DELIVERABLE NUMBER: **D1.5**

DELIVERABLE TITLE: **Guidelines to optimize energy-efficiency information campaigns and citizen participation for collective action and energy communities with practical views and methods**

Deliverable due date: 01/06/2022
Submission date: M24 - 31/05/2022

decide4energy.eu

DELIVERABLE INFORMATION

Deliverable Number:	D1.5
Deliverable Title	Guidelines to optimize energy-efficiency information campaigns and citizen participation for collective action and energy communities with practical views and methods – FINAL VERSION
Work Package Number	WP1
Work Package Title	Social science to fostering collective energy actions
Lead Organisation	UMA
Main author(s)	Mona Bielig, Celina Kacperski, Sonja Klingert, Florian Kutzner
Contributors	
Reviewers	ICLEI / DomX
Nature	Report
Dissemination Level	PU -Public
Deliverable Date	M (01/06/2022)
Draft Number	/
Version history	2.0 in M24
Version Number	2.0

PROJECT CONTRACTUAL DETAILS:

Project Title	Developing Energy Communities through Informative & Collective actions
Project Acronym	DECIDE
Grant Agreement No.	894255
Project Start Date	02-06-2020
Project End Date	02-06-2023
Duration	36 months
Supplementary notes:	This document is only for use among the Partners of DECIDE

The opinion stated in this report reflects the opinion of the authors and not the opinion of the European Commission. The European Union is not liable for any use that may be made of the information contained in this document.

MAIN COORDINATOR

Name	Leen Peeters
Organisation	THNK
Address	Philipssite 5 bus 1
E-mail:	leen@think-e.be

CONSORTIUM PARTNERS

No	Organisation	Country	Acronym
1	Th!nk E	Belgium	THNK
2	Joanneum Research	Austria	JR
3	BAUM Consulting	Germany	BAUM
4	Prospex Institute	Belgium	PI
5	Thermovault	Belgium	THERM
6	ENBRO	Belgium	ENBRO
7	Mittetulundusuhing Tartu Regiooni	Estonia	TREA
8	OurPower	Austria	OUR
9	Iron Thermoilektriki Anonymi	Greece	Heron
10	Domx	Greece	DomX
11	Universitaet Mannheim	Germany	UNIMA
12	ICLEI European Secretariat	Germany	ICLEI
13	Elektrizitätswerk Hindelang	Germany	HIND
14	Seeburg Castle University	Austria	SEE

EXECUTIVE SUMMARY

The Guidelines to optimize energy-efficiency information campaigns and citizen participation for collective action and energy communities intend to provide a coherent summary of approaches to communication, information, and intervention campaigns for establishing and shaping Energy Communities (ECs) and Collective Energy Actions (CEAs), with a strong focus on the behavioural science perspective. Therefore, this document contains a practical approach instead of theoretical considerations. The main goal of this document is to offer recommendations for a structured stakeholder engagement, to provide concrete tools and to classify them from a psychological perspective. Lastly, we give recommendations tailored to DECIDE's pilots.

The document is structured as follows: First, a brief overview of guidelines from exemplary previous information campaigns and interventions in EU Energy related projects will be given, showing the necessity to distinguish between different phases of engagement during a project as well work with different stakeholder groups, which are planned to be engaged. The conclusions drawn will be synthesized with the in D1.1 ('Guidelines for characterization, segmentation, and group dynamics of collective energy actions') identified action phases of CEAs within DECIDE (Section 1), meaning stages of changing needs for information, motivators, and barriers to implementation.

Building on this approach, the next section will concentrate on tools for information campaigns, intervention and communication strategies, stating best practices from previous EU Projects and scientific literature, including some novel approaches based on first year of DECIDE research, and including a thorough analysis of the benefits and psychological goals of such ways of engagement. The different tools, information and intervention channels are

classified according to their level of participation and involvement of the respective stakeholders. Subsequently, a scientific classification and evaluation of the delivered methods and expected psychological effects of these approaches is made, which is supplemented by best practice examples (Section 2).

The given communication guidelines and tool overview will be complemented by a summary of overall intervention and information guidelines, based on the synthesis of insights from this review (Section 3).

In the next section we will focus on the pilot sites of DECIDE project. We will first give an overview on general communication and engagement support actions shared with all pilots, and afterwards review the pilot specific approaches for information campaigns and citizen participation. For each pilot, we will summarize completed actions, both for actions within and outside of DECIDE. We will mostly focus on describing in more detail which interventions and communication approaches have already been implemented in DECIDE with the help of WP1 and how to evaluate them. Additionally, we give an outline on which strategies are proposed based on the previous analyses to provide tailored communication guidelines and recommend further tools and interventions (Section 4).

Finally, we provide the already used and developed materials within DECIDE as well as further useful materials from other EU projects for communication strategies (Section 5).

The presented Deliverable D1.5 is strongly related to Deliverable D1.6 ('Structured overview on optimized energy-efficiency interventions for EC and CA'): D1.5 mainly serves to derive, describe and scientifically evaluate tools for optimizing energy-efficiency information campaigns and citizen participation. This is summarized in D1.6 both by (a) a general overview

of possible information, intervention and communication tools and by (b) a summary of DECIDE-specific recommendations for the respective pilots. For a holistic understanding, we therefore recommend using D1.6 for an overview and D1.5 as background knowledge and evaluation of the tools and recommendations presented there. Both deliverables are built upon the definitions provided in D1.1 and extend the findings from it.

This deliverable is intended as a living document. Recommendations and conclusions will be tailored and refined as the DECIDE project progresses, with multiple updates throughout the project.

CONTENTS

GLOSSARY

CEA	Collective Energy Action
COM-B	Capabilities, Opportunities and Motivators Model for Behavior Change
EC	Energy Community
EID	Energy Improvement District
IHD	In House Display
LEC	Local Energy Community
PV	Photovoltaik
REC	Renewable Energy Community
SIMPEA	Social identity model of pro-environmental action
UTAUT	Unified theory of acceptance and use of technology

LIST OF FIGURES:

LIST OF TABLES:

1 GUIDELINES FROM PREVIOUS INFORMATION CAMPAIGNS AND INTERVENTIONS

The following chapter aims to summarize conclusions and best practices from exemplary previous EU projects regarding their interventions, information campaigns and engagement strategies. A thorough review of former EU projects revealed that in most projects, communication strategies are tailored along the life phases of the underlying energy communities and according to the types of stakeholders addressed through the respective strategy. We will take over this basic organization for the communication approach within DECIDE.

The following section will present an overview of communication strategies aimed at different phases of engagement of the EU projects, reviewing the engagement strategies targeting different life phases of the energy communities and relevant stakeholder groups, complemented through some best practice examples. The review sets a focus on initiatives that subsume a huge set of EU projects and energy communities, namely the BRIDGE initiative, of which also DECIDE forms an active participant, S3C EU, a former pan-European projects initiative and REScoop, the European federation of citizen energy cooperatives.

Concluding experiences drawn from the short review, the different action phases of energy communities and collective energy actions for DECIDE will be synthesized with different stages of engagement: Within the first segmentation of DECIDE (D1.1), different action phases were identified that can be applied to each collective energy action. Based on the underlying analysis, collective energy actions in DECIDE can be ordered alongside the following action phases: *Inception, preparation and founding, initial operations, maintaining operations,* and

upscaling. Building on this idea, it can also be assumed that different forms of information, different approaches and the implementation of different interventions are necessary for the respective phases. Therefore, it is aimed to orient and plan an engagement strategy along the action phases, also taking into account the role of relevant stakeholder groups.

EXPERIENCES FROM EU PROJECTS AND INITIATIVES

BRIDGE

Bridge, an initiative uniting Horizon 2020 Smart Grid, Energy Storage, Islands, and Digitalisation Projects proposes a three-step process to ensure engagement within their consumer engagement strategy. These three steps can be classified as *involve – engage – evolve:*

Based on this strategy, it is first necessary to *involve* the customer as a starting point and gain a better understanding of relevant stakeholders. In the second step, it is considered important to *engage* the customer with the help of benchmarking, personal incentives and segmentation. Lastly, through the step of *evolve,* the relationship should be developed further through feedback loops and end-user communication supported by advanced feedback, information and education (BRIDGE, 2018).

Best Practice: Merlin Living Labs (MERLON, 2019)

One exemplary BRIDGE project working with the concept of involve – engage – evolve is the project of MERLON, where which uses a series of "LivingLabs" workshops for training and engagement of stakeholders along a phased approach. The LivingLabs are used as a participatory workshop draft, adapted and integrated along the following phases:

1. The first phase is seen crucial as an intent to involve all local stakeholders and end-users that participate or are potentially affected, also to gain a concrete understanding of the audience group.

2. Within the second phase, the creation of personal incentives as well as proper segmentation should be conducted, so groups of participants will be defined in more narrow terms and training activities will be included.

3. The third phase serves to have an extensive evaluation of the realised solution and an impact assessment.

Within the project related engagement plan, several techniques to communicate the customized setting of activities for each Living Lab for each of the phases are proposed: Workshops are considered as a key element, which should be held one for each phase in each pilot site, being customized to the respective phase and current status of the infrastructure deployment in the pilot sites. The workshops are planned to be set up as a technical workshop, with a wider feedback session afterwards. Besides workshops, further communication is sought through Surveys (especially phase 1 and 3), a newsletter as a follow-up on the workshops, containing applicant- and user oriented LivingLab material and a hotline, which will be established for end-users and stakeholders to ensure efficient communication in the deployment and user integration phase.

The S3C Consortium (S3C CONSORTIUM, 2014), analysing 32 European smart grid pilot projects, reports positive effects of the ICA method: "Interaction, Commitment and Activation" - a strategy used to foster community- and stakeholder engagement. Consisting of an activation and a subsequent empowerment phase this approach is consistent with the findings of the BRIDGE initiative (see above, BRIDGE, 2018) and corroborates the DECIDE methodological decision to focus on a phase-based segmentation rather than a persona-based segmentation.

Within the S3C best practice report (2014), the ICA method is described, which can be tailored to project goals and target groups. The underlying idea is to activate stakeholders first in relation to issues in their direct living environment and their personal interests, so people are made aware of issues directly related to them. The purpose is to create an incentive to get involved in something aimed at goals people themselves want to achieve, rather than at an already pre-decided solution. The ICA method aims to encourage stakeholders to actively participate and to convey that they can indeed "make the difference", fostering a sense of self-efficacy for issues that are of personal relevance to the target group. Support is then provided to achieve the goals they have set for themselves.

Best practice: Rendement voor Iedereen (S3C Consortium, 2014)
In the Rendement voor iedereen (NL) project, following the goal to implement a bottom-up approach and establish a community, the ICA Method as described above has been used. The case study did not focus on financial incentives, but on conveying a sense of self-efficacy for issues that are of personal relevance to the target group. For

this, a sense of 'civil disobedience' was addressed. Concrete actions implemented in the case study were the distribution of flyers (which clearly differed from advertising leaflets, for example by being printed in black and white and containing a typo to attract attention) and balloons, as well as advertising through a variety of channels (local newspaper, text cars and primary schools). The engagement phase ended with an information session (high registration rates for participation in the project reported). In the second phase, the focus lies on supporting the participants in implementing their goals, as well as providing continuous information on energy issues. In order to involve the participants more closely in the (top-down implemented) project, a board of 12 participants was formed to represent the participants.

RESCOOP

Gathering expertise from 27 projects around Europe and building on the best practices from different European RES, the community energy guide as a handbook from Friends of the Earth, REScoop.eu and Energy Cities (2020) describes the different steps for the set-up of an energy community to build up community communication with the main targeted stakeholders.

1. First, it is recommended to build a core team, starting with the smallest project possible. The core team ideally consists of 4-12 people, who are willing to take responsibility for the project over a long term. Beyond this, follow-up relational meetings with those that might want to lead/join a core team can be a good opportunity to present the vision and purpose. Within an established core team, it is considered crucial to distribute responsibilities, invest in activities that build friendship and trust and provide safe spaces where thoughts and feelings can be expressed.

Progress towards objectives is seen as crucial to keep everyone excited, which requires a sense of momentum within a group. The guide furthermore recommends to understand the core team of people as a group of leaders working together. This is why responsibility to reaching out to different parts of community should be shared among the team.

2. To integrate the local authorities and municipalities and reach out to broader acceptance, it is recommended to get the local authority to make a public commitment. When it comes to the outreach to the wider community, the Guide provides recommendations, like going to "listening places" in the community in order to understand issues that affect members of the community, build empathy and trust as well as link the community's topics to energy, climate and local economy. The approach of "starting small, growing big" is suggested, based on the experience that it's easier to win new members once the project is already running, as people like to get involved when they see some first success. The guide also delivers best practices for such communication approaches, which are described more in detail within the guide.

Best Practice: COME RES (2021)

The COME RES Project within Horizon2020 is supported by REScoop in advancing renewable energy communities and their development. The stakeholder engagement plan of the COME RES Project stresses the relevance of a phased approach, taking into account different groups of stakeholders and therefore suggests a framework to classify stakeholders in groups, using a matrix approach with the level of interest and level of influence. They consider engagement to be settled along these groups, as they differ in their way how to reach them. The four groups are described as follows:

1. The first stakeholder group, having high interest and high influence are the *Key Players*. Such key players are expected to have power and resources, which is why special attention during the engagement process should be given to this group, building on the assumption that they can affect change and can be potential partners for the project.

2. The second group, called *Context setters* are expected to be highly influential, but have a low level of interest for the project activities. Therefore, particular efforts might be necessary to continuously engage this group in the project´s activities.

3. The third group, named *Subjects* has high levels of interest in the research and project activities, but only a low level of influence. However, during the project, such stakeholders may gain leverage by forming groups with other more influential stakeholders. It is relevant to secure their engagement and empower them to engage as equals in the project with more influential participants

4. Lastly, the engagement plan describes the group called *The Crowd*, which comprises stakeholders with a low level in interest in or influence over the project and its desired outcomes. Still, their interest may change with time and with project process.

SYNTHESIS WITHIN DECIDE

To bring together the lessons learned and examples from the above mentioned initiatives and projects, these are merged with the phases already identified in D1.1. In this context, it is also important to consider a possible segmentation of stakeholder groups: Since scientific uncertainties and contradictions have been found for segmentation along socio-demographic,

namely "personal characteristics", it was declined as a segmentation dimension for the DECIDE project (for more details, see D.1.1, p. 24ff.).

Based on the former described projects, it is rather recommended to tailor communication and engagement strategies along different phases of engagement and take into account the relevance of stakeholder groups along their level of engagement and commitment for the project, therefore segmenting stakeholders along their energy attitude and project involvement. Following the described examples, also within DECIDE it is seen crucial to work with community evangelists as first movers, aiming to build a core group. To establish such group, it is proposed to ideally use existing groups, approaching activist and people with power, resources and interest to support the project first, using their support for reaching out to further citizens and community members. The principle of "starting small, growing big" also fits to the examples for a phased communication approach and the identified action phases within D1.1 of DECIDE for segmentation. The information campaigns and interventions are also recommended to be guided along the phases. The following table Table 1 depicts this approach, integrating the action phases with different communication methods, building on the experiences from different projects reviewed above and integrating the BRIDGE approach of *Involve – Engage – Evolve* (BRIDGE, 2018) with a previous preparation of communication and engagement.

Table 1: Integration of Action Phases and Phased communication methods, synthesized from former projects.

Action Phase	Phased Communication Method
Inception Phase	**Prepare Communication & Engagement**

Preparation and Founding Phase	• Decide from early on who is responsible: Build on existing groups to establish a core group of evangelists • Establish a concrete stakeholder engagement plan • Set a timeline
Initial Operations Phase	**Involve** • Foster high engagement • Involve as much as possible • Understand stakeholder/-groups: Use the support and resources of your core group, also to enable first successes to get visible for the broader community • Set tone for following interactions • Raise awareness & understand requirements
Maintaining Operations Phase	**Engage** • Define stakeholders in more narrow terms • Support participants in implementing their goals, also through incentives and benchmarking • Activation and stakeholder empowerment • Ensure continuous information flow and closer involvement • Establish a process • Enable reflection and planning phases

Upscaling Phase	**Evolve** • Plan and establish a wider outreach, also trying to reach people that might not have been interested in the beginning • Develop further communication steps • Establish feedback loops • Evaluate and (if necessary) adapt used communication and information channels

2 TOOLS OF COMMUNICATION FROM A SOCIAL SCIENCE PERSPECTIVE

Depending on the objective of a communication strategy, the relevant stakeholders and the respective phases of engagement, different methods are suitable for information and intervention. This section is meant to give an overview on possible tools of communication, information and intervention campaigns, considering the different action phases and taking into account the psychological benefits drawn from the respective tools. It clusters different interventional and informational instruments that can be used for citizen participation and engagement in the context of energy communities along their level of involvement.

LEVEL OF INVOLVEMENT

Considering and clustering different levels of involvement, a four-step-involvement approach is suggested, based on former research and projects, which propose a gradually rising way of involvement level. As an example, the IAP2's Spectrum of Public Participation defines different levels of participation, differing in the public's role participation processes and distinguishing between the phases of inform, consult, involve, collaborate and empower (IAP2 International

Federation, 2018; found in: Wright & Bragge, 2021). With each phase, a higher level of participation of the respective stakeholders in project decisions and developments is postulated. Using a similar idea, Wunderlich (2012) proposes four stages of citizen participation regarding to energy citizen projects: Information, Consultation, Cooperation and Self-Determination. This approach has also been used to create the ECOISM Participatory Toolbox for Communities within the EUKI Project (2020). Based on these considerations, we suggest a four-level framework of rising involvement for clustering different tools, which is depicted in Figure 1.
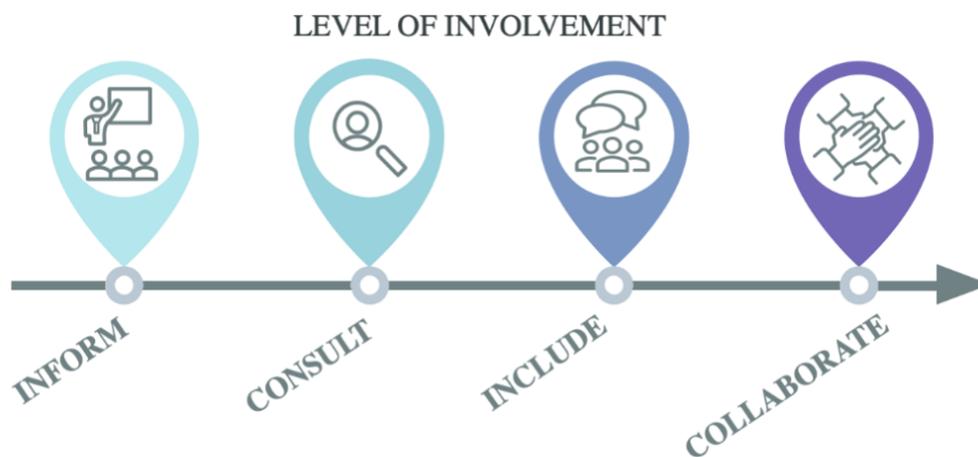
Figure 1. Levels of involvement for Tools and Interventions.

The first stage, *inform*, only uses a unidirectional approach with low level of involvement, concentrating on information provision and creation of understanding and know-how: Relevant stakeholders should be fully informed about advantages and disadvantages of a project at an early stage (Wunderlich, 2012). The second level, *consult*, is used to gain feedback and get input in a unidirectional way from the stakeholders contacted, offering a way to display feedback but still a medium low level of involvement. *Include*, comprising the

next stage, already fosters a medium high level of involvement by working directly with stakeholders throughout a process, giving a possibility for bidirectional communication and interchange on decisions taken. This level of involvement is further increased in the high level, *collaborate*, where stakeholders are integrated in different aspect of decision making, including the development of alternatives and solutions or even the self-determined implementation of a project by the citizens themselves (IAP2 International Federation, 2018).

OVERVIEW TOOLS & INTERVENTIONS

This involvement level approach as well as the former described segmentation into phases of engagement will be synthesized towards an overview of possible forms of intervention and information, as well as the tools that they involve. Such a synthesis is aimed to give an overview in terms of their fit with the respective action phases, considering their level of involvement. The particular intervention tools are evaluated with regard to their psychological benefits and the underlying methods that should be taken into account when implementing. A summary of all tools and their respective guidelines out of a behavioural science perspective can be found as well in a structured overview in D1.6.

An explanation of the structure to better understand and use the overview of intervention tools is given in Table 2 and Table 3. Furthermore, Table 2 shows an excerpt of the overview, providing a list of examined tools for the different levels of involvement. For the full overview, please see D1.6.

Table 2. Overview of interventions, part 1.

Level of involvement	Type	Intervention	Phase
Scale of level of involvement for the respective tool: Increasing from low to high level	Depending on the level of involvement: Inform / Consult / Include / Collaborate	Tool / Intervention: Concrete Implementation form	Action phase / phase of communication recommended as suitable for the tool: Prepare / Involve / Engage / Evolve

Best Practices	Why? Intended Effects	How? Elements to include
Best practices in implementing this tool / intervention in former projects / studies	Based on the identified motivators for CEAS and collective actions: Psychological effects / benefits targeted through the intervention / tool	Theoretical concepts, principles and models, which should underlie the tools in order to ensure a meaningful implementation of these from a social science point of view

Table 3. Overview over Interventions, part 2.

Level of involvement	Type	Phase	Interventions
Low	Inform	Prepare, Involve	Flyers / Postcards
		Involve, Engage	Newsletter
		Involve, Evolve	Promotional Video

		Involve, Engage, Evolve	Media Campaign
		Involve, Engage, Evolve	Collective efficacy information
		Involve	Communication for trust
		Engage, Evolve	Comparative Feedback Information (Social norm intervention)
		Engage, Evolve	Energy Feedback (through IHD etc.)
Medium Low	Consult	Prepare, Involve	Semi-Structured interviews
		All	Surveys
		Involve, Engage, Evolve	Information sessions
		Involve, Engage	Site visits
		Involve, Engage, Evolve	Citizen hearings / Committee
Medium high	Include	Engage, Evolve	Consenus Workshop
		Prepare, Involve	Engagement-Event / Drop-in-event
		Involve, Engage	Focus Groups
		Involve, Engage	Serious Gaming
		Involve, Engage, Evolve	Hackathon
		Involve, Engage	Commitment Pledge
High	Collaborate	Prepare, Involve	Community Mapping
		Involve, Engage, Evolve	Town Meetings
		All	Workgroups / Forum

		Involve, Engage, Evolve	Interactive Webportals / Networks
		All	Participatory Community workshops
		Involve	Home visits
		Engage, Evolve	Co-creation and mutual learning events
		Involve, Engage	Micro-Utopias

EVALUATION

It is necessary to find out what works best for the respective EC or CEA, when trying out or proposing possible tools of communication, information and intervention campaigns for citizen participation: Evaluation should therefore play a major role in the design of all communication strategies and interventions. As noted in D1.1, in the context of motivations and participation for ECs and CEAs, there is little research that actually allows for causal conclusions. For this reason, we recommend as a guideline the scientifically based evaluation of measures, ideally through a randomized control trial (RCT): An RCT is e.g. suitable to compare the effectiveness of different campaigns or examine the effect of an intervention in comparison to a control group, in order draw conclusions on whether an outcome is better than "what would have happened anyway". To draw these conclusions, we need to compare the values of a group which gets an intervention (e.g. a certain information) to another group, who is comparable in all conditions, but does not get the intervention: The intervention group vs. the control group. To make sure these groups are comparable, the examined population should be randomly split into them and outcomes for both groups on a certain behavior or attitude can be measured. This way, it is possible to statistically compare the outcomes of both groups (intervention vs. control). This enables to see whether the intervention really

makes a difference. The principle of an RCT is displayed in Figure 2. For DECIDE project, we integrated evaluation of tools and interventions our work with pilots whenever possible, which is further described in Section 4.
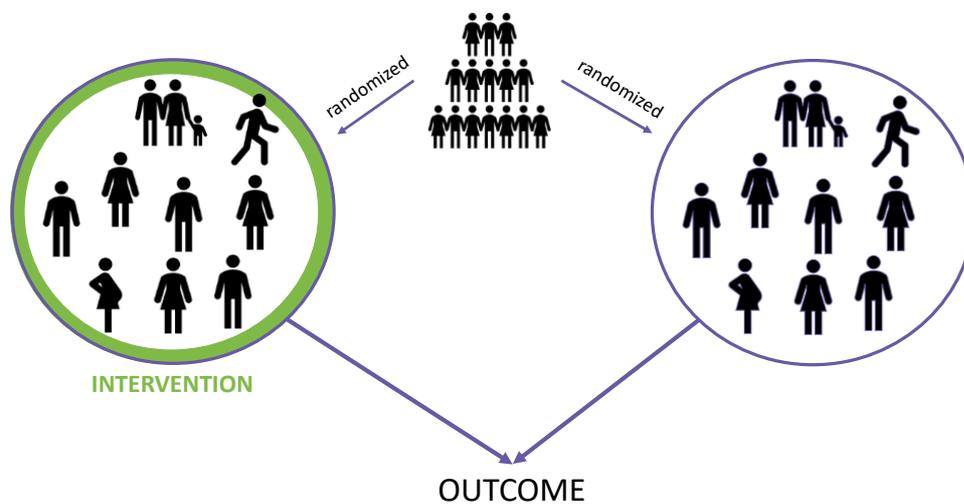
Figure 2. Illustration of randomized control trial (RCT) concept.

THEORETICAL FRAMEWORK & PERSPECTIVES OF BEHAVIORAL SCIENCE

As the different engagement and communication actions are used to approach different goals, both their underlying psychological concepts and their expected impacts do differ. This section is meant to deliver a brief overview on the theoretical framework, used models and first evaluation through research results of the proposed intervention and information tools. It also aims to explain more detailed the guidelines out of a behavioral science perspective which can be found in the structured overview in D1.6.

THE COM-B MODEL OF BEHAVIOUR CHANGE: A STARTING POINT

Through the different interventions and tools, behaviour of stakeholders and possible changes in such behaviour are targeted. Aiming at behaviour change, it is considered necessary to integrate possible motivators and barriers. One model for explaining enabling and hindering factors for behaviour out of different perspectives is the COM-B Model of behaviour, developed by Michie et al. (2013) in an approach to create a method for characterising and designing behaviour change interventions. The elements of the COM-B are displayed in Figure 3.
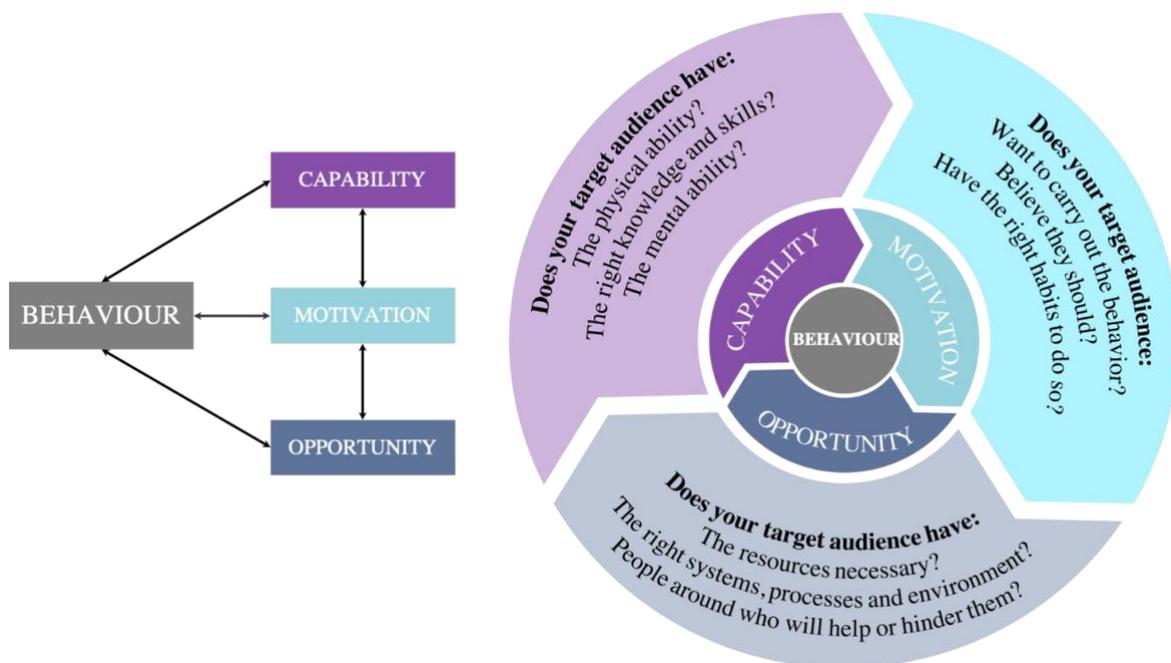
Figure 3. COM-B Model of behaviour & behaviour Change Wheel, based on Michie et al. (2013)

The proposed behaviour system is describing behaviour (and therefore possibilities for behaviour change) through capabilities, opportunities and motivations. While capabilities imply the psychological or physical abilities to enact the behaviour, opportunities reflect the contextual settings, including the physical and social environment enabling the behaviour.

Motivations are furthermore seen as reflective and automatic mechanism that activate or inhibit behaviour. These components are the basis and target of interventions: In this respect, the model provides a starting point for designing interventions by analysing the given components of the behavioural system and considering them as a leverage point for potential change (Michie et al., 2013).

INFORMATION & COMMUNICATION FOR TRUST

Informational steps as tools for raising awareness and providing information are often seen as a first step towards consumer engagement (Gangale et al., 2013). Information can be used for example to promote energy conservation behaviours through general information about energy-related problems or specific information about possible solutions (Abrahamse et al., 2015). When providing information and communication material, it is recommended to base such material on the principle of communication for trust, taking into consideration the integrity, benevolence and competence model (Mayer, Davis, & Schoorman, 1995), as displayed in Figure 4.
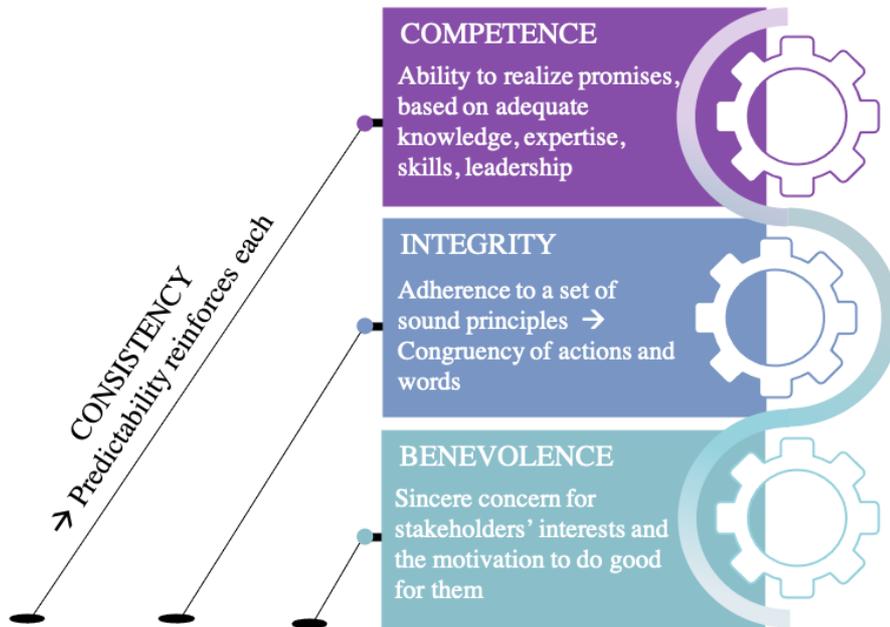
Figure 4. Factors of trust, building on the integrity, benevolence and competence model (Mayer, Davis, & Schoorman, 1995).

Competence refers to the ability to realize promises, based on adequate knowledge, expertise, skills, leadership, and other characteristics in related domains. Benevolence implies having a sincere concern for customers' interests and the motivation to do good for them, while integrity means the adherence to a set of sound principles. Each of these components helps to increase a trustworthy perception of an organization or person. When the three factors are met, a high level of trustworthiness is perceived (Mayer, Davis, & Schoorman, 1995). Trust in project organizers has been found to be correlated with citizens' support for the project (Walker et al., 2010). To translate the principles communication for trust into the DECIDE context, we developed a recommendation overview along the three components, which is depicted in Figure 5.

INTEGRITY - DO WHAT YOU SAY / SAY WHAT YOU DO

👍
- Admit mistakes
- Share uncertainties and open questions
- Be realistic & transparent about process

👎
- Intransparency about difficulties
- Changing goals

BENEVOLENCE - DO GOOD

👍
- Demonstrate an understanding of the needs of different stakeholder groups
- Show concrete benefits

👎
- Abstract language
- Intentionally complicated processes
- Justification with authorities

COMPETENCE – BE ABLE TO DO

👍
- Explain how and why decisions are made
- Disclose the evidence base
- Describe trade-offs

👎
- Present results only
- Tradition as an argument

Figure 5. Recommendation overview - communication for trust concepts.

There is a variety of different communication channels for information interventions, with each of them having its own benefits. While a website is seen more suitable to send general information about the project, home visits or audits can be used to tailor information and provide it highly personalized (Straver et al., 2014). The benefit of such personalized information is that the respective target group receives only relevant information rather than getting an overload of general information (Abrahamse et al., 2015). Moreover, there is a difference between the suitability of communication channels and actions to achieve the different goals. A brochure, for example, is effective to inform people, but not to engage them. Still, continuous communication can create a positive social norm, and support the community feeling of participants (Straver et al., 2014).

Best Practice: Membership Brochure

Regarding government and management of Energy Communities, providing brochures for members to support them in their position is recommended by the REScoop Guide for Stakeholder Management (RESCOOP, 2020). Such a *membership brochure* should

- make clear the rights and obligations linked to the membership
- address questions on the process for new members to join a REScoop
- explain the way of involvement, the current governance and power structures

It is considered necessary that all members receive transparent, clear and sufficient information.

FEEDBACK & TECHNOLOGY

A specific form of information given to the targeted stakeholder groups is feedback on energy consumption. In this case, not only the content of information but also the way of displaying it is considered important. Within the project of VaasaETT (Stromback et al., 2011), collecting and comparing about 100 pilots regarding feedback and dynamic pricing programs enabled through smart metering technologies, it was revealed that both informative billing and In-House-Displays (IHD) are effective in reducing overall electricity consumption. Overall, IHD were shown to result in the highest energy savings, but results vary widely within a given program type. This highlights the relevance of surrounding variables, which have a substantial impact on success levels of such information (Stromback et al., 2011). Similar results are found by Faruqi et al. (2010), reviewing 12 projects regarding IHD utility pilot programs. It was found

that direct feedback encourages consumers to make more efficient use of energy when delivered by IHDs. The associated reduction of energy consumption can be up to 7-14%, also depending on the payment structure. Overall, Feedback is considered an effective strategy for reducing household energy use many different studies, while review results also suggest a higher frequency of feedback supports effectiveness (Abrahamse et al., 2015).

As feedback mechanisms are often connected with the use and adoption of new technologies, the Unified Theory of Acceptance and Use of Technology (UTAUT2) Model offers a proper framework to understand intention to use of technologies (Venkatesh et al., 2012). The model explains the intention to use a technology through various influencing factors, such as performance expectancy, effort expectancy, social influence or price value, among others. Examining and incorporating these influencing factors can inform interventions that are relying on participants' adoption of technology.

Feedback can also be given in a comparative way: This includes feedback on individual performance relative to the performance of others. Such comparative feedback can lead to feelings of competition, social comparison, or social pressure, might be especially effective when important or relevant others are used as a reference group (Abrahamse et al., 2015). Figure 6 offers an example of Opower [1] for such an energy feedback, also providing a comparing component.

---

[1] http://opower.com

Did you know? Last summer about **32%** of your overall electricity consumption went to cooling your home
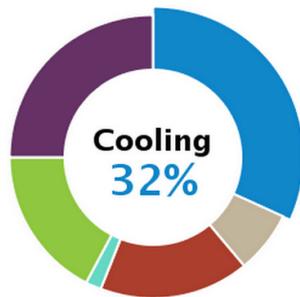
Cooling
32%

How does this compare?

Cooling accounts for **24%** of the average Massachusetts household's summer electricity consumption. Learn more about how your home uses energy throughout the year by taking our online audit and make a plan to save.

*Figure 6: Example for energy Feedback, found on **http://opower.com**.*

Also, comparative feedback offers the possibility to display social norms, not only for energy consumption but rather for all different types of behaviors. Social norm can be understood as rules and standards which are shared by members of a social group and guide and/or constrain the social behavior within this group (Cialdini & Trost, 1998). It is differentiated between descriptive norms (i.e. observing the behaviour of others) and communicate injunctive norms (i.e. what somebody thinks is expected by others), and they have been found as driving forces for energy related pro-environmental behavior.

MEDIA USAGE & NARRATIVES

Another scope of informing and consulting stakeholders is often based on use of media. Such an approach is recommended to be used from early on: Stromback et al. (2011) see media involvement as a crucial factor on the extent of customer acceptance and engagement, as it is expected to improve future marketing campaigns as well as help against future negative

publicity. At the same time, media-based information as a video or a coherent media campaign can be used for storytelling, which is seen as an innovative methodology approach in energy research. In this case, it can be useful to focus on existing stories and narratives and then use storytelling as a process to facilitate stakeholder engagement (INTEGRID, 2018).

Furthermore, discussions on dedicated blogs, forums, websites, or social media platforms can be used to foster involvement of stakeholders. This is considered to be especially suitable for consultation of geographically scattered stakeholders. At the same time, media-based interventions such as a video or a coherent media campaign can be used for storytelling, which is seen as an innovative methodology approach in energy research. In this case, it can be useful to focus on existing stories and narratives and then use storytelling as a process to facilitate stakeholder engagement (INTEGRID, 2018). This is especially true considering that local themes have been found to be the most motivating narratives, with social and community-related aspects being other appropriate narratives (Poppen, 2015; Rogers et al., 2008).

Best Practice: Interactive Webportal (InteGrid)

A customer engagement group of the EU project bridge (BRIDGE, 2019) observed ten smart grid demonstration projects and found that one way of offering additional value to participants within the project of InteGrid was the implementation of a local online network. This way of web-based engagement suggests a concept of a sustainability-orientated local social network, which is built on outputs from both a literature review and focus groups:

- The idea of such a network is to connect the digital neighbourhood with the physical neighbourhood and strengthen neighbour-to-neighbour interactions.
- Through interaction, building-or neighbourhood-level local interest groups can be created and private internal discussions can be held within housing cooperatives and interest groups, while within the same tool, sending a message to the neighbourhood or surrounding neighbourhoods quickly spreads information to a large area.
- Beyond the direct effects, an increased frequency of communication and physical meetings between neighbours is expected, which can also contribute to feelings of social identity, cohesion, safety and trust (INTEGRID, 2018)

PARTICIPATION & TRUST

Participatory interventions serve both the consultation and involvement of stakeholders, offering possibilities for getting to know stakeholder views, give them the possibility for commenting on decisions and collaboratively work on solutions (INTEGRID, 2018). Research

indicates that using participatory interventions like workshops or focus groups fosters involvement, can increase intrinsic motivation and establish new norms, especially regarding energy consumption (Endrejat et al., 2015). Beyond that, the feeling of civic gratification or sense of duty, associated with a desire to contribute community's welfare can be considered a benefit related to the act of participation itself (Hoffmann & High Pippert, 2010). Events as a way to enable participation might be more informal than workshops or focus groups, but they can be considered important as especially informal interaction often creates a chance for a rich exchange of information (including non-verbal information) and enables the feeling of familiarity and trust (Heiskanen et al., 2013). Trust, often built up through participatory interventions, is seen as a pre-requisite for cooperation and goodwill. Furthermore, it is seen crucial for the establishment of dialogues and promotes further active involvement (Gangale et al., 2013). On the downside, participatory interventions often require participants to invest their own resources, most importantly time, which can reduce participation and effectiveness.

Best Practice: Community Drop-in Event

One example for a successful community event is given by Clay Futures (THE EDEN PROJECT, 2009), that thoroughly describes the procedure of preparing and carrying out an event aimed at attracting a broad audience to consult the local community about a possible Eco-town development.

- First, local groups and schools were identified and contacted in order to chat about a community engagement event. The focus of the conversations was to use what is already there: members of the local community were encouraged to share stories and memories of the area – a method aimed at building trust, and allow the project and the community each to understand each other.

- In a following 3-day drop-in event, different stalls (in the look and feel of a fête stall) were installed on the key topics, including e.g. the sense of community, Eco-Towns or Parish Plans. Open-ended questions, scrapbooks of information, small objects and curiosities were used to provoke interest and washing-lines to display completed question cards were placed in each stall on the different topics.

- From the memories and stories of past glories of the community, a slideshow with old photos was prepared and displayed in order to connect to the community's sense of identity and link the planned project with past success. Afterwards, the results of the information collected on each topic in the stalls were gathered and merged to a report.

SOCIAL IDENTITY

Another goal of participatory intervention is the establishment and development of a social identity. Social identity can be understood as "that part of an individual's self-concept which derives from his knowledge of his membership in a social group (or groups) together with the value or emotional significance attached to that membership" (Tajfel, 1978, p.63). The sense of belonging to and salience of a certain social group leads to an assimilation of attitudes, beliefs and behavior to the norms of this group (Fielding & Hornsey, 2016). Figure 7 shows in a simplified way how personal identity, social identity and the resulting identification with one's own in-group, or potential stereotyping of the out-group, are connected.
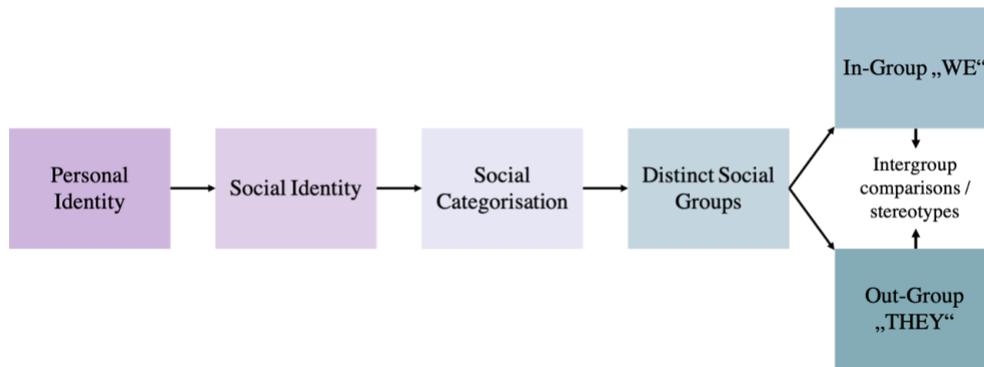
Figure 7. Personal and social identity.

The Social Identity Model of Pro-Environmental Action (SIMPEA; Fritsche et al., 2018), identifies four basic social identity processes related to a social identity: emotions and motivations originating from or resulting in social identity processes; in-group identification; in-group norms and goals; and collective efficacy – these are depicted in Figure 8. The concept of collective efficacy especially plays a role in case of low perceived personal efficacy: When the sense of personal control is threatened, people try to restore perceived control by an increase in sense of collective control through group agency and the social self (Stollberg, Fritsche & Bäcker, 2015).
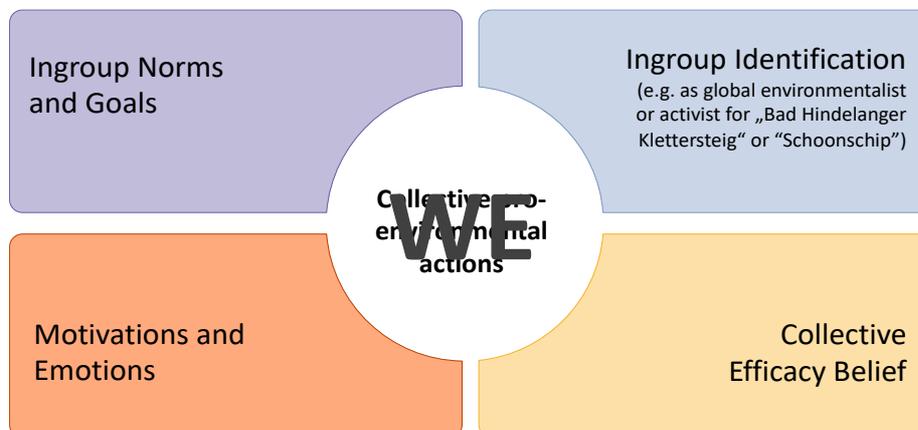

Figure 8. Elements of SIMPEA

The model proposes that these social identity processes are related to appraisal of and responses to large-scale environmental crises. As identified in D1.1, these processes can be motivators for collective actions and, where available, for CEAs. Research shows a strong association between social identification with a group and the willingness for collective, pro-environmental action (Schulte et al., 2020.). Membership and salience of a social group promoting pro-environmental action can lead to internalization of norms (Fielding & Hornsey, 2016) and resulting behavior change. Initial pro-environmental collective actions even can serve as a reinforcement of a social identity: A first step for a pro-environmental collective action, or an initial environmentally friendly behavior, can strengthen the sense of sharing an pro-environmental social identity with others: This identity can then lay the foundation for further actions and behaviors (Truelove et al., 2014).

FAIRNESS & INCLUSION

Furthermore supporting the ideas of approaches fostering involvement of stakeholders is the theory of social justice: when decisions within projects are taken, people focus on how decisions are made in making justice evaluations, which means that the procedure used to reach a decision can have profound effects on fairness judgments (e.g. Thibaut & Walker, 1975; Lind & Tyler, 1988) and therefore on acceptability of decisions, which also underlines the benefits of a fair, participatory approach. Another method directly including stakeholders are in-depth interviews, used to establish a dialogue on opinions about possible interventions. This kind of method can help to reduce a desirability bias that may arise in workshops, as interview are associated with more anonymity and privacy (INTEGRID, 2018). Surveys as a participatory approach furthermore have the benefit of offering more representative samples of end-users, which should be aimed at also inserting the views of members which are less

interested or involved. Ideally, surveys and interviews can create new knowledge and thereby complement other actions (Heiskanen et al., 2013).

Overall, empowerment of stakeholders is considered to be crucial for ensuring high-quality participation. At the same time, including local stakeholders can also support understanding the suitability for and translation of research findings from other parts of the world into local settings (Wright & Bragge, 2021). Involving stakeholders is realized by providing two-way communication formats on an equal level, and in particular through enabling broad inclusiveness and a participation level of consulting (Stober et al., 2021). Different methods serve to engage diverse stakeholders and align their interests, which was seen crucial in several studies of user involvement on the community level (Heiskanen et al., 2013). It is considered necessary not to rely on a one-size-fits-all approach, but rather to use a mix of solutions, in order to address different user and stakeholder types (Straver et al., 2014).

3 SUMMARY OF RECOMMENDATIONS

Based on the insights from the previous chapters, we here propose a DECIDE toolbox, that can be found in total in the structured overview in D1.6. The most important and impactful recommendations for information campaigns, interventions and citizen participation are summarized below in a brief overview. Based on the general toolbox, more specific interventions can be designed in a variety of ways, depending on the context and requirements of each EC or CEA. For the DECIDE project, chapter 4 will demonstrate and propose ways to employ elements of this toolbox for the pilot sites, with concrete intervention and communication approaches established on the basis of this toolbox. For implementation of all energy-efficiency information campaigns and citizen participation, we recommend the following principles:

- **No "one-size-fits-all" approach**

  Tailor communication, information and intervention to the respective stakeholder group and the current phase of your project.

- **No "all at once" approach**

  Do not overwhelm citizens: Instead, take initial steps to pave the way for further actions. By focusing on concrete actions, individual measures can lay the foundation for a social identity, new social norms and greater participation.

- **Understand stakeholders**

  Carry out an analysis of your stakeholders' needs and barriers at an early stage of the project to find out more about enabling and hindering factors, also supported by psychological models like the unified theory of acceptance and use of technology, (UTAUT & UTAUT2; Venkatesh et al., 2012) or the Capabilities, Opportunities and Motivators model for behavior change (COM-B model; Michie et al., 2011).

- **Build on the existing**

  Use existing local identity and existing local groups and their identity, build on these identities instead of creating new ones. It is easier to integrate an initiative with already existing groups, especially in such which are somehow committed to climate protection. This means start working with 'early adopters'/ community champions and empower them to act in their own community.

- **Establish Trust**

  Create trust as one of the most important foundations for all levels of involvement. It is considered necessary to be continuously active at local level as building trust takes time and be transparent on goals, methods and actual possibilities to collaborate in decisions taken. Build on the principles of the integrity, benevolence and competence to reach communication for trust.

- **Organize and frame it collectively**

  Use different participatory methods to strive for social identity processes, in-group identification, in-group norms and goals and collective efficacy (SIMPEA; Fritsche et al., 2018); allow for involvement in decision-making as much as possible.

- **Keep rebound effects in mind**

  Rebound effects are important to consider in order to be able to reach the energy efficiency strived for. Keep a superordinate goal commitment focus and consider principles of goalsetting when deciding on superordinate goals and subgoals.

- **Evaluate whenever possible**

  Evaluation is needed to draw conclusions about the effectiveness of an information campaign or intervention, or to compare specific communication or engagement strategies. An RCT design is particularly suitable for reaching causal conclusions.

4 DECIDE PILOTS –TAILORED COMMUNICATION GUIDELINES AND INTERVENTIONS

As a conclusion, we present the application of the general toolbox for the DECIDE project. Thus, based on the developed overview on tools and interventions for different stakeholder involvement levels, this section aims to provide tailored communication guidelines and intervention suggestions for the pilots within DECIDE. The proposed guidelines along their scientific principles from a social science perspective are as well found in a second overview in D1.6, concentrating on the DECIDE pilot recommendations only. In D1.1, we specifically identified research gaps regarding quantitative and experimental evidence for energy communities and collective actions. To address these research gaps, we attempted to generate such evidence for and with the pilots whenever possible. For this purpose, the methodology of RCT was applied whenever feasible considering the framework conditions such as research question, sample size and implementation.

GENERAL SUPPORT

Next to the pilot-specific interventions and actions from a social science perspective, we developed tools that go beyond specific support for the pilots to serve as general resources for replication initiatives inside and outside of DECIDE. One of them is the DECIDE 'Energy Vision Game': To better understand visions people have about their local energy transition, we proposed an engaging game approach with prioritization and visualization of actors, roles, motivations and actions. Originally developed for the context of HIND, we wanted to make sure that it is replicable and accessible for all Pilots and beyond the project, why we designed it towards a more general level and in English language. The game in its final version is freely accessible over the website and allows for a gamified vision creation, which enables decisions

along four different aspects: Different actors, asking with whom people would organize their local energy transition together; different roles, learning more about how people would participate; ways of implementations, which refers to the types of actions people would support and motivators, asking why people would take part. Several options are suggested and can be classified along a "target" in order to set priorities and potentially group some of the factors together. Thereby, the game enables to both learn about the respective aspects themselves – but also about their relations to each other. Figure 9 shows how the game user interface looks like[2], while Figure 10 depicts some of the initial results and show the energy community visions that were developed by participants.
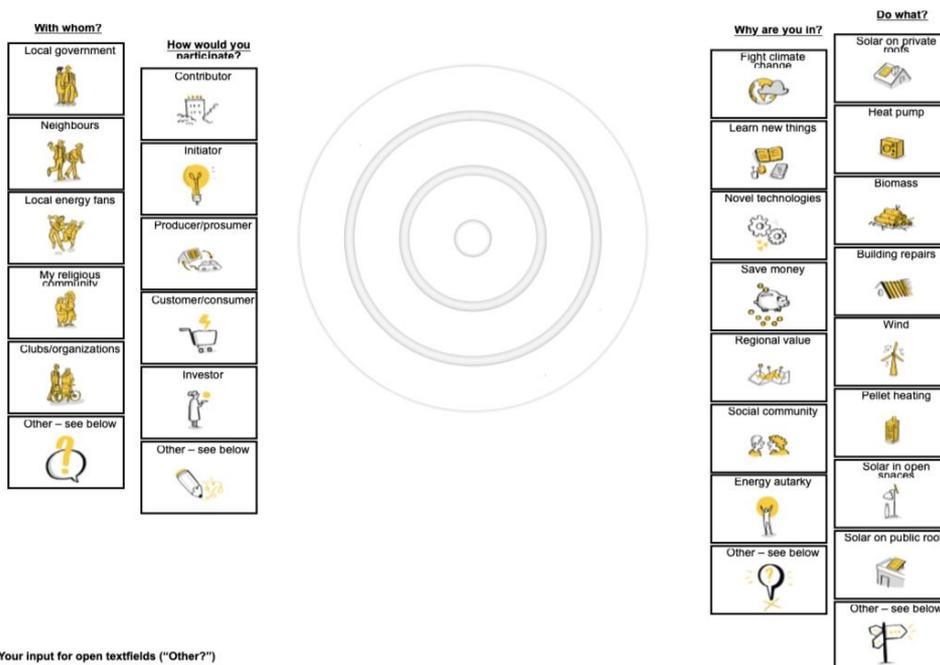

Figure 9. The Energy Vision Game.

Figure 10. Examples of Energy Visions developed by participants

As a further general support action, to make underlying concepts and developed tools more accessible to both pilots and DECIDERs, we introduced a seminar session series. This seminar series is building on the suggested framework of 'Level of involvement' (p. 22). Within this four-part seminar series, we present one step per seminar on the ascending scale 'level of participation', and for this step (inform; consult; include; collaborate) scientific background information, important findings from previous studies and recommendations. The seminars are always developed in collaboration with one Pilot, demonstrating a successful intervention within the pilot site on the basis on the basis of the communication problem at hand. Afterwards, in an open discussion with workshop format, the opportunity is given for DECIDERs to present their needs for this communication step and to work together on initial solution proposals in a consultative style. Through both targeted replication collaborations and the open opportunity for discussion and consultation within the seminar sessions, the seminar series enabled us to initiate initial support for interested DECIDERs as replicators.

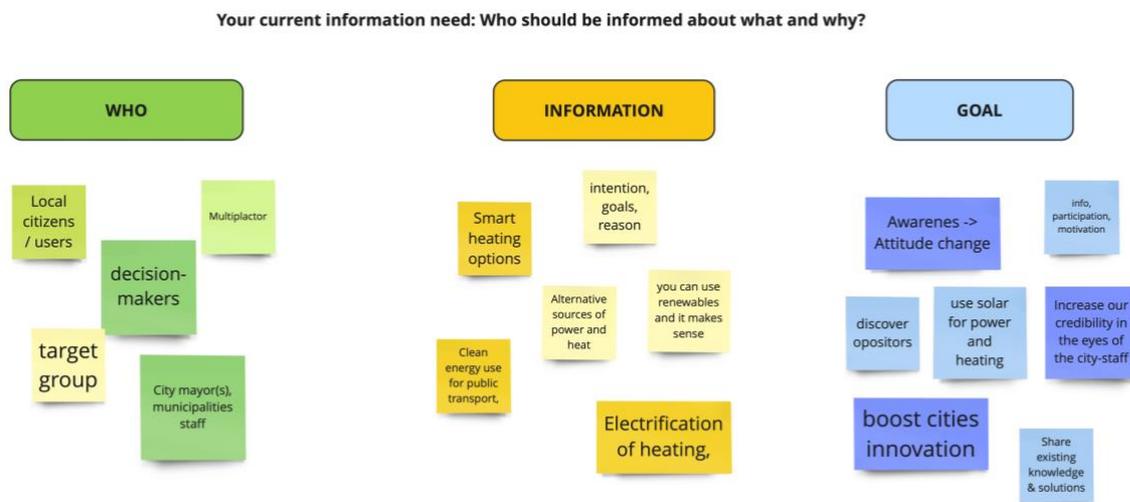Figure 11 shows some initial workshop results from the first seminar session (Level of involvement: inform).

Figure 11. Discussion prompts from 'inform' workshop within seminar series

SPECIFIC PILOT SUPPORT

For each pilot[3], previous activities that included information and intervention approaches are first summarized. These comprise all communication, intervention, and participation concepts that were already implemented within the DEICDE project or are in the process of being implemented. This also includes results for all completed actions. Afterwards, we will describe all concrete plans and actions which are recommended for future implementation.

DOMX

COMPLETED ACTIONS. Since the starting point of DECIDE, next to the activities directly related to WP1, DOMX has carried out stakeholder engagement through four main activities. For an

---

[3] For more detailed background information on the specific pilot sites within the DECIDE project, go to
https://decide4energy.eu

information campaign, the DECIDE project flyer was shared with all candidate participants, while individual phone and conference call discussions were established with users interested to get more details about their involvement. Additionally, DOMX mailed and contacted the already existing DOMX users to inform them about the DECIDE pilot activities and check their interest in joining. To further reach out to a broader consumer segment, two installation-maintenance companies (GASTECHNIC, GASOPTIONS) in two different cities (Thessaloniki and Volos) were contacted to promote the device adoption to their clients, explaining them the benefits they will have by joining the DECIDE pilot activities. Furthermore, they collaborated with three energy suppliers (HERON, ZENITH and W+V) as partners and specifically contacted their research teams, in order to approach users from their consumer portfolios.

In order to better understand customer behaviour, as well as motivations or barriers for customers of DOMX within DECIDE, a survey regarding a smart heating control system was designed and implemented. The survey was based on the formerly described models UTAUT2 (Venkatesh et al., 2012) and COM-B (Michie et al., 2011). In connection with the theoretical foundations and based on previous studies on the acceptance of smart technologies in the heating sector, we investigated both motivation and barriers for the uptake of the DOMX technology, as well as possible incentives and willingness to pay. The survey was distributed to DOMX customers, to customer segments from other pilots (e.g. HERON), and to a representative national panel of all countries represented in DECIDE. Here, the Greek panel is particularly important for drawing conclusions for DOMX, as it was representative for the age and gender features and allows for conclusions beyond the existing customer base of DOMX. The structure of the study is depicted in Figure 12, demonstrating also the experimental approach we took to better examine incentives: Through a 2x2x2 design [4] of different

---

[4] A 2x2x2 design describes a study design, involving three different factors (in this case: environmental incentives, financial incentive and app) where each factor has two conditions.

incentives (environmental x financial x app) and a randomized split of participants into the different groups (RCT), we intended to examine whether one of the presented incentives would strengthen or lower the intention to adopt the smart heating technology.
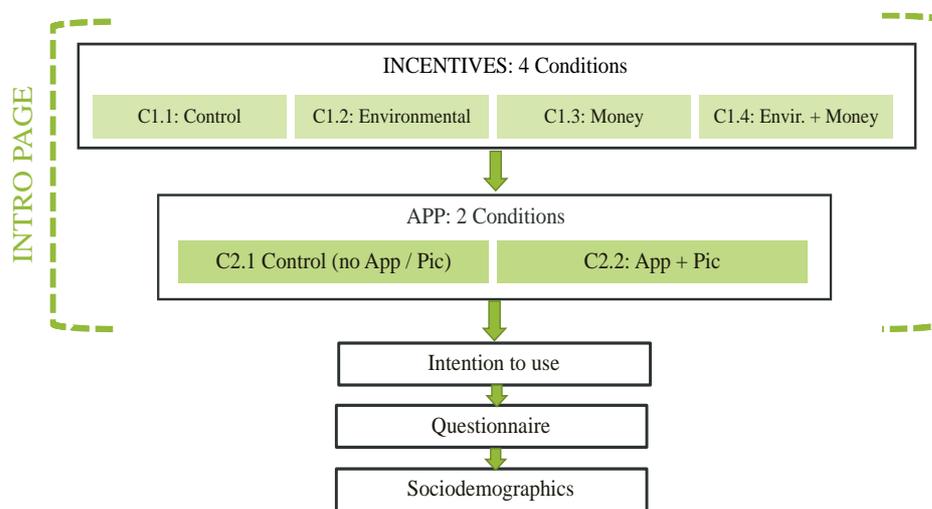

Figure 12. Study design for smart heating tech survey.

Results showed an overall high acceptance rate of the smart heating technology, both in the Panel results (M = 6.16 on a scale from 1-7), as well as within the DOMX sample (M = 6.16 on a scale from 1-7). For DOMX customers (N = 56), demographic data showed that participants of the survey were mostly male, between 30-49 years old and use a gas boiler for heating. The behavioural intention for using the smart heating technology did not differ between the DOMX sample and the Greek panel. We did not find any differences for the experimental groups, neither in the panel nor in the Pilot sites, which indicates that the participants already were aware of the benefits that such technology can bring. Figure 13 demonstrates the obtained results for DOMX and HERON collectively.
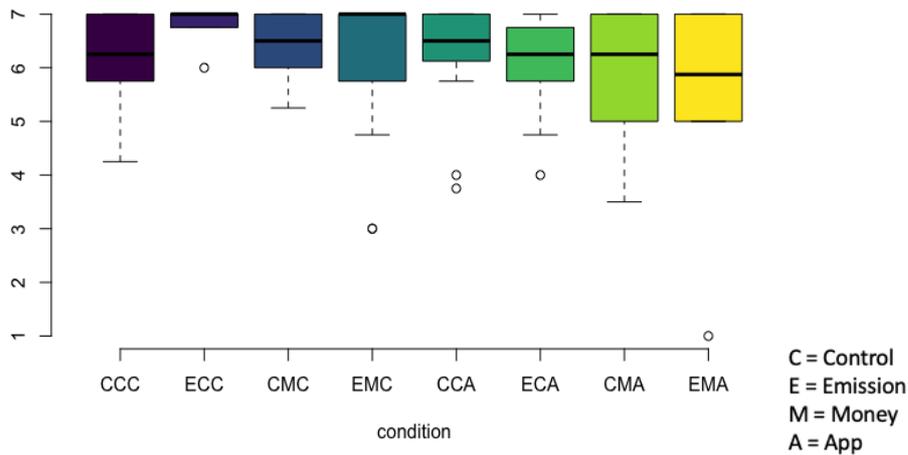
Figure 13. Results of different experimental groups. Dependent variable = intention to adpot smart heating

The analysis of motivators and barriers again showed similar results between the DOMX sample and the representative Greek panel: Individual motivators, like financial and comfort motives were most important, while control seemed to be the biggest barrier. Mean values for all motivators for usage are displayed in Figure 14, for both the DOMX sample and the Greek panel.
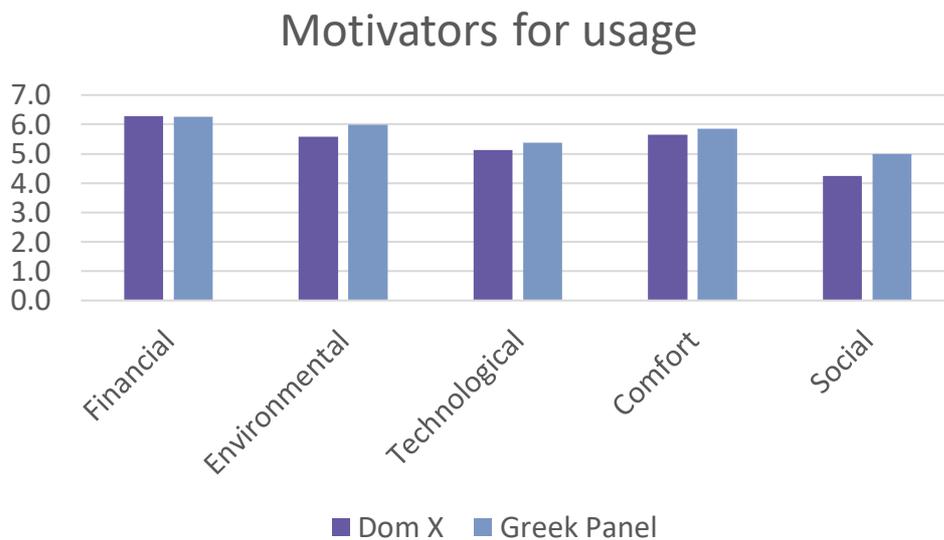
Motivators for usage

Legend: ■ Dom X ■ Greek Panel

Figure 14. Motivators for usage of smart heating tech for DOMX sample and Greek panel. Mean values, scale from 1-7.

Based on these results, recommendations for DOMX can be derived: First of all, it is positive to note that the benefits arising from the technology seem to be already perceived as present. In addition, the significance of the financial and convenience-related motivators is once again emphasized. Furthermore, the willingness to pay, which plays a role in the further market development of DOMX, shows a clear trend within the Greek panel: Here, people show a tendency to prefer low one-time acquisition costs with higher ongoing costs.

FUTURE PLANS AND RECOMMENDATIONS. For a specific in-person action that enables stakeholder engagement and interaction for collective local energy transition, a 'live' version of the energy game will be played in collaboration with the Greek pilots for the upcoming multi-stakeholder workshop (conducted by WP3) in autumn. Please see HERON's section (Future plans and recommendations) for more detail. Focusing on further communication actions, communication materials in form of flyers, postcards or a newsletter are suggested

for tailored information reaching DOMX customers, which should be based on the Integrity, benevolence and competence model (Mayer, David & Schoorman, 1995) to ensure communication for trust. All communication material should frame and visualize the overall goal, provide possibilities for interaction and contact, and target social identity and motivation as much as possible. A key point is to strive for a coherent narrative that extends to all types of information and communication material. Further input to communication material design and the right motivational approach can be drawn from other information-related activities (see e.g. Postcard Study for OUR).

Additionally, as heat efficiency as well as gas and cost savings of end customers are considered to be important goals for DOMX, we further advise to have rebound information sessions, considering that rebound effects might lead to a much lower energy efficiency than expected. In such information sessions, rebound effects can be explained, and the relevance of focusing on a superordinate goal to strengthen commitment should be addressed. Rebound information sessions can be developed in close collaboration with the pilot and worked out in detail for the particular use case, evolving over time and with more experience.

Replication action: Survey with CluBE.

One of the DECIDERs which aim to replicate collective actions within DEICDE is the Cluster of Bioeconomy and Environment of Western Macedonia (CluBE). Due to the proximity of the content and the close cooperation as DECIDER with DOMX, a replication of the survey has been the most fitting choice for CluBE. For this purpose, the survey was made available and minimally adapted to district heating systems mainly used by consumers approached by CluBE. Since all scales in the survey were kept the same, it is possible to relate the data both to the results of DOMX and to those of the representative Greek panel.

OURPOWER (OUR)

COMPLETED ACTIONS. OUR started in summer 2019 with a successful series of local events in Upper Austria attracting more than 200 members and supporters, most of them prosumers with their own PV systems. The planned roadshow in this line to win new customers and supporters had to be cancelled for pandemic reasons. As a substitute, OUR chose for their first activity within the DECIDE project a direct mailing approach through 20.000 (not personalized) letters to home-owners with PV on their roofs. That campaign proved unsuccessful, resulting in only 150 contacts, mostly via telephone. Only 25 contracts were generated, of which only 5 contracts were implemented through the OUR website, which had originally been the target avenue in the letters.

In order to reach a higher number of potential members within DECIDE and at the same time to understand a better way to approach future customers based on the knowledge of their main motivation, a postcard intervention was designed. The postcard was seen as an ideal first approach for possible customers, as it can raise interest without delivering too much information. The goal of the postcard approach was to incentivize people to make a first contact with OUR via their website. Specifically, we designed three different postcards, each with a different postcard image, targeting a different identity, see Figures 15. The intervention addressed either the community identity (friends and neighbours), the regional identity (region) or the environmental identity (climate). 9000 households with pre-existing PV installations were targeted, and participants randomly received one of the three postcards, which contained a QR code and link with access to the website.

Figure 15. Postcard design of three different postcards (region, friends, climate).

One of the theoretical underpinnings was that it would allow to study which identity is the best targeted to incentivize people to join such a collective action as OUR and was based on the COM-B Model (Michie et al., 2011). Additionally, the postcards were designed to build awareness and communicate the goals of OUR using a superordinate goal framing. This type of intervention could be slightly adapted for future communication towards consumers.

Starting on Sept 30, 2021, and in the following two weeks, postcards were delivered to participants. Engagement with the website was measured until December 31, 2021.

272 unique visitors were logged to have visited one of OUR's landing pages, a 3.1% response rate. Additionally, 60 return visits were logged. Of the 272 visits, 103 resulted from the postcard Region, 72 from the postcard Climate and 97 from the postcard Friends, indicating that the region condition worked best. We additionally found that participants that had received the region postcard stayed on the website longest. The results of this intervention will be published as a scientific study.

In addition to the described actions, OUR organizes numerous engagement events for existing and potentially interested members. Examples are the online event 'The energy transition is female'[5] or the 'Energy talks in the orchard'[6], where a dialogue with citizens is established.

FUTURE PLANS AND RECOMMENDATIONS. To better draft a future strategy for OUR as a collective action, we propose an adapted version of the already developed game survey (see: general support). As in the upcoming session of the OUR Dialogue, we as WP1 will support on-site with knowledge exchange on motivators and barriers, we will implement a 'live' version of the game with the OUR community. This will help to build visions of possible collective actions in the context of OUR and to foster discussions about future steps.

In the course of the seminar series *consult*, in which OUR participated as the case study partner, the idea was developed to potentially implement an interactive questionnaire and feedback system integrated in the website (in the style of Mentimeter), which would enable OUR customers to provide feedback in questions regarding their motivators for participating in an EC, with instant feedback about other community members and their opinions and

---

[5] https://dialog.OUR.coop/blog/nachlese-die-energiewende-ist-weiblich-vom-11-11-2021/
[6] https://dialog.OUR.coop/blog/einladung-energiegespraeche-im-obstgarten/

motivations, while giving OUR more information about their main customers and their future intentions regarding participation in collective energy actions. Finally, we suggest implementing an interactive web portal or forum, which could be part of the already existing website by OUR, fostering interactions between community members and creating a sense of community.

HERON

COMPLETED ACTIONS. Regarding interventions and information steps in the past, HERON has been mainly concentrating on the preparation and creation of the HERON platform. In addition, a first information campaign has been designed within the first months of the DECIDE project. In the context of the DECIDE project, residential consumers that belong to the clientele of HERON have been invited to participate in the pilot execution which foresees, amongst others, the installation of additional smart meters for real-time monitoring of energy data.

HERON's communication plan is to address the target group of its own clients, in order to achieve best results possible for each pilot phase. In the beginning, HERON clients that were aware of such initiatives were contacted, since they could serve as frontrunners. In this context, employees of HERON and their family members with already installed smart meters in their households were contacted first. All interested consumers willing to participate in the Greek pilot at the time of registering in the HERON's online metering platform are asked to give their informed consent on the usage of their data. As part of this process, they are provided with information on DECIDE and the data items that will be used for the project pilot. Only the customers that have accepted electronically the terms and conditions (tick-box) and, as such having provided their consent are entitled as eligible users to participate in the Greek pilot. Registered users receive information on the DECIDE Greek pilot, actions and events as part of a monthly newsletter that aims to familiarise HERON's smart metering users, with the

projects and the platform features that are under design or recently released. This will be part of a news section in a monthly periodic report of pilot member's consumptions, also including e.g. efficiency tips.

As acceptance of technology and monitoring of energy data play an important role in the concept of HERON, the study of the acceptance and usage intention of Smart Heating systems was as well used and adapted for HERON customers, finding out more about the intention to use smart appliances in heating within their existing customer basis and on potential new customers. The structure, set of questions and examined variables were the same for HERON as for the representative Panel and DOMX. In Figure 9 (DOMX section) the detailed survey structure is presented. HERON's results again displayed a high intention to adopt smart heating technology, both in the Panel (M = 6.16 on a scale from 1-7) and within the HERON sample (M = 6.14 on a scale from 1-7). For HERON's participants (N = 40), demographic data showed, comparable to DOMX, that participants of the survey were mostly male, between 30-49 and have a boiler as heating device. Behavioural intention to use the smart heating technology did not differ between the HERON sample and the Greek panel. We did not find any differences for the experimental groups, neither in the panel nor in the Pilot site (for the graphic representation, please check Figure 9 in DOMX section).

The analysis of motivators and barriers showed that regarding motivators, HERON participants showed similar priorities for motives as the Greek panel: Particularly a financial motivator to adopt the technology was found most important, while a loss of control was identified as the biggest barrier. Mean values for all motivators for adoption are displayed in Figure 16, displayed for both the HERON sample and the Greek panel.
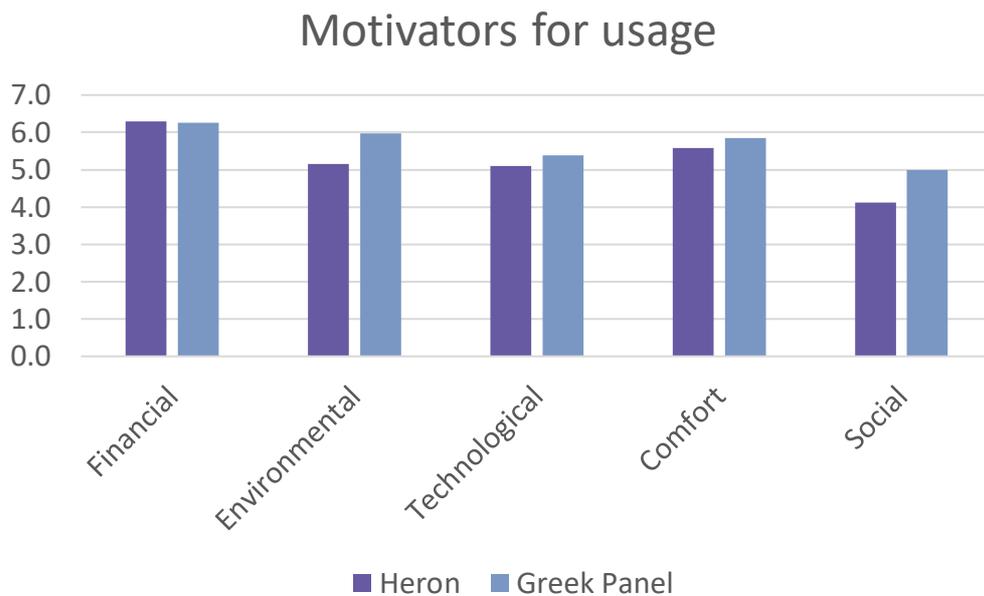
Motivators for usage

Figure 16. Motivators for usage of smart heating tech for HERON's sample and the Greek panel. Mean values, scale from 1-7.

FUTURE PLANS AND RECOMMENDATIONS. Regarding the communication plan towards customers, additional residential customers will be approached through telephone communication, email and relevant questionnaires performed in HERON's stores and potentially through HERON's external partners. For a specific in-person action that enables stakeholder engagement and interaction for collective local energy transition, a 'live' version of the energy game will be played in collaboration with the Greek pilots for the upcoming multi-stakeholder workshop (conducted by WP3) in autumn. To better understand people's visions for the local energy transition in their respective areas in Greece, we propose a game-based approach, building on the Energy Vision game presented earlier. This is intended to encourage interaction with project partners and generate more knowledge about participants' priorities for local energy actions. For this purpose, the Energy Vision Game (see: General Support section) is recommended to be set up on a large scale on several boards and

ideally played with different stakeholders. Like the original game, this setup allows for different decisions on the following insights:

- Different actors: with whom would people organize their local energy transition together?
- Different roles to learn more about how people would participate;
- Pathways to implementation, i.e., the types of actions people would support;
- Motivators, i.e., why people would participate.

Options developed for the game are suggested, and a voting system allows participants to prioritize and vote for (possibly more than one) factor based on voting points.

Furthermore, as a recommendation, as the platform for HERON Customers already allows for tracking and monitoring of energy consumption in (a) total and (b) regarding specific devices, we propose to use progress-bars and push information on the platform. Such display serves to give a monthly efficacy update, helps to visualize the overall goal and the respective progress towards this overall goal. This not only helps to reduce rebound effects through giving a focus on the superordinate goal when reaching subgoals (Fishbach et al., 2006), but also helps to create a sense of collective efficacy. Furthermore, comparative feedback and a visual ranking of one's consumption relative to the community can serve to promote social norms and encourage behavior change. In addition to feedback measures, it is also recommended to explore the potential feasibility and implementation of an interactive portal as part of the website to enable interactions and a sense of community.

THERMOVAULT (THERM)

COMPLETED ACTIONS. Former information activities organized by THERM started with a residents' meeting in September 2019, for which invitations had been sent by letter to respective inhabitants. The letter already informed the residents about the functioning and especially the benefits of implementing the THERM controllers, also informing about some

incentives. As THERM often works closely with B2B clients (social housing companies), sessions with the residents are held to provide explanations on how the technology works. To target tenants and residents in the social housing companies, THERM used different approaches for communication, like e.g. the distribution of flyers (explaining the benefits of the installation and how it works) or co-design activities through and with social housing company partners.

A communication workshop between THERM and WP1 showed that THERM's difficulties lie mainly in convincing tenants in social housing companies to accept the solution and agree to an installation in their apartment: Problems have been encountered in rolling out the technological solution as it is difficult to get appointments with tenants and have them (1) understand their benefits from it, (2) agree to installation and (3) sign a data agreement. Mainly, understanding and trust issues were identified. Based on this, we suggested a communication strategy, by taking into account the concepts of collective efficacy and a coherent narrative as well as using the insights on possible motivations and barriers from research. All forms of communication recommended by us were based on the principles of communication for trust (Mayer, Davis, and Schoorman, 1995). In order to properly evaluate the communication strategies used and learn more about the ideal way to address tenants in order to increase their acceptance rate, we developed two communication interventions with two different social housing companies. The interventions are described in more detail in the following. For all interventions, we added a section with the intervention to the existing letter of THERM and used an experimental study approach.

1. Social norm intervention

As a first trial, we decided to test a social norm intervention as a frequently used method in behavioural science to foster certain behaviours. Additionally, a social norm intervention allows us to draw conclusions about the relevance of THERM as a *collective* action. In order to investigate to what extent a social norm may be suitable as information to increase

acceptance, we designed a randomized control trial (RCT). Through displaying a social norm about other households in the neighbourhood already using the THERM solution, the goal was to increase acceptance. Acceptance is understood as (1) willingness to make an appointment, (2) to attend the appointment, and (3) to actually have the solution installed. To investigate the effectiveness, the social norm information was added to the regular information letter of THERM in half of the apartments (randomized by apartment blocks), as displayed in Figure 17. The numbers used for the intervention were based on the fact that THERM already had some installations done a while ago in the same social housing context.

Figure 17. Social norm intervention for Social housing context (THERM).

Subsequently, we measured to what extent the appointment success rate differed between the two groups: Households with the regular information letter vs. households with the regular letter and social norm information. The first results show a promising trend of the intervention: Figures 18 and 19 show the difference between groups as a mean value between 0 (no installation) and 1 (installation successful). Figure 18 shows this difference for the first visit only, i.e., the success or failure of an installation at the appointment arranged by THERM. Figure 19 shows the difference for the entire process, i.e. whether the installation was successful at some point in time.
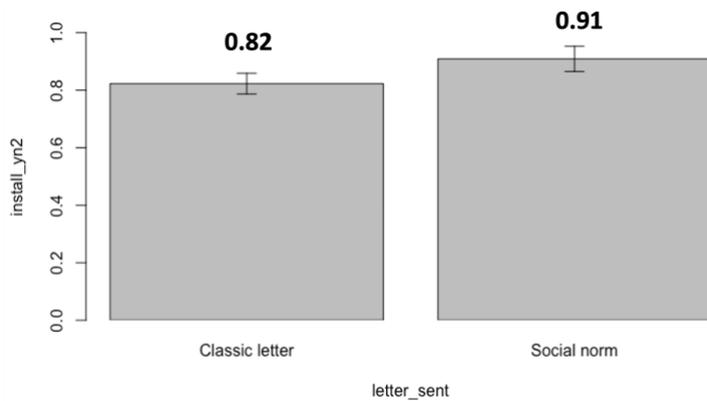
Figure 18. Difference between control group and social norm group for 'installation success' at first visit. (Mean values)
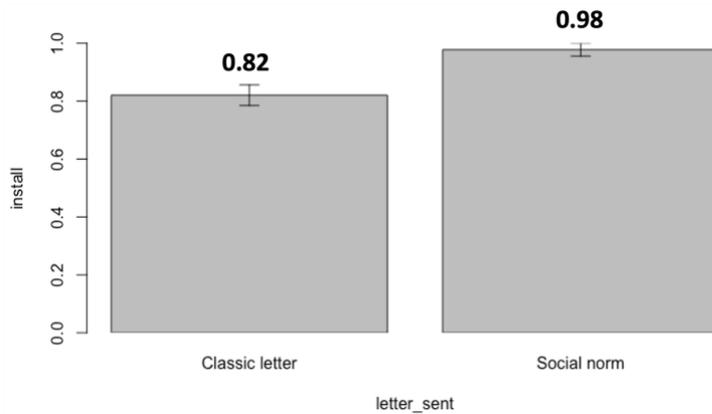
Figure 19. Difference between control group and social norm group for 'installation success' for whole process. (Mean values)

Another interesting finding, we are able to draw from the collected data: Of the households that refused installation entirely (as opposed to: not being home), none was in the previously explained social norm condition. While the data must be interpreted with caution due to an uneven group distribution, as well as due to the building block based randomization, the results still allow us to recommend a social norm intervention as a promising communication strategy for THERM.

2. Communication for trust & collective efficacy intervention

As the second trial allowed for a much larger sample size of tenants, we decided to test two social components: Trust and collective efficacy beliefs. As trust has been an issue in the social housing context, we expect a trust intervention (transparent communication) to increase acceptance, building on the communication for trust model. Within this trust communication, we aim to display the percentage of people saving a lot of money, only a limited amount or even no money, explaining reasons for not saving. This aims to increase transparency for trust and could also counteract future rebound effects. The second component was collective efficacy, which was found to complement, or even compensate a sense of (missing) personal efficacy and is a proved motivator for pro-environmental decisions (SIMPEA; Fritsche et al. 2018). Therefore, we framed a message on savings both of money and CO_2 emissions in a collective manner, fostering a collective efficacy belief. Figure 20 and 21 depict the two intervention designs.
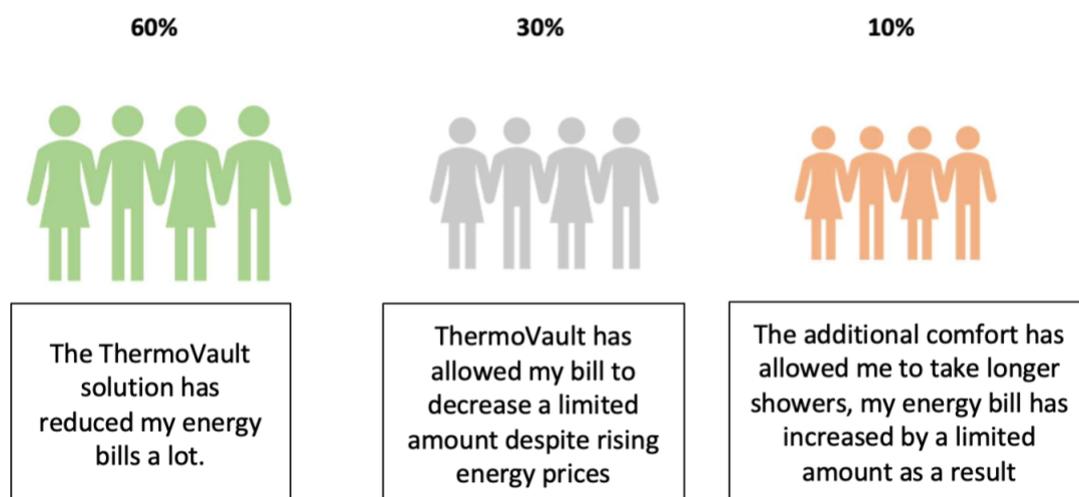
Figure 20. Trust intervention in social housing context (THERM).

Figure 21. Collective efficacy intervention in social housing context (THERM).

To investigate the effectiveness of both the social components individually, but also whether a combination of the two even boosts success, we proposed a 2x2 intervention design. We used a randomized control trial design with four groups to which participants were randomly assigned (RCT). The goal was to measure to what extent the appointment success rates differ between the four different groups: Control group (no intervention), Trust group (trust intervention only), Collective group (collective efficacy intervention only) and Mixed group (both trust & collective efficacy interventions). The study design is displayed in Figure 22.
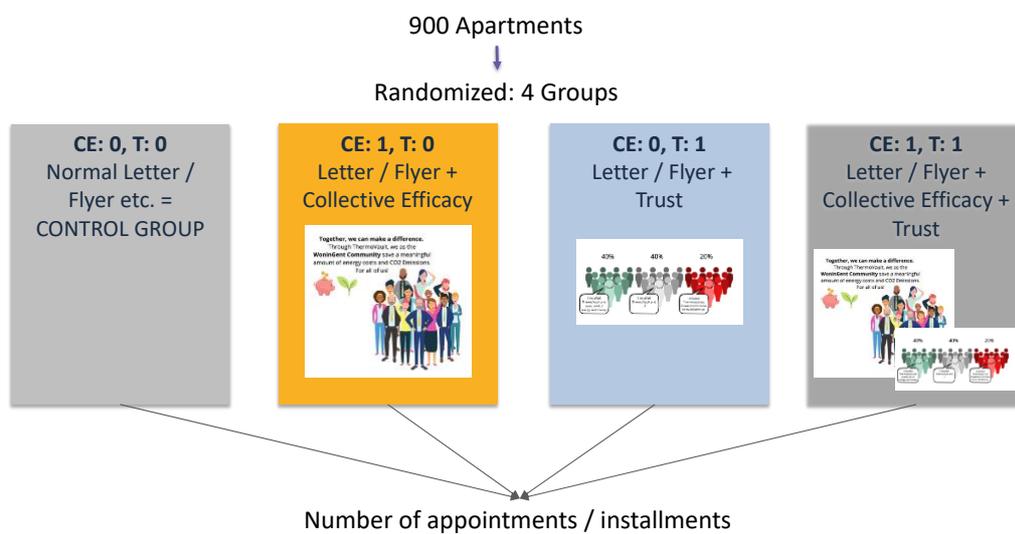
Figure 22. Study design of 2x2 RCT study for trust x collective efficacy in Social housing context (THERM).

FUTURE PLANS AND RECOMMENDATIONS. In the future, further testing of THERM's communication strategy is recommended, as well as drawing on the lessons learned from the interventions already implemented. At the moment, proposals for a communication intervention for another social housing company are being developed again in joint work between THERM and WP1. These focus not only on new installations, but also on the updates of already existing ones, which represents another challenge. Moreover, especially through the conducted 'Trust x Collective efficacy' intervention, conclusions can be drawn for the further strategies of THERM as a collective action. Based on this, further steps inspired from both from the DECIDE toolbox as well as from suggested communication strategy steps within the THERM-WP1 communication workshop can be developed. A summary of communication strategy recommendations is given in Figure 23.

Communication Strategies

- **Language barriers / Illiteracy:**
  - o Info video/Comic without language -> example from a similar context
- **Trust:**
- o "Community Champions", who test the device and then are available for questions of the others -> also overview / reporting about collected info
- **Understanding / Trust:**
  - o Any kind of information on overall energy savings within buildings:
  - o Preparing a „simple language" version of dsgvo (1-pager)

Interventions / Evaluations

- Social norm Intervention
- Opt in vs. Opt out Trial -> Reciprocity
- Information Form Intervention
- Trust & Delay Discounting

Figure 23. Overview of communication & intervention recommendations for THERM.

TREA

COMPLETED ACTIONS. Based on the goal to increase energy efficiency and improve the quality of the living environment, the first steps taken by TREA were to declare the Kalda area as Energy Improvement District (EID) and start collecting data and preparing projects to improve the respective situation locally. Kalda area is one sample area of Annelinn district, that consists of over 100 soviet era apartment buildings and where nearly one third of the Tartu population lives. Energy savings and carbon reduction in the residential sector have been considered as one of the biggest goals of the Sustainable Energy and Climate Action Plan of Tartu City (SECAP), which implies that the city is interested in finding ways to accelerate residential sector actions and Annelinn should be one of the focus areas with a city-wide renovation goal,

starting with EID area pilot in the biggest district. In addition to reconstruction, one of the biggest challenges is to increase renewable energy production and on-site consumption. For heating, district heating is used which is already renewable to a large extent, by employing biomass fired boilers. Estonian electricity has one of the highest emissions factors in EU and one of the goals is to increase renewable electricity use in apartment buildings: this makes it important to introduce and promote PV-panel installations, as well introduce possibilities and benefits to increase on-site consumption. The goals have therefore been the forming of ECs and - regarding energy and climate plan action - to develop a community agreement so that citizens, including companies and apartment association, can contribute towards the energy and climate plan. During a former project, TREA already started to engage people from the district by inviting them to participate in events about renovation. Additionally, a workshop was held next to a building that was in a renovation process, in order to introduce experiences of people going through such a renovation, adding as well construction company comments. Within the same former project scope, different brochures and other material about renovation were prepared. Both this project and SECAP has had a lot of media coverage and seminars.

TREA has also been introducing the "Energiamonitor", which is a web application for people to engage them into renovation plans, helping to monitor energy consumption, providing tips and calculations for achieving savings, including possible post-renovation savings. Additionally, an energy diary application with focus on raising awareness regarding energy consumption of household appliances and savings was developed and TREA is at the moment working on developing another application for devices and electronics at household level. These have been integrated into a seminar series for smart living. Additional workshops that focus entirely on the apps will be included, and at this point, ten seminars have already been organized and at least as much will follow about the topic of Smart Living.

Within the framework of DECIDE, an opening event took place in November 2020 to introduce and test the offer in the centre of the district. Within last summer, many engagement activities took place. On 6 August 2021, a Hometown Energy Day took place which was organized in cooperation with the City of Tartu to introduce the concept and possibilities of EC and solar potentials. In this event, representatives of one apartment association who already have jointly purchased electricity and PV-panels introduced their experience. On 13 August 2021, TREA held up a district planning and buildings energy efficiency seminar, where results of renovations and adding solar panels were introduced. Additionally, on 17 September 2021 a Tartu Energy Communities and Smart Solutions seminar took place. Next to these seminars, many events with focus on community energy regulatory aspects have been organized, as there has been a lack in both defining ECs and supporting their formation. Most of these events have been with nation-wide coverage of participants.

TREA has visited more than ten apartment associations, meeting with boards of apartment associations or visiting general meeting of apartment associations. They have been able to install indoor climate and electricity meters in apartment associations with the plan to monitor the change of indoor climate due to reconstruction and analyse in real set up the benefits of installing PV-panels. This was particularly possible through the purchase of electricity jointly – so far all apartments were having separate contracts and due to that could not receive all benefits of installing solar panels.

As a contribution to achieving the City of Tartu's renovation and renewable energy goals and a promotion action, TREA tested three virtual Q&A workshops where up to 30 participants could join and ask questions about renovation, installation of solar panels, energy communities and further topics. They are planned to be continued regularly.

FUTURE PLANS AND RECOMMENDATIONS. In order to convince potential customers to actively involve the community and to enable collaboration and participation, we propose further

participatory community workshops and seminars as communication guidelines for TREA. These are recommended to build community trust and collective emotion and establish a collective narrative, building on the already proposed processes within the SIMPEA Model (Fritsche et al., 2018). This is realized through the inclusion of different actions and a transparent communication for trust, also using the workshops / seminars to assess motivations and identities of the community. Furthermore, we recommend to implement a survey on motivators, barriers and temperature reduction, including elements from former described models (UTAUT2, COM-B), finding out more about participation interest of citizens and getting input for further steps. This survey should be closely aligned with the dissemination of a planned thermometer campaign: In this way, as many households as possible can be reached and the survey can be directly linked to the thermometer.

ENBRO

COMPLETED ACTIONS. Information sessions have been organized with municipalities and housing companies to on-board them and to educate them on the current and future context for energy communities. Additionally, consultation for communication for trust was given by WP1.

FUTURE PLANS AND RECOMMENDATIONS. In the upcoming future, ENBRO is aiming to implement a communication platform for solar energy, which will also include elements of electricity demand response and is therefore meant not only to create awareness but as well behavior change. Based on these goals, WP1 will support in the set-up and design of this gamification platform with social science insights. Building on existing research, we will focus on recommendation for behavior change through specific interventions (e.g. social comparison and social norms, collective goalsetting) and potential gamification elements.

As ENBRO's main goal is to set up a collective project and involve stakeholders as much as possible, communication for trust as a main communication guideline is recommended. This

recommendation builds up as well on the integrity, benevolence and competence model (Mayer, Davis, & Schoorman, 1995). Such a communication approach should aim to communicate realistic and transparent goals, focusing on the possibilities to interact actually given as well as to enable a good understanding of the given concepts through education and information.

BAD HINDELANG (HIND)

COMPLETED ACTIONS. In HIND, different ways of disseminating information were used to launch the project and the subsequent activities. For example, a short report on the project was published in the municipal newspaper at the start of the project in order to inform as many people in the community as possible. Likewise, a report by EWH's managing director was organized in the community's energy team, thus reaching an important stakeholder group. In preparation for an already successfully implemented key-stakeholder workshops, a gamified survey was used as a strategy to understand the relevance of certain factors for a development towards an energy community, making use of the first version of the Energy Vision Game. The stakeholders had to imagine HIND in 2040 and consider how self-sufficiency with 100% renewable energy will have been achieved, considering the relevance of different elements (actors, technologies, motives, forms of organisation and ways of life) for a successful emergence of a self-sufficient HIND. The results of the game were used to guide discussions at a subsequent stakeholder workshop and further support collaboration in HIND. The workshop aimed to engage key stakeholders and set common, collective goals. It was also intended to support the process of reinforcing new social norms and increasing the sense of collective efficacy. Care was taken to involve existing, relevant stakeholder groups and to allow them to participate in the project process.

Furthermore, an official commitment on the part of local authorities was recommended to strengthen commitment and communicate a social, collective norm. Supporting these

processes can be seen crucial in light of the SIMPEA Model of social identify (Fritsche et al., 2018). In the legal workshop conducted by WP3 with central key figures of the community as well as the district office in HIND, the urgency of cooperation between different people in authority as well as a high participatory component of the community became clear. Following up, in cooperation with the European Energy Award (EEA) team HIND, which was also represented at the workshop, a letter was written to the mayor and the courthouse ('Landratsamt') in HIND, in which we took a supporting role for the communication. We gave concrete recommendations along the described behavioural science principles. The generated output can also be used for a public statement. In addition, we supported HIND in the public relations work and consulted a communication strategy for a potential establishment of a local heating network.

FUTURE PLANS AND RECOMMENDATIONS. As identified in the workshop and in conversations with key local stakeholders, a participatory engagement approach will be adopted for and with HIND. The form of participation should relate to concrete actions that are possible within the framework of the current legal requirements. As a first step, due to the interest in the formation of a local heating network with and around the EWH, we propose an interactive information and engagement session with residents who belong to the immediate vicinity and potentially to the local heating network. Here, possible motivators and barriers as well as the concrete organizational form of such local heating network are to be discussed.

In addition, based on the efforts and outputs of the workshop so far, interactive and informative events are to be held in the future as well, which offer a realistic scope of action for citizens and, as a participatory approach, increase the acceptance of citizens for measures taking place in the local area of HIND.

Another approach recommended for HIND and building on the theoretical guidelines is the establishment of a collaborative interactive web portal, which enables interactions between community members and supports connecting a digital neighbourhood with the physical

neighbourhood. It can further serve for the provision of a knowledge base or joint planning of further steps and is therefore especially suited for building up a sense of collective efficacy and social identity.

5 MATERIALS AND METHODOLOGIES BEYOND DECIDE

The following section will provide a summary of presented materials developed and/or used by WP1 within the DECIDE project as well as other useful links and tools from research and/or other EU projects.

A. MATERIALS AND METHODOLOGIES DEVELOPED WITHIN DECIDE

A.1 VISUAL SURVEY IN BAD HINDLANG AS DESCRIBED IN SECTION 4.

https://decide4energy.eu/energy-game

A.2 VISUAL SURVEY APPROACH TO ASSESS SOCIAL INFLUENCE

The second visual survey element is a pictorial representation of including the other in the self in a relationship based on the work of Aron, Tudor & Nelson (1991) and can be used to examine visually the relationships between neighbors or community members. Within DECIDE, this approach is used to examine the closeness of neighborhoods within a study, finding out more about the social environment being a possible motivator or barrier for adapting a smart technology.
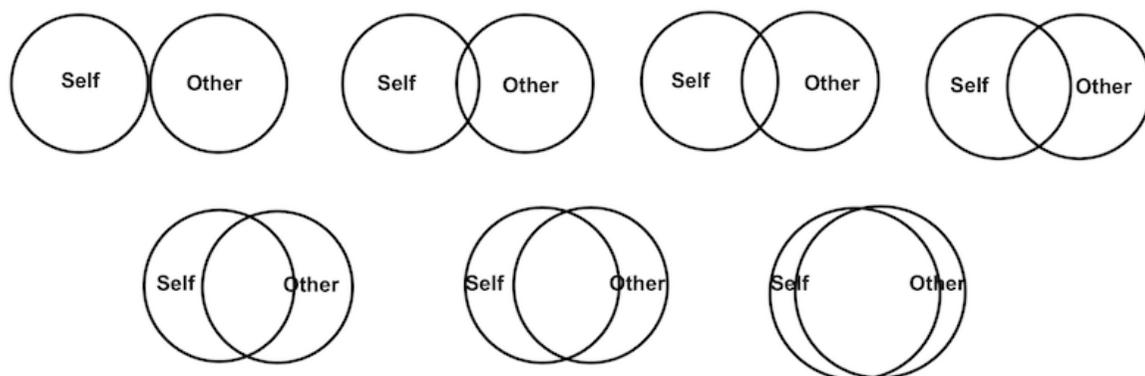
A.3 POSTCARD DESIGN FOR OUR AS DESCRIBED IN SECTION 4.

A.4 FEEDBACK APP FOR ENERGY CONSUMPTION, PROVIDED BY DOMX.
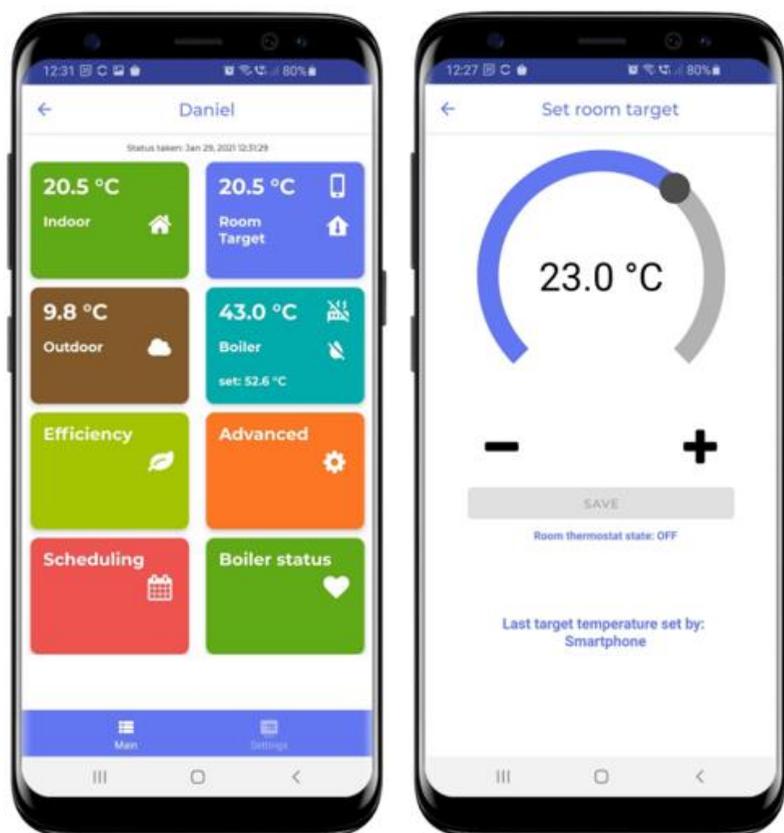
A.5. DIFFERENT INTERVENTION DESIGNS FOR COLLECTIVE ACTIONS COMMUNICATION, DEVELOPED WITH THERM
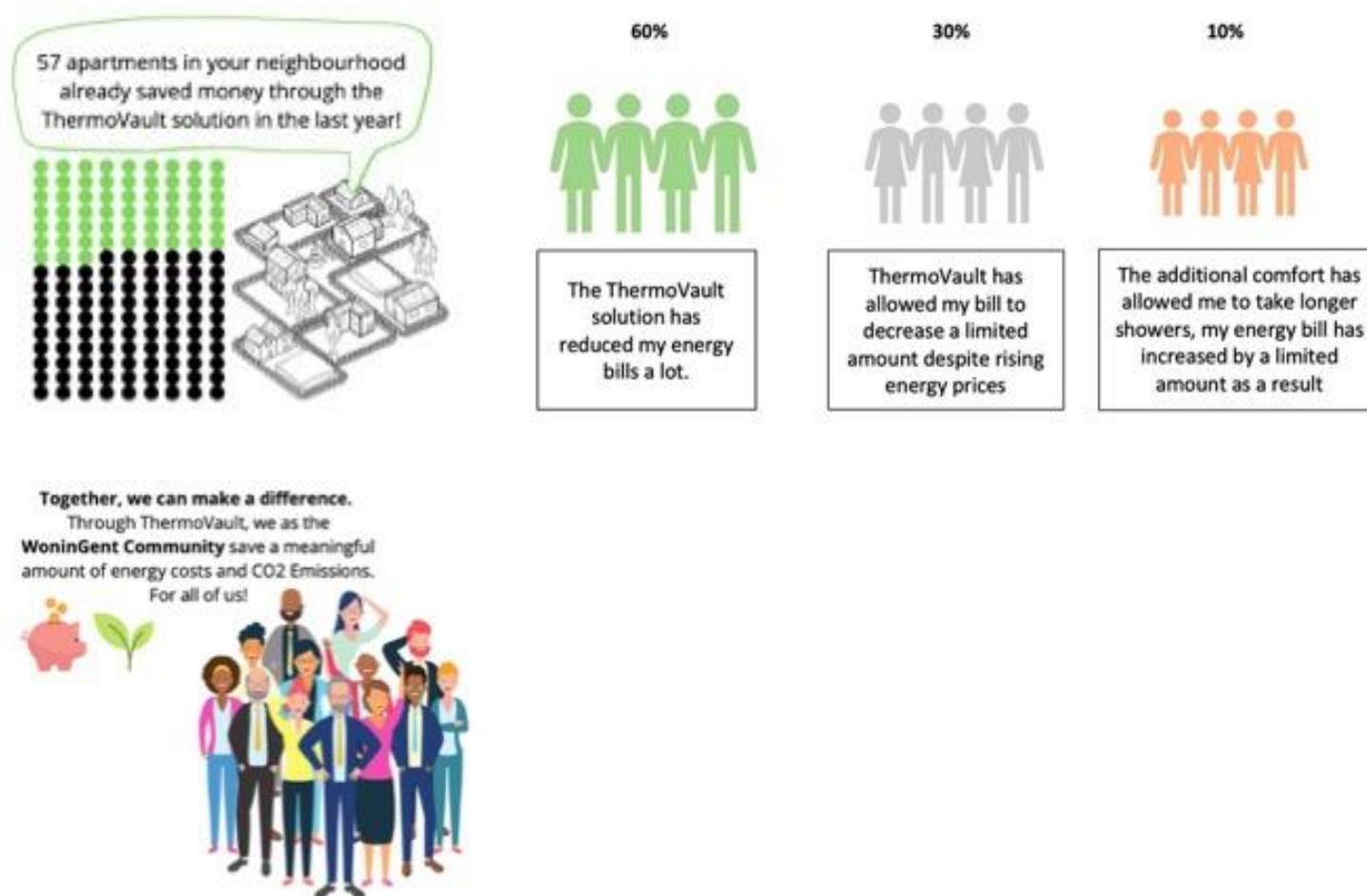
Social Norm (top left); Trust (top right) and collective efficacy (bottom) interventions

A7: A step by step guide for surveys

Step 1: Determine *scope* (target group, objective, tent. timeline) and identify general *concepts*

➔ *e.g. Customers of DomX and Heron*

Step 2: Create set of *questions,* min. 3 questions per construct. Experimental elements?

➔ e.g. If you had the opportunity, would you opt for a smart heating appliance?

Step 3: Check on *validity* of questions: Do they represent general concepts?

➔ e.g. Definition of smart heating given

Step 4: *Pretesting 1*: e.g. with representatives of target group

➔ With DomX representatives: time for filling in, comprehension..

Step 5: define *scales* (e.g. Likert scale or ordinal)

➔ Do you agree on a scale of **1** for „I don't agree" to **7** for „I fully agree"

Step 6: *Parsimony:* minimize size of scales; minimize total size of questionnaire

➔ Max 5-8 minutes for a voluntary questionnaire

Step 7: *Pretesting 2:* test full questionnaire, also testing construct validity and reliability (will 2 metrics of the same concept yield the same results? are results consistent when repeated?)

➔ Second test with DomX personnel

Step 8: Carry out the survey; reach for a high *sample size*!

➔ Issue invite several times, all in xx data sets

Step 9: Analyse data

B. MATERIALS AND METHODOLOGIES IN OTHER EU PROJECTS

The following section will provide some examples and best practice materials from other projects as a starting point and orientation for further materials and methods to be developed and used within DECIDE.

Material	Sources
Newsletter & Brochure (See: B.1)	MUSE Grids Material (2019
Fridge Magnet, showing different time bands and according prices (See: B.2)	Electricity Smart Metering CBT Findings Report, 2011
Full Energy cooperative establishment brochure: LINK	Ministerium für Wirtschaft, Klimaschutz, Energie und Landesplanung, 2012
Webinar Programme: LINK	Carbon Co-op
Guidelines for community mapping: LINK	REScoop Guidelines
Example of an interactive webportal (knowledge and assessment platform): LINK	Nature4Cities

Structure of a participatory integrated assessment and workshop series (See: B.3)	PROSEU: https://proseu.eu/resources
Energy Action Workshop Report: LINK	EVALOC
Tool supporting in the analysis, planning, implementation and evaluation of community engagement activity: LINK	VOiCE
Workshop Facilitation Guide by REScoop: LINK	REScoop.eu
Toolbox by REScoop: LINK	REscoop.eu
LICHT Methodology by REScoop for mobilising citizens: LINK	REscoop.eu
Infographics on energy prosumerism LINK	PROSEU: https://proseu.eu/resources

Mutual Learning Workshops Online Tool **LINK**	Biovoices.eu
Energy Poverty Migitation Toolkit: **LINK**	POWERPOOR
Energy Citizen Academy: **LINK**	EC2 project
Capacity building program for female empowerment in energy context: **LINK**	4WRES
Example of an 'Energy Cockpit' / Energy monitoring dashboard (See: B.4)	eCREW

B.1 NEWSLETTER & BROCHURE PROVIDED BY MUSE GRIDS PROJECT

B2 FRIDGE MAGNET [Electricity Smart Metering CBT Findings Report, 2011]

Different times, different prices

DAY 8am - 5pm	PEAK* 5pm - 7pm	DAY 7pm - 11pm	NIGHT 11pm - 8am
14c	20c	14c	12c

* Peak rate applies Monday to Friday only excluding Public Holidays.
Time of Use pricing will apply from 1st January - 31st December 2010.
Rates may be subject to change in line with ESB Customer Supply tariff changes.
Prices exclude VAT.

B3 STRUCTURE OF A WORKSHOP SERIES
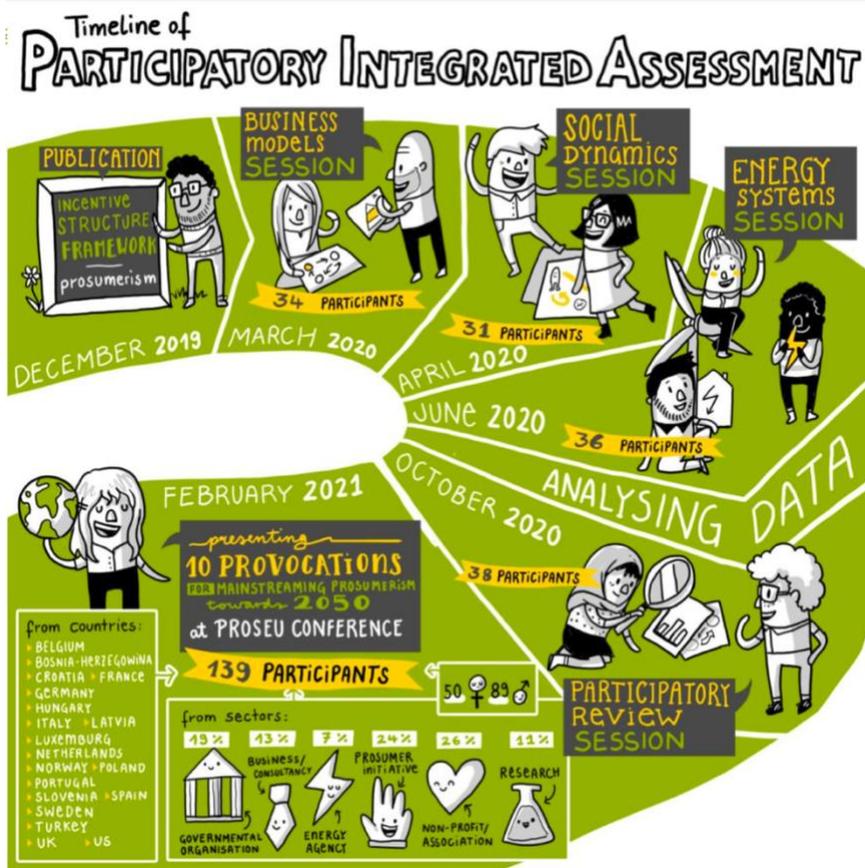
B4 ECREW ECOCOCKPICK example

ETHICS

ETHICS DOCUMENTATION DECIDE					
Checklist for DELIVERABLES/MILESTONES on ethical issues					
Introduction	The basis of DECIDE's scientific approach is the conformity of its work with ethical principles. These include respect for human beings and human dignity, the fair distribution of the benefits and burden of research, the rights and interests of research participants, and the need to ensure the free and informed consent of participants (including vulnerable groups such as children). Whenever research approaches or interventions are pursued within DECIDE that involve people or have an impact on people and their environment (e.g. interviews, workshops, ...), they must be examined for their ethical implications. The aim of this checklist is to review DECIDE's scientific products (deliverables and milestones) from an ethical point of view, but above all to enable a quick ethical review during the planning and development of these outputs. Translated with www.DeepL.com/Translator (free version)				

SUBJECT	ISSUES	Tick the box			Remarks	Sources of verification

| | *Remark* | | | | *In parallel to the ethics check, DECIDE data management guidelines are developed which will include: Guidelines/descriptions for procedures for data collection, storage, protection, retention, transfer, destruction or re-use. Description of the security measures that will be implemented to prevent unauthorised access to personal data or the equipment used for processing, methods of storage and exchange (LAN, cloud, etc.) Description of the anonymysation/ pseudonymisation techniques that will be implemented or explanation on why the research data will not be anonymised/ pseudonymised Detailed information on the informed consent procedures in regard to data processing* | | |

SUBJECT	ISSUES	Tick the box			Remarks	Sources of verification
		Y	N	n/a	n/a – does not apply	
Research ethics general						
	Do you confirm having handled research subjects with respect and care, and in accordance with legal and ethical provisions (to your best knowledge)?	x			self-assessment	
	Do you confirm having taken account of research relevant differences in age, gender, culture, religion, ethnic origin and social class (if this applies)?			x	If Y, to be mentioned in Deliverable report	Deliverable report
	Do you confirm having considered potential research related harms and risks?			x	If any, to be mentioned in Deliverable Summary	Deliverable report
	Are there any unethical ways (e.g. to stigmatise, discriminate against, harass or intimidate people) in which the methods or knowledge produced could be used?		x		If Y, what did you do to prevent this?	deliverable report

Stakeholder rights, interests and dignity					
	Has the role of your local research partners/stakeholders clearly been defined and communicated ?		x		Deliverable report; (consent forms); information leaflet
	Do local stakeholder groups/partners involved in your research have their own ethical guidelines/boards? If so, did they approve your research?		x	If any, written approval	(written approval)
	Have you been evaluating/analyzing their programs and services? If so, will they be given a copy of your findings?		x		copy sent to partners/ stakeholders
	Are there any potentially negative, unintended consequences of the research cooperation with local partners for local people?		x	If any, to be mentioned in Deliverable report including ways to avoid this	Deliverable report
	Could the research have induced psychological stress or anxiety or cause negative consequences beyond the risks encountered in normal life?		x	If any, to be mentioned in Deliverable report including ways to avoid this	Deliverable report
	Has there been the possibility that the involvement of stakeholders created a situation where they felt real or perceived coercion to participate in your research? If yes, how did you manage/prevent this situation?		x	If any, to be mentioned in Deliverable report including ways to avoid this	Deliverable report
	Have the following European fundamental rights been observed: The rights of the child; Equality between women and men; Integration of persons with disabilities?		x		Conformity to European fundamental rights
Research design/Methodology					
	Has the research design been sensitive to the particular needs and perspectives of tageted stakeholder groups?		x		Methodology description in Deliverable Report
	Does the methodology clearly describe how data have been collected and analysed during the work?		x		Methodology and data management description in Deliverable Report
	Did research involve the sharing of data or confidential information beyond the initial consents given?		x		Consent forms; amendments to consent forms; Deliverable report

Category	Question	Yes	No	Comment	Document/Reference
	Are people other than direct research participants likely to be directly impacted by the research?		x	if Y, discuss in Deliverable report	Deliverable report
	Did you make arrangements to preserve confidentiality for participants or those potentially affected?		x	Please explain the mechanisms in place to ensure the confidentiality of private information,	DECIDE Data management guidelines; (infomation sheets);
	Has the methodology addressed ways in which sensitive information, data or sources will be handled? (e.g. personal data, data protection, tracking of people)		x		Methodology and data management description in Deliverable Report
	Have participants been asked to give informed consent in writing and have they been provided with information about the research?		x		Information sheet and consent form
	Have the research approach/aims been discussed with stakeholders involved?		x		Deliverable report
	Has information (written and verbal) about the research been provided in an appropriate form and language for potential participants?		x		Information sheet
	Did you offer any incentives (other than reasonable expenses and compensation for time) to research participants?		x	If yes, what could be the potential ethical issues arising from this?	methodology description in Deliverable report
Data management/protection	Have personal data been processed in any way (e.g. collected, shared, stored,…)?	x			Copy of questionnaire/online questionnaire url; Deliverable report methodology part; reference to DECIDE Data management guidelines; (Indication of own Data documentation systems of DECIDE partners if any)
	Have personal data been anonymized oder pseudonymized before processing?		x	Description of data processing (collection, management, storage) in deliverable . Describe how you anonymized/pseudonymized the personal data.	Deliverable report; reference to DECIDE Data management guidelines; (Indication of own Data documentation systems of DECIDE partners if any)

| | Did you practise tracking or observation or profiling of participants ? | | x | | In the deliverable, provide explanation how the data subjects have been informed of the existence of the profiling, its possible consequences and how their fundamental rights have been safeguarded | Informed consent of participants; Deliverable report |
| | Did the research involve the collection of photographic or video materials? | | x | | Describe the purposes: if to be used in any outputs (publication, dissemination, etc.)Or to be made publicly available (e.g. in social media, magazine articles)? | Informed consent of participants with specific permission of photographic or video recording; Specific permission in case of further use (e.g. publications, social media); Deliverable report; In case of use in social media: social media statement etc must include the researcher/supervisor contact details and a statement that the study has received relevant ethical approvals |

	Question			Describe	Evidence
	Has there been any audio collection?	x		Describe the purposes: only for transcribing/summarising purposes? to be used in any outputs (publication, dissemination, etc.)? To be made publicly available (e.g. in social media, magazine articles)?	Informed consent of participants. In case of any use beyond transcription, specific justification is needed; in case of use in social media: social media statement etc must include the researcher/supervisor contact details and a statement that the study has received relevant ethical approvals
	Have you followed the Data management guidelines of DECIDE?		x		
	Have people providing personal data been informed on data processing including period of preservation?		x		Informed Consent Forms
	Did you define how access to the research findings of this deliverable/milestone including processed data will be regulated within DECIDE and externally?		x	Describe how you will collect, manage and store the personal data (taking into consideration the Data Protection Act and the 8 Data Protection Principles).	Intellectual property rights and Citation rules inside DECIDE
Publication and Dissemination of research results					
	Have research results in this deliverable been presented in an open, honest, transparent and accurate manner, respecting confidentiality of data or findings ?		x	self assessment	(Deliverable report)
	Have results in this deliverable reported in a way that is compatible with the standards of the discipline and can be verified?	x			Deliverable report
	Have all authors agreed on the sequence of authorship (acknowledging that authorship itself is based on a significant contribution to the design of the research, relevant data collection, or the analysis or interpretation of the results)?	x			Report history documentation (emails, sharepoint)

	Have authors of the deliverable ensured that their work is made available to colleagues in a timely, open, transparent, and accurate manner?	x				Report history documentation (emails, sharepoint)
	Have all authors of the deliverable acknowledged important work and intellectual contributions of others, including collaborators, assistants, and funders and cited related work correctly?	x			self assessment	
	Will the results of the study be offered to those participants or other parties involved who may wish to receive them?	x				Type of Deliverable; (consent forms)
Vulnerable individuals/groups incl. children						
	Did the research work involve participants who are particularly vulnerable or unable to give informed consent?		x		Provide details on type of vulnerability, details on recruitment, inclusion/exclusio criteria, informed consent procedure. Demonstrate efforts to ensure informed understanding of implications of participation; Describe procedures used to ensure that there was no coercion on participants.	Informed consent forms; Information sheets; Deliverable report

		Did the research work particularly involve children/minors?		x		Provide details on recruitment, inclusion/exclusio criteria, informed consent procedure (e.g. age ranges, children assent procedures and parental consent). Demonstrate efforts to ensure informed understanding of implications of participation; Describe procedures used to ensure that there was no coercion on participants and to ensure welfare of minors. Justify the involvement of minors	Informed consent forms; Information sheets; Deliverable report

REFERENCES

Abrahamse, W., Steg, L., Vlek, C., & Rothengatter, T. (2005). A review of intervention studies aimed at household energy conservation. *Journal of environmental psychology*, *25*(3), 273–291.

Annala, S., Viljainen, S., Tuunanen, J., & Honkapuro, S. (2014). Does Knowledge Contribute to the Acceptance of Demand Response? *Journal of Sustainable Development of Energy, Water and Environment Systems*, *2*(1), 51–60. https://doi.org/10.13044/j.sdewes.2014.02.0005

Aron, A., Aron, E. N., Tudor, M., & Nelson, G. (1991). Close relationships as including other in the self. *Journal of personality and social psychology*, *60*(2), 241.

Boezeman, D., & de Coninck, H. (2018). Improving collaborative knowledge production for climate change mitigation: Lessons from EU Horizon 2020 experiences. *Sustainable Earth*, *1*(1), 6. https://doi.org/10.1186/s42055-018-0007-0

Breukers, S., & Jeuken, Y. (2017.). *Step-by-step guide for co-production and co- creation of Nature-based Solutions*. 30. Nature4Cities.

BRIDGE (2019*). Customer Engagement: Main Findings and Recommendations.*

BRE (2015). *Community Engagement Good Practice Guidance for Solar Farms.* N Waters, O Pendered and G Hartnell.

Carbon CO-Op & URBED (2015). *A community approach to retrofit and potential implications for the fuel poverty agenda.* A report for the

   Chesshire Lehmann Fund.

CHARISMA (2015). *Stakeholder Engagement Plan.*

Cialdini, R. B., & Trost, M. R. (1998). Social influence: Social norms, conformity and compliance.

COMERES (2021). *Stakeholder involvement and engagement plans.*

COMETS (2019). *Report on working definition of CAIs'.*

ECHOES (2019): *Reports D5.3 (Analysis of Enabling Factors for Consumer Action), D5.4 (Collective energy practices in Europe) and 6.3 (Suggestions

   and Recommendations for a Better Understanding of the Factors Driving Collective Energy Choices and Energy Related Behaviour)*

EDEN Project (2006). *ClayFutures community engagement case study.*

Endrejat, P. C., Klonek, F. E., & Kauffeld, S. (2015). A psychology perspective of energy consumption in organisations: The value of participatory

   interventions. *Indoor and Built Environment*, *24*(7), 937–949. https://doi.org/10.1177/1420326X15598820

EUKI Project. (2020). *Participatory Toolbox for Communities*.

European Commission. Joint Research Centre. (2020). *Energy communities: An overview of energy and social innovation.* Publications Office.

https://data.europa.eu/doi/10.2760/180576

Faruqui, A., Sergici, S., & Sharif, A. (2010). The impact of informational feedback on energy consumption—A survey of the experimental evidence.

Energy, *35*(4), 1598–1608. https://doi.org/10.1016/j.energy.2009.07.042

Fell, M. J., Shipworth, D., Huebner, G. M., & Elwell, C. A. (2015). Public acceptability of domestic demand-side response in Great Britain: The role

of automation and direct load control. *Energy Research & Social Science*, *9*, 72–84. https://doi.org/10.1016/j.erss.2015.08.023

Fishbach, A., Dhar, R., & Zhang, Y. (2006). Subgoals as substitutes or complements: The role of goal accessibility. *Journal of Personality and Social*

Psychology, *91*(2), 232–242. https://doi.org/10.1037/0022-3514.91.2.232

Fielding, K. S., & Hornsey, M. J. (2016). A Social Identity Analysis of Climate Change and Environmental Attitudes and Behaviors: Insights and

Opportunities. *Frontiers in Psychology*, *7*. https://doi.org/10.3389/fpsyg.2016.00121

Fritsche, I., Barth, M., Jugert, P., Masson, T., & Reese, G. (2018). A Social Identity Model of Pro-Environmental Action (SIMPEA). *Psychological*

Review, *125*(2), 245–269. https://doi.org/10.1037/rev0000090

Gangale, F., Mengolini, A., & Onyeji, I. (2013). Consumer engagement: An insight from smart grid projects in Europe. *Energy Policy*, *60*, 621–628.

https://doi.org/10.1016/j.enpol.2013.05.031

Gregg, J. S., Nyborg, S., Hansen, M., Schwanitz, V. J., Wierling, A., Zeiss, J. P., Delvaux, S., Saenz, V., Polo-Alvarez, L., Candelise, C., Gilcrease, W., Arrobbio, O., Sciullo, A., & Padovan, D. (2020). Collective Action and Social Innovation in the Energy Sector: A Mobilization Model Perspective. *Energies*, *13*(3), 651. **https://doi.org/10.3390/en13030651**

Gui, X., & Nardi, B. (2015). *Sustainability Begins in the Street: A Story of Transition Town Totnes:* EnviroInfo and ICT for Sustainability 2015, Copenhagen, Denmark. **https://doi.org/10.2991/ict4s-env-15.2015.41**

Heiskanen, E., Johnson, M., & Vadovics, E. (2013). Learning about and involving users in energy saving on the local level. *Journal of Cleaner Production*, *48*, 241–249. **https://doi.org/10.1016/j.jclepro.2012.08.019**

Hoffman, S. M., & High-Pippert, A. (2010). From private lives to collective action: Recruitment and participation incentives for a community energy program. *Energy Policy*, *38*(12), 7567–7574. **https://doi.org/10.1016/j.enpol.2009.06.054**

INTEGRID (2018). *Design of Consumer's Engagement Strategies.*

Lind, E. A., & Tyler, R. (1988). *The social psychology of procedural justice.* Springer Science & Business Media.

Mayer, R. C., Davis, J. H., & Schoorman, F. D. (1995). An integrative model of organizational trust. Academy of management review, 20(3), 709-734..

MERLON (2019). *Dissemination, Communication and Stakeholder Engagement.*

Michie, S., van Stralen, M. M., & West, R. (2011). The behaviour change wheel: A new method for characterising and designing behaviour change interventions. *Implementation Science*, *6*(1), 42. **https://doi.org/10.1186/1748-5908-6-42**

MUSE GRIDS (2018). *Stakeholders Engagement, Communication and Dissemination Plan.*

MUSE GRIDS (2019). *Promotional material.*

Poppen, S. (2015). *Energiegenossenschaften und deren Mitglieder: Erste Ergebnisse einer empirischen Untersuchung* (Working Paper Nr. 157). Arbeitspapiere des Instituts für Genossenschaftswesen der Westfälischen Wilhelms-Universität Münster. **https://www.econstor.eu/handle/10419/123711**

Radtke, J. (2014). A closer look inside collaborative action: Civic engagement and participation in community energy initiatives. *People, Place and Policy Online*, *8*(3), 235–248. **https://doi.org/10.3351/ppp.0008.0003.0008**

Rogers, J. C., Simmons, E. A., Convery, I., & Weatherall, A. (2008). Public perceptions of opportunities for community-based renewable energy projects. *Energy Policy*, *36*(11), 4217–4226. **https://doi.org/10.1016/j.enpol.2008.07.028**

S3C Consortium (2014). *Report on case analyses, success factors and best practices*.

SCENT (2016). *Stakeholder Analysis & End User Needs and Requirements.*

Schulte, M., Bamberg, S., Rees, J., & Rollin, P. (2020). Social identity as a key concept for connecting transformative societal change with

individual environmental activism. *Journal of Environmental Psychology*, *72*, 101525. https://doi.org/10.1016/j.jenvp.2020.101525

Stober, D., Suškevičs, M., Eiter, S., Müller, S., Martinát, S., & Buchecker, M. (2021). What is the quality of participatory renewable energy planning

in Europe? A comparative analysis of innovative practices in 25 projects. *Energy Research & Social Science*, *71*, 101804.

https://doi.org/10.1016/j.erss.2020.101804

Straver, K., Uyterlinde, J. C. M., & Kraan, C. M. (2014). *Report on case analyses, success factors and best practices. S3C Deliverable 3.4.*

https://repository.tno.nl/islandora/object/uuid%3A42fd705d-b5e0-489e-ab3c-0532709dc61b

Stromback, J., Dromacque, C., & Yassin, M. H. (o. J.). *The potential of smart meter enabled programs to increase energy and systems efficiency: A*

mass pilot comparison Short name: Empower Demand. 92.

Tajfel, H. (1978). *Differentiation between social groups: Studies in the Social Psychology of Intergroup Relations*. London: Academic Press.

Thibaut, J. W., & Walker, L. (1975). Procedural justice: A psychological analysis. *L. Erlbaum Associates.*

Truelove, H. B., Carrico, A. R., Weber, E. U., Raimi, K. T., & Vandenbergh, M. P. (2014). Positive and negative spillover of pro-environmental behavior: An integrative review and theoretical framework. *Global Environmental Change*, *29*, 127–138. https://doi.org/10.1016/j.gloenvcha.2014.09.004

Venkatesh, Thong, & Xu. (2012). Consumer Acceptance and Use of Information Technology: Extending the Unified Theory of Acceptance and Use of Technology. *MIS Quarterly*, *36*(1), 157. https://doi.org/10.2307/41410412

Walker, G., Devine-Wright, P., Hunter, S., High, H., & Evans, B. (2010). Trust and community Exploring the meanings, contexts and dynamics of community renewable energy. *Energy Policy*, 9.

Wright, B., & Bragge, P. (2021). Chapter 4: Stakeholder consultation to improve behavior change. In *The Method*.

Wunderlich, C. (2012). *Akzeptanz und Bürgerbeteiligung für Erneuerbare Energien: Erkenntnisse aus Akzeptanz- und Partizipationsforschung*.

PARTNERS

Th!nk E

JOANNEUM RESEARCH LIFE

B.A.U.M.

prospex institute

THERMO VAULT

ENBRO

Tartu Regiooni Energiaagentuur
Tartu Regional Energy Agency

ourpower
DIE ENERGIE COOPERATIVE

HERON

domx
IOT TECHNOLOGIES

UNIVERSITÄT MANNHEIM
Fakultät für Betriebswirtschaftslehre

ICLEI
Local Governments for Sustainability
EUROPE

EW/H
ENERGIE & SERVICE

Privatuniversität
SCHLOSS SEEBURG