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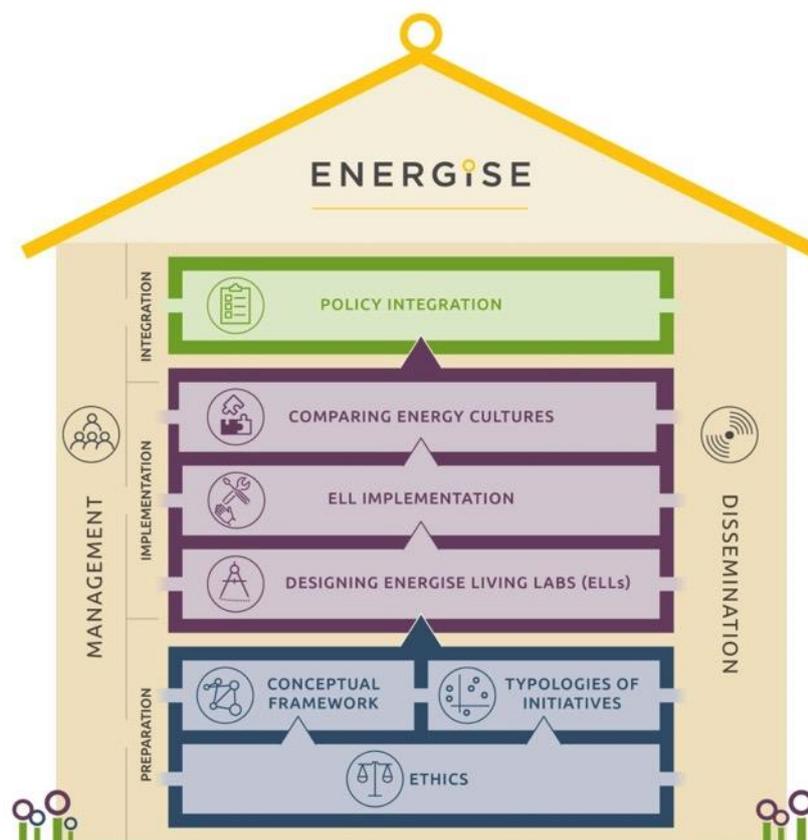
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ENERGISE PROJECT

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

A comprehensive review and classification of household and community energy initiatives from 30 European countries has provided the foundation for the development of two ENERGISE Living Labs (ELLs) designed to address the dynamics of individual and collective energy consumption. Altogether 16 ELLs, engaging 320 households, are to be implemented in eight European countries in 2018. The aim of the ELLs is 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. The ELLs will focus on reducing energy use in two sets of mundane practices, space heating and washing laundry at homes.

This report presents the discussions and outcomes of ENERGISE Living Labs workshop. The aim of the workshop was the co-creation and co-design of the ELLs with stakeholders that represent business and the public sector, including several organisations supporting local ELL implementation, in order to ensure the incorporation of as diverse as possible views in the design of the ELLs. The workshop was a key event in the design of the ELLs, therefore influencing the implementation of the ENERGISE project's main task, the ELLs.

A special focus in this report is on three questions that were the main topics of three co-creation sessions in the workshop: *what will be tested in the ELLs*, *how to understand practices and their contexts* and *how to evaluate the sustainability of the ELLs*. The valuable input from the expert panel members and other stakeholders feeds in the deliverables D3.4 (ENERGISE Living Labs intervention and engagement guidebook) and D3.5 (ENERGISE Living Lab evaluation and assessment manual) to be finalised after the workshop, as well as to the implementation and monitoring of the ELLs.

1 INTRODUCTION

The aim of ENERGISE work package 3 (WP3, Designing ENERGISE Living Labs) is (1) to identify interventions that work across energy cultures and diverse infrastructures, considering differences in metering and billing practices, housing stock, socio-economic and cultural conditions in EU Member States, (2) to design two types of good-practice ENERGISE Living Labs (ELLs) that work across diverse energy cultures and engage various hard-to-reach households and communities, (3) to select sites and target groups for the ENERGISE Living Labs that allow for widespread and rapid upscaling of the interventions in the participating countries and beyond and to (4) to define indicators of success and related quantitative and qualitative measures, including baseline analysis, and methods for assessing rebound and spinoff effects. In relation to the other work packages of the ENERGISE project, WP3 will translate insights and findings gained from the WP2 (Typologies of energy initiatives) into designs for innovative, readily replicable and scalable Living Labs and provide guidelines for practitioners.

This deliverable D3.3 of the ENERGISE project presents the aims, organisation and results of a workshop organised in context of an expert panel meeting of the ENERGISE project in Helsinki on December 1st, 2017. It does not present the final design of the ELLs, but aims at highlighting and reporting the views of the stakeholders, experts and supporters of the ENERGISE project that participated in the workshop. The workshop engaged ENERGISE project partners and the expert panel, which includes stakeholders from business and public sector such as representatives of energy agencies and energy companies from several European member states, including organisations supporting ELL implementation locally. The deliverable is part of the work conducted in WP3 of the ENERGISE project and it contributes directly to the work to be executed in WP4, i.e., to the implementation of the ENERGISE living labs, and to comparing energy cultures in WP5, which both feed into the policy integration in WP6.

Sections 2 and 3 of this report describe the relevant steps in the organisation of the workshop and information gathering that were needed for the realisation of the workshop in order to reach its ultimate aim. The aim of the workshop was the co-design of the ELLs with experts and stakeholders as well as the ELL implementation partners in order to ensure the incorporation of as diverse as possible views in the design of the ELLs. The workshop was a key event in the design of the ELLs, as well as influencing their subsequent implementation. The discussions and outcomes of the workshop will be presented in sections 4 and 5 of this report and will be further used and developed for the implementation of the ELLs in WP4 as well as the drafting of other deliverables of WP3 (D3.4 Easy-to-use ENERGISE Living Labs intervention and engagement guidebook, and D3.5 ENERGISE Living Lab evaluation and assessment manual).

2 PREPARATIONS FOR THE WORKSHOP

The expert panel workshop reported in this deliverable D3.3 "ENERGISE Living Labs Workshop Report" was preceded by a workshop for the experts hosted by the National University of Ireland, Galway (NUIG) in Dublin, in June 2017, which fed into the initial design of the ELLs in WP3. This first workshop contributed to the identification of ELL interventions that work across Europe, and that are adaptable to different infrastructures and socio-cultural conditions across the EU. The Dublin workshop thus identified key aspects of cross-culturally applicable interventions (Laakso et al. 2017), thanks to input by both members of an expert panel including experienced practitioners and policy makers and ENERGISE consortium members, altogether 25 participants.

The Dublin-workshop built on the work executed in the context of WP2 by all ENERGISE partners. It was directly advised by the selection of SECIs (Sustainable Energy Consumption Initiatives) from all European countries (Jensen 2017; Jensen et al. 2017a; 2017b). The SECIs identified in each partner country of ENERGISE enabled a better understanding of possible initiatives by the partners in their country context (through a process later described in this section). The workshop delivered a careful and critical analysis of selected interventions by engaging members of the expert panel and the ENERGISE project partners in co-creation the first time face-to-face.



Dublin June 1st, 2017.

The main aim of the first workshop organised was thus to jointly identify types of suitable sustainable energy initiatives for the ELLs. This task of the Dublin workshop was assisted by a pre-questionnaire that the partners were asked to fill in so that a preselection of ideas could be made before and for the Dublin-workshop. More specifically, the partners were asked to identify three existing cases from their SECIs identified for WP2 that they would argue could work in their country for their potential target groups, as well as three cases they would argue could not work in this context, and explain why. In order to make sure that the

ELLs would be relevant also from the perspective of business and public sector stakeholders, partners were also asked to collect feedback from at least three expert practitioners in their country on their selection and justifications. This was to ensure the co-creation aspect of the ELL design throughout the process as well the implementability of the initiatives in each of the partner countries.

Primarily on the basis of this assignment, five compound stories were created (i.e., basic categories of interventions, their basic assumptions, mechanisms and constraints) that *would work* in different contexts, as well as four intervention categories that *would not work* in a particular context. These categories were then subjected to discussion, validation and further elaboration. During the workshop, participants also discussed the potential target groups for each intervention deemed suitable across different contexts.

The Dublin workshop was designed in a world café format that would enable the group to develop narratives on where, for whom and why the measures would work. Discussions were also welcomed about where and for whom the measures would not work. The objective was thus to co-create initiatives to be tested in the ELLs together with different stakeholders in order to combine academic knowledge with practical experience and the personal judgment of the experts and the consortium partners. In the context of the Dublin workshop, the interventions were understood as packages of measures to influence household energy practices. The measures can be characterized as initiatives that on the one hand are good candidates for testing across European contexts and, on the other, can be tested with a focus on individual households as well as with a focus on community engagement. These discussions also directly fed into the deliverables D3.1 and D3.2 (for more details, see Laakso & Heiskanen 2017; Laakso et al. 2017).

The outcomes of the first workshop resulted in a preliminary selection of ENERGISE Living Lab tools and methods, as well as initial considerations of target groups and locations, considering (a) particularly hard-to-reach and prioritised groups in each Member State, (b) a balanced combination of different types of target groups across the entire ENERGISE project, (c) opportunities to include aspects of 'routines and ruptures' into the Living Lab 2.0 design and (d) high potential for learning and upscaling of the best-practice ENERGISE Living Labs within participating countries and beyond them.

A second assignment ensuring the co-creation of the ELLs design was sent to ENERGISE partners after the Dublin-workshop. In this assignment, although not an easy task, partners were asked to further reflect on the initial categories of initiatives (coming from the compound stories) and this time specifying stakeholders and potential partners they would like to collaborate with. They were also asked to consider how well their preferred intervention measures and design elements would address hard-to-reach and prioritised groups, and how well these measures might work in other ELL countries. Based on these considerations, they were also asked to give initial thought on possible external implementing partners of the ELLs design. In addition to written assignments, the ENERGISE partners' thoughts about the initial designs and potential target groups and sites have been discussed in monthly meetings and separate calls prior to the ENERGISE Living Labs workshop in Helsinki in December 2017.

3 THE ORGANISATION OF THE WORKSHOP

The ENERGISE Living Labs workshop held in Helsinki on December 1st 2017 built on the outcomes of the workshop in Dublin as well as on deliverables finalised (D3.1 and D3.2) and drafted (D3.4 and D3.5) in the WP3 (Designing ENERGISE Living Labs). The workshop was co-designed with WP4 (Implementing ENERGISE Living Labs), which is responsible for the implementation of the ELLs. The content of the presentations in the workshop were co-produced by the ENERGISE partners (leading work packages WP1, WP4, WP5, WP7 and WP8). The workshop was thus a collective team effort of the partners of the project. *The aim of the co-creation workshop was to pre-test the choice of the ENERGISE Living Labs design aspects and to jointly with stakeholders and partners discuss and improve the design of the ELLs.* More specifically the valuable input from the expert panel and other stakeholders feeds into deliverables D3.4 and D3.5 to be finalised after the workshop.

The participants of the workshop represented energy experts from energy companies, energy agencies and academia, implementation partners of the ELLs and project consortium members. Altogether 12 energy experts and 22 project partners from 9 member states took part in the workshop. A few experts had to cancel at the last minute, however, one expert panel member who could not attend sent extensive feedback via e-mail. The list of participants is included in Appendix 2.

As the aim of ENERGISE project is to understand how to (re)shape household energy consumption practices, the interventions need to be based on practice theory, which was an idea reflected in several presentations during the workshop in order to highlight this guiding principle of the ENERGISE project to the participants of the workshop. The workshop agenda is presented in Table 1. The presentations related to previous experiences of living labs, theoretical approaches to household practices, previous empirical explorations of changing practices and their assessment. Several aspects of the ELL design were presented to the experts for their comments and co-creation sessions were organised in order to gain in depth insights from the experts.

Table 1. Agenda of the ENERGISE Living Labs workshop.

9:00	Welcome, <i>Eva Heiskanen, University of Helsinki, Finland</i> Practice-based living labs – previous experiences and future prospects and an overview of ENERGISE project, <i>Frances Fahy, National University of Ireland, Galway</i>
10:00	Overview of ENERGISE Living Labs (ELLs), <i>Senja Laakso, University of Helsinki</i> and <i>Julia Backhaus, University of Maastricht</i>
10:20	Coffee break
10:30	Exploring alternative practice configurations, <i>Marlyne Sahakian, University of Geneva</i> Workshop session 1: What will we be testing in the ELLs?
12:15	Lunch
13:00	Understanding household practices, <i>Henrike Rau, Ludwig-Maximilians University of Munich</i> Workshop session 2: How to understand practices and their contexts?
14:00	Coffee break

14:15	Assessing the sustainability of ELLs, <i>Edina Vadovics, Green Dependent Institute</i> Workshop session 3: How to evaluate the sustainability of ELLs?
15:25-16:00	Reflection on workshop sessions, <i>Kaisa Matschoss, University of Helsinki</i> Conclusion, <i>Eva Heiskanen, University of Helsinki, Finland</i>

The materials sent to workshop participants beforehand included a brief description of the ENERGISE project and the ELLs, as well as draft versions of deliverables D3.4 and D3.5. Before and during the workshop, these materials were also available at the workshop web page (<http://finland.energise-project.eu/workshop>). The feedback survey was sent to participants right after the end of the workshop. The aim of the survey was to provide participants an opportunity to provide more feedback, if they felt that something was left unsaid in the workshop. A “feedback wall” was also available for the participants in the meeting room throughout the workshop. Some participants also sent written feedback and ideas by e-mail after the workshop. These suggestions are included in the section 4 informing about the discussions during the workshop. The participants also had an opportunity to send comments to the draft workshop report.

4 DISCUSSIONS IN THE CO-CREATION SESSIONS

In the workshop, in addition to inspiring presentations, three co-creation sessions were organised. In these sessions, the participating expert panel members, the implementation partners and one representative from each ENERGISE partner organisation freely divided into small groups each including a member of the hosting University of Helsinki team for note taking.



Helsinki, December 1st, 2017

4.1 WHAT WILL BE TESTED IN THE ELLS?

The first co-creation session of the workshop focused on *what will be tested in the ELLs?* It has been decided by the project consortium that the interventions in practices to be implemented in ENERGISE Living Labs will focus on **reducing space heating** and **washing laundry** in homes both in the individual household ELL and in the community ELL. The expert panellists and the implementation partners were presented with the justification of these choices: space heating has the biggest share of overall energy use in households across Europe, and there is thus a pressing need to reduce the amount of energy used for heating homes. Washing laundry is heretofore not very frequently studied 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 impact of these kinds of household daily tasks are significant due to high standards of cleanliness in European countries. Heating practices are likely to be rather “sticky” at least in some contexts, as they are often controlled also by others than the household members themselves, whereas laundry practices can be more “malleable” to interventions, insofar as they are generally a bit more diverse between households. Probable malleability does, however, not simplify the task at hand, as achieving sustainability-driven change across all practices remains notoriously difficult. Nonetheless, the combination and exploration of more sticky and malleable practices of laundry and heating facilitates an interesting research design that also allows a focus on the ways these sets of practices are intermingled in daily life through perceptions of comfort and cleanliness.

These choices were discussed by the expert panel. It was questioned whether laundry is important as there are other consumption domains that have larger impacts on energy use. It was noted that laundry is a suitable domain for making energy use more visible and tangible. In addition, there is real potential in laundry for households to make a change and experience the results of such a change in their everyday life, while changes in heating are less readily observable. It was concluded that changing practices related to doing laundry can serve as an entry point into changing other practices. The ELLs will likely generate a lot of novel practical innovations to share with other people. Thus the ease of changing practices related to laundry may increase the impact of this intervention if the novel practices are adopted by other people not involved in the ELLs.

The following more general questions and suggestions were voiced for the project consortium to consider in the further implementation and evaluation of the ELLs. It would be a relevant idea to focus the ELLs on energy-intensives activities (so there is a margin for change and energy demand reduction) with a common activity to compare between countries. In addition, an interesting and novel approach in the ELLs is to have a comprehensive everyday life approach linking aspects that are still very often studied separately. Basically, in such initiatives as the ELLs, several practices will be challenged and/or tested for a certain time period. The question is, will the new practices continue after the intervention and will they contribute to a sustainable life? The ELLs can be considered a kick-off towards a sustainable life in the participating households, so that laundering and heating practices are just the beginning. Experts also wanted to identify similarities and differences between countries. This would be interesting for, for example, multinational

companies like Unilever. Furthermore, the follow-up of the project should be considered: can ENERGISE stimulate a social movement that continues its work? Is it possible to get a follow-up project going in order not to waste contacts that were created? The greatest priority in the implementation of the ELLs is that the gained results are thorough. Then they can have an impact on policy and science.

Additionally, the following specific advice was strongly voiced:

- Keep it simple. There will be lots of data, and it needs to be clear what these data will be used for. Overall, the preparation phase and pre-testing of all tools used is important.
- Do not make the interventions too “scientific” and do not try to capture all the details and form unnecessary boundaries, i.e. keep it simple enough.
- Consider your message: if 90% of households reduce their energy usage, what are the implications?
- A general point for further work is the overall uncertainty of energy savings, which needs to be highlighted and addressed. So consider potential perverse effects of the measures (e.g. increased chemical load).
- A possibility of using control groups was suggested for consideration by the project consortium. It was suggested that one of the community ELLs could possibly be a control group.
- If the “toolkit basket” is meant for easing the everyday life of the participants, what kind of appliances should the households have?
- Does ENERGISE want to give very clear instructions or give households the opportunity to develop their own ideas and strategies? If instructions and equipment to try a particular set of practices are provided, these proposals need to be backed by science (including consideration of chemicals in laundry).
- Is the envisaged eight weeks of duration long enough to go beyond a “novelty effect” and to measure a lasting change?
- Consider both non-monetary and monetary incentives. Are there some tax issues to be considered? Would it be wise or possible to have different rewards for different needs? (Is it not already a reward in itself to save energy and money?)

Discussion and comments especially related to **washing laundry** focused on the multiple people, objects, places and spaces and activities that play a role in ‘laundry’. It was noted that while shared laundry facilities used to be common, it is now more common to own an individual machine in one’s own apartment/house. It was also recognised by the expert panel that washing laundry includes a gender aspect. Although everyone is involved in ‘making clothes dirty’, women often still take care of collecting, sorting, washing, drying, (ironing) and folding, and the work remains sometimes invisible to the other household members. One of the expert panel members said that her child had said: *“It’s like magic! The washing fairy! I drop dirty clothes on the floor and they become clean!”* It is thus unavoidable not to address gender norms if the ELLs address laundry.

The participants discussed everyday mechanisms that influence the practice of doing the laundry. For example, if clothes are spread across rooms in different piles, even if they have only been worn once, it is often easier (and nicer) just to collect clothes and wash all of them.

It was questioned what are the boundaries of the ELLs assessment? Is for example ironing included? It would influence the practices to be altered; as for example men's shirts are 'high maintenance' and therefore involve more work. Another example is buying clothes that do not need ironing, is that a solution to change practices? In addition, when going to the dry cleaner, people may use the car. How do such solutions relate to the objective of ELLs? It was also pointed out that laundry is connected to the consumption of clothes, which further depends on how many pieces of clothing people have. Is this something that the project partners would need to ask the participating households at the beginning of the ELLs?

There was also discussion of 'folk beliefs' that keep certain practices in place, such as washing at high temperatures or ironing to sterilize, the belief that ironing creates a 'protective layer' and helps keep things clean, that full loads are bad for clothes, and that jeans can be cleaned by putting them into the freezer. People often question what in fact is really the most energy and resource efficient cycle for doing laundry in the modern washing machines. They ask, for example, how can the eco-cycle be eco when it takes so much longer? If it uses the same water for longer, what is the effect on clothes? Is the shortest cycle on lowest temperature always the best?

Possible measures:

- Provide a basket for dirty clothes and a place for 'worn but still usable' clothes in every room. All household members need to get involved in sorting.
- Provide eco-friendly stain-remover.
- Use a colour-protective tissue that allows mixing colours and fuller loads.
- Introduce a sorting system at washing machine with baskets for whites/lights, blacks and mix showing the weight or volume when full-load is reached (like a big measuring jug).
- Check 'old books' on tips and tricks for taking care of clothing.
- Make the participants think about norms, e.g. older age groups perceive ironing as an absolute must, but this is changing
- Get people to pack a bag for 4 weeks and wash only at the end of the 'trip' (half-way and end of intervention)
- Get people to pack a bag for a week and decrease the number of items or size of bag every week?
- Suitcase laundry challenge. The entire family gets a suitcase, so if someone needs to dress up for work, they can take more clothes. They should try to survive as long as they can with this amount of clothes.

Related to **space heating in homes** the first notion in one of the groups was to question whether it makes sense to save heating energy if the energy is altogether cleanly produced. In the following discussion, the others noted that energy consumption is rising so rapidly that we must save wherever we can. Totally clean energy forms are also difficult to find.

Thermal imaging was discussed at length as it relates to efficient use of heating energy. It was argued that identifying "heat leaks" might be a powerful metaphor to alert households to energy losses. It was suggested that an option would be to include energy losses via hot water in the intervention. It was agreed that explaining the importance of thermal

improvements might be beneficial as people do not want a leaky house any more than they want a leaky boat. Nevertheless, it was pointed out that the thermal images can be difficult to interpret and people might also get unnecessarily alarmed.

Different aspects of general energy consumption were also discussed that relate to energy use for heating such as invisible energy or a so-called “energy democracy”, which requires active involvement of citizens. On the other hand, energy peak management - whether manually or automatically - is also important, since the peak energy reserve tends to be more polluting. There has even been TV advertising on when to turn off heating by one of the major energy producers in Finland.

It was noted that people even produce heat themselves by body-heat. If possible, this should be taken into account when planning energy saving heating solutions. It should be noted that electricity used in ICT and home entertainment appliances is increasing. Waste heat creating appliances such as waste heat from computers could be utilised. A way to utilise it better would be to bring computers from teenagers’ rooms to the living room. Nevertheless, computer-produced heat, being a direct electric form of heating, is not necessarily very efficient, depending on apartment’s main heating solution. The control over this kind of heating is also poor.

The question of meaning was raised: how could a colder house be made meaningful? The groups brought up factors that would help motivate the households to take part and remain motivated. Overall, the interventions need to be easy and/or attractive. Especially, arguments for cooler rooms were discussed: for example in bedrooms, a lower temperature may lead to better sleep, arguably cooler temperatures make one lose weight, make one more beautiful and have fewer wrinkles. People may spend more time together when heat is concentrated in the living room.

Saving money is also an important incentive – people do not necessarily have the right information to do so. For example, efficient ventilation is done by opening all windows for a short period of a few minutes. The waste heat produced by cooking could be lowered if, say, a family of four would not cook four separate dinners. This also improves the sense of togetherness of the family. To change the meaning, positive experiences are required.

Devices that the participating households should have were also discussed in the groups. Especially related to heating, thermometers and humidity meters would be a good asset to have. Using a CO₂-meter would also be possible but it was questioned by the expert panellists how the participants might interpret the results. The participants suggested crafts and DIY like blinds and maybe also connecting crafts to blankets. It was pointed out that making blankets would take too long but perhaps personalizing existing blankets would be an option. It was recognised that the practices in different countries vary. For example, in Germany, UK and Hungary, it is normal to use blankets in the living room. Related further to differences among countries, it was noted that in Hungary a lot of firewood is used in heating and cooking. The social service even distributes wood to poor people to allow them to stay warm. It is not necessarily very efficient and causes harmful small particle emissions.

Especially in rural areas in Finland, wood is also widely used for heating and is the most commonly used source of renewable energy in households.

The connection between clothes drying and heating was also brought up. Some technical issues were raised (although that might be out of the scope of this project). There are heat pumps for drying laundry, and it was also suggested that a condensing dryer might in some situations be more energy efficient than air drying inside the home, because it uses less energy and transports the water outside the home rather than evaporating it. This is something the project consortium could explore. In terms of challenging social norms, possibilities for questioning the numbers of square meters (sizes of houses) were also discussed.

4.2 HOW TO UNDERSTAND PRACTICES AND THEIR CONTEXTS?

The second co-creation assignment related to the question on *how to understand practices and their contexts*. Here, the groups highlighted the importance of stakeholder networks as people do not operate in a void, and the social context can be important in supporting efforts to save energy and reduce CO₂ emissions. An important issue is to understand the stakeholders surrounding the project. It is critical to understand the potential diversity of participants and the socio-material context, material conditions and time limitations of the interventions. The role of stakeholders in diffusing the results of the project is also critical and hence the ENERGISE partners need to be careful when mapping stakeholders.

In the implementation phase of the ELLs, it is also important to know what the households are already doing to save energy, and how energy saving might connect with the other things they are already doing. In addition, it is important to understand their existing communication channels. Such an understanding is important for tailoring interventions to the households' needs, but in particular, for finding opportunities for the diffusion and scaling up of the ELL results.

Related to selecting sites it was proposed to focus on material conditions: with the individual households ELL capturing a variety of "typical conditions" and for the community ELL capturing one type of "typical condition" from a national perspective. Related to the community living lab, it was suggested that it would be good to build it around an existing community like a neighbourhood association. That would nevertheless require quite a lot of knowledge about that association and how it works, who is leading it, what are its aims and its history. In one group a question was raised whether the implementation of the ELLs in two locations is a good or bad idea? How does this influence comparability?

Related to the recruitment of households, the question of the representativeness of the interventions was raised. Should ENERGISE target a representative sample or rather the greatest variability? Is nearly representative enough? Does participation depend on the nature of the house or possibly location of the house? For example, in Hungary, the eastern and western sides of the country are very different in terms of wealth. It was proposed to

implement the ELLs so that they are non-exclusive in principle. It was suggested that ENERGISE could use flyers for recruitment. It was also suggested that households could be recruited using a snowball method to ensure that they are not too diverse or by teaming up with municipalities. Screening could be done based on practices: does ENERGISE want diversity or similarity in practices (e.g. number of laundry cycles per month)? Sociodemographic aspects should not be forgotten: older people, babies etc. need warmer space, also gender may play a role in the perceptions of comfort and warmth.

Questions to be answered:

- How to separate individual/ household activities in the interviews?
- What are communities? Existing or something the ELLs create?
- Would it be useful to study experiences from previous renovations etc. as a proof of experience in collaboration?
- What is the households' ability to self-organise?
- Is ENERGISE looking at practices outside or/and inside home? The whole life cycle should be looked at, e.g. every morning gym and showering there influences the household water use.
- How to take into consideration that the approach will differ between countries?
- What would be a suitable reward for participating?
 - Suggestion: provide certificate that the house was audited, as increasing of house value is a good motivation to improve the house's energy efficiency
- Might some households misrepresent their situation because they want to join?

4.3 HOW TO EVALUATE THE SUSTAINABILITY OF ELLS?

The third workshop task was *how to evaluate the sustainability of the ELLs*. It was recognised that the first contact and the first interview session with the households are critical. It was emphasised that in the first meeting with the households the households would need to know beforehand what they sign up for. Maybe a tick-box interview should be used already in the initial contact. The big question is how to gather prior information. One suggestion was to have specific pre-test group, from which prior knowledge is gathered related to the baseline and then decide based on that survey what kind of households to choose. Another suggestion was to explore alternatives to gather data through other means than asking people to fill forms. There is data that has been gathered already during a long time period by e.g. energy companies as a result of their everyday business, such as information on household energy consumption. It was recommended to attempt to form alliances with organisations that already have data. Nevertheless, the participants of the workshop raised the question of privacy problems related to e.g. metering direct energy use using smart meters. This limits the possibilities of data collection through other means than asking the participating households.

Specific suggestions for the engagement with the households in the first meeting:

- Let them share their own practices and meanings, understand, guide, and make a commitment.
- Make clear how much time is required for the first interviews.
- Need to test the first steps! Video of an example event/interview could be useful.
- Consider carefully the use of cards and what images to use
- Communication needs to be tailored to target groups (which might mean that it will differ from country to country – or ELL to ELL).
- Before the first meeting: collect information about the heating system, how households have used it to regulate temperature and what the indoor temperature is before the start of the ELLs.
- Involve all/several household members in the first meeting/interview, thus accounting for household dynamic.
- Train the implementation teams on interview methods! Consider whether to engage one or two interviewees.
- How to avoid blaming households for acting contrary to expectations? Need to adopt “there are no wrong answers” approach in order to avoid a social desirability bias.

There was discussion about qualitative and quantitative evaluation. It was a generally shared view that the measuring of the impacts of the ELLs is very difficult, yet a critical task. Designing and planning for it is a key task and there are concerns that the measuring is very difficult, due to the fact that the intervention is executed in 8 countries, with different systems and various amount of real data available. It was pointed out that if ENERGISE cannot demonstrate the impact of the ELLs numerically, it is difficult to prove that the ELLs were useful. Nevertheless, some experts would prefer a good and compelling narrative or theory - what has changed and why - would be interesting rather than lots of figures and numbers.

Related to metering and demonstrating the change it was suggested that energy use should be metered if possible for a longer time-period in order to see what practices are retained. The scaling up would also be very important to be observed. There were discussions also about CO₂ reduction: if it were to be measured, there would be a need to highlight to the households that this is not a definite measure, because a direct measurement cannot be executed, nor do the household actions really have an impact on the specific CO₂ emissions, since these depend on the carbon coefficients of energy sources, which households cannot change in the short term. The specific CO₂ emissions of electricity production will be reduced in time, as well, due to decarbonisation of the energy supply, when increasingly more renewable energy sources in used for electricity production.

The question was raised whether empowerment could be one item in the evaluation scheme. The ENERGISE interventions could increase the abilities of the households to fight back increasing energy consumption. Such abilities can be used and can prove valuable in the future. The question of seasonal differences and the need to consider them in the evaluation was solved by the decision to organise all ELLs in the eight partner countries during October-December 2018.

It was voiced by the experts that ENERGISE should capture both outcomes and mechanisms. The data should help the project capture also mechanisms like social interaction and changes in social norms. It would also be important to analyse the people who did not change practices: what are the bottlenecks? Nevertheless, in order to establish which interventions are effective, it is also important to capture the true actions of the households, not just what they say they did. These could be scaled up in a policy process. In short, ENERGISE should assess the rebound effects, be sure about the positive impact of measures in different countries and technical settings, but not get lost in the data too much.

Suggested questions for households:

- Motives: (economic, ecological, other), why they want to be involved, what they have done before, inventory of wishes and needs,
- Understanding energy consumption: where the change is likely to happen, what made them want to make improvements, what is normal consumption of heat/laundry?
- Peer pressure or competitive elements related to practice change.
- Cultural or social norms: Ethnographic, semi-structures interview to reveal the norms, combined with house tours, observations and diaries.

Questions to be answered in the further design of the evaluation and mapping:

- What to measure, megawatts, or water in litres.
- Several rewards to different members of households? Ideally it would be motivating. The teenager might be active agent, but how to distinguish between the actions of different household members?
- How to separate (and is there a need to separate) methods of engagement, methods of data collection, and a combination of those?

5 SUMMARISING THE WORKSHOP OUTCOMES: TOOLKIT OF IDEAS FOR CHANGING PRACTICES

The discussions related to concrete ideas on how to change practices in the three workshop sessions are summarised below in Table 2. It presents a first version of an ELL toolkit of ideas based on input from workshop participants. The interventions in practice are considered in relation to both space heating and washing laundry. The measures are also considered on the basis of whether they are focused on changing everyday practices or complex interactions. In addition, the measures are divided in categories: benefits for the household, methods of engagement, materials, community elements (ELL2) and monitoring.

Table 2. First version of ELL toolkit of ideas for changing practices, status December 2017.

Intervention in practice (and PFT)	Benefits for the household	Methods of engagement	Materials	Community elements (added in ELL2)	Monitoring energy used for heating and for laundering
<i>Heating</i>					
<p>Heating people, not spaces (<i>Changes in everyday life situations</i>)</p> <p>Reducing heating in home gradually to achieve a sustainable and healthy level, while also changing the target of heating from walls to people</p> <p>Focus also on how e.g. efficient ventilating is related to heating</p>	<p>Savings in energy and thus monetary savings and environmental benefits</p> <p>Empowerment, ownership and knowledge: I make the decisions, not the technology, becoming a "heating expert", understanding the rebound effects of e.g. ventilating, sleeping better</p> <p>For community, e.g. the apartment building: cumulative savings from community efforts</p> <p>Free materials, such as blankets and meters</p>	<p>Reducing indoor temperature by 1 degree every week (until the HH reaches an agreed target) (<i>challenge</i>). HH's are provided a checklist of things they can do to make heating more efficient (such as rearranging furniture) (<i>needs-based, tailored support</i>). They are also receive required meters, such as (nice looking) thermometer as well as means to "get cosy" such as blankets, pullovers and/or slippers (<i>learning by doing</i>).</p> <p>Visual materials</p> <p>Weekly text reminders</p>	<p>Toolkit: "Check list" for heating; menu of things one can do (e.g. rearranging rooms); videos with how-to advice and examples; thermo-meters, clothes and other devices; visual prompts</p>	<p>Regular meetings and interaction (in e.g. Facebook group), co-creating "fun" and positive ways to reduce the need for heat</p> <p>Visiting people with cooler homes and discussing and learning about the comfort standards</p> <p>Challenge e.g. in the same building to reduce overall heating → monetary savings</p>	<p>Home audit before and after the roll-out</p> <p>Checking that the thermo-meters are in a right place</p> <p>Checking what things HH's chose to do from the menu and why</p> <p>Weekly diaries about how people deal with reduced heat (innovation in practices)</p>
<p>Changing the relationship between energy consumers and producers (<i>Changes in</i></p>	<p>Understanding the roles and the relationship between households, landlords/ other stakeholders and energy companies and</p>	<p>Households are provided thermal camera images to detect leaks (<i>learning by doing</i>) and energy experts discuss with them about what the images mean, and</p>	<p>Toolkit: "Check list" for heating; menu of things one can do (e.g. rearranging rooms); videos with how-to advice and</p>	<p>Meeting with the people responsible for the maintenance of the building, to discuss about the potential for energy savings</p>	<p>Home audit before and after the roll-out</p> <p>Thermal camera photos before the roll-out</p>

<i>complex interactions</i>)	learning how to utilise the services provided by the energy company, within the limits provided by rules of the building/ housing association	on the basis of energy audit, they receive an energy kit to make their homes more energy efficient as well as an energy expert available when they need (<i>needs-based, tailored support</i>)	examples; thermo-meters and other devices		Checking what things HH's chose to do from the menu and why
<i>Washing laundry</i>					
New ways to keep clothes fresh and clean (<i>Changes in everyday life situations</i>) Challenging the households to use a fixed number of clothes and reduce the need for laundry	Saving time by reducing the number of wash cycles, saving money by reducing the need for electricity and detergents, and saving the environment by using less energy Learning new competencies in managing clothes (cleaning, washing, drying), the seasonality of laundry practices and gaining more knowledge on the environmental impacts of daily routines Creating places for clothes that are dirty, used only a couple of times, and clean, creating new ways to dry laundry (outside, balcony, in the rooms) and the benefits of these new forms of drying (health, freshness)	Counting the number of clothes and estimating the need for clothes for two weeks. After that, an expert advising the selection of clothes ¹ (including warm clothes to address the heating challenge) for two weeks (<i>challenge and tailored support</i>). Or get people to pack a bag for 4 weeks and wash only at the end of the 'trip' (half-way and end of ELLs), or get people to pack a bag for a week and decrease the number of items or size of bag every week? Changing laundry practices to accommodate laundry routines into reduced number of clothes. Discussions with all household members on who, how and when to do laundry, making all the HH members take responsibility (switching roles and implications to time use and laundry frequency) Monitoring the energy and time use of (changed) laundry practices by	Toolkit: Stickers/ prompts on washing machine, information and advice on how to avoid excess use of washing machine and to entirely avoid use of dryer (and why), provision of pre/dry cleaning tools, energy meter for washer and dryer	Regular meetings and interaction (in e.g. Facebook group), co-creating "fun" and positive ways to reduce the need for laundry ² and discussing and learning about the cleanliness standards	Checking what things HH's chose to do from the menu and why Visual materials Weekly diaries about how people deal with reduced number of clothes (innovation in practices)

¹ See e.g. 33 clothes challenge.

² See e.g. Jack (2013).

		meters (<i>learning by doing</i>)			
Making laundry practices more collective (<i>Changes in complex interactions</i>)	<p>Learning new ways of sharing clothes, washing machines and dryers</p> <p>Gaining new competences on how to merge laundry with other (social) activities</p> <p>Reduce the need for own washing machine, eventually leading to more space at home and saving energy and money</p>	<p>Supporting households to use the nearest shared laundry facility (in the building, in the neighbourhood) to avoid use of own machine</p> <p>Creating an online platform for households in the neighbourhood to manage shared facilities and combining the use of these facilities with other daily practices (<i>needs-based tailored support</i>)</p>	Online platform/group to support sharing activities		

In conclusion, the ELL workshop provided valuable feedback on the initial designs of the ELLs as well as concrete suggestions and further questions to be considered while finalising the designs. Several kinds of valuable input were received from the ENERGISE Expert Panel and other participating experts:

- The ENERGISE team received feedback on initial ideas for the ELL designs and evaluation guide.
- Initial ideas were pre-tested and various concerns were identified related to different contexts, implementation, feasibility, sustainability assessment, rebound effects, communication with households and stakeholders as well as the scalability of interventions.
- New ideas for putting together intervention packages were received and refined at the workshop.
- The discussions also served to initiate reflection on how the results of the ELLs can best contribute to policy and practice.

The next step in designing ELLs is the specification of ELL interventions and their evaluation, which will be reported in D3.4 (Easy-to-use ENERGISE Living Lab intervention and engagement guidebook) and in D3.5 ENERGISE Living Lab evaluation and assessment manual). The implementation and monitoring plans from each implementing partner will be included in D4.1 (ENERGISE Living Labs Implementation and Monitoring Plans). The design of the ELLs has continued with the WP3 team incorporating as many suggestions and advice from the experts as possible. The co-creation and deliberation of the ELL design has also continued within the ENERGISE consortium in the attempt to include as many design elements as possible in order to accommodate all perspectives and possibilities as well as solutions to cultural and structural barriers in the ELL design emerging from the different countries of the ENERGISE consortium.

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APPENDICES

APPENDIX 1: AGENDA OF THE ENERGISE WP3 WORKSHOP IN DUBLIN JUNE 1ST 2017

Session 1 – 14.10-15.45 (95 min.)	
20 min.	Opening, presentation of results based on WP3 inputs by partners and explanation of further process
60 min.	Suitable interventions World Café around five tables (20 minutes at first one, then 10 minutes at each of the remaining tables)
15 min.	Wrap-up of first session: table chairs summarise outcomes for the plenary, collecting comments in the plenary Assignment for the next session (wouldn't work posters to be examined over coffee): ➤ finding out whether we agree on what won't work, where, for whom and why
Session 2 – 16.00-17.00 (60 min.)	
20 min.	2 (a) What might not work Discussions around 4 posters (participants can choose which one to discuss) on where, for whom and why an intervention might not work, additional examples
5 min.	2 (b) Matching sites with interventions Introduction to the aim and ways of working of this session
20-25 min.	Small discussion groups are formed (ideally, we'll make a matching based on WP3 survey inputs), consisting of 2 implementing partners and 1-2 'advisors' (expert panel members, ARC Fund and FOCUS): 10 minutes to discuss implementation plans of each implementing partner in turn, in light of the outcomes of the previous session
10 min.	Wrap-up: what have we learned, what do we need to continue to think about?

APPENDIX 2: LIST OF PARTICIPANTS FOR THE ENERGISE LIVING LABS WORKSHOP IN HELSINKI DECEMBER 1ST 2017

Participant	Organisation	Country
EXPERT PANEL		
Emma Bridge	Community Energy England	United Kingdom
Irén Márta	Business Council for Sustainable Development	Hungary
Jacques Kimman	Hogeschool Zuyd & RVO	Netherlands
Kees Vringer	PBL	Netherlands
Minna Näsman	Helen	Finland
Sylvia Lorek	SERI	Germany
Zsuzsanna Kotchy-Korpás	EON Hungary	Hungary
FINNISH EXPERTS		
Arto Varis	Posintra	Finland
Irmeli Mikkonen	Motiva	Finland
Marja Vuorinen	City of Helsinki	Finland
Mikko Jalas	Aalto University	Finland
Mikko Martikka	City of Helsinki	Finland
ENERGISE PARTNERS		
Senja Laakso	UH	Finland
Eva Heiskanen	UH	Finland
Kaisa Matschoss	UH	Finland
Eeva-Lotta Apajalahti	UH	Finland
Jari Kolehmainen	UH	Finland
Frances Fahy	NUIG	Ireland
Gary Goggins	NUIG	Ireland
Henrike Rau	LMU	Germany
Eoin Grealis	LMU	Germany
Annika Musch	LMU	Germany
Charlotte Jensen	AAU	Denmark
Anja Grubic	AAU	Denmark
Audley Genus	KUL	United Kingdom
Marfuga Iskandarova	KUL	United Kingdom
Julia Backhaus	UM	Netherlands
Nicole Rijkens-Klomp	UM	Netherlands
Christian Scholl	UM	Netherlands
Marlyne Sahakian	UNIGE	Switzerland
Laure Dobigny	UNIGE	Switzerland
Edina Vadovics	GDI	Hungary
Kristof Vadovics	GDI	Hungary
Konstantin Ivanov	ARC Fund	Bulgaria

APPENDIX 3: INVITATION TO THE WORKSHOP IN HELSINKI

ENERGISE Living Labs Pre-test workshop

December 1, 2017, 9 am – 4 pm

Scandic Park Helsinki, Mannerheimintie 46, Helsinki, Finland

Dear ENERGISE Expert Panel members,

Welcome to the second ENERGISE workshop on December 1st from 9 am to 4 pm at Scandic Park, Helsinki. Here you can find the programme of the workshop and other information.

The workshop focuses on ENERGISE Living Labs (ELLS). A comprehensive review and classification of household and community energy initiatives from 30 European countries has provided the foundation for the development of two prototype ELLs designed to address the dynamics of individual and collective energy consumption. Data collection before, during and after the implementation of 16 Living Labs in 8 partner countries will be instrumental in contributing to the design and assessment of future energy consumption initiatives across Europe. The aim of the workshop is to gather your expertise and experiences to further develop and pre-test the ELL designs. The ELLs will be implemented in 2018.

Your travel and accommodation expenses will be reimbursed in full by University of Helsinki and we will provide the necessary forms in the workshop and by e-mail after the event. You are also welcome to join the pre-workshop dinner on Thursday evening at 7 pm at Restaurant Lasipalatsi. If you are able to join the dinner, please let us know 10 November.

If you have any questions, please do not hesitate to contact us! The programme and other information will also be updated on our web page finland.energise-project.eu/fi/workshop.

Looking forward to seeing you in Helsinki!

Best regards and on behalf of workshop organizers,

Senja Laakso

Postdoctoral Researcher

Consumer Society Research Centre

University of Helsinki