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## **D1.2: Energy-related user profiles and potential energy efficiency options**

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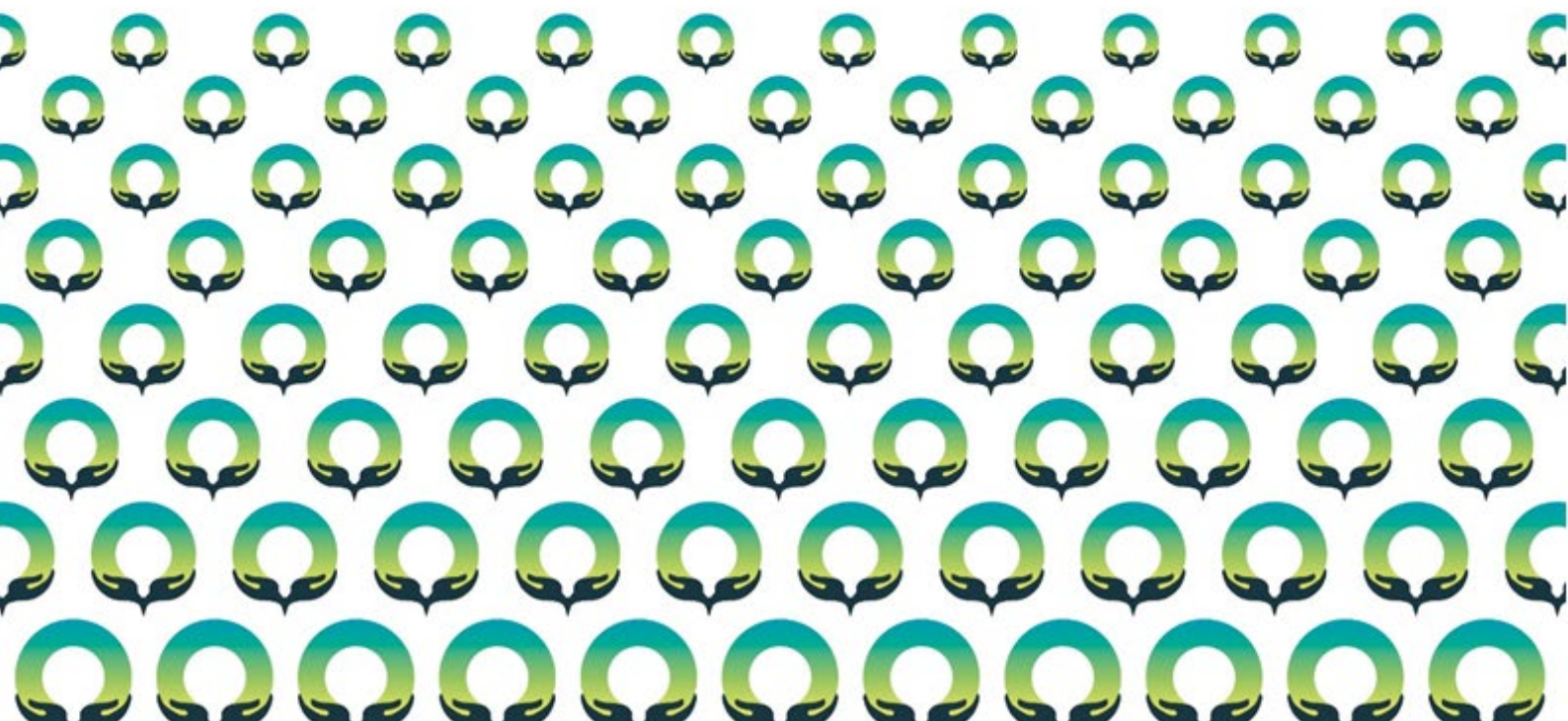
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WP1: Consumer Behaviour Analysis  
and HESTIA platform requirements

## D1.2: Energy-related user profiles and potential energy efficiency options





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# Hestia

Holistic demand response services  
for European residential communities

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## 1 Executive Summary

This deliverable is part of the project *Holistic dEmand response Services for European residenTIAI communities* (HESTIA), and it reports on the findings from task 1.2, performing an analysis of key energy-related behavioural aspects at the project pilots sites: Berchidda (Italy), Voorhout (the Netherlands) and Camille Claudel (France). The main aim of the task is to collect and analyse pilot specific data on users and their energy-related practices (behaviour), thus:

- A. Identify existing energy-related practices and how they are performed (and by whom)
- B. Understand people's interest in changing their energy-related practices
- C. Identify the potential for change in energy-related practices

The report is structured over 7 chapters, which engage with both the theoretical background used to design and analyse the survey, as well as chapters relating to the empirical findings, the limitations and general conclusions. Is specific::

Chapter 1 (executive summary) presents an overview of the report structure as well as a summary of the findings under the three areas of focus as outlined above.

Chapter 2 gives an introduction to how the survey has been distributed in the pilots and the methods for doing so

Chapter 3 presents the theoretical perspectives of the sociological theories of practice, setting out an explanation of what are perceived as energy-related practices of households, as well as discuss the concepts of temporality and rhythms. These relate to the flexibility of household practices and their potential for time-shifting.

Chapter 4 presents an overview of the design of the survey instrument, explaining its scope, structure, format and methods used for reaching participants.

Chapter 5 presents the empirical findings of the survey. The chapter is structured in three parts which represent the three sections of the survey that was provided to the participants

Chapter 6 gives an overview of the limitations of the survey and presents a summary of conclusions

Chapter 7 presents the references of the work cited and the

Appendices section of the report, which involves a copy of the questionnaire sent to participants (in all languages), as well as details of findings and methods used for recruitment and dissemination of the survey

Taken together the deliverables of the survey contribute to the construction of comprehensive profiles for each pilot, detailing users' *existing* energy-related practices and the *potential* for changing energy-related practice to enable a flexible energy demand.

The survey was distributed among occupants in the three pilots, gaining responses from 289 respondents. The findings from this task will feed into WP2, creating and defining the user engagement process.

The findings are summarised along the following themes (Chapter 5).

- Socio-demographics, building typologies and technical installations
- Household energy practices and meanings of home
- Smart energy systems and everyday life at home

Some key observations and trends from the survey results in relation to how occupants perform existing energy related practices and the potential for changing such, are:

**Everyday life under Covid-19 restrictions:**

- The ongoing Covid-19 pandemic and the imposed restrictions have resulted in a substantial amount of hours spent at home, in comparison to before the restrictions, across all pilots. Respondents do generally not expect to spend more time at home after Covid-19, compared to the hours spent at home before the pandemic. Remarkably, across all pilots most respondents do not expect their energy-related practices to change as a result of the Covid-19 restrictions, although a substantial percentage indicate that shopping (26%) and the use of ICT (26%) will have changed.

**Comfort:**

- Heating and cooling are performed using different technologies - and in the case of cooling often in a mix of several solutions (external shading, opening windows/doors, electric fans etc.). In Voorhout and Camille Claudel, a majority of respondents have central heating and respondents are generally more in control of temperature settings (in contrast to Berchidda). The frequency of when cooling is performed differ across pilots, with highest frequency in Berchidda. Across all pilots, respondents generally indicate that they would find it somewhat easy to change the ways and times that they heat and cool their homes.
- Comfort is found to be a prevalent social norm amongst householders across all pilots, with different expressions across the pilots, both relating to the material (and sensory) and immaterial (emotional and cognitive) experience amongst householders .
- Comfort is associated with the use of smart energy technologies. 76% of respondents overall suggest that smart energy technologies are supposed to make life more comfortable at home

**Identified practices which might be easier to change:**

The practices that respondents indicated that might be easier to change to respond to DR requirements were:

- Doing the laundry and its associated practices (such as drying clothes and ironing)
- Times of heating
- Ways of cooling

Heating and cooling present a good opportunity for DR interventions, since respondents are overall positive toward amending some of the parameters of their practices, such as reconsider the length of time they usually heat their home or they ways in which they cool their homes. Doing the laundry, along with some of its

associated practices, such as drying the clothes and ironing, is found to be a practice that households are willing reconsider as it can be done relatively independently in comparison to other practices that require coordination or synchronisation with other people or societal rhythms.

**Identified practices which might be challenging to change:**

The practices that were highlighted, as more challenging to change for respondents across all pilots were:

- dining (especially the times of dining),
- the time and frequency of showering/bathing and the
- use of ICTs for leisure.

All these identified practices are bound to rhythms that people usually have with out-of-home engagements or relate in some way to the synchronisation of their routines with these of other members' of the household. Also, they are practices that related to prevalent local social norms, such as for example the 'normal' times people eat dinner and when or how often they need to shower. Furthermore, the use of ICTs has increased during the Covid-19 restrictions, and as the findings indicate these are becoming central interactions of householders' lives. We are uncertain, however, if participants engage in the use of ICTs for leisure individually or together with other members of their household, which would explain the difficulty for flexibility, since they would have to reply of others' routines and daily schedules.

**Insights in regard to smart energy technologies and everyday practices:**

- Among all pilots, respondents express that they know what smart energy technologies are. The trend is somewhat different in terms of actual ownership of smart energy devices, with a majority of respondents in Berchidda and Camille Claudel indicating that they do not have any smart energy technologies. The perception of the potential benefits of smart energy technologies is however quite positive among all respondents. The respondents expect that smart energy technologies can bring monetary and energy savings. Expectations are more mixed in relation to the potential benefits of saving time or enabling caring for others.
- In relation to monitoring of energy consumption, a large percentage of respondents indicate that they never do so. The frequency of checking energy consumption, among those who do so is on a monthly basis. In Voorhout and Camille Claudel, energy monitoring seems to be a gendered activity mostly conducted by male respondents. This activity is more equal amongst genders in Berchidda.
- Most respondents regard their utility company as the primary source, if they need help or advice in relation to energy monitoring or their energy system in general. Preferences for choice of medium for monitoring or planning energy consumption are either by a smart phone application or a fixed device in the home.

## 2 Introduction and context for D1.2

This deliverable *D1.2* is the outcome of task *T1.2*. The aim is to develop a socio-demographic understanding of the residents at the pilot sites, and an analysis of key user energy-related behavioural aspects. A survey has been designed and distributed among residents at the three pilot sites in the Hestia project in order to investigate a) how occupants perform existing energy-related practices, b) their interest in changing behaviour and finally c) identify the potential domains for behavioural change in order to accommodate a flexible energy demand. Based on this analysis, the aim of *D1.2* is to develop a profile of each pilot sites, which can feed into the task of *WP2* defining the general user engagement process.

In the remaining parts of this introductory chapter, we will present the overall scope of the report and introduce the actual recruitment and dissemination methods of the three pilot sites. This is followed by a presentation of the theoretical framework (Ch. 3), which informs the design of the household survey (Ch. 4). Then, we present the empirical findings of the survey as well as the analysis of possible areas for improving efficiency and targeting household interventions (Ch. 5). The report ends with the conclusions and a discussion of the limitations of the survey results (Ch. 6).

### 2.1 Scope and objectives of the report

This deliverable reports on the findings of the household survey that was conducted in the three pilot sites of Hestia, which is Task 1.2 of *WP1*. The survey was the first Hestia interaction with residents from the pilots. Its aim was to satisfy two purposes:

1. To generate profiles of the users as represented in the three pilots (including a socio-economic, demographic and socio-cultural understanding of people) and
2. To identify potential areas for energy efficiency improvements which can be adopted by the DR solutions that will be developed by Hestia

In more detail, Task 1.2 follows a systematic approach to perform an analysis of key user energy-related behaviour aspects in the Hestia pilot sites. More precisely, the task is concerned with the design and execution of a household survey for the potential users, at each of the pilot sites, in order to identify:

- a) Existing everyday energy practices
- b) Interest in energy behaviour change
- c) Domains for potential energy changes

The survey is based on a practice-theoretical framework (see Ch. 3), which means that the study focuses on the energy-related practices performed by householders at the three pilot sites. Following from this, energy behaviour changes are understood as changes in how everyday energy-related practices are performed by people, e.g. changes in practices related to laundering, cooking, showering and cooling. Thus, in addition to documenting existing energy practices at the three sites, the survey also explores what residents think about changing their existing practices and, on basis of this, identifies domains of energy practices open for possible changes in relation to demand response.

In sum, the results of the analysis contribute to the creation of pilot profiles of household energy practices and, accordingly, domains for potential energy changes. The output of this task feeds into WP2, in specific, to the definition of the user engagement process of the participating households.

## 2.2 HESTIA pilot sites

There are three residential pilot sites selected for Hestia:

- The Berchidda municipality, Italy
- The Camille Claudel district, France
- The Voorhout district, The Netherlands

The three pilots have been introduced in deliverables D2.1 and D1.1 in terms of their overall climatic, socio-cultural, geographic and infrastructural characteristics. The remaining part of this section reports on how the survey was distributed at the pilots, and the methods used for recruiting respondents.

### 2.2.1 The Berchidda municipality, Italy

#### 2.2.1.1 Recruitment and distribution of the survey

The recruitment of survey respondents was mediated by GridAbility together with the Municipality of Berchidda. Prior to distributing the survey, the Municipality head of communication recruited four testers (himself included) to give early feedback on the design of the survey.

The survey was disseminated online via the Facebook page of the Municipality, which has over 2000 followers. It was also featured in the local press. GridAbility provided text for the social media post. In addition, three out of four testers have a large local network thanks to their work or volunteering activities, and they supported informally the spread of the survey. The online appearances of the survey can be found below:

<https://www.facebook.com/comunediberchidda/photos/a.1035094619918769/4031477423613792/>

<https://www.facebook.com/comunediberchidda/photos/a.1035094619918769/4038158876278980/>

<https://www.logudorolive.it/berchidda-al-via-un-sondaggio-online-sulla-transizione-energetica/>

The survey was distributed on the 8<sup>th</sup> of May and responses were collected until the 11<sup>th</sup> of May.

#### 2.2.1.2 Response rate

In total, 218 people opened the survey and completed at least some part of it, which corresponds to ~7% of inhabitants in Berchidda. Among them, 77 completed the survey in full, and 28 gave their contact for further interactions with Hestia. Considering the short time window available to complete the survey for the purpose of this report, the Berchidda population was highly engaged.

## 2.2.2 The Camille Claudel district, France

### 2.2.2.1 Recruitment and distribution of the survey

The survey was initially sent to 25 occupants who had participated in a previous survey (performed by the local municipality). These occupants had agreed to be contacted for future information regarding the topic of energy in the Camille Claudel district.

Second, the survey link was published on the websites run by the City of Palaiseau and Communauté Paris-Saclay. The online appearance of the survey can be found here:

<http://www.paris-saclay.com/fonctionnalites/actualites-109/palaiseau-experimentation-energetique-europeenne-5267.html?cHash=1b21c805fc9a564b4ace831ead39d885>

Third, the survey link was distributed among 222 members of the local neighbourhood council, who were also encouraged to distribute the survey link among occupants in local (but privately closed) Facebook groups.

### 2.2.2.2 Response rate

The exact response rate is unknown, as the means for distributing the survey have been public websites and (closed) Facebook groups. Given that the Camille Claudel District consists of approximately 1500 dwellings (+ 500 apartments for students), the calculated response rate is approximately 3% (given that respondents represent households and not the number of people)

## 2.2.3 The Voorhout district, The Netherlands

### 2.2.3.1 Recruitment and distribution of the survey

Hestia partner 4EYF and the local district developer Van der Hulst supplied the physical addresses of the homes involved, allowing the pilot site partner DW to compose a physical letter and distribute it among the residents. The letter entailed information about the nature of the Hestia project and its relation to Van der Hulst, 4EYF and also described what the survey would look like. A QR code and short URL were included for occupants to find the survey online. (See Appendix 19 [in Dutch].) In addition to the letter, DW created a video that introduced the Hestia project again and gave an overview of what the project would entail for participating residents. The idea behind sending the video introduction out at that point was to let it serve as a reminder for the survey. However, the email happened to be sent out later than originally planned, though it did lead to a few more respondents on the day after the survey results were due.

### 2.2.3.2 Response rate

In the end, 21 out of 33 householders responded to the survey getting a response rate of 70 %. Also, 12 of those respondents have stated that they wish to be contacted for further interactions or information about Hestia. While the total population in Voorhout is described to consist of 46 households in the Hestia Grant Agreement, it should be noted that 13 of these are yet to be build. Thus, the total population at the time of the survey was 33 households.

## 3 Theoretical framework

### 3.1 Overview

This chapter presents the theoretical and conceptual backdrop that underpins the design of the household survey, as well as the analysis of the findings. Initially, everyday household energy-related practices are defined and discussed, in order to set and understand the context and the elements that comprise the householders' energy routines. Then, the temporality and rhythms of these household practices are examined, in order to help understand how energy demand is created in households in line with their internal temporal performances as well as the wider social dynamics that contribute to them

### 3.2 Defining everyday household energy-related practices

As we already pointed out in the previous Hestia deliverable D2.1 *Criteria and guidelines for user recruitment and engagement process* (Aggeli et al., 2021), there are different ways to understand energy demand in regard to households. Some of these include the conception of energy demand as an outcome of individual behaviour, energy demand as a result of the advancement of technological infrastructures and appliances, or energy demand as an outcome of socio-technical change (Cass & Shove 2017). Another perspective, the one Hestia adopts, is the understanding of energy demand as an outcome of the 'interwoven social practices' (Walker 2014, p. 49) which our communities consist of. Theories of practice recognise that 'energy is used not for its own sake, but as part of, and in the course of, accomplishing social practices, examples of which might include cooking, commuting to work, watching TV or conducting meetings' (Shove & Walker 2014, p. 42). So, energy consumption is an outcome of people being occupied with activities (practices) that are meaningful to them and part of their daily doings, and which they rarely think about in terms of energy consumption. In most cases, energy consumption is therefore an "invisible" part of their daily life at home or other places.

From the perspective of practice theories, as developed by authors such as Schatzki (1996), Reckwitz (2002) and Shove & Pantzar (2005), social practices are entities of collective and coordinated activities. Social practices are reproduced and transformed through their performance of individuals. Practices are constituted by heterogeneous elements that are integrated through the performance of the practices. Examples of elements are bodily or mental activities, things, and know-how. Shove & Pantzar (2005) summarise these elements into three main groups: materials, meaning and competence. Thus, an energy-consuming practices are involving many elements that are important for the performance of these practices. For instance, the practice of doing the laundry includes: *materials* such as the washing machine, water, energy, detergents and the washing clothes; *competences* such as the skills of operating the washing machine, sorting clothes by type of textile and colour, or know-how about how to dose detergent correctly; *meanings* such as understandings of cleanliness and hygiene (e.g. related to deciding when clothes "needs" to be washed), "freshness" and smell, and environmental concerns (e.g. for the choice of water temperature, type of detergent or the choice between drying clothes in a tumble dryer or on a clothes-line). When focus is on changing practices and habits from an environmental point of view, as in Hestia, an important implication of practice theories is that in order to change practices, one ideally has to address all three elements to ensure a thorough and lasting change. Addressing only one element, e.g. the element of meaning, through environmental campaigns aimed at motivating people to consume in a greener way is not likely to succeed if the other elements are not addressed as well. For instance, even if people are motivated by a campaign on "greening washing" to avoid using the tumble dryer to

save energy, this might be impossible to do if they do not have the space in their home or on the premise to dry the clothes on a clothesline.

In the survey reported in this deliverable, we have chosen to focus primarily on energy-related household practices that are 1) performed within the home and 2) are related to the use of appliances (e.g. dishwasher, washing machine or iron) or other types of technologies (e.g. the heating or cooling system). Also, we have in most cases chosen practices with relatively high levels of energy consumption related to their performance, such as cooking, dishwashing and laundering. Such practices represent a particular potential with regard to time-shifting the energy consumption of households through demand response.

### 3.3 Temporality and rhythms

Hestia focuses on demand response, which is essentially about changing the time patterns (temporality) of energy consumption, and thereby the timing of the performance of everyday household energy-related practices. As demand response strategies in this way have implications on the temporal organisation of the everyday life of householders, it is important to introduce a number of key concepts related to how to understand the temporality and rhythms of everyday life at home.

Some types of energy consumption might be time shifted without radical implications for the everyday practices of the householders. One often mentioned example is DR related to heating of homes. In the EU project RESPOND, such an automated and remotely controlled DR scheme was tested in Danish homes supplied with district heating (Christensen et al., 2020). The households were subject to a temperature setback in the morning hours, and the study found that the negative implications of this for the householders' experienced level of temperature comfort were limited. However, the study also pointed to a need for households to be able to intervene with automated systems as the one trialled in RESPOND. People's daily routines vary from day to day, and while most RESPOND participants left home in the morning, and therefore did not experience the temperature drop in the late morning as a major problem, some householders did occasionally stay at home (e.g. due occasional night shifts at work) and therefore found the temperature in the morning uncomfortable cold and were annoyed by not having the possibility to interrupt the DR scheme on such days. A key message from the RESPOND project was therefore that even if heating belongs to a category of energy consumption, which might be less closely correlated with the performance of practices, and thereby more "flexible" for time-shifting, the change in temperature during hours with setback will still be noticeable for the residents and might in certain situations intervene with their daily life if this does not follow the temporal rhythm of the DR programme.

The ambition of applying DR in homes are furthered complicated by the fact that most types of energy consumption are directly linked to (synchronous with) the performance of energy-related practices, such as cooking, ironing, showering, using computers, watching television, vacuum cleaning, etc. Time-shifting these types of energy consumption involves shifting practices in time, and DR programmes targeting such energy consumption are therefore having a very direct impact on the everyday temporality of households. For this reason, it is important to get a better understanding of the rhythms of these practices and how they relate to other activities of the household. The remaining part of this chapter will focus on presenting key concepts for understanding these patterns and relationships.



### 3.3.1 Hot and cold spots

The everyday “timescape” (Adam 1998) of households typically follows some general patterns that might be likened to waves or the ebb and flow of tides. Some hours of the day tend to be busy with many activities occurring at the same time, and often involving a lot of coordination between people and their doings, while other hours are more relaxed and with less intensity of activities. Southerton (2003) have developed the concepts of “cold spots” and “hot spots” to designate the different temporalities of the daily life. Hot spots are predictable periods of the day that precede institutionally timed events such as meals, work and school time. They are intense in the number of activities performed within a limited time period and often involve multi-tasking. An example can be the morning hours of families with the many activities of getting children up, taking showers, preparing breakfast and preparing for the day at school and work. In contrast to hot spots, cold spots are periods of low activity associated with ‘quality time’, ‘potter time’ or ‘bonding time’. They are of relative long duration and typically spent on meaningful social activities. There exists an important connection between cold and hot spots as hot spots are “practical arrangements that permit the generation of cold spots or blocks of time released from necessary tasks” and “attempts to gain control over the temporal rhythms of daily life” (Ibid., p. 19-20). As DR involves shifting practices in time, it is important to take such time patterns into account. For instance, a study of a Danish Time-of-Use electricity pricing trial showed that time-shifting activities such as laundering was regarded as particular problematic if this threatened the ‘quietness’ of cold spots (Friis & Christensen, 2016).

### 3.3.2 The complexity of household rhythms

Different rhythms of practices play out in the households. First, there are the temporal *rhythms of the individual practices*. A practice comes with its own practice-time profile with “embedded conventions of duration, sequence and timing associated with the competent performance of a practice” (Shove 2009, p. 24). Preparing and having dinner, for example, implies a certain sequence of activities from shopping groceries over cooking and eating to clearing the table and do the dishes. This is a fixed sequence of activities that only to a very limited extent can be changed. Also, different practices are associated with different expectations with regard to duration. In families, the weekday cooking might be associated with limited time resources and an attempt to do it “as fast as possible” (making it a hot spot), whereas having the dinner is often associated with conventions about how the family members should stay at the table for a longer duration and be present in conversation over the table (cold spot). Also, many practices come with conventions of timing – as in the case of the family meal in the evening which, in many families, happens at the same time every day. Some practices are clearly more fixed in their timing than others. Having dinner is an example of the former, whereas the timing of other practices such as gaming or vacuum cleaning might be less fixed. When developing DR solutions, it is important to take the aspects of duration, sequence and timing into consideration when deciding which practices to target for time shifting and how.

Second, the *interrelations between practices* are another important aspect of everyday temporality. Everyday practices are often interrelated, either as bundles or complexes of practices. In practice bundles, practices exist separately but share aspects of time and/or space (Pantzar & Shove, 2010). An example is listening to the radio while cooking. In practice complexes, practices are co-dependent by being functionally integrated in terms of sequence, synchronization, proximity or co-existence (Shove, Pantzar, & Watson, 2012). An example of this could be the practice of hosting guest for dinner, which in most cases are dependent of a number of separate practices to be performed before visits, such as cleaning the home, do shopping and cooking. Practices

integrated in complexes are less flexible for time shifting than practices that are only loosely connected in bundles. The former type of practices also involves more coordination and (exact) timing than the latter.

Third, *institutional rhythms* play a key role in defining the rhythms of the household. Institutional rhythms are collective by nature and examples are working hours, school hours and opening hours of shops (Southerton 2012). As this is collective rhythms, individuals and families will find it hard to “escape” these rhythms and many efforts are put into planning and coordinating the daily life of the household according to such institutional rhythms. For example, morning routines and the timing of breakfast on weekdays are to a high extent determined by the hours of work and school. Similarly, the timing of dinner is typically defined by institutional rhythms related to end of school/work hours and the timing of other collective activities such as sports that family members might participate in during evening hours. Thus, institutional rhythms play an important role for the flexibility of everyday practices when it comes to DR programmes. Households with family members engaged in many collective and time-inflexible activities will, overall, find it harder to time shift practices than households with family members involved in few collective activities. This is among the reasons why studies indicate that “empty nesters” and retired people more often find it possible to time-shift everyday practices than families with young children (Nicholls & Strengers 2015).

Fourth, and finally, the everyday temporality of households is affected by the relation between *social and natural rhythms* (Walker 2014). One example of a natural rhythm is the daily and annual sun cycle, which has a direct impact on what and when we do things like sleeping, staying outside and performing many sports activities. Another natural rhythm relates to weather, which also affects many daily activities with relevance for the discussion of DR. The impact of natural rhythms can be both beneficial for and a challenge to the aim of time-shifting consumption. An example of the first is from a Danish study of prosumers with rooftop PVs, who in general found it easy to time-shift their laundering to days with sunshine (and much PV power), as this would also make it possible for them to dry the clothes outdoors (Christensen et al., 2017). So, essentially, they adopted the habit of doing their laundry on days with sunshine. In contrast, the previously mentioned study of Time-of-Use electricity pricing (Friis & Christensen 2015) found that the changing weather was a challenge for people who tried to shift their laundering to hours with low electricity prices, as this did not necessarily coincide with days with good weather for drying clothes outdoor (which is a common habit in Denmark). In other words, DR solutions integrating the natural rhythms of sun and weather into its design can be expected to be more successful.

### 3.3.3 Synchronisation

In order to understand how practices are coordinated across this multiplicity of rhythms in the everyday life of individuals and households, the concept of *synchronization* plays a key role. Synchronicity is “concerned with the relationships between rhythms, how they are matched or free running, locked together or disconnected, synchronous or asynchronous” (Walker 2014). As time-shifting of practices is about shifting existing and routinised practices in time, it is essentially about *desynchronizing* an activity from one set of practices and *resynchronize* it with another set of practices; e.g. shifting from the old routine of starting the dishwasher right after dinner and emptying it right before breakfast to a new routine of starting it in the afternoon and emptying it before dinner. Or, in other terms, to time-shift practices involves changing the everyday temporality through decoupling and re-coupling practices in new constellations.

## 4 The household survey design and scope

### 4.1 Overview

This chapter presents an outline of the design of the survey, including details on its scope, structure and objectives, and an overview of the dissemination targets that were considered. Please note that the actual methods of dissemination, along with the recruitment are described in Chapter 2, section 2.2.

### 4.2 The design of the survey

The household survey was lead by the research team of AAU, but facilitated and designed in collaboration with all pilot partners. It has involved several iterations and versions of the survey, which were discussed and reviewed in WP1 and sometimes WP2 monthly partner meetings, as well as in focused survey meetings held with each pilot partner, and through a series of emails and written documents. The perspective of local stakeholders (e.g. municipalities), important for the dissemination of the survey, has also been considered and incorporated, as they are the mediators with the local community. The survey was tested with a few local volunteers before the final dissemination, which allowed for more comments and culture or site specific observations to be considered before the final version. Therefore, the survey has been approved and validated by both the relevant Hestia partners as well as local stakeholders who represent the voice of the local community.

#### 4.2.1 Scope

First of all, the purpose of the household survey was to map and analyse the range and characteristics of energy-related practices of householders in each of the three pilots. In order to achieve this, it was important to identify and consider the socio-demographics of each pilot, along with information about the homes' characteristics (e.g age and energy infrastructure), as well as details about the ways in which householders perform everyday energy-related practices, such as heating or cooling their homes, washing etc.

The survey was designed to investigate possible patterns of everyday energy-related practices amongst the pilots, as well as map the synchronicity and multi-tasking of these practices in the household. We were concerned with how people generate energy demand in their homes through their everyday engagement with household practices performed within the home, or coordinated with external, societal and institutional activities. Furthermore, the intention was to focus on the current period of Covid-19 restrictions, in which people are spending, on average, longer time at home. We were interested in understanding if, how and to what extent these restrictions have contributed to changes in everyday household energy-related practices. Further to that, we were trying to explore whether these changes, if present, are perceived by householders as ones that could be sustained in the near and longterm future and how they might affect energy demand and response in the residential domain.

#### 4.2.2 Structure

The survey is structured in three parts:

- Part 1: General information about you and your dwelling
- Part 2: Your everyday household routines and energy use

### Part 3: Living with energy systems

The survey began with a general introduction about the Hestia project, explaining its objectives and providing more information about the process of completing the survey, e.g. that participation is voluntary and stating the option to remain anonymous. However, since the engagement strategy for Hestia is designed to attract long-term participants, who will follow the project from beginning to end, the notes in the introduction of the survey suggested this opportunity to participants, and explained that we would appreciate if they chose to continue their engagement through further planned interactions. In order to achieve this, a section at the end of the questionnaire was designed to ask for participants' name and contact details in case they would be interested in further interactions.

The purpose of the three parts was to create thematic sections in order to help participants navigate through the survey with a clear narrative.

Part 1 involved mostly multiple-choice questions in regard to demographics and household composition, home ownership, characteristics of the home people live in, questions about the time they have lived in their current home, as well as questions about the technical infrastructure, such as the heating systems. It is important to notice that due to the uniformity of the housing stock in two out of the three pilot sites, some questions regarding energy infrastructure were left out in the questionnaire for these sites, since we already knew that these homes were all identical or the pilot partners had already provided that information. The greatest diversity in characteristics and infrastructure of homes was anticipated in the Italian pilot site, and therefore the part 1 section for the Italian survey was slightly larger in order to accommodate to this.

Part 2 involved questions about households' everyday energy-related routines at home. The section started with an open question which asked what home means to people. This question was designed to let people freely express how they experience home and its significance in their lives. In short, this question was targeted at a first understanding of the meanings people put in the concept of home and how this relates to the material aspects of the home (and also their tacit understandings of what home is). It was also a useful point for understanding whether the visions that (technical) experts employ about how (smart) home is to be experienced will coincide or intersect in any way with the actual experience that people have of their own home. Furthermore, it would be useful for our research to understand whether issues such as comfort, convenience, privacy etc. are expressed, and in what ways, as elements of their perceived 'ideal' and/or desired home. Part 2 also contained questions which attempted to understand some of the current conditions of living at home during the Covid-19 restrictions, such as how long they have been spending at home in comparison with the pre-pandemic period, whether they have worked more at home than before and also attempted to map anticipations for the near future in regard to these changed conditions. These questions were meant to set a basic understanding and to start to trace any possible patterns between the pilots. Furthermore, the questions aimed to uncover any possible variations of everyday energy-related practices (such as times of heating, cooking a meal or bathing) amongst the three different locations of the study.

Finally, Part 3 involved questions about the ways in which householders live with technology and energy systems at home. It mapped the existence of smart energy technologies in each pilot, but most importantly it attempted to identify people's perception of energy technologies and devices and the ways in which they use them to perform different everyday practices. We were interested in understanding how meanings of smart technologies relate to everyday life practices, for example how do people perceive the role of smart meters and other devices at home, and, in addition, in what ways do these devices and technologies shape their practices.

Each part was introduced with a small paragraph which explained the content to follow and the purpose of the section. At the end of the survey the participants were given an opportunity to leave their name and contact details if they wished to be involved in upcoming Hestia interactions.

#### 4.2.3 GDPR and incentives

In order to ensure that the household survey followed rules of data privacy and GDPR, several measures were taken in preparing the survey. The landing page (first page of the survey) provided respondents with information about data privacy and GDPR, stating that responses are anonymous (unless the respondents choose to give their name and contact details at the end of the survey) and only are to be used for research purposes. Furthermore, respondents were informed about storage of data (stored at Aalborg University) and that their anonymized data only were to be shared with specific pilot partners:

- Camille Claudel: Électricité de France, Communauté d'agglomération Paris-Saclay and Münster Technological University, Ireland
- Berchidda: Sinloc – Sistema Iniziative Locali SpA, Grid Ability Scarl, Midac Spa, AXPO Energy Solutions Italia – Societa per Azioni and Münster Technological University, Ireland
- Voorhout: DuneWorks BV, For Your Energy Freedom BV and Münster Technological University, Ireland

At the end of the survey, respondents were asked if they would give their name for further contact in relation to the project. If the answer was 'no', respondents were directed to a final page, thanking them for their participation and allowing for final comments. If respondents agreed (by answering 'yes') to further contact, additional GDPR information were presented to them. The purpose of providing the information was to detail how their general personal data were being stored, processed and shared. Furthermore, respondents were informed about their rights to data, whom to contact in case of doubt or if they wished to exercise their rights. Finally, respondents were asked to actively mark their consent. Once having done so, respondents were directed to a page where they could fill in general personal information (name, phone and e-mail).

GDPR preparations were drafted by AAU and finalized in close collaboration with the relevant pilot partners to ensure that local personal data rules were followed.

Finally, an incentive was offered in two of the three pilot sites (Voorhout and Camille Claudel). The incentive consisted of a draw among respondents to a local gift card (worth 100 euros). The provision of an incentive can service the purpose of limiting the number of non-responses, but at the same time it can create a skewed representation, as some people would then be more likely to participate than others. Please see Chapter 6 for an analytical overview of further limitations of the survey.

#### 4.3 Dissemination format and methods

After consultation with the pilot partners, during which several options regarding format and dissemination were discussed, it was decided that the survey should be an online version, which can be shared via a weblink (URL), through digital platforms or emailed directly to participants. All pilot partners, including local stakeholders, agreed that the digital format is more appropriate, especially during the pandemic restrictions, and they suggested different options for dissemination, such as posting on What'sApp groups, on Facebook pages and through the municipalities' communication channels. However, due to different challenges during the time of the survey dissemination, methods for reaching participants were slightly amended in some cases,

such as in the Dutch pilot where respondents were sent a letter in the post (Appendix 18). Exact details of dissemination from each pilot can be seen in Chapter 2, section 2.2.

## 5 Survey findings and analysis

### 5.1 Overview

This chapter presents the results of the survey that has been distributed among householders in the three pilots. The findings are presented under three main categories, which correspond to the three sections in which the survey was structured:

1. Socio-demographics, building typologies, household characteristics and technical installations
2. Households energy-related practices
3. Smart energy systems and everyday life at home

Each section initially describes the data that have been gathered from the survey through a combination of descriptive text and tables or graphs. The findings are analysed alongside the presentation of data, and preliminary conclusions or insights are drawn at the end of each of the three sections.

### 5.2 Socio-demographics, building typologies and technical installations

The following section provides insights on basic socio-demographic variables such as gender, age, educational and occupational background. Furthermore, the report presents information gathered on building typologies, heating and cooling installations and appliances in the home. This information is useful for assessing the results of the sample and will also provide useful information for constructing pilot profiles to be used in the later analysis of energy-related practices.

#### 5.2.1 Age, gender and diversity

	Berchidda	Voorhout	Camille Claudel	Total
No. of respondents	215	23	51	289
Completed	76	18	21	115
Partially completed	139	5	30	174

*Table 1: Overall number of survey respondents*

Table 1 displays the total number of respondents, including all those who have answered the survey either completely or partially. The total sample size is 289 participants, of whom 39,7 % have completed the entire survey. Partially completed answers have been included in the sample given that important information remains, despite 'early drop-outs'. In chapter 6, our assessment of the limitations of the approach is presented. Furthermore, representation is indicated in tables throughout the sections.

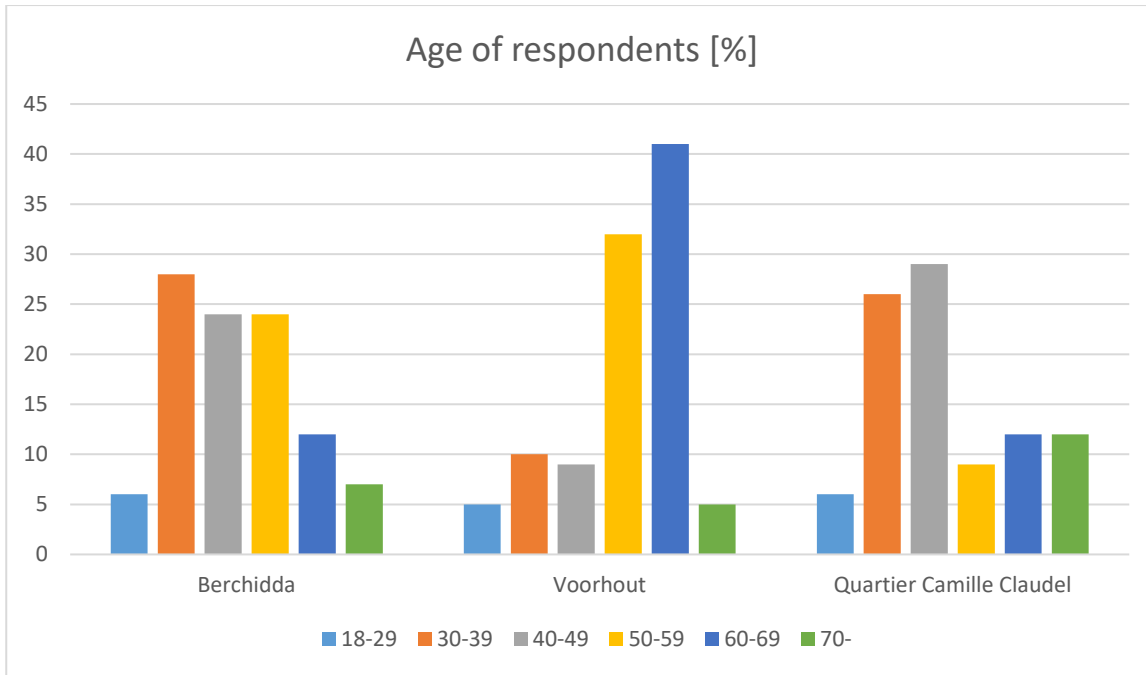


Figure 1: Age of respondents (Rounding to one decimal has been applied, thus not adding to 100%), n=219

Figure 1 presents the age distribution among respondents. In the total sample, most respondents are between 30-70 in age, and while Camille Claudel (61% under 50 years) and Berchidda (58% under 50 years) have a slightly younger sample, Voorhout presents a quite older sample (78% older than 50 years). Giving the unequal amount of respondents among the pilots (see table 1), the total sample is more diverse in relation to age distribution, but within each pilot there remains some lack of representation from some age groups.

Gender (Respondent)	Berchidda [%]	Voorhout [%]	Camille Claudel [%]
<b>Male</b>	44%	68%	55%
<b>Female</b>	52%	32%	35%
<b>Other</b>	0%	0%	3%
<b>Prefer not to say</b>	4%	0%	6%

Table 2: Gender distribution of respondents (Rounding to one decimal has been applied, thus not adding to 100%) n=220

Regarding representation of gender in the sample, we find a bias towards men in Voorhout (68%) and Camille Claudel (55%). In Berchidda, the sample is close to an equal representation of gender (52% women and 44% men). Given the overrepresentation of respondents from Berchidda, the total sample has an equal representation of men and women (48% each, the last 4% preferring not to answer).



<b>No. of adults</b>	<b>Berchidda [%]</b>	<b>Voorhout [%]</b>	<b>Camille Claudel [%]</b>
1	14%	19%	18%
2	53%	71%	75%
3	22%	10%	4%
4	10%	0%	4%
5	2%	0%	0%

*Table 3: Percentage of the number of adults living in households across the three pilots (Rounding to one decimal has been applied, thus not adding to 100 %) n=211*

Table 3 shows the number of adults living in the households. In Voorhout (90%) and Camille Claudel (93%), there seems to be an overrepresentation of 1 and 2 person households, while the sample from Berchidda have roughly 1/3 of households with 3 or more adults living together. This could indicate different family structures across the pilots. Table 4 provides additional insights on this, showing that most respondents live with a partner.

<b>Living with a partner</b>	<b>Berchidda [%]</b>	<b>Voorhout [%]</b>	<b>Camille Claudel [%]</b>
<b>Yes</b>	76%	86%	71%
<b>No</b>	23%	14%	18%
<b>Prefer not to say</b>	1%	0%	11%

*Table 4: Percentage of adults living with a partner (Rounding to one decimal has been applied, thus not adding to 100 %) n=213*

Overall, across all pilots, there is a low representation of people who have children under the age of 18 living at home (see table 1 in the appendix). Roughly 2/3 of the respondents indicate this. Also, the representation of female respondents living alone is quite high in the Dutch pilot (43% of female respondents living alone, 3 respondents in actual numbers), followed by 17% (2 respondents in actual numbers) of female respondents living alone in the French pilot and 15% (13 respondents in actual numbers) of female respondents living alone

in the Italian pilot. The overall representation of women living alone across all pilots is 18% (19 respondents in actual numbers), whereas men living alone present a 12% (12 respondents in actual numbers). Men and women overall in the sample tend to live with partners (79% of the men, and 75% of the women). The percentage of female respondents answering that they live alone in Voorhout and Camille Claudel has to be seen in the light of the actual numbers of respondents (and the low representation of female respondents). Finally, 13% of female respondents overall across pilots are retired, as opposed to 22% of male respondents.

### 5.2.2 Education and occupation

This section provides basic information of the educational level and current occupational status among the respondents. The majority of the people (approximately 60% overall) are in paid work. Camille Claudel has the highest percentage of employment amongst respondents (68%), followed by Voorhout (62%) and Berchidda (58%). Therefore, the percentage of employment is quite uniform across all pilots. Furthermore, a high percentage of respondents indicate that they are pensioners. In Voorhout 24% of the respondents indicate that they are retired, in Camille Claudel the percentage is 29% and in Berchidda the percentage of retired respondents is 14%. This could be argued to be an overrepresentation of this specific group. On the other hand, other occupational groups are missing, such as students and unemployed. On a macro-level, these groups usually constitute a rather substantial percentage of a population, but is lacking representation in this sample. Explanations to this lacking representation of certain groups could be related to pilot specific (e.g. high percentages of home ownership). A few respondents have indicated that their current situation is less fixed, e.g. as seasonal worker or part-time employee. For more details on education and occupation, please see appendices 4 and 5.

Current situation	<b>Berchidda [%]</b>	<b>Voorhout [%]</b>	<b>Camille Claudel [%]</b>
In paid work (including self-employed or family business)	58%	62%	68%
In education	1%	0%	0%
Unemployed	5%	0%	0%
Permanently sick or disabled	1%	0%	0%
Retired	14%	24%	29%

In community or military service	0%	0%	0%
"Stay-at-home" parent or spouse	11%	5%	0%
Prefer not to say	5%	5%	4%
Other	5%	5%	0%

Table 5: Current occupational status of the respondent (Rounding to one decimal has been applied, thus not adding to 100 %) n=204

If the respondents indicated that they live with a partner, information was collected about the partner's employment status. The findings show that the trend is similar to what observed for the respondents themselves, with most partners being either in paid work and (second-highest) pensioners. A difference worth noticing is the higher percentage of 'stay-at-home' parents or spouses, particularly in Voorhout (22%).

Regarding the educational background of respondents, quite big differences are visible between the pilots, with a university degree representing the majority of respondents in Camille Claudel (71%) and primary/secondary education representing the majority of respondent in Berchidda (35%). The trend seems to be that Camille Claudel represents a higher educated sample, and Berchidda a sample with lower educational background. Worth noticing is also the big percentage of technical educated respondents in Voorhout (42%) and a relatively low percentage of university degree education (10%).

### 5.2.3 Building typology, household composition and characteristics

Household characteristics, such as household size, composition and dynamics between its members are shaping the way that energy is consumed at home (Energise 2017). It is therefore important to understand how different temporal, lifestyle-related and other variations in households facilitate specific energy consumption patterns. While it is difficult to reflect on the small sample of this household survey, it is important to report any emerging patterns in regard to similarities or obvious distinctions amongst similar household typologies amongst the pilots.

Our findings suggest, as shown in table 3 in the previous section, that there is a high representation of two-adult (usually partners) households across all three pilots. This is particularly the case in Voorhout with 86% of the respondents living with a partner and no children or other adults in the household. Also, the majority of people across the pilots own their home. Voorhout has 100% ownership, Berchidda is following close with 91% and Camille Claudel has an ownership of 82%. Detached homes (single or multi-storey) and terraced homes have a slightly higher ownership rate than apartments, which are mostly present in Camille Claudel. Home ownership has been found to help establish security, stability, independence and a flexible way of life in households as well as a feeling of being in control (Dupuis & Thrans 1998; Troy 2000; Bate 2018). Furthermore,

people who own their homes have more agency in regards to decisions about energy amendments or upgrades of their home, compared to renters (Curtis, McCoy & Aravena 2018). There is an opportunity therefore to work closely with homeowners in the pilots in order to design and evaluate DR solutions that appeal to them and that they are relevant to their stage of life and aspirations for longterm living at their house.

Furthermore, there is a large percentage of people, particularly in Berchidda (68%) , who have lived in their homes for longer than 11 years (see Appendix 9). The opposite trend is visible in Voorhout with all respondents having lived in their home for 2 years or less. This is again related to the status of the area as newly developed. Camille Claudel shows a somewhat more diverse picture with most respondents having lived in their current home for more than 3 years and a substantial amount (56%) indicating that they have lived in their home for more than 6 years. 64% of people who own their homes across all pilots have lived in their homes for 11 or more years. The percentage of owners who have lived longer than 11 years is particularly high in Berchidda (71%), in comparison to 21% of owners in Camille Claudel. Of course these percentages are not comparable, as respondents in Voorhout only moved into their homes 2 years ago and they have not had the chance to spend a long amount of time there yet. However, there are several opportunities with homeowners, and in particular those who have lived in their homes such as long time, to integrate more meaningful DR solutions, since they hold a long-term tacit knowledge of their homes and their surroundings. It would be interesting to explore how people that have lived long-term in their own homes envision a more efficient future, in comparison to those who live in newer, but already more efficient or technologically advanced homes.

In regard to building typologies, table 6 below provides an overview of the distribution by type of home across the pilots. Information for Voorhout was extracted prior to the survey, as all buildings in this pilot are known to be terraced houses. Furthermore, the categorisation differed among Berchidda and Camille Claudel, and different questions were therefore posed. In Berchidda, a majority (76%) of respondents live in detached houses (either single or multi storey), with a reverse picture visible in Camille Claudel (64% live in apartments).

Building type	Berchidda [%]	Voorhout [%]
Detached house (multi-storey)	57%	0%
Detached house (single storey)	19%	0%
Semi-detached house	9%	0%
Terraced house	5%	100%
Apartment in a house	3%	0%

Apartment in a multi-storey building	8%	0%
Don't know	0%	0%
Other	0%	0%

*Table 6 Building typologies. n=150\* NB: Voorhout sample included prior to the survey as all buildings are terraced houses. The sample from Camille Claudel has been asked a separate question, as some categories of building typologies would not make sense in the local context. (Rounding to one decimal has been applied, thus not adding to 100 %)*

Building type	Camille Claudel [%]
Individual house	32%
Apartment	64%
Don't know	0%
Other	4%

*Table 7: Building typology Camille Claudel, n=28*

Respondents from detached homes (both single and multi-storey) answer that they turn on their heating on demand or according to when they feel cold, or following that, they usually turn on the heating in the evening. In opposition to this, respondents from apartments answer that they do not actively turn on or off their heating, responding to bodily experiences of temperature, but have a pre-set temperature in their thermostats, which manages the indoor climate. It is important to understand the specific socio-cultural and material arrangements that people use in order to regulate their heating and cooling practices in order to understand how better flexibility (e.g. time-shifting) can be achieved.

Delving deeper into the building typologies across all three pilots (see table 8-9 in the appendix, it is shown that the majority of the building stock is constructed later than 1960, but noticeable differences among the pilots exist. Voorhout represent a very new building stock, with all houses constructed in 2019 or later. In Voorhout, homes are still being constructed and an additional 13 homes are expected to be finished by the end of the year (not included in this sample). Camille Claudel represent a slightly older building stock, with the majority (67%) being constructed in the period 2000-2019. However, a substantial amount of the homes (34%) are older, with

the period 1960-1979 being most prominent. Berchidda represents a more diverse building stock, with most homes (37%) being constructed between 1980-1999. A substantial amount is though also from 1960-1979 (27%).

In regard to the energy infrastructure of homes, namely heating and cooling installations, table 8-10 provide some information of this subject. Table 8 addresses the question of central heating and shows substantial differences across all three pilot sites. In Voorhout, all buildings have central heating and Camille Claudel is leaning towards most dwellings having central heating (63%). In Berchidda, the picture is more mixed, showing a split between central heating or not, and interestingly, a substantial percentage (19%) indicating that they do not know.

Is the home centrally heated?	Berchidda [%]	Voorhout [%]	Camille Claudel [%]
Yes	41%	100%	63%
No	41%	0%	37%
Don't know	19%	0%	0%

*Table 8: Percentage of centrally heated homes, n=160 \* Dutch data based on existing knowledge. (Rounding to one decimal has been applied, thus not adding to 100 %)*

Another aspect on heating and cooling installations in the respondents' homes is if they are able to control the temperature settings or not. Table 9 provides a diverse picture across the pilots. Once again, Voorhout stands out with 100% answering that they are able to do so, and a more mixed picture is visible in Berchidda (46% can perform control) and Camille Claudel (62% can perform control). This could indicate that very different heating and cooling installations are present here.

Do you control temperature settings at home?	Berchidda [%]	Voorhout [%]	Camille Claudel [%]
Yes	46%	100%	62%
No	52%	0%	27%
Don't know	2%	0%	4%

Other	0%	0%	8%
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Table 9: Control of temperature settings at home, n=166. (Rounding to one decimal has been applied, thus not adding to 100 %)

Turning to cooling specifically, table 10 shows that contrary to heating installations, cooling is usually not conducted in a central manner. Instead, many households across the three pilots indicate that they do not use electric devices for cooling purposes and if they apply such devices, many respondents (e.g. in Berchidda) indicate that they are only used to cool the house partially.

Is the home cooled evenly?	Berchidda [%]	Voorhout [%]	Camille Claudel [%]
Yes, it is cooled evenly through air-conditioning	8%	19%	0%
Yes, it is cooled evenly through other electric devices	3%	14%	8%
Yes, it is cooled evenly through a mix of air conditioning and other electric devices	0%	5%	4%
No, it is not cooled evenly, only partly using electric devices	50%	0%	12%
No, it is not cooled at all using electric devices	34%	14%	73%
Don't know	3%	10%	4%
Other	3%	38%	0%

Table 10: Cooling of the home, n=167. (Rounding to one decimal has been applied, thus not adding to 100 %)

#### 5.2.4 Overall observations

In general, the total sample across the different pilots shows signs of diversity on a number of variables. While Berchidda represents a broader spectrum across different age groups, respondents from Voorhout are older and respondents from Camilla Claudel are slightly younger. A similar diversity is visible in relation to gender, where women are slightly more represented in Berchidda and contrary men are overrepresented in Voorhout and Camilla Claudel. In relation to household size, across all three pilots, smaller households seem dominant with 2 or less adults present. Berchidda represents a bit more households with 3 or more adults in comparison to the two other pilots. A limitation in the sample, which has to be taken into account, is the slightly high percentage of respondents without children (younger than 18) that live at home. This is evident across all pilots.

In relation to educational background and occupational status, the sample also provides diversity, but a few things need to be taken into account when assessing the findings. Overall and across the pilots, the majority of respondents (and their partners) indicate that they are in paid work. Moreover, a high percentage indicate that they are retired, which has to be considered in the assessments of results. Furthermore, the sample seems to lack representation of students and unemployed people, but reasons for this could be related to the specific pilot areas (and their lack of cheap(er) accommodation). In relation to educational background, the pilots differ quite substantially, with Camille Claudel have a rather highly educated sample and contrary a lower educated sample in Berchidda. Interestingly, a rather large percentage of respondents from Voorhout have a technical and vocational background.

Concerning building typology and heating/cooling installations, the sample also provides a diversified picture. Generally, the respondents live in either detached houses or apartments. Buildings are generally less than 50 years old, with some being very recently built (e.g. in Voorhout and Camille Claudel). The size of dwellings also show diversity, and while homes are generally larger in Berchidda, they are smaller in Camille Claudel. The homes are, across all pilots, generally owned by the respondents (or their partners) and it seems that many respondents have lived in their home for a rather long time (especially in Berchidda and Camille Claudel). Voorhout is newly built, and occupants have thus not had the chance to live there for long. Heating and cooling installations differ and it seems that some pilots have more uniform installations (especially in relation to heating in Voorhout and Camille Claudel), with a more mix of different electrical appliances in relation to cooling.

### 5.3 Household energy practices and meanings of home

The following section responds to Part 2 of the survey, and it reports on findings regarding everyday energy-related practices at home. It begins with an analysis of the respondents' responses on the meaning of home, which have important implications in the ways in which they explain the lived experience of being at home. Comfort is directly implicated in meanings of home, as well as in understandings of ideal or 'good' home. The section reports on the practices that seem to be more 'fixed', i.e. difficult or challenging to change, as well as those that people consider more flexible or are willing to consider changing

#### 5.3.1 Meanings of home and comfort

Home, in its physical and symbolic form, is a central element of human life (Bate 2018). Further to numerous cultural studies about the meaning of home by its inhabitants and implications of identity, class and status (see for example (Mallett 2004; Somerville 1992), meanings of home, particularly those relating to comfort, have been linked with householders' energy consumption practices (Madsen 2018; Madsen & Gram-Hanssen 2017).



How people feel in their homes, combined with the prevailing social norms of their community, are important factors to consider in the Hestia project, as they can reveal for example the different ways in which people respond materially and emotionally to the elements that shape their comfort and essentially generate their energy demand. Furthermore, the meanings of home that householders discuss can be linked to how they perceive technology in their lives as a material object (devices) and as context (surrounding our everyday life). Essentially the meanings of home that people hold contribute to their everyday homemaking (Aggeli 2021), which in addition is shaping (and being shaped by) their energy demand.

*A place to feel comfortable (Luogo per stare a proprio agio) (respondent from Berchidda stating the meaning of home)*

*A place for relaxation with comfort (Een plek voor ontspanning met comfort) (respondent from Voorhout stating the meaning of home)*

The findings of the survey reveal that householders' meanings of home can be primarily categorised as:

home as a safe and private place or shelter,

home as a comfortable, personalised space and

home as a familiar place for family and personal expression.

The findings are consistent within all three pilots, with indications of these three characteristics evenly spread across the answers of all respondents. The findings point to a commonly accepted notion of comfort as a prevalent social norm amongst householders, one which is consistent with recent literature (Ouweland & Bosch 2016; Aggeli 2021). Comfort, as a prevalent concept in the findings, is an accumulation of material and immaterial aspects, such as for example thermal comfort or feeling content with the temperature and lighting in the home, as well as familiarity with the space and relaxation (Ellsworth-Krebs 2017; Pink et al. 2013). Furthermore, comfort can sometimes be perceived by the level of control that householders feel that they have over the conditions in their homes, as well as a space-related quality, often linked to larger or well-designed spaces (Aggeli 2021). This can be exemplified by a participant's suggestion that:

*'I expected a certain [...] comfort that was achieved in a sustainable way. The anticipated teething problems have come, solving them takes too much time. Especially during the cold periods of the year, the equipment does not provide the comfort I expected. It is difficult to maintain the living room at a constant temperature and the energy storage was already out of use within 1 year and not yet resolved.'* (respondent from Voorhout)

The above comment was provided under the question asking for the meaning of home. Some participants chose to give some more pragmatic issues that they have found challenging in their homes, which they felt that came in the way of them experiencing a 'good' and comfortable home. Therefore the lack of comfort in the

home contributed to emotional tensions of householders which affected the way they experience home. A similar comment confirms this emotional response by the suggestions that:

*'Expected a warm floor, but that is disappointing. Often suffer from cold feet while the thermostat is set to 22 degrees.'* (respondent from Voorhout)

This comment suggests dissatisfaction of thermal comfort, as an important factor of how people experience home. On the other hand, a positive experience with thermal comfort brings about a high satisfaction about the quality of home:

*'[...] now that I live there I find it very comfortable to live'* (respondent from Voorhout)

The issues regarding lack of comfort were brought up by participants in the Dutch pilot who have been promised an efficient and comfortable home when they bought their homes about 2 years ago. The initial vision and promise they had from the developer have contributed to raised expectations about their lifestyle, an important element of which seems to be comfort. While systems were put in place to serve a seemingly smooth operation of indoor climate control, technical issues have made this challenging for some. For example:

*'Expectations were high and disappointing in terms of energy generation'*

*'Our expectations were: a carefree life, but due to the problems with technology that the contractor could not handle, it is not yet really comfortable and carefree.'* (respondent from Voorhout)

What is uncertain is the way in which these participants understand comfort at home and how these might differ according to factors such as age, gender and socio-cultural background. It is challenging to define and satisfy comfort at home, particularly when socio-cultural and emotional aspects are considered, which contribute to the construction of the meanings of home. It is therefore important to seek these definitions and try to integrate them in the Hestia strategy, as a way to better integrate people's expectations and notions of comfort and 'good home' in the design of DR solutions. Also, since comfort provides the basis for everyday practices at home to take place, it is important to further investigate what practices might be challenged by the lack of comfort and which ones are assisted when comfort is achieved. Equally, media and technologies are implicated in the shaping of comfort at home (Pink et al. 2013) and therefore it is important to understand in what ways smart homes, for example, are implicated in the creation of a comfortable home that is pleasant and desirable to live in. There is an opportunity to do so in the further interactions that we are planning during the Hestia project.

In the survey question referring to householders' perception of comfort in the room they spend the larger proportion of the day, most answers indicated that the majority of people (55% on average) feel comfortable, followed by 27% of feeling comfortably hot and 12% of feeling comfortable cold. There was no significant difference observed between female and male respondents across samples. However, some differences were found between pilot sites in the experience of comfort, for example Camille Claudel stands out with a clear majority of two-thirds (65%) feeling comfortable and only few feeling uncomfortably cold/hot. The perception of

indoor climate at home, especially thermal comfort, is also shaped by prevailing socio-cultural norms and should be specifically investigated in each pilot in order to log variations.

	<b>Berchidda [%]</b>	<b>Voorhout [%]</b>	<b>Camille Claudel [%]</b>
Uncomfortably cold	5%	11%	4%
Comfortably cold	10%	5%	26%
Comfortable	53%	47%	65%
Comfortably hot	30%	37%	4%
Uncomfortably hot	1%	0%	0%
Don't know	1%	0%	0%

*Table 11: During the winter season how do you overall experience the temperature in the room in your, n=142*

### 5.3.2 Household practices and the current Covid-19 situation

The outbreak of the Covid-19 pandemic has had an effect on everyday life in all pilot countries, with a variety of restrictions varying in length and type. The survey included several questions on how everyday life and rhythms have changed under this special situation. This information is valuable in order to 'sneak-peak' into an extreme situation, where normal everyday tasks have been subject to change. This could provide some insights into the stickiness of everyday energy intensive practices, if they have changed and if the respondents perceived change to be possible following the return to 'normal' life.

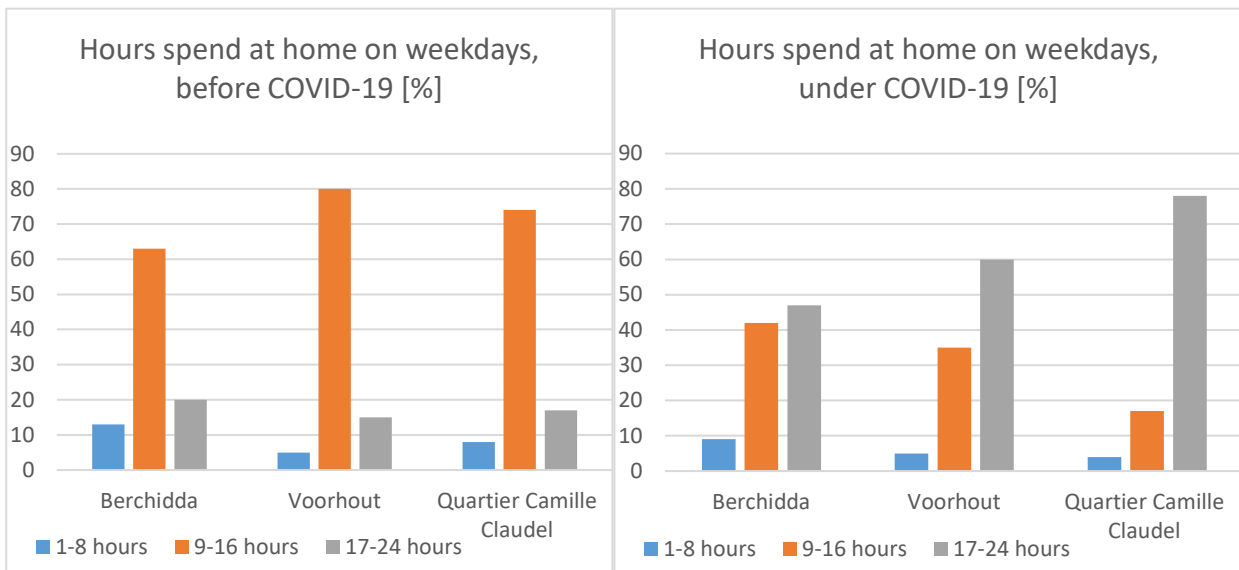


Fig. 2 Hours spent at home on weekdays before (to the left) and after (to the right) Covid-19, n=154

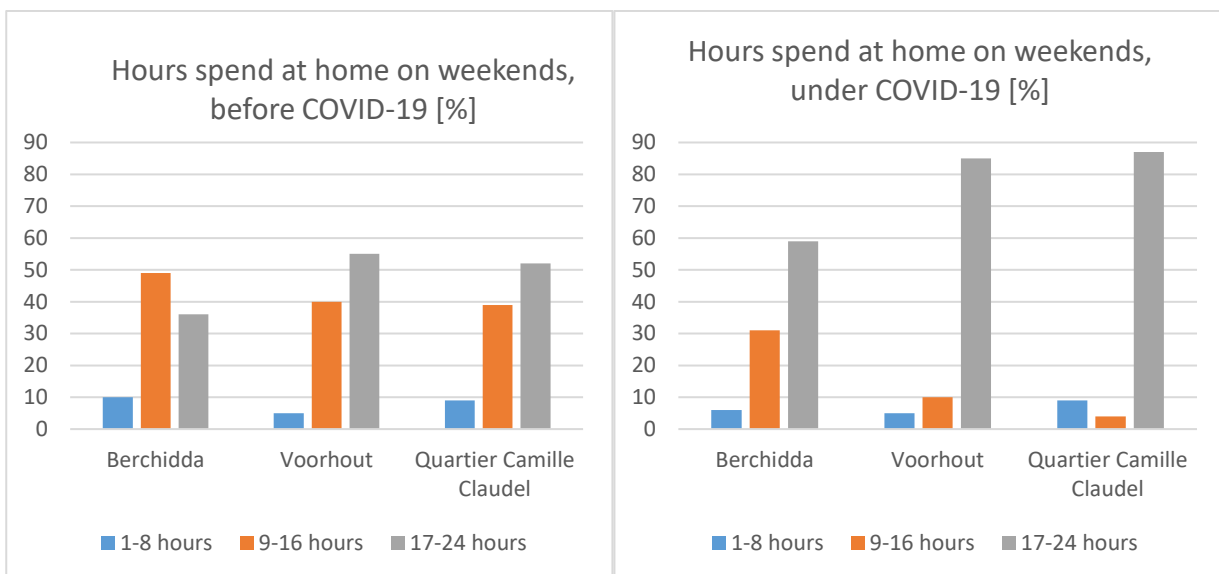


Fig. 3: Hours spent at home on weekends before and under Covid-19, n=154

Figure 2 and 3 display the amount of hours that respondents in the three pilots have spent at home before and under the Covid-19 restrictions, in percentage. All three pilots indicate a similar picture, namely that the number of hours spend at home has increased substantially under the Covid-19 situation – especially during weekends. This may not be a surprising result, as many business and workplaces have been shut down and people have either worked from home or been subjected to restrictions of other kinds. Some differences though appear between the pilots, where the respondents from Camille Claudel indicate that they have spent more time at home (both in weekends and in weekdays) than the two other pilots. Contrary, respondents from

Berchidda have generally maintained a more 'normal' rhythm compared to before Covid-19. This could be both due to the level of restrictions, their local surroundings or the status of the job that these respondents have.

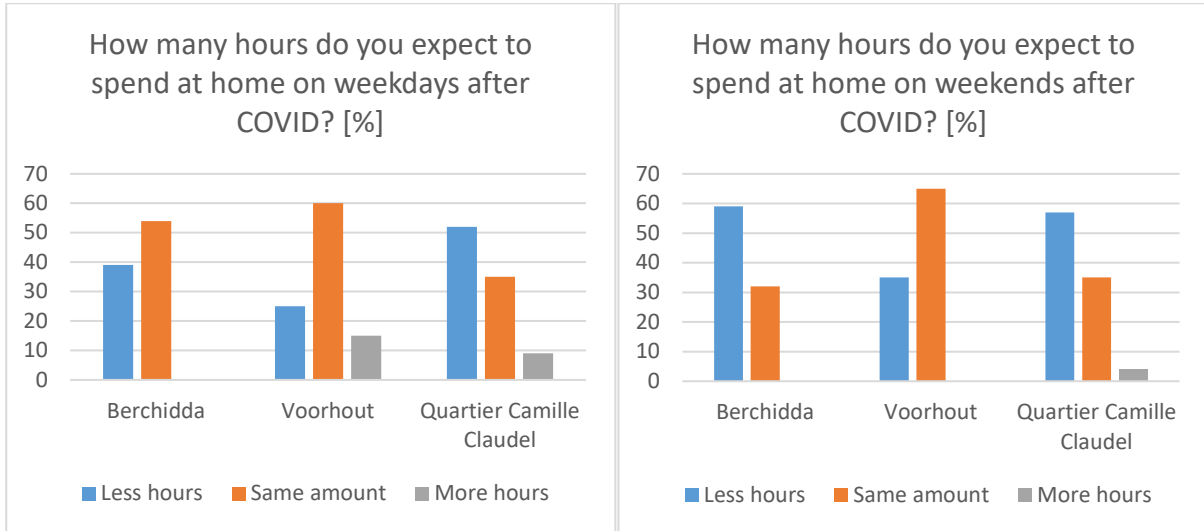


Fig. 4: Hours expected to spend at home on weekdays and weekends after Covid-19, n=154

Concerning the return to 'normality', the respondents were asked to answer how many hours they expected to spend at home after the Covid-19 restrictions are lifted compared to the time before Covid-19. What is worth noticing is that across the pilots, respondents expected to spend less or the same amount of hours at home in both weekends and weekdays. This indicates that respondents somehow perceive a return to normality (in some ways). Differences are though visible among the pilots, with respondents in Voorhout and Camille Claudel expecting to spend a bit more hours at home compared to 0% in Berchidda. This could also mean that many people in Camille Claudel might continue to work from home regularly. In that case, there are good opportunities for focusing on the introduction of time-shifting in households where people are planning to spend more hours on a weekly basis at home.

A major change to everyday life for many people related to Covid-19 is working from home, and as shown in the figures above, respondents across all pilots have indicated that they have spent more time at home during weekdays. Table 12 shows whether the respondents worked from home prior to Covid-19 and if they expect to do so (and to what degree) after Covid-19. A majority of respondents from Berchidda (66% of respondents themselves and 78% for their partners) indicate that they never worked from home prior to Covid-19. The same trend is visible in terms of their expectations for working after Covid-19. It is though worth noticing that a rather large percentage of the respondents in Berchidda (28%) are unsure about this, indicating some uncertainty about the impact that Covid-19 has had on their working conditions. Respondents from both Voorhout and Camille Claudel differ in relation to Berchidda, in that they answered that they did work from home before Covid-19 and also expect to do so after Covid-19. One thing to note is though the percentage of pensioners in the Voorhout sample, implying that the findings should be seen in light of this.

<b>Working from home before Covid</b>	<b>Berchidda [%]</b>	<b>Voorhout [%]</b>	<b>Camille Claudel [%]</b>
No, never	66%	35%	39%
Yes, but only occasionally / in special circumstances	19%	10%	26%
Yes, I worked from home regularly (please state how often)	1%	15%	25%
Yes, I worked from home full-time	4%	20%	0%
I'm not in paid work	10%	20%	9%

Table 12: Working from home prior to Covid-19 restrictions, n=152 (Rounding to one decimal has been applied, thus not adding to 100 %)

<b>Working from home after Covid-19</b>	<b>Berchidda [%]</b>	<b>Voorhout [%]</b>	<b>Camille Claudel [%]</b>
No, I think I will work from home the same amount as before Covid-19	58%	32%	13%
Yes, I think I will work from home occasionally, but less than 1 more day a week	4%	0%	17%

Yes, I think I will work from home 1-2 days more a week	3%	26%	30%
Yes, I think I will work from home 3-6 days more a week	1%	0%	9%
Yes, I will work from home permanently	4%	0%	0%
Don't know	28%	5%	4%
Other (please specify)	3%	37%	26%

*Table 13 Working from home after Covid-19 restrictions, n=150*

Summing up in relation to the extraordinary implications that Covid-19 has had on occupants' everyday life, it seems evident that the respondents across the three pilots have spent much more time at home (both during weekdays and weekends) during the current Covid-19 situation. Differences are visible between the pilots, with respondents from Berchidda having spent less time at home and also do not expect to spend more hours at home after the Covid-19. The reasons for this could be many, including the context-dependent lockdown and related restrictions, which have been issued across the different samples. Another and maybe more plausible explanation could be the occupational status of respondents, with respondents from Berchidda possessing jobs that make it more difficult to work from home.

The interest in the Covid-19 situation is related to the increased time spent in the home and the related energy consumption that may occur as a result. With occupants being in the home, one could speculate a change in the organization of everyday practices. Table 14 provides some insight into which practices that respondents expected to have changed due to the Covid-19 situation. The majority of respondents (across all pilots) do not expect routines to have changed, which provides an interesting finding in itself. This could indicate that some practices performed in everyday life are so 'sticky' that respondents do not expect them to have changed despite the Covid-19 situation. Looking more into detail, two routines stand out: shopping and the use of ICT devices. Both have a relatively high percentage across pilots. Differences are also visible across the pilots, with cleaning (19%), shopping (29%), cooking (14%), using ICT devices (25%) and a rather large percentage of 'don't know' (36%) visible in Berchidda. In Voorhout a more evenly split is visible, with about 10% indicating that they expect changes to cleaning, shopping and cooling routines. The use of ICT devices also stands out here. Interestingly respondents from both Voorhout and Camille Claudel do not expect laundering routines to change. In the latter, most respondents indicate that they expect shopping (26%), cooking (22%), heating (13%), cooling (13%) and the use of ICT devices (43%) to have undergone change.

Routines	<b>Berchidda [%]</b>	<b>Voorhout [%]</b>	<b>Camille Claudel [%]</b>
Cleaning	19%	11%	4%
Shopping	29%	11%	26%
Laundering	11%	0%	0%
Dropping off/picking up children	4%	5%	0%
Cooking	14%	0%	22%
Heating	10%	5%	13%
Cooling	3%	11%	13%
Using ICT devices	25%	21%	43%
Don't expect routines to change	36%	53%	43%
Don't know	20%	5%	4%
Other	2%	11%	13%

*Table 14: Which of the following daily routines do you think will have changed after the Covid-19 restrictions (e.g. lockdown)? (e.g. lockdown), multiple answers (not adding to 100%)*

### 5.3.3 Everyday energy-related household routines

An interest in the survey has been to gain insight into how energy-related practices are organised and performed by respondents across the three different pilots. Focusing on heating, cooling and appliances-engaged practices, this next section aims to make a profile of how practices are performed and also by whom. The interest in understanding how practices are performed (and organised) is also to identify 'moments' or



‘windows’ for possible intervention and thereby identify the potential for flexibility. The results of this survey provide some of these insights and also form a basis for more in-depth investigating through the rest of the interactions planned in Hestia.

### 5.3.3.1 Cooling

While the need for cooling varies in relation to both climatic zones and cultural norms, it remains a practice that many occupants perform. The three different pilots are located across different climatic zones and include very different building typologies, which could hint at a need for more cooling within the home in some cases compared to others. Table 15 provides some insight on how cooling is performed and which technologies that include. Results show that most respondents indicate that they actually cool their home when it feels too warm. Difference do appear between the pilots with 14% in Voorhout indicating that they do not cool their home. An interesting aspect of table 15 is that it shows the different ways that respondents cool their home, when it feel too warm. Across the different pilots, respondents answered that they use different technics and technologies/materiality in order to cool their homes. In Berchidda, opening windows/doors (47%) and using an air conditioning unit (44%) is most widespread. In Voorhout, opening windows/door (43%) and using external shading (33%) is most prevalent. Notice the large percentage of respondents answering ‘other”, giving qualitative answers that they use an installed heat pump to cool their homes. In Camille Claudel, opening windows/doors (74%), electric fans (26%) and external shading (67%) is most widespread. In total, the ways of cooling the house differ widely across the pilots, with the only similarity being opening windows and doors.

How do you cool your home when it feels too warm?,	<b>Berchidda [%]</b>	<b>Voorhout [%]</b>	<b>Camille Claudel [%]</b>
Open windows/doors	47%	43%	74%
Air conditioning unit	44%	14%	4%
Electric fans	22%	0%	26%
External shading	4%	33%	67%
I don't cool the home	9%	14%	0%
Other (please specify)	2%	57%	4%

Table 15: How do you cool your home when it feels too warm?, multiple answers (not adding to 100%)

Giving a special interest in respondents who use air-conditioner or electric fans to cool their homes (due to the energy demand of these services), two questions related to the use of such were asked (See table 15- 16 in the appendix). The frequency of using the air-conditioning or electric fans is highest in Berchidda, with Voorhout and Camille Claudel using it less often (and maybe indicating that they do not have these technologies and cool their homes through other means). Similarly, the findings suggest that the most prominent way of cooling is by opening windows/doors. It is worth noticing that respondents (42%) from Voorhout indicate that cooling turns on automatically if the temperature reaches a pre-set set-point. In Voorhout 47% also note that they use 'other' ways of cooling, giving qualitative answers on the use of heat pump and floor cooling. In Berchidda respondents using electric devices for cooling are more prominent, as most indicate that they cool their homes in the afternoon or evening. Camille Claudel respondents mainly indicate that they either open windows/doors or turn on fans in the evening.

### 5.3.3.2 Heating

Heating is another area of energy consumption which usually amounts to a rather large percentage of a household's total energy use, and was therefore also given interest in the survey. Again, it is important to remember that the need for heating varies in relation to cultural norms, climatic zones and building typologies. Table 16 shows when heating is performed across the pilots. In Voorhout (74%) and Camille Claudel (52%), a majority of the respondents, indicate that their heating installations turn on automatically when the temperature falls below a pre-set set-point. This could indicate certain heating technologies in place, and becomes interesting when comparing it to Berchidda where only 11% indicate that their heating turns on automatically. In Voorhout and Camille Claudel, roughly 1/4 of the respondents indicate that they turn on the heating all day, which also could reflect that they do not engage directly with their heating installations, which is controlled by a thermostat. However, there are limitations in regards to the question of turning the heating on all day. The aim of the survey was to understand the intentions of controlling the heating source of the household, However, by indicating they turn the heating on all day, does not necessarily mean that heating is actively on during the whole day. There could have been some uncertainty perhaps between choosing the answer of turning the heating on all day and the answer of heating automatically going on through the use of a thermostat. The picture is a bit more diverse in Berchidda, where respondents engage more directly with their heating installations, turning it on at various times of the day, though mostly in the afternoon and evening. In Camille Claudel (30%) and Berchidda (29%), a substantial amount of respondents also indicate that they turn on heating when feeling cold, indicating a more ad-hoc approach.

	<b>Berchidda [%]</b>	<b>Voorhout [%]</b>	<b>Camille Claudel [%]</b>
I turn the heating on all day	11%	26%	22%
I turn the heating on in the morning	5%	0%	9%

I turn the heating on in the afternoon	21%	0%	0%
I turn the heating on in the evening	32%	0%	9%
I turn the heating on when I am cold	29%	0%	30%
The heating turns automatically on when the temperature falls below a set temperature	11%	74%	52%
Don't know	6%	0%	0%
Other (please specify)	5%	11%	9%

Table 16: In what ways do you typically heat your home on an average day when heating is required?, n= 147

### 5.3.3.3 Dishwashing

Turning to the more appliance-specific practices, table 17-18 provides insight into when dishwashing is conducted across the three pilots. In table 17, what is worth noticing is that a substantial amount of respondents in Berchidda (30%) do not have a dishwasher, with the same percentage being 11% in Voorhout and 13% in Camille Claudel. Generally, those respondents who have a dishwasher use it several times a week. Table 18 shows that respondents mainly run the dishwashing in relation to having a meal and later in the day such as after the evening meal or before going to bed. Worth noticing is that only a smaller percentage of the respondents indicate that they follow tariffs. Answers giving in relation to tariffs should be considered in the light, that maybe tariffs are not available to respondents. This question is not covered by the survey.

	<b>Berchidda [%]</b>	<b>Voorhout [%]</b>	<b>Camille Claudel [%]</b>
Less than one time a week	4%	5%	0%
A few times a week	18%	47%	61%

Once a day	41%	37%	26%
Twice a day	5%	0%	0%
More than 2 times per day (please specify)	0%	0%	0%
We don't have a dishwasher	30%	11%	13%
Don't know	1%	0%	0%

Table 17: On average, how often does your household run your dishwasher?, n=135

	<b>Berchidda [%]</b>	<b>Voorhout [%]</b>	<b>Camille Claudel [%]</b>
When we wake up	3%	6%	5%
After lunch	9%	0%	10%
After breakfast	25%	0%	20%
After the evening meal	29%	65%	45%
Before we go to bed	35%	24%	10%
We follow the peak/off peak times to plan it	8%	0%	15%
At other times (please tell us when)	0%	6%	15%

Don't know	5%	0%	0%
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*Table 18: When does your household run your dishwasher? (tick as many as possible), n=106 (question has only been asked to respondents who have a dishwasher)*

#### 5.3.3.4 Washing and drying clothes

Another area of interest are activities related to washing and drying clothes. Tables 19-21 provide insights on these. Contrary to the dishwasher, almost all respondents indicate that they have a washing machine. Furthermore, and especially in Berchidda and Voorhout, the washing machine is run quite frequently (more than three times a week). The majority of clothes washing is done equally between weekdays and weekends, with some difference between the pilots sites. The way of drying clothes shows a somewhat more diverse picture and ways of doing so varies across the pilots. In Berchidda most respondents (74%) indicate that hanging to dry outdoors is their normal practice, with respondents from Camille Claudel (70%) indicating that they mainly dry clothes indoors. In Voorhout 56% indicate that they usually use a tumble-dryer for drying clothes. The different ways of drying clothes could be related to different factors such as climatic zones (Italy having a warmer climate making it optimal for drying clothes outdoor), to building typologies (smaller apartments in Camille Claudel making it most convenient to dry clothes indoors) or to the technological installations in the different places (Voorhout being newly built and maybe more people having a tumble dryer). Overall, respondents across all pilots seem to follow a seasonal natural rhythm in regard to drying clothes, following the weather and using common sense about when they should use their dryer appliances, rather than do it routinely out of habit. However, the question is (following Walker 2014) how we can synchronise natural and social rhythms of these practices in each pilot, in order to successfully integrate them in both the social expectations and demands as well as the natural or climatic conditions.

How often does your household on average run your washing machine?	<b>Berchidda [%]</b>	<b>Voorhout [%]</b>	<b>Camille Claudel [%]</b>
Once a month	0%	5%	4%
Twice a month	0%	0%	0%
Once a week	4%	0%	22%
Twice a week	12%	16%	30%

Three times a week	46%	47%	22%
More than three times a week	34%	32%	17%
We don't have a washing machine at home	1%	0%	0%
Don't know	2%	0%	4%

Table 19: How often does your household on average run your washing machine?, n=135

When does your household on average run the washing machine?	Berchidda [%]	Voorhout [%]	Camille Claudel [%]
On weekdays (Monday-Friday)	11%	26%	30%
On weekends (Saturday and/or Sunday)	17%	5%	17%
Equally on weekdays and weekends	72%	68%	48%
Don't know	0%	0%	4%

Table 20: When does your household on average run the washing machine, n=132

How does your household usually dry clothes?	Berchidda [%]	Voorhout [%]	Camille Claudel [%]

Use a tumble dryer	35%	56%	35%
Hang to dry outdoors	74%	32%	43%
Hang to dry indoors	25%	32%	70%
Don't know	2%	0%	0%
Other (please specify)	0%	26%	0%

Table 21: How does your household usually dry clothes? (tick as many as relevant), n=138

### 5.3.3.5 Ironing

A last appliance-specific practice included in the survey is that of ironing. Tables 22-23 provide insights on the practice. The frequency of ironing varies across the pilots, with respondents from Berchidda indicating that they use the iron on a weekly basis, but a less frequent use in Camille Claudel. Respondents from Voorhout show a somewhat distributed frequency, but less frequent than in Berchidda and more than in Camille Claudel. In relation to the times of the day when ironing is done, a similar trend is visible across the pilots. It seems that ironing is done both in the morning, in the afternoon and in the evening. What is evident, though, is that respondents do not seem to follow peak tariffs in relation to their ironing. Again, it should be noted, that it is not clear whether respondents are offered tariffs or not.

How often, on average, does your household use the iron?	Berchidda [%]	Voorhout [%]	Camille Claudel [%]
Never	10%	5%	26%
Once a month	13%	21%	30%
Once a week	27%	37%	30%
Twice a week	12%	11%	0%

More than twice a week	29%	16%	4%
Don't know	4%	5%	4%
Other (please specify)	4%	5%	4%

Table 22: How often, on average, does your household use the iron?, n=132

On average when does your household do the ironing?	Berchidda [%]	Voorhout [%]	Camille Claudel [%]
In the morning	23%	33%	18%
In the afternoon	33%	22%	29%
In the evening	35%	39%	29%
We follow the peak/off peak tariffs in order to do it	4%	0%	0%
Don't know	14%	6%	24%
Other (please specify)	0%	17%	6%

Table 23: On average when does your household do the ironing? (tick as many as relevant), n=121

### 5.3.3.6 Gendering of physical and cognitive household labour

An important theme in relation to the performance of energy-related practices is who carries these practices and what are the implications in regard to the gendering of everyday household practices, shown in figure 5 below. When assessing these findings, it is important to remember that the gender distribution is a bit skewed across the pilots (Berchidda representing more women and Voorhout and Camille Claudel representing more men). In Berchidda (49%) half of the respondents indicate that they themselves are responsible for the majority of the daily housework and about 1/3 of their partners are. The opposite trend is visible in Voorhout, though not



as strong. In Camille Claudel the split seems more equal, though with an underrepresentation of the partner/another member of the household performing the majority of daily task. The findings indicate that in pilots where there's an overrepresentation of men in the sample, daily housework is more likely to be conducted by the partner or being equally shared. Contrary, in Berchidda the division of housework is more equal, though the respondent is usually in charge.

Figure 6 below refers to the planning of tasks and responsibility of household decisions and the trend seen in figure 5 is not the same. In Berchidda, respondents indicate that themselves or together with other members of the household are responsible for taking these decisions and a similar trend is seen at the two other pilot sites. Interestingly, fewer respondents indicate that their partner/another member of the household is responsible. This could indicate a bias in the survey, and one thus has to consider that the respondent filling out the survey does not necessarily provide an accurate picture of how planning/decisions are made.

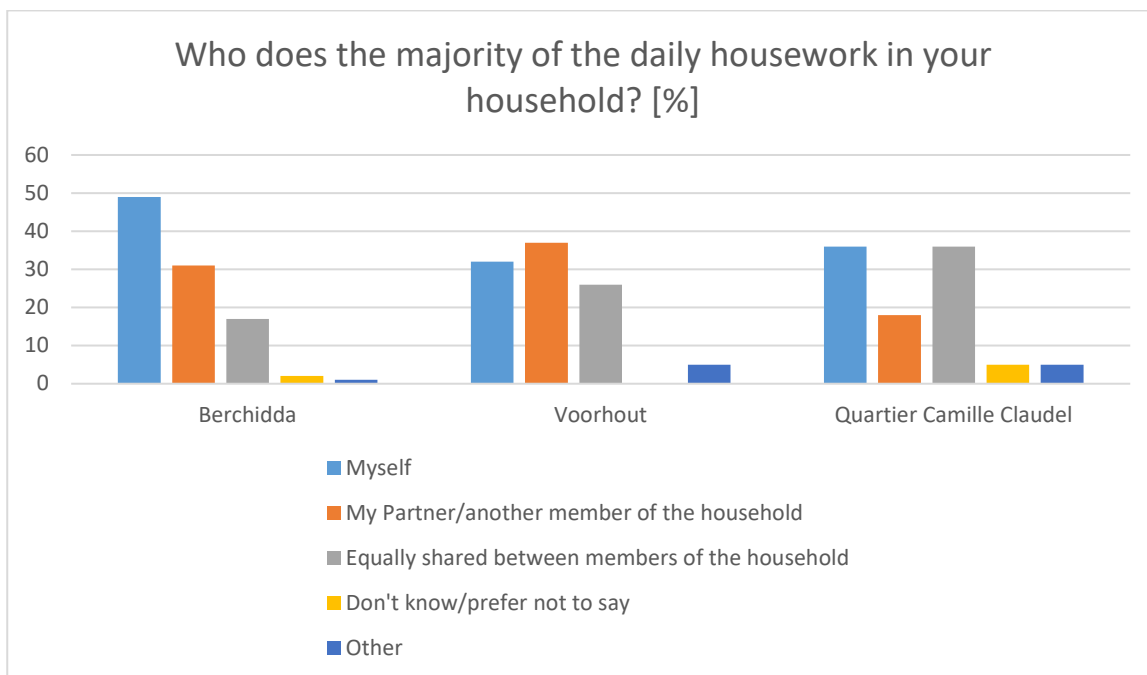


Fig. 5: On average, who does the majority of the daily housework in your household?, n=131

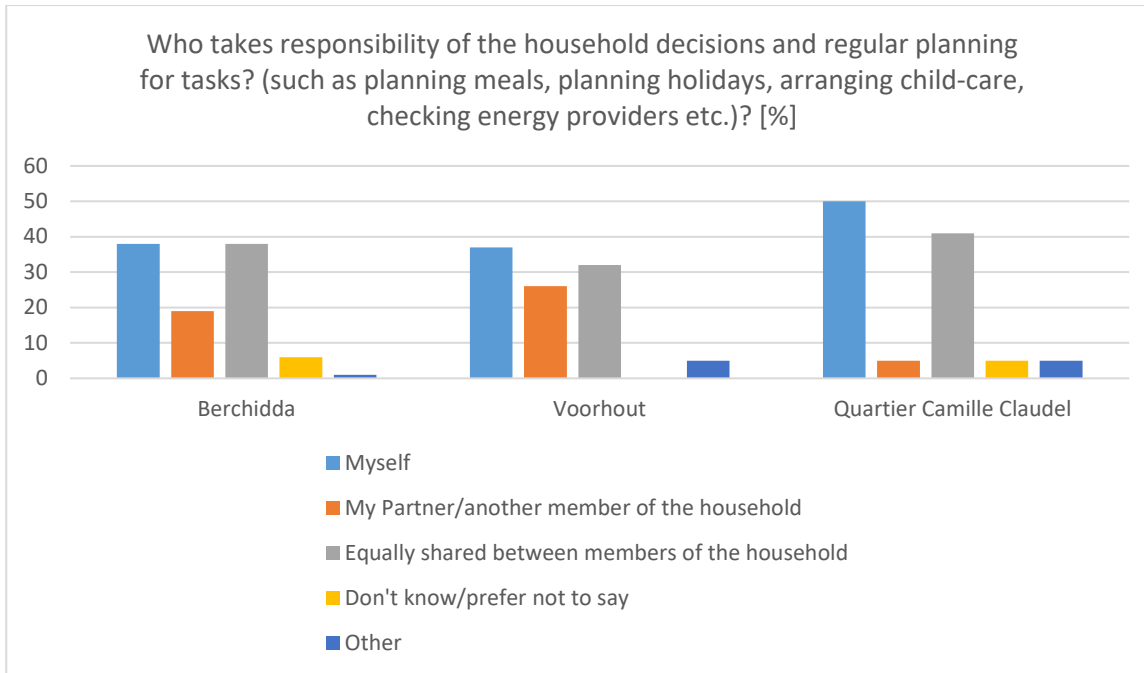


Fig. 6: On average, who takes responsibility of the household decisions and regular planning for tasks? (such as planning meals, planning holidays, arranging child-care, checking energy providers etc.), n= 131

### 5.3.3.7 Perceived flexibility in energy-related practices

The survey attempted to identify opportunities for change within the established everyday practices of households. Overall, the majority of the respondents' answers seem to belong to the category of 'neither difficult or easy' to change. One reason for this is that it might be difficult for householders to answer in a qualified way to such questions of change without giving them a specific context in which the materials, relevant know-how and meanings/reasons for adopting a different way of performing it are not defined. The "neutral" responses we observe can be partly due to this inability to imagine how a specific practice might change without knowing the elements that compose them (e.g. if they would need to use different appliances to perform them? Or would they need to learn new things in order to do so?).

Despite these limitations, we observe that some practices are perceived as easier to amend. For example, we find a willingness to adopt new habits in regard to washing clothes and in particular the times in a day. On the other hand, both the frequency as well as the times when people are showering/bathing are less negotiable. This is the case evenly across the pilots, despite the variation of employment status and time spent at home. Therefore, social norms and standards of personal hygiene seem to be less negotiable than cleanliness of clothes.

Furthermore, the times of dining are expressed as difficult to change, particularly in the Italian and the French pilot. A possible explanation is the cultural norms around food preparation and consumption, as a practice that brings together the members of a household and is of particular importance in these two pilots. Another interesting observation is the limited intentions that people have for changing the times they use ICT devices at home for leisure purposes. This can be explained as a possible side effect of the Covid-19 restrictions, when people spent a larger than normal amount of time at home, reducing their exposure to others and turning their

attention (and entertainment) to media and ICT devices. It is important to further investigate these intensions, overall across all practices mentioned in the survey, in order to understand in what ways people perform them currently and also to map how they imagine a possible change towards a more efficient performance of the practice. It is important to match people's lifestyle and their expectations with notions and visions of change in regard to energy-related everyday practices at home.

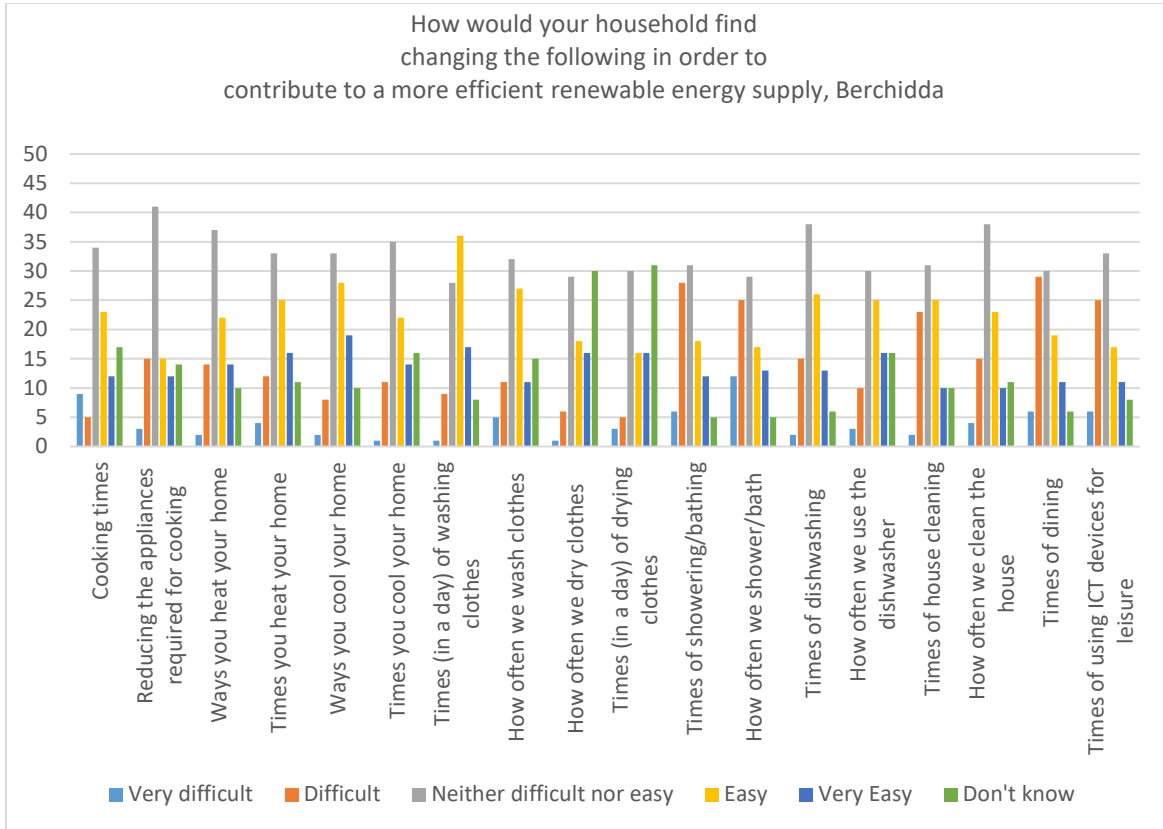


Fig. 7: Different household practices and potential for change in the Italian pilot

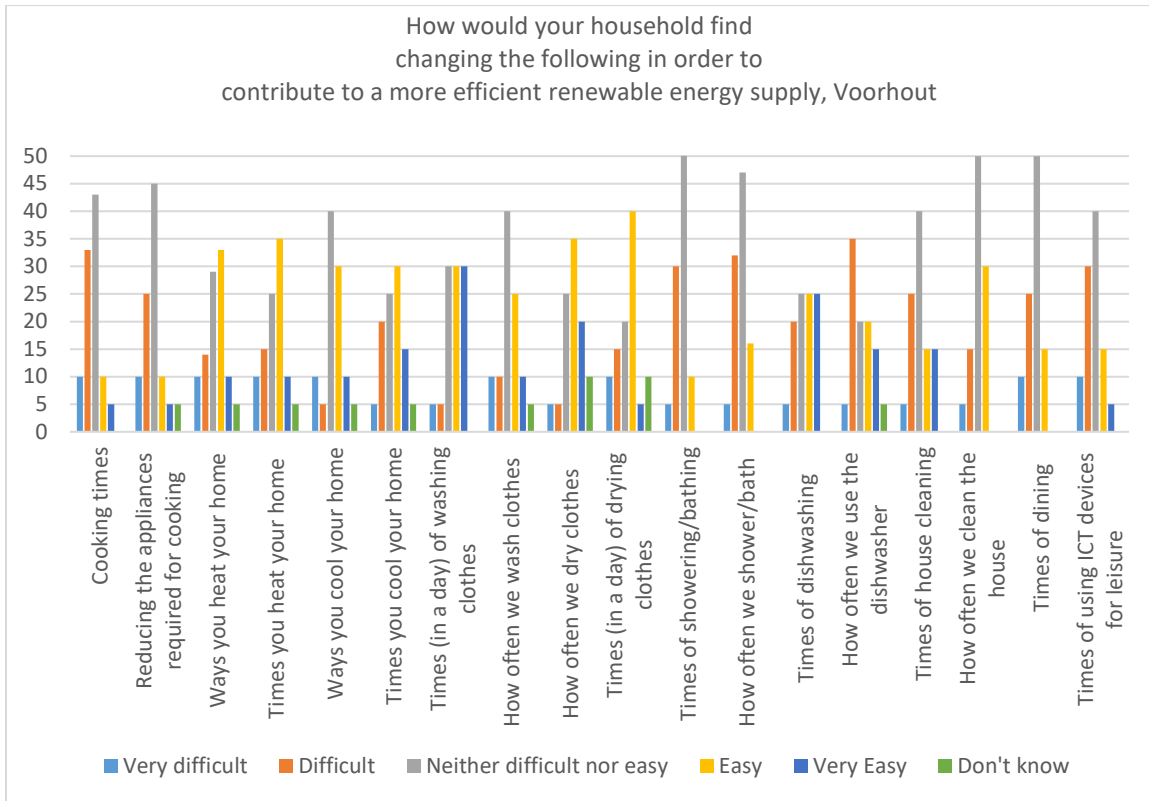


Fig. 8: Different household practices and potential for change in the Dutch pilot

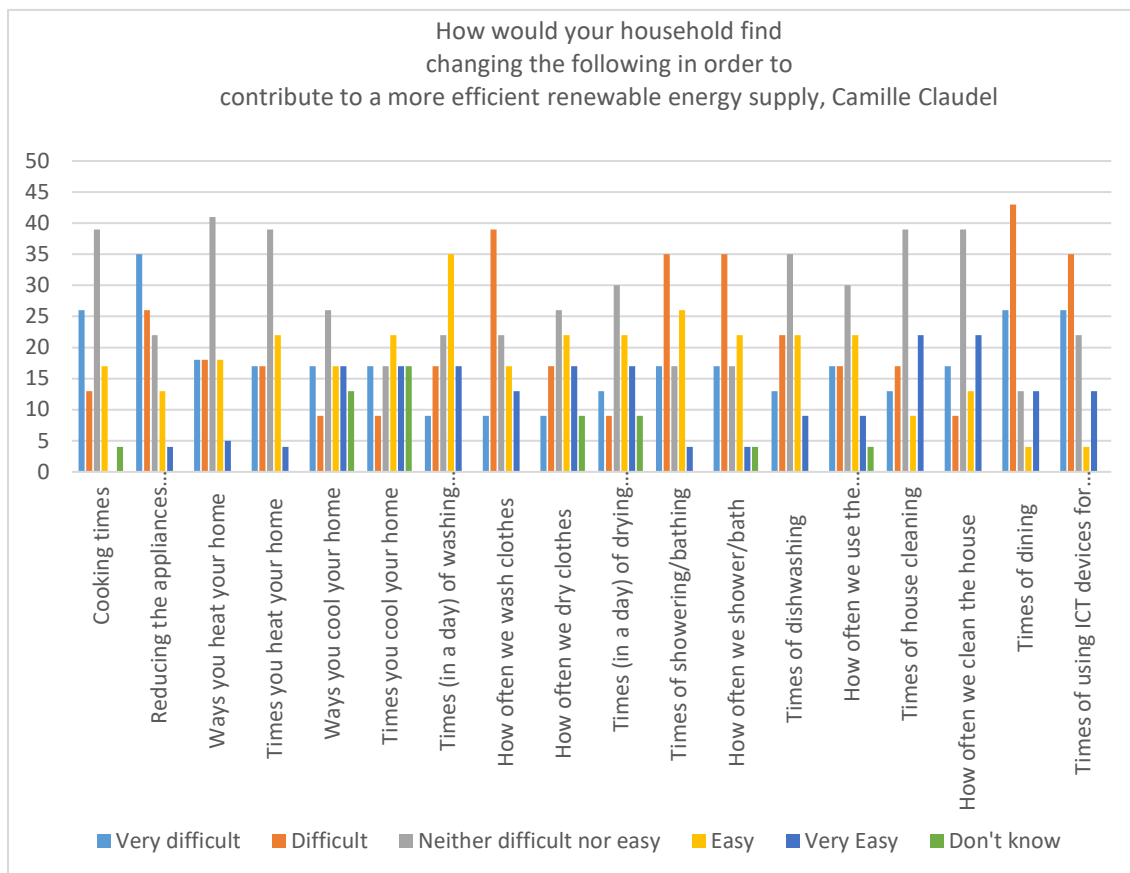


Fig. 9: Different household practices and potential for change in the French pilot, n=23

While washing clothes might be perceived as an easier practice to change (table 24), heating a home is less negotiable, in particularly the times in which people heat their homes, as seen in table 25 below. This is important to observe in order to understand that even if heating is a 'background' practice, often invisible since it is performed automatically in a large percentage of homes (particularly in the Dutch pilot), it is considered as an important element of control in households, and one that potentially could interfere with people's comfort. We need to therefore investigate further what are the elements that contribute to people's reservations in terms of changing their heating times and try to co-create (with participants) some form of scenario which involves how they achieve thermal comfort and what they perceive as comfortable (e.g. a certain temperature, atmosphere, or other sensory or emotional experience). Table 26 provides shows that shifting the times of bathing is considered difficult by most respondents.

To what extent do you agree with this statement: Our household would consider programming our washing machine and tumble dryer to run their cycle at another time in the day, following recommendations from a smart system	Berchidda [%]	Voorhout [%]	Camille Claudel [%]
Strongly agree	41%	11%	32%
Agree	49%	58%	32%
Neither agree or disagree	3%	11%	14%
Disagree	5%	11%	5%
Strongly disagree	0%	0%	14%
Don't know	2%	11%	4%

Table 24: Suggestions for changes for programming your washing machine and tumble dryer, n=127

To what extent do you agree with this statement: Our household would consider changing the times we heat our home in order to assist with energy loads in our community	Berchidda [%]	Voorhout [%]	Camille Claudel [%]
Strongly agree	22%	11%	18%
Agree	36%	32%	41%
Neither agree or disagree	22%	26%	27%
Disagree	15%	5%	5%
Strongly disagree	0%	11%	9%
Don't know	5%	16%	0%

Table 25: Suggestions for changing the heating times, n= 127

To what extent do you agree with this statement: Our household would consider changing the time we have a shower/bath in order to assist with energy loads in our community	Berchidda [%]	Voorhout [%]	Camille Claudel [%]
Strongly agree	16%	0%	14%
Agree	26%	26%	23%

Neither agree or disagree	25%	26%	18%
Disagree	24%	26%	18%
Strongly disagree	4%	21%	27%
Don't know	6%	0%	0%

Table 26: Suggestions for changing the times of showering/bathing, n=126

## 5.4 Smart energy systems and everyday life at home

### 5.4.1 Smart energy technologies awareness and ownership

Smart (energy) technologies are envisioned to play a vital role in future energy systems, enabling new forms for DR and ways of engaging occupants in modulation of energy demand. This survey was conducted prior to the baseline period in HESTIA and thus focused on existing knowledge on smart technologies, perceptions of their capabilities and which technologies that occupants already had in place. A core in many smart technologies initiatives is that of providing feedback to occupants on their energy consumption using different mediums. A range of questions in the survey thus also targeted the platform for receiving this information.

Table 27 below shows the respondents' perception of smart technologies across the three pilots. In general, the sample has a good knowledge or is confident about the concept of smart technologies. This is evident across the three pilots, although differences are visible. A majority of respondents from Berchidda and Voorhout expressed that they had either a general or good idea about smart energy technologies (Berchidda 54%, Voorhout 53%) and 37% indicating that they had a vague idea. In Camille Claudel, the respondents expressed a bit more uncertainty about the idea of smart energy technologies with 68% indicating that they had a vague or no idea about smart energy technologies.

Do you know what smart energy technologies are?	Berchidda [%]	Voorhout [%]	Camille Claudel [%]
I have no idea what they are	6%	11%	18%
I have a vague idea of what they are	37%	37%	50%

I have a general idea of what they are	32%	42%	23%
I have a good idea of what they are	22%	11%	5%
Don't know	4%	0%	5%

Table 27: Do you know what smart energy technologies are?, n=123

Do you use any of the following smart energy technologies? (Please tick all appropriate)	Berchidda [%]	Voorhout [%]	Camille Claudel [%]
Smart energy meter	10%	61%	18%
In-home digital display of energy consumption	10%	11%	18%
Automatic control of lighting	4%	22%	9%
No, I don't have any smart energy technologies	76%	11%	55%
Don't know	9%	22%	0%
Other (please specify)	0%	11%	9%

Table 28: Do you use any of the following smart energy technologies? (Please tick all appropriate), n=126

It is interesting to pay attention to the comparison of data between table 27, in which respondents were asked if they know about smart technologies, with the data in table 28, in which respondents were asked if they had any smart technologies at home. In Berchidda 76% indicated that they do not have any smart energy



technologies, making it interesting to compare with the same respondents actually stating that they have a quite good idea about the concept, despite not having any. Similarly in Camille Claudel, over half (55%) indicated that they do not have smart energy technologies, but contrary to Berchidda the respondents also indicated that their knowledge on these was lower. The opposite is visible in Voorhout where the majority of the respondents have some kind of smart energy technologies, with smart energy meters being the most prominent (61%). Smart energy meters also seem to be the most widespread technology in respondents homes across pilots, but automatic lighting control (22% in Voorhout) and In-home displays (18% in Camille Claudel) are also relatively widespread.

#### 5.4.2 Smart energy technologies expectations and benefits

While respondents in the sample generally expressed a good knowledge on the idea of smart energy technologies, results also show that many respondents do not own any smart technologies, and it therefore remains interesting to look at the expectations for what smart energy technologies can deliver. Figure 4-6 provides some insight into some of the narratives that surround the potential benefits of smart energy technologies. Respondents were asked about their perception of the purpose of smart energy technologies. At a glance, respondents across the pilots generally had positive expectations for smart energy technologies and most perceived that they could help saving money and energy, while also making everyday life more comfortable and convenient. Delving deeper into the answers from the different pilots, differences though emerge. In Berchidda, respondents were generally positive towards smart energy technologies, with the potential for saving energy and money having the highest score. While remaining largely positive, the answers regarding the convenience narrative (saving time, making things easier to use) were a bit more mixed. In Voorhout a similar trend was visible, with energy and monetary savings scoring highest, but also a belief in smart energy technologies being able to deliver comfort, caring and convenience. The latter was though a bit more mixed. Camille Claudel shows the most diverse set of answers in relation to the purpose of smart energy technologies. While the respondents remained quite positive in general, and especially in relation to energy and monetary saving, answers also showed that respondents did not necessarily believe that smart energy technologies were able to bring convenience, security and care.

Across the three pilot, the expectation towards smart energy technologies were mainly that they would be able to bring monetary and energy savings, and a less visible trend were visible in relation to the potential benefits of convenience, comfort, care and security. The findings presented in the figures should be read with a possible bias in mind. While the results shows, respondents were generally positive towards what to expect from smart energy technologies, this could though also be due to the design of the questions, portraying only positive narratives of having smart home technologies.

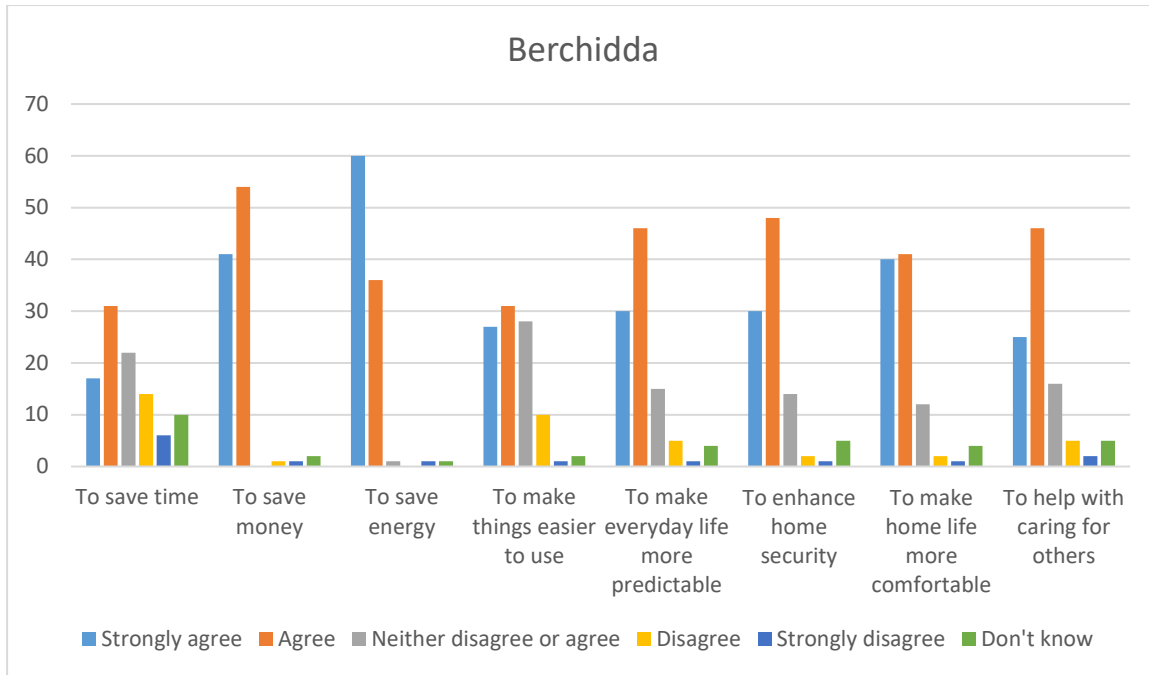


Fig. 10: The purpose of smart technologies according to respondents in the Italian pilot, n=82

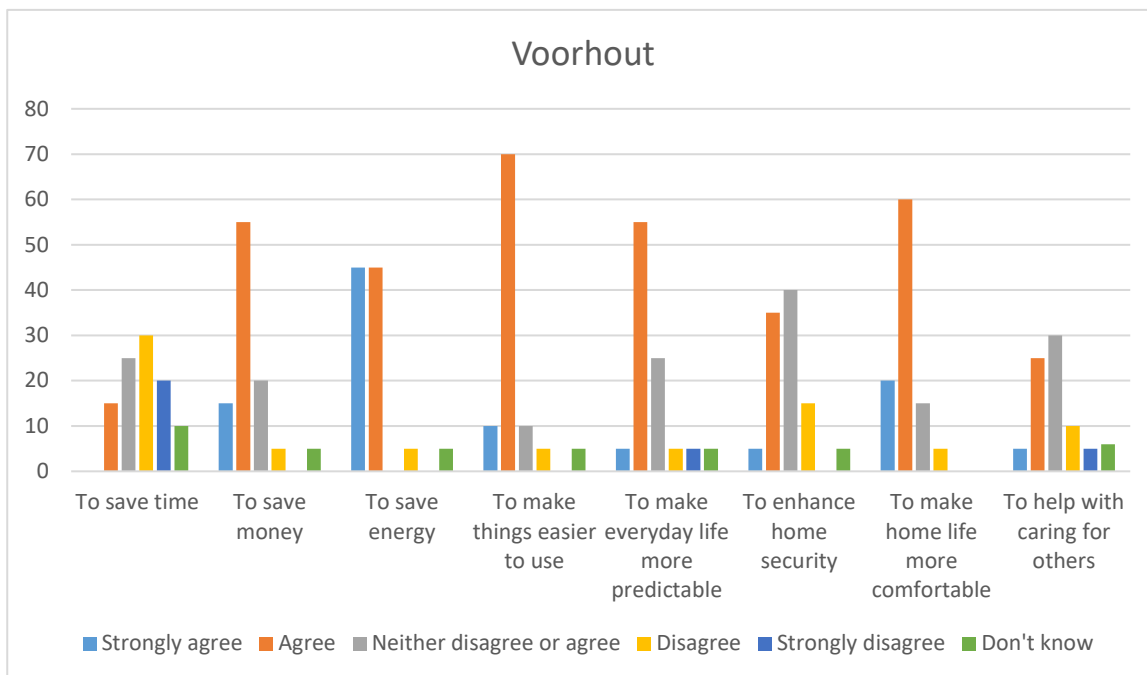


Fig. 11: The purpose of smart technologies according to respondents in the Dutch pilot, n=20

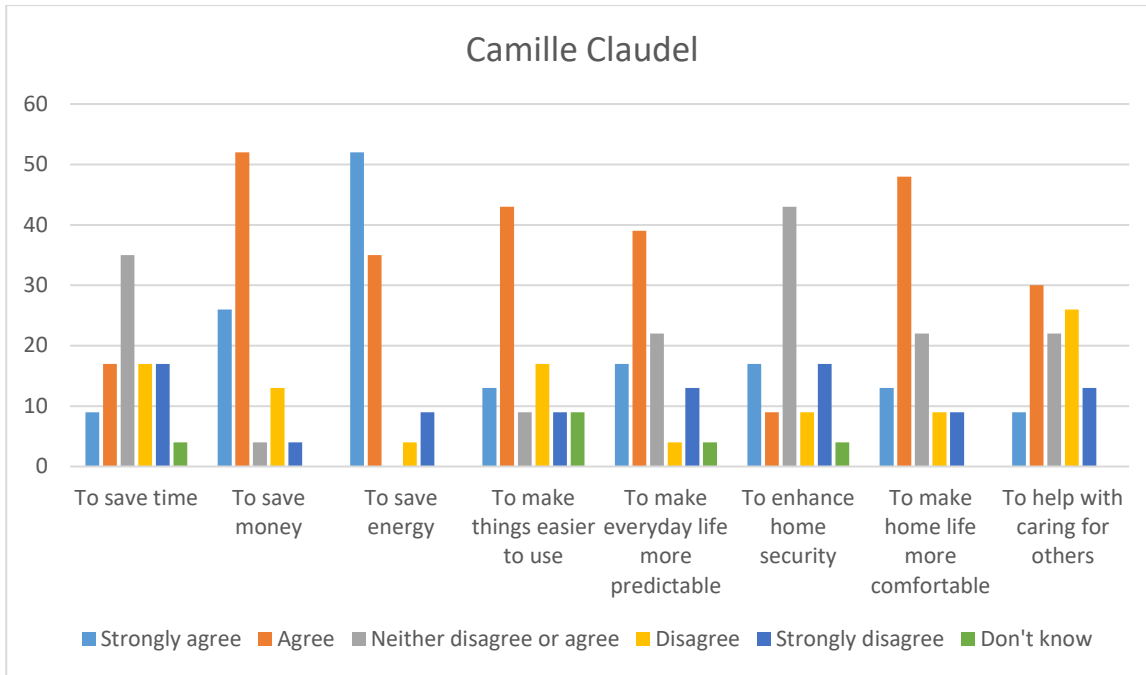


Fig. 12: The purpose of smart technologies according to respondents in the French pilot, n=23

### 5.4.3 Smart energy technologies management and control

As previously mentioned, an important part of the DR setup is to provide feedback to householders in order to make manual or automatically load-shifts. Table 30 indicates whether respondents currently monitor their energy consumption using a smart meter or another smart device. Giving that many respondents (in table 29) indicated that they do not have a smart meter or another feedback device at home, the findings should be read in that light. It is therefore not surprising, that 50% of respondents from Voorhout indicate that the monitor energy consumption using a smart energy technology and contrary the percentage being lower in Berchidda (18%) and Camille Claudel (36%). Interestingly, in both Berchidda and Camille Claudel is seems that the percentage of respondents that have a smart meter or similar actually uses it in order to monitor energy consumption. This is not the case in Voorhout, were the percentage that uses the smart energy meter or similar, is lower than those who have one.

Do you or any other member of your household monitor your energy consumption through a smart meter or other device?	Berchidda [%]	Voorhout [%]	Camille Claudel [%]
Yes	18%	50%	36%

No	76%	44%	55%
Don't know	6%	6%	9%

Table 30: Do you or any other member of your household monitor your energy consumption through a smart meter or other device (such as a Home Energy management system)?, n=12

Table 31 provides additional insight into those respondents that indicated that they do monitor their energy consumption through a smart energy technology. Interestingly, it seems that a large percentage, across all three pilots, actually never monitor their energy consumption through these devices, especially in Berchidda with 43%. The second trend visible in table 46, is that respondents seem to monitor their energy consumption on these devices rather rarely (once a month) or in relation to getting a bill. Voorhout stands a bit out, with some respondents indicated that they monitor their energy consumption on a weekly and even daily basis.

How often do you monitor your energy consumption through an in/home device or display?,	Berchidda [%]	Voorhout [%]	Camille Claudel [%]
Every day - multiples times	1%	6%	0%
Every day - once a day	6%	12%	10%
Between 4-6 times a week	0%	6%	0%
Between 2-3 times a week	1%	6%	0%
Once a week	1%	6%	5%
Once in a fortnight	3%	6%	0%
Once a month	15%	6%	20%
Less than once a month	3%	6%	5%

I check it when I receive a bill	22%	0%	25%
I never check it	43%	24%	35%
Don't know	4%	6%	0%
Other (please specify)	0%	18%	0%

*Table 31: How often do you monitor your energy consumption through an in/home device or display?, n=113*

Another way for some householders to receive feedback on their energy consumption, it by using an app or web application that allows them to monitor their energy consumption. These services are usually provided as a service by their utility company. A clear trend is visible in Berchidda and Camille Claudel were the majority of respondents do not have this service. In Voorhout the trend is different, with more that 50% indicated that they are able to use some kind of service (app or web based) in order to monitor their consumption). In Camille Claudel around 1/3 also indicate that they have access to a service.

In relation to the specific insights of monitoring energy consumption using a smart energy platform or service provided by the utility or similar, the survey also provided some findings in relation to general monitoring of energy consumption, including that done in a more manual manner. Table 32 provide some insights on who performs this task (if they do). One's again it remains interesting to see, that a quite large percentage across all three pilots sites actually do not check energy consumption (26% in Berchidda, 29 In Voorhout and 18% in Camille Claudel). Turning to the different roles within the household, and taking into consideration the representation of household member in the survey, an interesting finding is also that the respondents mainly indicated that they were the one responsible for monitoring the energy consumption. This seem especially clear in Voorhout and Camille Claudel, where an overrepresentation of men were present in the survey. This could indicate a gender bias in relation to monitoring of energy consumption as a task. Table 33 expands this trend in relation to the control of smart energy devices within the home and whom were in charge of performing this task. Again, it has to be considering that many respondents in Berchidda did not have such devices (65%) and to some extent also in Camille Claudel (32%). Looking at the percentages for those who indicated that they had smart energy devices, it is again worth noticing that there seems to be an overrepresentation of respondents themselves being responsible for performing task related to the control of such (especially in Voorhout) indicated that it may be a male dominated task.

<i>Who usually checks the energy consumption of your household? (Please select all that apply)</i>	<b>Berchidda [%]</b>	<b>Voorhout [%]</b>	<b>Camille Claudel [%]</b>
Myself	49%	61%	55%
My partner/another adult member of the household	30%	0%	27%
My children	0%	0%	0%
We don't check our energy consumption	26%	28%	18%
Don't know	3%	0%	0%
Other (please specify)	1%	11%	5%

Table 32: Household members checking their energy consumption, n=124

Who usually controls or is in charge of your smart energy systems or devices?	<b>Berchidda [%]</b>	<b>Voorhout [%]</b>	<b>Camille Claudel [%]</b>
Myself	21%	83%	36%
My partner/another adult member of the household	10%	6%	18%
My children	0%	0%	0%
We don't have smart energy systems or	65%	11%	32%

devices			
Don't know	5%	6%	9%
Other (please specify)	4%	0%	5%

Table 33: Control of smart energy systems or devices, n=121

Going forward and looking into perceptions of smart energy systems for monitoring energy consumption, a last set of questions were aimed at preferences for platform for conducting monitoring of energy consumption. This information could be used in developing future smart energy initiatives to be deployed within the respondents' homes. From table 50 a clear trend is visible across the pilots, with a preference for a smart phone application (especially in Bechidda and Voorhout) and secondly a fixed device in the home (e.g. a in-home display).

#### 5.4.4 Living with smart technologies

The existence and integration of technologies and their devices at homes in the three pilots is important to map and analyse in order to better understand to what extent they permeate people's lives, especially in regard to energy-related everyday practices. Some practices are completely device or appliance dependent, such as washing clothes, while others can be using energy but in a more 'background' and invisible mode, such as heating. Further to the appliances present in the homes, several ICT devices are integrated in people's everyday life, in and out of the home, and co-shape the way they perform their activities. Smart mobile phones are a good example of this, which suggests that people are using their phones not only for communication purposes but for leisure, control of energy-appliances, work and even parenting. Mobile phones are found to be the most convenient way to monitor household energy consumption (see table 33 below). One explanation of this might be that mobile phones are familiar to most people across different ages, they are easy to use, accessible and, of course, mobile, which means that people could use them to monitor or control their consumption remotely.

What would be the most convenient way to monitor and/or plan your energy consumption?	Berchidda [%]	Voorhout [%]	Camille Claudel [%]
A smart phone application	60%	61%	32%
A desktop application	0%	0%	18%
Another mobile device	4%	6%	0%

A fixed device somewhere in the home	30%	28%	36%
Don't know	6%	6%	9%
Other (please specify)	0%	0%	5%

*Table 33: What would be the most convenient way to monitor and/or plan your energy consumption?, n=121*

The concept of living with media and technologies at home involves the understanding of how people choose to domesticate these into their everyday lives, but also to what extent these devices and technologies shape the space of home. The survey did not focus on the space implications of media and ICTs in the home, however, it would be interesting to explore, through the future interactions, the ways in which ICT devices shape the performance of energy-related practices. For example it would be good to understand if and in what ways people shape their homes in order to accommodate technologies or they adapt technologies in the existing space and living routines of their homes. In a practice-theoretical perspective, media and ICTs can be considered as the materials of a practice, however, recent literature suggests that they can also be conceived as meaning-making actors and as competence-shapers of people (Aggeli 2021; Hunter 2019). It would be important to therefore understand to what extent media and ICTs co-shape the generation of energy demand at home. It would be interesting for example to understand how do people's perception of 'normality' for everyday life are shaped through media and technologies or and how they understand (and practically achieve) efficiency in their homes through technologies adopted. Connecting practices with specific technologies and devices presents an opportunity to focus on a meaningful way to discuss demand response with householders, rather than only focus on the sole use of technology (and devices) without an embedded function in people's established routines.

The survey aimed to uncover issues of trust in regard to the everyday use of media and ICTs. For example, table 34 provides some insight into who the respondents would reach out for in relation to possible problems with their energy system and getting advice on such. Across the pilots the energy provider/utility seems to be the most trusted to go to, if respondents were in need of help of advice. Still, a relatively large share of respondents would seek advice online, which could indicate that information would in some pilots (Voorhout and Camille Claudel) involve seeking out the information themselves on the energy providers website. So, ICTs become the intermediary through which people feel confident to solve problems. Another trend worth noticing is the amount of respondents who indicated that they would not know who to contact (especially in Voorhout and Camille Claudel), making this a possible area for improvement. Furthermore, respondents from Voorhout seem to make more use of friends and neighbours when needing advice and a few respondents indicated that they would still contact the developer/contractor if problem would arise. In Camille Claudel and Berchidda there were also a smaller percentage of respondents who would seek out help and advice on social media.



If you encounter problems or need advice about your energy system and its monitoring, who do you usually speak to?	<b>Berchidda [%]</b>	<b>Voorhout [%]</b>	<b>Camille Claudel [%]</b>
Our utility company	49%	33%	45%
Someone in the household	10%	0%	9%
A friend/ relative/ neighbour	9%	28%	9%
I seek advice online at the energy providers' website	17%	28%	27%
I seek advice online at social media	10%	0%	18%
Don't know	16%	28%	27%
Other (please specify)	4%	17%	5%

*Table 34: If you encounter problems or need advice about your energy system and its monitoring, who do you usually speak to?  
(tick all that apply, n=121)*

It is important to establish trust in the networks (physical and virtual) of DR provision, such as the energy service providers and their intermediaries, in order to allow for a collective and participatory vision to develop among householders, their communities, and the providers of services. The use of ICTs in everyday life needs to be explored further, focusing on the different age groups and household typologies in order to respond to emerging characteristics that can help shape more efficient, usable and meaningful interfaces for people.

## 6 Limitations and conclusion

The aim of the following section is to provide transparency to the sort of limitations related to the survey and concluding on the main findings. On a general level, using surveys in research has been criticised for involving a risk of (over)simplifying the complexity of everyday life. This is mainly due to the format of the survey (providing mostly fixed possibilities for answering) and the assumptions (and possible prejudices) going into the design of questions and their ordering. However, in the following the focus will not be to assess or discuss the general limitation of using surveys in research, but instead to assess the validity of the results drawn from the HESTIA household survey. In doing so, two main areas of limitations will be in focus, namely selection bias and response bias. Selection bias concerns sampling and representation, and response bias concerns the design of the survey (and if that produces biased answers).

### 6.1. Selection bias

#### 6.1.1. Sampling bias

If the results from the survey only represent a portion of respondents from the population and thus not others, it is important to reflect upon if results may be skewed. The household survey was disseminated within the three different pilots with an aim of capturing as many respondents as possible. From the start, the target population of the survey has been relatively well defined, but differences do exist between the pilots. In Voorhout, the survey population is very clear with only 36 households. In Berchidda (approximately 2000 inhabitants) and Camille Claudel (approximately 2000 dwellings), the target survey population is larger, but still quite clear as both are relatively small areas/cities. In these two pilots, the target population is however less well-defined.

A step in mitigating sampling biases is related to the dissemination of the survey. While the target population is rather well-defined, reaching potential respondents remains just as important as defining the target population. Given the socio-demographic and contextual differences between the pilots, dissemination of the survey was designed and carried out by the local pilot partners. Amongst the pilots, different platforms/methods for dissemination were used in order to tailor the survey dissemination to the local context. For example, in Voorhout, a letter mailed to households was chosen as the best option (getting a response rate of 70%). In Camille Claudel a mixture of dissemination methods was used, including a direct e-mail (to occupants who had answered another survey previously), embedding the survey link in the official newsletter of the local municipality and various social media platforms, and posting the survey link to the official municipality website. In Berchidda, dissemination of the survey included various platforms. The main focus was to use the official Facebook channel of the municipality to disseminate the survey. Dissemination was conducted in collaboration with the local municipality and city officials, and a local news outlet also shared the survey link in an article. In both Camille Claudel (approximately 3% response rate) and in Berchidda (approximately 7% response rate), the response rate was much lower than in Voorhout (70%). Though, the high response rate of the latter is due to the limited and well-defined population for the survey.

The aim of the survey has not been to gain statistically generalizable results, but instead to conduct profiles of energy-related practices within the three sites. While gaining a high response rate is helpful in increasing the validity of results, the main focus of the household survey has been to establish some internal validity (and thus not external/generalizability), i.e. understanding how practices are performed and organised.

Limitations related to the survey have to be considered, though. At first, a limitation is that the results cannot be used to generalise to the broader population. Despite this survey not being statistically representative, it has been useful as a tool to explore patterns of everyday practices of households and also for identifying areas for further investigation in regards to DR interventions.

Second, the methods used for dissemination also imply that only certain portions of the population have been engaged in the survey. Using social media for dissemination purposes can enable engagement across a large audience in a cheap and effective way. On the other hand, social media platforms can be exclusive and not representative for the population (e.g. older people tend to be less active on the internet than younger ones). In Berchidda, where Facebook was used as a main platform, the local municipality Facebook page was used for dissemination. This page can be regarded as rather trustworthy and e.g. shares information about important local initiatives such as vaccine rollouts. This implies that many occupants in Berchidda follow this page and it is therefore likely that many have seen the sharing of the survey.

One way of assessing in what way the sample is representative for the population, is by looking into the representation of respondents in the survey. In both Voorhout and Camille Claudel there is an overrepresentation of men, while the gender representation in Berchidda is almost balanced. This has to be taken in as a limitation, especially in the case of Voorhout and Camille Claudel. Furthermore, there seems to be a skewed age representation in Voorhout towards older respondents. Another possible skewed representation is visible in relation to the representation of different households, with two-person households being overrepresented and many respondents indicating that they do not have children. Again, it is worth noticing that the pilot population differs in relation to socio-demographic variables.

Another possible selection bias is related to non-responses. This sort of bias also relates to the actual representation in the sample as outlined above and in more detail in Chapter 5. It seemed that in some pilots (Voorhout and to some degree in Camille Claudel), non-responses were present in relation to younger people, women and families with kids. It could be related to whether the people answering the survey are those who have a prior interest in energy and related technologies, thus creating a gender and age bias. Furthermore, it should be assessed whether the respondents who answered the survey are the ones who want 'something off their chest' (i.e. they are either unhappy or happy about certain things). Judging by the written feedback to open-ended questions in the survey, it is difficult to get a clear picture of this. In Voorhout, however, feedback given in the survey indicate that many respondents express that they are unhappy about the technical installations in place in their homes, something which is not related directly to the HESTIA project.

A limitation in the survey has been the number of respondents who have dropped-out while answering the survey, indicating a possible bias. Initially, 289 respondents were part of the survey, but only 115 completed it in full. This indicates that 174 respondents dropped out in the course of answering the questions. In reporting, the results of the survey, each question (and the related table presenting the results) shows the number of respondents who have answered the question. Possible explanation for drop-outs could be the length of the survey or specific questions. Figure 13 below shows the number of respondents throughout the survey. The survey consists of three parts, and it seems that the largest number of drop-outs occurred during the first part, which concerned questions related to socio-demographic variables.

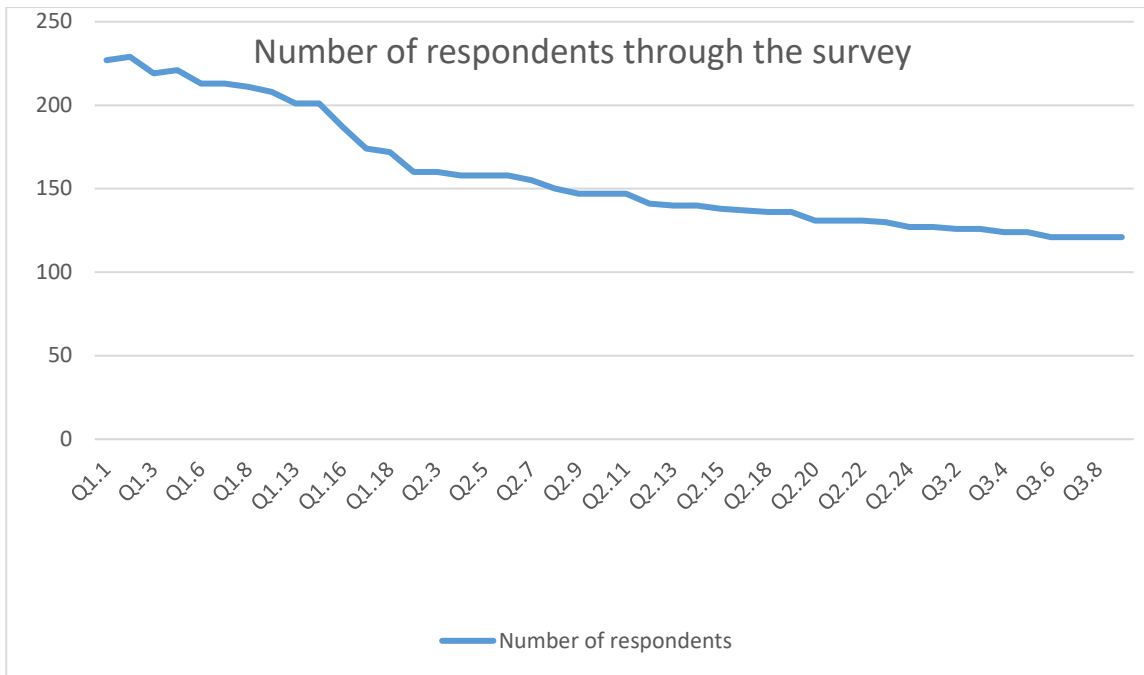


Figure 13: Number of respondents in the survey

Looking at the development depicted the figure above, it seems that drop-out of respondents is not necessarily related to 'survey fatigue', as most drop-outs are seen early on. Furthermore, it does not seem that a single question has resulted in a substantial number of drop-outs, although during the question 1.15 – 1.18, approximately 30 respondents dropped-out. These questions were specifically related to cooling.

In order to mitigate the above mentioned questions on possible bias', several measures were taken prior to the survey dissemination. The length of the survey was carefully designed, so that it was not too long and would result in too many dropouts or non-responses. The approximate time required to complete the survey was also included in the introductory text. However, it seems that the length of the survey might have been a problem for some respondents, as the survey saw a dropout of respondents (70) before the initial questions. This could of course also have other explanations. Another measure which was included was the mentioning of anonymity, which could encourage respondents to engage more and limit the number of non-responses.

## 6. 2 Response bias

A second major area of possible survey biases is related to response bias'. This concerns how the survey has been constructed and if the design encourages certain types of answers leading to possible bias. This area of possible biases in any survey are those which are closely related to the construction of questions. These concerns if the answers given can be regarded as accurate or honest. First, it is important to underline that when asking about energy-related practices, it is the perspective of the respondent that is presented. This implies that other household members might have answered differently. This has to be regarded as a limitation.

Another bias is related to the wording of the question and if answers can be regarded as accurate. The memory of respondents is something that has to be considered. When asking respondents about their everyday life before, under and after the Covid-19 restrictions, it might be difficult for some respondents to have an accurate memory of how their routines have changed. This also has to be regarded as a possible limitation.

Also, one more response bias relates to social desirability. For various reasons, respondents might want to conform to the norms, resulting less honest answers. This does not apply to all questions, but specifically those which are considered more personal in nature. In the household survey, questions surrounding the division of household labour and perceptions of renewable energy demand can to some extent be considered as such.

In order to mitigate response bias, several measures have been taken. Throughout the survey, the wording of questions has been neutral and answer possibilities are mutually exclusive and collectively exhaustive. Furthermore, the design of the survey has aimed at balancing open- and closed-ended questions. Questions has also been provided in different forms, varying between multiple-choice, text-boxes and the use of scale in order to avoid random answers caused by issues such as e.g. boredom. While the design of questions has aimed at being neutral and non-leading in the wording, some limitations should be considering when assessing the questions. The wording of some questions, e.g. 2.20, 2.21, 2.22 and 2.23, could be leading, as it portrays the shifting of routines as a good in order to contribute to a more “efficient renewable energy supply”. This could result in some respondent being more inclined to find this task easy. Likewise, the wording of question 3.1 could include a social desirability bias and 3.3 could involve bias of leading wording (one-sided depiction of smart energy technologies). This has to be taken into consideration as a possible limitation.

## 6.2 Conclusions

Having reviewed and analysed the data from the household survey, which was the first point of interaction with participants for Hestia, we have started to develop some insights about the participating households, in regards to their overall demographics and other socio-cultural characteristics, as well as the kind of homes they live in and the kind of practices they engage with.

The survey is a quick tool for building a basic picture of the kind of people and their homes that take place in a research project, however, it is also limited in terms of in-depth and qualitative understandings of why and how people do things in their everyday life. The following summarise the main conclusions and insights that we have developed through the answers that we received. These should be taken as a first step for understanding what kind of information and involvement is further required from our participants and as an indication of how we can best design these or co-create solutions with them.

### Overall context of all pilots:

First, the current conditions of Covid-19 have had an impact on all three pilot countries of our sample. Although people have indicated, as expected, that they have spent longer hours at home, the restrictions have not brought about major changes in the everyday practices of households focused on the survey. There are two exceptions on this:

- Changes in the ways that people do their shopping and
- Changes in the frequency and time they spend using ICTs at home.

However, when focusing on each of the pilots, Voorhout presents the largest percentage of people (59%) who suggest they expect overall no changes to their everyday practices after restrictions end, followed by Camille Claudel (44%) and Berchidda (36%). The French and the Italian pilots have indicated that cooking might also have changed after Covid by 20% and 14% respectively. Overall, there is an expectation by a large percentage of the respondents (40% overall) that after the lifting of Covid-19 restrictions, they will return to similar routines as

before. There is a level of uncertainty however, to what people will actually do after the Covid-19 restrictions are lifted, also indicated in the survey by a 15% of respondents stating that they do not know what will happen.

- The sample is characterised by a high number of single and 2 person households and there is a small representation of households with children. 77% of people live with a partner and 15 % of people live alone.
- The sample also appears to contain a high representation of people over 50 ( 47%), also 17% of respondents are retired.
- The gender representation is even in the overall number of respondents (48% for each female and male respondents), however, zooming in the pilots it appears that Berchidda is the only pilot in which the majority of respondents are female (51%), in comparison to Camille Claudel (43% ) and Voorhout (32% ) On the other two pilots men are holding the largest representation with 68% in Voorhout and 49% in Camille Claudel.
- The French pilot is characterised by a larger representation of apartments (68%), whereas in Voorhout and Berchidda the prevalent dwelling types are detached (or semi-detached homes) and terraced homes. Berchidda presents the widest variation of dwellings, as well as the oldest.
- Homeownership in the sample is really high, in Voorhout 100%, and therefore there is an opportunity to engage owner-occupiers, especially those who live longterm in their homes in the design of DR solutions.
- In the majority of questions (with the exception of 5 cases which are shown below) asking people whether they could find it easy or not to change a practice, people have mostly chosen a middle ground response (neither agree or disagree). The exceptions to this are:
  - ◆ Times of washing clothes ( 54% find it easy or very easy to change, 27% neither agree or disagree and 14% find it difficult or very difficult to change). This trend is confirmed by another question which suggests that 83% of respondents agree that they would consider time scheduling their laundry practices to respond to DR
  - ◆ Frequency of showering/bathing (39% find it difficult or very difficult to change, 29% neither agree or disagree and 29% find it easy or very easy to change).
  - ◆ Times of showering/bathing (33% find it difficult or very difficult to change, 31% neither agree or disagree and 31% find it easy or very easy to change). Showering seems to be a challenging and contested practice, since responds to the question of whether people could consider changing the times they shower/bath to contribute to DR in their community they indicated uncertainty with 38% agreeing on this, 25% neither agreeing or disagreeing and 33% disagreeing.
  - ◆ Times of dining (41% find it difficult or very difficult to change, 29% neither agree or disagree and 30% find it easy or very easy to change)
  - ◆ Using ICT for leisure (37% find it difficult or very difficult to change, 31% neither agree or disagree and 26% find it easy or very easy to change)

This trend could indicate that people have difficulty imagining the ways in which a change in a specific practice could take place (for example they might be uncertain about the different material elements that they need or the skills and reason for how and why they should do it). It is therefore important to further explore these imagined situations together with participants, in order to co-create meaningful and practical scenarios and solutions for change in each pilot. On the other hand, there is also a minority of people (around 30%) who are positive to the idea of change in their everyday practices. This is also important to consider and incorporate in the upcoming interactions, and pay attention to how we can bring these two perspectives (those who are willing to change and those who are not) a little closer. People with a positive perspective towards change could contribute to collective imagining of how everyday practices could look like, especially when these are discussed in context (during a workshop for example) or presented as a narrative of positive lived experience.

## Comfort

- Comfort is expressed as a material (and sensory) and immaterial (emotional and cognitive) experience amongst householders.
- Achieving comfort at home is found to be a prevalent social norm amongst householders across all pilots
- There seems to be an association of meanings of comfort with these of a good and satisfactory home amongst our participants. The lack of comfort, due to technical/technological issues with people's energy systems contributes to emotional tensions of householders and is perceived as a factor that creates unsatisfactory living conditions and a hassle factor in people's everyday lives.
- It is important to further investigate the specific, socio-cultural ways in which people experience comfort in their homes, further to understandings of thermal comfort, and try to make connections with the ways in which smart technologies contribute to this or not.
- Comfort is associated with the use of smart energy technologies. 76% of respondents overall suggest that smart energy technologies are supposed to make life more comfortable at home. This perception is particularly noticeable in Voorhout (80%) and Berchidda (80%).

## Practices that have the potential to become more flexible

- **Doing the laundry and the associated practices** (drying clothes and possibly ironing) are considered practices that households are willing to reconsider, in terms of time of performance. However, people are not necessarily willing to consider the frequency that they currently wash. So there is an opportunity to design interventions for the time-shifting of the practice.
- **Times of heating** are identified as a potential area for intervention. The majority of people (40%) indicate that they would find it easy or very easy to change the times of heating and 32% neither agree nor disagree. Variations between pilots exist through, with Camille Claudel respondents indicating that 29% would find it easy to change, in comparison with Voorhout which has the largest percentage of people willing to change the times of heating (45%), followed by Berchidda (41%). This variation might be due to the fact that Voorhout has the newest housing stock, which is also more energy efficient, therefore able to retain indoor temperatures for longer, and also requires less heating compared to homes in other pilots.
- **Ways of cooling** present a diversity amongst the pilots, however, people indicate that they are already using passive or manual cooling techniques which do not require electrical devices/installations.

However, in the case of Voorhout and some homes in Camille Claudel, cooling is incorporated as an option in their heating system, and therefore made easier to use and in some cases even undetectable as it will go on if the indoor temperature rises above a set level. DR solutions should bear this in mind and find ways to tackle the sometimes 'invisible' or background practices of heating and cooling.

### Practices that are more challenging to become flexible

- **Dining and associated practices** (dishwashing, cooking etc.). 41% of people suggest that they would find it difficult or very difficult to change the times of dining, however this practice needs to be investigated further in order to understand its association with other practices which involve collective routines (inside and outside the households), as well as synchronicity with other practices (for example food shopping, cooking and washing up). One way to explain the difficulty to time-shift is this dependence on social and institutional daily rhythms (for example the time people go and return from work, the time children go and return from school, the times the shops are open etc).
- **Times and frequency of showering/bathing.** Approximately 40% of people that responded to questions about frequency and times of showering would find it difficult to change their current practices. The times of showering appears harder to change for participants of Camille Claudel (55%), followed by Voorhout (35%) and Berchidda (33%). The frequency of showering similarly is quite hard to change in Camille Claudel (50%), followed by Voorhout (37%) and Berchidda (37%) equally. Common understandings of cleanliness, practised through showering and bathing, are embedded in people's socio-cultural context and change according to the stage of life (Gram-Hanssen et al. 2020). It is important to investigate in what ways these two practices are performed across the different pilot and how they are associated with other everyday practices and norms such as working and leisure activities.
- **Times of using ICTs for leisure.** 37% of people indicated that they would find difficult or very difficult to change the times in which they use ICT devices at home for leisure. Camille Claudel has the highest percentage of people who find it difficult or very difficult to change use of ICTs for leisure (55%), followed by Voorhout (40%) and Berchidda (31%). The use of ICTs has increased during the Covid-19 restrictions, however, we cannot be certain about how much since we do not have a specific percentage of hours that people spent on them before the restrictions. What is also uncertain is if participants engage in the use of ICTs for leisure individually or together with other members of their household, which would explain the difficulty for flexibility, since they would have to reply of others' routines and daily schedules. This is an area for further investigation and an area for potential intervention.

### Gendering of physical and digital housekeeping

- Overall in the sample 72% of the female respondents stated that they do the daily housekeeping themselves, as opposed to 13% of men. 30% of male respondents stated that they share the housekeeping equally with their partner in comparison with 17% of female respondents who stated that they share it with their partner. So, men's perception of sharing the daily tasks is different to that of women. Although there is evidence that there is a higher representation of women in the physical



labour of households, there are several limitations, such as lack of further information on the what this involves etc., which make it difficult to give an accurate picture. When asked about the cognitive housekeeping (i.e the planning, organising and decision making of a household), respondents suggested overall that they share this with their partner (38%). However when looking in the different gender responses it is shown that the majority (60%) of female respondents said that they take responsibility of cognitive labour, in comparison to 15% of men. Therefore there seems to be a **higher representation of women in both the physical and cognitive housekeeping**, but it would better to further investigate this through the upcoming interactions in order to come to more conclusive results.

- In regard to digital housekeeping, the gendering is harder to understand because of the way that the survey questions were posed. Generally, **a larger representation of men appear to engage with the planning, control and management of smart energy systems**. In specific, more men (47%) than women (21%) control or are in charge of their energy system and more men (61%) than women (40%) check their smart energy meter if they have one. Although there are also indications that digital housekeeping is shared between members of households, it is important to investigate further in order to assess in what ways the digital housekeeping relates to the physical housekeeping and if it is gendered and in what ways.

### Smart energy systems and everyday life

- **Knowledge and perception of smart energy technologies**  
38% of respondents have a vague idea of what smart technologies are, followed by 34% of respondents that have a general idea of what they are. However, if we zoom in the individual pilots, Voorhout has the highest percentage of people who have a general idea (48%), followed by Berchidda (33%) and 25% in Camille Claudel. It is interesting that respondents in Berchidda report a greater knowledge of smart technologies than Camille Claudel, despite the lowest ownership of smart energy technologies at home. Furthermore, a positive perception of the use and purpose of smart technologies is seen across all pilots. A big majority of people overall (88%) indicate that one of the main purposes of smart energy technologies is to save money. This is particularly evident in Berchidda with a 95% of respondents saying so. Finally, a very interesting finding is that 80% of respondents in both Berchidda and Voorhout (against an overall rate of 76%) suggest that smart energy technologies are to make life more comfortable. This finding needs to be further investigated through the upcoming interactions, since it has implications in the way that people experience comfort at home and also meanings of a good home.
- **Ownership and kinds of smart energy technologies**  
61% of respondents overall do not own smart energy technologies at home at all. However, looking into the pilots, Berchidda has the lowest ownership of smart energy technologies (76%), followed by Camille Claudel (54%). The situation in Voorhout is more unclear since 30% of respondent suggest that they either don't know (20%) or they do not have any smart energy technologies at all (10%). It is important to investigate people's awareness and use of smart home technologies, especially in these pilots that we already know that smart energy systems are installed (in Voorhout for example).
- **Control and management of energy systems**



A large percentage of people (39%) who have smart energy systems and devices at home suggest that they never check their consumption through an in-home display or other device, followed by 20% that suggest that they only check it when they receive a bill and 14% who check it once a month. Looking at Voorhout in particular where smart home technologies are installed in all homes, 26% of respondents suggest that they never check their consumption, with the rest of respondents reporting a variety of frequencies ranging from once a day every day (11%), to once in fortnight (11%) etc. Although households do not generally use any mobile or web applications to monitor or control their energy consumption (76% overall), in their majority they suggest that a smart phone application would be the preferred and convenient interface for doing so. Energy providers and their associated channels for communication (such as websites) are high on people's priorities for when things go wrong, by 67% stating that they contact their provider or visit their website when experiencing a problem with their smart energy systems.

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## Appendices

**Table 1. Respondents with no children younger than 18 years living at home, n=131**

Children younger than 18 living at home	<b>Berchidda [in actual numbers]</b>	<b>Voorhout [in actual numbers]</b>	<b>Camille Claudel [in actual numbers]</b>
No children	99	17	15

**Table 2. Occupants moving between households** (Rounding to one decimal has been applied, thus not adding to 100 %) n=206

Do occupants move between households?	<b>Berchidda [%]</b>	<b>Voorhout [%]</b>	<b>Camille Claudel [%]</b>
No	61%	95%	71%
Children move between households	6%	0%	7%
Adults move between households	19%	5%	11%
Both children and adults are moving between household	10%	0%	0%
Prefer not to say	4%	0%	11%

**Table 3. Percentage of people living in multigenerational households , n=206**

Do you live in a multigenerational household?	<b>Berchidda [%]</b>	<b>Voorhout [%]</b>	<b>Camille Claudel [%]</b>
Yes	25%	0%	0
No	72%	100%	100%
Prefer not to say	3%	0%	0%

**Table 4. Occupation status of partners** (Rounding to one decimal has been applied, thus not adding to 100 %) n=153. NB: Only includes respondents who live with a partner

Current situation of partner	<b>Berchidda [%]</b>	<b>Voorhout [%]</b>	<b>Camille Claudel [%]</b>
In paid work (including self-employed or family business)	59%	50%	65%
In education	0%	0%	0%
Unemployed	3%	0%	0%
Permanently sick or disabled	0%	0%	0%
Retired	12%	17%	30%
In community or military service	0%	0%	0%
"Stay-at-home" parent or spouse	9%	22%	5%
Prefer not to say	9%	11%	0%
Other	6%	0%	0%



**Table 5. Education level** (respondent), respondent are asked to tick all that apply, n=207

Educational background	<b>Berchidda [%]</b>	<b>Voorhout [%]</b>	<b>Camille Claudel [%]</b>
Primary education and/or secondary education not completed	8%	5%	0%
Primary education and/or secondary education completed	35%	0%	1%
Vocational or technical education completed (not university degree)	28%	43%	11%
Other education completed (not university degree)	16%	38%	11%
University degree completed (inclusive of PhD)	11%	10%	71%
Prefer not to say	6%	5%	4%
Other	0%	0%	0%

**Table 6. Ownership of homes**, n=177\* Dutch sample not include as information about ownership was known prior to the survey dissemination. (Rounding to one decimal has been applied, thus not adding to 100 %)

Ownership of home	<b>Berchidda [%]</b>	<b>Voorhout [%]</b>	<b>Camille Claudel [%]</b>
Owned by you or another member of the household	91%	100%	82%
Rented	5%	0%	11%
Occupied without payment of rent	1%	0%	0%
Don't know/prefer not to say	1%	0%	7%
Other	1%	0%	0%

**Table 7. Year of construction of homes**, n= 173\* Dutch sample not included as information about year of construction was known prior to the survey dissemination. (Rounding to one decimal has been applied, thus not adding to 100 %)

Year of construction	<b>Berchidda [%]</b>	<b>Voorhout [%]</b>	<b>Camille Claudel [%]</b>
Before 1900	2%	0%	4%
1900-1919	1%	0%	0%
1920-1939	5%	0%	4%
1940-1959	8%	0%	0%
1960-1979	27%	0%	19%

1980-1999	37%	0%	7%
2000-2019	15%	0%	67%
2019 and later	1%	100 %	0%
Don't know	4%	0%	0%

**Table 8. Size of homes** n=194. (Rounding to one decimal has been applied, thus not adding to 100 %)

Size of home	<b>Berchidda [%]</b>	<b>Voorhout [%]</b>	<b>Camille Claudel [%]</b>
Below 30 m <sup>2</sup>	1%	5%	1%
30-49 m <sup>2</sup>	1%	0%	11%
50-69 m <sup>2</sup>	5%	0%	19%
70-89 m <sup>2</sup>	6%	5%	30%
90-109 m <sup>2</sup>	16%	29%	19%
110-129 m <sup>2</sup>	20%	38%	11%
130-149 m <sup>2</sup>	13%	5%	0%
150-169 m <sup>2</sup>	5%	10%	7%
170-189 m <sup>2</sup>	9%	0%	0%
190-209 m <sup>2</sup>	5%	0%	0%

More than 210 m2	14%	0%	0%
Don't know	5%	10%	0%

**Table 9. Time householders have lived in their current home, n=194.** (Rounding to one decimal has been applied, thus not adding to 100 %)

Years of residence	<b>Berchidda [%]</b>	<b>Voorhout [%]</b>	<b>Camille Claudel [%]</b>
Less than 6 months	3%	5%	0%
6-11 months	4%	0%	4%
1 year	3%	29%	0%
2 years	2%	67%	7%
3-5 years	8%	0%	33%
6-10 years	12%	0%	30%
11 years of more	68%	0%	26%

**Table 10. Other adults in the households working from home prior to Covid-19 restrictions, n=152**

Another adult working from home before Covid-19?	<b>Berchidda [%]</b>	<b>Voorhout [%]</b>	<b>Camille Claudel [%]</b>
No, never	78%	75%	39%
Yes, but only occasionally / in special circumstances	9%	10%	30%
Yes, someone else worked from home regularly (please state how often)	0%	5%	0%
Yes, someone worked from home full-time	0%	5%	4%
Not in paid work	7%	5%	22%
Don't know	6%	0%	4%

**Table 11. Other adults in the household working from home after Covid-19, n=159**

Another adult working from home after COVID	Berchidda [%]	Voorhout [%]		Camille Claudel [%]
No, I think I will work from home the same amount as before COVID-19	64%	47%		17%
Yes, I think I will work from home occasionally, but less than 1 more day a week	4%	0%		13%
Yes, I think I will work from home 1-2 days more a week	2%	5%		37%
Yes, I think I will work from home 3-6 days more a week	0%	0%		9%
Yes, I will work from home permanently	0%	0%		0%
Don't know	28%	5%		22%
Other (please specify)	2%	42&		22%

**Table 12. Frequency of home cooling using an air conditioner or electric fans, please tell us, n=140**

If you cool your home in the summer using an air conditioner or electric fans, please tell us	<b>Berchidda [%]</b>	<b>Voorhout [%]</b>	<b>Camille Claudel [%]</b>
Every day	29%	5%	4%
Between 5-6 days a week	11%	5%	0%
Between 3-4 days a week	6%	0%	13%
Between 1-2 days a week	7%	11%	4%
Less than once a week	4%	0%	4%
don't cool my home using electric devices	33%	42%	57%
Don't know	6%	11%	0%
Other (please specify)	4%	26%	17%

**Table 13. Ways in which homes are cooled on an average summer day**

	<b>Berchidda [%]</b>	<b>Voorhout [%]</b>	<b>Camille Claudel [%]</b>
I turn the air-conditioning on all day	5%	11%	0%
I turn the fans on all day	5%	5%	4%
I turn the air-conditioning on in the morning	1%	0%	0%
I turn the fans on in the morning	1%	0%	4%
I turn the air conditioning on in the afternoon	14%	0%	4%
I turn the fans on in the afternoon	9%	0%	9%
I turn the air conditioning on in the evening	11%	0%	0%
I turn the fans on in the evening	10%	0%	17%
The cooling devices turn automatically on when the temperature goes over a set temperature	3%	42%	0%
I turn the cooling devices on when I am hot	31%	11%	9%

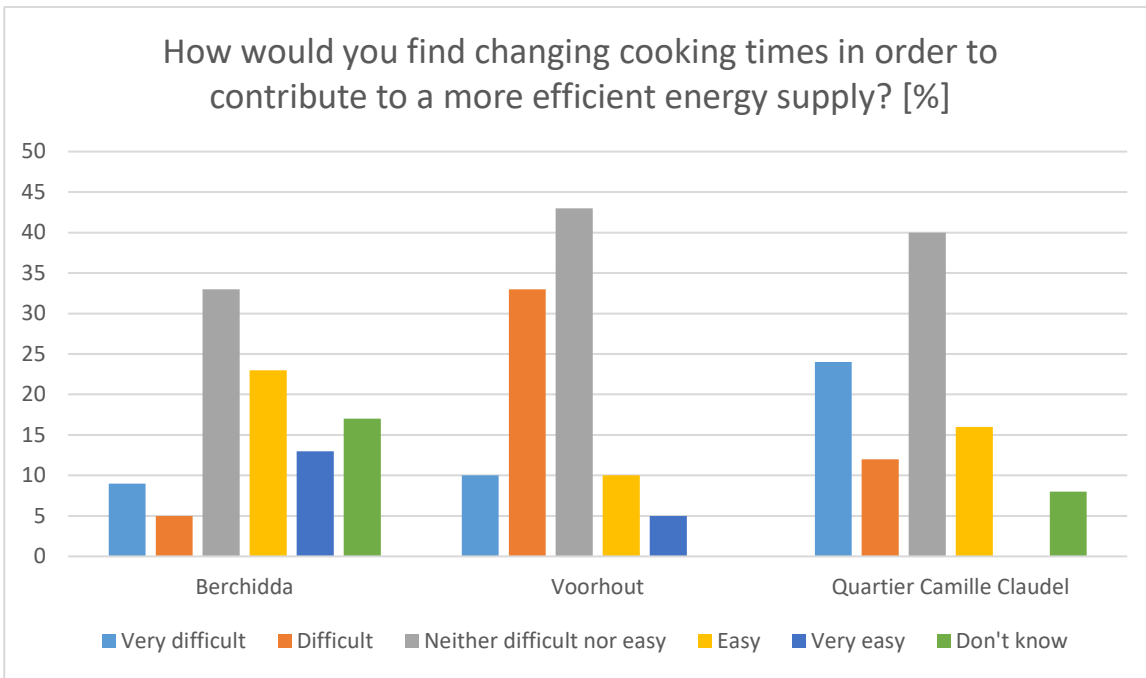


I open windows and/or doors	37%	21%	78%
Don't know	5%	0%	13%
Other (please specify)	0%	47%	17%

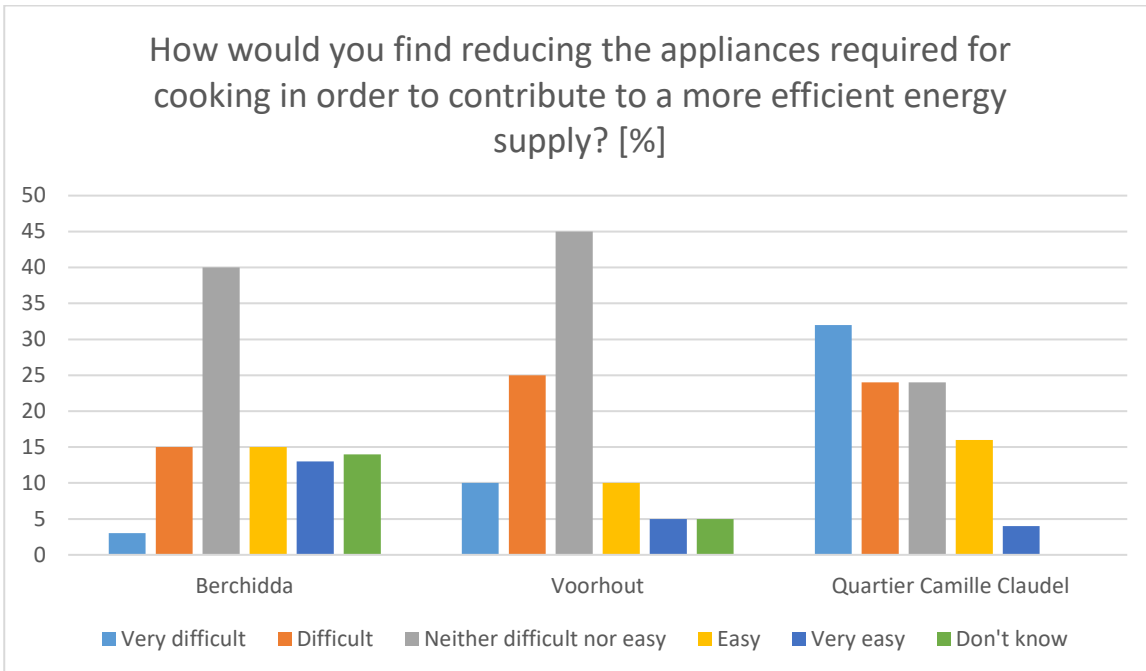
**Table 14. Current household use of web or mobile applications for monitoring energy consumption, n=117**

Does your household currently use any web or mobile applications in order to monitor your energy consumption?	<b>Berchidda [%]</b>	<b>Voorhout [%]</b>	<b>Camille Claudel [%]</b>
Yes, we use a web application	1%	22%	9%
Yes we use a smart phone application	3%	22%	5%
Yes we use both a web and a smart phone application	3%	11%	14%
No, we don't have services that allow monitor of energy consumption	88%	44%	73%
Don't know	5%	0%	0%

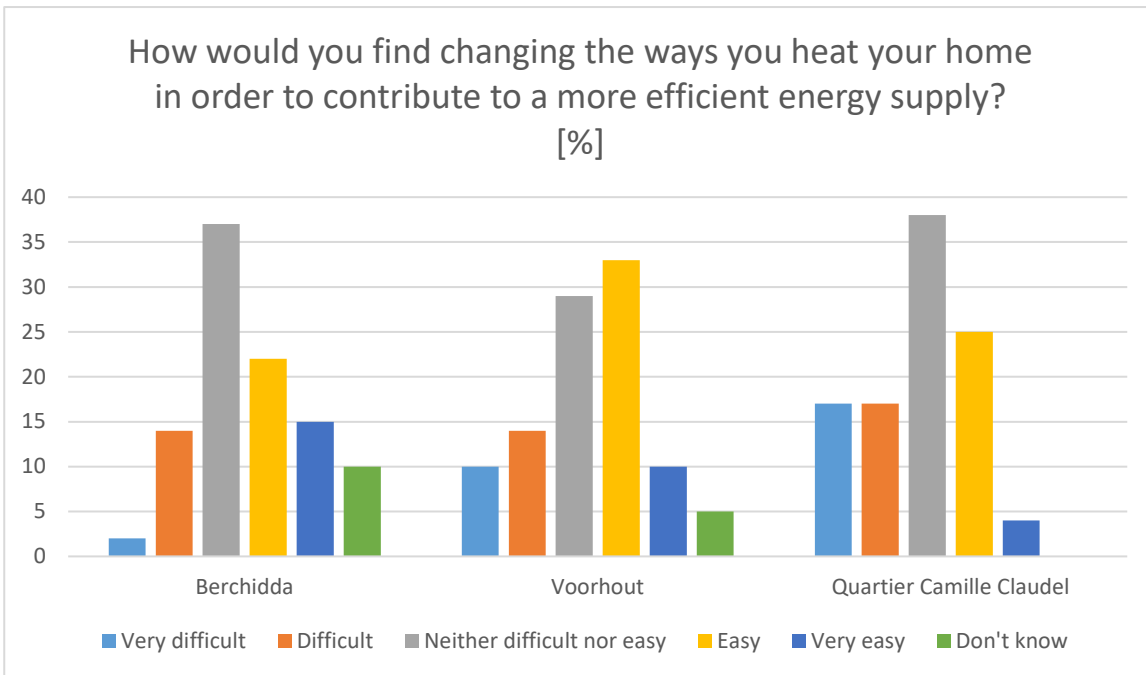
**Figure 1: How would you find changing cooking times in order to contribute to a more efficient energy supply?, n=133**



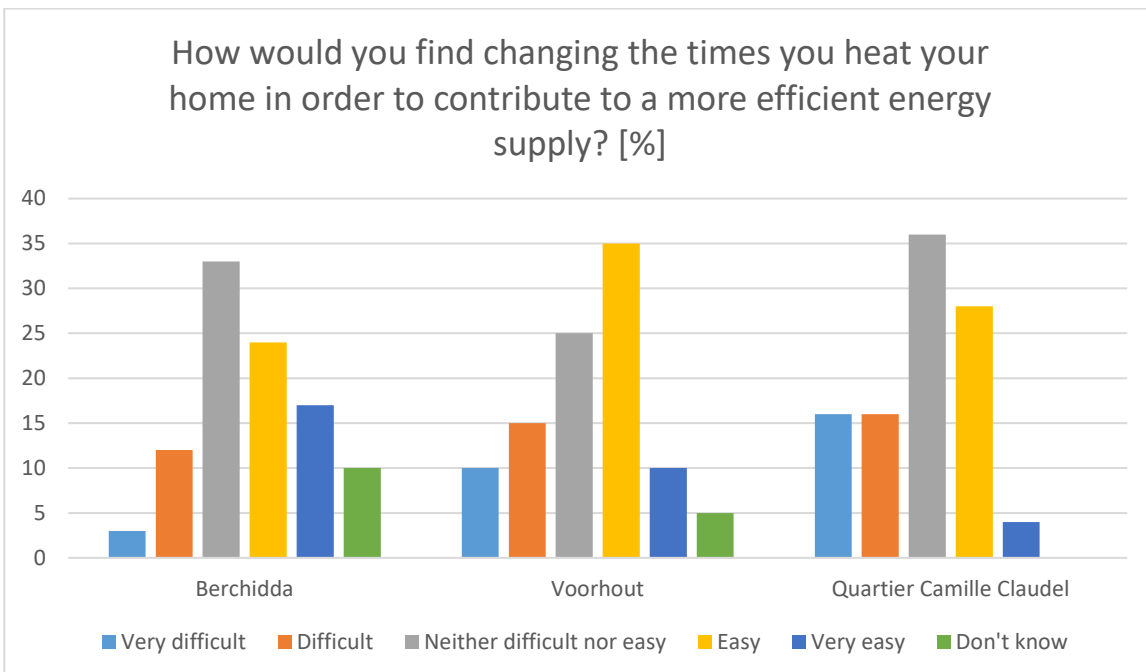
**Figure 2: How would you find reducing the appliances required for cooking in order to contribute to a more efficient energy supply?, n=133**



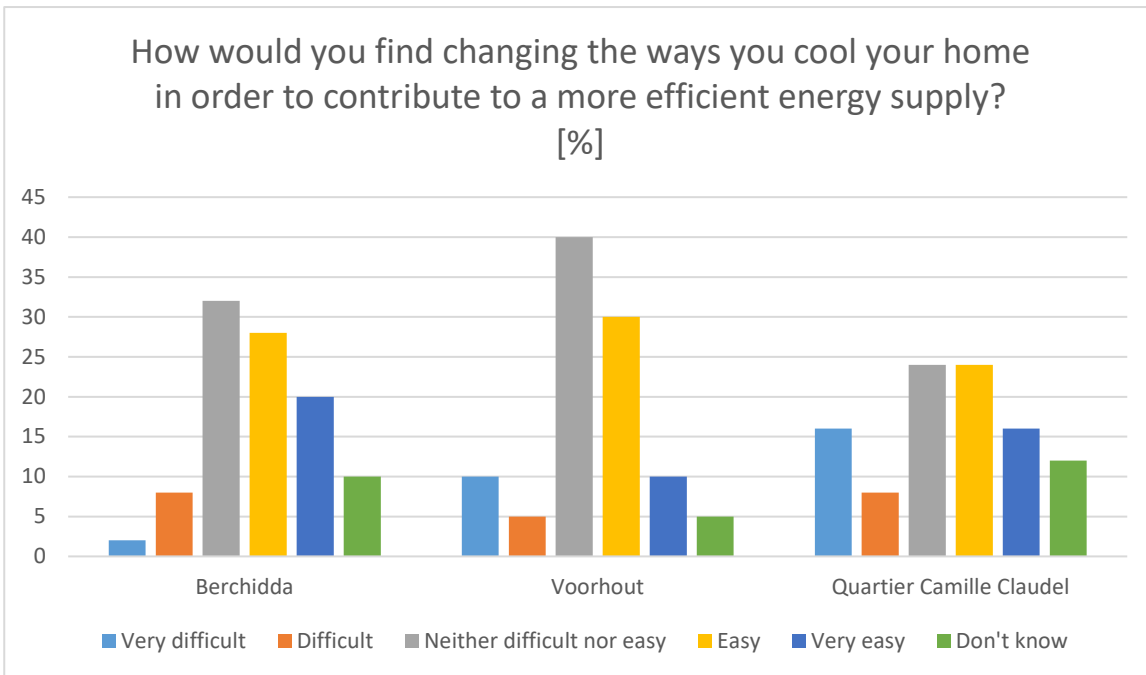
**Figure 3: How would you find changing the ways you heat your home in order to contribute to a more efficient energy supply?, n=133**



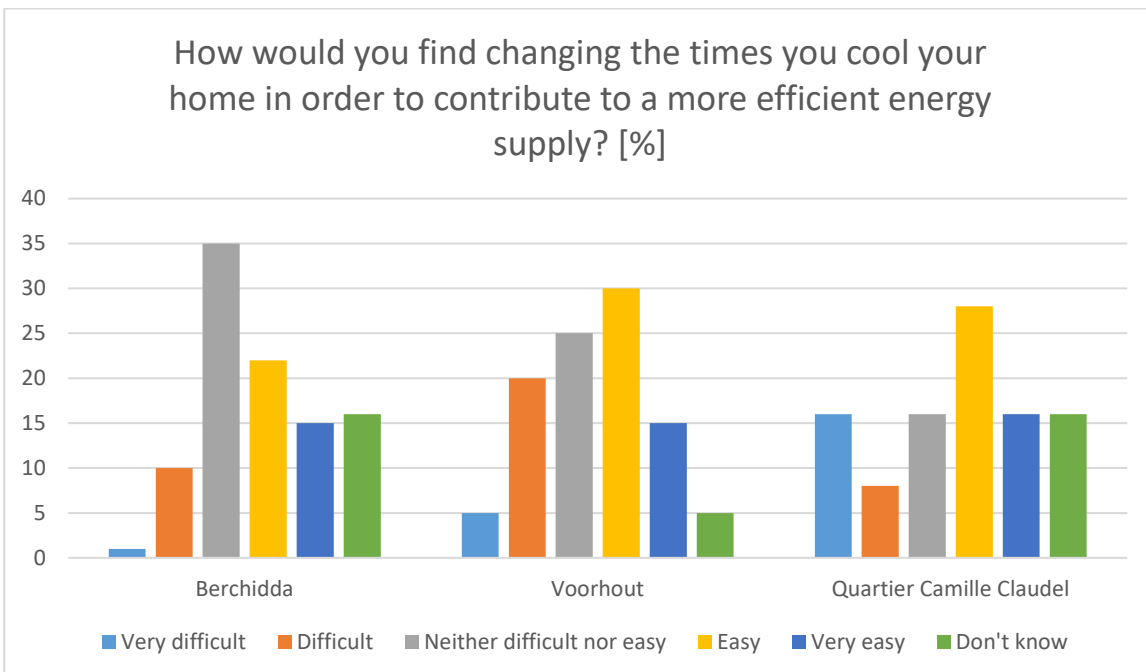
**Figure 4: How would you find changing the times you heat your home in order to contribute to a more efficient energy supply?, n=133**



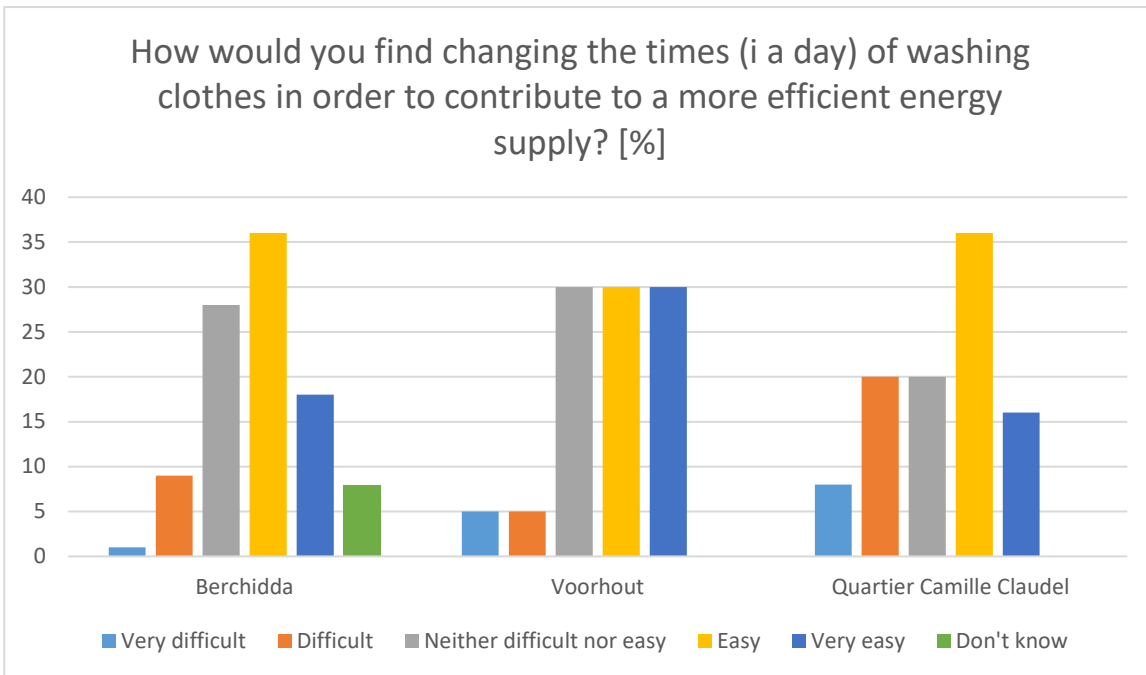
**Figure 5: How would you find changing the ways you cool your home in order to contribute to a more efficient energy supply?, n=133**



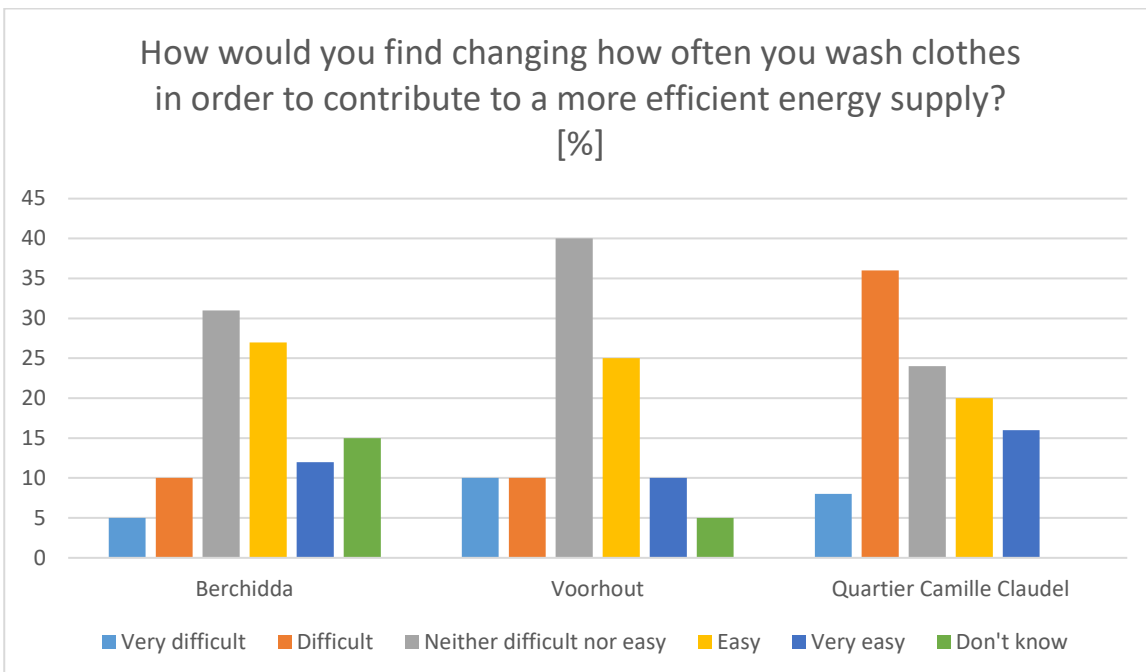
**Figure 6: How would you find changing the times you cool your home in order to contribute to a more efficient energy supply?, n=133**



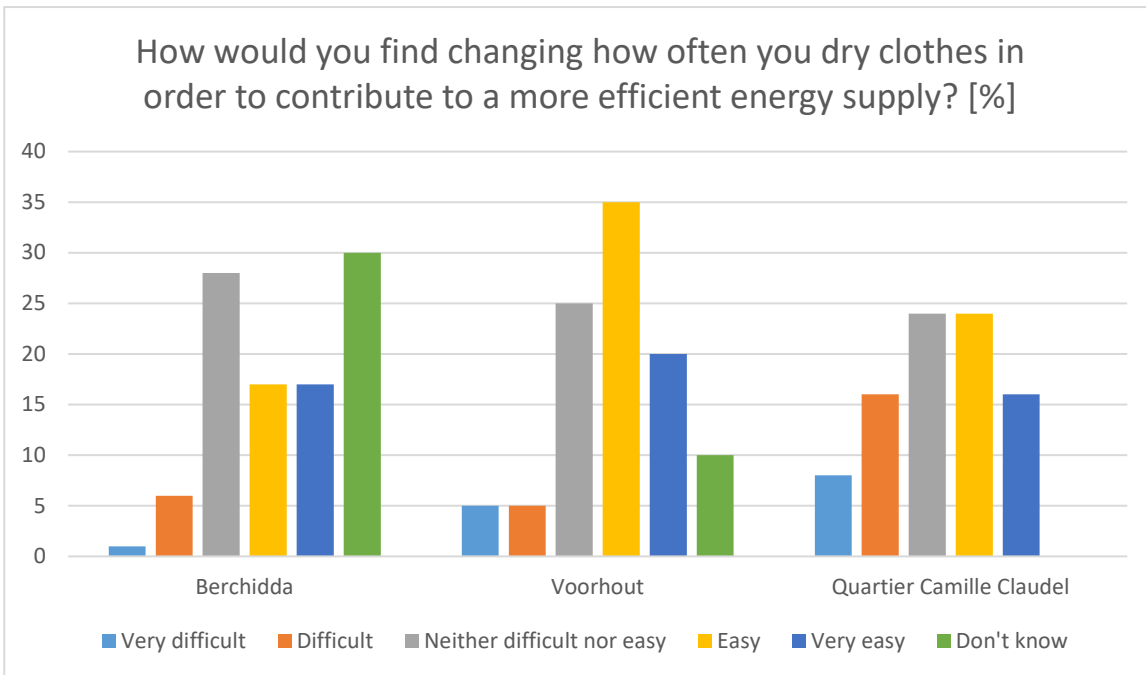
**Figure 7: How would you find changing the times (i a day) of washing clothes in order to contribute to a more efficient energy supply?, n=133**



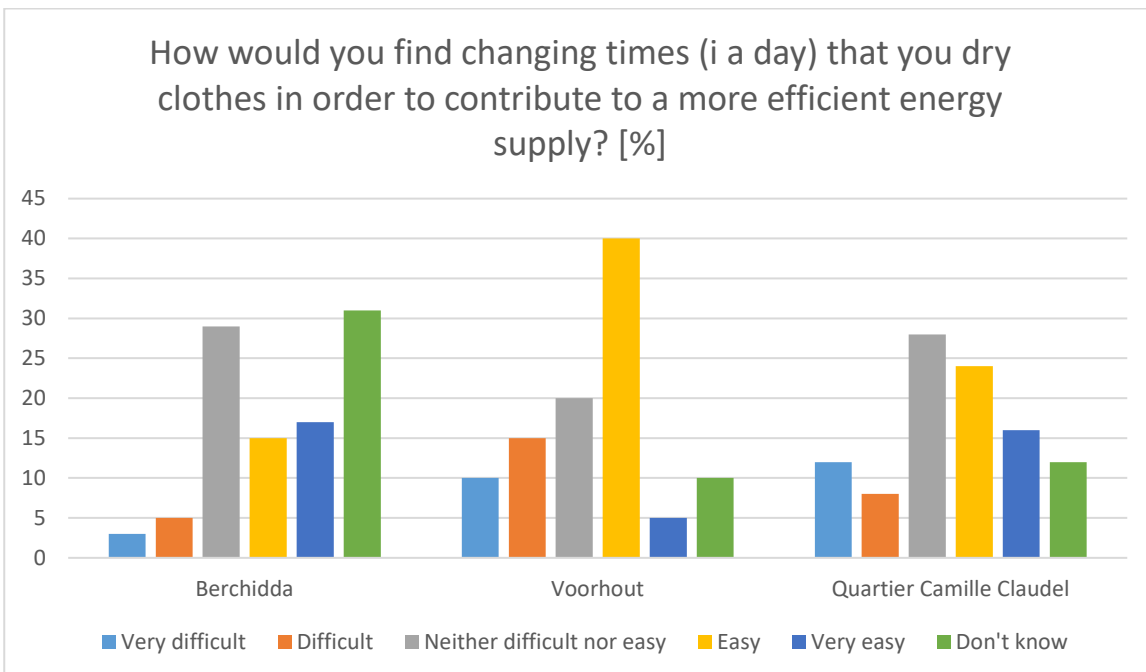
**Figure 8: How would you find changing how often you wash clothes in order to contribute to a more efficient energy supply?, n=133**



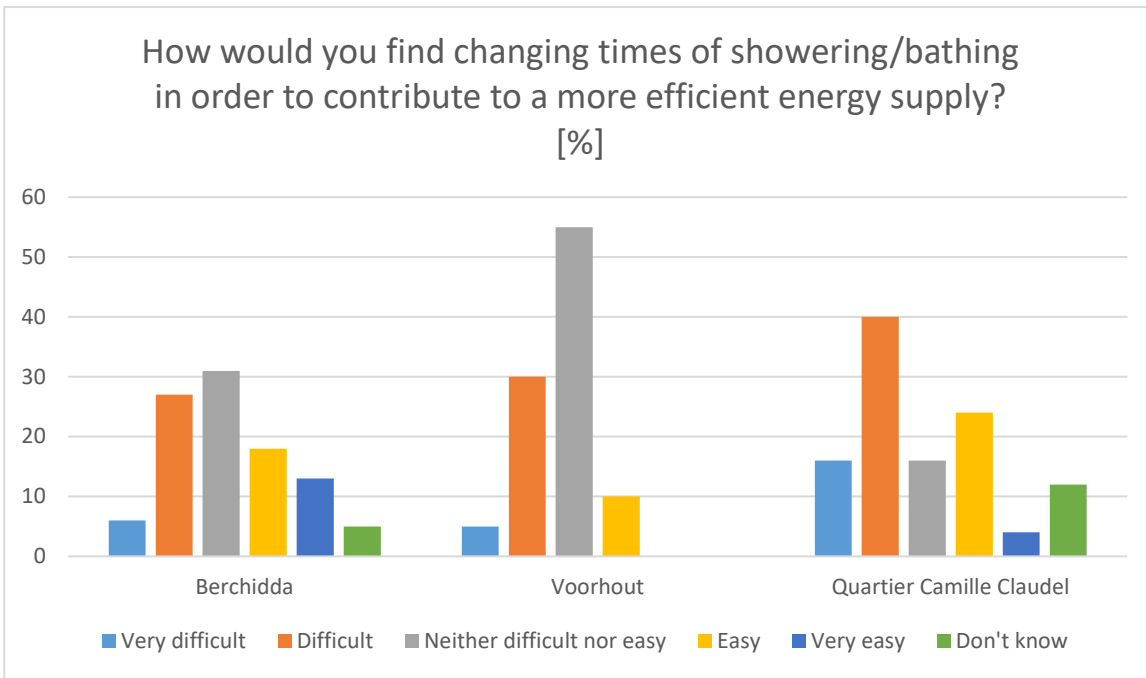
**Figure 9: How would you find changing how often you dry clothes in order to contribute to a more efficient energy supply?, n=133**



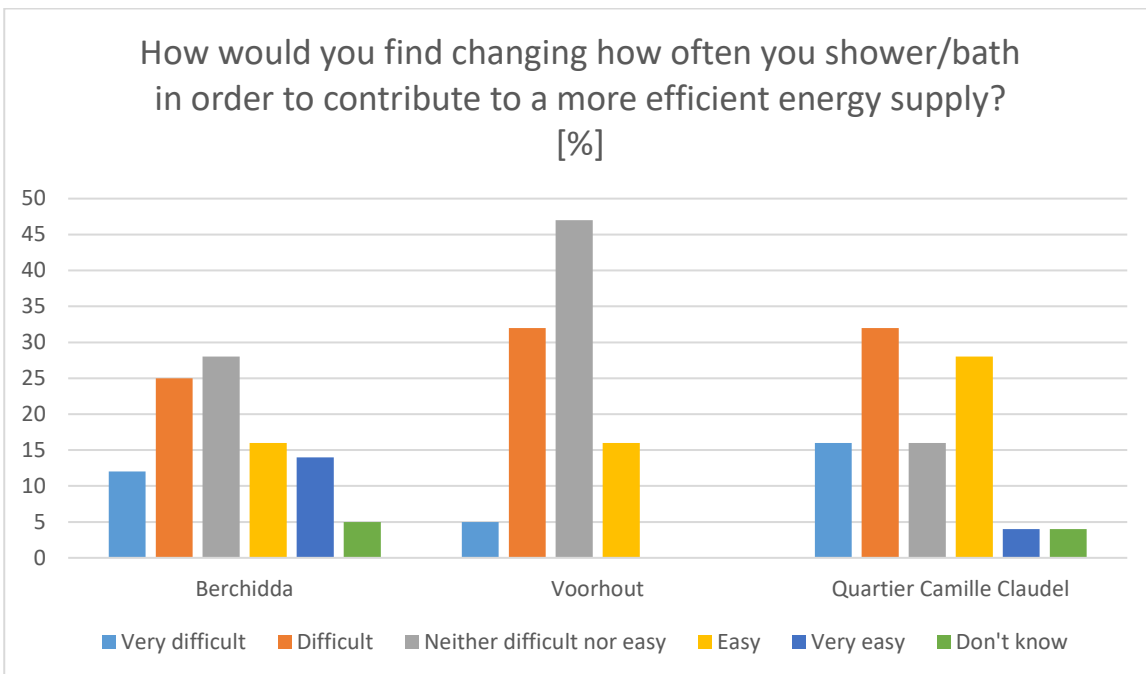
**Figure 10: How would you find changing times (i a day) that you dry clothes in order to contribute to a more efficient energy supply?, n=133**



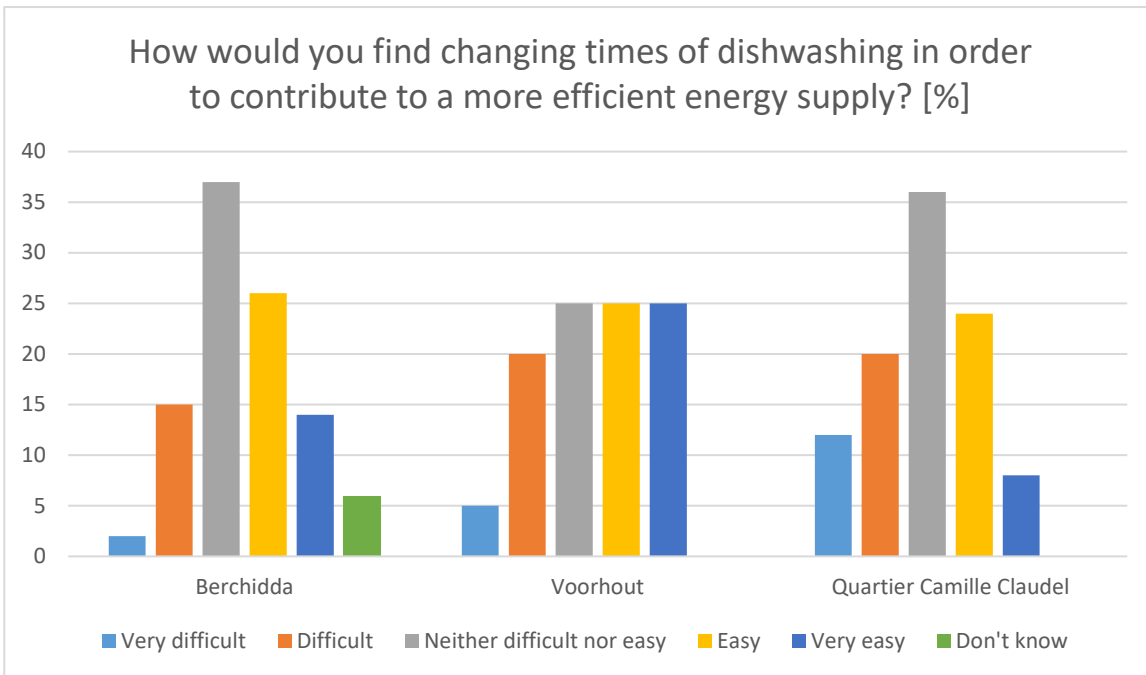
**Figure 11: How would you find changing times of showering/bathing in order to contribute to a more efficient energy supply?, n=133**



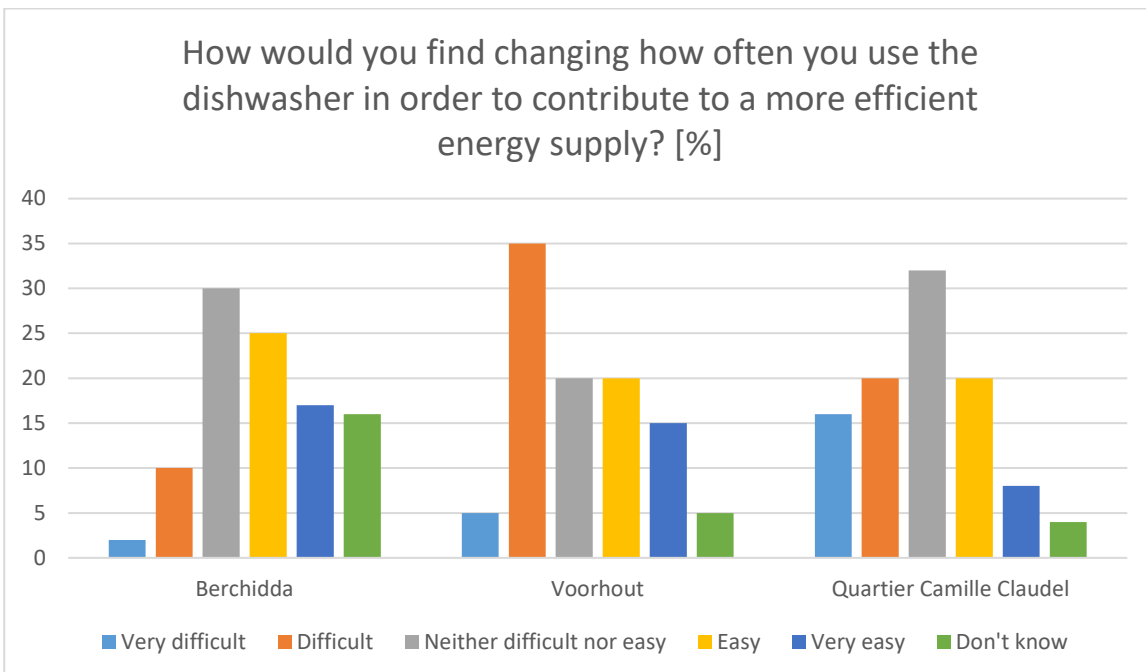
**Figure 12: How would you find changing how often you shower/bath in order to contribute to a more efficient energy supply?, n=133**



**Figure 13: How would you find changing times of dishwashing in order to contribute to a more efficient energy supply?, n=133**

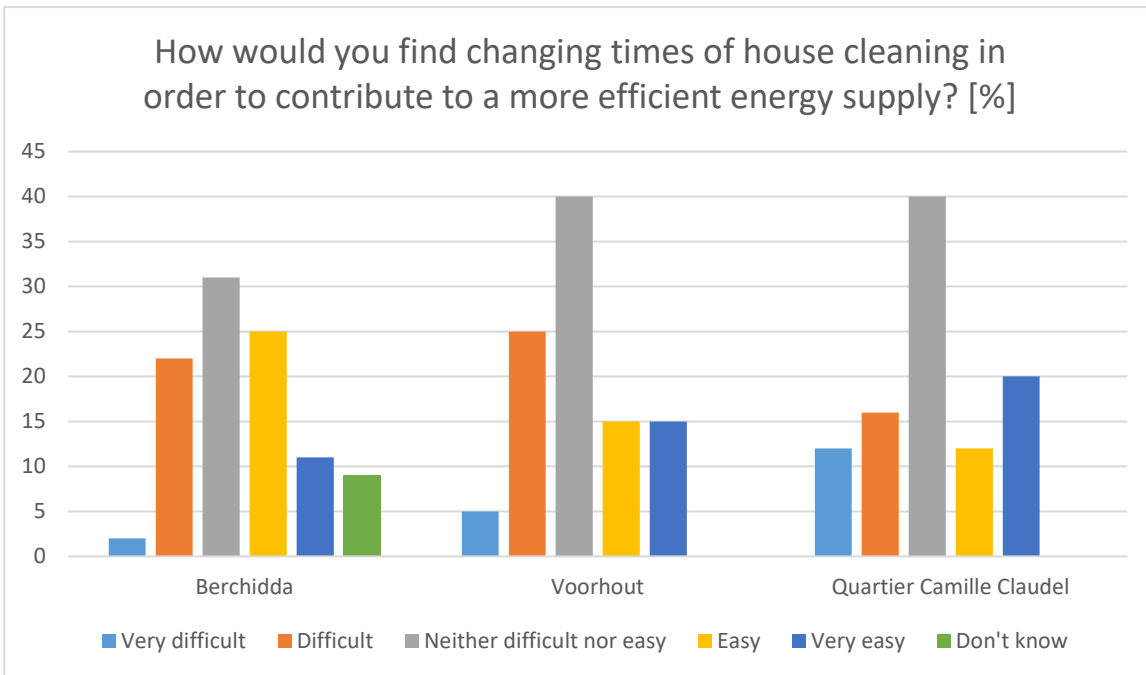


**Figure 14: How would you find changing how often you use the dishwasher in order to contribute to a more efficient energy supply?, n=133**

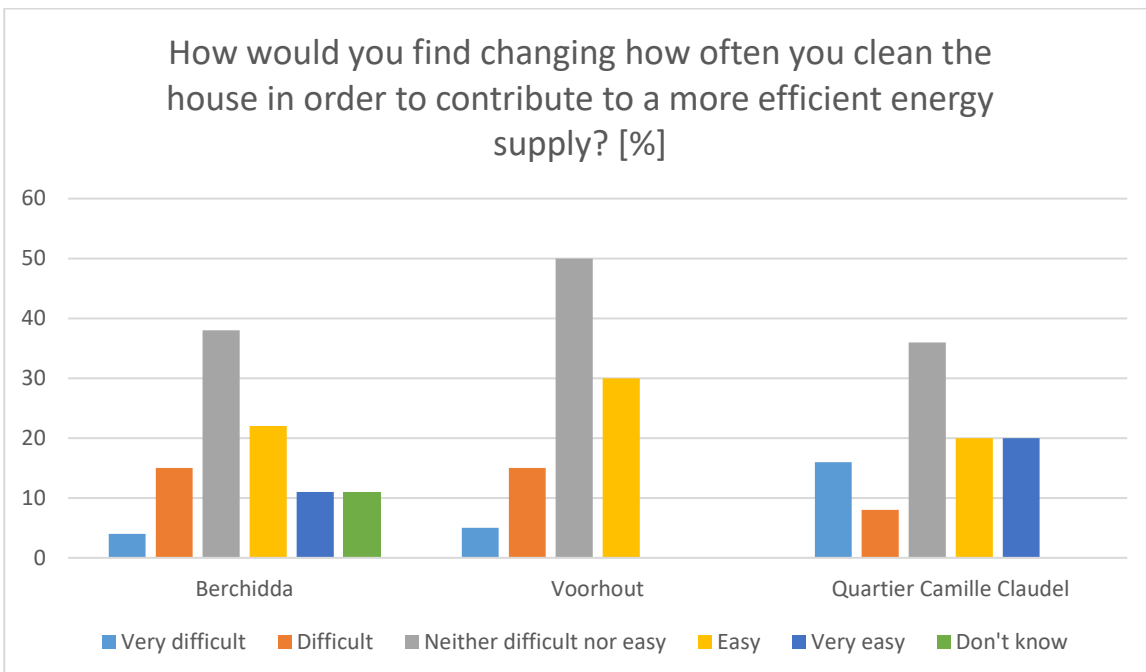




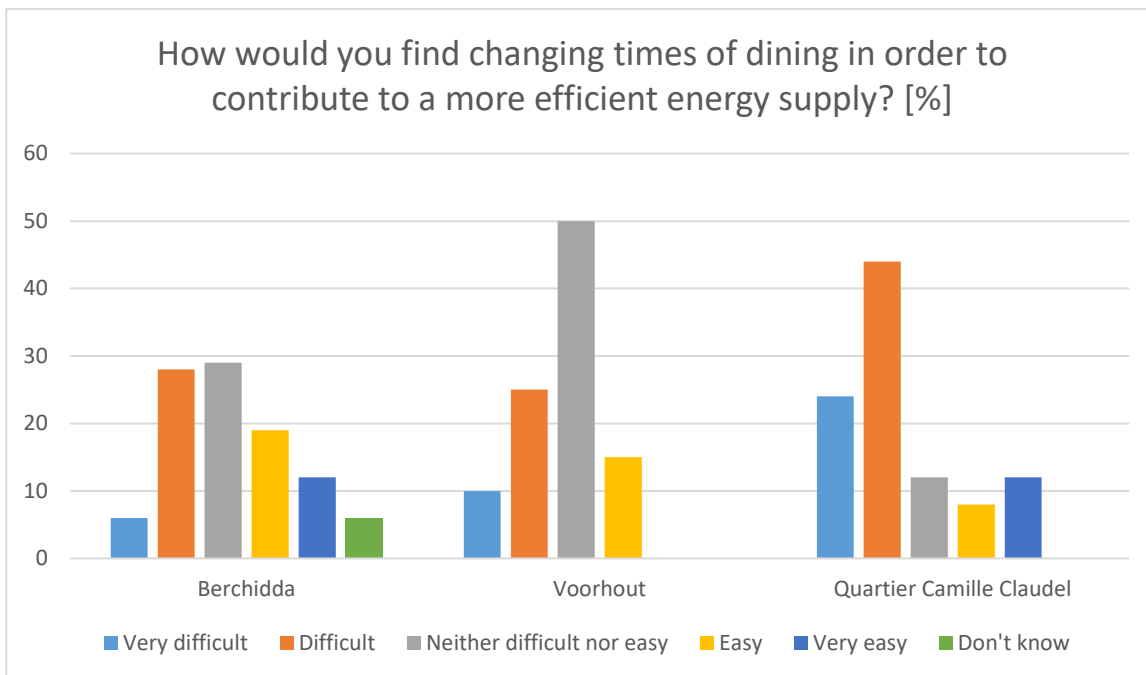
**Figure 15: How would you find changing times of house cleaning in order to contribute to a more efficient energy supply?, n=133**



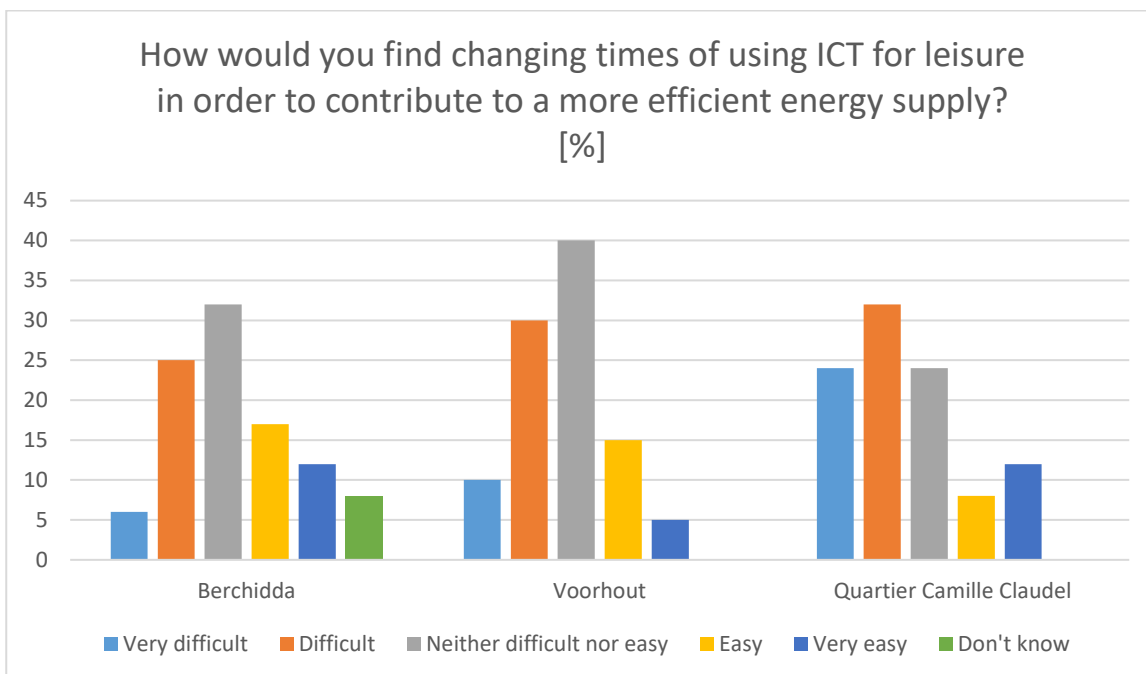
**Figure 16: How would you find changing how often you clean the house in order to contribute to a more efficient energy supply?, n=133**



**Figure 17: How would you find changing times of dining in order to contribute to a more efficient energy supply?, n=133**



**Figure 18: How would you find changing times of using ICT for leisure in order to contribute to a more efficient energy supply?, n=133**



## 19. Letter to householders in Voorhout for disseminating the survey link

28 april 2021



**Aan:** de bewoners van De Wals

**Betreft:** uitnodiging om aan bewonersonderzoek deel te nemen



DuneWorks

Beste meneer, mevrouw,

U woont in een bijzondere wijk. Eén van de eerste wijken in Nederland waar de woningen netto energie terug leveren. Als onderdeel van Plusleven wonen maakt u ook gebruik van een uniek energiecontract. Wij van onderzoeksbureau DuneWorks zijn daarom zeer benieuwd naar uw ervaring met het Plusleven wonen.

### Toekomst van onze elektriciteit

Plusleven wonen is slechts het startpunt van nog veel meer veranderingen die op komst staan. Wij staan namelijk voor de grote uitdaging om het *aanbod* van de hernieuwbare energie af te stemmen op de *vraag* naar energie. Hernieuwbare energie is er niet altijd wanneer we het willen en soms hebben we er juist te veel van. Kunnen we aanbod en vraag niet op elkaar afstemmen, dan valt, simpel gezegd, het elektriciteitsnet uit. Dit is één van de grote vraagstukken van de toekomst.

### Onderzoeksproject HESTIA

Om antwoord te geven op dit vraagstuk heeft Plusleven zich aangesloten bij HESTIA, een **nieuw Europees onderzoeksproject** (zo genoemd naar de Griekse god van het haardvuur). HESTIA onderzoekt welke rol mensen thuis kunnen en willen spelen om het net in balans te houden. Daarvoor ontwikkelen zij speciale (digitale) toepassingen. Uw ervaringen dragen bij aan het bouwen van die toepassingen. **Zodat het slimme energienet van de toekomst aan uw behoeften en mogelijkheden voldoet.** HESTIA wordt in Nederland, Frankrijk en Italië uitgevoerd door een groot aantal partners, waaronder universiteiten, energiebedrijven, gemeenschapsorganisaties en natuurlijk door u, als huishouden.

### Enquête

De eerste stap in het project is deze enquête. Met deze enquête brengen we de huishoudens in Nederland, Frankrijk en Italië in beeld. Uw bijdrage geeft ons inzicht in **uw alledaagse activiteiten en hoe deze de energievraag van uw huis vormen.** Uw medewerking aan deze enquête is **geheel vrijwillig.** Het invullen is bovendien **anoniem**, tenzij u ervoor kiest uw contactgegevens met ons te delen. We stellen uw antwoorden uiteraard erg op prijs.

De enquête is digitaal in te vullen. U kunt deze link kopiëren om de enquête te bezoeken:

<https://bit.ly/3aN6mOt>.

U kunt ook uw telefooncamera of QR-app gebruiken om de QR-code hiernaast te scannen. Daarmee wordt u naar de website genomen.



*Zie ommezijde om meer te lezen over hoe de enquête eruitziet.*

## Inhoud van de enquête

De enquête bestaat uit 3 delen:

1. In het eerste deel stellen we vragen over uzelf en uw huishouden.
2. In het tweede deel gaan we in op alledaagse activiteiten in uw huishouden die een effect hebben op het energieverbruik. We krijgen hiermee inzicht in hoe een typische dag er uitziet in uw huis.
3. Ten slotte gaan we in het derde deel in op uw interacties met de apparaten waarmee u uw energieverbruik kunt inzien of afstemmen (bij voorbeeld de thermostaat of een app voor de zonnepanelen).

## De benodigde tijd

Het duurt ongeveer 20 minuten om de enquête in te vullen. (Het is niet mogelijk om eerst een gedeelte in te vullen en het later af te maken: we raden u daarom aan een moment te nemen waarin u tijd heeft om van begin tot einde te gaan.)

**Uw antwoorden op deze enquête dragen bij aan een coöperatief, gemeenschappelijk en duurzaam energiesysteem.**

Hartelijk bedankt!

Marten Boekelo

Jordan Young

Sylvia Breukers

**www.DuneWorks.nl**


0626770846

Om te enquête in te vullen:

<https://bit.ly/3aN6mOt>.

OF scan de QR code:





# Hestia

Household survey – **ENGLISH VERSION**

Dear participants,

Thank you for taking part in the HESTIA project, a **new European research project**. The partners of HESTIA include European universities, energy companies, community organisations and households like you in three different European locations: Berchidda (Italy), Paliseau (France), Voorhout (Netherlands).

**Your answers to this survey will contribute to the development of a cooperative, community-based, future energy system based on renewable energy.**

Your participation will help us understand **how your everyday activities at home create energy demand**. Your answers will also **contribute to the development of an effective solution** for managing everyday energy production and consumption at home and within the community.

**Your participation** in this survey is **entirely voluntary**. We would appreciate if you could answer all the questions to your best ability. You can choose to remain anonymous.

## **The background of the survey**

Renewable energy is key to making our future energy consumption free from greenhouse gas emissions. However, new energy sources such as wind and solar power produce

energy only when the wind is blowing or the sun is shining. Sometimes more energy is produced than is needed and more is needed, and sometimes more energy is needed than it can be produced. As a new European programme, HESTIA aims to tackle this mismatch of uneven energy production and consumption at the household level by developing new, practical solutions that suit your daily routines and family requirements. This is called Demand Response (DR). HESTIA aims to integrate your perspective as householders in the design of a new digital platform for managing electricity loads.

### **The content of the survey**

The survey is structured in **3 parts**: The first part asks questions about yourself, the people you live with and the home you live in. The second part includes questions about everyday activities in your household related to energy consumption. Through different questions, we are trying to understand what is 'normal' and 'typical' in regards to your everyday energy use. Finally, the third part relates to your interactions with technologies and energy systems at home.

### **Necessary time**

It takes about 20 minutes to answer the entire survey. If you only fill a part of it, it will not be possible to complete it later: we recommend that you take a moment to fill it from start to finish.

### **Information about data privacy and GDPR:**

Unless you choose to fill in your name and contact details at the end of this survey (optional), your responses to the following questions will be anonymous. Your responses will be collected and stored by Aalborg University in Denmark, partner of the HESTIA project, and will only be used for research purposes. By completing this survey, you give your consent that Aalborg University can store your data. Your anonymized data can be shared with [FR version: Électricité de France, Communauté d'agglomération Paris-Saclay and Münster Technological University, Ireland; IT version: Sinloc – Sistema Iniziative Locali SpA, Grid Ability Scarl, Midac Spa, AXPO Energy Solutions Italia – Societa per Azioni and Münster Technological University, Ireland; NL version: DuneWorks

BV, For Your Energy Freedom BV and Münster Technological University, Ireland], all partners of HESTIA. Data will only be shared for use in relation to the HESTIA project.

## **Part 1: General information about you and your dwelling**

In part 1 of the questionnaire, we ask a number of questions about you, the people you live with and the home that you live in

### **1.1 How old are you?**

- (1)  18-24
- (2)  25-29
- (3)  30-34
- (5)  35-39
- (4)  40-44
- (6)  45-49
- (8)  50-54
- (9)  55-59
- (10)  60-64
- (11)  65-69
- (12)  70-74
- (13)  75-79
- (14)  80+
- (15)  Prefer not to say

### **1.2 What is your gender?**

- (1)  Male
- (2)  Female
- (3)  Other
- (4)  Prefer not to say

### **1.3 How many adults live in your household (including yourself)?**

- (1)  1



- (2)  2
- (3)  3
- (4)  4
- (5)  5
- (6)  6
- (7)  7
- (8)  8
- (9)  9
- (10)  10 +
- (11)  Prefer not to say

**1.4 Do you live together with a partner?**

- (1)  Yes
- (2)  No
- (3)  Prefer not to say

**1.5 How many children (younger than 18) live in your household and what are their ages?**

- (1)  No children
- (2)  Prefer not to say

	0	1	2	3	4	5 +	Prefer not to say
0-4 years	(7) <input type="checkbox"/>	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(8) <input type="checkbox"/>
5-9 years	(7) <input type="checkbox"/>	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(8) <input type="checkbox"/>
10-14 years	(7) <input type="checkbox"/>	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(8) <input type="checkbox"/>
15 +	(7) <input type="checkbox"/>	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(8) <input type="checkbox"/>

**1.6 Do any people in your home move between households?**

- (1)  Yes, there are children moving between households
- (2)  Yes there are adults moving between households

- (3)  Both children and adults are moving between household
- (4)  No
- (5)  Prefer not to say

**1.7 Do you live in a multigenerational household? (more than 2 generations of people living together)**

- (1)  Yes
- (4)  No
- (3)  Prefer not to say

**1.8 Which of these descriptions apply best to your own current situation?**

- (1)  In paid work (including self-employed or family business)
- (2)  In education
- (3)  Unemployed
- (4)  Permanently sick or disabled
- (5)  Retired
- (6)  In community or military service
- (7)  "Stay-at-home" parent or spouse
- (8)  Prefer not to say
- (9)  Other – please specify \_\_\_\_\_

**1.9 What is your education? (Please choose as many as relevant)**

- (1)  Primary education and/or secondary education not completed
- (2)  Primary education and/or secondary education completed
- (3)  Vocational or technical education completed (not university degree)
- (4)  Other education completed (not university degree)
- (5)  University degree completed (inclusive of PhD)
- (6)  Prefer not to say
- (7)  Other (please specify) \_\_\_\_\_

**1.9.1 Which of these descriptions applies best to the current situation of your partner?**

- (1)  In paid work (including self-employed or family business)

- (2)  In education
- (3)  Unemployed
- (4)  Permanently sick or disabled
- (5)  Retired
- (6)  In community or military service
- (7)  "Stay-at-home" parent or spouse
- (8)  Prefer not to say
- (9)  Other – please specify \_\_\_\_\_

**1.10 What is the type of home you live in?**

- (1)  Detached house (multi-storey)
- (2)  Detached house (single storey)
- (3)  Semi-detached house
- (4)  Terraced house
- (5)  Apartment in a house
- (6)  Apartment in a multi-storey building
- (7)  Don't know
- (8)  Other (please specify) \_\_\_\_\_

**1.11 Is your home..**

- (1)  Owned by you or another member of the household?
- (2)  Rented?
- (3)  Occupied without payment of rent?
- (4)  Don't know/prefer not to say
- (5)  Other (please specify) \_\_\_\_\_

**1.12 In which year was your home constructed?**

- (1)  Before 1900
- (2)  1900-1919
- (3)  1920-1939
- (4)  1940-1959
- (5)  1960-1979
- (6)  1980-1999

- (7)  2000-2019
- (8)  2019 and later
- (9)  Don't know

**1.13            How big is your home?**

- (1)  Below 30 m2
- (2)  30-49 m2
- (3)  50-69 m2
- (4)  70-89 m2
- (5)  90-109 m2
- (7)  110-129 m2
- (6)  130-149 m2
- (8)  150-169 m2
- (9)  170-189 m2
- (11)  190-209 m2
- (12)  More than 210 m2
- (13)  Don't know

**1.14            How long have you been living in your current home?**

- (1)  Less than 6 months
- (2)  6-11 months
- (3)  1 year
- (4)  2 years
- (5)  3-5 years
- (6)  6-10 years
- (7)  11 years or more
- (8)  Don't know

**1.15            Is your home centrally heated?**

- (1)  Yes, it is centrally heated
- (2)  No, it is not centrally heated
- (3)  Don't know

**1.16 How do you cool your home when it feels too warm? (please tick all that apply)**

- (1)  Open windows/doors
- (2)  Air conditioning unit
- (3)  Electric fans
- (4)  External shading
- (5)  I don't cool the home
- (6)  Don't know
- (7)  Other (please specify) \_\_\_\_\_

**1.17 Is your home cooled in an evenly way throughout? (e.g through air conditioning units in all rooms?)**

- (1)  Yes, it is cooled evenly through air-conditioning
- (2)  Yes, it is cooled evenly through other electric devices
- (3)  Yes, it is cooled evenly through a mix of air conditioning and other electric devices
- (4)  No, it is not cooled evenly, only partly
- (5)  No, it is not cooled at all using electric devices
- (6)  Don't know
- (7)  Other (please specify) \_\_\_\_\_

**1.18 Do you control your temperature settings at home (such as thermostat settings in heating or cooling systems etc.)**

- (1)  Yes
- (3)  No
- (5)  Don't know
- (4)  Other (please specify) \_\_\_\_\_

**Part 2: Your everyday household routines and energy use**

We would like to find out some more about your daily routines at home. By routine, we mean an activity that you perform daily or regularly in a similar way. In specific, we are interested in the energy-related everyday routines, in order to understand the ways you consume energy at home. Our aim is to understand which of these activities would be

easy for your household to change and which ones might be more difficult.

**2.1 What does home mean to you? (Please give us a sentence to describe it)**

\_\_\_\_\_

**2.2 Before COVID-19 restrictions (e.g. lockdown), how many hours would you typically spend at home on average per day (including sleep)?**

	1-4 hours	5-8 hours	9-12 hours	13-16 hours	17-20 hours	21-24 hours	Don't know
On a weekday (Monday-Friday)	(1) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(9) <input type="checkbox"/>	(8) <input type="checkbox"/>	(7) <input type="checkbox"/>
In the weekend	(1) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(9) <input type="checkbox"/>	(8) <input type="checkbox"/>	(7) <input type="checkbox"/>

**2.3 Under the current COVID-19 situation(April/May 2021), how many hours do you spend on average at home per day (including sleep)?**

	1-4 hours	5-8 hours	9-12 hours	13-16 hours	17-20 hours	21-24 hours	Don't know
On a weekday (Monday-Friday)	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>	(7) <input type="checkbox"/>
In the weekend	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>	(7) <input type="checkbox"/>

**2.4 When COVID-19 restrictions (e.g. lockdown) are over, how many hours do you expect to spend at home on average as compared to the time before COVID-19?**

	I expect to spend more hours at home	I expect to spend the same amount of hours at home	I expect to spend less hours at home	Don't know
On a weekday (Monday-Friday)	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>
In the weekend	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>

**2.5 Before COVID-19 restrictions (e.g. lockdown) did you work from home?**

- (1)  No, I never worked from home
- (2)  Yes, but only occasionally / in special circumstances
- (3)  Yes, I worked from home regularly (please state how often) \_\_\_\_\_
- (4)  Yes, I worked from home full-time
- (6)  I'm not in paid work
- (5)  Don't know

**2.6 Before the COVID-19 lockdowns did any other adult (e.g. partner) in your household work from home?**

- (1)  Nobody else from the household worked from home
- (2)  Yes, but only occasionally / in special circumstances
- (3)  Yes, someone from my household worked from home regularly (please specify) \_\_\_\_\_
- (4)  Yes, someone from my household worked from home full-time
- (6)  Not in paid work
- (7)  Don't know

**2.7 Do you think you will work from home more often after COVID-19 as compared to before COVID-19?**

- (1)  No, I think I will work from home the same amount as before COVID-19
- (2)  Yes, I think I will work from home occasionally, but less than 1 more day a week
- (3)  Yes, I think I will work from home 1-2 days more a week
- (4)  Yes, I think I will work from home 3-6 days more a week
- (5)  Yes, I will work from home permanently
- (6)  Don't know
- (7)  Other (please specify) \_\_\_\_\_

**2.7.1. Do you think any other adult (e.g. partner) in your household will work from home more often after COVID-19 as compared to before COVID-19?**

- (1)  No, I think my partner will work from home the same amount as before COVID-19
- (2)  Yes, I think my partner will work from home occasionally, but less than 1 more day a week
- (3)  Yes, I think my partner will work from home 1-2 days more a week
- (4)  Yes, I think my partner will work from home 3-6 days more a week
- (5)  Yes, I think my partner will work from home permanently

- (6)  Don't know  
(7)  Other (please specify) \_\_\_\_\_

**2.8 Which of the following daily routines do you think will have changed after the COVID-19 restrictions (e.g. lockdown)? (tick all that applies)**

- (1)  Cleaning  
(2)  Shopping  
(3)  Laundering  
(4)  Dropping off/picking up children  
(5)  Cooking  
(6)  Heating  
(7)  Cooling  
(8)  Using ICT devices  
(11)  I don't expect to change any routines  
(9)  Don't know  
(10)  Other (please specify) \_\_\_\_\_

**2.9 In what ways do you typically heat your home on an average day when heating is required? (Tick all that apply)**

- (1)  I turn the heating on all day  
(2)  I turn the heating on in the morning  
(3)  I turn the heating on in the afternoon  
(4)  I turn the heating on in the evening  
(5)  I turn the heating on when I am cold  
(6)  The heating turns automatically on when the temperature falls below a set temperature  
(7)  Don't know  
(8)  Other (please specify) \_\_\_\_\_

**2.10 During the winter season how do you overall experience the temperature in the room in your home that you spend the majority of time when you are at home?**

- (1)  Uncomfortably cold  
(2)  Comfortably cold  
(3)  Comfortable  
(4)  Comfortably hot



- (5)  Uncomfortably hot
- (6)  Don't know

**2.11 If you cool your home in the summer using an air conditioner or electric fans, please tell us how frequently on average:**

- (1)  Every day
- (2)  Between 5-6 days a week
- (3)  Between 3-4 days a week
- (4)  Between 1-2 days a week
- (5)  Less than once a week
- (6)  I don't cool my home using electric devices
- (7)  Don't know
- (8)  Other (please specify) \_\_\_\_\_

**2.12 In what ways do you typically cool your home on an average summer day? (please tick all that apply)**

- (1)  I turn the air-conditioning on all day
- (2)  I turn the fans on all day
- (3)  I turn the air-conditioning on in the morning
- (4)  I turn the fans on in the morning
- (5)  I turn the air conditioning on in the afternoon
- (6)  I turn the fans on in the afternoon
- (7)  I turn the air conditioning on in the evening
- (8)  I turn the fans on in the evening
- (10)  The cooling devices turn automatically on when the temperature goes over a set temperature
- (9)  I turn the cooling devices on when I am hot
- (11)  I open windows and/or doors
- (12)  Don't know
- (13)  Other (please specify) \_\_\_\_\_

**2.13 On average, how often does your household run your dishwasher?**

- (1)  Less than one time a week
- (2)  A few times a week
- (3)  Once a day

- (4)  Twice a day
- (5)  More than 2 times per day (please specify) \_\_\_\_\_
- (6)  We don't have a dishwasher
- (7)  Don't know

**2.13.1. When does your household usually run your dishwasher? (tick as many as relevant)**

- (1)  When we wake up
- (3)  After lunch
- (2)  After breakfast
- (4)  After the evening meal
- (5)  Before we go to bed
- (6)  We follow the peak/off peak times to plan it
- (7)  At other times (please tell us when) \_\_\_\_\_
- (8)  Don't know

**2.14 How often does your household on average run your washing machine?**

- (1)  Once a month
- (2)  Twice a month
- (3)  Once a week
- (4)  Twice a week
- (5)  Three times a week
- (6)  More than three times a week (please specify) \_\_\_\_\_
- (7)  We don't have a washing machine at home
- (8)  Don't know

**2.14.1 When does your household on average run the washing machine...**

- (1)  On weekdays (Monday-Friday)
- (2)  On weekends (Saturday and/or Sunday)
- (3)  Equally on weekdays and weekends
- (4)  Don't know
- (5)  Other (please specify) \_\_\_\_\_

**2.15 How does your household usually dry clothes? (tick as many as relevant)**

- (1)  Use a tumble dryer
- (2)  Hang to dry outdoors
- (3)  Hang to dry indoors
- (4)  Don't know
- (5)  Other (please specify) \_\_\_\_\_

**2.16 How often, on average, does your household use the iron?**

- (5)  Never
- (4)  Once a month
- (1)  Once a week
- (2)  Twice a week
- (3)  More than twice a week
- (6)  Don't know
- (7)  Other (please specify) \_\_\_\_\_

**2.17 On average when does your household do the ironing? (tick as many as relevant)**

- (1)  In the morning
- (2)  In the afternoon
- (3)  In the evening
- (4)  We follow the peak/off peak tariffs in order to do it
- (5)  Don't know
- (6)  Other (please specify) \_\_\_\_\_

**2.18 On average, who does the majority of the daily housework in your household?**

- (1)  Myself
- (2)  My partner/another member of the household
- (3)  Equally shared between members of the household
- (4)  Don't know/prefer not to say
- (5)  Other (please specify) \_\_\_\_\_

**2.19 On average, who takes responsibility of the household decisions and regular planning for tasks? (such as planning meals, planning holidays, arranging child-care, checking energy providers etc.)**

- (2)  Myself
- (1)  My partner/ another member of the household
- (3)  Equally shared between members of the household
- (4)  Don't know/prefer not to say
- (5)  Other (please specify) \_\_\_\_\_

**2.20 How would your household find changing the following in order to contribute to a more efficient renewable energy supply?**

	Very difficult	Difficult	Neither difficult nor easy	Easy	Very Easy	Don't know
Cooking times	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Reducing the appliances required for cooking	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Ways you heat your home	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Times you heat your home	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Ways you cool your home	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Times you cool your home	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Times (in a day) of washing clothes	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
How often we wash clothes	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
How often we dry clothes	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Times (in a day) of drying clothes	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Times of showering/bathing	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
How often we shower/bath	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Times of dishwashing	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
How often we use the dishwasher	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Times of house cleaning	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>

	Very difficult	Difficult	Neither difficult nor easy	Easy	Very Easy	Don't know
How often we clean the house	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Times of dining	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Times of using ICT devices for leisure	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>

**2.21 To what extent do you agree with this statement: Our household would consider programming our washing machine and tumble dryer to run their cycle at a another time in the day, following recommendations from a smart system**

Strongly agree	Agree	Neither agree or disagree	Disagree	Strongly disagree	Don't' know
(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>

**2.22 To what extent do you agree with this statement: Our household would consider changing the times we heat our home in order to assist with energy loads in our community**

Strongly agree	Agree	Neither agree or disagree	Disagree	Strongly disagree	Don't' know
(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>

**2.23 To what extent do you agree with this statement: Our household would consider changing the time we have a shower/bath in order to assist with energy loads in our community**

Strongly agree	Agree	Neither agree or disagree	Disagree	Strongly disagree	Don't' know
(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>

**2.24 Please tell us how energy demanding you think the following everyday activities are: (Please rate between 1=low demand to 5= high demand)**

1                      2                      3                      4                      5                      Don't know

	1	2	3	4	5	Don't know
Cooking	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Dishwashing	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Washing clothes	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Tumble-drying	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Using a smart phone	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Working on a computer	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Listening to music	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Having a shower	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Ironing	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Heating the house	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Cooling the house	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Charging an electric vehicle	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Lighting the house	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Energy for outdoor activities (such as lawn mowing, outdoors heaters etc.)	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>

### Part 3: Living with energy systems

In this section, we would like to find out about the ways in which you live with different technologies at home. In particular, we would like to know if you have a smart energy system at home and in what ways you use it, in combination with other devices or applications every day.

We will ask you questions about smart energy technologies at home. Smart energy technologies (such as smart meters and In-home displays) include devices that enable users to monitor and visualise their energy consumption and allow them to control devices remotely.

### 3.1 Do you know what smart energy technologies are?

- (1)  I have no idea what they are
- (2)  I have a vague idea of what they are
- (3)  I have a general idea of what they are
- (4)  I have a good idea of what they are
- (5)  Don't know

### 3.2 Do you use any of the following smart energy technologies? (Please tick all appropriate)

- (1)  Smart energy meter
- (2)  In-home digital display of energy consumption
- (3)  Automatic control of lighting
- (4)  No, I don't have any smart energy technologies
- (5)  Don't know
- (6)  Other (please specify) \_\_\_\_\_

### 3.3 What do you think the purpose of smart energy technologies are?

	Strongly agree	Agree	Neither agree or disagree	Disagree	Strongly disagree	Don't know
To save time	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
To save money	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
To save energy	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
To make things easier to use	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
To make everyday life more predictable	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
To enhance home security	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
To make home life more comfortable	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
To help with caring for others	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>

- (1)  Other (please specify) \_\_\_\_\_

**3.4 Do you or any other member of your household monitor your energy consumption through a smart meter or other device (such as a Home Energy management system)?**

- (1)  Yes  
(3)  No  
(4)  Don't know

**3.5 Who usually checks the energy consumption of your household? (Please select all that apply)**

- (1)  Myself  
(2)  My partner/another adult member of the household  
(3)  My children  
(4)  We don't check our energy consumption  
(5)  Don't know  
(6)  Other (please specify) \_\_\_\_\_

**3.6 Who usually controls or is in charge of your smart energy systems or devices? (Please select all that apply)**

- (1)  Myself  
(2)  My partner/another adult member of the household  
(3)  My children  
(4)  We don't have smart energy systems or devices  
(5)  Don't know  
(6)  Other (please specify) \_\_\_\_\_

**3.6.1 How often do you monitor your energy consumption through an in/home device or display?**

- (1)  Every day - multiples times  
(2)  Every day - once a day  
(3)  Between 4-6 times a week  
(4)  Between 2-3 times a week



- (5)  Once a week
- (6)  Once in a fortnight
- (7)  Once a month
- (8)  Less than once a month
- (9)  I check it when I receive a bill
- (10)  I never check it
- (11)  Don't know
- (12)  Other (please specify) \_\_\_\_\_

**3.7 Does your household currently use any web or mobile applications in order to monitor your energy consumption?**

- (1)  Yes, we use a web application
- (2)  Yes we use a smart phone application
- (3)  Yes we use both a web and a smart phone application
- (4)  No, we don't have services that allow monitor of energy consumption
- (5)  Don't know

**3.8 What would be the most convenient way to monitor and/or plan your energy consumption?**

- (1)  A smart phone application
- (2)  A desktop application
- (3)  Another mobile device
- (4)  A fixed device somewhere in the home
- (5)  Don't know
- (6)  Other (please specify) \_\_\_\_\_

**3.9 If you encounter problems or need advice about your energy system and its monitoring, who do you usually speak to? (tick all that apply)**

- (1)  Our utility company
- (2)  Someone in the household
- (3)  A friend/ relative/ neighbour
- (4)  I seek advice online at the energy providers' website
- (5)  I seek advice online at social media
- (6)  Don't know

(7)  Other (please specify) \_\_\_\_\_

**Would you like to give your name for further contact?**

(1)  Yes

(2)  No

Your responses to this survey will be collected and stored by Aalborg University in Denmark (partner of the HESTIA project). Your data will only be used for research purposes and for contact in relation to the project.

**We process the following personal data:**

Personal data collected through this survey, including General personal data (see Article 6(1) (a)) of the General Data Protection Regulation) and Sensitive data (see Article 9(2) of the General Data Protection Regulation): age, gender, children and their age, family composition, employment status, name, surname, e-mail address and telephone number. Your personal data will be deleted upon the end of the HESTIA project (3-year).

**Sharing of data**

Your data can be shared with [FR version: Électricité de France, Communauté d'agglomération Paris-Saclay and Münster Technological University, Ireland; IT version: Sinloc – Sistema Iniziative Locali SpA, Grid Ability Scarl, Midac Spa, AXPO Energy Solutions Italia – Societa per Azioni and Münster Technological University, Ireland; NL version: DuneWorks BV, For Your Energy Freedom BV and Münster Technological University, Ireland], all partners of HESTIA. Data will only be shared for use in relation to the HESTIA project.

**Your rights**

When we process your personal data, you have several rights under the General Data Protection Regulation. You have a right to erasure and a right to data portability as well as a right of access, a right to rectification, a right to restriction of processing and a right to

object to our processing of the personal data in question.

You can read more about your rights in our privacy policy, which you will find here:

<https://www.en.aau.dk/privacy-policy-cookies>.

### **Aalborg University's Data Protection Officer**

If you have general questions about your rights, or wish to exercise the rights described above, you can contact the [FR: NAME and EMAILADDRESS; IT: NAME and EMAILADDRESS; NL NAME and EMAILADDRESS] or the Data Protection Officer at Aalborg University, Niels Vase at [dpo@aaau.dk](mailto:dpo@aaau.dk) . You can write in English or your own language. If you write in own language, we encourage you to include the national Hestia contact in the email to help with the translation of your question: If you have questions about the Hestia project, you can also email the national contact directly.

### **Do you want to complain?**

We must and will always comply with the rules. If you believe that we do not meet our responsibility or that we do not process your data according to the rules, you may lodge a complaint with the Danish Data Protection Agency at [dt@datatilsynet.dk](mailto:dt@datatilsynet.dk). Please include the national Hestia contact in the email to help with translation of the complaint: [FR: NAME and EMAILADDRESS; IT: NAME and EMAILADDRESS; NL NAME and EMAILADDRESS]. However, we encourage you also to contact us at Aalborg University (see above), as we want to do our utmost to accommodate your complaint.

**Before you fill in your name and contact details, we will ask for your consent to collect, process and share your data from this survey. See above for further details on the data we process and your rights.**

- (1)  I hereby give my consent to Aalborg University, Denmark, to process my data in accordance with the below purpose and information (check the box to accept).

Name

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Contact phone number

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Contact email address

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This is the end of the survey. Thank you very much for your time and contribution to HESTIA.

**Is there any final comment you would like to share with us?**

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**Hestia** Household survey – **DUTCH VERSION**

Beste deelnemer,

Hartelijk dank voor uw deelname aan HESTIA: een **nieuw Europees onderzoeksproject**. HESTIA wordt uitgevoerd door een groot aantal partners, waaronder universiteiten, energiebedrijven, gemeenschapsorganisaties en natuurlijk huishoudens.

**Uw antwoorden op deze enquête zullen bijdragen aan een coöperatief, gemeenschappelijk en duurzaam energiesysteem.**

Uw bijdrage zal ons helpen te begrijpen hoe **uw alledaagse activiteiten thuis de energievraag van uw huis vormen**. Uw antwoorden zullen ook **bijdragen aan de ontwikkeling van een effectieve oplossing** om energieaanbod en energievraag op elkaar af te stemmen.

Door het HESTIA-onderzoek in te vullen, doet u mee aan een trekking van [lokale prijs] ter waarde van 100 euro. Om deel te nemen aan de trekking moet u HESTIA toestemming geven om uw persoonlijke gegevens (naam, achternaam en e-mailadres) te verkrijgen zodat we contact met u kunnen opnemen. Het toestemmingsformulier wordt aan het einde van de enquête gepresenteerd. Dank u.

Uw bijdrage aan deze enquête is **geheel vrijwillig**. U kunt er bovendien voor kiezen anoniem te blijven. We stellen uw antwoorden erg op prijs.

## **De achtergrond van deze enquête**

Hernieuwbare energie is de sleutel voor een energieverbruik waarbij geen broeikasgassen vrijkomen. Er is echter een probleem: nieuwe energiebronnen zoals de zon en de wind leveren uiteraard alleen energie op wanneer de zon schijnt of de wind waait. Soms levert dat meer energie op dan we nodig hebben, soms is dat juist te weinig. Die mismatch tussen vraag en aanbod moeten we oplossen, want als die twee niet in evenwicht zijn valt het energienet uit. Hier komt HESTIA om de hoek kijken. Met ondersteuning van de Europese Unie onderzoeken we de rol van huishoudens om het net netjes in balans te houden. Daar wordt speciale software voor ontwikkeld en vanuit HESTIA willen we uw perspectief als huishouden integreren zodat die software aansluit bij uw behoeften en mogelijkheden.

## **De inhoud van de enquête**

De enquête bestaat uit 3 delen: in het eerste deel stellen we vragen over uzelf en met wie u eventueel samenwoont. Het tweede deel bevat vragen over alledaagse activiteiten in uw huishouden die een effect hebben op het energieverbruik. We zullen proberen uit te vinden hoe een typische dag er uit ziet in uw huis. Ten slotte zal het derde deel ingaan op uw interacties met de apparaten waarmee u uw energieverbruik kunt inzien of afstemmen (van de thermostaat tot een app voor de zonnepanelen).

## **De benodigde tijd**

Het duurt ongeveer 20 minuten om de hele enquête in te vullen. Het is niet mogelijk om alleen maar een gedeelte in te vullen en het later af te maken: we raden daarom een moment te nemen waarin u tijd heeft om van begin tot einde te gaan.

## **Informatie over onze overeenstemming met Europese richtlijnen voor data-privacy**

Uw antwoorden op de volgende vragen zijn anoniem, behalve als u er – geheel vrijwillig – ervoor kiest uw naam en contactgegevens op het einde van de enquête in te vullen. In beide gevallen worden uw antwoorden verzameld en opgeslagen door Aalborg Universiteit, onze Deense partner in het HESTIA project. Uw antwoorden zullen

uitsluitend voor onderzoekdoeleinden worden gebruikt. Als u deze enquête invult gaat u er dus mee akkoord dat Aalborg Universiteit de informatie opslaat.

Geanonimiseerde informatie kan met andere partners in het HESTIA project gedeeld worden, en wel met DuneWorks BV, For Your Energy Freedom BV en Technische Universiteit Münster gedeeld worden. Deze informatie zal alleen voor de uitvoering van het HESTIA project gedeeld worden.

## **Deel 1: algemene informatie over u en uw huis**

In deel 1 van de vraagstelling stellen we een aantal vragen over u, de mensen met wie u samenwoont en de woning waarin u woont.

### **1.1 Hoe oud bent u?**

- (1)  18-24
- (2)  25-29
- (3)  30-34
- (5)  35-39
- (4)  40-44
- (6)  45-49
- (8)  50-54
- (9)  55-59
- (10)  60-64
- (11)  65-69
- (12)  70-74
- (13)  75-79
- (14)  80+
- (15)  Zeg ik liever niet

**1.2 Wat is uw geslacht?**

- (1)  Man
- (2)  Vrouw
- (3)  Anders
- (4)  Zeg ik liever niet

**1.3 Hoeveel volwassenen wonen er in uw huishouden (uzelf inclusief)?**

- (1)  1
- (2)  2
- (3)  3
- (4)  4
- (5)  5
- (6)  6
- (7)  7
- (8)  8
- (9)  9
- (10)  10 +
- (11)  Zeg ik liever niet

**1.4 Leeft u samen met een partner?**

- (1)  Ja
- (2)  Nee
- (3)  Zeg ik liever niet

**1.5 Hoe veel kinderen (jonger dan 18) wonen er in uw huishouden en hoe oud zijn zij?**

- (1)  Geen kinderen
- (2)  Zeg ik liever niet

	0	1	2	3	4	5+	Zeg ik liever niet
0-4 jaar	(7) <input type="checkbox"/>	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(8) <input type="checkbox"/>



	0	1	2	3	4	5+	Zeg ik liever niet
5-9 jaar	(7) <input type="checkbox"/>	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(8) <input type="checkbox"/>
10-14 jaar	(7) <input type="checkbox"/>	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(8) <input type="checkbox"/>
15 +	(7) <input type="checkbox"/>	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(8) <input type="checkbox"/>

**1.6 Zijn er mensen bij u thuis die ook lid zijn van een ander huishouden?**

- (1)  Ja er zijn kinderen die tussen huishoudens bewegen
- (2)  Ja er zijn volwassenen die tussen huishoudens bewegen
- (3)  Zowel kinderen en volwassenen bewegen tussen huishoudens
- (4)  Nee
- (5)  Zeg ik liever niet

**1.7 Woont u in een meergeneratiehuishouden (met meer dan 2 generaties erin)?**

- (1)  Ja
- (4)  Nee
- (3)  Zeg ik liever niet

**1.8 Welke van deze beschrijvingen passen het best bij uw eigen situatie?**

- (1)  In betaald werk
- (2)  In opleiding
- (3)  Werkloos
- (4)  Chronisch ziek of arbeidsongeschikt
- (5)  Met pensioen
- (6)  Militaire dienst
- (7)  Ouder of echtgenoot die thuisblijft
- (8)  Zeg ik liever niet
- (9)  Anders – schrijf hier op \_\_\_\_\_

**1.9 Wat is uw opleiding? (Kies wat van toepassing is.)**

- (1)  Basis- of voortgezet onderwijs niet afgemaakt
- (2)  Voortgezet onderwijs afgemaakt

- (3)  Lager of middelbaar beroepsonderwijs afgemaakt
- (4)  Hoger beroepsonderwijs afgemaakt
- (5)  Universitair onderwijs (inclusief promotie) afgemaakt
- (6)  Zeg ik liever niet
- (7)  Anders – schrijf hier op \_\_\_\_\_

**1.9.1 Welke van deze beschrijving passen het best bij de situatie van uw partner?  
(Sla over als u geen partner heeft)**

- (1)  In betaald werk
- (2)  In opleiding
- (3)  Werkloos
- (4)  Chronisch ziek of arbeidsongeschikt
- (5)  Met pensioen
- (6)  Militaire dienst
- (7)  Ouder of echtgenoot die thuisblijft
- (8)  Zeg ik liever niet
- (9)  Anders – schrijf hier op \_\_\_\_\_

**1.10 In wat voor een huis woont u ?**

- (1)  Vrijstaand huis (meerdere verdiepingen)
- (2)  Vrijstaand huis (enkele verdieping)
- (3)  Twee woningen onder een kap
- (4)  Rijtjeshuis
- (5)  Appartement in een woning
- (6)  Appartement in een gebouw met meerdere verdiepingen
- (7)  Weet ik niet
- (8)  Anders (geef aan) \_\_\_\_\_

**1.11 Is uw huis ...**

- (1)  eigendom van u of een ander lid van het huishouden?
- (2)  een huurwoning?
- (3)  bezet zonder betaling van huur?
- (4)  Weet ik niet/Zeg ik liever niet
- (5)  Anders (geef aan) \_\_\_\_\_

**1.12 Uit welk jaar stamt uw huis?**

- (1)  Voor 1900
- (2)  1900-1919
- (3)  1920-1939
- (4)  1940-1959
- (5)  1960-1979
- (6)  1980-1999
- (7)  2000-2019
- (8)  2019 en later
- (9)  Weet ik niet

**1.13 Hoe groot is uw huis?**

- (1)  Minder dan 30 m<sup>2</sup>
- (2)  30-49 m<sup>2</sup>
- (3)  50-69 m<sup>2</sup>
- (4)  70-89 m<sup>2</sup>
- (5)  90-109 m<sup>2</sup>
- (7)  110-129 m<sup>2</sup>
- (6)  130-149 m<sup>2</sup>
- (8)  150-169 m<sup>2</sup>
- (9)  170-189 m<sup>2</sup>
- (11)  190-209 m<sup>2</sup>
- (12)  Meer dan 210 m<sup>2</sup>
- (13)  Weet ik niet

**1.14 Hoe lang woont u al in dit huis?**

- (1)  Minder dan 6 maanden
- (2)  6-11 maanden
- (3)  1 jaar
- (4)  2 jaren
- (5)  3-5 jaren
- (6)  6-10 jaren
- (7)  11 of meer jaren

- (8)  Weet ik niet

**1.15 Wordt uw woning centraal verwarmd?**

- (1)  Ja, het is centraal verwarmd  
(2)  Nee, het is niet centraal verwarmd  
(3)  Weet ik niet

**1.16 Hoe verkoelt u uw huis wanneer u het te warm vindt ? (Kies alles wat van toepassing is)**

- (1)  Ik open ramen en/of deuren  
(2)  Airco  
(3)  Elektrische ventilators  
(4)  Door de ramen af te schermen  
(5)  ik verkoel mijn huis niet  
(6)  Weet ik niet  
(7)  Anders (geef aan) \_\_\_\_\_

**1.17 Wordt uw huis overal gelijkmatig verkoeld (bijv. door airco-apparaten in elke kamer) ?**

- (1)  Ja, het wordt gelijkmatig verkoeld d.m.v. airco  
(2)  Ja, het wordt gelijkmatig verkoeld door andere elektrische apparaten  
(3)  Ja, het wordt gelijkmatig verkoeld d.m.v. airco en andere elektrische apparaten  
(4)  Nee, het wordt niet gelijkmatig verkoeld, slechts ten dele  
(5)  Nee, het wordt helemaal niet d.m.v. elektrische apparaten verkoeld  
(6)  Weet ik niet  
(7)  Anders (geef aan) \_\_\_\_\_

**1.18 Stemt u de temperatuur zelf thuis af (d.m.v. een thermostaat bijv.)?**

- (1)  Ja  
(3)  Nee  
(5)  Weet ik niet  
(4)  Anders (geef aan) \_\_\_\_\_

## Deel 2: Uw alledaagse routines en energieverbruik

We komen graag iets meer te weten over uw dagelijkse routines thuis. Met routine bedoelen we een activiteit die u dagelijks of tenminste regelmatig uitvoert op ongeveer dezelfde manier. We zijn uiteraard met name geïnteresseerd in de routines die energieverbruik opleveren, zodat we begrijpen hoe energieverbruik nu eigenlijk tot stand komt. Daarmee hopen we ook zicht te krijgen op welke activiteiten makkelijker te veranderen zouden zijn en welke moeilijker.

### 2.1 Wat betekent “thuis” voor u? Omschrijf het alstublieft in een zin of twee.

\_\_\_\_\_

#### 2.1.1 U maakt deel uit van een bijzonder woonconcept (PlusLeven). Wat waren uw verwachtingen toen u in het huis trok en wat zijn uw ervaringen tot nog toe? (Voelt u vrij om zo kort of uitgebreid te antwoorden al u wilt)

\_\_\_\_\_

### 2.2 Vóór de beperkingen van de Covid-19 maatregelen, hoeveel uur bracht u normaal gesproken op een dag thuis door (met slaaptijd inbegrepen)?

	1-4 uur	5-8 uur	9-12 uur	13-16 uur	17-20 uur	21-24 uur	Weet ik niet
Doordeweekse dag	(1) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(9) <input type="checkbox"/>	(8) <input type="checkbox"/>	(7) <input type="checkbox"/>
In het weekend	(1) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(9) <input type="checkbox"/>	(8) <input type="checkbox"/>	(7) <input type="checkbox"/>

### 2.3 In de huidige Covid-19 omstandigheden, hoeveel uur brengt u gemiddeld thuis door (slaaptijd inbegrepen)?

	1-4 uur	5-8 uur	9-12 uur	13-16 uur	17-20 uur	21-24 uur	Weet ik niet
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	1-4 uur	5-8 uur	9-12 uur	13-16 uur	17-20 uur	21-24 uur	Weet ik niet
Doordeweekse dag	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>	(7) <input type="checkbox"/>
In het weekend	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>	(7) <input type="checkbox"/>

## 2.4 Wanneer de coronabeperkingen weer worden opgeheven, hoeveel uur denkt u gemiddeld thuis door te brengen in vergelijking met de tijd van vóór Covid-19?

	Ik verwacht meer uren thuis door te brengen	Ik verwacht hetzelfde aantal uren thuis door te brengen	Ik verwacht minder uren thuis door te brengen	Weet ik niet
Doordeweekse dag	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>
In het weekend	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>

## 2.5 Heeft u tijdens de lockdowns thuisgewerkt?

- (1)  Nee, ik heb nooit thuisgewerkt
- (2)  Ja, maar slechts incidenteel / onder bijzondere omstandigheden
- (3)  Ja, ik heb regelmatig thuisgewerkt (geef aan hoe vaak) \_\_\_\_\_
- (4)  Ja, ik heb volledig thuisgewerkt
- (6)  Ik heb geen betaald werk gehad
- (5)  Weet ik niet

## 2.6 Heeft een andere volwassene in uw huishouden tijdens de lockdowns thuisgewerkt?

- (1)  Niemand anders uit het huishouden werkte vanuit huis
- (2)  Ja, maar slechts incidenteel / onder bijzondere omstandigheden
- (3)  Ja, iemand uit mijn huishouden werkte regelmatig vanuit huis (geef aan hoe vaak) \_\_\_\_\_
- (4)  Ja, iemand uit mijn huishouden werkte fulltime vanuit huis
- (6)  Niet in betaald werk
- (7)  Weet ik niet

## 2.7 Denkt u dat u vaker thuis zult werken na de Covid-19 beperkingen in vergelijking met daarvoor?

- (1)  Nee, ik denk dat ik hetzelfde bedrag vanuit huis ga werken als voor COVID-19
- (2)  Ja, ik denk dat ik af en toe van thuis zal werken, maar niet meer dan een dag extra per week
- (3)  Ja, ik denk dat ik een extra 1-2 dagen van thuis zal werken
- (4)  Ja, ik denk dat ik een extra 3-6 dagen per week thuis zal werken
- (5)  Ja, ik zal permanent van huis uit werken
- (6)  Ik weet het niet
- (7)  Anders (leg uit) \_\_\_\_\_

### 2.7.1 Denkt u dat uw partner vaker van huis uit zal werken na corona in vergelijking tot voor corona?

- (1)  Nee, ik denk dat andere volwassene evenveel vanuit huis zal werken als voor COVID-19
- (2)  Ja, af en toe, maar niet meer dan een dag extra per week
- (3)  Ja, een extra 1-2 dagen van huis uit
- (4)  Ja, een extra 3-6 dagen van huis uit
- (5)  Ja, permanent van huis uit
- (6)  Ik weet het niet
- (7)  Anders (leg uit) \_\_\_\_\_

## 2.8 Welke van de volgende dagelijkse routines zullen volgens u ook na de COVID-19-beperkingen blijvend veranderd zijn? (Kruis alles aan wat van toepassing is)

- (1)  Schoonmaak
- (2)  Boodschappen doen
- (3)  Witwassen
- (4)  Kinderen afzetten / ophalen
- (5)  Koken
- (6)  Verwarming
- (7)  Verkoeling
- (8)  ICT-apparaten gebruiken
- (11)  Ik verwacht niet dat ik routines zal veranderen
- (9)  Ik weet het niet
- (10)  Anders (leg uit) \_\_\_\_\_

**2.9 Hoe verwarmt u normaal gesproken uw huis op een gemiddelde dag dat verwarming nodig is? (Vink alles aan wat van toepassing is)**

- (1)  Ik zet de verwarming de hele dag aan
- (2)  Ik zet de verwarming 's ochtends aan
- (3)  Ik zet de verwarming 's middags aan
- (4)  Ik zet de verwarming 's avonds aan
- (5)  Ik zet de verwarming aan wanneer ik het koud heb
- (6)  De verwarming gaat automatisch aan wanneer de temperatuur onder de aangegeven temperatuur zakt
- (7)  Ik weet het niet
- (8)  Anders (leg uit) \_\_\_\_\_

**2.10 In het winterseizoen, hoe ervaart u de temperatuur in de kamers waar u thuis de meeste tijd doorbrengt?**

- (1)  Oncomfortabel koud
- (2)  Comfortabel koud
- (3)  Comfortabel
- (4)  Comfortabel warm
- (5)  Oncomfortabel warm
- (6)  Ik weet het niet

**2.11 Indien u uw huis in de zomer met een airco of met ventilator verkoelt, hoe vaak doet u dat dan ?**

- (1)  Elke dag
- (2)  Tussen 5 en 6 dagen per week
- (3)  Tussen 3 en 4 dagen per week
- (4)  Tussen 1 en 2 dagen per week
- (5)  Minder dan een keer per week
- (6)  Ik verkoel mijn huis niet met elektrische apparaten
- (7)  Ik weet het niet
- (8)  Anders (leg uit) \_\_\_\_\_

**2.12 Hoe verkoelt u uw huis normaal gesproken op een gemiddelde zomerse dag ?**

- (1)  Ik heb de hele dag de airco aan
- (2)  De ventilators staan de hele dag aan



- (3)  Ik zet 's ochtends de airco aan
- (4)  Ik zet 's ochtends de ventilators aan
- (5)  Ik doe 's middags de airco aan
- (6)  Ik zet 's middags de ventilators aan
- (7)  Ik zet de airco 's avonds aan
- (8)  Ik zet de ventilators 's avonds aan
- (10)  De koeling gaat automatisch aan wanneer de temperatuur boven de aangegeven temperatuur stijgt
- (9)  Ik zet de apparaten aan wanneer ik het warm heb
- (11)  Ik open de ramen en deuren
- (12)  Ik weet het niet
- (13)  Anders (leg uit) \_\_\_\_\_

### 2.13 Hoe vaak wordt uw vaatwasser gemiddeld gebruikt?

- (1)  Minder dan één keer per week
- (2)  Een paar keer per week
- (3)  Eén keer per dag
- (4)  Twee keer per dag
- (5)  Meer dan twee keer per dag (leg uit) \_\_\_\_\_
- (6)  We hebben geen vaatwasser
- (7)  Ik weet het niet

#### 2.13.1 Op welk tijdstip wordt uw vaatwasser meestal gebruikt?

- (1)  Wanneer we opstaan
- (3)  Na het ontbijt
- (2)  Na de lunch
- (4)  Na het avondeten
- (5)  Voordat we naar bed gaan
- (6)  Wij volgen piek en daluren om het in te plannen
- (7)  Op andere tijden (leg uit) \_\_\_\_\_
- (8)  Ik weet het niet

### 2.14 Hoe vaak wordt uw wasmachine gebruikt?

- (1)  Een keer per maand
- (2)  Twee keer per maand

- (3)  Een keer per week
- (4)  Twee keer per week
- (5)  Drie keer per week
- (6)  Meer dan drie keer week (geef aan hoeveel keer) \_\_\_\_\_
- (7)  We hebben geen wasmachine thuis
- (8)  Ik weet het niet

#### **2.14.1 Wanneer gebruikt uw huishouden meestal de wasmachine?**

- (1)  Op doordeweekse dagen
- (2)  Tijdens het weekeinde
- (3)  Net zo goed door de week als in het weekend
- (4)  Weet ik niet
- (5)  Anders (geef aan) \_\_\_\_\_

#### **2.15 Hoe worden kleren meestal gedroogd?**

- (1)  Met een droger
- (2)  We hangen ze buiten te drogen op
- (3)  We hangen ze zinnen te drogen op
- (4)  Weet ik niet
- (5)  Anders (geef aan) \_\_\_\_\_

#### **2.16 Hoe vaak wordt in uw huishouden gemiddeld genomen het strijkijzer gebruikt?**

- (5)  Nooit
- (4)  Een keer per maand
- (1)  Een keer per week
- (2)  Twee keer per week
- (3)  Meer dan twee keer per week
- (6)  Weet ik niet
- (7)  Anders (geef aan) \_\_\_\_\_

#### **2.17 Op welk tijdstip wordt er normaal gesproken gestreken? (Vink alles aan dat relevant is)**

- (1)  Ochtends
- (2)  Middags

- (3)  Avonds
- (4)  Ik volg de piek en daluren
- (5)  Weet ik niet
- (6)  Anders (geef aan) \_\_\_\_\_

**2.18 Wie doet gemiddeld het meeste huishoudelijke werk in uw huishouden?**

- (1)  Ikzelf
- (2)  Mijn partner/een ander lid van het huishouden
- (3)  Gelijk gedeeld tussen leden van het huishouden
- (4)  Weet ik niet/Zeg ik liever niet
- (5)  Anders (geef aan) \_\_\_\_\_

**2.19 Wie draagt er gemiddeld genomen de meest verantwoordelijkheid over het huishouden en het plannen van taken? (Denk aan het plannen van maaltijden, vakanties, de zorg voor de kinderen, keuzes voor energieaanbieders)**

- (2)  Ikzelf
- (1)  Mijn partner/een ander lid van het huishouden
- (3)  Gelijk gedeeld tussen leden van het huishouden
- (4)  Weet ik niet/Zeg ik liever niet
- (5)  Anders (geef aan) \_\_\_\_\_

**2.20 Hoe zou u of zouden andere leden van uw huishouden het vinden om de volgende dingen te veranderen om zodoende bij te dragen aan een efficiëntere hernieuwbare energievoorziening?**

	Erg moeilijk	Moelijk	Noch moeilijk, noch gemakkelijk	Gemakkelijk	Erg makkelijk	Weet ik niet
Kooktijden	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Het aantal apparaten nodig voor het koken	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Manieren om de woning te verwarmen	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Tijdstippen waarop de woning	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>

	<b>Erg moeilijk</b>	<b>Moelijk</b>	<b>Noch moeilijk, noch gemakkelijk</b>	<b>Gemakkelijk</b>	<b>Erg makkelijk</b>	<b>Weet ik niet</b>
opgewarmd wordt						
Manieren om de woning te verkoelen	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Tijdstippen waarop de woning verkoeld wordt	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Tijdstippen om kleren te wassen	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Hoe vaak we kleren wassen	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Tijdstippen om de droger te gebruiken	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Hoe vaak we de droger gebruiken	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Tijdstippen om te douchen of baden	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Hoe vaak we douchen of baden	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Tijdstippen om de vaat te doen	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Hoe vaak we de vaatwasser gebruiken	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Tijdstippen om het huis schoon te maken	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Hoe vaak we het huis schoonmaken	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Tijdstip van het avondeten	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Tijdstippen dat we ICT-apparaten voor ontspanning gebruiken	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>

**2.21 In hoeverre bent u het eens met deze uitspraak: ons huishouden zou het overwegen om onze wasmachine en droger zo te programmeren dat ze op een later tijdstip draaien, op basis van de suggesties van een slim energiesysteem.**

Zeer meer eens	Eens	Noch eens, noch oneens	Oneens	Zeer mee oneens	Weet ik niet
(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>

**2.22 In hoeverre bent u het eens met deze uitspraak: ons huishouden zou het overwegen om de tijdstippen waarop we onze woning verwarmen te veranderen om de druk op het elektriciteitsnet in onze buurt te verlichten**

Zeer meer eens	Eens	Noch eens, noch oneens	Oneens	Zeer mee oneens	Weet ik niet
(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>

**2.23 In hoeverre bent u het eens met deze uitspraak: ons huishouden zou het overwegen om de tijdstippen waarom we douchen of baden de druk op het elektriciteitsnet in onze buurt te verlichten**

Zeer meer eens	Eens	Noch eens, noch oneens	Oneens	Zeer mee oneens	Weet ik niet
(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>

**2.24 Hoe energie-intensief denkt u dat de volgende activiteiten zijn: (Scoor ze van 1=vraagt weinig energie tot 5=vraagt veel energie)**

	1	2	3	4	5	Weet ik niet
Koken	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Vaatwassen	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Was draaien	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Droger laten draaien	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Een smartphone gebruiken	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Op een computer werken	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Naar muziek luisteren	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>

	1	2	3	4	5	Weet ik niet
Een douche nemen	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Strijken	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Het huis opwarmen	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Het huis verkoelen	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Een elektrische auto opladen	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Het huis verlichten	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Energie voor activiteiten buiten het huis (zoals het gazon maaien of buitenverwarming)	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>

### Deel 3: met energiesystemen leven

In dit deel willen we graag wat weten over hoe u met verschillende technologieën thuis leeft. In het bijzonder willen we graag weten of u een slim energiesysteem heeft en hoe u het gebruikt, in combinatie met alledaagse apparaten of toepassingen.

We zullen u vragen stellen over slimme energietechnologieën in het huis. Slimme energietechnologieën (zoals slimme meters en in-home displays) zijn apparaten die mensen in staat stellen om hun energieverbruik te visualiseren, te monitoren en hun apparaten van een afstand te bedienen.

#### 3.1 Weet u wat slimme energietechnologieën zijn?

- (1)  Ik heb geen idee wat ze zijn
- (2)  Ik heb wel een vaag idee van wat ze zijn
- (3)  Ik heb een algemeen idee van wat ze zijn
- (4)  Ik heb een goed idee van wat ze zijn
- (5)  Weet ik niet

**3.2 Gebruikt u één of meerdere van de onderstaande slimme energietechnologieën? (Vink aan wat van toepassing is)**

- (1)  Slimme energiemeter
- (2)  In-home digitale display van energieverbruik
- (3)  Automatische controle van verlichting
- (4)  Nee, ik heb geen slimme energietechnologieën
- (5)  Weet ik niet
- (6)  Anders (geef aan) \_\_\_\_\_

**3.3 Wat denkt u dat het doel van slimme energietechnologieën is?**

	<b>Zeer meer eens</b>	<b>Eens</b>	<b>Noch eens, noch oneens</b>	<b>Oneens</b>	<b>Zeer mee oneens</b>	<b>Weet ik niet</b>
Tijd te besparen	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Geld te besparen	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Energie te besparen	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Dingen makkelijker in het gebruik te maken	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Het alledaagse leven voorspelbaarder te maken	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
De woning veiliger te maken	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Het leven aangenaamer te maken	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
De zorg voor anderen te ondersteunen	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>

- (1)  Anders (geef aan) \_\_\_\_\_

**3.4 Houdt u of iemand anders in uw huishouden het energieverbruik in de gaten door middel van een slimme meter of ander apparaat?**

- (1)  Ja
- (3)  Nee
- (4)  Weet ik niet

**3.5 Wie checkt meestal het energieverbruik van het huishouden? (Vink aan wat van toepassing is)**

- (1)  Ikzelf
- (2)  Mijn partner / een ander volwassen lid van het huishouden
- (3)  Mijn kinderen
- (4)  We checken ons energieverbruik niet
- (5)  Weet ik niet
- (6)  Anders (geef aan) \_\_\_\_\_

**3.6 Wie gaat er in het algemeen over de slimme energiesystemen of apparaten? (Vink aan wat van toepassing is)**

- (1)  Ikzelf
- (2)  Mijn partner / een ander volwassen lid van het huishouden
- (3)  Mijn kinderen
- (4)  We hebben geen slimme energiesystemen of apparaten
- (5)  Weet ik niet
- (6)  Anders (geef aan) \_\_\_\_\_

**3.6.1 Hoe vaak checkt u uw energie op een in-home display of apparaat?**

- (1)  Elke dag – meerdere keren per dag
- (2)  Elke dag – een keer per dag
- (3)  Tussen de 4 en 6 keer per week
- (4)  Tussen de 2 en 3 keer per week
- (5)  Een keer per week
- (6)  Eens in de twee weken
- (7)  Een keer per maand
- (8)  Minder dan een keer per maand
- (9)  Ik check het wanneer ik de rekening krijg



- (10)  Ik check het nooit
- (11)  Weet ik niet
- (12)  Anders (geef aan) \_\_\_\_\_

**3.7 Gebruikt iemand bij u thuis op dit moment een internetsite of mobiele app om het energieverbruik in de gaten te houden?**

- (1)  Ja we kijken via een internetsite
- (2)  Ja we gebruiken een mobiele app
- (3)  Ja we gebruiken zowel een internetsite als een mobiele app
- (4)  Nee, we hebben geen services waarmee u het energieverbruik kunt volgen
- (5)  Weet ik niet

**3.8 Wat zou de meest handige manier zijn om uw energieverbruik te monitoren en/of te plannen?**

- (1)  App op de smartphone
- (2)  Een programma op de PC
- (3)  Een ander mobiel apparaat
- (4)  Een apparaat dat ergens in de woning is vastgemaakt
- (5)  Weet ik niet
- (6)  Anders (geef aan) \_\_\_\_\_

**3.9 Als u problemen ondervindt met uw energievoorziening of erover advies nodig hebt om er inzicht in te krijgen, wie spreekt u dan gewoonlijk aan?**

- (1)  Ons energiebedrijf
- (2)  Iemand in het huishouden
- (3)  Een vriend / familielid / buren
- (4)  Ik zoek advies op de website van de energieaanbieder
- (5)  Ik zoek naar advies op sociale media
- (6)  Weet ik niet
- (7)  Anders (geef aan) \_\_\_\_\_

**Wilt u uw naam opgeven voor verder contact?**

- (1)  Ja

(2)  Nee

Voordat u uw naam en contactgegevens invult, zullen we uw toestemming vragen voor het verzamelen, verwerken en delen van uw gegevens uit deze enquête. Zie hieronder voor meer informatie over de gegevens die we verwerken en uw rechten.

Uw antwoorden op deze enquête zullen door de Universiteit van Aalborg in Denemarken verzameld en opgeslagen. Uw data zal alleen voor onderzoeksdoeleinden gebruikt worden en om in het kader van het project contact met u op te nemen.

### **We verwerken de volgende persoonlijke gegevens:**

Persoonsgegevens verzameld via deze enquête, waaronder algemene persoonsgegevens (zie artikel 6 (1) (a)) van de algemene verordening gegevensbescherming) en gevoelige gegevens (zie artikel 9 (2) van de algemene verordening gegevensbescherming): leeftijd, geslacht, kinderen en hun leeftijd, gezinssamenstelling, arbeidsstatus, naam, achternaam, e-mailadres en telefoonnummer. Uw persoonlijke gegevens worden verwijderd aan het einde van het HESTIA-project (3 jaar).

### **Het delen van gegevens:**

Uw gegevens kunnen gedeeld worden met DuneWorks BV, For Your Energy Freedom BV en de Technische Universiteit Münster in Ierland. Dit zijn alle partners van HESTIA. Gegevens worden alleen maar in het kader van het HESTIA project gedeeld.

### **Uw rechten:**

Wanneer we uw persoonsgegevens verwerken, heeft u verschillende rechten onder de Algemene Verordening Gegevensbescherming. U heeft recht op verwijdering en recht op gegevensoverdraagbaarheid, evenals recht op toegang, recht op rectificatie, recht op beperking van de verwerking en recht om bezwaar te maken tegen onze verwerking van

de persoonsgegevens in kwestie.

U kunt meer lezen over uw rechten in ons privacybeleid, dat u hier vindt:  
<https://www.en.aau.dk/privacy-policy-cookies>.

### **Aalborg Universiteit heeft een Chef Dataveiligheid**

Als u algemene vragen heeft over uw rechten, of de hierboven beschreven rechten wilt uitoefenen, kunt u contact opnemen met de [marten.boekelo@dunetworks.nl](mailto:marten.boekelo@dunetworks.nl) of de Functionaris Gegevensbescherming van Aalborg University, Niels Vase op [dpo@aau.dk](mailto:dpo@aau.dk). U kunt in het Engels of in uw eigen taal schrijven. Als u in uw eigen taal schrijft, raden we u aan om de nationale Hestia-contactpersoon in de e-mail op te nemen om u te helpen bij de vertaling van uw vraag: Als u vragen heeft over het Hestia-project, kunt u ook rechtstreeks een e-mail sturen naar de nationale contactpersoon.

### **Wilt u bezwaar maken?**

We moeten en zullen ons altijd aan de regels houden. Als u van mening bent dat wij niet aan onze verantwoordelijkheid voldoen of dat wij uw gegevens niet volgens de regels verwerken, kunt u een klacht indienen bij de Deense gegevensbeschermingsautoriteit via [dt@datatilsynet.dk](mailto:dt@datatilsynet.dk). Gelieve de nationale Hestia-contactpersoon in de e-mail op te nemen om te helpen bij de vertaling van de klacht: [marten.boekelo@dunetworks.nl](mailto:marten.boekelo@dunetworks.nl). We raden u echter aan om ook contact met ons op te nemen aan de Universiteit van Aalborg (zie hierboven), omdat we ons uiterste best willen doen om aan uw klacht tegemoet te komen.

- (1)  Ik geef hierbij mijn toestemming aan Aalborg University, Denemarken, om mijn gegevens te verwerken in overeenstemming met het onderstaande doel en de onderstaande informatie (vink het vakje aan om te accepteren).

Naam

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Telefoonnummer

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E-mailadres

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Dit is het einde van de enquête. Heel erg bedankt voor uw tijd en bijdrage aan HESTIA.

**Is er een laatste opmerking die u met ons wilt delen?**

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## Enquête énergie et habitudes de vie – FRENCH VERSION

Chères participantes, chers participants,

Nous vous remercions pour le temps que vous acceptez de consacrer à cette enquête, réalisée dans le cadre du projet européen HESTIA. Ce projet s'inscrit dans la démarche de la Communauté Paris Saclay et de la Ville de Palaiseau relative à la transition écologique. C'est un projet commun entre des universités européennes, des entreprises de l'énergie, des organismes publics, et surtout vous : les ménages qui répondez

à cette enquête.

Votre participation nous aidera à comprendre comment vos pratiques de vie quotidienne impactent la consommation d'énergie des ménages. Vos réponses seront notre point de départ pour développer de nouvelles solutions pour votre foyer et votre communauté locale, afin d'améliorer ensemble notre manière de consommer l'énergie au quotidien et favoriser l'intégration des énergies renouvelables sur le territoire.

Participer à cette enquête est bien sûr votre décision, sur la base du volontariat. Nous vous serons reconnaissants si vous acceptiez de répondre à toutes les questions, du mieux possible. De toute évidence, vos réponses sont anonymes et resteront uniquement dans le projet HESTIA.

En remplissant ce questionnaire du projet HESTIA, vous pourrez participer à un tirage d'une valeur de 100€. Pour participer à ce tirage au sort, nous avons besoin de votre consentement pour la collecte et le traitement de vos informations personnelles de contact (nom, prénom, adresse e-mail). Le formulaire de consentement est présenté à la fin de cette enquête. Nous vous remercions pour votre participation

## **Un peu de contexte**

Les énergies renouvelables font partie des solutions pour limiter nos émissions de gaz à effet de serre, un enjeu majeur dans la lutte contre le changement climatique. Certaines énergies renouvelables ont la particularité de n'être pas toujours disponible exactement lorsque nous en avons besoin, ou au contraire d'être disponible à des moments où il y a peu de consommation d'énergie. Le nouveau projet européen HESTIA a pour but d'étudier comment l'on peut maximiser l'utilisation de nos énergies renouvelables (tel que le bois ou le solaire) en développant de nouvelles solutions pratiques et qui s'intègrent facilement dans la vie quotidienne des ménages. Le terme utilisé dans ce contexte est « gestion de la demande » (Demand Response en anglais). Le projet HESTIA vise à intégrer votre vision et votre avis, et créer de nouvelles plateformes digitales pour gérer notre énergie au quotidien.

## **Contenu de l'enquête**

Cette enquête est composée de 3 parties. La première partie vous concerne vous-mêmes, les personnes vivant dans votre foyer, et le logement dans lequel vous vivez. La deuxième partie inclut des questions liées aux pratiques et activités quotidiennes dans votre foyer, et qui concernent la consommation d'énergie. Nous tentons ici de mieux comprendre ce qui, pour vous, est 'normal' et 'typique' dans votre consommation d'énergie. Enfin, la troisième partie est relative à votre utilisation des appareils consommateurs d'énergie dans votre foyer.

## **Durée du questionnaire**

Il vous faudra environ 20 minutes pour répondre à ce questionnaire. Dans le cas où vous quitteriez ce questionnaire avant de l'avoir finalisé, il ne sera malheureusement pas possible de le reprendre à l'endroit où vous vous seriez arrêté. Nous vous recommandons donc de le compléter entièrement en une seule fois.

## **Information sur la protection de vos données personnelles dans le cadre du RGPD**

Vos réponses aux questions de cette enquête sont anonymes, sauf si vous acceptez d'indiquer vos coordonnées à la fin de cette enquête, ce qui est optionnel. Si vous acceptez d'indiquer vos coordonnées en plus des réponses à ce questionnaire, nous vous demanderons votre consentement et une confirmation manuelle à la fin de cette enquête. Vos réponses sont collectées et traitées par l'Université d'Aalborg au Danemark, dans le cadre du projet européen HESTIA dont l'Université d'Aalborg est partenaire. Vos réponses sont utilisées exclusivement à des fins de recherche. En remplissant ce questionnaire, vous consentez à ce que l'Université d'Aalborg enregistre vos réponses. Vos réponses, anonymes, pourront être partagées avec les autres partenaires du projet européen HESTIA suivants : la Communauté d'Agglomération Paris-Saclay, EDF (Electricité de France) recherche et développement, et l'Université Technique de Munster (Munster Technological University, Irlande). Ces données anonymes seront uniquement partagées dans le cadre du projet européen HESTIA.

## **Partie 1: Informations générales sur vous et votre logement**

Dans la première partie de ce questionnaire, nous posons un certain nombre de questions sur vous-mêmes, les personnes avec lesquelles vous vivez et le logement dans lequel vous vivez..

### **1.1 Quel âge avez-vous ?**

- (1)  18-24
- (2)  25-29
- (3)  30-34
- (5)  35-39
- (4)  40-44
- (6)  45-49
- (8)  50-54
- (9)  55-59
- (10)  60-64



- (11)  65-69
- (12)  70-74
- (13)  75-79
- (14)  80+
- (15)  Je préfère ne pas répondre

### **1.2 Quel est votre sexe ?**

- (1)  Masculin
- (2)  Féminin
- (3)  Autre
- (4)  Je préfère ne pas répondre

### **1.3 Combien d'adultes vivent dans votre foyer (vous inclus) ?**

- (1)  1
- (2)  2
- (3)  3
- (4)  4
- (5)  5
- (6)  6
- (7)  7
- (8)  8
- (9)  9
- (10)  10 +
- (11)  Je préfère ne pas répondre

### **1.4 Vivez-vous avec un/une partenaire ?**

- (1)  Oui
- (2)  Non
- (3)  Je préfère ne pas répondre

### **1.5 Combien d'enfants (de moins de 18 ans) vivent dans votre foyer et quel est leur âge ?**

- (1)  Pas d'enfants

- (2)  Je préfère ne pas répondre

	0	1	2	3	4	5+	Je préfère ne pas répondre
0-4 ans	(7) <input type="checkbox"/>	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(8) <input type="checkbox"/>
5-9 ans	(7) <input type="checkbox"/>	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(8) <input type="checkbox"/>
10-14 ans	(7) <input type="checkbox"/>	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(8) <input type="checkbox"/>
15 +	(7) <input type="checkbox"/>	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(8) <input type="checkbox"/>

**1.6 Est-ce que certaines personnes de votre foyer sont absentes régulièrement ?**

- (1)  Oui, un ou des enfants vivent régulièrement dans un autre foyer (par exemple, garde partagée)
- (2)  Oui, un ou des adultes vivent régulièrement dans un autre foyer (par exemple, étudiant en internat, conjoint disposant d'un autre logement...)
- (3)  Les enfants et les adultes déménagent d'un foyer à l'autre
- (4)  Non
- (5)  Je préfère ne pas répondre

**1.7 Vivez-vous dans un foyer inter-générationnel (plus de 2 générations vivant ensemble- ici, la notion intergénérationnelle n'inclut pas les enfants et adolescents du foyer)**

- (1)  Oui
- (4)  Non
- (3)  Je préfère ne pas répondre

**1.8 Laquelle de ces descriptions s'applique le mieux à votre situation actuelle ?**

- (1)  En emploi
- (2)  Étudiant
- (3)  En recherche d'emploi
- (4)  Personne handicapée ou malade restant au domicile
- (5)  Retraité
- (6)  En service militaire ou civique

- (7)  Au foyer
- (8)  Je préfère ne pas répondre
- (9)  Autre (précisez s'il vous plaît) \_\_\_\_\_

### 1.9 Quel est votre niveau d'études ?

- (1)  Aucun diplôme ou certificat d'études primaires
- (2)  Brevet des collèges, BEPC
- (3)  CAP, BEP ou équivalent
- (4)  Baccalauréat général, technologique, professionnel ou équivalent
- (5)  Diplôme d'ingénieur ou diplôme universitaire (y compris doctorat)
- (6)  Je préfère ne pas répondre
- (7)  Autre (précisez s'il vous plaît) \_\_\_\_\_

### 1.9.1 Votre conjoint(e) est :

- (1)  En emploi
- (2)  Étudiant
- (3)  En recherche d'emploi
- (4)  Personne handicapée ou malade restant au domicile
- (5)  Retraité(e)
- (6)  En service militaire ou civique
- (7)  Au foyer
- (8)  Je préfère ne pas répondre
- (9)  Autre (précisez s'il vous plaît) \_\_\_\_\_

### 1.10 Dans quel type de logement vivez-vous ?

- (1)  Maison individuelle
- (2)  Appartement
- (3)  Ne sait pas
- (4)  Autre (précisez s'il vous plaît) \_\_\_\_\_

### 1.11 Vous êtes :

- (1)  Propriétaire de votre logement (vous ou un membre de votre ménage)
- (2)  Locataire

- (3)  Vous occupez le logement gratuitement
- (4)  Ne sait pas/Je préfère ne pas répondre
- (5)  Autre (précisez s'il vous plaît) \_\_\_\_\_

**1.12 Quelle est la date de construction de votre logement ?**

- (1)  Avant 1900
- (2)  1900-1919
- (3)  1920-1939
- (4)  1940-1959
- (5)  1960-1979
- (6)  1980-1999
- (7)  2000-2019
- (8)  Après 2020
- (9)  Ne sait pas

**1.13 Quelle est la surface de votre logement ?**

- (1)  Moins de 30 m<sup>2</sup>
- (2)  30-49 m<sup>2</sup>
- (3)  50-69 m<sup>2</sup>
- (4)  70-89 m<sup>2</sup>
- (5)  90-109 m<sup>2</sup>
- (7)  110-129 m<sup>2</sup>
- (6)  130-149 m<sup>2</sup>
- (8)  150-169 m<sup>2</sup>
- (9)  170-189 m<sup>2</sup>
- (11)  190-209 m<sup>2</sup>
- (12)  Plus de 210 m<sup>2</sup>
- (13)  Ne sait pas

**1.14 Depuis combien de temps vivez-vous dans ce logement ?**

- (1)  Moins de 6 mois
- (2)  De 6 à 11 mois
- (3)  1 an
- (4)  2 ans

- (5)  3 à 5 ans
- (6)  6 à 10 ans
- (7)  11 ans et plus
- (8)  Ne sait pas

**1.15 Votre logement est-il chauffé par chauffage central ?**

- (1)  Oui, il est chauffé par chauffage central
- (2)  Non, il est chauffé par chauffage individuel
- (3)  Ne sait pas

**1.16 Comment rafraîchissez-vous votre logement lorsqu'il fait trop chaud ?**

- (1)  J'ouvre les fenêtres/portes
- (2)  J'utilise la climatisation
- (3)  J'utilise des ventilateurs électriques
- (4)  Je protège les pièces du soleil (fermeture des volets/stores)
- (5)  Je ne refroidis pas la maison
- (6)  Ne sait pas
- (7)  Autre (précisez s'il vous plait) \_\_\_\_\_

**1.17 Votre logement est-il rafraîchi uniformément? (par ex. grâce à un système de climatisation installé dans toutes les pièces) ?**

- (1)  Oui, il est rafraîchi dans son ensemble par un système de climatisation installé dans toutes les pièces
- (2)  Oui, il est rafraîchi dans son ensemble par des équipements électriques (ventilateurs,...)
- (3)  Oui, il est rafraîchi dans son ensemble par un système de climatisation et des équipements électriques
- (4)  Non, il n'est pas rafraîchi dans son ensemble, seulement en partie par des équipements électriques
- (5)  Non, il n'est pas rafraîchi par des équipements électriques
- (6)  Ne sait pas
- (7)  Autre (précisez s'il vous plait) \_\_\_\_\_

**1.18 Réglez-vous le niveau de température de votre logement en utilisant un thermostat ?**

- (1)  Oui  
(3)  Non  
(5)  Ne sait pas  
(4)  Autre (précisez s'il vous plait) \_\_\_\_\_

**Partie 2 : Vos habitudes de vie quotidiennes et votre consommation d'énergie**

Nous aimerions en savoir plus sur vos habitudes, vos activités quotidiennes à la maison. Par habitude, nous entendons une activité que vous effectuez quotidiennement ou régulièrement de manière similaire. En particulier, nous nous intéressons aux routines quotidiennes liées à l'énergie, afin de comprendre la façon dont vous consommez de l'énergie à la maison. Notre objectif est de comprendre lesquelles de ces activités domestiques seraient faciles à modifier et lesquelles seraient plus difficiles à changer.

**2.1 De manière générale, que représente le « chez-soi » / la maison pour vous ? (Réponse libre, définissez-le en une phrase s'il vous plait)**

\_\_\_\_\_

**2.2 En dehors des confinements liés au Covid, combien d'heures passez-vous en moyenne par jour chez vous (en incluant les heures de sommeil) ?**

	1-4 heures	5-8 heures	9-12 heures	13-16 heures	17-20 heures	21-24 heures	Ne sait pas
Durant la semaine (lundi à vendredi)	(1) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(9) <input type="checkbox"/>	(8) <input type="checkbox"/>	(7) <input type="checkbox"/>

	1-4 heures	5-8 heures	9-12 heures	13-16 heures	17-20 heures	21-24 heures	Ne sait pas
Durant le weekend	(1) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(9) <input type="checkbox"/>	(8) <input type="checkbox"/>	(7) <input type="checkbox"/>

**2.3 Pendant les périodes de restrictions sanitaires, combien d'heures passez-vous en moyenne par jour chez vous (en incluant les heures de sommeil) ?**

	1-4 heures	5-8 heures	9-12 heures	13-16 heures	17-20 heures	21-24 heures	Ne sait pas
Durant la semaine (lundi à vendredi)	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>	(7) <input type="checkbox"/>
Durant le weekend	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>	(7) <input type="checkbox"/>

**2.4 Quand le confinement sera fini, combien d'heures pensez-vous passer en moyenne par jour chez vous comparé au temps que vous y passiez avant le Covid ?**

	Je prévois de passer plus d'heures chez moi	Je prévois de passer le même nombre d'heures chez moi	Je prévois de passer moins d'heures chez moi	Ne sait pas
En semaine (lundi à vendredi)	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>
Le weekend	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>

**2.5 Avant les confinements liés au Covid, pratiquiez-vous le télétravail depuis votre domicile ?**

- (1)  Non, je n'ai jamais travaillé depuis mon domicile
- (2)  Oui, mais seulement occasionnellement/lors de circonstances particulières
- (3)  Oui, je travaillais à domicile régulièrement (veuillez indiquer à quelle fréquence) \_\_\_\_\_
- (4)  Oui, je travaillais à domicile à plein temps
- (6)  Je n'ai pas de travail rémunéré
- (5)  Ne sait pas

**2.6 Avant le confinement lié au Covid, un autre adulte de votre ménage (par exemple, votre partenaire) travaillait-il à domicile ?**

- (1)  Personne d'autre du ménage ne travaillait à domicile

- (2)  Oui, mais seulement occasionnellement/lors de circonstances particulières
- (3)  Oui, une personne de mon ménage travaillait régulièrement à domicile (veuillez indiquer à quelle fréquence) \_\_\_\_\_
- (4)  Oui, une personne de mon ménage travaillait à domicile à plein temps
- (6)  Non, cette autre personne n'avait pas de travail rémunéré
- (7)  Ne sait pas

**2.7 Pensez-vous que vous pratiquerez le télétravail à domicile plus souvent après la crise sanitaire liée au Covid que vous ne le faisiez avant cette crise ?**

- (1)  Non, je pense que je travaillerai à domicile autant qu'avant le Covid
- (2)  Oui, je pense que je travaillerai occasionnellement à domicile mais moins d'un jour par semaine
- (3)  Oui, je pense que je travaillerai à domicile 1 à 2 jours par semaine
- (4)  Oui, je pense que je travaillerai à domicile 3 à 6 jours par semaine
- (5)  Oui, je pense que je travaillerai tous les jours à domicile
- (6)  Ne sait pas
- (7)  Autre (précisez s'il vous plait) \_\_\_\_\_

**2.7.1 Pensez-vous qu'un autre adulte de votre ménage (par exemple, votre conjoint(e)) pratiquera le télétravail plus souvent après la crise sanitaire qu'avant la crise ?**

- (1)  Non, je pense que cette personne travaillera autant à domicile qu'avant le Covid
- (2)  Oui, je pense que cette personne travaillera à domicile occasionnellement, mais pas plus d'un jour supplémentaire par semaine
- (3)  Oui, je pense que cette personne travaillera à domicile un jour ou deux de plus par semaine par rapport à la situation d'avant Covid
- (4)  Oui, je pense que cette personne travaillera à domicile 3 à 6 jours de plus par semaine par rapport à la situation d'avant Covid
- (5)  Oui, je pense que cette personne travaillera à domicile de façon permanente.
- (6)  Ne sait pas
- (7)  Autre (précisez s'il vous plait) \_\_\_\_\_

**2.8 Selon vous, lesquelles des routines quotidiennes suivantes auront changé après les restrictions liées au Covid (par exemple, le confinement) ? (cochez tout ce qui s'applique)**

- (1)  Nettoyage / faire le ménage
- (2)  Faire des achats
- (3)  S'occuper du linge



- (4)  Déposer / récupérer les enfants
- (5)  Faire la cuisine
- (6)  Chauffer votre logement
- (7)  Rafraîchir votre logement
- (8)  L'utilisation des appareils tels que smartphones, tablettes, PC...
- (11)  Je ne pense pas que ces routines auront changé
- (9)  Ne sait pas
- (10)  Autre (précisez s'il vous plait) \_\_\_\_\_

**2.9 Comment chauffez-vous habituellement votre domicile un jour où le chauffage est nécessaire ?(Cochez tout ce qui s'applique)**

- (1)  J'allume le chauffage toute la journée
- (2)  J'allume le chauffage le matin
- (3)  J'allume le chauffage l'après-midi
- (4)  J'allume le chauffage le soir
- (5)  J'allume le chauffage quand j'ai froid
- (6)  Le chauffage se met en route automatiquement quand la température tombe sous un seuil défini
- (7)  Ne sait pas
- (8)  Autre (précisez s'il vous plait) \_\_\_\_\_

**2.10 Pendant l'hiver, comment ressentez-vous la température dans la pièce où vous passez la majorité de votre temps (au domicile) ?**

- (1)  Vraiment froide (c'en est désagréable)
- (2)  Froide, mais supportable
- (3)  Agréable
- (4)  Chaude
- (5)  Trop chaude
- (6)  Ne sait pas

**2.11 Si vous rafraîchissez votre domicile l'été avec une climatisation ou avec des ventilateurs électriques, merci de nous préciser en moyenne leur usage**

- (1)  Tous les jours
- (2)  De 5 à 6 jours par semaine
- (3)  De 3 à 4 jours par semaine

- (4)  De 1 à 2 jours par semaine
- (5)  Moins d'une fois par semaine
- (6)  Je ne rafraîchis pas ma maison avec des appareils électriques
- (7)  Ne sait pas
- (8)  Autre (précisez s'il vous plait) \_\_\_\_\_

**2.12 De quelle manière rafraîchissez-vous habituellement votre domicile lors d'une journée d'été classique ? (Sélectionner toutes les propositions qui conviennent)**

- (1)  Je mets en route la climatisation toute la journée
- (2)  Je fais tourner le ventilateur électrique toute la journée
- (3)  Je mets en route la climatisation le matin
- (4)  Je fais tourner le ventilateur électrique le matin
- (5)  Je mets en route la climatisation l'après-midi
- (6)  Je fais tourner le ventilateur électrique l'après-midi
- (7)  Je mets en route la climatisation le soir
- (8)  Je fais tourner le ventilateur électrique le soir
- (10)  Les systèmes de rafraîchissement de l'air se mettent en route automatiquement lorsque la température dépasse un certain seuil
- (9)  Je mets en route les équipements de refroidissement quand j'ai chaud
- (11)  J'ouvre les fenêtres et/ou les portes (par exemple la nuit)
- (12)  Ne sait pas
- (13)  Autre (précisez s'il vous plait) \_\_\_\_\_

**2.13 Combien de fois par semaine votre foyer fait-il habituellement tourner le lave-vaisselle ?**

- (1)  Moins d'une fois par semaine
- (2)  Plusieurs fois par semaine
- (3)  Une fois par jour
- (4)  Deux fois par jour
- (5)  Plus de 2 fois par jour (veuillez préciser) \_\_\_\_\_
- (6)  Nous n'avons pas de lave-vaisselle
- (7)  Ne sait pas

**2.13.1 Quand le foyer fait-il habituellement tourner le lave-vaisselle? (plusieurs réponses possibles)**

- (1)  Quand nous nous réveillons
- (3)  Après le petit-déjeuner
- (2)  Après le repas du midi
- (4)  Après le repas du soir
- (5)  Avant d'aller se coucher
- (6)  Nous suivons les heures creuses/pleines pour le programmer
- (7)  À d'autres moments (précisez s'il vous plaît) \_\_\_\_\_
- (8)  Ne sait pas

**2.14 Combien de fois en moyenne le foyer fait-il tourner le lave-linge?**

- (1)  Une fois par mois
- (2)  Deux fois par mois
- (3)  Une fois par semaine
- (4)  Deux fois par semaine
- (5)  Trois fois par semaine
- (6)  Plus de trois fois par semaine (veuillez préciser) \_\_\_\_\_
- (7)  Nous n'avons pas de machine à laver à la maison
- (8)  Ne sait pas

**2.14.1 Habituellement, le lave-linge tourne plutôt**

- (1)  En semaine (lundi à vendredi)
- (2)  Les week-ends (samedi et/ou dimanche)
- (3)  Autant en semaine que les week-ends
- (4)  Ne sait pas
- (5)  Autre (précisez s'il vous plaît) \_\_\_\_\_

**2. 15 Comment séchez-vous vos vêtements habituellement ? (cochez autant que nécessaire)**

- (1)  Avec un sèche-linge
- (2)  Le linge est étendu à l'extérieur
- (3)  Le linge est étendu à l'intérieur
- (4)  Ne sait pas

(5)  Autre (précisez s'il vous plaît) \_\_\_\_\_

**2.16 A quelle fréquence repassez-vous ?**

- (5)  Jamais
- (4)  Une fois par mois
- (1)  Une fois par semaine
- (2)  2 fois par semaine
- (3)  Plus de 2 fois par semaine
- (6)  Ne sait pas
- (7)  Autre (précisez s'il vous plaît) \_\_\_\_\_

**2.17 En général, le repassage est plutôt fait (plusieurs choix possibles)**

- (1)  Le matin
- (2)  L'après midi
- (3)  Le soir
- (4)  En fonction des heures creuses / heures pleines
- (5)  Ne sait pas
- (6)  Autre (précisez s'il vous plaît) \_\_\_\_\_

**2.18 En général, qui est en charge des tâches quotidiennes parmi les membres de votre ménage ?**

- (1)  Vous-même
- (2)  Mon partenaire / un autre membre du ménage
- (3)  Répartition égale parmi les membres du ménage
- (4)  Ne sait pas/Je préfère ne pas répondre
- (5)  Autre (précisez s'il vous plaît) \_\_\_\_\_

**2.19 En général, qui est responsable des décisions et planning des tâches? (heures de repas, vacances, récupération des enfants, factures des fournisseurs d'énergies, etc.)**

- (2)  Vous-même
- (1)  Mon partenaire / un autre membre du ménage
- (3)  Répartition égale parmi les membres du ménage
- (4)  Ne sait pas/Je préfère ne pas répondre

(5)  Autre (précisez s'il vous plaît) \_\_\_\_\_

**2.20 Est-ce que votre ménage trouverait facile ou difficile d'apporter des changements aux pratiques suivantes, si c'était pour favoriser la consommation d'énergies renouvelables ?**

	Très difficile	Difficile	Ni difficile ni facile	Facile	Très facile	Ne sait pas
Les moments de cuisine	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Utiliser moins d'équipements pour faire la cuisine	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
La manière de chauffer votre logement	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Les moments de chauffage	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
La manière de rafraîchir votre logement	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Les moments de rafraîchissement	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Les moments de lessives	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
La fréquence des lessives	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Les moments de séchage du linge	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
La fréquence de séchage du linge	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Les moments de douches / bains	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
La fréquence des douches / bains	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Les moments de vaisselle	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
La fréquence d'utilisation du lave-vaisselle	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Les moments de ménage	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
La fréquence de ménage	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Les moments de dîner	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>

	Très difficile	Difficile	Ni difficile ni facile	Facile	Très facile	Ne sait pas
Les moments d'utilisation de tablettes, PC, etc... pour les loisirs	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>

**2.21 A quel point êtes-vous d'accord avec cette affirmation : notre ménage considérerait de programmer ou lancer la machine à laver et le sèche-linge plus tardivement dans la journée, si cela était recommandé par un système de pilotage intelligent**

Fortement d'accord	D'accord	Ni en accord, ni en désaccord	En désaccord	Fortement en désaccord	Ne sait pas
(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>

**2.22 A quel point êtes-vous en accord avec cette affirmation : notre ménage réfléchirait à changer les heures de chauffage du logement afin de participer collectivement à la gestion de l'énergie dans notre quartier**

Fortement d'accord	D'accord	Ni en accord, ni en désaccord	En désaccord	Fortement en désaccord	Ne sait pas
(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>

**2.23 A quel point être vous en accord avec cette affirmation : notre ménage réfléchirait à modifier les moments de douches / bain afin d'aider à la gestion de l'énergie dans le quartier**

Fortement d'accord	D'accord	Ni en accord, ni en désaccord	En désaccord	Fortement en désaccord	Ne sait pas
(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>

**2.24 Selon vous, à quel point ces activités du quotidien sont-elles consommatrices en énergie (merci de noter de 1 à 5, du moins au plus consommateur)**

	1	2	3	4	5	Ne sait pas
Faire la cuisine	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Faire la vaisselle	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>

	1	2	3	4	5	Ne sait pas
Laver le linge	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Sécher le linge	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Utiliser/charger un smartphone	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Travailler sur un ordinateur	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Écouter de la musique	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Prendre une douche	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Repasser ses vêtements	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Chauffer le logement	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Rafrâichir le logement	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Charger un véhicule électrique	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Éclairer le logement	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Activités extérieures (tondre la pelouse, chauffage extérieur, etc.)	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>

### Part 3: Habiter et cohabiter avec des systèmes énergétiques

Dans cette partie, nous aimerions connaître votre façon de vivre avec différentes technologies au sein de votre logement. Nous souhaiterions notamment savoir si vous disposez d'un système de gestion d'énergie intelligent et la façon dont vous l'utilisez, en lien avec les autres équipements et applications du quotidien.

Nous vous poserons des questions sur les technologies de gestion d'énergie intelligente dans votre logement. Les technologies de gestion d'énergie intelligentes (comme les compteurs intelligents, les écrans d'affiche des consommations, les prises connectées...) comprennent les équipements qui permettent à l'utilisateur de gérer et de visualiser la consommation d'énergie et également de les contrôler à distance.

### 3.1 Connaissez-vous les technologies de gestion d'énergie intelligentes dans l'habitat ?

- (1)  Je n'ai aucune idée de ce qu'elles sont
- (2)  J'en ai une vague idée
- (3)  J'ai une vue assez générale de ce qu'elles sont
- (4)  J'ai une idée précise de ces technologies
- (5)  Ne sait pas

### 3.2 Etes-vous utilisateurs des technologies de gestion d'énergie intelligentes ci-dessous ? (Merci de cocher les cases pertinentes selon vous)

- (1)  Compteurs d'énergie intelligents
- (2)  Affichage digital intérieur de la consommation d'énergie
- (3)  Contrôle automatique de l'éclairage
- (4)  Non, je n'ai pas de technologies de gestion d'énergie intelligentes
- (5)  Ne sait pas
- (6)  Autre (précisez s'il vous plaît) \_\_\_\_\_

### 3.3 Quel est, selon vous, l'objectif des technologies de gestion d'énergie intelligentes ? (Merci de cocher toutes les cases pertinentes)

	Fortement d'accord	D'accord	Ni d'accord ni en désaccord	En désaccord	Fortement en désaccord	Ne sait pas
Gagner du temps	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Économiser de l'argent	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Économiser de l'énergie	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Faciliter l'utilisation des appareils et objets	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Mieux prévoir/planifier ses actions de vie quotidienne	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Améliorer la sécurité du logement	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Améliorer le confort de vie à la maison	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>



	<b>Fortement d'accord</b>	<b>D'accord</b>	<b>Ni d'accord ni en désaccord</b>	<b>En désaccord</b>	<b>Fortement en désaccord</b>	<b>Ne sait pas</b>
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Aider à prendre soin des autres

(1)  (2)  (3)  (4)  (5)  (6)

(1)  Autre (précisez s'il vous plaît) \_\_\_\_\_

**3.4 Est-ce que vous ou un autre membre de votre ménage surveillez votre consommation d'énergie au moyen d'un compteur intelligent ou d'un autre appareil (comme un système de gestion de l'énergie domestique) ?**

- (1)  Oui  
 (3)  Non  
 (4)  Ne sait pas

**3.5 Qui vérifie habituellement la consommation d'énergie de votre ménage? (Veuillez cocher toutes les réponses qui s'appliquent)**

- (1)  Moi  
 (2)  Mon partenaire / un autre adulte membre du ménage  
 (3)  Mes enfants  
 (4)  Nous ne vérifions pas notre consommation d'énergie  
 (5)  Ne sait pas  
 (6)  Quelqu'un d'autre (précisez s'il vous plaît) \_\_\_\_\_

**3.6 Qui contrôle habituellement ou est responsable de vos systèmes ou appareils énergétiques intelligents? (Veuillez cocher toutes les réponses qui s'appliquent)**

- (1)  Moi  
 (2)  Mon partenaire / un autre adulte membre du ménage  
 (3)  Mes enfants  
 (4)  Nous n'avons pas de système ou appareil énergétique intelligent  
 (5)  Ne sait pas  
 (6)  Quelqu'un d'autre (précisez s'il vous plaît) \_\_\_\_\_

**3.6.1 À quelle fréquence surveillez-vous votre énergie à l'aide d'un appareil ou d'un écran à domicile?**

- (1)  Chaque jour, plusieurs fois
- (2)  Chaque jour, une fois
- (3)  Entre 4 et 6 fois par semaine
- (4)  Entre 2 et 3 fois par semaine
- (5)  Une fois par semaine
- (6)  Une fois par quinzaine
- (7)  Une fois par mois
- (8)  Moins d'une fois par mois
- (9)  Je vérifie quand je reçois une facture
- (10)  Je ne vérifie jamais
- (11)  Ne sait pas
- (12)  Autre (précisez s'il vous plaît) \_\_\_\_\_

**3.7 Votre ménage utilise-t-il actuellement des applications Web ou mobiles (sur smartphone) pour surveiller votre consommation d'énergie?**

- (1)  Oui, nous utilisons une application Web
- (2)  Oui, nous utilisons une application mobile
- (3)  Oui, nous utilisons une application Web et une application mobile
- (4)  Non, nous ne disposons pas de services permettant de suivre la consommation d'énergie
- (5)  Ne sait pas

**3.8 Quel serait le moyen le plus pratique de surveiller et/ou de planifier votre consommation d'énergie ?**

- (1)  Une application mobile
- (2)  Une application sur ordinateur
- (3)  Un appareil mobile dédié
- (4)  Un appareil fixe placé dans la maison
- (5)  Ne sait pas
- (6)  Autre (précisez s'il vous plaît) \_\_\_\_\_

**3.9 Si vous rencontrez des problèmes ou avez besoin de conseils au sujet de votre système énergétique et de sa surveillance, à qui vous adressez-vous habituellement ?**

- (1)  Votre fournisseur d'énergie
- (2)  Une personne du ménage
- (3)  Un ami/parent/voisin
- (4)  Je demande des conseils en ligne sur le site Web des fournisseurs d'énergie
- (5)  Je cherche des conseils sur les réseaux sociaux
- (6)  Ne sait pas
- (7)  Autre (précisez s'il vous plaît) \_\_\_\_\_

**Souhaitez-vous laisser vos coordonnées pour nous permettre de vous recontacter afin de continuer à échanger sur ce sujet dans le cadre du projet HESTIA ?**

- (1)  Oui
- (2)  Non

Avant d'indiquer vos coordonnées (nom, et adresse e-mail de contact ou numéro de téléphone), nous vous demandons votre consentement pour la collecte, le traitement et le partage de ces données. En effet, il s'agit de données à caractère personnel. Veuillez trouver ci-dessous les informations relatives à ce traitement de données et vos droits.

Vos réponses à cette enquête seront collectées et traitées par l'Université d'Aalborg, Danemark, partenaire du projet HESTIA. Vos données seront utilisées exclusivement à des fins de recherche.

**Nous traiterons les données personnelles suivantes:**

Les données personnelles collectées au travers de cette enquête incluent des Données Personnelles générales (au sens de l'Article 6(1) (a) du Règlement Général sur la Protection des Données[1]) : nom et prénom, adresse e-mail et/ou numéro de téléphone, ainsi que des Données Sensibles (au sens de l'Article 9(2) du Règlement Général sur la Protection des Données), associées à : la composition familiale, le statut marital ou d'emploi. Ces données seront conservées pour la durée du projet HESTIA (3 ans).

## **Partage des données**

Dans le cadre du projet HESTIA, vos réponses au questionnaire pourront être partagées avec la Communauté d'Agglomération Paris-Saclay, EDF (Electricité de France) recherche et développement, et l'Université Technique de Munster (Munster Technological University, Irlande), partenaires du projet HESTIA. Si vous l'acceptez, vos coordonnées (nom, prénom, e-mail et/ou téléphone) pourront être partagées avec la Communauté d'Agglomération Paris-Saclay, EDF (Electricité de France) recherche et développement dans l'objectif de vous recontacter à l'issue de cette enquête pour poursuivre les échanges dans le cadre du projet HESTIA.

## **Vos droits**

Conformément aux dispositions de la loi « Informatique et Libertés »[2] et du Règlement Général sur la Protection des Données (RGPD), vous disposez d'un droit d'accès, de rectification, droit à l'effacement, droit à la limitation du traitement ainsi que droit à la portabilité des données vous concernant. Vous pouvez également en savoir plus sur la politique de confidentialité de l'Université d'Aalborg sur à l'adresse suivante : <https://www.en.aau.dk/privacy-policy-cookies>.

## **Contact de l'équipe projet et du Responsable du Traitement de Données de l'Université d'Aalborg**

Si vous avez une question générale sur vos droits, ou souhaitez exercer les droits décrits ci-dessus, vous pouvez contacter l'équipe française du projet HESTIA à l'adresse : [hestia@edf.fr](mailto:hestia@edf.fr), ou bien en écrivant au responsable du traitement des données (Data Protection Officer) de l'Université d'Aalborg en contactant Niels Vase à l'adresse [dpo@aaau.dk](mailto:dpo@aaau.dk) (Danemark). Dans ce cas nous vous invitons à contacter également l'équipe du projet HESTIA pour vous assister dans la traduction de votre question.

## **Vous avez une réclamation ?**

Nous mettons tout en œuvre pour protéger vos données conformément à la réglementation. Si vous pensez que nous ne respectons pas ces obligations relatives au

traitement de vos données, vous pouvez déposer une réclamation auprès de l'Agence Danoise de Protection des Données à l'adresse [dt@datatilsynet.dk](mailto:dt@datatilsynet.dk). Nous vous encourageons toutefois à toujours contacter votre point de contact Hestia en France [hestia@edf.fr](mailto:hestia@edf.fr) ou l'équipe de l'Université d'Aalborg, Danemark (voir ci-dessus), car nous mettrons tout en œuvre pour apporter une réponse satisfaisante à votre réclamation.

[1] Règlement (UE) 2016/679 du Parlement européen et du Conseil du 27 avril 2016 relatif à la protection des personnes physiques à l'égard du traitement des données à caractère personnel et à la libre circulation de ces données

[2] Loi n°78-17 du 6 janvier 1978 relative à l'informatique, aux fichiers et aux libertés

- (1)  "Par la présente, j'autorise l'Université d'Aalborg au Danemark à traiter mes données conformément à l'objectif et aux informations ci-dessus (cochez la case pour accepter)

Nom / prénom

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Numéro de téléphone

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Adresse e-mail

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Vous êtes arrivés à la fin de l'enquête. Nous vous remercions du temps précieux que vous nous avez accordé et pour votre contribution au projet HESTIA.

**Y a-t-il un dernier commentaire que vous aimeriez partager avec nous ?**

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## Sondaggio cittadino – ITALIAN VERSION

Cara/o cittadina/o di Berchidda,

Grazie per l'interesse nella sostenibilità dell'energia. Questo questionario è elaborato da HESTIA, un nuovo progetto di ricerca e innovazione europeo. Il consorzio internazionale di HESTIA include università europee, aziende energetiche e organizzazioni comunitarie che svilupperanno soluzioni insieme a privati cittadini come lei in tre diverse località europee: Berchidda, Paliseau (Francia), Voorhout (Olanda).

**Le sue risposte a questo sondaggio contribuiranno allo sviluppo di un futuro sistema energetico cooperativo e comunitario a Berchidda basato sulle energie rinnovabili.**

La sua partecipazione ci aiuterà a capire come **le attività quotidiane a casa sua creano una domanda di energia**. Le sue risposte contribuiranno anche allo sviluppo di una soluzione efficace per gestire la produzione e il consumo quotidiano di energia a casa e all'interno della comunità.

La partecipazione a questo sondaggio è interamente volontaria. Le saremmo grati se potesse rispondere a tutte le domande. Si può scegliere di rimanere anonimi oppure di dare disponibilità per ulteriori contatti alla fine del sondaggio. Nel secondo caso, potrà essere selezionata/o per beneficiare di un contributo per l'accesso ai servizi della comunità energetica.

### **Il contesto del sondaggio**

L'energia rinnovabile è la chiave per rendere il nostro futuro consumo di energia privo di

emissioni di gas serra. Tuttavia, le nuove fonti di energia come il vento e l'energia solare producono energia solo quando il vento soffia o il sole splende. A volte viene prodotta più energia di quanta ne serva, e a volte è necessaria più energia di quanta ne possa essere prodotta. Come nuovo programma europeo, HESTIA mira ad affrontare questo disallineamento tra produzione e consumo di energia a livello domestico, sviluppando nuove soluzioni pratiche che si adattano alla routine quotidiana e alle esigenze della famiglia. Questo si chiama Demand Response (DR). HESTIA mira a integrare la vostra prospettiva di abitanti nella progettazione di una nuova piattaforma digitale per la gestione dei carichi elettrici.

## **Il contenuto del sondaggio**

Il sondaggio è strutturato in **3 parti**: La prima parte pone domande su di lei, sulle persone con cui vive e sulla casa in cui vive. La seconda parte comprende domande sulle attività quotidiane in casa relative al consumo di energia. Attraverso diverse domande, cerchiamo di capire cosa è "normale" e "tipico" per quanto riguarda l'uso quotidiano di energia in casa sua. Infine, la terza parte riguarda le interazioni con le tecnologie e i sistemi energetici domestici.

## **Tempo necessario**

Ci vogliono circa 20 minuti per rispondere al sondaggio intero. Se ne riempie solo una parte non sarà possibile completarlo in un secondo momento: le raccomandiamo di dedicare un momento per riempirlo dall'inizio alla fine.

## **Informazioni sulla privacy e sul GDPR:**

A meno che lei non dia disponibilità per partecipare nelle fasi successive del progetto Hestia inserendo i suoi dati di contatto alla fine di questo sondaggio (opzionale), le sue risposte alle seguenti domande saranno anonime. Le sue risposte saranno raccolte e conservate dalla Università di Aalborg in Danimarca, partner del progetto HESTIA, e saranno utilizzate solo per scopi di ricerca. Completando questo sondaggio, dà il suo consenso affinché l'Università di Aalborg possa conservare i suoi dati.



I suoi dati anonimizzati possono essere condivisi con Sinloc - Sistema Iniziative Locali SpA, Grid Ability Scarl, Midac Spa, AXPO Energy Solutions Italia - Società per Azioni e Münster Technological University, Irlanda, tutti partner di HESTIA. I dati saranno condivisi solo per l'uso in relazione al progetto HESTIA.

## **Parte 1: informazioni generali su di lei e sulla sua abitazione**

Nella parte 1 del questionario, poniamo una serie di domande su di lei, sulle persone con cui vive e sulla casa in cui vive

### **1.1 Quanti anni ha?**

- (1)  18-24
- (2)  25-29
- (3)  30-34
- (5)  35-39
- (4)  40-44
- (6)  45-49
- (8)  50-54
- (9)  55-59
- (10)  60-64
- (11)  65-69
- (12)  70-74
- (13)  75-79
- (14)  80 +
- (15)  Preferisco non specificare

### **1.2 Qual è il suo sesso?**

- (1)  M
- (2)  F

- (3)  Altro
- (4)  Preferisco non specificare

**1.3 Quanti adulti vivono in casa sua?**

- (1)  1
- (2)  2
- (3)  3
- (4)  4
- (5)  5
- (6)  6
- (7)  7
- (8)  8
- (9)  9
- (10)  10+
- (11)  Preferisco non specificare

**1.4 Vive con un partner?**

- (1)  Si
- (2)  No
- (3)  Preferisco non specificare

**1.5 Quanti minori (più giovani di 18 anni) vivono con lei e qual è la loro età?**

- (1)  Nessuno
- (2)  Preferisco non specificare

	0	1	2	3	4	5+	Preferisco non specificare
0-4 anni	(7) <input type="checkbox"/>	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(8) <input type="checkbox"/>
5-9 anni	(7) <input type="checkbox"/>	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(8) <input type="checkbox"/>
10-14 anni	(7) <input type="checkbox"/>	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(8) <input type="checkbox"/>

	0	1	2	3	4	5+	Preferisco non specificare
15 +	(7) <input type="checkbox"/>	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(8) <input type="checkbox"/>

**1.6 Ci sono persone nella vostra casa che si spostano regolarmente in altre case?**

- (1)  Sì, ci sono bambini che si spostano da una casa all'altra
- (2)  Sì, ci sono adulti che si spostano da una casa all'altra
- (3)  Sia i bambini che gli adulti si spostano da una casa all'altra
- (4)  No
- (5)  Preferisco non specificare

**1.7 Vive in una casa multigenerazionale? (più di 2 generazioni di persone che vivono insieme)**

- (1)  Sì
- (4)  No
- (3)  Preferisco non specificare

**1.8 Quale di queste descrizioni si applica meglio alla sua situazione attuale?**

- (1)  Lavoratrice/ore retribuito (incluso un lavoro autonomo o un'impresa familiare)
- (2)  Studente
- (3)  Disoccupata/o
- (4)  Malata/o o disabile permanente
- (5)  In pensione
- (6)  In servizio civile o militare
- (7)  Genitore o coniuge "casalingo"
- (8)  Preferisco non specificare
- (9)  Altro - si prega di specificare \_\_\_\_\_

**1.9 Qual è il suo livello di istruzione? (Può scegliere tutte le opzioni che fanno al caso suo)**

- (1)  Istruzione primaria e/o secondaria non completata
- (2)  Istruzione primaria e/o secondaria completata

- (3)  Istruzione professionale o tecnica completata
- (4)  Altra istruzione completata (non laurea)
- (5)  Laurea
- (6)  Preferisco non specificare
- (7)  Altro (specificare) \_\_\_\_\_

**1.9.1**            **Quale di queste descrizioni si applica meglio alla situazione attuale del suo partner?**

- (1)  Lavoratrice/ore retribuito (incluso un lavoro autonomo o un'impresa familiare)
- (2)  Studente
- (3)  Disoccupata/o
- (4)  Malata/o o disabile permanente
- (5)  In pensione
- (6)  In servizio civile o militare
- (7)  Genitore o coniuge "casalingo"
- (8)  Preferisco non specificare
- (9)  Altro - si prega di specificare \_\_\_\_\_

**1.10**            **In che tipo di casa vive?**

- (1)  Casa indipendente (a più piani)
- (2)  Casa indipendente (a un piano)
- (3)  Casa bifamiliare
- (4)  Casa a schiera
- (5)  Appartamento in una casa
- (6)  Appartamento in un edificio a più piani
- (7)  Non lo so
- (8)  Altro (specificare) \_\_\_\_\_

**1.11 Casa sua è...**

- (1)  Di proprietà (sua o di un altro membro della famiglia)
- (2)  Affittata
- (3)  Occupata senza pagamento dell'affitto
- (4)  Non lo so/Preferisco non specificare
- (5)  Altro (specificare) \_\_\_\_\_

### 1.12 In che anno è stata costruita la sua casa?

- (1)  Prima del 1900
- (2)  1900-1919
- (3)  1920-1939
- (4)  1940-1959
- (5)  1960-1979
- (6)  1980-1999
- (7)  2000-2019
- (8)  Dopo il 2019
- (9)  Non lo so

### 1.13 Quanto è grande la sua casa?

- (1)  Inferiore a 30 m<sup>2</sup>
- (2)  30-49 m<sup>2</sup>
- (3)  50-69 m<sup>2</sup>
- (4)  70-89 m<sup>2</sup>
- (5)  90-109 m<sup>2</sup>
- (7)  110-129 m<sup>2</sup>
- (6)  130-149 m<sup>2</sup>
- (8)  150-169 m<sup>2</sup>
- (9)  170-189 m<sup>2</sup>
- (11)  190-209 m<sup>2</sup>
- (12)  Più di 210 m<sup>2</sup>
- (13)  Non lo so

### 1.14 Da quanto tempo vive nella sua attuale casa?

- (1)  Meno di 6 mesi
- (2)  6-11 mesi
- (3)  1 anno
- (4)  2 anni
- (5)  3-5 anni
- (6)  6-10 anni
- (7)  11 o più anni

(8)  Non so

**1.15A Da quando ci abita sono state fatte delle modifiche alla casa per quanto riguarda i sistemi energetici? (Per favore, barrare tutte le voci che si applicano)**

- (1)  Ho/abbiamo fatto ristrutturazioni energetiche alla struttura della casa (per esempio isolamento delle pareti o dei tetti, miglioramento della tenuta all'aria, sostituzione delle finestre/porte). Per favore, specificare \_\_\_\_\_
- (2)  Non sono state fatte modifiche mentre vivevo qui
- (3)  Ho/abbiamo installato una nuova caldaia o un nuovo sistema di riscaldamento
- (4)  Ho/abbiamo installato un camino o una stufa a legna
- (5)  Ho/abbiamo cambiato i comandi del riscaldamento
- (6)  Ho/abbiamo installato un sistema di ventilazione con recupero di calore
- (7)  Ho/abbiamo installato un riscaldamento solare
- (8)  Ho/abbiamo installato un sistema solare per l'acqua calda
- (9)  Ho/abbiamo installato pannelli fotovoltaici (PV)
- (10)  Ho/abbiamo installato una batteria per immagazzinare elettricità
- (11)  Ho/abbiamo installato una pompa di calore per il riscaldamento o il raffreddamento degli ambienti
- (13)  Non so
- (12)  Altro (specificare) \_\_\_\_\_

**1.15B Come riscalda la sua casa? (Si prega di spuntare tutte le voci applicabili)**

- (1)  Radiatori a gas
- (2)  Stufa a gas
- (3)  Radiatori elettrici
- (4)  Riscaldamento elettrico a pavimento
- (5)  Pompa di calore elettrica
- (6)  Altro dispositivo elettrico (indicare) \_\_\_\_\_
- (7)  Radiatori a olio
- (8)  Riscaldamento solare (tramite radiatori o altro)
- (9)  Stufa/camino a legna
- (10)  Teleriscaldamento
- (12)  Non so
- (11)  Altro (Si prega di specificare) \_\_\_\_\_

**1.15 La sua casa è riscaldata centralmente?**

- (1)  Sì, è riscaldata centralmente
- (2)  No, non è riscaldata centralmente
- (3)  Non so

**1.16 Come rinfresca la sua casa quando fa troppo caldo?**

- (1)  Apro le finestre/porte
- (2)  Condizionatore d'aria
- (3)  Ventilatori elettrici
- (4)  Ombreggiatura esterna
- (5)  Non raffreddo la casa
- (6)  Non so
- (7)  Altro (specificare) \_\_\_\_\_

**1.17 La sua casa è raffreddata in modo uniforme in tutte le stanze? (per esempio attraverso condizionatori in ogni stanza?)**

- (1)  Sì, è raffreddata in modo uniforme attraverso l'aria condizionata
- (2)  Sì, è raffreddata in modo uniforme attraverso ventilatori elettrici
- (3)  Sì, è raffreddato in modo uniforme attraverso un mix di aria condizionata e altri dispositivi
- (4)  No, non è raffreddato uniformemente, solo parzialmente
- (5)  No, non viene raffreddata affatto con dispositivi elettrici
- (6)  Non so
- (7)  Altro (specificare) \_\_\_\_\_

**1.17A Qual è il suo sistema per l'acqua calda?**

- (1)  Caldaia a gas
- (2)  Caldaia elettrica / serbatoio
- (3)  Caldaia a olio combustibile
- (4)  Sistema idrico a pompa di calore
- (5)  Sistema solare per l'acqua calda
- (6)  Non so
- (7)  Altro (specificare) \_\_\_\_\_

**1.18 Si occupa di regolare la temperatura della sua casa (per esempio l'impostazione del termostato nei sistemi di riscaldamento o raffreddamento) ?**

- (1)  Sì  
(3)  No  
(5)  Non so  
(4)  Altro (specificare) \_\_\_\_\_

**Parte 2: Le sue abitudini domestiche quotidiane e l'uso dell'energia**

Vorremmo saperne di più sulle sue abitudini quotidiane in casa. Nello specifico, siamo interessati alle routine quotidiane legate all'energia, al fine di capire i modi in cui consumate energia a casa. Per routine, intendiamo un'attività svolta quotidianamente o regolarmente in modo simile. Il nostro obiettivo è capire quali di queste attività sarebbe facile adattare in casa vostra per contribuire a un miglior equilibrio tra produzione e consumo di energia a Berchidda.

**2.1 Cosa significa casa per lei? (Per favore, ci dia una frase per descriverla)**

\_\_\_\_\_

**2.2 Prima delle restrizioni del COVID-19, quante ore passava in media al giorno a casa (incluso il sonno)?**

	1-4 ore	5-8 ore	9-12 ore	13-16 ore	17-20 ore	21-24 ore	Non so
Durante la settimana (lunedì-venerdì)	(1) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(9) <input type="checkbox"/>	(8) <input type="checkbox"/>	(7) <input type="checkbox"/>
Nel weekend	(1) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(9) <input type="checkbox"/>	(8) <input type="checkbox"/>	(7) <input type="checkbox"/>



### 2.3 Nell'attuale situazione COVID-19, quante ore passa in media al giorno in casa (incluso il sonno)?

	1-4 ore	5-8 ore	9-12 ore	13-16 ore	17-20 ore	21-24 ore	Non so
Durante la settimana (lunedì-venerdì)	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>	(7) <input type="checkbox"/>
Nel weekend	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>	(7) <input type="checkbox"/>

### 2.4 Quando le restrizioni legate al COVID-19 saranno finite, quante ore si aspetta di passare a casa in media rispetto a prima del COVID-19?

	Mi aspetto di passare più ore a casa	Mi aspetto di passare a casa la stessa quantità di ore	Mi aspetto di passare meno ore a casa	Non so
Durante la settimana (lunedì-venerdì)	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>
Nel weekend	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>

### 2.5 Prima delle restrizioni COVID-19 (ad es. lockdown) lavorava da casa?

- (1)  No, non ho mai lavorato da casa
- (2)  Sì, ma solo occasionalmente / in circostanze speciali
- (3)  Sì, lavoravo regolarmente da casa (indicare quanto spesso) \_\_\_\_\_
- (4)  Sì, ho lavorato da casa a tempo pieno
- (6)  Non ho un lavoro retribuito
- (5)  Non so

### 2.6 Prima del COVID-19 altri adulti (ad es. partner) coabitanti lavoravano da casa?

- (1)  Nessun altro dell'abitazione lavorava da casa
- (2)  Sì, ma solo occasionalmente / in circostanze speciali
- (3)  Sì, qualcuno lavorava regolarmente da casa (specificare quanto spesso) \_\_\_\_\_
- (4)  Sì, qualcuno della mia famiglia lavorava da casa a tempo pieno
- (6)  Non ha/hanno un lavoro retribuito
- (7)  Non so

## 2.7 Pensa che lavorerò più spesso da casa dopo il COVID-19 rispetto a prima del COVID-19?

- (1)  No, penso che lavorerò da casa la stessa quantità di tempo di prima del COVID-19
- (2)  Sì, penso che lavorerò da casa occasionalmente, non più di un giorno a settimana
- (3)  Sì, penso che lavorerò da casa 1-2 giorni in più a settimana
- (4)  Sì, penso che lavorerò da casa 3-6 giorni in più a settimana
- (5)  Sì, lavorerò da casa permanentemente
- (6)  Non so
- (7)  Altro (si prega di spiegare) \_\_\_\_\_

### 2.7.1 Pensa che altri adulti (ad es. partner) coabitanti lavoreranno da casa più spesso dopo il COVID-19 rispetto a prima del COVID-19?

- (1)  No, penso che lavorerò/lavoreranno da casa la stessa quantità di tempo di prima del COVID-19
- (2)  Sì, penso che lavorerò/lavoreranno da casa occasionalmente, non più di un giorno a settimana
- (3)  Sì, penso che lavorerò/lavoreranno da casa 1-2 giorni in più a settimana
- (4)  Sì, penso che lavorerò/lavoreranno da casa 3-6 giorni in più a settimana
- (5)  Sì, penso che lavorerò/lavoreranno da casa permanentemente
- (6)  Non so
- (7)  Altro (si prega di spiegare) \_\_\_\_\_

## 2.8 Quale delle seguenti routine giornaliere pensa che sarà cambiata dopo le restrizioni COVID-19? (spunti tutto ciò che si applica)

- (1)  Pulizia
- (2)  Shopping
- (3)  Riciclaggio
- (4)  Lasciare / andare a prendere i bambini
- (5)  Cucinare
- (6)  Riscaldamento
- (7)  Raffreddamento
- (8)  Utilizzo dispositivi digitali
- (11)  Non mi aspetto di cambiare nessuna routine
- (9)  Non so
- (10)  Altro (si prega di spiegare) \_\_\_\_\_

**2.9 In che modo riscalda tipicamente la casa in un giorno medio invernale in cui è richiesto il riscaldamento?**

- (1)  Accendo il riscaldamento tutto il giorno
- (2)  Accendo il riscaldamento al mattino
- (3)  Accendo il riscaldamento nel pomeriggio
- (4)  Accendo il riscaldamento la sera
- (5)  Accendo il riscaldamento quando ho freddo
- (6)  Il riscaldamento si accende automaticamente quando la temperatura scende al di sotto di un determinato valore
- (7)  Non so
- (8)  Altro (si prega di spiegare) \_\_\_\_\_

**2.10 Durante la stagione invernale come descriverebbe complessivamente la temperatura nella stanza in cui passa la maggior parte del tempo quando è a casa?**

- (1)  Freddo fastidioso
- (2)  Freddo sopportabile
- (3)  Confortabile
- (4)  Confortabilmente caldo
- (5)  Eccessivamente caldo
- (6)  Non so

**2.11 Se raffredda la sua casa in estate usando un condizionatore d'aria o ventilatori elettrici, per favore ci dica con quale frequenza in media**

- (1)  Ogni giorno
- (2)  5-6 giorni a settimana
- (3)  3-4 giorni a settimana
- (4)  1-2 giorni a settimana
- (5)  Meno di una volta a settimana
- (6)  Non raffreddo la mia casa usando dispositivi elettrici
- (7)  Non so
- (8)  Altro (si prega di spiegare) \_\_\_\_\_

**2.12 Come viene raffreddata solitamente la casa in un giorno estivo? (selezionare tutte le opzioni rilevanti)**

- (1)  Accendo l'aria condizionata tutto il giorno

- (2)  Accendo i ventilatori tutto il giorno
- (3)  Accendo l'aria condizionata al mattino
- (4)  Accendo i ventilatori al mattino
- (5)  Accendo l'aria condizionata nel pomeriggio
- (6)  Accendo i ventilatori nel pomeriggio
- (7)  Accendo l'aria condizionata la sera
- (8)  Accendo i ventilatori la sera
- (10)  I dispositivi di raffreddamento si accendono automaticamente quando la temperatura supera un determinato valore
- (9)  Accendo i dispositivi di raffreddamento quando ho caldo
- (11)  Apro le finestre e/o le porte
- (12)  Non so
- (13)  Altro (si prega di spiegare) \_\_\_\_\_

### **2.13 In media, con che frequenza viene utilizzata la lavastoviglie?**

- (1)  Meno di una volta alla settimana
- (2)  Alcune volte a settimana
- (3)  Una volta al giorno
- (4)  Due volte al giorno
- (5)  Più di 2 volte al giorno (si prega di spiegare) \_\_\_\_\_
- (6)  Non abbiamo una lavastoviglie
- (7)  Non so

#### **2.13.1 Quando viene usata abitualmente la lavastoviglie? (barrare tutte le caselle pertinenti)**

- (1)  Al risveglio
- (3)  Dopo la colazione
- (2)  Dopo il pranzo
- (4)  Dopo il pasto serale
- (5)  Prima di andare a letto
- (6)  Secondo le tariffe delle fasce orarie per l'energia elettrica
- (7)  In altri momenti (per favore ci dica quando) \_\_\_\_\_
- (8)  Non so

## 2.14 Quanto spesso viene usata in media la lavatrice?

- (1)  Una volta al mese
- (2)  Due volte al mese
- (3)  Una volta alla settimana
- (4)  Due volte alla settimana
- (5)  Tre volte alla settimana
- (6)  Più di tre volte a settimana (specificare) \_\_\_\_\_
- (7)  Non ho una lavatrice
- (8)  Non so

### 2.14.1. In casa sua la lavatrice viene usata tipicamente

- (1)  Nei giorni feriali (lunedì-venerdì)
- (2)  Nel fine settimana (sabato e/o domenica)
- (3)  Indistintamente nei giorni feriali e nel fine settimana
- (4)  Non so
- (5)  Altro (specificare) \_\_\_\_\_

## 2.15 Come vengono asciugati di solito i vestiti?

- (1)  Con un'asciugatrice
- (2)  Stesi all'aperto
- (3)  Stesi in casa
- (4)  Non so
- (5)  Altro (specificare) \_\_\_\_\_

## 2.16 Quanto spesso in casa sua si usa il ferro da stiro?

- (5)  Mai
- (4)  Una volta al mese
- (1)  Una volta alla settimana
- (2)  Due volte a settimana
- (3)  Più di due volte a settimana
- (6)  Non so
- (7)  Altro (specificare) \_\_\_\_\_

**2.17 In media quando viene usato il ferro da stiro? (barrare le caselle pertinenti)**

- (1)  Al mattino
- (2)  Nel pomeriggio
- (3)  La sera
- (4)  Secondo le tariffe delle fasce orarie per l'energia elettrica
- (5)  Non so
- (6)  Altro (specificare) \_\_\_\_\_

**2.18 In media, chi fa la maggior parte dei lavori domestici quotidiani in casa sua?**

- (1)  Io
- (2)  Il mio partner / un altro membro della famiglia
- (3)  Equamente diviso tra tutti
- (4)  Non so/Preferisco non specificare
- (5)  Altro (specificare) \_\_\_\_\_

**2.19 In media, chi si assume la responsabilità delle decisioni domestiche e della pianificazione regolare dei compiti? (pianificare i pasti, pianificare le vacanze, organizzare la cura dei bambini, controllare le bollette dell'energia ecc.)**

- (2)  Io
- (1)  Il mio partner / un altro membro della famiglia
- (3)  Equamente diviso tra tutti
- (4)  Non so/Preferisco non specificare
- (5)  Altro (specificare) \_\_\_\_\_

**2.20 Quanto sarebbe difficile in casa sua cambiare certe abitudini per contribuire a un approvvigionamento di energia rinnovabile più efficiente?**

	Molto difficile	Difficile	Né difficile né facile	Facile	Molto facile	Non so
Orari per cucinare	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Riduzione degli apparecchi necessari per cucinare	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Modi in cui si riscalda la casa	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Orari in cui si riscalda la casa	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>

	Molto difficile	Difficile	Né difficile né facile	Facile	Molto facile	Non so
Modi in cui si raffredda la casa	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Tempi di raffreddamento della casa	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Orari di lavaggio dei vestiti	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Quanto spesso si lavano i vestiti	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Orari di asciugatura dei vestiti (se si usa un'asciugatrice)	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Quanto spesso si asciugano i vestiti (se si usa un'asciugatrice)	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Orari per doccia/bagno	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Quanto spesso facciamo la doccia/il bagno	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Orari di lavaggio dei piatti	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Quanto spesso usiamo la lavastoviglie	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Orari di pulizia della casa	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Quanto spesso puliamo la casa	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Orario per cenare	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Orari di utilizzo dei dispositivi digitali per il tempo libero	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>

**2.21 In che misura è d'accordo con questa affermazione: In casa prenderemmo in considerazione la possibilità di programmare la lavatrice e/o l'asciugatrice per eseguire il loro ciclo più tardi nella giornata, seguendo le raccomandazioni di un sistema intelligente e riducendo i carichi energetici nella nostra comunità**

Fortemente d'accordo	D'accordo	Né d'accordo né in disaccordo	Disaccordo	Fortemente in disaccordo	Non so
(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>

**2.22 In che misura è d'accordo con questa affermazione: in casa prenderemmo in considerazione la possibilità di cambiare gli orari in cui riscaldiamo al fine di ridurre i carichi energetici nella nostra comunità**

Fortemente d'accordo	D'accordo	Né d'accordo né in disaccordo	Disaccordo	Fortemente in disaccordo	Non so
(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>

**2.23 In che misura è d'accordo con questa affermazione: In casa prenderemmo in considerazione la possibilità di cambiare l'orario della doccia/bagno per ridurre i carichi energetici nella nostra comunità**

Fortemente d'accordo	D'accordo	Né d'accordo né in disaccordo	Disaccordo	Fortemente in disaccordo	Non so
(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>

**2.24 Quanta energia pensa che consumino le seguenti attività quotidiane? (1=pochissima 5=moltissima)**

	1	2	3	4	5	Non so
Cucinare	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Lavare le stoviglie	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Lavare i vestiti	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Utilizzare l'asciugatrice	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Utilizzare uno smartphone	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Lavorare al computer	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Ascoltare la musica	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Fare la doccia	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Stirare	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Scaldare la casa	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Raffreddare la casa	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Caricare un'auto elettrica	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>



	1	2	3	4	5	Non so
Illuminare la casa	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Attività all'aperto con apparecchi elettrici (tagliare l'erba, fare un barbecue, usare un riscaldamento esterno etc.)	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>

### Parte 3: Vivere con i sistemi energetici

In questa sezione, vorremmo scoprire i modi in cui si convive con diverse tecnologie a casa. In particolare, vorremmo sapere se ha un sistema energetico intelligente a casa e in che modo lo usa nel quotidiano, in combinazione con altri dispositivi o apparecchi.

Vi faremo domande sulle tecnologie energetiche intelligenti a casa. Le tecnologie energetiche intelligenti (come i contatori intelligenti e i display domestici) comprendono dispositivi che consentono agli utenti di monitorare e visualizzare il loro consumo energetico e permettono loro di controllare gli apparecchi elettrici a distanza.

#### 3.1 Sa cosa sono le tecnologie energetiche intelligenti?

- (1)  Non ho idea di cosa siano
- (2)  Ho una vaga idea di cosa siano
- (3)  Ho un'idea generale di cosa sono
- (4)  Ho una buona idea di cosa siano
- (5)  Non so

#### 3.2 Utilizza una delle seguenti tecnologie energetiche intelligenti? (Si prega di spuntare tutte quelle appropriate)

- (1)  Contatore di energia intelligente

- (2)  Display digitale del consumo energetico in casa
- (3)  Controllo automatico dell'illuminazione
- (4)  No, non ho tecnologie energetiche intelligenti
- (5)  Non so
- (6)  Altro (specificare) \_\_\_\_\_

### 3.3 Quale pensa sia lo scopo delle tecnologie energetiche intelligenti?

	Fortemente d'accordo	D'accordo	Né d'accordo né in disaccordo	Disaccordo	Fortemente in disaccordo	Non so
Risparmiare tempo	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Risparmiare denaro	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Risparmiare energia	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Rendere gli apparecchi elettrici più facili da usare	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Rendere la vita quotidiana più pianificabile	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Migliorare la sicurezza della casa	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Rendere la vita domestica più confortevole	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>
Aiutare nella cura degli altri	(1) <input type="checkbox"/>	(2) <input type="checkbox"/>	(3) <input type="checkbox"/>	(4) <input type="checkbox"/>	(5) <input type="checkbox"/>	(6) <input type="checkbox"/>

- (1)  Altro (specificare) \_\_\_\_\_

### 3.4 Lei o un altro convivente controlla il suo consumo energetico attraverso un contatore intelligente o un altro dispositivo (come un sistema di gestione dell'energia domestica)?

- (1)  Sì
- (3)  No
- (4)  Non so

**3.5 Chi controlla abitualmente il consumo di energia in casa? (Per favore, selezioni tutti quelli che si applicano)**

- (1)  Io
- (2)  Il mio partner / un altro adulto
- (3)  I miei figli
- (4)  Non controlliamo il nostro consumo di energia
- (5)  Non so
- (6)  Altro (specificare) \_\_\_\_\_

**3.6 Chi di solito controlla o cura i sistemi o dispositivi energetici intelligenti? (Per favore, selezioni tutti quelli che si applicano)**

- (1)  Io
- (2)  Il mio partner / un altro adulto
- (3)  I miei figli
- (4)  Non abbiamo sistemi o dispositivi di energia intelligente
- (5)  Non so
- (6)  Altro (specificare) \_\_\_\_\_

**3.6.1 Quanto spesso viene monitorata l'energia attraverso un dispositivo o un display interno alla casa?**

- (1)  Ogni giorno - più volte
- (2)  Ogni giorno - una volta al giorno
- (3)  4-6 volte a settimana
- (4)  2-3 volte a settimana
- (5)  Una volta alla settimana
- (6)  Una volta ogni due settimane
- (7)  Una volta al mese
- (8)  Meno di una volta al mese
- (9)  Quando arriva una bolletta
- (10)  Mai
- (11)  Non so
- (12)  Altro (specificare) \_\_\_\_\_

**3.7 In casa si utilizza attualmente qualche applicazione sul computer o sul telefono per monitorare il consumo energetico?**

- (1)  Sì, usiamo un'applicazione sul computer
- (2)  Sì, usiamo un'applicazione per smartphone
- (3)  Sì, usiamo sia un'applicazione sul computer che un'applicazione per smartphone
- (4)  No, non disponiamo di servizi che consentono il monitoraggio dei consumi energetici
- (5)  Non so

**3.8 Quale sarebbe il modo più comodo per monitorare e/o pianificare il consumo di energia?**

- (1)  Un'applicazione per smartphone
- (2)  Un'applicazione per computer
- (3)  Un altro dispositivo mobile
- (4)  Un dispositivo fisso da qualche parte in casa
- (5)  Non so
- (6)  Altro (specificare) \_\_\_\_\_

**3.9 Se incontra problemi o ha bisogno di consigli sul sistema energetico e sul suo monitoraggio, a chi si rivolge di solito? (Selezioni tutte le risposte pertinenti)**

- (1)  La società che fornisce l'energia
- (2)  Qualcun altro in casa
- (3)  Un amico/parente/vicino di casa
- (4)  Cerco consigli online nel sito web del fornitore di energia
- (5)  Cerco consigli online nei social media
- (6)  Non so
- (7)  Altro (specificare) \_\_\_\_\_

**Vorrebbe fornire il suo nome per ulteriori contatti?**

- (1)  Sì
- (2)  No

Prima di inserire il suo nome e i dettagli di contatto, chiederemo il suo consenso per raccogliere, elaborare e condividere i suoi dati da questo sondaggio. Veda sopra per ulteriori dettagli sui dati che trattiamo e sui suoi diritti.

Le vostre risposte a questo sondaggio saranno raccolte e conservate dall'Università di Aalborg in Danimarca (partner del progetto HESTIA). I vostri dati saranno utilizzati solo per scopi di ricerca e per contattarla in relazione al progetto.

### **Trattiamo i seguenti dati personali:**

I dati personali raccolti attraverso questo sondaggio, inclusi dati personali generali (Articolo 6 (1) (a)) del Regolamento Generale sulla Protezione dei Dati) e dati sensibili (Articolo 9 (2) del Regolamento Generale sulla Protezione dei Dati) sono: età, sesso, figli e loro età, composizione familiare, condizione lavorativa, nome, cognome, indirizzo e-mail e numero di telefono. I suoi dati personali saranno cancellati al termine del progetto HESTIA (3 anni).

### **Condivisione dei dati**

I suoi dati possono essere condivisi con Sinloc - Sistema Iniziative Locali SpA, Grid Ability Scarl, Midac Spa, AXPO Energy Solutions Italia - Società per Azioni e Münster Technological University, Irlanda, tutti partner di HESTIA. I dati saranno condivisi solo per l'uso in relazione al progetto HESTIA.

### **I suoi diritti**

Ai sensi del Regolamento Generale sulla Protezione dei Dati, può esercitare una serie di diritti sui suoi dati personali. Ha il diritto alla cancellazione e il diritto alla portabilità dei dati, nonché un diritto di accesso, un diritto di rettifica, un diritto alla limitazione del trattamento e il diritto di opporsi al nostro trattamento dei dati personali in questione.

Potrà leggere di più sui suoi diritti nella nostra politica sulla privacy, che troverà (in inglese) qui: [www.en.aau.dk/privacy-policy-cookies](http://www.en.aau.dk/privacy-policy-cookies).

## **Responsabile della protezione dei dati dell'Università di Aalborg**

Se ha domande generali sui suoi diritti o desidera esercitare i diritti sopra descritti, può scrivere al contatto nazionale italiano [hestia@gridability.eu](mailto:hestia@gridability.eu) o direttamente al responsabile della protezione dei dati presso l'Università di Aalborg, Niels Vase, all'indirizzo [dpo@aaau.dk](mailto:dpo@aaau.dk). Può scrivere in inglese o in italiano. Se scrive in italiano, la invitiamo a includere il contatto nazionale Hestia nell'e-mail per aiutare con la traduzione della sua domanda: se ha domande sul progetto Hestia, può anche inviare un'e-mail direttamente al contatto nazionale.

## **Vuole fare un reclamo?**

È nostro intento rispettare la legge. Se ritiene che non siamo all'altezza delle nostre responsabilità o che non trattiamo i suoi dati secondo le regole, può presentare un reclamo all'Agenzia danese per la protezione dei dati all'indirizzo [dt@datatilsynet.dk](mailto:dt@datatilsynet.dk). Si prega di includere il contatto nazionale di Hestia nell'e-mail per aiutare nella traduzione del reclamo: [hestia@gridability.eu](mailto:hestia@gridability.eu). Inoltre, la incoraggiamo anche a contattarci all'Università di Aalborg (vedi sopra), dato che vogliamo fare del nostro meglio per accogliere il suo reclamo.

- (1)  Con la presente do il mio consenso all'Università di Aalborg, Danimarca, per elaborare i miei dati in conformità con lo scopo e le informazioni seguenti (seleziona la casella per accettare).

Nome

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Numero di telefono di  
contatto

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Indirizzo email di contatto

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Questa è la fine del sondaggio. Grazie mille per il suo tempo e contributo a HESTIA.

**C'è qualche commento finale che vorrebbe condividere con noi?**

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