality of Amsterdam to promote solar energy (except for housing associations)	LOW
11	Amsterdam gas-free	€ 5.000 subsidy per household in order to facilitate renovation to become gas-free. Mandatory gas-free building sector by 2040.	MEDIUM

Table 3: Activity 2 example results summary

#	Measure	Year	Opportunities	Limitations	Actions
M1	Cleaner buses	2022	When the current fleet needs to be replaced it is a convenient moment to replace the buses immediately with zero-emission options. Creating renewable electricity production spots to supply the buses with renewable energy.	High costs for the public transport company (GVB) and thus the municipality. Buses might need to be replaced before they have been written off completely. There is a short time schedule for the implementation.	Work on a good business case for the GVB. The city should give more money to the GVB to realise this plan.
M2	Better public transport	2030	Technological innovations (e.g. autonomous vehicles) can help to make a higher network density affordable. Make schedule adaptive to demand. Less social isolation. Better exchange between different neighbourhoods. Good for local economy in neighbourhoods.	Too expensive. Hard to get into trains/metro for elderly because of the height. Little space to create more stops.	Introduce fast buses and 'stop buses'. Lower the boarding height to improve accessibility for elderly people. Re-introduce the Westpoort bus line.
M3	More bike paths and bike parking spots	2022/ 2025	The combination with the car free city centre will free up space for bicycle parking. Better bicycle parking spots can also free up space on pavements and improve traffic safety. If car use is sufficiently disincentivised one might be able to turn empty car parking into bicycle parking spots.	Mentality changes are needed as well to get people to park their bikes in official places and not as nearby as possible (e.g. against houses etc.). There are more bikes than the city can bear. National tax incentives for car leasing are too attractive at the moment.	The municipality needs to build cycling paths and parking spots and remove illegally parked bikes. In new neighbourhoods immediately make fast biking lanes. Bicycle sharing should be promoted more, so that there can be less bikes in the city.
M4	Cheaper public transport		Policy is kept as is, no action needed		
M5	Environmental zone for polluting cars	2022		Elderly people might get isolated because it gets harder for their family to visit them.	Provide options like sharing bikes or small electric scooters or other means of transport for the 'last mile'
M6	More parking for cars		Policy is kept as is, no action needed		
M7	Limiting car-traffic in the city centre	2022	Promote electric bikes for entrepreneurs and create mobility hubs. Less cars in the city centre will create more space for pedestrians, which make the city centre more attractive for visitors.	Elderly people might get isolated because it gets harder for their family to visit them. Stores and small companies in the city centre might be against out of fear of losing customers.	
M8	Accelerating energy-efficient house renovations	2050			

M9	Ban wood stoves and fireplaces in houses and bars & restaurants	2025	High support in neighbourhoods for the ban, due to nuisance.	Aversion for patronizing by the government, freedom to choose your own equipment.	For people who rely on wood stoves for central heating, the municipality should provide financial support to switch to another type of heating installation. Owners of wood heaters need to be made more aware of the environmental impacts.
M10	Accelerate the uptake of solar panels in the built environment		Policy is kept as is, no action needed		
M11	Amsterdam gas-free	2040			

Bringing results together: Proposed scenarios

If there are more than two tables in the workshop, hence more than two scenarios generated, the number of scenarios to be sent to the Quantification team (WP5) should be reduced to two in the following way. The results from each table can be merged into two scenarios ('LOW' and 'HIGH') by taking all the lowest suggested ambitions for each measure together (Scenario LOW), and all the highest suggested ambitions together (Scenario HIGH). These can be summarised as in the example below (Figure 10).

Moving towards Scenarios – What happens next?

The two scenarios, as recorded in Figure 10, will go through the following steps:

1. The two high/low scenarios from the SDW will be sent to WP5 for quantification.
2. The two quantified scenarios will feed into the Policy Workshop (WP6).
3. In the Policy Workshop there is a final choice made between ambition levels for each measure to identify a single optimum scenario. This is followed by a discussion of what is necessary to implement this ambition.
4. The single optimum scenario will be quantified for the emissions (air quality and carbon) / air quality concentrations / health assessment and written up as the WP7 Scenario Report.
5. The final ClairCity Policy Package, including appendices, containing the evidence which lead to the final outputs (e.g. Delphi, MLW, Game, Baseline Policy, Scenarios, Quantification and Sensitivity Analysis) will be prepared.

Ethics

Ethical approval has been received from the Research Ethics Committee of the Faculty of Environment and Technology, University of the West of England for this activity. While personal information will not be collated, participants opinions will be recorded and used to

generate the scenarios therefore participants will be required to sign a Consent Form (see Annex).

Figure 10: Creating Scenarios LOW and HIGH by combining the outputs of the four tables

Measure #		# times an ambition level was scored at the four tables			Proposed scenario LOW *)	Proposed scenario HIGH **)	Proposed scenario LOW *)	Proposed scenario HIGH **)
		Low	Medium	High				
1	Cleaner buses	1	2	1	Low	High	Half of the busses emission-free (100% electric or hydro-powered) by 2025	All busses emission-free (100% electric or hydro-powered) by 2022
2	Better public transport			4	High	High	Increase network density from the net and increase frequency by 2030	Increase network density from the net and increase frequency by 2030
3	More bike paths and bike parking spots		1	3	Medium	High	40 000 new bike parking spots by 2030. Improving current bike pats and fast bike routes (bike highways) by 2025	60 000 new bike parking spots by 2025. Improving current bike pats and fast bike routes (bike highways) by 2022
4	Cheaper public transport		3	1	Medium	High	Price of public transport remains the same until 2030	Price of public transport becomes 50% cheaper for everyone
5	Environmental zone for polluting cars	1		3	Low	High	Maintain current environmental zones	Adding an environmental zone for private cars and making current environmental zones more stringent
6	More parking for cars	1	1	2	Low	High	Maintain the current number of parking spots	Remove 7.000-10.000 parking spots (approx. 10% of the current parking spaces in the city centre) and charge € 7.5 per hour everywhere in the city by 2020
7	Limiting car-traffic in the city centre		1	3	Medium	High	Maintain current legislation for cars (i.e. reducing car traffic by one-way roads and splitting up traffic routes)	Cars in the city centre are only allowed for people living there
8	Accelerating energy-efficient house renovations	1	3		Low	Medium	All houses belonging to housing associations reach an energy label B or C by 2050	All houses belonging to housing associations reach an energy label A by 2050
9	Ban wood stoves and fireplaces in houses and bars & restaurants			4	High	High	Ban wood stoves and fireplaces in both new buildings and existing buildings from 2025	Ban wood stoves and fireplaces in both new buildings and existing buildings from 2025
10	Accelerate the uptake of solar panels in the built environment	1	1	2	Low	High	Maintain current regulation. No incentives from the Municipality of Amsterdam to promote solar energy (except for housing associations)	Mandatory solar panels in all suitable roofs and provide subsidies for it
11	Amsterdam gas-free	2	1	1	Low	High	€ 2.500 subsidy per household in order to facilitate renovation to become gas-free. No obligations for the building sector.	€ 10.000 subsidy per household in order to facilitate renovation to become gas-free. Mandatory gas-free building sector by 2030.

*) all lowest ambitions over four tables

**) all highest ambitions over four tables

Appendices





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ClairCity: Citizen-Led Air Pollution Reduction in Cities

Stakeholder Dialogue Workshop Participant Information Sheet

You have been invited to take part in this project as a city citizen/stakeholder, as we are interested in your thoughts and views.

ClairCity is an innovative project involving thousands of people in cities across Europe, enabling us all to decide the best local options for a healthier future with clean air and lower carbon emissions.

We would like to find out what you see as the barriers and solutions to a future with clean air in your experience as a resident of this city. This will inform the development of the project and eventually contribute to policy solutions.

You will be asked to take part in a workshop about your experience and opinions. The workshop will take 2-3 hours to complete and notes or audio recordings will be made on your comments. Your answers will not be identifiable to you and will be grouped thematically with other respondents.

ClairCity will treat your information in accordance with the terms and conditions of the 1995 EU Data Protection Directive. Overall outcomes from the research will be published in reports to the European Commission, on our website www.claircity.eu, and through wider media.

It is up to you to decide whether or not to take part. If you do decide to take part you will be given this information sheet to keep and asked to sign a consent form regarding the use of the information that you provide. If you decide to take part, you are still free to withdraw up until attending the workshop. Data collected during the workshop will be anonymised and, as it can no longer be personally attributable, cannot be subsequently withdrawn from the research.

This study was given ethics consent by the Research Ethics Committee of the Faculty of Environment and Technology, University of the West of England, UK researchethics@uwe.ac.uk. ClairCity Project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 689289.

Thank you for your time.

V1. April 2017

This study was given ethics consent by the Faculty Research Ethics Committee of the University of the West of England, UK, on behalf of the EU Commission. researchethics@uwe.ac.uk

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ClairCity: Citizen-Led Air Pollution Reduction in Cities

Stakeholder Dialogue Workshop Consent Form

I have read the information on the Participant Information Sheet and consent to taking part in the ClairCity project.

I understand I will be interviewed in a group and notes or audio recordings will be made about this workshop.

The quotes, data, evidence will be anonymised and then grouped with other participants, so my answers are not identifiable to me.

I am happy to be included in photographs of the event (optional).

I understand I am free to withdraw from the study until I attend the workshop. Data collected during the workshop will be anonymised and cannot be removed.

Name _____

City _____

Signature of Participant _____

Date _____

V1. April 2017

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ClairCity: Citizen-Led Air Pollution Reduction in Cities

Stakeholder Dialogue Workshop Checklist

Before the Workshop:

- Identify key stakeholders with relevant expertise and invite to the workshop
- Book a venue and organise food/refreshments for the workshop
- Send out summary briefing sheet/Participant Information Sheet
- Bring post-it notes and pens
- Print:
 - o Participant Information Sheets
 - o Consent Forms
 - o Participant evaluation questionnaires
 - o Event Observation Form
 - o Workshop plan

During the Workshop:

- 1) Put up a notice saying what you are doing and have nearby the Participant Information Sheets in case anyone wants to take one away.
- 2) Ask participants to complete and sign Consent Forms.
- 3) Observe the Workshop and fill in the Observation Form with your notes. The facilitators can also help with this.
- 4) Record the Workshop and outputs of the activities using a digital camera/ camera phone.
- 5) Ask participants to complete Evaluation forms after the Workshop.

After the Workshop:

V1. April 2017

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- 1) Transcribe the activity responses and send to UWE (WP4), NILU (WP7), TML (WP5) via dedicated Sharepoint page. Include digital photos of the workshop and outputs.

V1. April 2017

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