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Online tools and user community for scaling up ENERGISE Living Labs : Deliverable 3.6

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DELIVERABLE 3.6

ONLINE TOOLS AND USER COMMUNITY FOR SCALING UP ENERGISE LIVING LABS

Description: Online tools and user community for scaling up ENERGISE Living Labs. Based on the feedback obtained from WP4 and WP5 and continual engagement with the Programme Board and the expert panel, online tools and an online user community are developed for scaling up, designing, implementing and evaluating a host of ENERGISE Living Labs across Europe

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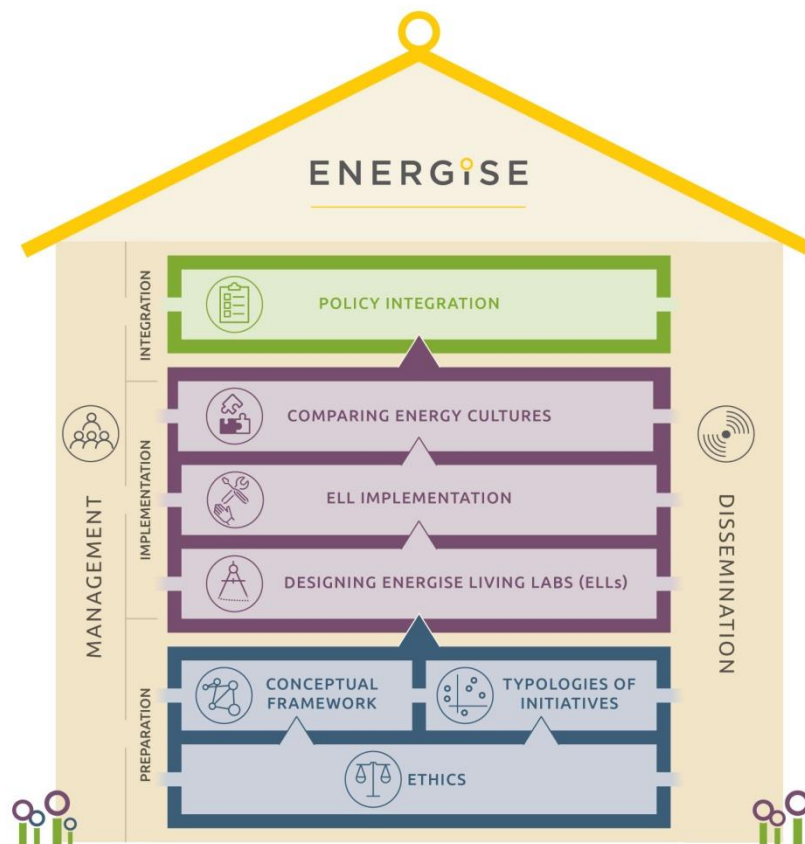
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ENERGISE PROJECT

ENERGISE is an innovative pan-European research initiative to achieve a greater scientific understanding of the social and cultural influences on energy consumption. Funded under the EU Horizon 2020 programme for three years (2016-2019), ENERGISE develops, tests and assesses options for a bottom-up transformation of energy use in households and communities across Europe. ENERGISE's primary objectives are to:

- **Develop an innovative framework** to evaluate energy initiatives, taking into account existing social practices and cultures that affect energy consumption.
- **Assess and compare the impact** of European energy consumption reduction initiatives.
- **Advance the use of Living Lab approaches** for researching and transforming energy cultures.
- **Produce new research-led insights** into the role of household routines and changes to those routines towards more sustainable energy.
- **Encourage positive interaction** between actors from society, the policy arena and industry.
- **Effectively transfer** project outputs towards the implementation of the European Energy Union.



EXECUTIVE SUMMARY

ENERGISE Living Labs (ELLs) are targeted initiatives to transform energy use in households and communities. Altogether 16 ELLs, engaging 308 households, were implemented in eight European countries in 2018. The aim of the ELLs was to employ practice-based approaches to reduce energy use in households while co-creating knowledge on why energy-intensive practices are performed and how they depend on the context in which they are performed.

This deliverable D3.6. is part of [Work Package 3](#), Designing ENERGISE Living Labs, and describes the online tools and user community created for scaling up ENERGISE Living Labs. Based on the feedback obtained from WP4 (Implementing ELLs) and WP5 (Comparing ELLs), feedback from households who participated in the ELLs, and continual engagement with the Programme Board and the Expert Panel, the initial design of the ELLs was elaborated and the online tools and an online user community were developed for scaling up, designing, implementing and evaluating a host of ENERGISE Living Labs across Europe.

The aim of the online tools is to serve everyone interested in doing practice-based interventions such as ELLs in their own contexts. The tools provide step-by-step guidelines for preparation, implementation, monitoring, closing up and assessing initiatives such as the ELLs. The ELLs implemented as part of the ENERGISE project focused on the consumption domains of space heating and laundry, in single households and communities. The guidelines in this deliverable are produced to support interventions also in other fields of consumption and at various sites. The survey and interview templates, as well as other material used in the ELLs are also provided as examples. The guidelines, as well as the data collection templates, are free for everyone to use and modify for their own purposes.

The online tools are available at <http://www.energise-project.eu/livinglabs>. The user community is facilitated through a Facebook discussion group open for everyone interested in energy use, sustainable energy initiatives and energy cultures, at <https://www.facebook.com/groups/ENERGISEdiscussion/>.

1 INTRODUCTION

ENERGISE Work Package 3 is leading the design of ENERGISE Living Labs (ELLs). The aim of this deliverable (D3.6) is to describe the online tools, step-by-step guidelines and user community created for scaling up ENERGISE Living Labs across Europe. The aim of the online tools is to serve everyone interested in doing practice-based interventions such as ELLs in their own contexts. The tools provide guidelines for preparation, implementation, monitoring, closing up and assessing initiatives such as the ELLs. The ELLs implemented as part of the ENERGISE project focused on the consumption domains of space heating and laundry, in individual households and communities. The guidelines in this deliverable are produced to support interventions also in other fields of consumption and at various sites. The survey and interview templates used in the ELLs are also provided as examples. The guidelines, as well as the data collection templates, are free online for everyone to use and modify for their own purposes.

In Section 2, the ELL design is outlined. Section 3 provides step-by-step guidelines for the ELLs. These have been elaborated on the basis of feedback from consortium partners and the participating households. This feedback was collected as part of the ELL closing interviews and focus group discussions at the end of 2018, as well as a WP3 workshop at the consortium meeting in Budapest, January 30, 2019. The feedback along with our suggestions for scaling up ELLs are summarised in Section 4.

The online tools are available at <http://www.energise-project.eu/livinglabs> and include the outline of the ELLs as described in Section 2, the steps described in Section 3, as well as the templates for data collection. The user community is facilitated through a Facebook discussion group open for everyone interested in energy use, sustainable energy initiatives and energy cultures, at <https://www.facebook.com/groups/ENERGISEdiscussion/>.

2 ENERGISE LIVING LABS

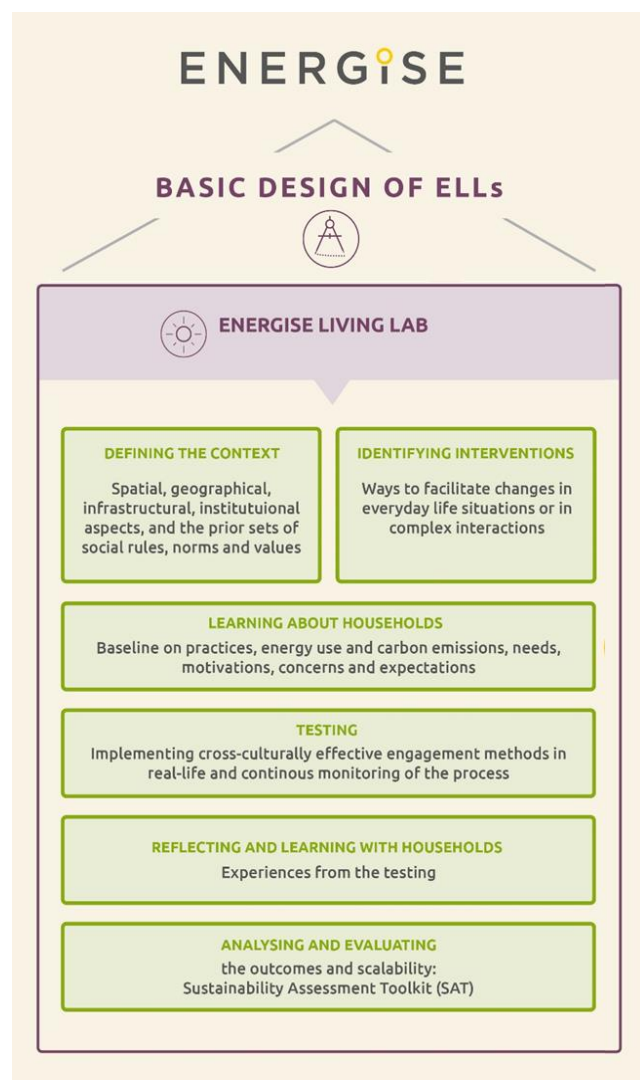
ENERGISE Living Labs (ELLs) employ **practice-based approaches** to reduce energy use in households while co-creating knowledge on why energy-intensive practices are performed and how they depend on the context in which they are performed. For this, a **living lab methodology** was adopted, to test novel ways to perform everyday practices together with the households in their real-life surroundings (see [Laakso et al. 2017](#)).

The starting point for the design of ELLs is the ENERGISE conceptual framework (WP1), which approaches energy use as a material expression of people's performance of everyday practices and associated cultural conventions ([Rau & Grealis 2017](#)). The ELL design builds on the ENERGISE database and typologies of sustainable energy consumption initiatives (in WP2) ([Jensen et al. 2017a](#); [2017b](#)), as well as on prior research on reasons for variations in several energy-related practices and on the influence of material, institutional, organisational and social aspects on the outcomes of energy saving interventions ([Laakso & Heiskanen 2017](#)). In addition, the ELL design benefits from previous experience on practice-based living labs and similar initiatives ([Laakso et al. 2017](#)), as well as co-creation workshops, which also aimed to ensure wider societal acceptability and achievability of the ELLs ([Matschoss et al. 2018](#)). A Sustainability Assessment Toolkit (SAT) ([Heiskanen et al. 2018a](#)) provides guidelines for evaluation and assessment of the ELLs.

ELLs do not focus on energy use but rather on the underlying practices. We recognise practices as socially shared, more or less durable activities shared and performed by particular units of social organisation (such as households, communities, organisations and nation-states). ELLs focus on how to change practices and their constitutive elements, while embracing the idea of sufficiency, i.e., they are an effort to reduce consumption and related energy use towards environmentally and socially sustainable levels. ELLs create a temporary time and space where established routines are disrupted to help the participants become aware of existing practices, and learn about new practices as well as opportunities and limitations for change. They are thus not merely about making current practices more efficient, but rather aim to address the underlying dynamic of the practice that drives energy demand.

The ELL design consists of six phases:

- 1) Defining the **contextual aspects** and social and material conditions underlying practices.
- 2) Identifying one or several **intervention and engagement methods**, based on findings from the database of sustainable energy consumption initiatives and previous research (see [Laakso & Heiskanen 2017](#)).
- 3) **Deliberation** phase, in which the baseline of energy use is monitored, and the practices related to energy use are discussed together with households.
- 4) The intervention and engagement methods are utilised in real-life in the **testing** phase, which also includes monitoring households' activities in order to observe the interconnections and potential rebound or other effects due to the changes in routines.
- 5) After the testing phase, households are met in a **reflection** meeting to discuss their experiences.
- 6) **Evaluating** the outputs, outcomes and impacts of the ELL (see [Heiskanen et al. 2018a](#)).



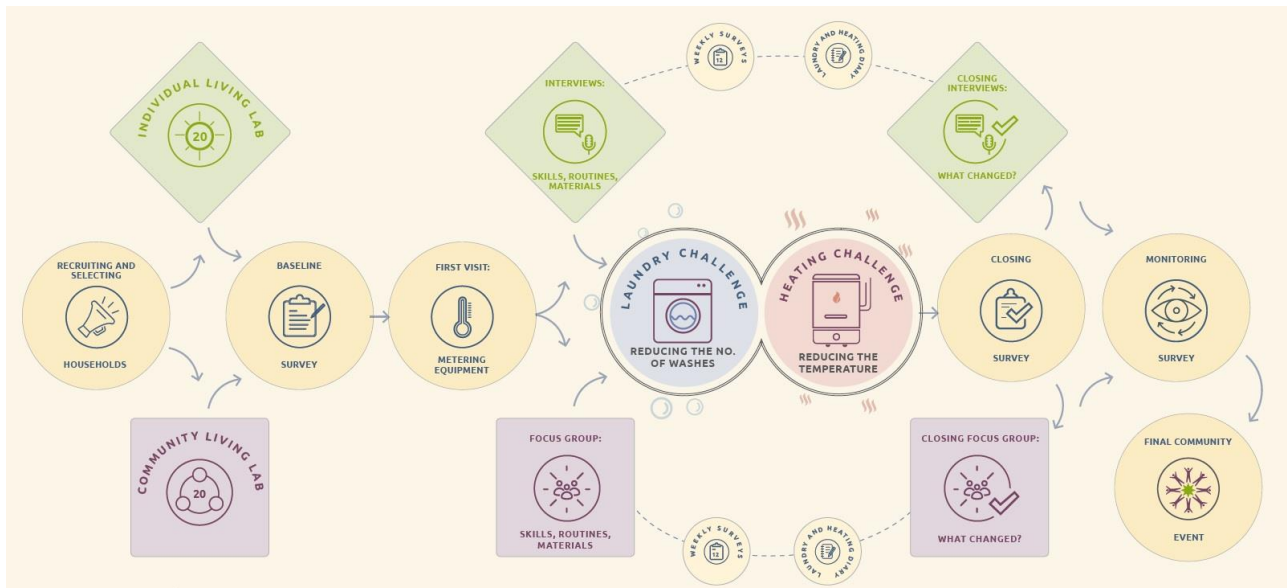
ELL phases

The ENERGISE project opted for interventions that focus on challenging the households to question their space heating and laundry practices. A challenge was chosen as the intervention method due to its simplicity, comparability and potential for disrupting routines. However, there are different intervention and engagement methods in addition to challenges that might be successful in different contexts, such as needs-based, tailored support (see [Heiskanen et al. 2018b](#)).

The selection of the two domains was due to space heating having the biggest share of overall energy use in households across Europe. There is thus a pressing need to reduce the amount of energy used for heating homes, in addition to other solutions such as the use of renewable energy sources. Laundry has gained less attention than heating, despite being socially and culturally embedded in patterns of daily life. Although laundry contributes to a relatively small share of overall direct household energy use, the significance of these kinds of daily tasks has been growing due to an increasing number of household appliances and their use in European countries ([Laakso & Heiskanen 2017](#)). In addition to washing clothes and other textiles, focusing on laundry evokes a whole range of interrelated household activities, each with a sustainability impact, including shopping and storing clothes and laundry-related products, drying and ironing clothes, and so forth. The combination and exploration of practices of laundering and heating facilitated an interesting research design that also allowed a focus on the ways these sets of practices are intermingled in daily life through collective arrangements on a household level as well as through socially shared ideas of comfort and cleanliness.

In ENERGISE Living Labs, the households were encouraged to challenge their underlying assumptions on how to perform practices and to develop “innovations in practice” due to a changed situation. In the domain of laundry, the aim was to **reduce washing cycles** by half, encouraging the households to consider when a piece of clean clothing becomes unclean and how to make clothes stay wearable for longer (i.e., by rinsing or airing the clothes, preventing and removing stains, using cleaner clothes at work and dirtier at home, etc.) (see [laundry challenge card](#)). In space heating, the households were encouraged to **reduce their indoor temperature** to 18 °C, and to develop ways to achieve the preferred level of comfort at a reduced temperature (such as wearing more and warmer clothes, not heating unused rooms or using some of the rooms less) (see [heating challenge card](#)). The targets were agreed on with the participants on the basis of their needs and context (e.g. somewhat higher indoor temperature for families with small children or elderly participants, and lower for others).

The ELLs include two occasions during which the households have an opportunity to meet and discuss with the implementation team members. The ELL interventions are launched by a **deliberation** meeting that intends to bring routines into active reflection and to co-create knowledge on *how* and *why* practices are performed as they are. In ENERGISE, it was important to discuss with the households the forthcoming challenge and *how* and *why* the household members consider it achievable and/or reasonable – or *why not*. Households were also provided with kits consisting of materials and tips to support the challenges (such as aprons, hangers and stain removers for the laundry challenge, and wool socks or slippers and warm drinks to help in reducing temperature at home (see [laundry challenge leaflet](#) and [heating challenge leaflet](#)). After the challenges, the participants have a chance for **reflection** and sharing their experiences on how they adapted to the challenge and what new routines they created, but also what was difficult or for some reason deemed impossible, and why this was so, as well as how they could (and why they should) continue with the new or changed practices in the long term. It is important to ask *what* the households did and *why*, and for example, *why* they did not employ some of the tips provided and *why* they considered their own solutions better than those provided in the booklet. It is important to ask *how* the challenge affected the heating practices and *why*, as well as the role of other actors, such as facility managers on whose actions the households might be dependent.



ELL process

Our research suggests that there are certain merits to engaging households collectively, such as the enhancement of commitment and the facilitation of social support and peer learning (however, this is not always the case, but depends on the community and how it is engaged). If the intervention is executed as a collective activity, the participants can also have a forum (such as closed Facebook group) in which they can share thoughts, ideas, strategies and experiences in addition to collective deliberation and reflection in the meetings described above. The implementation teams can facilitate the discussions by asking guiding questions and keeping the conversation going if needed.

3 ELLs STEP BY STEP

In the following, the basic ELL structure introduced above will be outlined in smaller steps from the **preparation** and the identification of sites, participants, stakeholders and resources to the actual **implementation** and monitoring, and finally to the **completion** of the living lab.

PREPARATION OF ELL (STEPS 1-7)

The first steps of ENERGISE Living Lab focus on specification of the objectives and goals of the ELL, as well as on identifying the local implementation partners and other relevant stakeholders. The steps also include determination of the resources needed.

STEP 1: REVIEWING THE AIMS, GOALS AND PLANS OF THE ELL

The first step is to go back a few steps and check that the following issues are familiar to the team:

- The basics and underlying assumptions of ELL design
- Practices to be targeted in the ELL
- Potential intervention and engagement methods to be used
- The objectives of the ELL and the indicators for reaching these specific targets
- The data collection: what data is to be collected and how

STEP 2: FINDING THE SPECIFIC SITE(S) FOR THE ELL

To understand the configuration of practices, contextual aspects need to be understood. These can include issues such as differences in heating systems (or needs for these systems, or opportunity to pay for these systems), in the ways in which housing associations are organised and in the presence of local (or national) energy policies. In short, they encompass formal and informal institutions, rules, values and norms, and other elements that outline the local practice cultures of energy use. One of the preparatory steps in the ELL is thus a fine-grained analysis of the context in which it is run (i.e., material, social and institutional dimensions of practices) on the relevant level (national, sub-national, local). When looking for a specific site for the ELL, attention needs to be paid to the ways the site supports or prevents the change in practices (e.g. the ability or inability to change heating settings in the home). The potential limitations should be acknowledged while fine-tuning the interventions locally.

Questions to guide this step:

- What are potential suitable sites for the ELL and where to find them?
- Are the sites easily reachable for us?
- What are the most common practices in relation to the consumption domains at the focus of the ELL (see also [Laakso & Heiskanen 2017](#))?
- Do the sites secure a variety of participants across ELL?
- What kinds of communities can be found at the sites and are they suitable for the ELL?
- Do these sites offer the predefined material requirements (e.g. are the households able to adjust their indoor temperature if this is the aim of intervention) or can they easily be brought to the sites?
- Do the sites pose some specific requirements to the support needed in these contexts?
- Are there some context specific issues that should be added in the interview and survey templates and how might this affect the data collection process?

STEP 3: IDENTIFYING RELEVANT STAKEHOLDERS

Implementation of the ELL is not a simple task. There is a need to understand and know the local, contextual influences on daily practices, to be able to reach the potential participant households (also those that are hard-to-reach), to actively communicate with the participants as well as a need to monitor the ELL, and so forth. It is useful to think about the relevant stakeholders who could also help in disseminating and scaling up the outcomes – or who

might just be interested to hear about the findings of the living lab and ways to utilise the findings locally.

This step includes identifying relevant local stakeholders and their role in domestic energy use, as well as other actors who are likely to benefit from and use the information and lessons provided by the ELL. These stakeholders may include actors from local and/or regional policy, administration, business, research institutes, NGOs and other organisations, media, and so on. In this step, the potential role of each stakeholder in the implementation of ELL is also estimated.

STEP 4: FORMING THE LOCAL IMPLEMENTATION TEAM

The implementation team consists of all the people actively implementing the ELL. The implementation team can include people from, for example, an association, organisation, neighbourhood initiative or a municipality that already has established relations at the potential sites and has expertise and interest in energy issues locally. Ideally, the people in the implementation team also have experience in participatory activities, such as organising workshops and other activities in the community. Members of the implementation team actively collaborate and participate in all the following steps and roll-out of the ELL. Local members of the team might also be the ones staying at the site and potentially providing further support for the households after the end of the ELL, so it is important to ensure an active communication.

Questions to guide these steps:

- Who are the (local) actors who are critical for the realisation of the ELL and who would benefit from the collaboration?
- What is the role of each actor in the ELL? What are the actors' perceptions and expectations concerning household energy use? Who would bring valuable input that benefits the participants? Who can support the ELL at the chosen site (by e.g. offering venues for meetings and events, providing energy expertise, materials and information, disseminating the findings etc.)? Who is critical for the dissemination of the novel practices and further development of the ELL approach?
- How to interact with the media before, during and after the ELL?
- Who should be included in the local implementation team(s) and who should be engaged in the ELL as "other relevant stakeholders"?

STEP 5: SPECIFYING THE INTERVENTIONS AND THEIR TIMING

In this step of ELL planning, local implementation teams specify the materials to be included in the intervention on the basis of contextual aspects, refine the timeline of the roll-out and the required preparations, and check that the needed expertise is available. When specifying the ELL interventions, it is also important to discuss and agree about the concrete actions of monitoring during the roll-out.

Questions to guide this step:

- What kinds of methods and materials to select to engage and support the participating households (see also [Heiskanen et al. 2018b](#))?
- How to ensure that the materials selected really support the change in the households and how do we expect that the materials will be used? In what ways could the use of selected materials affect the outcomes: how could they e.g. challenge or reinforce existing practices?
- What is a sufficient time for practices to be challenged and new ones to be routinised? How long should the ELL last and when is it implemented (e.g. during the heating season, if the aim is to change heating practices)?
- Is there still expertise missing from the team and if so, whom to include in the team?

STEP 6: COMMUNICATION, DISSEMINATION AND ETHICS

During the ELL, a lot of communication takes place between the implementation team and the participating households, as well as between the living lab and other local stakeholders interested in it. As a first step, it is useful to draw up a plan and list of who needs to be communicated with and for what reasons (see Table 1 for assistance).

There are several points when communicating with the participating households which are necessary and which will also be discussed in the coming steps. One thing to consider is the amount of communication: how to balance between providing the households enough information, attention and support, while still allowing them to maintain their privacy and avoiding intrusiveness? Another important issue to think about is the language and content of communication with the households. It is unnecessary to give lectures about the theoretical framework behind the ELL with practices, elements and so forth. The discussions should rather focus on what people do, how and why they do it, as well as the ways practices are interconnected by discussing e.g. the social norms related to particular practices, and how these norms guide other practices. It should also be noted that giving accounts of mundane, routine performances (especially on private actions such as those related to personal hygiene) might not be easy for people. The interview needs to aim at grasping the inconspicuous elements of daily practices. The intervention might also raise questions among the household members, which need to be prepared to be answered, such as: How important are space heating and laundry for energy use? What are the benefits of reducing indoor temperatures, and are there any potential risks involved?

Preparation time should be allocated to finding the most useful forums for communicating with the participants outside face-to-face meetings. What kinds of appliances and forums are the participants already familiar with and willing to use? What are easily accessible places and times for participants to convene for group discussions? It is also a good idea to conduct 'test meetings' and interviews and try to envisage potential questions arising and to think of ways to respond to them, as part of the training for the local implementation team.

It should also be agreed how and when to communicate within the local implementation team: should the team have e.g. a regular meeting? Before and after the ELL it is also important to communicate about the ELL to stakeholders with an interest in the ELL, as well as a more general audience. This is important also for the motivation of ELL participants – people like to be involved in things that are featured positively in the media and in their

community. Pictures and short videos taken during the preparation and throughout the implementation of the ELL are very useful for illustrating communications.

It is also important to think about the **ethical issues** of the ELL: within small municipalities, neighbourhoods or communities, how to maintain the anonymity of the participants, or are they supposed to openly share their experiences throughout the living lab? Especially local media can be highly interested in the ELL. How to manage the data in a way that ensures that the participants – should they wish so – can remain anonymous even after the end of the living lab? This is also related to the dissemination both to the general public and to academic audiences.

Table 1. Communication prior to or at the beginning of the ELL

Target groups	Why?	How?
Households in general	<ul style="list-style-type: none"> - Inform about the ELL - Recruit participants 	<ul style="list-style-type: none"> - Press release: invitation to participate - Regular update of website, translation of ELL-relevant materials into local language - Posters and flyers in public places (e.g. library, schools, etc.) - Short promotional article and/or advert in local/national paper - E-mail to local NGOs' and other associations' mailing lists - Social media posts and paid advert - Contact via implementing partners
Implementation team	<ul style="list-style-type: none"> - Keep informed about ELL and its progress - Manage and support implementation 	<ul style="list-style-type: none"> - Specifically developed methods and tools - Personal meetings, e-mails
Other stakeholders	<ul style="list-style-type: none"> - Keep informed about the ELL 	<ul style="list-style-type: none"> - Website - Social media - Newsletters - Press releases - Personal meetings

Questions to guide this step:

- How to communicate with the households in a well-functioning, understandable and engaging way?
- What is the frequency of contact to be maintained, also considering available resources? What are the media of contact?
- How to communicate within the implementation team and with the other stakeholders?
- How to engage the actors that can learn directly from the ELL and contribute to a scaling up of the lessons learned?
- Have all the possible ethical issues been considered and how to deal with them?

STEP 7: DETERMINATION OF RESOURCES

An ELL requires a lot of planning and work during the implementation, monitoring and evaluation. At this step, it is time to have a look at the available resources and how they transform to training of local implementation teams, communication material, equipment and other resources.

As living labs and practice-based studies in general, an ELL requires intensive working and collaboration with various actors. Especially the time during the roll-out and right before and after the roll-out require intensive work from the implementation team. An important step in the preparation of ELL is thus a detailed determination of the necessary human resources.

In addition to time required, there is a need for other kinds of resources and local support at the ELL site: places to organise group discussions, as well as knowledge on local context, services and infrastructure. Necessary equipment may include meters to monitor energy use and the other monitoring tools.

Questions to guide this step:

- Are there the necessary resources for the planning, implementation, monitoring and evaluation of the ELL in terms of time, personnel, space, knowledge, rewards, finances, equipment, and information material?
- Are there some additional resource needs related to the ELL design?
- Does the implementation team(s) have enough expertise on the methods used for data collection, or is some training needed? Who is responsible for organising the training?

IMPLEMENTATION AND MONITORING OF ELL (STEPS 8-14)

These steps include the most intensive phase of the ELL: the real-life experimentation by the households. For more detailed information about the monitoring, see [Heiskanen et al. 2018a](#).

STEP 8: RECRUITING THE HOUSEHOLDS

After careful preparations but before the roll-out, it is time to recruit the most important members of the ELL – the households. As described in the previous chapters, the ELL is focused on practices and changes in practices to reduce household energy use. Also the starting point of the ELL is the energy-relevant practices, instead of setting specific target groups and then identifying the practices they are engaged in. However, some criteria should be used to guide the recruitment. For example, the households should engage in the practices in focus (e.g., do their laundering themselves, if the focus is on laundry practices) and the households should fulfil some requirements related to e.g. monitoring of practices (e.g., own their own washing machine).

After revisiting the recruitment criteria, it is time to start recruiting the participants. Local implementation teams and other stakeholders are valuable in identifying the local people and communities fulfilling the selection criteria. Ways to recruit the households include:

- Announcements in the local media and social media
- Finding the potential households through contacts of the local implementation team, other stakeholders and associations who know the sites and communities
- Contacting interest organisations, such as organisations of unemployed or pensioners, ethnic organisations, sport clubs or other recreational organisations

- Announcements at municipal organisations, such as maternity clinics, day care centres, libraries, schools, service centres, neighbourhood organisations, housing associations and other local groups
- Setting up a stand at a local event frequented by local households
- Finding households using a snowball method with the help of the local stakeholders and other contacts: one household provides the names of other potentially interested households

During the recruitment, basic information about the ELL should be outlined in the announcements and other material, as it is important that the households have some understanding of what they are applying for. The materials should include a description of the aims of the ELL as well as what is expected from the participants (e.g. in terms of time use and monitoring) and what the participants and the community gain from the ELL. Households, in turn, need to provide relevant background data, to make sure that the final group of participants fulfils the criteria (see [recruitment survey template](#)).

Questions to guide this step:

- What are the selection criteria for the participants considering the ELL targets?
- Does the choice of participants secure a balanced variety e.g. in terms of household size, location (rural/urban), income and/or gender?
- How to recruit the households? How should they be approached? Who should be contacted? Is there particular support needed for the recruitment?
- While recruiting, has the complete ELL process been explained openly to the households, to minimise the risk of drop-outs? Are there some ethical considerations related to the ELL (e.g. publicity)? How to deal with these issues?

STEP 9: VISITING THE PARTICIPANTS

After selecting a group of households fulfilling the selection criteria, it is time to visit these households for the first time after the recruitment. These meetings can take place right after the households are selected in the ELL, and they should be informative, motivating and encouraging, and include the basic information of what is expected from the households – and what they get in return. Households are provided with a package including basic information about the ELL (e.g. timeline including the time needed for collecting the baseline data and for follow-up activities, estimation of the time use expected from the households, planned meetings etc.), the role of each actor in the living lab, the ethical issues (anonymity, right to end their participation whenever they want without further explanations or justifications, the ways the data is stored and used etc; see [template for information sheet and informed consent form](#)) as well as the benefits of participation for the households, sites and communities (such as saving money and/ or the environment and gaining more control on energy use).

This is also the visit during which the necessary energy meters are installed in participants' homes and households are instructed to use them and the diaries to collect the baseline data (see template for [baseline survey](#), as well as [washing](#), [drying](#), [ironing](#) and [temperature diaries](#)). After this meeting, the households monitor their energy use and practices for a certain period of time (e.g. four weeks) to gain the baseline data. It is important to note that this meeting is already a “rupture” in routines, as households start paying attention to their

energy use in a new way. To diminish this bias, it needs to be emphasized to the households that it is important that they continue their practices as they “normally” do, reminding them that no effort is expected during this phase (however, in the evaluation phase, the implementation team has to consider the opportunity that this might not have happened, but people may have changed something already due to monitoring).

The ELL households are going to be engaged in an intensive process of several months, including all the activities surrounding the actual roll-out of the ELL. It is thus important to consider both the ways to make the ELL as easy as possible for the participants, and the ways to motivate them and encourage them to stay on board until the end, and to maintain and share the lessons they have learned during the ELL. The implementation team should agree beforehand on how to reward households for their efforts and how to communicate about the benefits the households gain from their participation. Also the metering equipment installed for the purposes of the ELL as well as the kits including support materials for the interventions can be seen as an additional incentive, whereas an (indirect) monetary incentive can be a reduced energy bill. It is important to remember that households may engage in order to save in energy costs and attempts to lead a more decent life, environmental reasons, due to social influence or pressure, or because of a desire to learn about new solutions and technologies. Some people might be simply curious or interested in challenging their established routines. Understanding these motivations and linking the ELL to the ways for households to achieve their personal goals helps households to engage in and remain committed to the ELL.

Some of the participants may nevertheless withdraw during the roll-out phase. To avoid this, it is important to be open about the amount of work and time the ELL requires from participants, but still be prepared for some drop-outs. To evaluate the success of the ELL, the experiences and feedback of these participants should also be recorded.

Questions to guide this step:

- How to motivate and encourage households before, during and after the roll-out of the ELL? What kind of benefits and (non-monetary) incentives could be offered to the households and what kind of impact might these incentives have on their participation? How to ensure that the households are not participating only because of the reward?
- What kind of materials, tools, instructions and/or networks could the teams provide for the households to support the maintenance and diffusion of more sustainable energy use? Who is to take responsibility for offering these tools and instructions to households after the ELL?
- What is the plan for contacting the possible drop-outs?

STEP 10: DELIBERATING WITH HOUSEHOLDS

The households have collected baseline data by monitoring their energy use and daily practices. After this baseline monitoring, the next step includes deliberations about practices together with the households in a face-to-face meeting. Together with households, the implementation teams discuss, expose and learn about the practices that lead to energy use, as well as the participants' needs, expectations, inspirations, concerns and motivations (see template for [interviews](#)). The baseline data can support the discussions. This deliberation also a rupture, as the routine nature of practices is made visible for both the

households and the teams. In this discussion, the households are supported and encouraged to co-construct ways for shifting the particular practices onto more sustainable pathways. The close collaboration with households also helps the households to take ownership of the coming changes, thus making the participation and the changes more meaningful for all members of the households. A close focus on the interconnections between practices helps to address the potential rebound, backfire and spin-off effects. It is thus important to highlight the ways the potential changes reflect to surrounding practices and what implications this has for the total energy use.

The deliberation can also be organised as a session in which the participating households gather together to discuss the social norms, rules and other elements steering the practices related to energy use, and how to collectively address and challenge these elements to change practices (see template for [group discussions](#)). This kind of peer support is important in disrupting and challenging the prevailing assumptions on what is normal or acceptable, and opens up the dynamics of practice and opportunities and/or obstacles related to their change, outside the individual household. It should be ensured that the group discussions can be organised at an accessible place and time, and that the travel costs are covered if needed.

Questions to guide this step:

- Should there be a group discussion with the participating households?
- Should there be a Doodle poll to make sure that everyone can join?
- How to ensure that all participants are heard: should there be two or more sessions to ensure that everyone finds time to join, or should the people who are not able (or not willing) to attend a group session be contacted in some other way, e.g. by individual interviews?
- If all households attend, is there a need to divide into smaller groups for part of the discussion?

STEP 11: INTRODUCING AND LAUNCHING THE INTERVENTIONS

In this deliberative face-to-face meeting, participants are also instructed on the ELL interventions – in other words, the meeting is also a launch event of the active testing phase of the ELL. Activities for each week are discussed, so that participants have a clear picture of what is expected from them and when. Households are also reminded of the self-monitoring they will be doing during the testing phase. Each household can be provided a little kit with materials to support them in the intervention (see examples for [heating](#) and [laundry](#) challenge kits). If two different practices are targeted, there should also be two kits. The kit to support households in the second challenge can be either left with them at this meeting, with instructions to open it later, or sent them before the beginning of the second intervention. This second kit can also serve as providing “something nice” to the participants at the middle point of the ELL.

Questions to guide these steps:

- How do the interventions fit in the daily practices of the households, as well as the need for reducing energy use, and what are the potential rebound and spin-off effects?
- How to support, encourage and communicate with the households during the roll-out?

- How to ensure that each participant has the required information on the interventions, what they include, what is the timing of each activity, and how is the communication organised with the households during the roll-out?
- What are the best and most familiar forums for communication during the ELL (e.g. a closed Facebook group, WhatsApp group)?
- What is the role of each implementation team member? How are other stakeholders involved in the ELL at this step?

STEP 12: ACTIVITIES IN THE TESTING PHASE

The households experiment with new or changed practices in their daily lives for a certain number of weeks, starting from the deliberative session with the households, which was also the launch event for the interventions. Households are encouraged to innovate ways to change their daily practices. During the interventions, the participants receive weekly surveys asking how they are doing (see [template for weekly survey](#)). This way the implementation team is able to monitor what the households do, but it also provides space for participants to keep track what they do, which allows some level of reflection over time. In addition, participants can have the opportunity to share their experiences in a shared forum.

During the interventions, the households act quite independently. They are not regularly visited but can be contacted in other ways, such as text messages, e-mails and/or social media.

Questions to guide this step:

- How to monitor the households' activities and collect feedback? How to balance between giving enough space for the households while ensuring sufficient monitoring and support?
- How to support the households in case that the participants lose their interest or become exhausted during the roll-out?
- What is the role of each implementation team member? How to involve other stakeholders in the ELL at this step?

STEP 13: REFLECTING WITH THE HOUSEHOLDS

The testing phase ends with a closing, reflective meeting with the households. In this final meeting, the households' first thoughts about the interventions are discussed (see [interview template](#)). Households can also be brought together for a group discussion to enable participants to share experiences, discuss the potential for new practices to diffuse within and outside the community, and to envisage further actions (see [template for group discussions](#)). By conducting a closing survey, practices before and after the challenge can be compared (see [template for closing survey](#)).

In the closing meeting, households can also receive a reward from their contribution in the ELL. They are provided with support to continue performing the new practices and to share their experiences, and further actions are agreed: when the implementation teams are planning to do the follow-up activities, how the results of the ELL are shared with the participants, and whether participants agree to be contacted by local media.

Questions to guide this step:

- How to ensure that the households end the ELL activities feeling happy and empowered, and that they are still available during the follow-up?
- How can the collaboration between the households and other local stakeholders in sustainable energy use be supported and improved at this step?

STEP 14: FOLLOW-UP FOR HOUSEHOLDS AND STAKEHOLDERS

Follow-up activities take place at least three months after the end of the testing phase of the ELL. A longer follow-up period would allow for better evaluation of the persistence of effects, but might risk losing a larger number of participants. A follow-up survey is sent to all households (see [template for follow-up survey](#)). The survey can be complemented with interviews if necessary, and a sample of households might be interviewed in more depth. It is also possible to organise a group discussion.

However, the households should not be “left alone” at any stage, even after the end of ELL: what kind of materials, instructions and/or networks need to be provided to the households to support the maintenance of the new practices and even empowering the participants to act as change agents in their communities in the longer term? This is something to agree on with the local implementation teams and possibly also with the other local stakeholders, as they could have a significant role locally after the end of the ELL and they should be prepared to take this role. The support measures should be introduced to the households already at the end of the ELL.

In addition to participating households, it is also good to contact (local) stakeholders to discuss their thoughts and ideas on the ELL. The discussions with stakeholders concern the upscaling potential of new practices requiring less energy, as well as of new co-creation and engagement arenas such as ELL and methods used in the ELL. When discussing the potential for replicating and upscaling the ELL, the following aspects could be considered (see also [SmarterLabs 2016](#)):

- Was the ELL timely and did it respond to the urgency to change existing practices?
- Are the design and results applicable to new living labs or similar projects, are the outcomes transferable and/or scalable, did the ELL include future users, diverse target groups and/or relevant stakeholders?
- Did the ELL provide new knowledge on the practices underlying energy use?
- Has the information about the ELL been disseminated properly?
- Is there (local) expertise in replicating and/or upscaling the ELL? Is there political or other support for approaches such as those employed in the ELL? Was there enough interaction between decision makers and other stakeholders?
- Are there any infrastructural, technical, legal, financial, spatial or social aspects or developments enabling or preventing the scaling up of the ELL?

If possible, a co-creation workshop organised for the stakeholders could be a fruitful arena for bringing all the relevant actors together and for elaborating the lessons learned. Participating households and implementation teams could be invited to join the workshop,

to enable diffusion of ideas and experiences from the ELL. This is also an opportunity to collect feedback from all the people engaged in the ELL.

Questions to guide this step:

- How is the feedback collected from all relevant actors in the ELL? Is everyone interviewed separately, or will group discussions be organised and/or something else?
- Is organising a workshop for the stakeholders a good idea and who should be invited?
- Are there new observations that point to new questions not previously addressed to the participants? How should these issues be brought up to get more information?

CLOSING UP OF THE ELL (STEPS 15-16)

The last steps of the ELL include closing up with the participating households, implementation teams and other stakeholders, as well as taking a look ahead and thinking about the role of the ELL in understanding and challenging the prevailing practices related to energy use.

STEP 15: CELEBRATING AND COMMUNICATING THE RESULTS

It is important to thank the households, implementation teams and all the people who have enabled the realisation of the ELL, as well as to celebrate the successful completion of the ELL. A final seminar or other event can bring together all the people involved in the ELL, and it is also an opportunity to present the results of the ELL as well as support the scaling up. These final events can also be combined with stakeholder workshops suggested in the previous step. It is also important to provide the participating households an opportunity to share their experiences, as they are the most important experts on the change they have experienced.

Again, communication is also important for ELL participants, local partners and stakeholders; the dissemination of the successful completion of the ELL, such as social media and website posts, can provide something for them to be proud of. Similarly to communication prior to the ELL, it is important to provide information about the general outcomes of the ELL to various stakeholders once they are completed. The (local) media may also want to share the outcomes of the ELL. These dissemination activities can be done right after the ELL has been concluded, following the follow-up interviews, or at both occasions depending on the local circumstances. Table 2 (in addition to Table 1) provides some guidelines and ideas.

Table 2. Communication after the conclusion of the ELLs

Target groups	Why?	How?
Participating households	Keep informed about the outcomes of the ELL	- E-mails - Invitation to ELL closing event and/or workshop
Local implementation partners	Keep informed about the outcomes of the ELL	- Personal meeting - E-mails - Invitation to ELL closing event and/or workshop
Relevant stakeholders	Keep informed about the ELL and its outcomes	- Information on ELL outcomes on website and social media - Invitation to ELL closing event and/or workshop - Concluding press release - Articles and TV/radio interviews in local/national media

Questions to guide this step:

- What kind of final event should be organised and who to be invited?
- How to make sure that the households have an opportunity to share their experiences, if they are willing to?
- How to communicate about the ELL and the results?
- Will the implementation team be rewarded? How?

STEP 16: ASSESSING THE ACHIEVEMENT OF THE GOALS

At this final step, it is time to go back to step 1 and find out if the goals and objectives set for the ELL have been satisfactory achieved. It is also time to think how to remove oneself from the picture and let the participating households continue their (new) daily practices without active engagement with the implementation team.

It is also time to reflect on one's own actions as an implementer of the ELL: one's impact on the ELL and the context in which ELL has been implemented. This is an opportunity to critically evaluate the implementation of the ELL: for example, what went as planned and where would more coordination have been needed? However, the work on ELL still continues after this step: there is material to be analysed, as well as evaluation to be made.

Questions to guide this step:

- How to end the ELL activities? How to ensure that everyone ends up being happy and satisfied with the ELL?
- How to respond to the feedback and questions received from now on?
- Is some further information needed for the determination whether the initial targets and goals for the ELL have been realised? How to collect the information? How to determine the success of ELL?
- Looking forward: how could local partners and other stakeholders offer their support if someone wants to continue or try the same somewhere else? How can such activities be encouraged?

4 SCALING UP ELLs

The ENERGISE Living Labs were implemented as part of a European research project, which set some prerequisites for the design. These included the inclusion of a variety of households (including hard-to-reach groups), analysis of the role of collective elements (which required two sets of ELLs, one for individual households and one for communities), the need to make intra- and cross-country comparisons, and so forth. For other purposes than for a large-scale research project such as ENERGISE, it might be useful to simplify and streamline the design. We have tried to do this in the step-by-step guidelines outlined above. In the following, we provide some further suggestions based on feedback from the participating households as well as the ENERGISE consortium partners.

Using challenges as the method of engagement was considered a good choice by both participants and the teams. The duration of the challenge could be from 4 to 7 weeks, to enable new practices to settle. The challenges can be low-tech and the number of gadgets could be kept at a minimum – simple feedback rather than a large number of meters. For heating, thermometers were a good tool for providing feedback, whereas for laundry the diaries provided an opportunity to reflect. The challenge kits were considered nice and most of the things in them useful (although there were also things people owned already). It is also important to provide households something in return for their participation. The collective elements, such as deliberation and reflection discussions, were important for the participants, as they provided peer support and the feeling of not doing the challenges alone. Interaction among households could, however, have been more diverse and active. Strong collaboration with local implementation partners (especially in recruitment) was valuable, as these partners knew the sites and people.

ENERGISE Living Labs were implemented within a narrow timeline. In order to secure cross-national comparability, the challenges and the data collection needed to be as similar as possible. ELLs being implemented outside this project allow for greater flexibility in relation to timelines for recruitment, implementation (e.g. in relation to weather), consumption domains, challenges (e.g. peak hour challenge, water use challenge), and so on. Many participating households would have appreciated more information (e.g. on safety, hygiene, recommended wash temperatures, etc.) and more tips, so the challenge kits could be complemented with more of these. Households could also be more involved in framing the problem and co-producing the challenges, which could make them more committed to the experimentation. In addition, stakeholders could be involved more throughout the process, also to allow scalability. In ENERGISE, the sites were selected in order to engage communities of place (e.g. a neighbourhood). For active interaction among households, targeting for example a community of interest or a work community might be more fruitful. Media could be engaged more to improve dissemination and scaling up. Clarifying the evaluation criteria could make the data collection more focused, and it should also be carefully considered what kind of data is needed and why, in order to save resources. Evaluation is nevertheless a very important part of initiatives like the ELLs for learning and scaling up for broader social change.

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USEFUL LINKS

ENERGISE project web page: <http://www.energise-project.eu/>
ENERGISE Denmark: <http://denmark.energise-project.eu/>
ENERGISE Finland: <http://finland.energise-project.eu/>
ENERGISE Germany: <http://germany.energise-project.eu/>
ENERGISE Hungary: <http://energise.hu/>
ENERGISE Netherlands: <http://energise-lab.nl/>
ENERGISE Switzerland: <http://switzerland.energise-project.eu/>
ENERGISE UK: <http://uk.energise-project.eu/>

ENERGISE Project deliverables and other publications:

<http://www.energise-project.eu/publications>

Online database of Sustainable Energy Consumption Initiatives:

<http://www.energise-project.eu/projects>

TEMPLATES

Templates for ENERGISE Living Labs: http://www.energise-project.eu/livinglab_materials