SMARTEES
local social innovation

SMARTEES: Deliverable 5.3 (Report)

Handbook with guidelines for the co-production of future policy scenarios and interventions

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Executive summary

Deliverable 5.3. corresponds to Task 5.7: “Elaboration of policy recommendations and guidelines for the implementation and assessment of new local embedded low carbon policies”. This task aims to provide empirically-based insights about what types of policies are likely to be effective in a local/regional context, to foster energy-related social innovations. As a result of the work developed in WP5, SMARTEES provides with this deliverable “a handbook for the development of future policy scenarios, which support transitions towards sustainable communities”. This handbook outlines the methodology for the development of alternative policy scenarios and illustrates it with examples on how the policy scenario workshop methodology was implemented in five clusters of social innovations: (i) Holistic, shared, and persistent mobility planning; (ii) Island renaissance based on renewable energy production; (iii) Energy efficiency in district regeneration; (iv) Urban mobility with superblocks; and (v) Co-ordinated, tailored, and inclusive energy efficiency schemes for fighting fuel poverty.

Policy scenario workshops (PSW) are grounded on the rich research findings of the SMARTEES project on the main factors and social dynamics underlying processes of social acceptability and adoption of social innovations in the energy domain. Thus, a series of key dimensions and learnings have been identified as common relevant features in energy-related social innovations, as presented in section 1 of this handbook. Based on those relevant dimensions, a series of policy scenarios have been developed through participatory deliberative workshops and further tested in the Agent-Based Models. The identified social innovation dynamics identified in the five clusters of social innovations are reported in section 2. Section 3 describes the methodological guidelines for the definition of policy scenarios for each of the SMARTEES clusters of social innovation. Each policy scenario workshop consisted of two phases:

- The first phase of policy scenario workshops explored alternative policy scenarios targeting an increase in the social acceptability of energy-related social innovations. This first workshop followed the methodological guidelines explained in section 2 of this handbook.
- The second phase focused on presenting the results of policy scenario simulations using agent-based modelling and discussing and refining them with case study representatives. The integration of ABMs in PSWs is described in section 4 of this handbook.

Takeaways from the PSWs stress the importance of engaging multiple stakeholders, both experts and policy actors in deliberative, reflexive-thinking, and envisioning activities that lead to the co-creation of alternative policy scenarios for the future development of social innovations in the energy domain. The practical tools and support materials for the workshops are included in the annexes to this deliverable. Finally, a condensed version of this deliverable is attached at the end of this document, for a quick look at the main things to consider when attempting to organize effective participatory and deliberative policy scenarios workshops. This will also be available as a separate download on the project homepage.

List of abbreviations

ABM	Agent-Based Model
PSW	Policy Scenario Workshop
PST	Policy Sandbox Tool
SI	Social Innovation
WP	Work Package

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1. Introduction to policy scenarios

The SMARTEES project focuses on the human factor in energy transitions and aims to foster a profound understanding of the individual and social factors influencing social acceptability of energy local social innovations. Transition to low-carbon energy production, consumption, and distribution systems cannot be but the result of continuous interactions involving different actors, factors, and processes. As part of this agenda, work-package 5 looked at the policy approaches applied in existing cases of social innovations in the domain of energy (grouped in five clusters of social energy innovations that will be described below). SMARTEES put the focus on the political, institutional, and organizational frameworks – barriers and drivers – that condition and structure social acceptability of energy policies, and the successful transferability of these social innovations across contexts. The understanding of such dynamics is pivotal for identifying in advance potential risks and negative situations that could jeopardize the efforts undertaken (Caiati et al., 2019).

In this endeavour, the SMARTEES project has identified a series of common features that explain how the social innovations in our cases effectively respond to social and environmental challenges (e.g., global warming, energy equality). First, social innovations challenge traditional governance configurations and usually build upon a new governance paradigm based on alliances or partnerships between different policy actors, stakeholders, social movements, and citizens. Second, by mobilizing people's creativity to develop new alternative solutions, SIs foster processes of knowledge co-production in the frame of cooperative and new decision-making structures. Instances of policy learning to occur as a result of the capitalization of the hands-on experience and self-reflection on the lessons learned since a SI is designed, implemented, and executed. Thus, policy learning and reflexive thinking activities have been highlighted as key elements that explain the successful implementation and replication of energy local social innovations.

Scenario techniques have increasingly gained attention in urban planning contexts because they encourage strategic thinking, involving a diversity of actors and profiles of participants. Scenarios are descriptions of alternative visions that put the focus on processes and decision-points and that reflect different perspectives on past, present and future developments (Rotmans et al. 2000). Scenario techniques aid to overcome knowledge and experiential limitations by elucidating multiple realistic futures, which becomes extremely useful in times of uncertainty and complexity (Postma & Liebl, 2005; Stojanović et al., 2014). Therefore, scenarios describe dynamic processes, representing sequences of events over a period of time. These visions contain driving forces, potential events, conflictive situations, and actions that lead to explore a series of alternative pathways towards more sustainable cities regions (Rotmans et al. 2000, p.811). Importantly, **scenarios are not predictive tools.** They are not aimed at obtaining forecasts but **serve to provide insights into the present by elaborating alternative images of the future development**.

Various approaches for constructing scenarios can be found in the literature, suited to different goals and policy contexts. In SMARTEES, policy scenarios are suited to analyse, evaluate, and predict the effects of a set of energy policies in the situated context of the SMARTEES case-study clusters. The goal of policy scenarios is to support local authorities and empower municipalities and citizens by simulating alternative energy policies from a multistakeholder deliberative approach. In SMARTEES, the **involvement of policymakers and stakeholders in policy co-production process becomes**

fundamental. To achieve this, a **robust and adaptive methodology**[1] has been developed to codesign policy scenarios, envisioning policy alternatives in a selection of reference cities and islands grouped in five clusters of social innovations. In SMARTEES, policy scenarios workshops permitted assessing social dynamics and test the impact of a specific policy in terms of social acceptability or public adoption. For example, policy scenarios explored the reactions of local communities behind the adoption of one determined energy policy and provide empirical knowledge that will inform future implementations and replications of a social innovation.

The methodology of policy scenarios addresses a multi-stakeholder participatory approach, engaging policy and local actors in reflexive-thinking activities with SMARTEES researchers and modellers. Concretely, in a first stage we **co-produced scenario-related knowledge concerning the social dynamics underlying social innovations' adoption**, envisioning future challenges, and co-creating alternative policy strategies towards energy transitions. Both researchers and participants identified together the driving forces of energy local social innovations, **determining the main dimensions, barriers and drivers, which influence energy behaviour and clarify the level of impact of each future policy in the situated context**. Participants in the policy scenarios co-designed a number of realistic future scenarios.

In a later stage of the SMARTEES project**, those policy scenarios were tested in different combinations to see their effects on the performance of certain policies**. Using **agent-based model techniques**, public reactions and outcomes of each policy have been modelled for a selection of cases (*see deliverable 7.4 for an overview of simulations using agent-based modelling*). Finally, the results of the policy scenario workshops were distilled, and a set of **policy recommendations** have been produced addressing the social acceptability and wide adoption of innovative policies in the energy domain (*see deliverable 5.2 for a report on the outcomes of the policy scenario workshops and policy recommendations*). Finally, a **Policy Sandbox Tool** was produced as an online tool that introduces the history of a selection of SI cases and illustrates the outcomes of the policy scenario activities through the ABM simulations (*see deliverable 8.2 for an overview of the Policy Sandboox Tool*).

This handbook for the co-production of alternative policy scenarios and interventions aims to provide the theoretical and policy framework and the practical methodology to organize participatory processes aiming at reflecting on the policy practices and envisioning alternative or counterfactual scenarios capable to tackle with the challenges and issues that cities face in their energy transitions. The handbook presents insights on how the policy scenario workshop methodology was implemented in five clusters of social innovations, as described below:

- **Cluster 1: Holistic, shared, and persistent mobility planning**. This social innovation uses the mobility plan as a way to mobilize and coordinate many societal actors towards the common goal of a sustainable and efficient mobility system. The cities of Groningen (the Netherlands) and Zürich (Switzerland) are the reference cases involved.
- **Cluster 2: Island renaissance based on renewable energy production**. This social innovation centres around the mobilization of citizens and innovative partnerships to achieve energy independence through renewable and energy efficiency measures and, as a result revive island

[1]SMARTEES policy scenario methodology is inspired in the *European Awareness Scenario Workshop guidelines* (Gnaiger & Schroffenegger, 2003) and the Policy Delphi methodology (Dick, 2000) that involves an iterative process of expert deliberation regarding an issue.

communities by creating sustainable island economies. The islands of Samsø (Denmark) and El Hierro (Spain) are the reference cases involved.

- **Cluster 3: Energy efficiency in district regeneration.** This social innovation triggers district regeneration through hard and soft measures, such as local energy production and energy efficiency measures, urban green spaces, transport system transition measures, and citizen participation. The Swedish cities of Malmö and Stockholm are the reference cases of this cluster.
- **Cluster 4: Urban mobility with superblocks**. This social innovation is based on a radical transformation of urban design to foster low-carbon mobility and create high-quality public spaces for alternative social uses. The city is reorganised into superblocks, car-free areas that maximize public space for new social uses and keep road traffic outside of the superblocks´ inner streets. The Spanish cities of Vitoria-Gasteiz and Barcelona are the references cases of this cluster.
- **Cluster 5: Co-ordinated, tailored, and inclusive energy efficiency schemes for fighting fuel poverty**. This social innovation is characterized by public authorities working in coordination with supply companies and civil society organisations to implement energy efficiency measures for residential buildings with the aim of fighting fuel poverty with a tailored and inclusive approach. The reference cases are Aberdeen (Scotland) and Timişoara (Romania).

During the SMARTEES project (Social innovation Modelling Approaches to Realizing Transition to Energy Efficiency and Sustainability), SMARTEES researchers, modellers, city officers together with stakeholders and social actors got involved in an intense participative research activity that was structured in two policy scenario workshops in each cluster of social innovation. What is presented in these guidelines is the refined version of the methodology for organizing and delivering policy scenario workshops, which include the main insights and learnings that we, as researchers, draw from our practice.

Figure 1: Map of reference cities and islands involved in SMARTEES.

2. Understanding Social Innovation dynamics

The SMARTEES project has deeply studied the energy-related local social innovations from a social science approach, providing rich empirical knowledge about the dynamics of social innovation and the factors driving public acceptability of innovative energy and mobility policies in five clusters of social innovations and ten European frontrunner cities and islands[2].

Picture: superblock in Poblenou (Barcelona, Spain).

Energy policies generally focus on the re-designing of the urban environment (e.g., introducing infrastructural changes) and facilitating energy-saving adoption via technological innovations, changes in regulations, and financial measures. However**, psychological-behavioural factors, such as social norms, the role of local identities, or perceived efficacy in coping with environmental challenges have received scarce attention. In the SMARTEES case studies, we identified particular constraints to the acceptability and adoption of energy-related social innovations, such as: limitations of environmental awareness, existing local cultural or social norms, symbolic beliefs, or the lack of a sense of efficacy** have been observed in the case-studies as barriers for energy transitions.

We have defined social innovation in energy transition as "processes of change in social relationships, interactions, configurations, and/or the sharing of knowledge leading to, or based on, new environmentally sustainable ways of producing, managing, and consuming energy that meet social challenges/problems" (Caiati et al., 2019). Existing theories of social innovations point to two levels, on which social innovations can manifest themselves, i.e., cognitive (i.e., framing, knowing) and behavioural (i.e., doing, organizing).

Policy scenarios efforts in SMARTEES have drawn upon **the lessons learned** from the intricacies of the social innovation processes in five clusters of social innovations, understanding critical factors that

[2] An analysis of the barriers, drivers and social dynamics influencing local energy social innovations can be found in **Deliverable 5.1 "Theoretical framework for definition of locally embedded future policy scenarios"** and in **Deliverable 6.1 "Report on social innovation drivers, barriers, actors and network structures".**

enabled the successful outcomes, or inhibited a greater level of success. To aid in the SMARTEES policy scenario development, we distilled the main **social innovation dynamics** that drive social innovations and are particularly relevant when assessing their replicability within the frontrunner cities and their transferability to different cities or contexts.

2.1 Contextual factors undermining local energy-related social innovations

Factors influencing social acceptability and collective empowerment should be considered in the scenario building endeavour. For example, **underlining socio-economic, normative and political conditions** (e.g., trust in policy leaders), **social influence dynamics** (e.g., social norms, local cultures) and **social needs** are relevant factors that can undermine the capacity of cities and islands to experiment or develop innovative projects tackling energy and societal issues.

Picture: Aberdeen Harbour, Aberdeen (UK). Author: Bruce McAdam[3].

One of the most relevant obstacles for SI to be accepted relates to people's perception that the costs of implementing innovative solutions are greater than the perceived personal or social benefits. **Perceived costs** refer to different things, such as time and effort, reduced commodity and comfort, as well as difficulties in the implementation of a particular project, due to lack of trust in the local government.

- **Concerns for the impact on local economy & jobs**. The concerns of citizens related to their local economy and job development (or reduction) could have an impact on wide acceptability of the SI.

- **Concern for quality of living conditions**. The concern for the quality of living conditions was identified as a factor which could hinder or ameliorate the acceptability of the SI, especially in those cases related to "**energy efficiency in district regeneration**" or focused on "**energy efficiency schemes for fighting fuel poverty**". Establishing a durable infrastructure that can change the living conditions of those who have been living with fuel poverty in Aberdeen, as well as having a strong understanding of the social conditions that tend to accompany/lead to fuel poverty, was identified as drivers for Aberdeen stakeholders. Also, people's concern for a

[3] Retrieved from https://commons.wikimedia.org/

sustainable lifestyle, for green technological solutions, and for increasing the quality of living conditions were considered drivers that facilitate social innovation in Malmö and Stockholm.

- **Place identity & place attachment**. The growth of human societies, development of technological advances, globalization, increased mobility, and encroaching environmental problems (Scannell and Gifford, 2010) threaten the person–place relationships. Altman and Low (1992) described place attachment as an affective link between individuals and their environments. Given these changes, and the identity and attachment being linked to individual affect, this represents a dimension which could hinder or enhance the acceptability of the innovation.

2.2 Lack of satisfaction of needs and values

In the endeavours of identifying the dimensions important to consider in ensuring citizen acceptability and identifying alternatives, it is important to take also into consideration how the changes in behaviours and actions are formed. Each behavioural alternative has a level of needs satisfaction, which, in turn, is influenced by socio-demographic characteristics.

Picture: Noorderplantsoen park (Groningen, The Netherlands).

Ensuring a level of satisfaction on related needs influences the actions that can be related to social innovation interaction patterns and behaviours. We distinguish between three categories of needs. The **experiential needs** refer broadly to comfort and costs. **Social needs** are referring to belongingness (Baumeister & Leary 1995), relatedness (Ryan & Deci, 2000), social safety, or social status**. Values** refer to autonomy, biospheric, and societal goals.

in SMARTEES we put the focus, especificaly, in three categories of needs: (1) experiential needs, which, among others, include the needs for comfort, safety, wellbeing, or environmental quality; (2) social needs, such as belonging, relatedness (i.e. to feel close and accepted with important others and with important groups of others), social safety, social status, trust, recognition; and (3) value orientations, which refer to endorsing biospheric, hedonic, altruistic or egoistic principles to guide action.

2.3 Resistance and contestation

A second category of factors undermining public engagement in SI relate to the perception of social innovations as "top-down" measures, or whether such energy policies are not aligned with citizen's preoccupations or interests. Promoters might have to deal also with the reluctance of citizens to engage in decision-making processes, as they perceived they have not the capacity or knowledge to be involved. Three types of resistance have been noticed in SI: internal or institutional, political, and citizens´ resistance.

- **Internal resistance** refers to the reluctance from other municipal departments to implement innovative measures because they have a different vision of the needs of the city or argue that changes are difficult to implement, or there is a lack of resources for doing that.

- **Political resistance** refers to political division concerning the policy or that a project is taken as a party-political issue.

- **Citizen resistance** is explained by various factors. First, there is a section of the population that usually experience "fear of any change that modify the existing state of affairs", which refers to the natural resistance to lose the perceived commodities (e.g., having a bus stop near to home) or assumed rights (e.g., "the right to drive a car"). There are also specific groups that are concerned about the impact of the SI on their interests and goals. For example, shopkeepers lead the main protests against the pedestrianization and urban mobility plans in several cases studied.

KEY INSIGHTS

- **One of the lessons learned in energy-related social innovations is that building agreements requires time and resources dedicated, although going step by step serves to reduce contestation and gain social endorsement.**

- **Top-down measures can produce strong contestation or the non-involvement in the social innovation. When the intervention is adopted without previous consultation to the residents or social actors, social contestation usually raises.**

- **Citizens can be reluctant to engage in co-designing activities when there is a lack of experience in participatory/democratic processes, and the inhabitants do not understand why they have to be involved.**

- **Trust issues appear as barriers to the adoption of the new policy. For example, in the fuel poverty cluster, promoters had to deal with the lack of confidence of the beneficiaries regarding the effectiveness of the energy projects, especially if they have no reference of other places in which the heat network project worked well.**

Picture: Augustenborg district, Malmö (Sweden).

2.4 Strategies, tools and processes to gain social acceptability

A series of strategies, tools, and processes have been utilized in social energy innovations, ensuring the public acceptability of the measures to be implemented. They relate to dissemination, communication and education strategies, advising, consultation and training strategies, community active involvement in decision-making (participatory strategies), empowerment of local communities, evaluation and assessment of the public acceptance of the social innovation, and empowerment of promoters and social actors involved in the social innovation. Thus, our research suggests **that public acceptance is not only affected by the access to financial or infrastructural measures, but also by the perception that the energy policy is aligned with people's values and interests and that this will bring collective benefits**.

To gain social acceptability and citizens' commitment, a number of strategies can be set up, draw upon the lessons learned from pioneer SIs:

(1) Information and communication activities. Promoters and civil society actors participating in social energy innovations stress the importance of implementing – at an early stage – dissemination, communication and education strategies about the ambition, the characteristics and the changes that the social energy innovation involve. Information provision can be fostered by different strategies and measures, such as educational programmes, environmental awareness campaigns, citizen forums, interviews, etc.

(2) Citizen participation in decision-making (participatory strategies). Beyond information and communication, citizen engagement strategies (from the early stages of the project) seem to become normative in social innovations. Public participation should be carefully designed and organized, considering the most adequate time to involve both the general public and specific groups of interest (particularly vulnerable groups); the rules and mechanisms to participate in decision-making processes, and the commitment required from participants. The principal factors affecting public engagement in SI relate to the perception of social innovations as impositions (when communication has failed among the promoters and citizens) or if such energy policies are not aligned with citizen's preoccupations or interests. Promoters might have to deal also with the reluctance of citizens to engage in decision-making processes, as they perceived they have not the capacity or knowledge to be involved. Thus, participatory and bottom-up approaches become more successful than technocratic or top-down policies.

(3) Citizen empowerment strategies: individual and collective (strategies to support behavioural and community adoption of the innovation). Fostering local entrepreneurship and citizen's active engagement in energy innovation might involve changes in the existing institutions (e.g., policy bodies, legislation), the creation of new organizations as well as the establishment of new kinds of relationships and partnerships between different types of actors (e.g., public-private-citizen partnerships). Empowering citizens in energy innovations involves an institutional change shifting from traditional "top-down policies" to new cooperative or participatory approaches in decision-making, empowering engaging citizens – as well as other private and market actors – in policy co-design.

(4) Social and cultural norms. The creation of new social norms (Cialdini et al, 2006), entails a collective change in people's worldviews, mindsets and attitudes towards an environmental or societal issue. Social norms strategies can be used as follows:

(a) using environmental-related norm-targeting interventions to support acceptability of the innovation.

(b) tools or strategies targeting social and cultural norms regarding participation.

(5) Pilot projects (step by step implementation). Because any changes are usually accompanied by some resistance to the proposed change, more significant changes usually are harder to handle. Pilot interventions become effective strategies to demonstrate the positive impact of the social innovation and gain support for further replication and up-scaling.

(6) Consultation of human resources with a high level of knowledge/expertise. In all cases, human resource and expertise represented either a barrier or a driver, as in any such SI, a high level of expertise is also needed. In Samsø, for example, one of the strategies used for gaining social support is represented by the capitalization of the experience (and lessons learned) through the set-up of the Samsø Energy Academy.

(7) Laws and regulations / Normative and regulatory tools. This category refers to legal instruments and regulations that create the regulatory framework for a particular energy innovation, including instruments such as obligations schemes, taxes, or penalization measures. What is interesting is that, on the one hand, laws and regulations are generally perceived as an obstacle when they are considered restrictive for the innovative nature of the solution. On the other hand, regulations are considered as facilitators of social innovation when innovation comes as a solution to a particular problem or deficiency (e.g.: fuel poverty).

(8) Environmental awareness / awareness of the impact of the SI on the health and quality of life. Low awareness of citizens around energy issues and low interest in energy from the public may influence the implementation of such energy initiatives negatively. Therefore, a strategy to ensure the acceptability of the SI could revolve around the idea of making individuals aware of the environmental issues, and how the SI can have a positive impact on the health and quality of life of its beneficiaries. In Barcelona and in Vitoria-Gasteiz, for example, ecological values and environmental awareness were remarkable motivations to launch the Superblocks Programme, influenced by the citizens being more and more concerned with the effects of environmental pollution on their health and quality of life.

Picture: participatory event in Sustainable Järva project, Stockholm (Sweden).

(9) Creation of working groups / task forces with multiple stakeholders. Creation of permanent working groups among different stakeholders was a specific citizen empowerment policy used in SMARTEES cases, too. For example, in the case of Malmö, residents and citizens were deeply involved since the beginning in the co-design of the social innovation, also through permanent working groups among promoters and residents, giving them the possibility to express their suggestions and observations in order to have the possibility to adjust and modify the plan.

(10) Citizen commitment strategies (i.e., citizen pacts for the SI). The adherence of citizens to norms and regulations, as well as their support for the SI was also ensured through commitment strategies such as "Citizens' Pact for Sustainable Mobility" (2007) in Vitoria-Gasteiz, or the "Barcelona Mobility Pact" signed by the City Council and a diversity of stakeholders and local actors such as mobility-linked associations, companies, institutions, and public bodies to launch mobility initiatives and reaching consensus on improving the sustainable and safety mobility.

(11) Larger public deliberation and consultation strategies. Such strategies were used across all SMARTEES cases to communicate SI relevant information to larger groups, or to reach consensus on various related issues. Zürich, for example, benefitted from traditional tools of referenda promoted by local institutions and inhabitants by which citizens voted for or against different measures to be adopted for improving the mobility in the city. The Groningen case is another successful example of the use of voting tools to involve citizens in decision-making. Both examples constitute successful experiences of citizen empowerment and involvement that might inspire future developments of consultation processes for energy transition policies.

Picture: Avenida Gasteiz. Pilot Superblock in Vitoria-Gasteiz (Spain).

(12) Providing resources (human, financial, etc.) to support SI implementation. As for any project to be developed from inception to provision of benefits, different resources must be put in place, such as expertise, time, or money. The financial resources could include tax benefits and economic measures that provide incentives for business and/or financial support for households (e.g., subsidies, grants, loans) to foster innovation in the energy domain and tackle energy inequality and poverty.

(13) Co-creation of the future (future-orientation, "what should be done further"). Concerns towards the future, and more specifically, working together to shape the desired future is a common orientation in all the SMARTEES cases. In Samsø, for example, the co-creation of the future had a positive and transforming power, as the stakeholders have become part of the development and are involved in the continuous debate about what should be done further. The municipality, the local farmers, and to a large degree, all the islanders have become part of the process. Overall, the project has gone from engaging the initial few enthusiasts to a movement that involves almost all actors on the island, i.e., individuals, businesses and professionals.

(14) Informal, extended partnerships involving a wider set of actors. The progressive character of the consensus building through negotiation and dialogue to overcome conflicts and resistance means also bringing together multiple stakeholders, which can have an informal way of communicating. One such example comes from Samsø, with "Café Good Energy", informal meetings having the purpose of creating an open space for discovering the Samsø citizens' common vision for energy.

Picture: Energy Academy, Samsø (Denmark).

(15) Cultural mediation. To be acceptable, a new idea must have meaning to the potential acceptors and have some relationship to their previous experience. The more the innovative solution is consistent with the way people think and reason, with significant themes or patterns in that people's culture, the more the innovative solution is valued, and hence adopted. Individuals in a given cultural setting will make their decision to accept, reject, or ignore an innovation based on their image and impression of the new product, a decision which will be guided by the beliefs held by themselves and those around them. Thus, it is probable that there are cross-cultural differences in environmental cognition which influence innovation and acceptance behaviour.

(16) Infrastructural and technological policies or tools. These types of measures focus on investments in public and private infrastructures and technologies, as well as the provision of technical guidelines and training. A combination of infrastructural and technological policies, regulatory measures and high levels of citizen involvement have been implemented in both Malmö and Stockholm, such as the obligation for the inhabitants of the new building "Greenhouse Augustenborg" to plant organic food (Malmö).

LESSONS LEARNED

- **Information and communication channels established with beneficiaries and groups of interest in place allow people to express their opinion and their interests and having impact on decision-making.**
- **Targeted communication and education strategies are recommended to be adopted when a social innovation is being implemented. For example, public health and environmental concern are strong motivations that influence social acceptability of energy transitions.**
- **Beyond information and communication, citizen involvement in co-design processes increases both social acceptability and the resident's sense of ownership.**
- **Empowering citizens in energy innovations involves an institutional change shifting from traditional "top-down policies" to new cooperative or participatory approaches in decision-making, empowering engaging citizens – as well as other private and market actors – in policy co-design.**

SMARTEES RESOURCES

- ✓ **Deliverable 5.2 "Policy Recommendations for each cluster of case-studies. Insights from policy scenario workshops"** for an overview of the results of the policy scenario workshops delivered in the five cluster of social innovations and the simulation of a selection of alternative policy scenarios into agent-based modelling techniques.
- ✓ **Deliverable 5.1 "Theoretical framework for definition of locally embedded future policy scenarios"** for an analysis of the barriers, drivers and social dynamics influencing local energy social innovations. It is also a tool to help policymakers conceptualize and implement policies to increase citizen engagement, acceptance of energy policies, adoption of sustainable energy behaviour and to adequately manage setbacks and conflicts in the process.
- ✓ **Deliverable 3.1 "Report on Profiles of Social Innovation "In Action"** in the five thematic clusters studied in SMARTEES. For each cluster, an SI profile has been prepared. Common elements of the five SI profiles, as well as cluster-specific characteristics, are highlighted. Ten detailed information sheets (one per each empirical case) are included in the appendix of the deliverable.
- ✓ **Deliverable 6.1. "Report on social innovation drivers, barriers, actors and network structures"** in the five clusters of social innovations. The report explicates how processes of social energy innovation can be fostered regarding specific types of actors and their networks.
- ✓ **SMARTEES videoblog** for introductory videos on of the five clusters of SI, recorded during the follower cities workshops organized by SMARTEES for new municipalities eager to learn about the SIs approaches and exchange experiences.
- ✓ **Policy Sandbox Tool for inspiration into the potential of working with agent-based modelling (ABM) in the context of energy-related social innovations.**

3. Guidelines for the co-production of future policy scenarios

The multistakeholder deliberative policy scenarios workshops are reflexive-thinking tools that encourage creative strategic thinking, engaging a diversity of actors, e.g., social innovations practitioners, pioneers and policymakers, stakeholders, local actors and experts, in deliberative activities oriented to collectively explore alternative avenues to energy transitions. In this section both the preparatory tasks and the protocol for policy scenario development are introduced and illustrated with examples and key takeaways from the policy scenario workshops delivered in the SMARTEES projects. Examples of agenda and tables for distilling the inputs of the workshops are presented in the annexes 1, 2 and 3.

3.1 Multistakeholder deliberative policy scenario workshops: first steps

Concerning the preparation of the workshop, several steps need to be taken, referring to the identification of the workshop's participants, strategies to mobilize them as well as the practical workshop organization details:

1. **Identifying relevant stakeholders**
2. **Mobilizing and motivating participants**
3. **Choosing a facilitator**
4. **Choose workshop format**
5. **Setting the agenda**
6. **Materials, resources, venue, and costs**

Picture: SMARTEES Policy Scenario Workshop organized in Barcelona city (Spain).

I. Identifying relevant stakeholders

The ambition of the policy scenario workshops is to engage a selected number of **key actors and expert participants** in a dialectical reflexive-thinking exercise and discuss the strengths and weakness of specific policies already implemented – at certain stage – in a situated context to contribute to the critical assessment and development of alternative policy solutions. An actors' analysis should be developed for identifying relevant actors and persons that would provide complementary visions or perspectives according to the specifics of the project. For example, an innovative policy can affect relevant **units/departments of local government**, or involve **social initiatives**, **civil society groups or stakeholders**, from both public and private institutions, that can bring important knowledge. Stakeholders can help to understand contextual barriers, related to habits, cultural and social perceptions that are relevant for urban energy transition. There are also **relevant experts** in the city or region (e.g., scientists, experts on energy transitions, energy justice, sustainable lifestyles, etc.) that would be interesting to approach, to **get an external, informed vision to assess and inspire the scenario development.**

In SMARTEES, the following profiles of participants were relevant in the chosen cases of energy-related social innovations:

- **Promoters/pioneers**: those championed the social innovation at different stages; often members of the city council or civil society actors directly involved with the implementation of the social innovation.
- **Policy actors**: those in charge of and involved with the implementation of the energy-related social innovation.
- **Social actors**: key persons or institutions who actively endorsed the policy or have a relevant role in the development of the SI.
- **Beneficiaries**: those who experienced a benefit from the SI (for example, resident's, households' tenants, neighbourhood associations)
- **External experts** with profound knowledge on the SI: scientists, researchers, technology developers, etc.

II. Mobilizing and motivating participants

This step consists of the recruitment of policy scenario workshops participants. Generally, stakeholders do not participate automatically when they are invited for a workshop. The first contact is usually made by email, but **we will certainly need to engage them in a more active way through personal contact**s (by telephone or in person), or meeting them in advance, informing them about the topic and aims of the workshop. Other materials such as the draft agenda and a brief description of the goals of the workshop should be attached to the invitation letters. It is strongly recommended that each profile listed above is covered, **making sure that both representatives from policymakers and civil society actors are present** to the workshops. To ensure a diverse group of participants, at least 20 participants should confirm their participation. **The goal is to get 8-16 participants in the workshop.** If more than

16 key actors are involved, then several group discussions should take place simultaneously as part of a single deliberative workshop, to involve all the identified actors.

GENERAL PRINCIPLES

The Policy Scenarios Workshops consist of a structured and flexible method to guide a dialectical process. As any deliberative process, for policy scenarios to become a success, they should follow general principles of respect, protection and substance.

- **Transparency.** First, inform the participants clearly about the nature and the objectives of the policy scenario workshop and the reasons for why they are invited to participate (for example, due to his/her involvement in the policy development, their expert knowledge etc). Allow them the opportunity to ask questions about the workshop and answer them properly.
- **Confidentiality and anonymity.** Especially if you are recording the meeting (video/audio) and taking minutes of the session, make clear that all the material will be treated with confidentiality and anonymity and material will not be made public. Distribute an informed consent form in advance. Before starting the workshop, draw attention to this ethical commitment again and ask explicitly the participants' permission to be recorded.

III. Choosing a facilitator

To conduct a deliberative workshop with eight to sixteen participants, it is sufficient to have one moderator and one co-moderator, who is responsible for facilitating the group processes when needed and making sure that the participants are supplied with all materials required. The facilitators should be familiar with the topics of discussion, and suitably skilled for guiding and moderating the debates. Thus, they should be flexible, unbiased, empathetic, respectful and enthusiastic.

Moderators are not participants in the workshop, but they should be familiar with the topics of discussion. If moderators are people from outside the organization that promotes the policy workshop (e.g., City Council), make them knowledgeable of the issues to be discussed. It is also recommended getting external facilitation or at least someone who has not been directly involved in the issue, so as they provide a neutral perspective.

The moderator/facilitator's role is to **coordinate the development of the workshop**, to use the methods and tools properly, to follow the settled agenda, and to be mindful of, as well as manage, group dynamics. More specifically, it is the moderator's or facilitator's role to be engaged in all the phases of the workshop, to manage participants' expectation, and to guide participants throughout the workshop to reach the goals of the workshop. It is the responsibility of moderator(s) to **maintain the flow of the proceedings** and to keep everyone on time and on track, requiring a firm but diplomatic presence. The moderator should be flexible, unbiased, empathetic, a good listener, and enthusiastic. The moderator(s) should develop rapport with the participants, be respectful and communicate in a clear, friendly demeanour. The moderator(s) needs to keep the group on the subject at hand and

encourage and provide space for less vocal members to express their ideas. They should have the capacity to moderate differences in debate and try to engage all participants in the debate and allow their opinion to be heard.

Picture: Social Innovation workshop with follower cities held in Samsø's Energy Akademy (Denmark).

Each small-group discussion should be facilitated by a moderator. When recruiting volunteer moderators, organizers should make an effort to train them in advance. At this training, moderators receive an introduction to the goals of the policy workshop, the rules of the deliberative sessions, a clear agenda, script and guide for facilitating the small-group discussions. The **co-moderator´s** role is to assist the moderator/facilitator, making sure that the participants are supplied with all materials needed, to keep track of time, or anything else as needed. If necessary, the co-moderator is to facilitate the group processes, too.

FACILITATORS' SCRIPT

It is strongly recommended that facilitators have a detailed workshop script of 3-5 pages, which shows a very detailed version of the agenda of the workshop, with the names of the participants/facilitators that take care of each activity, presentation, moderating discussion, taking notes, pictures, recording etc.

The script should also contain the goals and questions for each part of the workshop as well as the resources, materials (e.g., flipchart, post-its, etc.) needed for each session.

IV. Choose workshop format

Policy scenario workshops can be held face-to-face or online (videoconferencing), depending on the availability of participants to meet in the same place. A combination of offline and online activities is also a good option when presence is not possible.

Face-to-face workshops are scheduled to last one day to provide enough time for discussions and co-creation of alternative scenarios. However, as the format is flexible, the workshop can be scheduled across multiple days, depending on participants' preference and availability (especially policymakers and experts could find it difficult to dedicate one day entirely to this meeting). Both the workshop protocol and the mock-up agenda (Annex 1) are provided as an example of a 1-day workshop delivery (see Table 1). The agenda should be adapted to the specificities of each case and can be broken into multiple days, as needed.

Table 1. Example of agenda of the first SMARTEES policy scenario workshop organized in the city of Barcelona (Superblocks SI)

Policy Scenario workshops: session 1 **Barcelona, 5th October 2020**	
9:30	Welcome to the workshop
9:40	**Introduction of the first round of policy scenarios** - Presentation of the SMARTEES project, the objectives and the structure of the policy scenarios workshops - Presentation of the relevant dimensions for the implementation of superblocks
10:10	**Lessons learned from superblocks** - Group reflection on the strategies implemented during the launch of the superblocks in the city. Lessons learned: advantages / disadvantages of each strategy. - Identification of alternative policy scenarios: What other alternative strategies exist? What would you do differently? As a result of the discussion, the participants will develop a list of scenarios in order of importance.
11:10	Coffee break
11:40	**Alternative policy scenarios for the implementation of a new superblock.** **-** Presentation of the context for the replication of a superblock **Group reflection: barriers, facilitators and strategies to implement a new superblock** Considering the context selected for the replication of a superblock and considering the alternative strategies proposed in the previous discussion, the objective of this activity will be: ▪ Identify potential obstacles to the implementation of alternative scenarios. What strategies are necessary to overcome these barriers? ▪ Next steps to take for the new superblock: How would this translate into implementation strategies?

	As a result of the discussion, the participants will draw up a list of potential barriers and possible facilitators of innovation and define implementation strategies (policy scenarios).
13:50	Conclusion Recap and steps forward
14:00	End of the session

V. Other practical organization issues

Planning and organizing a deliberative workshop include covering human resources to design and run the workshop as well as hiring the venue, workshop materials and covering supporting arrangements.

Venue

It is important that the location allows both for the plenary sessions and for working in small groups. Group work can be both in separate rooms (if available) or in the main room. It is recommended to settle the room four or eight weeks before the meeting and check that it has all the resources that you will need: Internet connection, computer/projector, air conditioning/heating, tables and chairs for everyone.

Videoconferencing platform

If the workshop is delivered online, the venue is not needed but substituted by an online video-conferencing platform. There are plenty of options available. Make sure that the one you select allows to video-record the conference as well as has sufficient capacity for hosting large meetings with at least 25 participants with camera activated. Several online tools are also available for interactive working, such as a shared virtual flipchart.

Work material

Consider what you need for the workshop: 1 flipchart (or several ones), tape to hang sheets, recording equipment, laptop and projector, post-its, markers.

Printed versions of presentations, name tags, feedback forms.

Catering

Breakfast and lunch need to be planned as well as coffee, tea, fruit, water, and drinks for the celebration of finishing the workshops.

Cost, time and human resources

Other costs can also be considered, such as the costs of human resources to design and run the workshop as well as covering practical organization issues, including the following:

- Venue hire, catering and supporting arrangements.
- An incentive (such as a small payment) is also sometimes offered to attendees for their time (optional)
- Paying the travel costs for some participants (if needed)
- Workshop data and feedback analysis and reporting

DEALING WITH UNEXPECTED ISSUES

The development of the SMARTEES Policy Scenario workshops was affected by the COVID-19 pandemic. Due to restrictions for large group meetings, the workshops had to be adapted. In some cases, they were held partially face-to-face and in other cases and partially online (videoconferencing). If an online workshop is planned, it is recommended to customize the programme and split the workshop into two or three sessions. The willingness to attend an online meeting could be scarcer, and keeping people engaged in online discussions is challenging.

3.2 Deliberative policy scenario development protocol

A deliberative workshop, in its generic format, represents a qualitative approach where, throughout collaborative processes, participants work intensively upon an issue or a question of interest, through a structured cycling process and facilitated discussions, individual reflexive work and joint problem-solving. This is a Participative Action Research methodology (Whyte, 1991) inspired in the *European Awareness Scenario Workshop guidelines* (Gnaiger & Schroffenegger, 2003) and the Policy Delphi methodology (Dick, 2000) that involves an iterative process of expert deliberation regarding an issue.

The policy scenario workshops also involve a series of discussion activities, using different groupings, techniques and contexts, requiring hands-on practical involvement, special materials or facilitators. Usually, such methods are unfolding during one single day, with groups of 8 to 16 participants, facilitated by more than one moderator (facilitator). However, this methodology is flexible, as it is possible to vary the composition of the workshop depending upon the size of the participant groups, divide tasks throughout the day's deliberation and divide larger groups up where necessary. Moderators or facilitators can also challenge the positions of participants as the workshop progresses, for example by introducing different types of information throughout the session, or by allowing time for presentations and plenary question- and-answer sessions.

In sum, deliberative workshops are allowing participants to not just state their preferences among a set of externally defined options, but to reflect on the core issues and creatively problem-solve to find suitable solutions. Deliberative workshops also allow broader development of attitudes and values over through interactive dialogue, being possible to see whether and how these can change and what arguments and information have had the greatest impact.

Phases in developing the policy scenario workshop

Policy scenario workshop in SMARTEES involved a structured iterative process of deliberation, involving small group and plenary discussions, individual reflexive work and visioning exercises.

The general structure of the first round of policy scenario workshops was built on the following iterative phases:

1. Framing reflexive analysis. The case(s) researchers presented the social, institutional and political dynamics tailored to each case, as well as the main policy strategies used at particular moments in time (*see Annex 3 for a synthetic table with the dimensions relevant for the acceptability of the SI*).

2. Discussion on lessons learned from the pilot implementations of energy-related social innovations. Case(s) researchers guided the discussion asking participants (1) to refine lessons learned, (2) to zoom in on particularly promising alternative interventions, by reflecting on the question of what they would do differently (counterfactual scenario) and (3) reflect on other important factors that might influence social acceptability of an energy-related social innovation not already included in the table, i.e., what might have been missed from the analysis. During this phase, participants also identified the obstacles for the counterfactual scenarios discussed previously and discussed on possible solutions to overcome them.

3. Deliberation on the most interesting policy alternatives and counterfactual scenarios to be tested through social simulations. The basic structure and assumptions of the agent-based models were presented and opportunities and limitations to the implementation of alternative scenarios were discussed with stakeholders, focusing on choosing a set of most promising alternative yet realistic scenarios for testing.

Figure 2, below, presents an overview of the protocol for organizing the policy workshop. It is structured in eight phases that need to be covered in the workshop. This structure is defined for a workshop that combines plenary sessions and small group sessions.

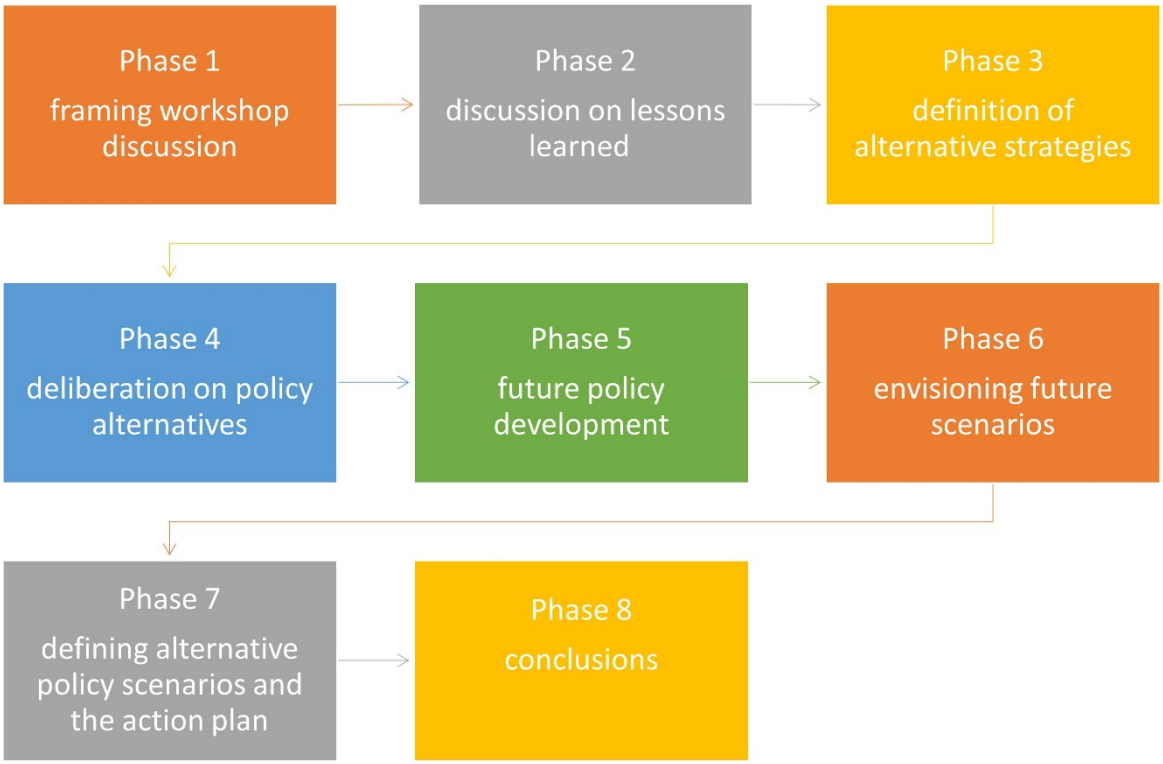


Figure 2: Phases in developing the deliberative multistakeholder workshop.

Phase 1. Framing workshop discussions

The objective of **phase 1** is to define the context of discussions and to have a mutual **understanding on the relevant dimensions for the SI.** The goals of the workshop are presented, as well as the agenda and what is expected from expert participants. Participants are offered valuable information related to the current state of affairs and the results of the past policy implementation. During this phase, a brief presentation of each participant is also in order, covering the following aspects: who they are (name, education, position within the organization), what they do and how they got involved in the project or the issue (institution, aims, fields of interest).

Workshop organizers need to set an agenda for the deliberative workshop. This agenda consists of a series of questions that participants will address during small-group discussions at the workshop. When developing their agenda, organizers should keep the goal of the workshop in mind: learning from experience and develop a series of alternative policies based on the diverse perspectives and backgrounds involved in the workshops. The questions will serve as the basic framework for structuring the sessions. Do not take more than 60 minutes, including the round of presentations, so as time allocated for group discussions should be maximized.

In the SMARTEES project, multistakeholder deliberative policy scenario workshop had the following specific objectives:

- Distil the main lessons learned on each relevant dimension in the process of design and implementation of social innovations.
- Identify alternative policies and strategies of interest
- Identify foreseeable obstacles to alternative policy scenarios of interest and strategies to overcome them.

Picture: Policy workshop with reference cases in A Coruña (Spain).

Phase 2. Discussion on lessons learned

Phase 2 corresponds to the **discussion on lessons learned from the pilot implementations of energy-related social innovations.** The facilitators should first ask participants to identify the drivers, it is said, the key factors that were relevant for the development of the SI, including policy and social actors relevant for social acceptability. Before starting this phase, participants are divided in two/three small groups. A minimum participation of four persons per group is recommended. The maximum participation per group should be limited to eight people. Following, participants discuss the obstacles they found (or that they are likely to encounter) and how they did/would overcome them. The following questions can be raised to address the discussions:

(1) What are the main dimensions that should be considered when planning the process of policy design?

(2) What are the factors/actors that would contribute to the social acceptability of the policy?

(3) What were the obstacles you found in the implementation of this policy? How did you overcome them?

(4) What other barriers you are likely to encounter?

INDIVIDUAL REFLEXIVE WORK

At the beginning of this phase, you can leave a few minutes for each participant to reflect individually on the relevant dimensions and on possible policy alternatives for the case. For this, the participants are each provided with the table containing the relevant dimensions (see ANNEX 2) and have the task to:

(1) identify **lessons learned** for each dimension – "What you already learned",

(2) identify **alternative interventions** for each dimension – "What would you do differently" (counterfactual scenario)?

(3) reflect on **important factors for SI acceptability** that have not been mentioned – "What is missing".

This work can be sent as well in advance, as a **preparatory "homework"** to be done by the participants in preparation for the workshop.

Phase 3. Definition of alternative strategies

Drawing upon the discussion in the previous stage, the goal of phase 3 is to deliberate on promising interventions that could have been implemented, answering the following questions:

(1) What is missing? (Other strategies, solutions, tools and instruments that could have been implemented or that are complementary to the policies already)

(2) What would you do differently (counterfactual scenario)?

(3) What other strategies can you figure out how to sort out the obstacles and barriers?

(4) What other policies would you implement to take advantage of the drivers and positive outcomes of the policy so far?

Participants produce a list of lessons learned arranged in order of importance, based on the work done under the previous phase on what was already learned and what can be done differently). These lessons learned can focus on:

(1) What are the main dimensions that should be considered when planning the process of innovation design?

(2) What are the factors/actors that would contribute to the social acceptability of the SI (both barriers and drivers)

(3) What other alternative strategies would you like to test?

Phase 4. Deliberation on policy alternatives

During **phase 4,** the presentation of the results of each group takes place. The discussion stimulates **mutual understanding,** and the participants have a more nuanced picture of what would be the **most important dimensions to be considered in the definition of alternative scenarios**. Table 2 provides an example of the different topics addressed in the phases 2,3 and 4 and how to distil the main inputs.

Table 2. Example of table for the identification of alternative policies based on the strategies already implemented (lessons learned)

Strategy (already implemented)	Alternative strategy	dimension to which it would apply	order of relevance

Picture: Social Innovation workshop with follower islands held in *Gorona del Viento* Renewable Energy Plant (El Hierro, Spain).

Phase 5. Future policy development

Phase 5 consists of the **presentation of the future policy implementation**. The objective is to develop alternative routes for the design and implementation of the social innovation. **Scenario thinking** is contextualized as a (hypothetical) new development of the SI, presenting:

(a) a possible replica of the policy at the city level (it is scaled-up to the entire city), or

(b) a possible replica of the policy in a new case (replication of the policy implementation).

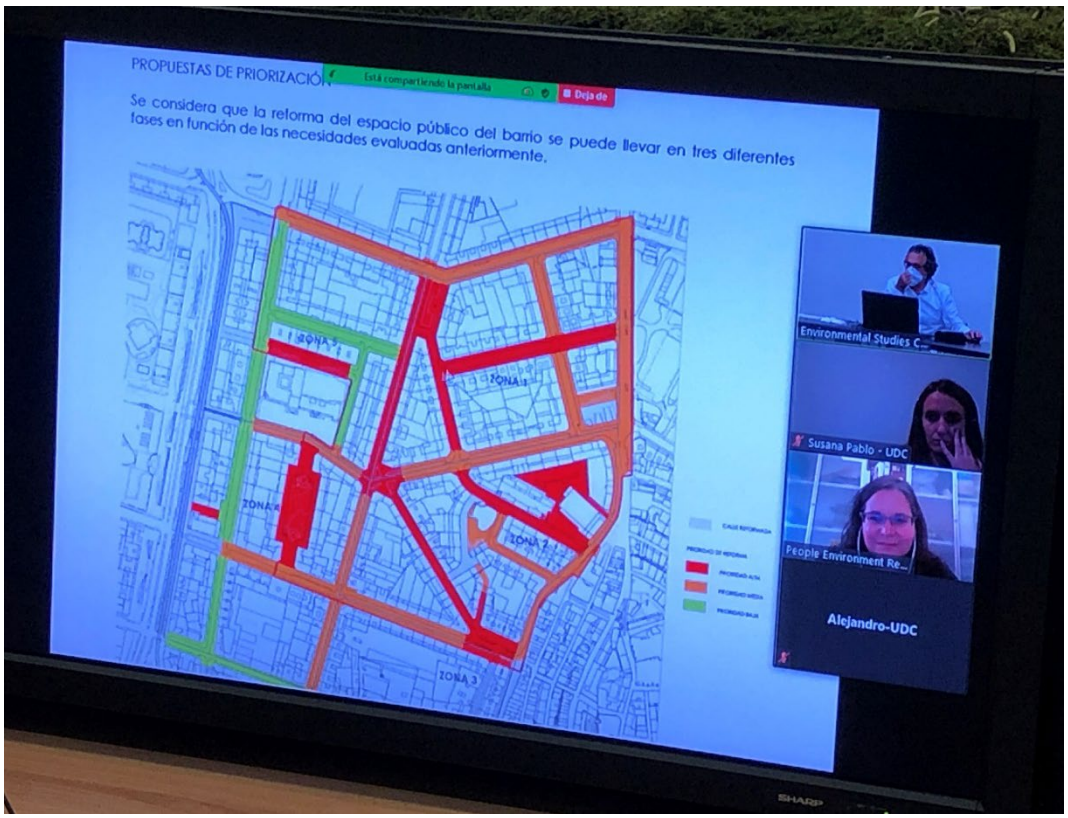
If a choice cannot be made between up-scaling or reproducing the SI, two separate groups can be created to work in parallel on both contexts.

This brief presentation should contain the following:

(1) Where and what is the social context in which the new policy will (hypothetically) develop?

(2) Why this context (e.g., neighbourhood) has been selected?

(3) What are the key elements of the larger context that need to be considered?



Picture: Presentation of the future superblock implementation at the Policy Scenario workshop held in Vitoria-Gasteiz (Spain).

Phase 6. Envisioning future scenarios

The purpose of phase 6 is to **generate the first ideas for the alternative scenarios**. The discussion will start with the identification of the potential obstacles for future implementations and discuss possible solutions to overcome them. Therefore, for each scenario, a list of possible barriers as well as a list of possible drivers for SI acceptability is created by each work group (see Table 3, below). Thus, the suggested questions to guide the discussion will be:

(1) What are the potential obstacles to the implementation of alternative scenarios?

(2) What aspects or factors can facilitate the social acceptability of this policy?

(3) What strategies are necessary to overcome these barriers?

(4) How would take advantage of these facilitators?

(5) What would happen if…/ what is the best combination of strategies to achieve success…?

Table 3. Example of table for identification of factors influencing the replication or scaling out of a SI

Potential barriers	Strategies to deal with	Potential drivers	Strategies to take advantage of

Picture: Policy Scenario workshop held in El Hierro (Spain).

Phase 7. Defining alternative scenarios

Phase 7 opens **prospects for concerted action,** co-generating viable ways of implementation**,** and advances a **strategic action plan.** This last step opens perspectives for concerted action, shows practicable ways for implementation, and can go as far as developing a strategic action plan. The action plan defines concrete measures, strategies, and processes, including the temporization of each measure or strategy, the definition of the actors, the impact of the action (in terms of social acceptability) in each alternative policy scenarios (see Tables 4, 5 and 6 for examples).

Phase 7 in the SMARTEES policy scenarios revolved around the following issues

- **Designing an action plan**: How to translate the alternative scenarios into an action plan for the start-up and implementation of the new alternative policy?
- **Defining implementation strategies:** Schedule the actions. What strategies would correspond to each time phase?
- **Orienting the action plan to the realization of specific interventions**: targeted communication and awareness-raising strategies, activation of social norms, addressing satisfaction of social and experiential needs, etc.

Table 4. Synthesis of the alternative policy strategies for social engagement. Aberdeen policy scenario workshop

Dimension	Strategy	Where	When	Who	How
Legislative	Firmer encouragement for new private developments to join/add heat network	Aberdeen City	2022	Private developers Home buyers AHP	Through the Local Development Plan
Legislative	Decarbonization comes into effect (i.e. no more cheap gas)	National	Model various years and see what difference it makes	Developers homeowners Landlords AHP	National legislation
Legislative	Oblige anchor buildings to connect to the network	Aberdeen City or targeted areas	2022	Businesses	Through the Local Development Plan

Source: SMARTEES Deliverable 5.2. Annexes. Report on policy scenario workshops: Aberdeen case study. Authors: Wilson et al. (2021).

Table 5. Synthesis table of the alternative policy strategies for social engagement. Groningen's policy scenario workshop

ALTERNATIVE PATHWAY/STRATEGIES	ACTION PLAN/COMMUNICATIVE ACTIONS FOR SOCIAL ENGAGEMENT
CLOSING THE PARK FOR CARS AS A TEST	Park was not closed as a test: people do not have the experience ○ Experienced experiential satisfaction is the same as expected ○ Experienced experiential satisfaction is lower than expected (a negative surprise): - Safety for children - an accident happened - only simulated when the park is not closed for cars as an experiment Park is closed as a test: ○ Experienced experiential satisfaction is the same as expected ○ Experienced experiential satisfaction is higher than expected (a positive surprise): - Shopping convenience - closing of the park for cars is more convenient than expected - only simulated when the park is closed for cars - Transport convenience - only when closing the park for cars (e.g. a rose to improve the experience) - Park activities - only simulated when park closed for cars (e.g. Noorderzon festival) ○ Experienced experiential satisfaction is lower than expected (a negative surprise) ○ Transport convenience - only when closing the park for cars
MEDIA	○ Negative campaign - who is the media reaching – e.g., random 20% of the population; persuasiveness will follow a random distribution with a mean of mean persuasiveness of agents - shopping convenience low and transport convenience low. ○ Positive campaign: focused on park activities and environmental issues
MEETINGS ORGANIZED BY CITY HALL	○ Meeting in a city hall early on, middle, and just before the vote only for the no experimental closure, When experimental closure - meeting only early on. To be discussed: what if the municipality is creating false expectations? ○ People with high motivation go - approx. 1% most motivated will participate motivation is the sum of all need importance or 1 core need that exceeds a given value ○ During the meeting, participants: - High trust in municipality, no discussion: become more positive about permanent closure of the park for cars - expected satisfactions increase - top-down approach - Low trust in municipality, no discussion: - people strengthen their original opinions without trusting the municipality - High trust in municipality + discussion (empowering): People have the opportunity to exchange information (participants are just provided with a platform) - Low trust in municipality + no discussion Meetings in ALL neighbourhoods early on, middle, and just before the vote

Source: SMARTEES Deliverable 5.2. Annexes. Report on policy scenario workshops: Cluster Holistic, shared and persistent mobility plan. Authors: Antosz et al. (2021).

Table 6. Synthesis table of the alternative policy strategies for social engagement. Barcelona's policy Scenario workshop

ALTERNATIVE PATHWAY/STRATEGIES	ACTION PLAN/COMMUNICATIVE ACTIONS FOR SOCIAL ENGAGEMENT
PARTICIPATION AND CITIZENS' ENGAGEMENT	• Involving different departments of the City Council in the co-designing of the measure. For example, it is mentioned that the Urban Planning Department must be present. • Need of leadership from the district administration. • In the process of gaining social acceptability, it is necessary to cover or overcome a series of phases: ◦ The city council presents its proposal to a few people considered as references in the neighbourhood. If sufficient acceptability is achieved, it can proceed to the next phase. ◦ The city council presents its proposal to the neighbourhood groups. If sufficient acceptability is achieved, it can proceed to the next phase. ◦ The city council presents its proposal to the residents of the neighbourhood. If sufficient acceptability is achieved, it is possible to advance to the next phase. ◦ The city council presents its proposal to the district council.
EDUCATION AND DISSEMINATION STRATEGIES	• Reinforce the discourse by emphasizing the need to promote the health of the residents of the neighbourhood and to protect the school areas. Link the goals of the superblocks with previous school programs. • Improve the communication strategy leaded by the promoters. Phases in which it is necessary to apply this strategy: ▪ Diagnosis phase ▪ Agreement on the action plan ▪ Implementation of the measures approved • "Informative pills". Address the concerns of different groups relating (to) the implementation of the superblock in thematic meetings with neighbours.
COMMUNICATION STRATEGIES ADDRESSING NEEDS' SATISFACTION	• Preparing a good diagnosis of the neighbourhood. This diagnosis should focus both on technical and social needs. It is essential to identify the main problems and concerns in the neighbourhood and align the superblock preparatory activities (information, communication, participation etc) with the satisfaction of social needs and the solution of current problems.

Source: SMARTEES Deliverable 5.2. Annexes. Report on policy scenario workshops: Superblocks. Authors: Lema-Blanco & Dumitru (2021).

Phase 8. Conclusion and further steps

Phase 8 encompasses two steps: (i) the presentation in the plenary of the results of each small group and discussions related to next steps and actions and (ii), feedback round of the participants reflecting their impressions and feelings. It is also interesting to ask how participants liked the workshop, what they have learned from the workshop, and let them know how the organizers will proceed with the results. Finish the session with an informal gathering, sharing some drinks.

WORKSHOP DATA ANALYSIS PROCEDURE

- ✓ In SMARTEES, all discussions were recorded using audio and/or video recording devices.
- ✓ These recordings then were fully or partially transcribed, checked for accuracy by the research team.
- ✓ All contributions were anonymized to remove names and any other identifying features of the discussions.

3.3 Key takeaways to foster a systematic reflexivity exercise on policy scenarios

MAXIMIZE FACE-TO-FACE MEETING

Physical meetings are the best choice for the workshop format, especially if participants do not know each other. Moreover, providing sufficient time for informal interaction is critical to bond and develop trust, which is essential to talk about past negative experiences in projects. When the online setting is needed, break-out small groups help to create a more comfortable environment that fosters free dialogue and reflexive thinking.

PREPARATORY TASKS

In the SMARTEES policy scenario workshops, some cases prepared individual homework activities to get feedback from the participants in advance. For this exercise to be successfully achieved, it is recommended that organizers provide participants personalized assistance to complete these tasks, facilitate the knowledge of the subject for the next phase, and follow up the accomplishment individually.

PROMOTE A CREATIVE ENVIRONMENT

Encouraging people to think creatively about what they might do differently can be challenging. Promoters, for example, usually tend to hold their roles and focus the discussions on real scenario approaches unless try to think "out-of-the-box". You can deal with this issue by asking participants to

think beyond current constraints ("If money, roads and planning were no obstacle"), and address broader concerns through radical actions.

A creative environment allows people to "move away" from the current situation to imagine alternative pathways and "come back" with new ideas to be further developed in the workshops. Participants should feel free to express any ideas they want to put forward. This requires an atmosphere of free expression of all ideas that promote the creative process of the session.

STRUGGLING WITH LIMITED CREATIVITY

In the SMARTEES superblocks workshops, the exercise of presenting a future scenario for replication of a superblock had some challenges. For example, participants invested most of the time in discussing the social and political issues of the specific neighbourhood, and they missed the goal of designing alternative strategies for social engagement.

Maybe if the exercise would involve making recommendations as experts for another city to start a superblock, they would be more creative and more willing to think out-of-the-box.

3.4 Resources available to foster imagination

Table of relevant dimensions and lessons learned

Table 7 with the relevant dimensions and the strategies, tools and processes available could be useful for guiding the discussions and helping participants to "think out-of-the-box" and figure out alternatives avenues for tackling with barriers and take advantages of the drivers already mentioned. Reflexive thinking should focus on the strategies to address the social and psychological dimensions pointed out as relevant in literature and empirical research in SMARTEES. Especially, the social and experiential needs dimensions have not been frequently addressed in policy implementations and can be useful to figure out new policies and strategies to gain social acceptability.

Questions can also focus on how to foster changes in social norms (e.g., supporting active and healthier lifestyles, new uses of public space), or increasing environmental/health awareness or how to anticipate social resistance or unexpected outcomes. In the annexes, you can find summary tables describing the relevant dimensions and lessons learned from the implementation of social innovations in the SMARTEES frontrunner cities.

Table 7. Synthesis table of the strategies (used in the past and in future scenarios) for gaining social acceptability. Aberdeen policy scenario workshops.

RELEVANT DIMENSIONS	**STRATEGIES FOR GAINING SOCIAL ACCEPTABILITY**						
	Information, communication (SI)	Participation of policy actors and citizens in co-designing	Support changes in social norms	Pilot projects	Infrastructure & technologies	Environmental awareness (health, quality of life)	Environmental education (wide context)
Citizen resistance	Past, Future	Past, Future		Past		Past, Future	Past, Future
Policy resistance		Past, Future		Past	Past		
Non-supporting social norms	Past, Future		Past, Future				
Lack of confidence in the project	Past, Future	Past		Past			
Place identity/attachment		Past				Past, Future	Past, Future
Commitment of relevant actors	Past, Future	Past, Future		Past	Past, Future		Past, Future
Satisfaction of experiential needs				Past, Future			
Satisfaction of social/psychological needs (security, belongingness,			Past, Future				

relatedness, status, reputation)							
Satisfaction of need of acknowledgement							
Values: autonomy, biospheric and social oriented				Past			
Awareness of economic impact	Past, Future			Past, Future			

Source: SMARTEES Deliverable 5.1. Annexes. Report on policy scenario workshops: Aberdeen case study. Authors: Wilson et al. (2021).

Hypothetical cases and visioning to promote creativity

One of the most common ways to promote a creative environment is to introduce a hypothetical case through a visioning exercise. Such a future visioning exercise create space between the present reality and foster perspective-taking, in a certain sense removing or helping participants detach from the present. Hypothetical cases are "stories" that set the scene for the facilitation process in a way that encourages creative responses from the participants. For example, you can present an imaginary place where a new policy is being carry out, contemplating sustainable criteria in social, economic and environmental aspects. You can ask the group to write down or elicit verbally their ideas about what factors need to be considered to gain social acceptability of the policy. These ideas are then compiled into a panel.

Classification / grouping of ideas. Once all the ideas have been placed on the panel or on the wall, they must be classified that refer to the same topic, area or objective. The group must decide which ideas should be grouped together.

Prioritization / evaluation of ideas in the local context. This next step provides the participants with the opportunity to express which of the panel ideas they would like to develop further, asking which of the vision ideas would you like to see materialize in this area? To carry out the process described in a balanced, structured, visual and efficient way, each participant receives 5 red and 5 circular green stickers, and each participant is asked to stick the green circles on those 5 ideas (cards) that in their opinion should be realized within the framework of the alternative policy scenarios (they cannot vote the same card twice). Red circles are for those ideas that in their opinion should not be developed.

From vision to action plan. The action plan reflects the concrete actions to be taken to transform the future policy vision into reality, define the resources and guide the selection of actions. The action plan defines specifying concrete activities, with temporization of each measure or strategy, defining actors, defining the scope and the impact of the action (in terms of social acceptability). Participants need to specify the strategies, the processes, the communication actions in the alternative policy scenarios, setting out an agenda with a timeframe, for gaining social engagement and public acceptability.

KEY TAKEAWAYS

1) **Maximize time allocated to group discussions and keep presentations to a minimum.**

2) **Provide a safe environment in which participants can talk freely: inform clearly about the objectives of the workshop and guaranteed the confidentiality and anonymity of the discussions.**

3) **Provide enough time for everyone to share their views, and recognize the value of expertise from all participants, not just the 'experts'**

4) **Be flexible both in timing and in adapting the workshop in case it takes an unexpected direction or unanticipated conflict arises.**

5) **Create a feedback form for the workshop. The evaluation of the workshop is useful for assessing what has been achieved and improve further similar initiatives.**

6) **Keep participants informed after the event. Provide them a summary of the workshop and recognize and clarify how the participants' input throughout the workshop has made a difference.**

4. Agent-based modeling in the service of decision-making

4.1 ABM integration in SMARTEES Policy Scenario Workshops

The SMARTEES project aimed to develop Agent-Based Models, based on the HUMAT framework, that contribute to explore the social dynamics inherent to the social innovation processes, by integrating a series of relevant theoretically grounded phenomena in a computational structure, allowing for the modelling of different social innovation cases (see Deliverable 7.4 for a description of the simulation implementations). To obtain rich data that serves to calibrate the model, policy scenario workshops in the SMARTEES project were structured in two sessions, which aimed two foci:

- The first workshop explored alternative and counterfactual policy scenarios aiming at increasing the social acceptability of energy local social innovations. This first workshop followed the methodological guidelines explained in chapter 2 of this handbook.
- The second workshop refined the social dynamics simulated in the Agent-Based Model, aiming at representing the population of the case with sufficient realism. This workshop was mainly oriented to discuss the alternative policy scenarios implemented in the model so far and refine them, involving both researchers and the workshop's expert participants in a retrospective reflexive-thinking exercise.

Policy scenario workshops aimed to become a rich source of qualitative data for identifying the presence and behavioural tactics of critical nodes and citizens' reactions to them. Those behavioural tactics represent factual and counterfactual policy scenarios that were tested in the model. However, the use of expert models such the ABM in the frame of multistakeholders deliberative workshops can be challenging. Using and understanding these sophisticated models requires the involvement of policymakers and city officers with several levels of decision-making and profound knowledge on the specific contextual conditions and the social reactions of individuals and groups towards the social innovative policies undertaken at the local or regional level. Besides, social science researchers and AB modellers should address their efforts to improve the comprehension of their models by non-expert audiences.

In the first round of policy scenario workshops conducted in the **cluster of Holistic Mobility,** participants were introduced to general ideas for modelling **Groningen and Zürich** cases in SMARTEES, including the HUMAT socio-cognitive architecture that depicts cognitively motivated information exchange in social networks. Further, the model of the Noorderplantsoen case in Groningen was presented, relating to the history of the case. Following the model scheduling, calibration was described. Attendees got to know what sources of data were used, and in what way they aided in making the modelled case resemble the reality of the 1994 Groningen. Finally, a film of the Groningen simulation was shown to the participants.

In **Aberdeen (Cluster 5, fuel poverty),** Agent-Based Models were introduced at the beginning of the workshop. Researchers outlined the origins of Agent-Based Modelling, explaining it as an approach to computer simulation that can represent differences between people and their interactions, which form a multi-layered network. ACHSIUM ('ACHSIUM' – Aberdeen City Heat Network Social Innovation Uptake Model) was introduced as a way of exploring scenarios for district heating adoption in Aberdeen City and showed how the model uses a map of the Torry area to represent buildings and the

households and businesses that occupy them, and the network of district heating pipes that run between them. The presentation outlined the kinds of agents in the model (e.g., households, businesses, energy providers, advisory and financial agencies) and explained that each agent makes decisions based on its "episodic memory" of experiences and the influence of its advice network. The model represents changes in weather, life stages, financial situations, household composition, etc., and calculates what will happen in terms of heat network rollout, given different scenarios. Researchers gave a demonstration of the model showing a simulation of buildings in Torry changing from red (in fuel poverty) to green (not in fuel poverty) according to whether they join the heat network and explained how different policies can be tried out using the model. Regarding the **success of the experience**, JH researchers concluded that the presentation of the Aberdeen case study's agent-based model was successful in explaining the basics of modelling and how it is being applied in this case, as well as a demonstration of the model. The workshop was also successful in facilitating discussion and constructive contributions from most participants. However, they argue for the need for creativity that involves questioning the taken for granted and creating 'a conceptual space' where current perspectives and lock-in systems institutions can be changed.

In both **El Hierro (cluster 2, Island renaissance)** and the **superblocks cluster (Vitoria-Gasteiz & Barcelona)**, after a broad presentation of the functionalities of the ABM, the discussions revolved around the data that is needed to feed and calibrate the model. Although the model uses available sociodemographic datasets (to describe the population of the simulation environment) as well as qualitative data collected through semi-structured in-depth interviews and document analysis (e.g., press articles) data on citizens' perceptions was collected through questionnaires. These data made it possible to identify the needs of citizens, assess their degree of acceptability of the SI and define social networks. For a more accurate adaptation of the ABM to each case, more quantitative and qualitative data was required that allow describing the relationships between critical nodes [formal organized structures] and the communicative actions from the critical notes to citizens concerning the SI. These strategies need to be specified in terms of: [i] target population, [ii] frequency, [iii] impact, (iv) discourse content.

Concerning the **success of the experience**, workshop participants observed that the combination of a series of strategies is more effective in achieving the success of a policy than a single isolated action. The model representing the combined effect of several strategies is perceived as very positive and useful for policymakers. However, the researchers pointed out that **those expectations should be managed** during the presentations and the discussions. Thus, the research team had to clarify that ABM techniques do not make predictions about the future but allow simulating the response of the population to a new policy alternative. Whether the data available is robust and accurate to reality, the model will be useful for learning how social acceptability varies with the combination of different communication strategies, and these alternatives scenarios will provide insights for future implementations.

4.2 SMARTEES Policy Sandbox Tool as an instrument for inspiring socially innovative policies in the energy domain

This section introduces the SMARTEES Policy Sandbox Tool (PST) as an online resource for policymakers to get first insights and inspiration into the potential of working with Agent-based modelling (ABM) in the context of supporting Social Innovations at the city/island level. The PST is also intended to shed light on social dynamics to inform the design of policies. The latter is imagined here in the context of a policy scenario workshop, as described in this deliverable. The PST has been described in greater detail in deliverable 8.2 "SMARTEES Policy Sandbox IT tool and workshop concept".

Goals of the SMARTEES Policy Sandbox Tool

The SMARTEES Policy Sandbox Tool aims to support local governments in making decisions by allowing policy and decision makers to explore social dynamics in a local context and to test different effects that social innovations could have on policy outcomes and citizen behaviour. Based on the research on and modelling of pioneer European cities that have been involved in the SMARTEES project since the beginning, the tool provides local policymakers with insights into what kinds of processes could take place and what kind of policies could be implemented to increase citizens' acceptance.

Brief introduction to the content and main features of the PST

An online version of the tool, showcasing the SMARTEES pioneer case studies, was publicly available and hosted on the SMARTEES project website. It allows users to choose from pre-selected factors, i.e. influences such as changes in opinion, in fuel prices, or in communication measures taken by an actor regarding the respective Social Innovation. Against the baseline model, which reconstructs citizens' real-world behaviour in the past, these changed influences or factors will make what is called a policy scenario. These policy scenarios shall create an insight as to whether the course of events could have been different, had a policy decision by the researched city been different.

The PST has been created for the four most illustrative cases. Each case is structured in a timeline (see figure 3), which effectively splits the PST's function in two sections: First, based on the factual past, the development of the Social Innovation is being told about in a storyboard, split into different phases of the case. Each phase of the storyboard represents a brief introduction to the contextual conditions, actors involved in the case as promoters, supporters or opponents, and the activities around the Social Innovation, i.e., the description of policy measures adopted as well as the outcomes and impacts researched.

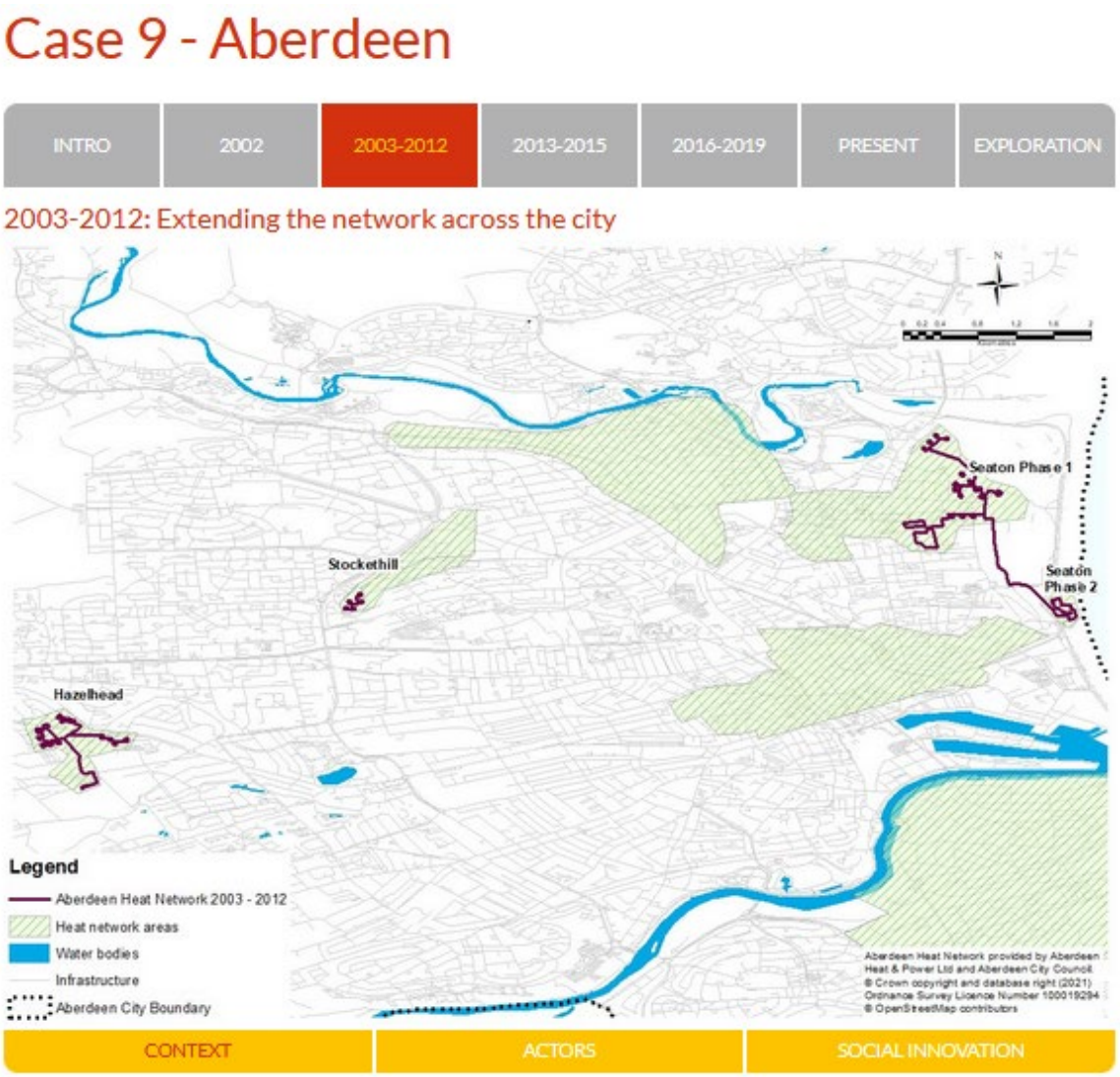


Figure 3: PST storyboard page example

Second, based on the fictive policy measures chosen for modelling by each city in the policy scenario workshops (cf. deliverable 5.2 "Policy Recommendations for each cluster of case-studies and an online tool for the co-production of energy policy and simulations"), there is an exploration section (see figure 4). This section shares an insight into the social simulations done for each city by using video recordings of the most illustrative policy scenarios implemented in the Agent-based models, including a video commentary by the responsible modelling team. This policy scenario exploration is based on a simplification of the alternative policy scenarios co-designed in the deliberative policy scenario

workshops, as well as the refinement of these scenarios implemented in the model. The exploration section shows if in these alternative scenarios the acceptability is higher or lower than in the factual past. Finally, a reflection on the model runs is done by the modellers, with recommendations where possible.

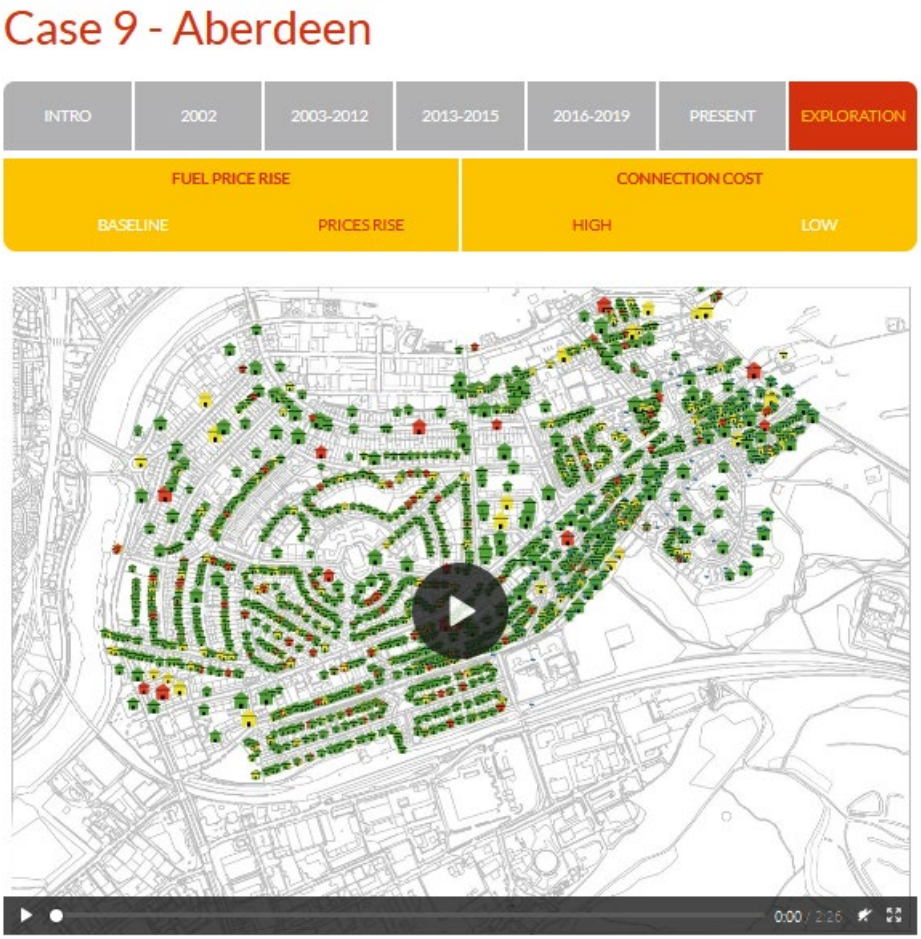


Figure 4: PST storyboard page example

Future policy scenario workshops and the Policy Sandbox Tool

The main purpose to develop the PST has been to support local governments in making decisions by exploring the social dynamics of policy options, as requested by the SMARTEES reference cases. For local governments in general, i.e. any city, municipality, or island authority, the PST online tool can, however, only serve as an introduction to the methods and outcomes of the project. It should be understood as a teaser for the services that could be provided in the so-called pro version. The pro version of the PST is foreseen as a consulting service package to interested cities. This service would entail a customized, ABM-based exploration of policy scenarios, match-making with SMARTEES partner cities, workshops and other consultancy services (see D8.2 “SMARTEES Policy Sandbox IT tool and workshop concept”; detailed concept described in D8.4 “Business plan for the SMARTEES policy Sandbox IT tool and workshop concept”).

4.3 Using Agent-Based Simulation to foster dialogue in democratic processes

Whereas polarizations and conflict between different groups in a society are a phenomenon that is as old as humanity, in current times humanity is confronted with a number of issues that give rise to fierce discussions and conflict. Issues concerning climate change, COVID-19 policies, the future of the European Union, how to deal with migration, the multicultural society, these are examples of topics where polarizations in society can be observed. These polarizations are partly fuelled by discussions and arguments on social media, and underlying algorithms further support this process by prioritizing information that confirms the opinions and perspectives of a person.

In psychological research, much is known about attitude and opinion formation, the persuasive processes that play a role in opinion diffusion, and the many biases that play a role in opinion formation. In Deliverable 7.3 (Antosz et al, 2019) an overview is given of the different processes and theories that are relevant in understanding processes of social innovations. Some of these biases are being mirrored by algorithms that have learned to recognize what type of information is engaging for users, resulting in informational filter bubbles. Also, increasingly, knowledge is available on how people may end up in relative closed-minded groups that share similar opinions. For example, echo-chambers on the web are relatively close networks where deviant information from outside hardly spreads (e.g., Cinelli et al, 2021). Especially within the social simulation community, much research is being done on studying the dynamics of such polarization processes, using agent-based models to “grow” processes of group polarizations and conflict (see e.g., Flache et al, 2017).

Whereas great progress is being made in understanding such social dynamics, the public is usually less aware of these mechanisms that apply to their own social lives. Especially, the non-linear processes that describe how debates can escalate towards societal chasms that are hard to bridge are difficult to recognize from within. Simulations such as developed within our SMARTEES project (see deliverable 7.4, Bouman et al, 2021) would provide a helicopter view of societal processes they take part in themselves, and as such would contribute to more reflection on people’s own role in these dynamics, confronted with agents that represent their own position. Becoming aware of how such agents respond to agents having a different perspective, and how anger, conflict, and societal divisions emerge could contribute to a deeper understanding of the social dynamics that cause these counterproductive debates and foster a more dialogue-driven process. This awareness contributes to the awareness and responsibility people have in maintaining a healthy democratic process.

As such, the modelling approach that has been developed and tested in SMARTEES is ready to be used in the context of new projects involving social innovation. Inviting people around a simulation of their own social innovation project may contribute to a meaningful dialogue that supports the exchange and understanding of different perspectives. Fostering such dialogues on local projects thus may contribute to vitalising the local democratic processes that are relevant in the context of the “Green Deal”. To avoid polarisations that are often occurring in the development of a plan, it would be possible to start with a simulation model where the people from the community are invited to represent their own ideas and preferences. This can be imagined as people creating an avatar of themselves in a simulation model during a group meeting or (on-line) workshop. Letting these simulated avatars do the talking instead of the participants is expected to reduce the personal identity related emotions in the workshop, thus supporting a more reflective attitude towards the simulated opinion dynamics. Moreover, such a gaming like set-up is expected to be a fun activity. The participants of a workshop will together with researchers built representative avatars that capture the participants’ interests,

perspectives, expertise and values. The workshop participants could also reflect on the psychological characteristics of the avatars, such as their openness for discussing with avatars having different opinions. Following that, the simulations will demonstrate under what conditions polarization and conflict emerge, and under what conditions a more diffuse opinion landscape emerges.

Such a modelling exercise allows for a new interesting perspective, because workshop participants can reflect as a group about the processes they witnessed in the simulations, address how realistic these dynamics are, and what possibilities they suggest fostering a dialogue in their own community regarding a social innovation. The simulation approach that has been developed within the context of this SMARTEES project, and which has been reported in deliverable 7.4, (Bouman et al, 2021), hence offers a tool that can be used as an intervention by itself. Agent based simulations that are sufficiently realistic with respect to modelling a specific case can contribute to a stronger awareness of the community perspective, and a dialogue on how different interventions may impact different people. We expect this may contribute to a higher awareness of how policies affect the interests of different people, thus strengthening the local democratic process. The recently funded PHOENIX (2021) project is expected to contribute to this development.

Picture: experience with agent-based gaming at the University College Groningen (The Netherlands).

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Annexes

Annex 1. Mock-up Policy scenario workshop agenda for entirely face-to-face meeting

8:45 am	**Arrival** **Breakfast, coffee and tea**
9:00 am	**Introduction** Welcome – presentation of workshop moderators and SMARTEES project (5 minutes) Presentation of the workshop programme and structure (10 minutes) Presentation of the participants (25 minutes) Presentation of the present situation (the so-called zero scenario) (10 minutes) Presentation of ABM model and expectation management (10 minutes)
10:00 am	**Break**
10:10 am	**Plenary session 1** Participants are familiarized with the dimensions/lessons learned for their case Participants choose the context for the replicability of the case (scale-up, replication)
11:10 am	**Individual work** Participants are provided with handouts with the table with relevant dimensions/lessons learned for the case, pointing out the main questions to ask and what steps to take (*refer to the tables to be filled in*) Participants fill in the tables and create their own "scenario" on dimensions and lessons learned Main questions: 1. Identify main lessons learned on each relevant dimension in the process of design and implementation of social innovations 2. Identify the alternative: What would you do differently on (dimensions identified in preparatory phase)? 3. Reflect on and report other important factors for SI acceptability not already included in the table
12:10 pm	**Group session 1** Discussions of counterfactual scenarios and lessons learned in small groups Participants provide a list of counterfactual scenarios arranged in order of importance
1:25 pm	**Lunch**
2:25 pm	**Plenary session 2** Participants present the results of each group Case-responsible modellers also offer feedback on the work done
3:25 pm	**Group session 2** Each group discusses the obstacles for the counterfactual scenarios discussed previously, as well as solutions and actions needed. Main questions: 1. Identify the obstacles you are likely to encounter and how to overcome them 2. Next planned policy steps: how would this translate into implementation strategies?
5 pm	**Break**
5:10 pm	**Plenary session 3** Presentation and explanations of the group's discussions and solutions (10 minutes/ group, in total 40 minutes) Discussions of identified alternative strategies or policies (40 minutes) Discussions on the ABM model and what is of interest for participants to be modelled for their case Co-moderator, moderator or case-responsible researchers are present in each interest group discussion/chat to facilitate the discussions and to mediate group dynamics. Case responsible modellers manage expectations related to the model and possibilities.
6:30 pm	Debriefing and feedback
7 pm	Informal drinks

Annex 2. Example of tables to distil and report the outcomes of the policy scenario workshops

Table 8. Policies to increase social acceptability towards energy-related social innovations.

POLICIES AND STRATEGIES FOR THE IMPLEMENTATION OF SOCIAL INNOVATION	MAIN INSIGHTS / LESSON LEARNED
Policy1: **Dimension addressed:**	
Policy2: **Dimension addressed:**	
Policy3: **Dimension addressed:**	
Policy4: **Dimension addressed:**	
Policy5: **Dimension addressed:**	
Policy6: **Dimension addressed:**	
Policy7: **Dimension addressed:**	
Policy8: **Dimension addressed:**	

List of strategies (e.g. information/communication; citizen participation; environmental awareness, etc.) to gain social acceptability developed in the process of design and implementation of the social innovation. Adapt this table according to the objectives of the workshop

Table 9. List of alternative policy scenarios and potential strategies to gain social acceptability.

POLICIES FOR THE IMPLEMENTATION OF SI	ALTERNATIVE PATHWAY/INTERVENTION IDENTIFIED	MAIN ENVISIONED OBSTACLES
Policy1: **Dimension addressed:**		
Policy2: **Dimension addressed:**		
Policy3: **Dimension addressed:**		
Policy4: **Dimension addressed:**		
Policy5: **Dimension addressed:**		
Policy6: **Dimension addressed:**		

Table 10. Planned policy steps. List of implementation strategies to increase social acceptability towards the replication/expansion of the project.

ALTERNATIVE PATHWAY/STRATEGIES	ACTION PLAN/COMMUNICATIVE ACTIONS FOR SOCIAL ENGAGEMENT

Table 11. Synthesis table of the strategies for gaining social acceptability.

RELEVANT DIMENSIONS	*STRATEGIES FOR GAINING SOCIAL ACCEPTABILITY*						
	Information, communication (SI)	Participation of policy actors and citizens in co-desining	Support changes in social norms	Pilot projects	Infrastructure & technologies	Environmental awareness (health, quality of life)	Environmental education (wide context)
Citizen resistance							
Policy resistance							
Non-supporting social norms							
Lack of confidence in the project							
Place identity/attachment							
Commitment of relevant actors							
Satisfaction of experiential needs							
Satisfaction of social/psychological needs (security, belongingness, relatedness, status, reputation)							
Satisfaction of need of acknowledgement							
Values: autonomy, biospheric and social oriented							
Awareness of economic impact							

Annex 3. Synthetic table with the dimensions relevant for the acceptability of the SI.

Table 12. Relevant factors influencing social acceptability and citizen empowerment.

DIMENSIONS RELEVANT FOR THE ACCEPTABILITY OF THE SOCIAL INNOVATION AND CITIZEN EMPOWERMENT			
Resistance to the energy-related social innovation	Internal resistance	Different visions (e.g., within the City Council) regarding the process of design and implementation of the SI.	
	Political resistance and conflict	Struggling with different political positions and motivations.	
	Citizen resistance	Fear of change	Natural resistance to lose perceived comforts (e.g., having a bus stop near to home) or "rights" (e.g., "the right to drive a car").
		Social groups with different interests and goals	Specific groups concerned about the impact of the SI or the potential negative impact on their economic activity.
		Backlash to perceived top-down decision-making	Top-down measures can produce strong contestation or the non-involvement in the social innovation, perceived as an "imposition" by the city council.
		Misunderstanding of the SI, lack of appropriate knowledge.	Innovations that require technical knowledge, training, or investment in technologies might require specific advising, consultation and training efforts focusing on empowering citizens in the adoption of energy saving measures.
		NIMBY manifestations	NIMBY ("not in my backyard") effect from citizens living close to new technological installations.
Existing (un) supporting local and social norms	Social norms	Social dynamics that foster (non)sustainable behaviours, due to the influence of specific social groups adopting a social innovation or related behaviours, or existing social norms that act as barriers for the SI.	
	Other relevant attitudes	Attitudes supporting intensive consumption patterns, money-saving motivations, or those related to the importance of social relationships.	
Lack of confidence	Lack of confidence of the beneficiaries regarding the usefulness and effectiveness of the energy projects. Lacking successful references, uncertainty and novelty sometimes generate fear and unease.		
Place identity & place attachment	The affective connection with particular places and environments can either hinder or enhance the acceptability of energy-related social innovations.		
Low adoption of new energy behaviours	For social innovations to become accepted "as the new normal", mindsets, views and attitudes have to change. Having time to experience the benefits of the social innovation and get used to new practices and behaviours plays a key role here.		
(Lack of) satisfaction of needs	Taking key psychological needs into account and tailoring policy to these needs for different social groups might influence acceptability. Seven different types of needs were identified, which were further refined through analyses reported in Del 4.2, and through the tailoring of ABMs in each case: (a) the need for safety (b)		

	autonomy (i.e., self-sufficiency) (c) the need for status (i.e., social prestige and recognition) (d) belonging (social cohesion of the community) (e) trust in the project and in institutional representatives (f) the need for recognition (as an environmentally sustainable and/or innovative place) (g) the need for competence in carrying out new behaviours.
Concerns for the impact on local economy & jobs	The concerns of citizens related to their local economy and job development (or reduction) have an impact on acceptability.
Commitment of relevant social actors through the process	A strong motivation of the involved actors and promoters to persist and adapt to different (either anticipated or not) social concerns was identified as a key factor in the long-term success of an initiative.
Concern for quality of living conditions	The presence or absence of explicit concern and focus on improving citizens´ quality of life is an important factor, especially in those case involving vulnerable or discriminated social groups.

Annex 4. Synthetic table with the tools, solutions, strategies and processes for gaining acceptability of the SI.

Table 12. Lessons learned on policy and communication strategies and tools.

Strategies fostering policy and stakeholder commitment	
Citizen commitment strategies (i.e., citizen pacts for the SI)	Formalized commitment strategies such as policy or citizens' 'pacts' signed between the local government and a diversity of stakeholders are effective in maintaining involvement of all relevant actors over time and through experienced difficulties.
Co-creation of the future (future-orientation, "what should be done further")	Concerns towards the future, and more specifically, working together to shape the desired future is a common orientation in all the SMARTEES cases.
Consultation of human resources with a high level of knowledge/ expertise	Human resource and expertise represented either as a barrier or a driver, a high level of technical and governance expertise is generally needed.
Creation of working groups / task forces with multiple stakeholders	Creation of permanent working groups of stakeholders, residents, and citizens, from the beginning, with sufficient space to express their suggestions and observations and adjust the plan to their real needs.
Informal, extended partnerships involving a wider set of actors	Consensus is built progressively, through negotiation and dialogue to overcome conflicts and resistance, and needs both formal and informal channels and contexts (e.g., Samsø´s "good energy cafés", informal meetings, creating an informal and relaxed space to create a common vision for their energy future).
Strategies enhancing citizen involvement and support	
Citizen empowerment strategies	Fostering the conditions for meaningful engagement in the shaping of the social innovation leads to higher acceptability, and a more satisfactory result for a diversity of social groups, including those that might be against the social innovation at the beginning of the process.
Citizen participation in decision-making (participatory strategies)	Citizen participation should be carefully designed and organized, considering the most adequate time to involve both general public and specific groups of interest. The rules and mechanisms to participate in decision-making processes, and the commitment required from participants, should be made explicit. Promoters might have to deal also with the reluctance of citizens to engage in decision-making processes. Approaches that foster active participation and citizen ownership of the process and outcome are more successful than technocratic or top-down policies.

Cultural mediation	In some cases, an explicit effort to relate the social innovation with particular cultural themes is needed.
Information and communication activities	Implementing – at an early stage – dissemination, communication and education strategies about the ambition, characteristics and changes entailed by the energy-related social innovation, such as educational programmes, environmental awareness campaigns, citizen forums, interviews, etc.
Strategies addressing education, awareness-raising and social norms	
Promoting awareness of the impacts of the social innovation on health, social wellbeing, and the environment	Enhancing environmental awareness as well as educating on the health and social impacts and implications of the social innovation.
Social and cultural norms	Using tools and strategies that target and make salient social norms that support the social innovation, such as those related to the environment or to quality of life and social wellbeing; or fostering social norms that encourage social participation to shape the social innovation.
Normative, infrastructural and technological measures	
Implementation of pilot projects (step by step implementation)	One strategy for gaining social support is to proceed gradually, step by step, avoiding changes that are too fast or too radical. Pilot and/or reversible interventions become effective strategies to demonstrate the positive impact of the social innovation and gain support for further replication, out-and up-scaling.
Infrastructural and technological policies or tools	Investments in public and private infrastructures and technologies, as well as the provision of technical guidelines and training.
Normative and regulatory tools	Promoting a new regulatory framework for a particular energy innovation, including push and pull measures, such as incentives, taxes or raising fees (e.g., for parking).
Providing resources to support implementation	Provide different resources such as expertise, time, or money. Financial resources could include tax benefits and economic measures that provide incentives for businesses and/or financial support for households (e.g., subsidies, grants, loans) to foster adoption of energy-related innovations and tackle energy inequality and poverty.

Annex 5. Checklist: towards a conceptual framework for the development of policy scenarios

Table 13. An overview of building blocks for the development of policy strategies for the successful implementation of social innovations in the energy domain.

Policy instrument	Types of measures	Strategies to be considered in the implementation
Normative and regulatory approaches	**Technical and regulatory documents** **Obligation schemes** **Penalization measures**	- Evaluate national/regional policy framework, taking advantage of institutional and legal contexts that might favour the impact of SI. Cope with institutional and normative frames that might act as barriers for SI. - Obligation schemes, taxes and penalization measures might be perceived as negative by residents and local actors. They can lead to instances of contestation and protest. - Obtaining political consensus (regarding the normative and technical instruments adopted) among the different parties involved is crucial in coping with social contestation. - Pay attention to equality issues: Provide equal opportunities to use energy services. Design policies to support currently disadvantaged individuals.
Infrastructure and technology upgrade measures	**Public and private infrastructures and technologies**	- Pay attention to the process of implementation: radical changes might cause disruption or major discomfort in citizens. Proceeding gradually with infrastructural transformations becomes the best practice to gain social acceptability. - Pilot interventions become effective strategies to demonstrate the positive impact of the social innovation and gain support for upscaling the social innovation. - Make change easy. If infrastructure is perceived as insufficient or deficient, people will not use them, thus rendering them ineffective.
Financial incentives for the market and individuals	**Tax exemptions** **Financial support (Subsidies, grants, contests, awards)**	- Economic incentives have positive effects, especially when Sis involve citizens´ economic investments. Take into consideration the economic conditions (acting as barriers) and needs of specific groups of population. - Accompanied by other type of policies oriented to foster intrinsic motivation for sustainable behaviour
Consumer awareness, decision-aid and citizen	**Information and education campaigns**	**- Targeted communication and education strategies: Address satisfaction of psychological and social needs and values that influence policy acceptance**. - Appeal to social norms in information and feedback provision.

empowerment policies		- Strengthen local and environmental identities and/or city reputation. - Increase perception of collective efficacy. Consider moral and personal values. **- Tackling constrains and resistance**s: lack of awareness, existing local or social norms, cultural conditions, social identity, symbolic beliefs or the lack of sense of efficacy.
	Decision-aid policies	**- Advising, consultation and training strategies.** Provision of technical knowledge, advice and training for the adoption of energy-saving measures. - Pay attention to necessary skills in adopting a particular energy innovation.
	Consumer empowerment initiatives	- Training actions that aim to improve citizens´ competence for adoption of energy-saving behaviour are useful. - Foster local entrepreneurship and citizens´ active engagement in energy innovation, which might involve changes in the existing institutional practices - Fostering the creation of new organizations or new kind of relationships and partnerships between different types of actors (e.g. public-private-citizen partnerships). - Promote business models that allow for co-ownership of energy technologies
	Participatory approaches	- Establish **two-way communication channels** with citizens, stakeholders and groups of interest. - **Citizen engagement strategies**: community active involvement in decision-making planned and implemented as a part of the process of social innovation, better since the first stages of the SI. Engaging a wide representation of residents and groups of interests in the definition of the project and the measures to be adopted. - **Flexibility** from the promoters to accept residents' suggestions and preferences. - **Resources and time investment**: Public consultation is a complex and time-demanding process that requires sufficient resources, time and capacity for maintaining participants' motivation. - **Direct democracy tools** available for the implementation of a social energy innovation (referenda). - Avoid the perception of SIs as impositions or not alignment with citizen's preoccupations or interests.
	Coping resistance, contestation, and non-involvement in social innovation	- Pay attention to potential **internal/institutional resistance**; **political** resistance and **citizens´** resistance. - **Combining strategies**: negotiation and mediation process; inclusive and targeted communication strategies; involving beneficiaries in the co-designing of the measures

		- **Building trust** (facing lack of confidence in the promoters).
	Monitoring/ evaluation	- Involve inhabitants in evaluation and monitoring exercises - Publication of periodic **reports** assessing the impact of the implemented measures. - Periodic **surveys** about citizen satisfaction with the SI. **-** Structured approaches and **monitoring tools/methods** that evaluate the positive and negative effects of an energy project. Beyond environmental impact, health impact, employability, gender impact, social cohesion and energy justice dimensions must be assessed.

Annex 6. Handbook for the development of policy scenario workshops (BRIEF VERSION)