How to accelerate the heat transition:
a guide for local government and actors

Module 1

Co-creation
and stakeholder engagement for sustainable heating

Interreg
2 Seas Mers Zeeën
SHIFFT

SUSTAINABLE HEATING: IMPLEMENTATION OF FOSSIL-FREE TECHNOLOGIES

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INTRODUCTION

This is the first part of a series exploring how municipal efforts can accelerate the decarbonisation of heating at the community level.

This is an output of the EU Interreg 2 Seas funded project SHIFFT – Sustainable Heating: Implementation of Fossil Free Technologies. This module is concerned with how cities and local governments can engage citizens and stakeholders in co-creating visions and plans for zero carbon heating.

SHIFFT targets the barriers and levers to growth of zero carbon heat in households and communities and this document aims to provide guidance as to which co-creation strategies can be applied by cities. In particular, the role of the municipality in reaching a broad range of stakeholders and maintaining their involvement throughout the process is explained, and examples of good practice are described.

This document is one of a four-part guide on how to accelerate the heat transition in cities. Module two covers the range of financial instruments and their application . Module three focuses on city heat strategies, regulation, and other non-financial policy instruments. Module four addresses the technologies and technical aspects of the heat transition in cities. All of the other modules are available from the SHIFFT website: shifftproject.eu/

AN OVERVIEW:

2 RATIONALE AND OBJECTIVES

Multiple factors make the transitions to sustainable heat challenging: heat demand in buildings varies immensely according to climate, building fabric, occupancy, and the behaviour of the residents. Additionally, the way we heat homes is a very personal matter, with individual preferences concerning comfort, costs, control, convenience, and hospitality.

There is a lack of progress in the transition to sustainable heating compared the successes in decarbonizing electricity, and effective policies in homes have been limited to date. At the same time, there are increasing numbers of relatively autonomous energy community movements that are seeking to disrupt local heating markets. These are just a few of many reasons why co-creation is a promising approach to a) *coordinate existing initiatives around sustainable heating* and b) *expand the scope of stakeholders and citizens to be involved in this transition.* The advantage for policymakers is that through co-creation they can produce and explore more informal local data and tacit knowledge as a source of information. Combining the viewpoints of multiple stakeholders enhances the evidence base for sound and inclusive sustainable heating policies. In the context of co-designing sustainable energy solutions, research has described how contrasting priorities in multi-stakeholder engagement raised important issues with priorities, such as health, housing, and gender. No technological system, market or society that is relevant to the heating transition can be understood without acknowledging connections with the other. Co-creation therefore aims to gain a more holistic understanding of the context as a means to explore shared responsibilities. Co-creation can therefore be understood as an ethically desirable process which aims to improve the social legitimacy of decision-making by:

- opening up sustainable heating to new audiences;
- including and empowering citizens;
- increasing engagement with diverse stakeholders, and;
- working towards greater collaboration, to achieve co-benefits and resolution of key issues

3 KEY STAGES, CORE INSTRUMENTS AND GOOD PRACTICE

This section brings together critical areas of good practice in the field. Each area of good practice is described, and its application explained.

Co-creation means addressing matters that are already emerging within a community. A community is unlikely to be motivated to engage in a project that doesn't come from the community itself. Citizens become involved in working together with the municipality for different reasons. For example, someone who is about to buy an apartment and is concerned that in a few years' time the expensive heating system will need replacing may be seeking clarity on sustainable heating. Another person, who prefers cooking with gas, might be reluctant to give up on this known technology. While collaborating with citizens, communities, and stakeholder engagement, it is crucial to ask about the different values involved in the transition to sustainable heating. By clarifying drivers and motivations it will be easier to know how different goals can be combined. These goals might include:

- Reducing climate impact
- Creating recreational open space
- Upgrading neglected neighbourhoods, without raising rents
- Increasing housing comfort
- Reducing energy bills
- Stimulating business development or job creation
- Reducing fossil fuel energy imports

What is the first step in co-creation?

Before starting a co-creation process, municipal departments or any other initiating organisation (e.g., housing association, knowledge centre) should identify and assemble representatives of all relevant stakeholders that are important for the local heat transition.

Answering three key questions will reveal how invested or critical residents and stakeholders are in the issue:

1. **Who has an interest in the heat transition and what is the scope of their interest?**
   - What are the stakeholders' interests? Are they interested in realizing a project or in a collaboration, etc.?
   - Are these short-term or long-term interests with a public or private sector character?
2. **Who is, or will be, affected by the local heat transition?**
   - What is the impact (financial, social, etc.) on the residents and stakeholders?
   - It is important to distinguish between pure interests and affectedness because there are some stakeholders that show low levels of interest in the issue despite being greatly affected by it and vice-versa.
3. **What is their scope of influence?**
   - Which of the stakeholders have decision-making power?
   - Which of them have the power to block decisions?
   - Which of the stakeholders make use of formal objections and exert informal power through social media campaigns, online petitions, or protest movements?

Preparation:

Experience has shown that the preparation of co-creation procedures and the broad involvement of stakeholders in the groundwork are crucial for its success. Lack of prior preparation not only affects the motivation of stakeholders in participating, but also further lowers commitment of participants. If all the interests of the stakeholders are recorded, it is not only easier to integrate those interests into co-beneficial solutions but it also frees stakeholders from competing for attention. It opens up the possibility of engaging in active listening and solution finding

How can a municipality encourage homeowners to invest in sustainable heating?

Cost is just one of the factors that deters active adoption of sustainable heating technologies. To tackle limited market demand, several interventions – from technical to economic and social – can be designed and implemented to increase end user demand of sustainable heating solutions. In city districts and neighbourhoods: co-creation of sustainable heating solution strategies along with local communities.

This empowers local communities to co-design or even co-decide the planning and implementation of sustainable heating strategies. This can solve actual and perceived barriers, like information, established habits, perceived complexity, and financial needs. By identifying what motivates and deters communities from investments in sustainable technologies, municipalities can then co-create the right incentives and process.

Can disadvantaged and vulnerable groups be reached, and their concerns addressed through co-creation?

To involve these groups it is important to first make use of existing contacts, resources, and established communication channels within your organisation. Are there citizen panels, ambassadors, and neighbourhood committees? Are there other project partners or intermediary organisations already involved that you can co-invite? An early stakeholder identification process should yield clear information on:

- where the different vulnerable communities and subgroups can be found;
- how they might be affected through the local heating transition;
- through which channels, platforms, intermediaries or previous contacts they might be best approached;
- which type and complexity of language they use and;
- which incentives or triggers they need to engage in co-creation.

In practice additional measures can be taken to remove barriers to participation, for example, through a daily allowance, support in child- and healthcare. Social workers can play a role in recruiting and supporting, for example, low-literacy and other harder-to-reach groups.

How can ambassadors (who have already made the transition) motivate other citizens within their district?

Ambassadors, through their proactive environmental choices, have already shown their ability to change their own behavior but want to see the larger, positive environmental impacts their actions can have. They therefore have an important role to play by creating new linkages within the community, contacting those 'sitting on the fence' and sharing their own experiences. They help challenge the status quo and enable dialogue by driving engagements within the community.

How can co-creation in the local sustainable heat transition be embedded in ongoing planning or formal decision-making processes?

Embedding collaborative heating systems adaptation in an ongoing planning or formal decision-making process can reduce disruption and cost. For example, new infrastructure might be better installed as part of a broader neighbourhood development or reconstruction project rather than as a standalone project that would require digging up the road.

By embracing co-creation, local governments can increase their capacity to formulate and execute effective policies. In other words, this means that municipalities will have a higher turnover in producing knowledge, building up experiences, improving public services that are connected to the provision of sustainable heat. It is important to note that having enough financial resources would allow hiring and training of staff, allowing them to spend more time on sustainable heating projects, as well more time to draft monitoring and communication strategies, which are not only important to safeguard transparency but also to offset any negative social and economic impacts.

How do physical technologies and neighbourhood characteristics affect the co-creation of sustainable heat transitions?

Sustainable heating technologies have different technical requirements and involve different stakeholders, which each have implications for how the co-creation process is organized. These technologies can be put into three general categories, which are individual solutions, shared solutions, and collective solutions. Individual solutions are sustainable heating technologies that are installed by the individual home or building owner. These technologies include heat pumps, solar PV, biomass and biogas boilers, thermal insulation, or a combination of these technologies. In the case of individual solutions, co-creation usually involves working with organisations who can promote or sell these technologies, such as local businesses, media and neighbourhood cooperatives, electricians and plumbers who install these technologies, and the home or building owners themselves. Many of the challenges in co-creating individual solutions involve building trust in new technologies and providing home or building owners with the information that they need to buy and install these technologies. The organizations who coordinate this process also need to co-create financial solutions with energy cooperatives, businesses, and installers, since the cost of buying and installing sustainable heating technologies falls entirely upon the individual homeowner. Nevertheless, individual solutions offer more freedom of choice for home and building owners and can be retrofitted in neighbourhoods with heritage housing stock.

Shared solutions are sustainable heating technologies that can be installed in social housing schemes. These technologies also include heat pumps, solar PV, biomass and biogas boilers, and thermal insulation. However, unlike individual solutions, shared solutions involve a different group of actors with different power dynamics between them. These might include management firms, housing associations, housing contractors and investors, as well as energy cooperatives and the tenants themselves. This means shared co-creative solutions need to align the interests of these stakeholders in order to ensure that homeowners and tenants are included in decision-making, and to ensure that stakeholders trust in the sustainable heating solution that is being offered.

Collective solutions are sustainable heating technologies that are implemented at the urban, district or neighbourhood. These generate heat from biomass, waste, wastewater, or solar PV with seasonal storage, and then distribute this heat through district heat networks by using hot water or electricity. There are also green gas networks that supply gas-fired boilers with hydrogen or biogas. District heating networks place less responsibility on individual homeowners to seek out information about sustainable heating technologies. They also can be installed across an entire district or neighbourhood, unlike individual or shared solutions. However, district heating networks are capital intensive and require investment from multiple stakeholders, including local and national government, energy providers, utility companies and distribution system operators. Co-creating collective solutions therefore involves working with a much wider range of stakeholders to make decisions and to implement district heating networks. Furthermore, mandatory connection requirements limit freedom of choice amongst homeowners and citizens may have concerns about the construction of new energy facilities and the legitimacy of decision-making processes. It is therefore important to ensure that a diverse range of citizens are fully engaged in decision-making processes when co-creating collective solutions.

What is a standard of good practice in co-creating sustainable heat transition?

Co-creation is reflected in mutually caring relationships between citizens, governments and stakeholders who are active in the sustainable heating transition. This means that co-creation naturally works best when people from all walks of life are involved in the transition process. Safeguarding diversity in co-creation reduces the risk that interests of disadvantaged groups are neglected or that important aspects or values are forgotten to take into account in the sustainable heat transition. While it might cost effort, creativity and time to activate a diversity of members, the results will almost always pay off.

Logically, strategies on how to involve the disadvantaged population can also be co-created with members of society. Processes that fail to bring diverse perspectives and backgrounds together often focus on those who have more civic skills, are attitudinally closer to the subject, tend to be more interested in politics and/or sustainability and hold more polarized views. This can narrow down the transition by giving a sense that expert views are the only valid views appreciated from society. Open processes are important as a means of maintaining transparency, and at least theoretically, it would allow anybody who wishes to contribute to a debate to do so.

A few examples of good co-creation in practice:

Citizen Participation in natural-gas free neighborhoods in Delft:

With natural gas-based heating systems being phased out in the Netherlands, there has been an overall national and local push for using alternative sources of heat. Recognizing that residents pay a key role in this transition, the municipality of Delft has opened up discussion to its citizens through and approach called Delft Doen! which explicitly calls for active citizen participation in policy and project-development. In the year 2018, three information and discussion meetings were held with the goal to develop a document for the city council with starting points for the municipal heat transition plan. Inhabitants could voice concerns and values they deemed important for the topic and were encouraged to prioritize these concerns and to reformulate them into key topics/messages, as well as identifying relevant actions. In the meetings, the citizens voiced their critiques and shared concerns, creating the additional effect of bringing about a sense of community around energy policy. This was evidenced by the higher-than-expected turnout for meetings, although they observed that it was non-representative of the whole community. One of the struggles of the municipality was how to deal with this new entity. The community was very enthusiastic and offered to help write energy policy, which caused unease amongst the administrators. At the same time, they were enthusiastic and wanted to facilitate this process.

Resolution of public conflict in urban heat transitions (Freiburg, Germany)

While a certain level of friction and contestation around infrastructures, new technology, and social change is not unusual, there are particular periods and constellations in which such friction can become more salient. A conflict of such character erupted in Freiburg, Germany, when two strategies for reducing the environmental impacts of space heating were to be applied in the Vauban ‘model district’. The municipal strategy of efficient co-generation of heat and power combined with district heating systems (DHS), clashed with the citizen-driven approach of reducing heat demand by low-energy designs and ambitious energy standards (‘passive house standard’). In the example of Freiburg, the crossroads between the development of passive housing and district heating, were not discussed together. The conflict reopened old sociotechnical frictions between city strategies and community strategies. In the end, these junctions opened up opportunities for renegotiation and successful contestation. The environmental department of the municipal administration acknowledged the arguments of both parties to be valid. In order to settle the dispute, a form of “exemption clause” was developed.

The case of Thermo Bello (Culemborg, the Netherlands)

Thermo Bello is a small-scale power-to-heat district heating (DH) system operator located in the district of Culemborg, drawing heat from a drinking water basin. The heat is supplied to over 200 households and several commercial buildings. The heating cooperative is described as a very strong and well-knit community, with its people having been previously involved in several collaborative efforts to improve their local environment. The idea for DH started when residents saw potential in the DH system to cater for the area’s heating needs. Active participation in the cooperative increased when a business development committee was established. The plans, when presented to the wider community, gained popular support. A distinct role was played by the Municipality of Culemborg which was receptive towards incorporating sustainable technologies and thereby facilitated the process. The overall process was however strongly community driven, with its members taking extra efforts to be inclusive. For example, the initiators drew up a ‘programme of requirements’ that made the business plan understandable to everyone in the community without getting bogged down by technical details. Surveys were frequently taken to gauge opinion of the local residents which improved transparency.

co-creation

PROCESS

- Co-designing
- Co-production
- Co-implementing
- Joint-fact finding
- Preparation/management
- Co-initiating

COMMUNITY

- Co-benefits
  - Activation
  - Mapping/analysis
  - Citizen/stakeholder engagement
- Community building
  - Recognition
- Changed roles and responsibilities

LEVELS

- Acceptance/adoption
- Individual solutions
- Shared solutions
- Projects
- Collective solutions
- Policy

METHODS

- Collective data collection
  - Living labs
- Participatory action research
  - Delibrative workshops
- Design thinking
  - Visualisations
- Storytelling
  - Inspirations
- Customer journeys
- Online tools
  - Schools as Energy Embassies

4 COMMON CHALLENGES AND SOLUTIONS

This section outlines some challenges and barriers we have encountered and are aware of as well as some options to mitigate or overcome them.

- Physical Context- COVID-19, technology, sources of funding
- Economic Context- electricity and gas prices, cost of installation
- Political Context- political support or opposition from stakeholders
- Community Attributes- values and beliefs of different stakeholders
- Patterns of Interaction- how stakeholders relate to each other/share knowledge

Evaluation of Co-Creation

We suggest that co-ordinators use the following following four themes to monitor and evaluate co-creation

1. Stakeholder Participation

Quantitative information on how many citizens are contacted and how many participate in co-creation actions can be collected through the use of surveys. However, it is important for co-ordinators to reflect on how citizens are involved in decision-making processes and on how they relate to other stakeholders.

2. Activity Evaluation

It is important to evaluate how successful individual activities, such as an information evening for citizens, are in facilitating co-creation. Data can be collected through interviews or by providing co-ordinators and other stakeholders with feedback forms. Possible questions could include:

- What worked well during the activity?
- What challenges were experienced during the activity?
- How much did the activity differ from the original plan, and why?
- How did the activity influence the implementation of the project?

3. Process Evaluation

Co-ordinators also need to evaluate the overall process of organising and implementing co-creation activities.
Possible questions could include:

- What was the level of support within the higher management of your organisation for the activity?
- Was there enough administrative and financial support for the activity?

4. Outcome Evaluation

Finally, co-ordinators need to assess whether a co-creation action achieved its intended outcome.
Questions for evaluating outcomes could include:

- Could you explain what kind of value the CC action had (economic value, improving relationships and political decision-making etc.)?
- Did participants deviate from their initial positions into a common view of problems and solutions?
- Did the co-creative action improve relationships and trust?
- Were participants satisfied with the outcome?

Physical and Material Context

Co-creation depends on a variety of physical and material inputs. These include the technology used for co-creation meetings and financial and administrative resources required for logistical support and running co-creation activities. Many of the physical and material barriers encountered during the SHIFFT project so far are related to the CoVID-19 pandemic. These include project partners not being able to hold in-person meetings, a lack of staff with expertise and the availability needed to run co-creation activities and limited budgets for funding co-creation. Solutions have included running virtual workshops that avoid in-person contact and that do not require large amounts of financial and administrative resources to run.

Economic Context

The low cost of electricity or gas and the perceived high up-front cost of installing and maintaining sustainable heating technologies can often be a barrier to co-creating low carbon heating schemes. For example, some project partners reported that heating providers did not always want to install solar PV or heat pumps because they thought that they were more expensive to install, maintain and run than gas-fired boilers. Some project partners also reported that residents were concerned about the affordability of sustainable heating technologies. Whilst sustainable heating providers cannot change the market price of gas and electricity, they can listen to the concerns about the affordability of sustainable heating technologies and point out the economic advantages of investing in them.

Political Context

Co-creation is often driven by support from higher levels of government. SHIFFT project partners have found that there is a perception amongst some elected officials that citizen participation should be limited to elections. Elected officials have also expressed concerns about citizen preferences coming to conflict with current policy agendas. This can prevent co-creative solutions that collect opinions from citizens about policy options, such participatory value evaluation, from being used. Securing the support of elected officials early on in the co-creation process is important for avoiding potential conflicts.

Community Attributes

Co-creation is shaped by the values, beliefs and preferences of stakeholders who participate. Common obstacles reported by SHIFFT project partners include the biased representation of residents in co-creation activities (in terms of ethnicity, age, gender, and socio-economic status), sustainable heating providers not exploring how citizens perceive sustainability transitions and the perception that co-creation is time consuming. Solutions include viewing co-creation as a tool for citizen empowerment and making efforts to include a diverse group of citizens throughout the planning and implementation of sustainable heating technologies.

Patterns of Interaction How stakeholders interact with each other can also create obstacles during the co-creation process. Common obstacles reported by SHIFFT project partners include a lack of knowledge sharing across sectors, which prevents stakeholders from having the expertise needed to solve problems during the co-creation process. Difficulties in changing governance structures can also exclude citizens and other stakeholders from key decision-making processes that might affect. Solutions include holding knowledge sharing sessions with stakeholders in multiple sectors to improve technical know-how. Co-ordinators also need to design governance structures that involve key stakeholders, including citizens, in all phases of the co-creation process.

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Co-creation depends on a variety of physical and material inputs

5 ILLUSTRATIVE CASE STUDIES

This section contains a series of case studies illustrating a range of viable approaches or strategies which have been or could be followed by a local government or community organisation. Detailed benefits and limitations of measures or approaches (either on their own or in combination) should be outlined with practical guidance for implementation.

Bruges, Belgium

The aim of this pilot was to reach the goals outlined in the Covenant of Mayors, which was signed by many villages and cities in Belgium, including Bruges. In 2021 a new Covenant was signed. With this engagement, the city of Bruges committed itself to reduce the CO2-emission with 40% in 2030 (in comparison with 2011). 47% of the CO2 production in the territory of Bruges was caused by the heating of buildings, thereby increasing the importance of collaborating with the residents to reduce energy consumption in the heating sector. In 2022 the Bruges Climate plan 2030 was completed. In this plan the city committed itself to reach a local CO2-reduction of 49% compared to 2011.

The aim of the pilot was to create a customers' journey in order to implement sustainable heating and energetic renovations as much as possible in the existing housing stock of Bruges. Because the action was to be taken by the citizens, it was considered imperative that citizens understand the urgency of reducing CO2 emissions. This task was carried out by the ambassadors of the neighbourhood (i.e., early adopters). They served as sources of inspiration and advice to other citizens. Ambassadors of a neighbourhood/street can join forces to increase energetic renovations, sustainable heating and renewable energy in the neighbourhood.

With the help of the municipality, the early adopters team can then establish group purchases, connections to district heating and leverage the power of collective action in neighbourhoods through information evenings and brainstorming sessions that can bridge the divide between different groups of citizens. The city therefore established 'Buurtkracht' meaning 'the power of the city,' which focuses on a neighbourhood rather than on individuals. In this way it is more likely to increase the renovation pace quickly to a higher level. If there is not enough capacity in the city government to help citizens with their renovation process, then it is possible to work with an external organisation which is specialises in providing renovation scans, comparing offers, and accompanying home or neighbourhood renovation processes.

Mechelen, Belgium

Households in Mechelen accounted for 21.4% of total CO2 emissions in 2016, mainly caused by the consumption of electricity and fossil fuels in homes. The target of this co-creation pilot is a CO2 reduction of 103 tonnes CO2/year. The pilot aimed to achieve this by improving its home energy renovation service to better support households in their customer journey towards a sustainable home with fossil-free heating. The following actions were conducted as part of the SHIFFT co-creation pilot:

1. Collective action 'Do the '50 degree' test'
2. Group purchase of heat pumps
3. Retrofit of co-owned condominiums
4. Collective action 'Check your boiler'

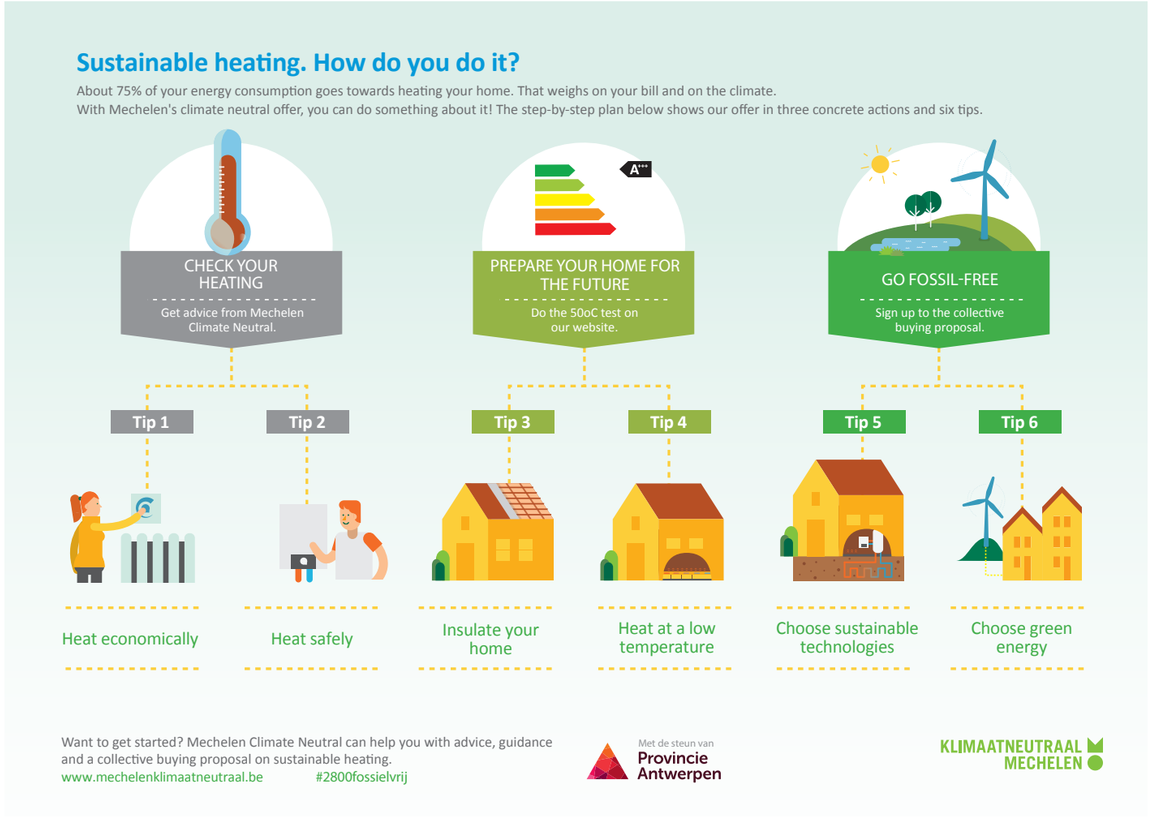
Citizens were closely involved in these activities and have an opportunity to contribute to local policy-making via one of the following focus group trajectories:

- Do the 50-degree test: 2 focus group sessions in winter season 2021-2022
- Retrofit co-owned condominiums: 5 focus group sessions in 2022
- Check your boiler: focus group series planned with low-income households; this will be done by non-profit organisation SAAMO (www.saamo.be/provincie-antwerpen/)

The pilot focused on citizens that have already made use of the pilot's home energy renovation service for one or several steps in the customer journey (this is to ensure that each step is represented). Frontrunners, such as members of energy co-operative 'Klimaan', which is a local citizen community and energy cooperative, will also be included. The pilot also aimed to broaden the scope of involvement to involve specific target groups, such as vulnerable households (tackling issues such as affordability and energy poverty) or associations of co-owners (in apartment buildings) in the process.

A key building block of the co-creation pilot was a targeted communication strategy. This involved updating the website(s), sharing success stories, organising info-sessions and updating technical information (through infographics, factsheets), participating in events such as a local construction trade fair (e.g., Wonen 2021) and organising lectures and information evenings (e.g., Warme Winteravond Groen Verwarmen).

For more information you can visit: https://klimaatneutraal.mechelen.be/



City of Fourmies, France

The City of Fourmies had the aim to create its first heat network to develop renewable energies on the territory and with a view to decarbonizing heat production. All this is happening in order to achieve its objective of producing 100% of its energy needs by 2050. The creation of this technical heating network will make it possible to avoid 311 tonnes of CO2/year.

As part of the creation of their first technical heating network, the City of Fourmies organised a co-design meeting in February 2021. This allowed residents to meet interlocutors, view a presentation and also ask questions. This co-creation meeting had several goals:

- To raise residents' awareness of renewable heat
- To present the heating network project
- Answer the inhabitants' questions
- Integrate inhabitants into the project and involve them by choosing the external appearance of the boiler.

. . . working with citizens to raise awareness, remove barriers, develop incentives and co-create solutions for a transition to sustainable heating

Partners

Funders

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