ENERGY SYSTEM TRANSITION THROUGH STAKEHOLDER ACTIVATION, EDUCATION AND SKILLS DEVELOPMENT

ENTRUST

Intersectional Analysis of Energy Practices

Deliverable D3.2

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About the ENTRUST Project

ENTRUST is mapping Europe's energy system (key actors and their intersections, technologies, markets, policies, innovations) and aims to achieve an in-depth understanding of how human behaviour around energy is shaped by both technological systems and socio-demographic factors (especially gender, age and socio-economic status). New understandings of energy-related practices and an intersectional approach to the socio-demographic factors in energy use will be deployed to enhance stakeholder engagement in Europe's energy transition.

The role of gender will be illuminated by intersectional analyses of energy-related behaviour and attitudes towards energy technologies, which will assess how multiple identities and social positions combine to shape practices. These analyses will be integrated within a transitions management framework, which takes account of the complex meshing of human values and identities with technological systems. The third key paradigm informing the research is the concept of energy citizenship, with a key goal of ENTRUST being to enable individuals to overcome barriers of gender, age and socio-economic status to become active participants in their own energy transitions.

Central to the project will be an in-depth engagement with five very different communities across Europe that will be invited to be co-designers of their own energy transition. The consortium brings a diverse array of expertise to bear in assisting and reflexively monitoring these communities as they work to transform their energy behaviours, generating innovative transition pathways and business models capable of being replicated elsewhere in Europe.

For more information see **http://www.entrust-h2020.eu**

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Executive Summary

This document examines the energy-related practices that take place in six case-study communities located in France, Ireland, Italy, Spain and the United Kingdom. This exploration is conducted as part of a research project exploring the 'human factor' in the energy system, within which a complementary study of the perceptions and attitudes towards energy technologies has also been produced. Both of these studies are taking an intersectional approach to the analysis, recognising that people have multiple, interdependent, overlapping axes of social identity – these studies focus particularly on issues of gender, socio-economic privilege and age.

The purpose of the report is to move away from the dominant behaviouralist perspective – wherein people are treated as uniquely rational decision-makers – and introduce the very real social contexts through which they negotiate and understand their role within the energy system; with specific focus on their views on the energy technologies that comprise it. The underlying feelings, assumptions, associations and values held by the people who express them are very real influencing factors on the energy-related practices they engage in on a day-to-day basis.

Subsequently, a report will be produced synthesising these two intersectional analyses along with a range of socio-economic, technical, market and policy analyses from the ENTRUST project. It is intended that this report will be updated over the remaining duration of the project, based on ongoing dialogue with the communities; continued reflexive analysis of the collected data; and insights from complementary outputs (not least those mentioned above) with an updated report envisaged for release in quarter one, 2018.

The report is laid out into sections, with each one addressing a specific aspect of the work involved to produce this deliverable. The first part, Section 1 offers an overview of the study, exploring the background and context to the report and presenting is aims and objectives. Section 2 presents the philosophical and theoretical framework that underpins the research and examines how behaviours and practices intersect, especially in relation to energy-related practices. An important contribution to this approach has been the applying the key concept of 'intersectionality' that has helped move the research beyond the "single-axis analysis" taken elsewhere. Section 3 provides an overview of the methods used in the fieldwork and subsequent data analysis. Section 4 presents a reflexive account of the respective knowledges and understandings of the six case-study communities from ethnographic material generated from the research team's engagements with the communities. Section 5 presents the findings of the research, collating them within key, overarching themes that emerged from our community engagements, and explores their meaning within the context of the overall research aims and objectives for this deliverable. The final part, Section 6 concludes the report with an overview of those key findings and how they can, as this research suggests, manifest into the energy-related practices seen in the six communities.

1 Introduction

The work presented in this deliverable provides an intersectional analysis of people's energy practices from the six case-study communities and takes account of the multiple interdependent and over lapping social positions that people negotiate (most notably in terms of gender, age and socio-economic privilege). While a companion deliverable **D3.3 Intersectional Analysis of Perceptions an Attitudes Towards Energy Technologies** (Dunphy *et al.,* 2017) looked at people's attitudes to energy producing technologies, this deliverable will take a closer look at the energy-related practices that inform people's day-to-day lives. It will provide an intersectional analysis of energy practices within the case-study communities and is informed by a practice approach to the study of energy use in the context of socio-technical systems. The intersectional approach in this task will explore how multiple strands of inequality or privilege interact and mutually reinforce one another to constitute individuals' identities and shape their behaviour, and how particular aspects of identity and behaviour are mobilised by specific settings or institutions. Intersectionality[1] acknowledges that each individual has a myriad of attributes that intersect within the person, and which also intersect with social norms, social institutions, and social structures the she/he engages with or is (in)directly affected by. All these factors impact on a person's life expectations and experiences, both in positive and negative terms, which in turn are the very things that impact on how people perceive the world and the attitudes that they have on particular topics.

The research team employed a mixed-methods approach comprising in-depth semi-structured interviews, focus groups, participant observation and time-use surveys. This primary data was further augmented by a detailed desk-based research programme, which in turn informed our interpretation of the results coming from the primary sources. Quantitative and qualitative analytical tools have been applied to further extrapolate the data, with a thematic analysis informed by a range of appropriate qualitative analytical approaches for the primary research material further complimented with a targeted time-use survey in the six case-study communities, recruited for WP5. These communities include Secondigliano [IT], Le Trapèze [FR], the university students [IE], Gràcia, Dunmanway [IE] and Stockbridge [UK]. This approach helped us to address a number of key research questions associated with this deliverable, including:

- What are the drivers that influence how individuals and communities experience and engage with energy as a socio-technical system?

  Sub Questions:

  - How are energy behaviours and practices impacted by the three socio-demographic variables: age, socio-economic privilege and gender?

[1] The concept of intersectionality was central to the research process and analysis carried out in **D3.3 Intersectional Analysis of Perceptions an Attitudes Towards Energy Technologies** investigating people's attitudes to energy technologies. For this deliverable, it will also be incorporated as a guiding methodology in the analysis of people's energy-related practices and behaviour change as discussed in Section 2.

- How do multiple strands of inequality or privilege interact and mutually reinforce one another to constitute individuals' identities and shape their behaviour?
- How are particular aspects of identity and behaviour mobilised by specific social contexts or institutions?
- What other factors emerged as important?

- To what extent is taking this intersectional approach to focus on energy practices applicable in the promotion of a more integrated and holistic approach to behaviour change?
- How does this approach relate to existing literature?

These questions have been integral to ENTRUST's research programme. This report should not be considered a static 'final' report. Rather, it will also be iteratively improved over the coming months based on (i) continued dialogue with the communities; (ii) continued reflexive analysis of the collected data; and (iii) insights from complementary outputs and in particular from the synthesis process outlined below. Consequently, an update of this report will also be forthcoming in quarter one, 2018.

This report is not an isolated piece of work, but rather forms part of a wider work package exploring socio-demographic drivers within the case-study communities. A second related task has also been carried out exploring peoples' attitudes and perceptions to energy technologies with a specific emphasis on energy producing technologies, while this report will focus on energy consuming technologies. This complementary task was reported in **D3.3 Intersectional Analysis of Perceptions an Attitudes Towards Energy Technologies**, which was released prior to this report.

Subsequent to this report, a synthesis report will be prepared, incorporating not just the socio-demographic analyses on 'attitudes towards energy technologies' and 'energy-related practices', but also a number of other related socio-economic, technical, market and policy analyses. This will be achieved through the use of thematic synthesis approaches to integrate the findings of a number of key work packages including: WP2 'Mapping of Energy System', WP3 'Socio-economic Analysis' and WP4 'Policy Analysis'. The resultant synthesis report will feed into subsequent work packages: identifying energy transition pathways; facilitated by recommended policy mixes and co-operation mechanisms; and supported by a specifically designed knowledge platform.

1.1 Background

Engaging with six case-study communities in five different European countries[2], this research explores how various social and economic contexts, and in particular different life experiences, impact on people's energy-related practices. For each case-study community, the stakeholders were engaged using a number of research methods, essentially a mixed-methods approach, comprising both the typical quantitative surveys – which can

[2] France, Ireland, Italy, Spain and the United Kingdom.

often provide answers to questions as to what happened, where and when – and qualitative approaches such as interviews and focus groups – which allows one to enquire into how and why something occurs, as well as into the significance that something, such as everyday practices, holds for the participants. The material gathered from the interviews and then the focus groups form the primary data source informing the overall analysis. An iterative approach was taken for the community engagements, whereby results from the initial analyses of that data coming from early interviews went on to inform subsequent community engagements. For example, in each community, questions and research themes that emerged from earlier interviews were in turn integrated into the preparation and implementation of subsequent engagements, including the focus groups. This approach allowed for a greater opportunity to explore issues that may have been unforeseen by the research team during the early stages of the project.

1.2 Aims and objectives

This report aims to present an intersectional analysis of energy practices within the six case-study communities recruited in Task 5.1. correlating results with key variables that drive individual and collective behaviours and practices, focusing particularly on the socio-demographics attributes/identities of gender, socio-economic privilege and age.

1.3 Context of the report

This deliverable was produced as part of work package 3 of the ENTRUST project, specifically within Task 3.2 Intersectional analysis of energy practices. WP3 aims to provide a deeper understanding of human behaviour and practices in relation to energy use, and how they are affected by a variety of socio-economic factors, including in particular: gender, socio-economic privilege and age. The work package comprised an initial mapping of socio-economic factors affecting energy practices and detailed analyses of energy-related behaviours, practices, perceptions and attitudes in six case-study communities. The research is informed by an intersectional approach, which is conscious of the mutually constitutive relations that exist among social identities, including gender. The work in this work package (and particularly the collection of data, which formed the basis of this report) is very closely linked to, and intertwined with, the community engagement activities in WP5. Accordingly, two forthcoming deliverables from this WP may be of interest to readers of this report, namely: D5.2 'Report on community dialogues'; and D5.1 'Expert feedback on community dialogue outcomes'.

1.4 Structure

The report is divided into six sections as outlined below:

- 'Introduction': presents an overview of the report, details the background to the work, provide context for the task undertaken, describes the research aims and objectives and presents the structure of the document.

- 'Energy behaviours and practices: key concepts': explores a number of theoretical and philosophical concepts that underpin the research undertaken.
- 'Overview of fieldwork': description of the qualitative and quantitative methods used in the fieldwork and in the subsequent data analysis
- 'Reflections on the case-study communities': a reflexive account of the respective knowledges and understandings of the six case-study communities from ethnographic material generated from the research team's engagement.
- Discussions of findings': presentation of the research findings, collated within key, overarching themes that emerged from community engagements, and explores their meaning within the context of the overall research aims and objectives.
- Conclusions: overview of key findings and how they can, as this research suggests, manifest into the energy-related practices seen in the six communities.

Note: It is intended that this report will be updated over the remaining duration of the project, based on ongoing dialogue with the communities; continued reflexive analysis of the collected data; and insights from complementary outputs with an updated report envisaged for release in quarter one, 2018.

2 Energy behaviours and practices: key concepts

2.1 Introduction

Escalating concerns regarding climate change impacts and energy security continue to compel countries towards alternative energy systems. Considerable debates have emerged in terms of how societies (albeit typically presented as economies) can best transition to more sustainable ways of energy production and consumption. Within these debates there is a growing focus on household and individual energy use. However, as policy and academic conversations grow about household energy use, there has been a substantial development of different ideas which position people within the energy system in very different ways. From consumers, to clients, users, beneficiaries and citizens. Furthermore, these have implications in terms of visions for change and understanding how energy behaviour is shaped. In this section, we aim to provide a brief overview of different approaches to energy behaviour and in particular we highlight the innovative and productive aspects of adopting a social practice theory approach that incorporates intersectionality as an integral tool of the research process, and analysis.

For the past twenty-five year efforts to reduce the environmental impact of energy consumption have focused on designing energy-efficient technologies and developing renewable sources of energy (Maréchal, 2009). However improvements in technical efficiency are subject to the rebound effect and have regularly been overtaken by increased consumption (Steg & Vlek, 2009; Galvin, 2013; Maréchal, 2009). Changing people's behaviour is therefore becoming an increasing focus for policy and research (Kok *et al.,* 2011). The

International Energy Agency has concluded that 'a huge step-change in the attitudes to energy efficiency and consumer purchases by hundreds of millions of people world-wide is needed' (IEA, 2009). Most research on behaviour change to date has remained wedded to a rational choice model of human behaviour (Hargreaves, 2011; Shove, 2010). People are seen as logically weighing up the costs and benefits of different courses of action and choosing the one, which offers the most benefits. From this perspective, if you change people's attitudes by providing them with more or better information, or by making pro-environmental behaviour more financially attractive, you will change their behaviour. This model assumes that individual engagements with environmental issues can lead to behaviour change and places the primary responsibility for responding to climate change on individuals and their choices (Barr & Prillwitz, 2014; Hargreaves, 2011). More recently, rational choice models have been associated with a reliance on non-regulatory measures to encourage shifts in individual behaviour through 'nudge' theory and social marketing (Barr & Prillwitz, 2014). Such measures are inherently limited in their capacity to bring about change, because they do nothing to reshape the socio-technical systems, which critically influence energy-related behaviour. The rational choice model has been widely criticised, both for failing to deliver energy reductions in practice and for not taking account of the physical, social, cultural and institutional contexts that shape and constrain people's choices about energy use (Maréchal, 2009; Moloney *et al.,* 2010; Owens & Driffill, 2008; Sweeny *et al.,* 2013). The result has been an increasing focus in behaviour change research on the social contexts in which people live, the routines they shape, and the extent to which people feel empowered to change them.

This section aims to provide an overview of concepts related to both the rational-choice world view and the social practices perspectives. Section 2.2 deals with two important concepts related to a rational choice perspective of energy use, namely: social marketing and behavioural economics, Section 2.3 introduces the philosophy and theoretical background to practice theory, while Section 2.4 provides an overview of the concept of intersectionality – an important aspect of this study.

2.2 Rational behaviouralist approaches

Efforts at promoting behaviour change to date have demonstrated an overwhelming bias towards education and awareness-raising (Morrissey *et al.,* 2016). Theoretically, these initiatives have been underpinned by perspectives drawn from economics and certain areas of psychological theory (Lopes *et al.,* 2012) and find themsleves expressed in approaches such as social marketing and behavioural ecomomics.

2.2.1 Social marketing

Social marketing is defined by Kotler and Lee (2008, p.7) 'as a process that applies marketing principles and techniques to… influence target audience behaviours that benefit society (public health, the environment and communities) as well as the target audience'. In essence, social marketing engages in 'selling behaviour' (*ibid*., p. 8). In doing so it relies on rewarding good behaviours rather than punishing bad ones through legal, economic or coercive forms of influence. Unlike commercial sector marketing, where the explicit intention is to benefit the corporate shareholder, the primary intended beneficiary of the social marketing programme is society. While commercial marketing revolves around selling goods and services, social marketing employs the

same principles and techniques to sell a desired behaviour. Unlike the commercial sector, where the primary objective is financial gain, in social marketing perspective, societal gain is the purpose of the marketing campaign.

Social marketing also offers a framework for targeting specific market segments, where market segmentation is based on criteria such as the prevalence of a social problem, ability to reach a specific audience, and readiness for change (*ibid*., p. 13). Kotler and Lee note that although both commercial and social marketers recognize the need to identify and position their offering relative to the competition, their competitors are very different in nature; in the case of the latter, since the focus is on selling a behaviour, "the competition is often the current or preferred behaviour of our target market and the perceived benefits associated with that behaviour, including the status quo" (Kotler & Lee, 2008).

Social marketing has been applied to issues related to the environment and climate change; however, it is less established as a tool for tackling energy efficiency and fuel poverty. Tod *et al.,* (2012) apply social marketing techniques to understand the decisions of vulnerable older people in relation to keeping warm in winter. They found that influences related to the vulnerability of older people to keep warm in winter combined in various ways, resulting in them being unable or unwilling to access help or change home heating behaviour. Factors influencing behaviours and decisions regarding use of heating, spending money, accessing cheaper tariffs, accessing benefits or asking for help fell into three main categories; situational and contextual factors, attitudes and values, and barriers. The findings formed the basis of a social marketing segmentation model used to develop six 'pen portraits' that illustrated how the combination of factors resulted in older people being unable to maintain warmth.

McKenzie-Mohr's (2000) research on sustainable behaviour offers an effective model of how social marketing can be applied in the area of energy efficiency. McKenzie-Mohr presents a community-based social marketing approach that attempts to make psychological knowledge relevant and accessible to those who design environmental programmes. This comprises four steps; uncovering barriers to behaviours and then, based upon this information, selecting which behaviour to promote; designing a program to overcome the barriers to the selected behaviour; piloting the program; and then evaluating it once it is broadly implemented (McKenzie-Mohr & Smith, 1999). Social marketing underscores the importance of "strategically delivering programs so that they target specific segments of the public and overcome the barriers to this segment's engaging in the behaviour" (McKenzie-Mohr, 2000). As the following section will show similar ideas are employed in behavioural economics which holds the concept of consumer as a central component of behavioural change approaches.

2.2.2 Behavioural Economics

Corresponding with the social marketing approach, there is a growing body of research in both psychology and behavioural economics which suggests that consumer choices are frequently driven by cognitive biases, stemming from heuristics and mental shortcuts which reduce the need to process complex information (Frederiks *et al.,* 2015). These include the status quo bias, which describes the tendency of consumers to stick

to default settings, especially as the amount or complexity of the information available increases; satisficing, or the tendency to settle for a satisfactory, rather than optimal outcome due to the cost in time and effort of processing all available information the reach the best possible decision; and loss aversion, whereby people focus on the risks of adopting a new behaviour more than the potential gains; sunk-cost effects, whereby people tend to persist with a course of action once resources have been invested, even when the outcome is sub-optimal; temporal discounting, which means for example that people prefer small immediate savings over larger potential future rewards; availability bias, whereby people rely on readily available information that springs to mind quickly, such as anecdotal material from family and friends or vivid examples; and conformity to social norms, when people are influenced by the attitudes and behaviours of others within their group or society (Frederiks *et al.,* 2015). Ross (2014) explains the philosophy of behavioural economics as being based on the fundamental perception that economic choices *are* psychological phenomenon and may therefore be understood and explained according to concepts and structures developed by psychologists. However, he also argues that economic choices are not processes solely confined to the brains and minds of the individual agent, since the choices most important to the economist are made at the group level, the level of community.

Pollitt and Shaorshadze (2011) offer an exploration of how this approach may be applied to analysing energy and climate-policy. They highlight four key areas where behavioural economics contrasts with the predominant neo-classical approach. First is the concept of time-varying discount rates, which suggests that people give short-term costs and benefits more weight than their longer-term equivalents (*ibid*., pp. 3-4). Second is the concept of reference points, which argues that an individual's choices are determined not just by the wealth available to them and the price of goods, but stresses the role of certain reference points, particularly in relation to welfare evaluation. Thirdly, the concept of bounded rationality refers to the idea that agents are rational but have cognitive constraints in processing information, therefore deviating at times from rationality under certain circumstances. Finally, behavioural economics acknowledges the role of pro-social behaviour and fairness, in contrast to neo-classical economics which is based on the presupposition that an agent will make choices that depend only on his/her monetary payoff and consumption (*ibid*., p. 6). These theoretical innovations translate into a number of suggestions for incentivising reductions in household energy consumption. These include a dynamic energy tariff which exposes householders to the fluctuations of wholesale energy prices and encourages them to adapt their demand accordingly; reducing the gap between when consumers use and pay for energy; the use of non-pecuniary incentives to conserve energy; the influence of social norms on household consumption; and the importance of energy-efficient investments and purchases.

In the latter case, they offer a number of explanations, from a behavioural economics perspective, for the energy efficiency gap (Pollitt & Shaorshadze, 2011). These include time inconsistency, *i.e.,* consumers applying a high discount rate to future energy savings; endowment effect, whereby households are 'attached' to their current appliances and not willing to replace them; salience, which means individuals place disproportionate weight on vivid and observable facts; and heuristics, related to the idea of bounded rationality, which explains that consumers use simple heuristics to assess their energy consumption, which leads to systematic underinvestment in energy efficiency (*ibid., p.*10).

Awareness of these cognitive biases helps behaviour change efforts to be targeted more effectively at consumers. This often involves reframing messages to do with energy efficiency and energy saving, for example by keeping the information provided short and simple, or underlining the amount of money householders are currently losing through inefficient energy use rather focusing on potential savings.

2.2.3 Alternative perspectives

However, a weakness of approaches based solely on behavioural economics is that consumers are seen in isolation from the socio-economic and cultural contexts which shape their choices. Consequently, it is advisable to supplement perspectives from behavioural economics with sociological theories which emphasise 'how social, institutional, materials, and infrastructural contexts and individual's past histories can all determine peoples' decisions and energy use behaviours' (Chatterton, 2011, p.8). Sociological explanations of behaviour change and those drawn from behavioural economics can complement each other effectively; one provides a more rounded account of individual decision-making processes, while the other focuses attention on the contexts which constrain them.

This more holistic view of human behaviour is reflected in the emerging field of practice theory, where individual patterns of energy use as understood as social practices (Barr & Prillwitz, 2014). 'Social practices… place current individual routinised behaviours into both a social and a historical context' (Barr & Prillwitz, 2014). Practices are routinised types of behaviour, organised around shared forms of understanding which are embodied in physical objects and technical systems (Sweeney *et al.,* 2013). Practices are performed by individuals but shaped and sustained by collective conventions and contexts (Gram-Hanssen, 2011). These include technical infrastructures, institutional arrangements, systems of governance, and the norms and values of social groups. The practice approach is therefore neither purely individualistic nor rigidly structural but takes account of the wide variety of factors shaping everyday behaviour (Crivits & Paredis, 2013, p.308).

2.3 Social practice approaches

2.3.1 Practice Theory

Practice theory (or social practice theory) looks at how everyday practices are shaped by the socio-technical systems in which they are embedded. Practice theory recognises that the rules, knowledge and language which influence behaviours relating to energy are established and disseminated within a variety of different institutions and channels, which shape practices in different ways (Gram-Hanssen, 2011). Practices include regular activities such as bathing, home heating, laundering and cleaning. Rather than simply fulfilling basic needs, these practices are forms of habituated behaviour which reflect socio-cultural values which manifest as specific notions of tidiness, cleanliness and comfort in the home (Strengers, 2008).

Practice theory is particularly concerned with how practices are reproduced by their human 'carriers', often unintentionally and unconsciously. 'The practice itself, rather than the individuals who perform them or the social structures that surround them, thus becomes the core unit of analysis' (Hargreaves, 2011). Crucially, these physical, institutional, social and cultural contexts need to be seen as enabling practices rather than

determining them (Crivits & Paredis, 2013; Gram-Hanssen, 2011; Stephenson *et al.,* 2010). Individuals are not passive carriers of practices but skilled agents who utilise and perform a variety of practices in their everyday life (Hargreaves, 2011). The practices themselves are not ossified but dynamic, constantly reproduced by individual performances (Reckwitz, 2002). Behaviour which is unsustainable is seen, not as the result of an individual's attitudes or values – more or less constrained by contextual barriers – but as embedded within social practices (Hargreaves, 2011). Practice theory therefore moves away from the traditional focus on individual behaviour change and turns the spotlight on the social contexts which frame our everyday actions (Moloney *et al.,* 2010; Hargreaves, 2011). The values, norms, rules or conventions which were traditionally seen as shaping behaviour from the outside are now viewed as themselves sustained and evolving through the reproduction of social practices (Shove, 2010).

Practices are embedded in, and reproduced by, socio-technical systems. A socio-technical system is 'a cluster of interrelated components connected in a network or infrastructure that includes physical, social and informational elements and that thus involves technology, science, regulation, user practices, markets, cultural meaning, infrastructure, production and supply networks' (Maréchal, 2010). For example, the expansion of the motor industry involved the parallel development of related industries such as steel and glass, of infrastructure including roads and service stations, and of technical research and industry lobbies (Maréchal, 2010). The concept of socio-technical systems highlights the relatively fixed linkages between daily routines and technical apparatus. Energy consumption depends on an infrastructure of hardware or technological systems, such as lighting systems or washing machines, which is largely taken for granted and structures the patterns of daily life (Shove & Warde, 1998; Gram-Hanssen, 2011). 'The theory suggests not that people rationally decide to do what they did before, but that their routines get entwined with technical apparatus and material surroundings, so that just doing the same thing each day or each week results in the same patterns of consumption' (Galvin, 2013). The result is that people are locked into routinized energy-inefficient behaviours and can fail to change even when they want to (*ibid.*). For example, through looking at energy saving from a practice perspective Sweeney *et al.,* (2013) found that the 'value-action' gap came from an inability to financially afford the investment cost of more energy efficient items rather than out of choice.

However, while people are 'locked in' to practices, it is not an unbreakable lock. Practices do change, in tandem with the socio-technical system. Shove, Pantzar and Watson (2012, p.1) brings a 'suitably materialized' approach to practice theory to account for change over time by 'exploring processes of transformation and stability within social practices and between them.' Understanding how change happens requires recognising that 'practices are defined by interdependent relations between materials, competences and meanings.' (*ibid.,* p. 24)) Bringing a rich anthropological approach, Pink (2012, p.21) further develops practice theory 'to explain why some human activities appear normative and are sustained and also how practices are transformed as they are performed'. Pink also develops an analysis of how householders may intersect with energy-related interventions in the home. Pink demonstrates how 'engaging' with household participants through video while they perform everyday practices that consume energy can result in 'collaboratively arriv[ing] at routes into understanding how and why certain levels of energy consumption are realised.' (Pink 2011, p.126) Making

domestic energy consumption 'visible' through videography, interview and collaborative discussion gives participants the opportunity to examine their everyday consumption practices, and to proactively change them during the period of transition instigated by the energy-related intervention.

Two factors in particular limit the range of choices consumers are able to exercise when it comes to energy use. Firstly, we do not consciously 'choose' to use energy, rather energy use underpins a wide range of everyday practices such as heating, lighting, transport, cooking, cleaning, entertainment, *etc.*, many of which are taken for granted or considered 'essential' (Hunt & Ryan, 2014). Secondly, much of our energy use is 'hardwired' into the infrastructure which enables these practices (buildings, heating systems, transport infrastructure, *etc.*). Consumers may be in a position to change aspects of this infrastructure, for instance by purchasing energy-efficient appliances, switching electricity suppliers, or insulating their homes. But these interventions are by their nature limited and episodic: most households will purchase appliances, or renovate their homes, only at intervals of several years, after which a new regime of energy use is once more 'locked in'. Moreover, significant elements of energy infrastructure are not subject to consumer choice: for example, in many cases households living in rented accommodation will not be in a position to choose to insulate the property, while homeowners may find large-scale energy upgrades beyond their means. Hence, in comparison to other dimensions of consumption (such as clothing, home furnishings, or foodstuffs), the scope for consumer choice in energy use tends to be limited overall, and tied to specific occasions such as moving house, carrying out home renovations, or purchasing major appliances. In the case of fuel poor consumers, in particular, the scope for individual consumer choice may be very narrow.

2.3.2 Practice theory and energy

Relations between consumers, producers and systems of provision are mediated and co-produced 'through' practices (Walker *et al.,* 2014). Walker *et al.,* further suggest that opportunities for effective (low-carbon) transitions related intervention may lie in the generation and circulation of elements of which variously sustainable practices are made. Geilinger, Hae, Krogh, & Rechsteiner (2016) discuss the "inherent logics" of social practice - being, knowing, and doing. The role of values, norms, and standards are also central in social practices. Discussions of sociotechnical transitions and their governance have routinely obscured the central role that practitioners themselves play in generating, sustaining and overthrowing everyday practices. Focusing on practices, their trajectories and their interconnections, obliges us to attend to processes of ongoing transformation, feedback and related circuits of reproduction (Walker *et al.,* 2014). To date, governments, non-government organisations and energy utilities employ a range of behavioural strategies to curb demand, such as informative websites and books about how to save energy, and educational programs and campaigns designed to assist people in making more resource-efficient decisions and investments about their consumption (Strengers, 2012). Such approaches can be characterised as comprising an 'Attitudes, Behaviour, Choice, Demand' (ABCD) model (Strengers, 2012). Social practice theory provides a distinct account of everyday life and social change which differs markedly from the ABCD model. The focus shifts from individual and autonomous agents, or self-directive and purposive technologies, and onto assemblages of common

understandings, material infrastructures, practical knowledge and rules, which are reproduced through daily routines (Strengers, 2012).

Within the setting of the home, energy practices cannot be epistemologically separated from everyday practices. Everyday practices are thus embedded with practices of consumption, identity and values (Barr, Shaw, *et al.,* 2011; Gilg *et al.,* 2005; Gregson *et al.,* 2007; Kurz *et al.,* 2015). A 'social practices' approach is conceived as being routine-driven, consisting of everyday activities in time and space that are shared by groups of people as part of everyday life (Barr, Gilg, *et al.,* 2011; Verbeek & Mommass 2008; Barr, Shaw, *et al.,* 2011).

Sustainable lifestyles are characterised by changes across multiple domains such that modifications in one social practice does not, in isolation, present a realistic means of delivering sustainable living (Evans & Abrahamse 2009; Barr, Shaw, *et al.,* 2011). Lifestyles therefore comprise relatively consistent bundles of social practices (Giddens, 2009). Yet sustainable lifestyles appear to emerge from a range of other practices relating to human and animal rights, social justice, frugality, and health that give rise to multiple 'entry points' (Evans & Abrahamse, 2009; Kurz *et al.,* 2015). Irrespective of lifestyle changes already made, it is reported that individuals consider that they could or should take more action whereby sustainable lifestyles are conceptualised as an ongoing process requiring constant changes to practices (Evans & Abrahamse, 2009). There are a range of perceived tensions and inconsistencies across sustainable lifestyles that result in senses of 'falling short'. These include those that arise between sustainability and the demands of living a 'mainstream consumer lifestyle' exemplified by individuals who choose to 'treat' themselves as a method of compensating for what they have chosen to go without (Evans & Abrahamse, 2009). These tensions and inconsistencies are exacerbated by broader systems of provision not being aligned to support sustainable lifestyles.

Changes in lifestyles, such as in energy practices, are the outcome of material, procedural and socio-discursive meanings underpinning social practices (Kurz *et al.,* 2015). The transition to new sustainable habits such as cycling demonstrate that material changes such as accessibility to bikes in urban areas, the procedural elements of getting to work on time and the meaning behind activating such a habit to live more healthily demonstrates that such changes in lifestyle occur for a multitude of reasons, not always relating to sustainability. This is one example where interventions can target particular practices such as transport if individuals are already attempting to identify changes in lifestyle for other reasons *e.g.,* health-related activities. This, therefore, suggests that while behaviour changes occur for a multitude of reasons that these are not always related to sustainability.

Intersectionality adds further depth to social practice theory approaches as it recognizes social divisions in an interconnected way. The following section expands on this idea.

2.4 Intersectionality

ENTRUST is developing an intersectional analysis of energy practices within the case-study communities to inform the development of potential pathways towards the transition to a sustainable energy system. Intersectionality describes a theoretical approach to understanding the impact of multiple, intersecting,

attributes of identity on human experiences, and gives recognition to the fact that people's life experiences, including their everyday practices, can be impacted by a variety of socio-demographic variables including, but not limited to, gender, "race", socio-economic privilege, culture, age, disability, sexuality, *etc.* Taking an intersectional approach to research also requires that researchers maintain a reflexive approach to the research process, which in this task is directed to developing a deep understanding of people's energy related everyday practices, and the significance they hold in people's lives – in order to assess the potential for the development of those practices in more sustainable way. The research team has carried out a series of interviews and focus groups with members of the six participating communities keeping intersectionality as a core concept at each stage of the research process. In D3.3, following Hancock (2007; 2013), we outlined how adopting intersectionality as a research paradigm provides a conceptual approach that overcomes the limitations of other empirical approaches to research. There we expanded on the origins and development of the concept of intersectionality, exploring feminist epistemological standpoint theory and its relevance for developing intersectional analyses, as well as contrasting the benefits of bringing an intersectional approach to analysis – entailing a more complex conceptualisation of the particularity of the effect of the intersections of social identities and social locations on the embodied person – with the limitations of narrow representations of human beings figured as disembodied rationalists. Below, we are expanding on the socio-demographic attributes of gender, socio-economic privilege and age in order to elaborate on their significance for life-experience, and so the 'performance' of energy practices – this elaboration notwithstanding, it should be understood that these socio-demographic attributes never exist in isolation in any person, but are always lived in combination with other attributes and factors which can all operate along multiply experienced axes of oppression or privilege or both.

The concept of intersectionality guides the selection of communities, the selection of participants within those communities, as well as the analysis of the data that is generated from the community engagement. As outlined above, ENTRUST is giving particular consideration to the effects that gender, age, and socioeconomic privilege have for transitioning to low carbon energy system as its has been demonstrated that these attributes have a significant impact on energy use, as demonstrated by, for example, (Clancy & Roehr, 2003) [Gender]; (Yang *et al.,* 2015) [Age and Gender]; (Kennedy *et al.,* 2014) [Socioeconomic].

Incorporating an intersectional approach to participant recruitment, both women and men from a range of ages and from a diversity of socio-economic backgrounds were interviewed by the research team, and the focus group participants were also diverse in their demographic range. At all stages of the research process we endeavoured to give recognition to the fact that each individual lives a diversity of social positions, and so at all times we remained consciously resistant to stereotyping individuals on the basis of any particular attribute. Adopting an intersectional approach throughout all stages of the research process has enabled the development of fresh insights into the human factor in the energy system.

Intersectionality captures the ways that multiple identities combine and amplify each other rather than being merely additive, and offers a materially based and theoretically rich approach to analysis that incorporates a

recognition of the complex ways that the social identies and social positions that we inhabit can affect our everyday energy practices. As outlined in **D3.3**, using intersectionality as a research tool allows the examination of complex social and political problems involving analyses along more than one axis of difference such as gender, race, or class. What is key to the intersectional approach is recognising that no presumption should be made as to the nature of the relationship between any particular category, not that the categories themselves cannot be analysed. So, for example, class and gender may be analysed together, but it should not be assumed either that they are independent of each other, nor that analysing both will fully capture all aspects of an issue. It is also understood that categories of difference themselves are not fixed, but rather are "dynamic productions of individual and institutional factors" (Hancock 2007, p.251). Yet, while attributes of identity are not static, and can never be entirely disaggregated from the others personal and socially significant attributes, still each "category of difference" has an impact on those who share it, granted that impacts are variable, and are differentially experienced – what is necessary for the research process and analysis is retaining a reflexive approach alert to these complexities. As set out in the DoW, the three key demographic factors under exploration are: gender, socio-economic privilege, and age; these are expanded upon here.

2.4.1 Age

Definitions of age and aging are varied and research from the social sciences field including psychology have contributed substantially to widening this understanding through a focus on more subjective constructions of age. This represents a break away from dominant concepts of aging predominantly linked to life-cycle and biological processes. Subjective definitions of age include a greater understanding of how people identify themselves in age terms and how institutions operationalize the concept in relation to the services they offer and the policies that are implemented.

Innovative insights from developmental psychology have linked age with individual reflections on personal development (Stinson, 1999). Research in this areas has shown that calendar age is not accurately representing how individuals perceive their development and that there is a large degree of subjectivity in individual experiences of age (Stinson, 1999). For example, adolescents typically feel older than their calendar age while adults when they reach midlife typically report feeling younger than their calendar age. These perceptions in turn can have a real impact on health and wellbeing, with further studies in the field showing that negative perceptions of aging and age stereotypes influence cognitive functioning and may lead to maladaptive behaviour, especially in older age (Stinson, 1999).

Further insights from a Social Gerontology perspective seek to destabilize mainstream representations of age based on biological processes by demonstrating that experiences of ageing are strongly related to life course processes (*i.e.,* early life influences, access to education and employment, health status) which lead for example to instances of accumulated advantage or disadvantage in life that often become conflated with age (Burton & Bromell, 2010).

Finally, the steady trend towards global demographic ageing, is leading to extensive social transformations which demand new and innovative policies to address these changes. Old age is linked to increased functional

disabilities and chronic morbidity but new trends suggest that older adults are living longer, healthier lives and are able to live independently for longer (Lecovich, 2014). This ability however is tied in with choice in shaping one's life and in some instances in shaping the way institutional care is provided (Walsh *et al.,* 2016). Literature on ageing-in-place shows the significance of home in promoting independent living. Furthermore, social gerontologists argue that increased place attachment is a significant factor in older age and this is linked to increased sensitivity to the immediate social and physical environment (Lecovich, 2014).

From an energy research perspective age trends have been shown to have a significant impact in the context of transitions into alternative energy sources. For example, an ageing population will lead to large increases in energy demand and energy use in the home, and as these households are dependent on pensions new energy sources need to be provided at affordable prices (Willis *et al.,* 2011). Research in this field has also shown that there are potential differences in adaptability and acceptance of new energy system regarding different age groups (Stigka *et al.,* 2014; Willis *et al.,* 2011).

2.4.2 Gender

Investigating the role of gender as a key human factor in the energy system is a core concern of ENTRUST. Within the social sciences, and in feminist theory, a distinction is often drawn between sex and gender where sex is understood to refer to the biological differences between women and men; and gender is understood to refer to the social differences between women and men. Gender is the primary categorical division in society and it operates as the primary means of social organisation across all societies. The most significant biological difference between women and men concerns their reproductive capacities, however while gender is based on the fact of the biological differences between women and men, these differences, while significant in some aspects, are amplified, and often exaggerated to make unsubstantiated claims about women's and men's capacities and abilities. The concept of gender encompasses the far more wide-reaching social inscriptions of expected and acceptable behaviours that are attached to having a particularly "sexed" body. In brief, gender refers to the social differences between women and men, while people are born with a particular biological sex, gender is a social and cultural construction, with rules of behaviour incorporating acceptable ways of presenting oneself to others. From birth, gender is internalised as a key element of the dynamic developmental process of growing up into childhood. (Fausto-Sterling *et al.,* 2012a; Fausto-Sterling *et al.,* 2012b) While biology clearly plays its part, essentially, gender is learned. Continuing into adulthood, the individual develops their gender, along with their gendered identity, through social and personal interactions (Oakley, 1972). The fact that gender is socially learned, rather than determined by biology, is demonstrated by the huge variation in gender roles assigned to individuals across different cultures, and across time (Eagly & Wood, 2013; Wood & Eagly 2002). Gender roles also vary within societies, where they intersect with age and socio-economic status as well as other sociocultural factors such as culture, ethnicity, and religion. We can understand gender in terms of the personal attributes people are expected to have (aptitudes and characteristics) as well as the social roles (behaviours and responsibilities) to which people are expected to conform. Men are expected to display the traits conventionally attributed to masculinity; while women are expected to display the

appropriate traits often associated with femininity. But the content of those traits of masculinity and femininity, and how those traits are assigned vary across cultures, as well as across time within particular cultures. Some aspects of gender roles have undergone significant changes in recent decades, particularly in the context of broader societal developments. For example, while women still have primary responsibility for parenting, fathers have become increasingly more involved in active parenting, as is evidenced in the research findings reported below. This social shift in parenting responsibilities is increasingly being recognised as an accepted social norm across the EU. Maternity leave is already mandatory in the EU, and an increasing number of European countries are now introducing paternity leave, albeit along less generous terms, with more countries expected to follow.

Gender, its negotiation and interpretation, plays a significant role in everyone's lives. Gendering is present from birth, and continues for the duration of one's lifespan (Fausto-Sterling, 2005). Gender is both a social process and a personal experience; it can be understood as a dynamic interplay between self and social system, a complex intersection between biology and society. People develop their gender identities [as women and men] over the course of their lifetimes. Each person is born into a social world that already has a gendered set of norms and expectations to which they are expected to conform, based on their biological sex. From the moment of birth, each individual's experiences being gendered as either a boy or as a girl. Infants are described in gendered terms, treated differently, and encouraged to display the appropriate gender attributes associated with the biological body that they happen to be born with (Fine, 2010). Considerable social pressure—from family, peers, and wider society – is brought to bear upon children as they grow up to conform to their socially sanctioned gender roles. These normative expectations translate into the energy-related behaviours and practices people engage in in their day to day lives, but for many they remain largely unexamined and are accepted as immutable constructs.

Unexamined ontological and epistemological assumptions about gender also pervade social and scientific research, including energy-related research. Ontological assumptions of, and binary distinctions between, categories of persons and their attributes are often unreflexively accepted across the sciences, such as "man/woman" and "masculinity/femininity", and these distinctions are often reified as essential (determined) aspects of the person. Further, they are reified as essentialist (innate) dichotomies. Of course, recognising the, effectively, constructed nature of gender is not to deny its undoubted effects. Understanding the role that gender plays in a person's self-concept offers a way of understanding the significance that an everyday practice may have for that person – and as is shown in the findings, some practices, such as laundry, remain highly gendered despite the signs of change in responsibility for other practices such as childcare, and cooking. However, that notwithstanding, understanding the socially constructed nature of gender, and how this impacts on energy related practices indicates the potential for social change to practices that while individually performed, are always, to some degree, socially mandated.

Participants were not asked any gender specific questions, or questions that directly referenced gender in any way. Instead the participants were asked to describe their attitudes towards the energy system, energy

technologies, and their everyday lives more generally. The gender analysis undertaken to develop a deeper understanding of the participants reports of their energy-related practices utilised the concept of intersectionality as a key component to understanding people's everyday energy practices entailing that gender was not viewed in isolation from other attributes.

2.4.3 Socioeconomic privilege

Access to abundant, reliable, and cheap energy is necessary for the unprecedented standard of living experienced by those residing in the developed world. Many in the developing world do not enjoy the same access to energy services that exists in high-income countries (Bridge *et al.,* 2016). Energy is therefore a key social justice issue, as well as an environmental one. Healy and Barry (2017) stress the need to consider whether, where and how policies aimed at decarbonizing the economy can address the range of injustices and impacts of such a socio-energy transition, for instance. Hiteva and Sovacool (2017) argue that social sustainability in energy terms should incorporate equitable distribution of costs and benefits, affordability, due process and greater participation in decision-making. These constitute key elements of an energy justice perspective. Sovacool *et al.,* (2017, p.677) define "energy justice" as a global energy system that fairly distributes both the benefits and burdens of energy services, and one that contributes to more representative and inclusive energy decision-making. Healy and Barry (2017) advocate for a 'just transition' highlighting, amongst other aspects, the need for supports for communities that have been marginalized or negatively impacted by low carbon energy transition processes.

Lennon (2017 p27) argues for evidence of an emerging 'just transition' whereby *"renewable energy technologies and intersectional ideologies have collectively enabled marginalized groups to participate in and shape the technocratic energy sector, reconfiguring dominant understandings of energy and generating new political imaginaries from the grassroots to the corporate boardroom".* In the same paper 'Decolonising energy', Lennon (2017) applies a Black Lives Matters framework to develop an intersectional understanding of energy. This framework suggests that pervasive understandings of energy reify colonial hierarchies. Lennon proceeds to emphasise the need for intersectional work that reconceptualises energy in terms of vital relationality. Socio-economic privilege and income levels are key socio-demographic elements in this regard, to be considered along with a wide range of other socio-demographic parameters.

At the macro level, energy consumption increases with income in emerging market and developing economies, while in advanced economies energy consumption increases with income beyond a point at which the economy achieves a threshold level of income (Chang, 2015). Azam & Khan (2016) report that energy has statistically significant positive relationship with trade openness and CO_2 emissions in Tanzania, the USA, Guatemala and China and significant negative relationship with economic growth in all of these countries. According to Change (2015), energy use per capita continues to grow in the advanced economies, especially in high income countries, as incomes increase. The explanation appears to be that energy-saving technical innovations tend to allow a greater number of energy-using appliances to be introduced into households and industries (causing more energy consumption), as the money saved is spent on other goods and services

(Chang 2015). On the consumption side, ''direct'' rebound effects arise because energy efficiency improvements look much to the consumer like reductions in energy price, spurring increased energy consumption directly (Saunders, 2013). ''Indirect'' rebound effects arise on the consumption side because, to the extent households reduce their energy bills owing to more efficient use of energy, their disposable incomes will rise, which will be spent on goods and services that themselves have taken energy to produce and transport, thus increasing energy use (Saunders, 2013).

In a study of the relationship between energy consumption and economic growth for high, middle and low income countries Ahmed & Azam (2016) find causal, reverse casual, bidirectional causal and no-causal relationship between energy consumption and economic growth across different groupings of countries. In other words, the picture is very complex and clear macro-scale trends are not easily discernible. Results reported in Pablo-Romero & Sanchez-Braza (2017) do show that the Environmental Kuznets Curve[3] hypothesis is confirmed for the residential sector in the EU-28 countries. Moreover, the results also show that a turning point has been reached in Denmark, Luxembourg, Finland, The Netherlands, and Sweden; that is, as income increases in these countries, residential energy consumption has now started to decrease (Pablo-Romero & Sanchez-Braza, 2017).

At the household level (and notwithstanding the emerging evidence presented by Pablo-Romero & Sanchez-Braza), households with higher annual incomes were more likely to be high electrical energy users (Jones & Lomas, 2015). Druckman and Jackson (2008) found that there was a positive correlation between disposable income and energy consumption in a UK study. In the same study, Druckman and Jackson (2008) report that the amount of household energy consumption by the poorest 10% of households was only 43% of the energy consumed by the richest 10% of households in the UK. However, evidence from the literature suggests that care needs to be taken when drawing conclusions on the relationship between energy and income levels in particular. Socio-economic and socio-demographic characteristics can interact in complex and sometimes unexpected ways. While analysis in the paper by Yun & Steemers (2011) shows that socio-economic factors of households performed a vital role in determining space cooling energy consumption, indirect, rather than the direct effects of socio-economic factors were important[4]. While a weak and almost negligible relationship between household annual income and energy use is reported by Yun & Steemers for direct effects, when indirect effects were taken into account, income had a strong, positive relationship with energy consumption (Yun & Steemers, 2011).

Households with higher incomes may purchase new and high-end appliances for instance. Larger 'power hungry' appliances also tend to be higher-end devices with higher price tags, which are consequently more likely to be purchased by households with a high income (Jones & Lomas, 2015). As a result of such

[3] Whereby environmental impacts increase to a peak, and then decrease with increase in income, in an inverted U-shaped curve.

[4] Physical energy insecurity is defined as deficiencies in the physical infrastructure of the home environment that impact thermal comfort, induce harmful exposures and increase energy cost (Hernandez 2016).

consumption patterns, high income earners consume a considerably higher proportion of embedded/embodied energy than direct energy. This suggests that as incomes rise, so will the relative significance of embedded/embodied energy use (Saunders, 2013). Income levels are also influential determinants of the physical characteristics of housing units and for example AC equipment, which in turn influence user control behaviour and thus cooling energy consumption patterns (Yun & Steemers, 2011). Santamouris *et al.,* (2007) support this, reporting that household income was an important determinant of the size, age, type, envelope quality of dwelling and type of equipment. It follows that through greater scope to control and design their home environment, households on higher incomes have more agency (whether they exercise this or not) over the type and nature of their domestic energy use practices.

Higher-income households also have great capacity to respond to externally imposed costs, such as changes in taxation rates or tariffs of various kinds. The financial burden of specific energy taxes may be incurred disproportionately by low-income households for instance. These households tend to spend a larger share of their disposable income on goods and services, such as heating and electricity (Oueslati *et al.,* 2017). This point is also argued by Schulte & Heindl (2017), who present evidence that real increases in energy prices show a regressive pattern of incidence. Simply put, the welfare consequences of direct energy taxation are larger for low income households. A given change in energy prices has a significantly different impact on households' welfare as a result of the price change. Welfare losses tend to be large for low-income households and changes in energy prices will impose unequal burdens on different households (Schulte & Heindl, 2017).

In the energy justice literature, distributional unfairness is frequently linked to problems with decision-making processes that, for instance, are seen as excluding certain parties or lacking transparency (Liljenfeldt & Pettersson, 2017). Investigating the extent to which the decisions to approve or reject windmill proposals in Sweden can be explained by factors related to the socio-economic characteristics of people living in the areas surrounding windmill sites, results reported by Liljenfeldt & Pettersson (2017) show skewness in the distribution of windmills. In this study, findings show a higher likelihood of rejection of projects in areas with more highly educated people and people working in the private sector, compared to a higher likelihood of approval in areas with more unemployed people.

Hernandez (2016) uses the concept of energy insecurity to capture the full range of these challenges for low-income households. *"Energy insecurity is a multi-dimensional construct that describes the interplay between physical conditions of housing, household energy expenditures and energy-related coping strategies"* (Hernandez, 2016 p1). In this framing, energy insecurity is predicated on markers of social disadvantage such as low socioeconomic privilege, race, ethnicity, family composition and housing tenure; all considered key social determinants of health. In addition, energy insecurity acts as a mediator in the poor housing to poor health continuum (Hernandez, 2016).

As stated above, intersectionality captures the ways that multiple identities combine and amplify each other rather than being merely additive, and offers a materially based and theoretically rich approach to analysis that incorporates a recognition of the complex ways that the social identies and social positions that people inhabit

can affect everyday energy practices. Although the three socio-demographic categories have been disaggregated here, and are used to thematically structure the findings discussed below, nontheless, we are attendant both to the disparities within "groups", and to the effect that multiple overlapping and intersecting positions can have on an individual's experience and their 'lifeworld'. In future iterations of this document **D3.2**, as well as **D3.3,** and also the forthcoming **D3.4 Synthesis Report,** we will be further developing these intersectional analyses and integrating them within the policy, technology, and social landscapes that are integral to the energy system.

3 Overview of fieldwork methods

3.1 Introduction

As discussed in *D3.3 Intersectional Analysis of Perceptions and Attitudes Towards Energy Technologies*, the research conducted for the ENTRUST Project has very much comprised a mixed-methods approach. This was considered best suited the community engagements given the types of research questions being asked and the variety of communities being engaged with. Essentially, analysis of qualitative data can provide information on how and why something is happening, while quantitative data usually indicates where and how much of it is happening. However, this delineation between quantitative versus qualitative methods is seen as problematic for some (see Long *et al.,* 2000; Allwood, 2012). Therefore, and in keeping with the aims and objectives of this report, the research involved a combination of methods, involving the collection of both qualitative data (through face-to-face interview and focus groups) and very targeted quantitative data (through survey).

3.2 Qualitative data collection

3.2.1 Semi structured interviews

A core activity of the research programme has been devising and implementing a suite of in-depth, semi-structured interviews in each of the case-study communities. A total of forty-four in-depth, semi-structured interviews were carried out. A concerted effort was made on the part of the research team to build a good relationship with each interviewee based on mutual respect and trust. These were done face-to-face, at a location where the interviewee was comfortable and felt free to speak openly. As a qualitative method, interviews are widely considered to help researchers 'reach the parts which other methods cannot reach [and] probe an interviewee's thoughts, values, prejudices, perceptions, views, feelings and perspectives' (Wellington & Szczerbinski 2007, p.81). A notable attribute of semi-structured interviews is their adaptability and structural flexibility, especially in terms of exploring the themes with which we wished to engage (Legard *et al.,* 2003). The interviews we conducted involved using pre-formed, concise, easily understood, open-ended questions that the respondents' relationship with the energy system and with energy itself (a copy of the interview schedule is included as Appendix 3). In keeping with the practice for semi-structured interviews, participants were given the freedom to develop and add to the answers as they wished. Personal anecdotes and opinions of their own in response to the questions were welcomed. The interviewers also had the freedom to ask supplementary questions or follow up on particular lines of enquiry that emerged from the discussion when

they thought it was appropriate. At the same time, every effort was made on the part of the interviewer to avoid steering the interviewees, or show personal preferences during the questioning. All interviews were recorded, and notes taken where appropriate – a key consideration was to make sure such activities did not interfere with the natural flow of the conversation or the interviewees' train of thought. Audio recording was considered to be sufficient, given the potential for video recordings to detract from the process and because they were not necessary for capturing the information needed. The audio recorder was positioned discreetly between interviewer and interviewee, and at the beginning of each interview the interviewer was required to ask the interviewee's permission to record the interview. Written consent was requested from the interviewee for the research team to record the interviews and for the findings to be used at a later date. he resultant transcripts have been stored securely for the intersectional analysis presented in Section 5 of this deliverable.

3.2.2 Focus Groups

In conjunction with the semi-structured interviews, a total of thirteen focus groups were conducted involving 84 participants (with at least two focus groups in each of the six case-study communities). Morgan (1988, p.10) describes focus groups as "*basically group interviews, although not in the sense of an alternation between the researcher's questions and the research participants' responses. Instead, the reliance is on interaction within* the group". Gill *et al.,* (2008) agrees, noting that a focus group is more than just collecting data from multiple participants at once – rather it is a facilitated group discussion. Focus groups are group discussions on a predetermined topic for research purposes; the discussions are observed, guided, facilitated by a researcher and the discussions are typically recorded and transcribed. The group interaction is a key feature of focus groups, Kitzinger (1994) argues that it is this group dynamic that distinguishes between focus groups and other group discussions, while Morgan (1988, p.12) observes that focus group "*produce data and insights that would be less accessible without the interaction found in a group*". Gill *et al.,* (2008) recommends that the optimum size for a focus group is between six and eight participants, noting that if groups are too small discussion is limited and if they are too large, they are hard to manage and it may be difficult for participants to contribute to the discussion. Kitzinger (1995) contends that the "*method is particularly useful for exploring people's knowledge and experiences and can be used to examine not only what people think but how they think and why they might think that way*". It is this exploration of a person's beliefs that the method so appropriate for this study. Wilkinson (2016) notes that data collected from focus groups are typically analysed using conventional qualitative data analysis techniques such as those used for interview transcripts. She comments that "*focus groups are distinctive, then, primarily for the method of data collection (i.e., informal group discussion), rather than for the method of data analysis*" (2016, p.84). The focus groups were held in easily accessible locations local to the communities themselves. The duration of the discussion varied between 90 and 120 minutes, they were led by a member of the research team who took on the role of a moderator and facilitated the discussions. The discussions were recorded, transcribed and analysed as described below. A copy of the focus group plan is included as Appendix 4.

3.2.3 Participant Observation

Participant observation is often promoted as a valuable method to capture information which in many ways transcends direct articulation of perceptions and attitudes, by seeing these being played out in practice (Gray 2013). This method is thus able to capture a more dynamic study setting by refining and adding to our understanding of a particular place or phenomena. This is enabled by the inclusion of valuable sensory information, observations of movement, action, interaction and other visual or sensory factors of importance. In contrast with the more deductive practices associated with methods such as questionnaires where pre-conceived ideas are being tested in a detached manner, participant observation encourages the researcher to understand social phenomena by seeing it performed in everyday spaces (May, 2011). This method therefore, seeks to capture the vital practices of interaction which give meaning and structure to people's lives by occupying some of these spaces and situating knowledge processes.

For this project, we have used both direct observation and fieldwork diary techniques to capture the materials required. Direct observation entailed preliminary and informal engagement with the study area. Initially, participant observation was used as a technique to capture and register informal observations of each community based on initial impression of each neighbourhood. This was extremely valuable for the research both in terms of building rapport with the local community, supporting the recruitment of various participants and contextualizing and validating data. The richness of information was valuable to produce a profile of each community based on anecdotal materials, first hand experiences of the neighbourhood and insights into the living circumstances framing the narratives of our participants.

This included researchers walking around, actively looking at surroundings, observing day-today practices and community dynamics in our six neighbourhoods. The process also involved the researchers taking photographs and framing their own reading of the social and physical landscape. Furthermore, researchers obtained direct observation insights from interaction with participants in their neighbourhood both through the process of recruiting and carrying out semi-structured interviews and focus groups.

Subsequently we have used field diary and notes to capture these direct observations materials. Due to the international nature of the research project we had a total of twelve different researchers involved in the fieldwork stages. There was some crossover with researchers having involvement in four out of the six communities. Additionally, some of these researchers had good knowledge of the areas being researched while others did not. This provides a richness and variety of observations. However, there are potential problems in having a large number of researchers in terms of consistency and comparability between different observations. To address this problem, we developed a field diary structure so that observations were more comparable among the different communities and the different sites (Appendix 6). The diary structure was based on five core sections. These included general impressions of the community, the local area, the recruitment process, people's homes and ethical issues. A total of twenty observational records were captured which consists on average of three individual researcher diary records per community.

3.3 Quantitative data collection

3.3.1 Time-Use Survey

Time-use surveys can be categorised as a largely quantitative data collection method which has a focus on measuring the duration of specific human activities (Stinson, 1999). Time-use data is valuable for understanding the usage of specific resources, their intensity, identifying changes and patterns of usage as well as comparing use between different cohorts. There are certain structural and cultural factors which can significantly influence the time and manner in which people engage in different activities. For instance, advances in technology in the form of efficiencies can contribute to savings in terms of time and total energy spend on any given task. This is certainly true for washing practices whereby new ecological washing cycles have shortened the time requirements for of single washing loads. However, cultural norms and other factors may also have an influence in terms of specific ideas of cleanliness and hygiene which could lead to either energy savings or an increase in washing practices. The rebound effect is another aspect relevant here as speaks of the fact that it can happen that increased energy efficiencies in one hand will prompt energy users to consume more energy because they feel impeded by cost or environmental concerns. In the energy field time use surveys have been used previously in Finland and other places to compare energy intensities of activities along different socio-demographic lines, including gender, and social class (Jalas & Juntunen, 2015). Studies focused on consumption research from fields such as ecological economics have found this method useful for considering issues such as expenditure, enhanced understanding of goods and services and their implications. In the energy field energy consumption has been of key focus in terms of demand-side energy research, however more recently researchers such as Røpke (2009) have broadened the scope of this research by leveraging practice-theory approaches in order to better understand the link between private consumption patterns, lifestyle composition and other variables (Jalas & Juntunen, 2015).

We developed a time-use survey template (see Appendix 5) which focused on accounting for time-spent over the course of 24 hours in three specific household activities. We looked for information for a typical week day in our respondents lives as well as a typical weekend day. Activities included in the survey were: Washing & Cleaning, Travelling and Food Preparation. The data was collected in-situ with the respondents. We asked participants to fill out the survey and we offered support if there were any questions regarding completion of the survey. Data collection occurred within our six different communities in places where people usually congregate such as supermarkets, cafés, universities, *etc.* While the majority of surveys were collected through face-to-face engagements, as well as an online version of the survey. Which was also made available and shared within the communities though the response rate from this option was somewhat disappointing.

The design of the survey was further enhanced by adding additional information in the form of both preliminary questions to obtain profile information concerning our respondents as well as follow up questions concerning each household activity to obtain some qualitative insights which would further help us contextualize and interpret the material. A total of 144 surveys were collected across our six communities.

3.4 Data Analysis: Thematic and grounded theory approaches

In our approach to developing an understanding of people's attitudes and perceptions of the energy system, as well as their energy practices, and in particular their domestic energy practices, we have pursued and developed a methodological approach that centres people within the matrix of the energy system – understanding that the energy system is a multi-faceted socio-technical system inextricable from the social and economic ordering of the society it has evolved with; and that people should be understood as being multiply positioned at the intersection of complex and overlapping norms of identity that are also interwoven with, and within that socio-technical energy system.

With regard to developing an analysis of the 'human factor' in the energy system, the understanding of the 'person' as an 'embodied subject' is a core conceptualisation that is the substrate to theoretical developments that inform practice theory, intersectionality, and narrative analysis. This conceptual approach resolves the theoretical lacunae in positivist and functionalist tending theories that inform a narrow understanding of human behaviour largely restricted to that of rational decision-making. Developing an analysis of the human factor in the energy system entails developing a comprehensive yet comprehensible "story" about people's relationship with the energy system that captures the complexity of that relationship.

Focussing on people's practices provides a lens both on how people use energy in their everyday lives, as well as the meaning that people's everyday practices hold for them – for example, having freshly laundered clothes, showering daily, keeping their family home warm – offering an opportunity to develop a more explanatory analysis of people's engagements with energy and the energy system, and so potentially provide insight that will help to develop pathways to a sustainable energy transition.

The concept of intersectionality [explored in **D3.3**, and above] is used to conceptualise and incorporate the multiple strands of identity that intersect to socially position participants both within their own 'life-world', as well as within their wider social world – and in the case of ENTRUST within the socio-technical energy system. Intersectionality informs the research process, and is also utilised as a key component of the narrative analysis of the qualitative data.

In developing our analytical approach to investigating the human factor in the energy system, we recognise that it is necessary to develop an understanding of the interwoven nature of both the multi-faceted socio-technical energy system and the multiply-positioned social actor. To this end, we draw on phenomenology, and phenomenologically informed research methods. Phenomenology is a relatively recent theoretical development, and is described as "one of the most important philosophical movements of the twentieth century" (Honderich, 2005). It provides an qualitative methodological approach to research that puts the experience and perspective of the participant at the centre of the process, and has become a popular research methodology in itself, as well as informing a range of qualitative methodological approaches (Laverty, 2008). Phenomenology's emphasis on the importance of personal perspective and subjective experience, allowing insight into an peoples motivations, and their actions, has proved invaluable to across a range of research settings, including health (Annells, 1996), consumer research (Thompson *et al.,* 1989), and consumption

(Holbrook & Hirschman, 1982), as well as proving useful for energy research (Ambrose *et al.,* 2017). Ambrose *et al.,* assessed the most appropriate and productive approach to identifying the 'range of factors that influence domestic energy consumption' and concluded that research in the phenomenological and hermeneutical traditions is 'better equipped to investigate the home, as experienced' rather than positivist approaches (Ambrose *et al.,* 2017).

Phenomenology is based on the understanding that it is a condition of human existence that human beings are embodied; and that embodiment entails that humans are an ambiguous intermingling of self and the socio-cultural world, and on that basis, that the socio-cultural world, and lived human existence are open-ended, ongoing processes. As such there is an inherent ambiguity to human existence that renders it as inherently, and demonstrably, open to the capacity for change, as is true of the socio-cultural world also. Both the human self, and human society are structured and stabilised through the complex and dynamic interactions of social structures, social norms, social conventions, and language that all interweave in complex ways that are intrinsic to the evolution of human society and the energy system as a whole.

In approaching the conduct of the research, and in particular the analysis of the data, it is important to recognise both the significance and complexity of these factors – this requires a reflexive approach to the research.

For the researcher, recognising their own standpoint is a key aspect of the reflexive process.[5]. All researchers are located in a particular historical, cultural, social and embodied personal context. This, of course, is not to imply that all "structuring" elements are immediately "visible" to researchers. Haraway observes that axes of identification such as gender and class, for example, amongst other identity aspects structure existence for all people – "Gender, race, sexuality, and class are not less structuring for men, or white people, or heterosexuals, or middle-class people. Rather, the structure is less visible, and it takes a different kind of work to learn to see than for those at a less privileged node in a complex, hierarchically organized field." (Haraway, 1989, p.279)

An adequate reflexivity is the basis for sound sociological, and social scientific, research. For Bordieu, "reflexivity is a precondition of any adequate sociology." (Outhwaite, 1999: 15) Macbeth notes that reflexivity has "etymological roots in self-reflection and critical self-reflection" with links to "critical theory, standpoint theory, textual deconstruction, and sociologies and anthropologies of knowledge, power and agency." (Macbeth, 2001: 36)

Reflexivity requires an "unpacking" and analysis not only of the researcher's own social positioning, but further, the epistemological and ontological presumptions which inform the wider social and political understandings of human and social existence. Reflexivity requires acknowledging that knowledge itself is always only partial, and further, that it is embedded in discourses of power as Foucault (*e.g.,* 1978) [amongst others] has so influentially

[5] "The positionings of the subjugated are not exempt from critical re-examination, decoding, deconstruction, and interpretation; that is, from both semiological and hermeneutic modes of critical enquiry. The standpoint of the subjugated are not 'innocent'". (Haraway 1988: 584)

argued. Taking a properly reflexive approach to research and data analysis entails resisting stereotypes and essentialising identities, and instead attempts to fully capture the understandings and perspectives of research participants from their experience of their everyday lives – and in this case, in their everyday experience of the energy system, and their domestic energy practices in particular.

Thematic narrative analysis

This thematic narrative analysis is informed by, and draws upon a range of theoretical perspectives including Interpretative Phenomenological Analysis [IPA] (Smith 2003; Smith *et al.,* 2009). IPA draws on phenomenology and hermeneutics, and is qualitative methodology which allows a detailed examination of a person's experience of their "lifeworld". IPA can be seen more as a "perspective", or "stance", towards the task of data analysis (Larkin *et al.,* 2006). While it is closely linked to discourse analysis and grounded theory approaches, what separates IPA from these is that, "[a]t the heart of this perspective (and hence at the core of any piece of IPA research) lies a clearly declared phenomenological emphasis on the experiential claims and concerns of the persons taking part in the study" (Larkin *et al.,* 2006).

IPA operates as a double hermeneutic, that is to say, there is a double interpretive process. This entails that the researcher tries to make sense of the participant making sense of their world. While recognising that as researchers, we can never have "immediate access" to the experience of the participants, nonetheless, "IPA seeks to offer an 'insider's perspective'" (Larkin *et al.,* 2006: 103). As a phenomenological process it allows the researcher to empathize with the participant, to understand from their standpoint, whilst also allowing for the development of a theoretically informed critical and conceptual analysis of what is going on in the participants' lives (ibid). Using IPA to inform the analytical approach to the narrative analysis has distinct advantages that it recognises the significance that the sociocultural has for both interviewee and interviewer; in other words, it takes account of the fact that there is no absolute objectivity, or "view from nowhere"—the "god trick" that is so common in more positivist approaches to research is disallowed (Haraway, 1988). A central concern of IPA is with showing how individuals construct meaning within both a social and a personal world, and how they make sense of those worlds and as such is a suitable instrument to investigate the everyday domestic practices of the research participants.

Data Analysis[6] and Interpretation

Although IPA's theoretical underpinnings are phenomenology and hermeneutics, its use as a research tool, generally falls within the discipline of psychology. However, this study is not grounded in psychology, rather it attends more to understandings that draw on sociology and the social sciences more generally. Rather than

[6] In order to produce in-depth analyses of the data ENTRUST is utilising two complementary approaches — one software [and human] based, and the other entirely 'human' based. The data has been coded and analysed using the qualitative data analysis (QDA) software, NVivo. Coding data using NVivo is very useful for structuring and arranging unstructured data into categories which can then be further organised into more discrete categories and their intersections identified. NVivo also facilitates the interlinking of categories to identify trends, to test theories, and to identify relationships between different categories of data. A more detailed explication of NVivo is contained in D3.3.

utilitising concepts and understandings that entail interpreting peoples' narratives through psychological theories, we use what might be broadly described as our "sociological and social scientific knowledge" in our dialogues with the participants narratives. This approach is, nonetheless, compatible with IPA, as IPA bears a close similarity to a "standard thematic analysis as practiced in sociology" (Langdridge & Hagger-Johnson 2009, p.403). According to Larkin *et al.,* an IPA researcher should approach the data with two aims in mind (Larkin *et al.,* 2006). First the researcher should try to understand the participant's world – the participant's experience of a phenomenon or process, which in this research is their everyday practices. Second, they should "develop a more overtly interpretative analysis, which positions the initial 'description' in relation to a wider social, cultural, and perhaps even theoretical context. This second order account aims to provide a critical and conceptual commentary upon the participant's personal 'sense-making' activities" (Larkin, Watts and Clifton 2006: 104)

IPA is not a "prescriptive" methodology and it facilitates a flexible interview approach. In the interviewer/participant relationship, the participant is reckoned as the "experiential expert" on the subject "and should be allowed to tell their own story" (Smith & Osborn 2008, p.59) IPA usually uses a semi-structured interview format that aims to develop a rapport between researcher and participant. IPA is attentive to interview setting and participant comfort. It is suggested that questions should not be too explicit, aiming instead to draw out the participant's narrative of the experience under investigation. The aim is to develop "rich" data, and the researcher should just be "guided" by the interview format, and allow for the participant to develop other lines of interest in their responses. (Smith & Osborn 2008). In developing the analysis, the researcher first reads the transcripts a number of times, developing their familiarity with the text, and making notes in the left-hand margin of anything of interest. Smith and Osborn liken it to a "free textual analysis" (Smith & Osborn 2008). This transcript is then re-read with emerging themes being developed in the right-hand margin. These are then developed at a more abstract level allowing them to be theoretically connected—however, these themes should be clearly identifiable in the original text. These "emergent themes" are then organised into a "more analytical or theoretical ordering" (Smith & Osborn 2008). Again, these are checked back against the narratives of the participants to ensure that they correlate to what the participant actually said. Moving to the other transcripts, the researcher is free to either start afresh with each transcript, or to use the themes to "orient the subsequent analysis" (Smith & Osborn 2008). Subsequent to all the transcripts being thematically analysed, "a final table of superordinate themes is constructed" (Smith & Osborn 2008). Finally, the writing up "takes the form of the narrative argument interspersed with verbatim extracts from the transcripts to support the case. Care is taken to distinguish clearly between what the respondent said and the analyst's interpretation or account of it." (Smith & Osborn 2008).

The methodological, epistemological and ontological conceptual approaches that frame this research project are designed to facilitate the development of meaningful knowledge about the human factor in the energy system. Although diverse, they are founded on a common understanding of the agentic embodied person as diverse and located within complex human and social sytems, including the energy system. These approaches offer the most promising path to developing a comprehensive understanding of the human factor in the energy

system, and how their diverse social positions, including gender, socioeconomic privilege, and age, can impact on their everyday energy practices. The forthcoming synthesis report D3.4 will further develop and incorporate the analyses in this document D3.2, as well as the analyses from D3.3, and position them within the policy and technological landscapes that have been developed in Work Packages 2 and 4. Further iterations of D3.2 and D3.3[7], will build on and further develop the range of analyses drawing from the "rich" narrative data that has been produced through our community engagements to date, as well as incorporating the outcomes of our upcoming community dialogues.

4 Reflections on the case-study communities

This section presents a reflexive account of the respective knowledges and understandings of the six case-study communities by members of ENTRUST's research team. Much of these reflections are taken from key ethnographic material generated from the community engagements. These included the fieldwork diaries and field notes each researcher was required to keep; along with additional data generated from the participant observation techniques that were employed. This complex research method, in this instance, included direct observation, self-analysis and informal interviewing – in addition to the semi-structured interviews and focus groups – that the research team carried out in an effort to build a rapport with members of each community. The types of participant observation members of the research team used ranged from passive, to moderate, to active participation and very much depended on the individual researcher and her/his ability to integrate with the local populations. Throughout the process, researchers were continually reminded that they needed to maintain, as much as possible, a balance between directly involving themselves in the community and at the same time apply a coherent degree of objectivity when analysing what they found in each community. Being reflexively aware as researchers was emphasised as an important component to the community engagements and team members were repeatedly reminded to contextualise their experiences within the complex, intersectional dynamics of power and privilege that take place when one conducts research with people.

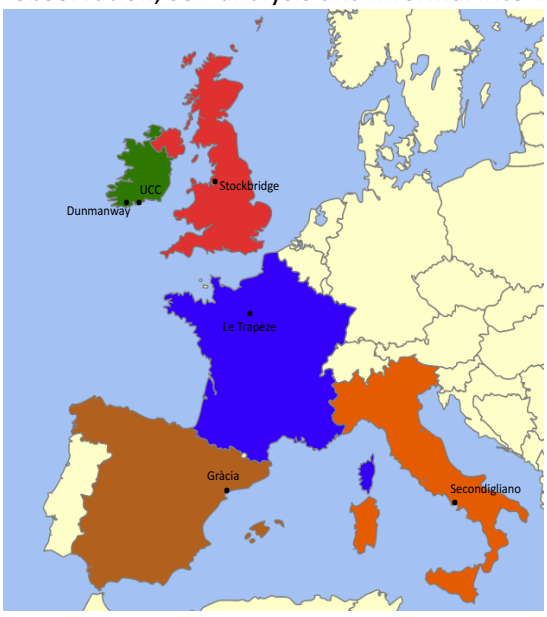

Figure 1: Map indicating the locations of the six case-study communities

The six case-study communities are situated in five different European countries and include: an Irish rural community; a cohort of university students; residents of an eco-neighbourhood in a large French city; a diverse urban community in a large Spanish city; and two disadvantaged urban fringe neighbourhoods in the UK and Italy. These communities provide a diverse range of socio-demographic characteristics, life experiences, and socio-political contexts. A more detailed account of the selection and recruitment process for each community will be produced in the forthcoming **D5.1 Report on Community Dialogues**.

[7] We shall produce a further iteration of D3.1 also updating the indicative bibliography with relevant material that is being identified and generated in the ongoing research.

In this section of the report, each community will be presented using the reflexive material referred to above. Also, an initial breakdown of the communities is presented below.

Table 1: Breakdown of the six research communities, along with their defining characteristics

Research Community	Type	Defining characteristic
Le Trapèze (France)	An eco-neighbourhood	New development intended to adhere to latest sustainable urban principles. Strong financial resilience, weak social resilience.
Dunmanway (Ireland)	A rural town	Historic market town with rural hinterland. Changing land-use and employment patterns. Medium-to-strong financial and social resilience.
Stockbridge (United Kingdom)	Urban fringe	New Town development, with sudden significant inward migration. Issues: high unemployment, anti-social behaviour, crime, limited social cohesion, isolation. Weak financial and social resilience.
University College Cork (Ireland)	Students embarking on life stage transition	Socially diverse community undergoing major life transition. Medium-to-strong financial and social resilience.
Secondigliano (Italy)	Urban fringe	New Town development, with sudden significant inward migration. Issues: high unemployment, anti-social behaviour, crime. Weak financial and medium social resilience.
Gràcia (Spain)	Diverse urban neighbourhood	An historic, cohesive and socio-economically diverse urban community. Medium-to-strong financial and social resilience.

4.1 Gràcia, Spain

Gràcia, in the City of Barcelona, is one of the city's main historical quarters and comprises the neighbourhoods of Vila de Gràcia, Camp d'en Grassot i Gràcia Nova – both of which constitute the historical core of the district – Vallcarca i els Penitents, and El Coll, La Salut. Many people in these neighbourhoods still hold a strong sense of local identity and contribute to the numerous socio-cultural events hosted there each year.

4.1.1 Initial impressions of the community

Gràcia's rich sociodemographic profile with both well-established social groups mixing with newer more ethnically diverse and bohemian residents, has been well noted. One ENTRUST researcher, who does not live in the area, noted in her initial impressions of the area that:

> it was hard to discern the core population of Gràcia from the large number of visitors, tourists and passers-by that regularly journey in the area. It is only possible to observe local interactions in the smaller, quieter squares, which are relatively abundant in the area. Here observing people's interactions in the small squares where children were playing and people talked with one another

> it appeared from the start that this community has strong ties. People appeared very friendly in the area. I also noted some graffiti on walls telling tourists to go home which suggests that local people are feeling overwhelmed with the large numbers of visitors that Barcelona receives and which may disturb the relaxed residential and community feel I perceived in the quieter parts of this district. The profile of the area seems mixed with both a younger trendier cohort visible in the area and an older more traditional cohort also very visible in the area. Further engagement with the Vila de Gràcia revealed that this area is rich in community groups which includes a number of NGOs[8] and volunteer groups dedicated to issues of energy in the district.

It is clear from the perspective taken by this researcher that she does not live in the area. However, she reflexively demonstrates her positionality as remaining somewhat of an outsider, noting for example, the somewhat hostile graffiti directed towards tourists. She also reflects on this and offers an explanation as to why such graffiti is present from her own observations. Another researcher from the ENTRUST team, who also happens to live in the area, offers a slightly different perspective. She observes in her notes that the neighbourhood comprises of:

> Middle-high class, educated people, white and European people. The highest percentages of migrants are from the EU according to Gràcia Observatory statistics. The first impression is that there is a strong sense of community and identity, the neighbourhood is famous for its local commerce and the different associations and collectives [including with a] a lot of cultural and political tendencies (popular street organizations, folkloric-independentist organizations, anarchists, radical left independentists). There is a sort of a network built and consensus on some topics like public space use during parties or protocols on gender violence also during festivities. It is also usual to find different public and community events during the weekends like big popular meals where there are people cooking in the squares or streets. But the increasing gentrification process that the neighbourhood has being suffering is making local businesses close and in particular rent, leisure and life in general [are becoming] more and more expensive. Some people feel like they are being kick out the neighbourhood or they even want to leave the neighbourhood as the living conditions are turning worse. The tourism also helps to create a widespread growth of the population (This happens in other city centre neighborhoods of Barcelona)

The details this second observation describe are more reflective of the type of active participation referred to earlier, with concerns about cost of living and gentrification being more relevant to her positionality as both a researcher and a participant in the community. In terms of their impressions of the local surroundings and its environment, both researchers referred to the number of plaças, or squares, or squares in the area. They also noted to the relatively low-rise nature of buildings there, along with the presence of good public transport

[8] Non-governmental organisations

infrastructure and the high instances of people cycling in the area. These observations were replicated in the fieldwork diaries of other ENTRUST researchers involved with this community.

4.1.2 General impressions on recruitment

The issue of recruitment was of utmost importance to the research team and concerns around ethical engagement and respect for the intersectional dynamics at play when one carries out research in any community predominated discussions, especially during the planning stages. What researchers noted in their diaries and field notes on the recruitment process in Gràcia was also interesting. The researchers who don't live there all referred to the language and geographical barriers to recruiting. One of the research team notes how she overcame this by engaging in:

> an extensive search of NGOs and community groups online and I was positively surprised by the large range of well organised groups, such as resident's associations, interest groups, support organisations etc… I engaged with a lot of potential participants both for interviews and focus groups, and I found them to be largely very open and interested in issues related to energy, their own community and the welfare of those who might be more vulnerable to energy poverty or were dealing with energy-related issues associated with old age. By and large this [Gràcia] was the community that I felt was most interested and most engaged with energy issues.

Another member of the research team developed this theme further in her notes; suggesting that while it may appear easy from initial assessments, given the wealth of community-orientated organisations present in the neighbourhood, the actual process of recruitment proved otherwise. Emails weren't answered, telephone messages were not responded to *etc.* However, she noted that she found greater success targeting specific organisations more directly and by using pre-established social networks.

> Due to the endless amount of associations Gràcia at the beginning seemed to be easy to access to people. But it wasn't that easy; emails weren't answered so nobody was showing special interest. Finally, the best way I found has been to go physically to different places for future engagements I see more useful choosing one or two different associations with different profiles and try to make a better contact going to their meetings, showing interest in what they do… The most fruitful and faster way of recruiting has been through people I already know.

4.1.3 Other observations

For some the language barrier was more acute than for others. For example, one researcher noted that the reliance on a translator for both the interviews and focus groups diminished his ability to understand the nuances in both how and what people say when responding to a question.

> Having to rely on a translator was difficult. While they do an excellent job in helping us to communicate I can't help but feel that I am losing a considerable amount of unspoken or contextual nuance. I have tried to make initial communication easier, along with building rapport by introducing myself and saying a little about myself in Catalan at the beginning of an interview or focus group. I

think this helped the participants relax a little and engage more in the process by demonstrating that I cared enough to make an effort, even if I mispronounced some words. Also, I tried to pick up on conversational cues when participants were speaking. For *e.g.,* I would nod or smile at a participant if they looked directly at me when they were talking. I would also listen to the cadence and tone of the speaker, and make non-committal statements of general agreement (such "indeed" or "okay") even though I would not fully understand what was being said.

Below is a biography of a typical Gràcia resident, and is intended to give the reader a glimpse into the lives of residents living in that community.

"Estel"

Estel[9] arrived in Gràcia four years ago, when she was about to finish her degree in *Media Communications*. The change from Majorca, where is grew up, was noticeable and once she completed her studies she decided to remain in the Catalan capital since the prospects for finding work are better here than at home. Other young people her age find themselves in a similar position. Currently, she is studying for a Masters degree and she works part-time in a Restaurant called Sol Soler, in Plaça del Sol, in the heart of Vila de Gràcia. She lives 10 minutes from work in a small apartment that she shares with her boyfriend and another friend in Plaça Raspall. Estel's perception of Gràcia, and is reflected in conversations with other residents, is of it being very much an urban village inside the larger city of Barcelona. With its many interconnected squares and pedestrianised roadways, local businesses and numerous cultural events life can be self-contained within Gràcia and for many residents there is little need travel to the busier Barcelona city centre for work or entertainment.

4.2 Dunmanway, Ireland

Dunmanway, a busy inland market town located in the centre of West Cork, is located some 61 kilometres northwest of Cork city and is the commercial and cultural focal point for its largely rural environs. The issues facing people living in Dunmanway are those that can be identified in rural communities across Europe. These include depopulation resulting in aging resident populations, changing land use patterns, shrinking local employment opportunities, along with the homogenising influence of multinational retail and the inability of local business to compete.

4.2.1 Initial impressions of the community

The rural character of Dunmanway's surrounding hinterland, counterpointed by the relatively dense housing and retail development in the town itself, was noticeable to members of the researcher team. One researcher noted the obvious presence of members of the farming community in the town. Tractors and other large

[9] In reporting the data produced from our engagements with participants from the communities, we are using names for the participants, rather than participant-identifiers. This is a deliberate decision reflecting the primarily qualitative nature of the research, and emphasises the centrality of people and their opinions and attitudes to the project – respecting their subjectivity as persons, rather than as mere sources of data. All persons quoted are anonymised using names randomly chosen from the top 100 most popular names for each country.

machinery appeared on the roads regularly, especially on the ring road circumventing the town. Also, the mix of shops, along with a noticeable portion of underutilised buildings was apparent. The same researcher was surprised to see an electric vehicle charging point in the carpark in the centre of the town, which seemed somewhat incongruous alongside all the diesel-powered cars parked there. He also noted that:

> The built environment is a mix of new and older buildings, along with more derelict or underused properties peppered throughout the town. Settlement patterns are characteristic of ribbon-style developments seen elsewhere in Ireland and the main street dominates and is the location for the majority of service businesses in the town. There was two vehicle fuelling station in the town and domestic heating fuel such as coal and peat briquettes were situated outside a number of shops. Also, there is an electric car charging point in the main carpark, adjacent to the main street and behind one of the supermarkets

Another researcher, in addition to her observations on the built environment in the town wrote of the limitied public transport available to residents in the area.

> Public transport services appear to be relatively limited, with few frequent or direct buses into Cork City. The urban environment here is markedly that of a small town, with only a limited range of amenities and shops on offer. There are few landmarks of note. The overall look of the area is of a clean and quiet appearance.

4.2.2 General impressions on recruitment

The research team also had a number of things to say about the recruitment process associated with this community. As one researcher put it:

> We initially relied on the local resource centre to make contact with the community and to recruit participants. However, the range of different groups that we could reach through the local resource centre was limited, and made recruitment more challenging at the later stages. Once the link was made with the resource centre, we had to work hard to make ourselves more distinct with local people. Also, the limited range of amenities and services there meant there were fewer opportunities to engage with potential participants. However, engagements with parents and children in the local school proved very successful and local people received our project in a very positive way. We have been able to establish a good rapport with a good number of our participants and have relied on their advice and support for our continuing engagements in the area. Overall while recruitment was challenging I feel we managed to engage with a diverse range of participants which is also representative of the wider profile of the community.

4.2.3 Other observations

Another member of the research team noted that current settlement patterns will have a detrimental impact of the community's ability to move to more sustainable energy infrastructural models, making the following observation:

> Dunmanway, like much of West Cork has a diverse population. Ranging from a majority of long-established residents, to returning Irish, and more recent arrivals predominantly from the UK and other European countries, but also from outside the EU. This diversity should be a benefit to the community in the coming years. However, I would be worried about the dispersed settlement patterns of those living in the area as this will have a disproportionate effect on this community's ability to implement a sustainable energy transition into the future.

While another researcher noted the area's potential for offering an alternative perspective to the more typical European scenario of more densely populated urban communities. Addressing the specific needs and challenges of rural life in light of the energy transition will also be of key importance to many across Europe.

> This community was interesting on a number of ways. The rural context provided valuable insights and a helpful contrast with our other communities which were primarily urban areas. Specifically, the value of energy in terms of wider mobility practices, farming practices, impact of renewables on the landscape, land use changes and the impact of fluctuating oil prices were all key.

Below is a biography of a Dunmanway resident that is not untypical of residents in the area. Dunmanway, like much or West Cork has sizable migrant populations coming from other European Union member states and their experience is shared by many indigenous Irish residents who themselves lived abroad for many years due to limited employment opportunities available to them locally.

"Amy"

Amy grew up in Liverpool in the United Kingdom, which is considered probably the "most Irish" of UK cities due to is long history of Irish migration there. Some of Doreen's family were Irish going back generations, so Ireland was not considered unfamiliar to her going up. While her reasons for moving to Dunmanway are complex she has integrated herself into local community and continues to contribute in a number of ways. Her field of employment has brought her into contact with a wide range of diverse social groups in Dunmanway and her experiences as a migrant are in many ways similar to other migrants in the area.

4.3 Secondigliano, Italy

Secondiglinao, which is situated on the outskirts of the historical city of Naples. It was still a largely rural town up until as recently as the 1960s. The 1970s and 1980s saw extensive construction take place, including massive social housing developments (here and in the adjacent neighbourhood of Scampia) when a devastating earthquake in 1980 resulted in an additional 35,000 families from the historic city requiring new housing. These families (some bringing with them significant social and criminal problems) were moved from the historic and central parts of Naples into areas like Secondigliano.

4.3.1 Initial impressions of the community

For many working on the ENTRUST research team, Secondigliano was relatively unfamiliar place with many expressing little knowledge beyond passing references to organised crime and vaguer references to social deprivation. One researcher, whose knowledge of the area comprised of a number of news and magazine

articles, and the Italian TV show *Gomorra La Serie*, arriving in the city was a pleasant surprise. Notes from his field notes expressed the following sentiment.

> The area appeared very busy, road traffic was a constant presence, making the pace of living both in Naples and the more peripheral area of Secondigliano seem very busy. The people we engaged with directly seemed very friendly although in shops and restaurants, people's demeanor could feel a bit cool and less approachable at times.

Another member of the research team provided this assessment.

> To a large degree pre-conceptions about the area of Secondigliano which has a history and profile marked by the presence of organized crime, informed and limited our engagement with the community. Poverty, unemployment and lack of opportunities for younger people was something mentioned by many of the people to whom we interacted informally.

However, despite the initial sentiments expressed above the presence of organised crime and the insiduous consequences of its activites on people people was made starkly apparent at times. For example, one of the research team described the trip into Secondigliano that added an extra layer of understanding for him.

> The taxi-driver who brought me to where focus group was taking place, while appearing relaxed and welcoming at the beginning of the journey, upon realising I was not Italian proceeded to express his disgust at some of the people living there. He listed off a number locations along the route where local people had been murdered and told us that it would be good if the place were to be bombed to oblivion. He was in no way threatening to me, but the depth of his feelings about the place was obvious. Despite this initial introduction, the people I met were friendly and welcoming. Walking down Corso Secondigliano, later in the evening I did notice numerous groups of males standing at each intersection. We also appeared to be somewhat of a curiosity with some people.

Other observations from the researchers' reflections included surprise at the rich architectural heritage of many of the buildings in the area, as well as the strong presence of the Catholic Church there. Another researcher with a deeper knowledge of the area than the others noted:

> I was quite impressed with some of situations of great danger that the community is exposed to, caused by the fact that hydrocarbons are used as heat sources. And also, that explosions are frequent due to gas leaks caused by the lack of maintenance of the service lines.

4.3.2 General impressions on recruitment

Addressing the topic of recruitment many of the researcher considered Secondigliano quite an easy community to engage with, once the right gatekeeper was identified and agreed to help us (in this instance the church-run groups who work in the community). Once the research team was seen to be positively appreciated by the church-run groups people were more open to speaking to the research team. This generated much positive feelings from a number of researchers.

> I had also the impression that the population was, in general, quite young. I believe that the Secondigliano community have a good cohesion and a strong sense of community identity, this applies for people from different ages. This was expressed by the success of the Photo Exhibition organised during the focus groups. I was favorable impressed by the great interest demonstrated by the participants as well as to their attachment to the territory. Another sign of community identity was the fact that some of participants expressed themselves in the local dialect. I had also the impression the community have a good sense of networking and participation. In general, I must say that I felt a positive attitude from the community towards the Entrust project. During the focus group and interviews participants asked me several questions and clarifications regarding the themes proposed. I believe the community demonstrated a great interest about the energy issue and also the awareness that the existing situation in terms of energy can be improved.

Another researcher framed her observations slightly differently.

> For practical and safety reasons, we relied heavily on local gatekeepers to recruit all our participants. Namely through contacts with a church group in the area which appeared to have a strong presence and influence in the community. The church group had a dedicated voluntary basis which helped alleviate poverty and other social problems in the community. The profile of the volunteers was diverse and included both younger and older people. We also had involvement with a local community resource centre which again helped alleviate poverty and other social problems in the community. I noticed their caring nature for those less fortunate.

4.3.3 Other observations

Despite the positive relationships that emerged between the research team and the participants other noteworthy observations included the pervading lack of trust by many local people there towards central government to resolve many of the social and infrastructural problems people face in Secondigliano. One observation put it like this.

> Lack of trust in local and national institutions to promote and develop a fair transition to alternative sources was a major theme in this neighbourhood. People seemed to be aware of their own energy spending at home but the issue of energy was not something that people, in general, had engaged with in the past. There was a noted ambivalence towards the future of the energy system

While another researcher:

> was struck by the high level of youth unemployment experienced by many of the participants we spoke to. There appeared to be very little opportunities for them beyond formal education. And no few local employment opportunities to speak of.

Below is a brief biography of a Secondigliano resident that can be considered somewhat typical of younger people's experiences living there.

"Alina"

Alina is a young woman living in Secondigliano. She is currently studying for her bachelor of arts degree at one of the universities in Naples. She ambitious and will be the first person in her family to attain a third level qualification. She is also hopeful of achieving secure employment or a career once her studies are completed. She has a close relationship with her family, particularly her mother who supports her studies as best she can. Work, even part-time work, is difficult to come by and like many young women her age she generates a small income caring young children in her spare time. Her best friend works in the beauty industry, when work is available, and does not study.

4.4 Le Trapèze, France

Le Trapèze is situated in District 3 of Boulogne-Billancourt, and is essentially one of the wealthier suburbs of Paris. It is also considered a strategic centre of socioeconomic activity and is one of the wealthiest districts in France with the average annual income of residents there nearly twice the national average (SalaireMoyen.com n.d.). This area is home to a number of so-called eco-neighbourhoods known collectively as Ile Seguin-Rives de Seine.

4.4.1 Initial impressions of community

Initial impressions of the community generally quite good with some critical assessments of work that remains to be completed. These included an appreciation of the efforts towards developing a "new community" and the environmental considerations made by the planners involved in its construction.

> It is very much a new neighbourhood with modern buildings. Efforts were made to preserve green spaces, large roads, recover rain water, produce sustainable energy (using geothermal energy and by burning waste). [However] mobility patterns are not really optimised (subways are quite far and buses not really effective).

Other observations reflected upon how many of the residents appeared to be somewhat isolated from their neighbours. There wasn't the same level of community interaction one might see in more established neighbourhoods like Gràcia, for example.

> There was no strong sense of networking and participation, but there was an active digital network of residents based online. This did not translate to real relationships with neighbours and there wasn't any community centre where people could congregate and meet each other.

Another researcher put it like this.

> The level of community cohesion doesn't seem to be very high at le Trapèze. Since it is a new neighborhood, neighbors don't know each other very well. This is also the reason why I think the community identity is still under construction. Community members are quite proud and aware that their neighborhood is an "eco-quartier". People seemed to be interested in getting to know others

within their community. They also mentioned that they would like to participate more often in community events.

4.4.2 General impressions on recruitment

As with other communities in the project, recruitment in Le Trapèze appreared to generate sometimes mixed results for the researchers. Despite this, efforts did eventually pay off.

> The recruitment process was not very easy. A gate-keeper was easy to find but it didn't lead to other participants as expected. Different types of recruitment were used: distribution of flyers in the neighbourhood, online messages on different media (facebook, Linkedin, Le Trapèze's forum), contact of local associations and finally through our personal network.

In the end, it was a combination of established local and personal networks, along with face-to-face recruitment that generated local interest in the project. The following account demonstrates the amount of work involved in recruiting.

> The recruitment process wasn't very easy, until the day before the focus group we weren't sure if we would have a sufficient number of participants. We approached people with flyers in number of metro stations in Boulogne, at the Paris Descartes University, in a park and in front of schools. Basically, anywhere we could think of where local people might be willing to take a moment to talk with us. We also advertised the event across a number of social media channels, such as Facebook and LinkedIn. Furthermore, we had the event's poster published in a forum of Boulogne that appears in a local virtual newspaper. Finally, we contacted our personal networks, including university communities, friends and acquaintances that had links to the area.

4.4.3 Other observations

Another notable observation was the surprising degree of local knowledge on energy-related matters compared to those living in the other case-study communities. As one researcher put it.

> Citizens in Le Trapèze are aware of most of the existing technologies relating to energy production. They can estimate their environmental footprint and establish which are their most energy-intense habits and routines. Inhabitants [are] concerned about the energy transition.

Below is a short biography of a Le Trapèze resident that is not uncommon of residents living there. Many resident, as noted above appeared very knowledgeable of energy-related matters and were able to articulate this quite well to the research team.

"Sabine"

Sabine is a professional worker with a young family. The family home is in an expensive apartment in the area and her husband also works as a professional worker. Their decision to move to Le Trapèze was in some ways a lifestyle choice. They are happy with the level of access they have to natural amenities including the local wood and river. Both Sabine and her husband also like the fact that they can walk if they need to go to places in their

neighbourhood, instead of having to use the car. She is very aware of energy and issues around overconsumption more generally. She does feel guilty about her family's level of consumption, given their level of wealth. Her husband travels quite a lot by air for his work. Sabine hopes to buy an electric car, once the charging infrastructure has been installed in her neighbourhood, and she feels this will be a positive contribution to make. Her children go to school that has a strong environmental ethos.

4.5 Stockbridge, United Kingdom

Located 6 miles east of Liverpool, in the Metropolitan Borough of Knowsley, Stockbridge Village is considered one of United Kingdom's most socio-economically deprived communities. Similar to what occurred in Secondigliano, it was built in response to Liverpool's inner-city housing crisis of the 1950s and 1960s which saw some 200,000 people move to new residential areas outside the city's boundaries.

4.5.1 Initial impressions of community

Researchers working with the community in Stockbridge had mixed impressions of the area. One researcher noted her surprise to see a Catholic school situated in the heart of the community, considering Catholic schools in the United Kingdom are often associated in wealthier, middle-class neighbourhoods. While another researcher observed:

> Initially I went to the village during the day and during school hours. There were several mothers walking around the central hub with pre-school aged children. In addition to this there were numerous middle-aged to older individuals. There was a feeling there that there was a strong sense of community and people knew and looked out for each other.

Describing the physical environment of the area, she goes further.

> The local school and village shops are based within/near a central hub in the village. The shops including a small supermarket, the housing association office and also a community hub building. In addition to this there are several fast food outlets and an off-licence. There is a large car park and the housing is mostly low-rise and looks fairly typical of a suburban area. Further out of the hub there are blocks of high-rise flats which are also managed by the housing association. There is a regular bus route in and out of Stockbridge Village that directly goes to the city centre in Liverpool.

4.5.2 General impressions on recruitment

A number of the researchers working with the Stockbridge community referred to how difficult it was to recruit participants to work with us on the project, citing research fatigue and a number of bad experiences with a new energy system introduced by the local landlord as possible reasons for this.

> Recruitment for individuals to join focus groups has been difficult. The housing association (they have acted as our initial gatekeeper) did help to promote our events and helped with recruitment. However, even the levels of engagement with their own initiatives were low. Engagements became more challenging since, despite it being largely a residential area, it is difficult to find areas where there is a high volume of foot-flow in order to approach people and speak to them face-to-face. The

busiest area is the central hub and this is also challenging as people are often just 'nipping to the shop', 'picking up some lunch' or 'dropping the children off at school'. It is not an area where people tend to stay for prolonged periods of time. Trust is also an issue at Stockbridge as it is very noticeable when something or someone is new or different so often people would want to know what we were doing but not want to take part or avoid us all together.

4.5.3 Other observations

Other observations included the following in relation to people's understanding of the energy system, which has been largely framed by locally-specific contexts, especially around the rising cost of energy associated with a recent switch to a renewable energy scheme.

> Understanding of the energy system seems to be restricted to the cost element. A large number of the resident within Stockbridge Village are on pre-payment meters so awareness on energy use is often limited to the 'meter running out'. People had a sense that certain types of energy technology were bad that some point the whole energy system would just move towards lower carbon. Concerns around fracking and nuclear were definitely present. The low engagement residents have with their energy is reflected in the low rate of switching to new suppliers despite being on standard rate tariffs.

A brief biography of "Adam" provides the reader with a representative member of the Stockbridge community. While, by no means representative of everyone living in Stockbridge, Adam's experiences are indicative for a sizeable number of people living there.

"Adam"

Adam has lived in Stockbridge Village his entire life and has a number of family members living close by. For much of his life he has also had to live with a significant physical disability. This has impacted on his quality of life given the environmental challenges living in Stockbridge presents. The lift in his tower block is broken, resulting in him having to use the stairs even when he has to carry heavy shopping home *etc.* He is very mindful of his energy costs and knows how much specific activities such as showering or washing clothes cost. His situation can be described as someone living in energy poverty as he often must make a choice between heating his home, washing his clothes or shopping for food. He has supports from his family, but still feels the emotional stress energy poverty can bring on.

4.6 University Students, Ireland

The students attending University College Cork (UCC) have been primarily undergraduates who normally reside in Ireland. This mixed-gender, mixed-age group provides an interesting, broadly representative sample of the types of student living in Cork city. Third level students undergo a significant life stage transition. During this transition period, new experiences and newly-learnt knowledges tend to either challenge or reinforce long-held assumptions and beliefs that an individual may have. Consequentially, this can be a formative time as far as attitudes to energy are concerned and attitudes may not be as entrenched as those found within the general

population. Research in this, somewhat transient, community provides an interesting comparative context to the other communities within the project.

4.6.1 Initial impressions of community

Initial impressions of the community, by the researchers was mixed. Some of the researchers attended UCC as undergraduates themselves and felt they had an understanding of the type of community here, while others did not share this sentiment. One researcher put it like this.

> UCC is a vibrant university campus which has a very diverse student population including Erasmus students, mature students and young local students. Apart from sharing the same campus, university services and classes, this community is brought together through gatherings and social events such as parties and sports initiatives. There are also clubs and societies dedicated to specialized interests including sports, music, LGBT rights and the environment.

However, another researcher who did not attend UCC as an undergraduate observed that:

> as a large student body living in a large urban area they did not appear to share the same cohesive identity that I experienced elsewhere. Many students had their small groups of friends and appeared to me to rarely move out of those circles. They also appeared to by predominantly from middle-class backgrounds, though they still seemed to express diverse range of cultural and social signifiers.

Other impressions appeared to come from what was seen regarding their energy use on campus.

> College life appears energy intensive in terms of use of computers, printing and other technology. Some students still rely on lifts from their parents to travel to college while fewer have their own car or use alternative public transport options. The UCC campus occupies a fairly central position in Cork City. The River Lee runs along one side of the campus. And together with abundant greenery it makes the landscape seem very green and well kept.

4.6.2 General impressions on recruitment

In some ways, the recruitment process was more straightforward here than in the other case-study communities. Having said that, on-street face-to-face engagements proved more difficult at times with students, after initially expressing an interest in participating in the project, not turning up to planned events.

> In terms of recruitment and initial contact with the students it is very easy to get access to students during the academic season but it becomes very problematic both during the holidays or when students are studying for their exams. There is therefore a short calendar period where we can easily engage with students.

In terms of commitment, experiences engaging with the university students was represented in the following field notes.

> By and large students have seemed relatively interested by the research and indicated a willingness to participate but it becomes harder to actually firm on their actual engagement with specific

> activities. For example, we had over one hundred students that shared their contact as an expression of interest in taking part in our research but very few actually responded positively when they were contacted and in some instances, they agreed to participate but did not show up at the agreed times. During the recruitment process, we set up an information stall in the main campus and we spoke with many students and I noted from these engagements that students were significantly influenced by peer-pressure. For example, if I was talking with a group of 3 or students and one seemed not to be interested the others usually quickly adopted the same position. This could also be due to the presence of more dominant group dynamics whereby if the group leader shows lack of interest the other will follow.

Also;

> Access to students was relatively straightforward and we were sure to keep within university protocols. However, despite this ease of access, recruitment still proved more difficult at times. For example, for one task we had over 100 expressions of interest and a willingness to participate in the project. However, actual participation rates were much lower than this figure, despite incentives provided by the project including meal vouchers *etc.*

4.6.3 Other observations

Other observations that the researchers noted from the university students was the deep association many placed between energy and its usage, in an often abstract sense, and the electronic devices many of them used on a day-to-day basis.

> The intensive use and reliance of technology for both college work and social interactions was something which all the students agreed was a major part of their daily lives.

Also, the relative transition many students experience while going to university and developing their own understandings of issues that directly affect their lives is notable.

> A number of students admitted to reflecting their parents' opinions or attitudes on certain topics, including energy. This, it was agreed, was generally due to not having considered these topics in any great depth themselves

Below, is a brief biography of Meave who lives locally and studies in University College Cork. Her views on energy are somewhat representative of many students her age and who share similar circumstances.

"Meave"

Meave is university student in University College Cork. She still lives with her parents, but hopes to move in to her own rented accommodation next year. Her understanding of the energy system comes from a formal education sources and the practices and attitudes of her parents and wider social group. Her parents do remind her not to waste energy and she is looking forward to having her own place, but she is worried about being able

to afford the fills associated with living on one's own. She would like to work abroad for a number of years after she completes her education, but would like to return to Cork and "settle down" eventually.

Key findings from this engagement to date will be discussed in the next section.

5 Discussion of Findings

5.1 Introduction

The intersectional analysis of energy practices is a key component of the 'human factor' in the energy system. It may be expected that in contrast to the findings in D3.3 – where significant gender differences in attitude was largely confined to nuclear energy – that a focus on energy practices, particularly those that are carried out in the home would demonstrate a more distinct gendered pattern, and this is indeed the case. It is important to note, however, that there is considerable variation amongst the participant cohorts here found here too, as is explored below.

This section is particularly focussed on the practices of cooking, cleaning (including laundry), and personal hygiene/grooming practices as they are domestic practices that have been given significant attention in energy research. An additional topic of analysis is that of transport. The intersectional approach being undertaken to understanding these practices requires that they are analysed within their broader social context. Material objects or technologies are highly relevant to the evolution of practices, but they are not sufficient to explain the evolution and ubiquity of a specific practice. Setting aside any theoretical contestations as to the ontological status of practices, it is important to point out that some domestic practices are not only highly symbolic, but are, of necessity, deeply entrenched human behaviours which may explain their perceived resistance to substantial change, while clearly there have been changes in these practices over time.

Cooking, cleaning, and personal hygiene/grooming practices are ubiquitous across all cultures. This is perhaps unsurprising, given that all are necessary for human health and survival. While the details and elements, including the material resources, involved in these practices clearly differ from one era to another, one society to another, involve a variety of cultural norms and customs, as well as differing between social groups within societies, nonetheless these practices are present in every society. With regard to food preparation and cooking, human beings require cooked food in order to provide for the high calorific requirements for human survival as cooked food provides more calories that raw foods taking into account the calorific 'spend' digesting food (Wrangham *et al.,* 1999). Cleaning is required for any domestic setting in order to produce and maintain its habitability, and while what is considered 'clean' is culturally, and historically, variable, nonetheless norms of cleanliness are a cultural constant (Douglas 1966). Maintaining personal hygiene and grooming is necessary for bodily health, although, again, there are considerable cultural and historical variations of what is considered optimum with regard to the social norms governing these (Lupton 2003).

However, what can go unrecognised in analyses of practices, particularly within the energy research domain, is their symbolic aspect. It is necessary to understand that there is a deeper significance to everyday practices as

it is this aspect that is particularly relevant when it comes to the issue of changing practices. While it is not necessary to explore in detail the symbolic aspect of practices here, it is important to recognise that they exist, and are particularly relevant for our sense of identity, and our sense of 'moral' worth, that is in being a 'good' person, a good woman, a good man, a good mother, a good father *etc.* The norms and values that people hold are not formed in a vacuum, but reflect those norms and values that are held in one's culture and society, and by one's peers. Practices are bound up in these norms and values also: practices "logically and historically precede individuals" (Ropke, 2009: 2493). The gendering of specific domestic practices logically and historically precedes individuals too, although, as is shown below, just as practices evolve over time, so too does the gendering of specific practices also.

It is important to recognise that practice are not the subject of great reflection by those who carry them out, they are so embedded in our everyday lives that they are not something that we think about most of the time. They are seamlessly woven into the living of everyday life where they in effect subtend to the accomplishment of successfully living our everyday lives. Household energy practices, in particular, are practiced in order to provide for and nurture our bodily needs and in so doing also provide the basis for our personal and social lives, and all other aspects of everyday living. Many aspects of practice, how we do the laundry, how we light up our homes, the pattern of switching on lights and televisions *etc.* for the evening, and how we switch off for example, become somewhat routine and automatic procedures for most people. While practices are often categorised in terms of the activity itself – doing laundry, showering, travelling, heating our homes, as well as in terms of what they provide – comfort, cleanliness, and warmth, clearly, they are serving another service too – in performing these practices, people are creating home. Home is not simply a house or apartment as such, it is more than a physical space – it is connected to relationships, emotions, and identity (Mallett 2004).

5.2 What is energy for? Practices and the making of home

5.2.1 Creating Home

Creating home involves a range of domestic practices, and is highly gendered. As discussed below, the data produced from both the quantitative time-use survey and qualitative interviews and focus groups clearly indicate that women spend more time cooking, cleaning, and doing laundry than men. Women also discuss these practices more than men, they think more about them, and they show more concern for the comfort of the home in general, and for the provision of comfort for others.

> mine they love to put the pyjamas on … sit there with little bits and bobs and love to watch a DVD, the pair of them … little cosy mates … that's what my little girl did, came in and said Mum 'where's me big fleecy pyjamas" ... I say, 'they are there', and stick them in the dryer so they can warm up
>
> Ellen, Stockbridge

It is also clear that conserving energy, at the expense of comfort, has the potential to be a cause of conflict in the home:

> I think that in daily activities I am always trying to save energy at home, I think it is possible ... Plus, I don't really like light or heating either, but my partner does ... I can understand it, it is for home's ambiance and so on, but I don't need this ambiance that much, you know? If I could, ... I would save a bit more. Sometimes it is not necessary to have a light in a corner of the living room, right? I don't know…
>
> Enric, Gràcia

One female participant was explicit in connecting energy use to comfort and home. And although she is otherwise very conscientious about her energy use in using her oven, she regards the comfort of her home very highly.

> And I think that the energy is related with comfort and I am not a person… specially… I mean if I prefer saving money in other things rather than energy. I mean that if I start saying that I control, I turn lights off, and so on, I would be lying because for me it is very related with comfort, right? You get home, leave your stuff, switch on the lights, and you have a hot shower in winter … when I am looking for comfort, to get warm I might shower, have the light on, or a small lamp to read … so there are some small background, ambient lights. They are not really lighting, but only decorating
>
> Alba, Gràcia

The concern for others' comfort was apparent across all the generations of women, including quite elderly women. To the general agreement of the other women present, Caoimhe remarked that she kept the house warmer when her grandchildren stayed with her.

> When the grandchildren come, they are frozen and they put on the electric heater … complaining "I am frozen Nana" … you do, you do [Have to keep the house warmer]. You don't want them to get a cold in your house like
>
> Caoimhe, Dunmanway

When men tend to talk about home it is usually more in terms of the technologies that make up the home. One male interviewee in Dunmanway discussed home in terms of his working life and the tools he uses there, as well as the monitoring practices he engages in, in terms of energy consumption. When asked to compare his energy behaviour at home and in work, he put it like this:

> More at home. Because it's coming out of my back pocket. Em. My wife's an accountant (laughing) Em. More, em, inside here [at his place of work] we do try to monitor it. We try to keep it down because [pause] I was bitching about the Council pissing through energy, out there we could honk through it. We have lights outside in the main part, we don't turn them on unless the clouds close over and literally for safety you need to turn them on. But 99% of the time they're turned off. We try to keep [pause] but unfortunately it is a workshop and to get a sander work… a power tool don't work without a plug. You know.

James, Dunmanway

5.2.2 Cooking

Cooking is an energy intensive domestic practice that is carried out by both men and women, while recognising that not all women and men cook. However, cooking remains more typically regarded as being the responsibility of women. Our findings, from both the quantitative and qualitative data demonstrate that, overall, the perception that women have the primary responsibility for cooking and the provision of food for their families is accurate. This is borne out in the research. Participants who completed the time-use survey [see Appendix 5] indicated how much time they spent preparing and cooking food. There were noteworthy gendered differences in the responses captured by the time-use survey where it is clear that women across all demographic cohorts spend more time preparing food and cooking than men, typically, do. However, there were some interesting differences within those results. Women and men who lived alone were much more evenly spread in terms of the amount of time that they spend preparing food. However, this may – in part – be accounted for by the fact that most of the men who lived alone were under forty-five years old. The most apparent gender difference was for those respondents who lived with partners and/or children. There, women spent the most time, in all time slots, on both weekdays and weekend days preparing food – by a significant margin. Figure 2 and Figure 3, below, provide a breakdown of time spent cooking over an average weekday and weekend day for both genders. As one can see, the gender gap remains significant.

As outlined in the methodology and methods section, and in contrast to the quantitative work, the approach taken in the qualitative engagements was to allow attitudes to emerge, rather than to be overtly directive with regard to developing an analysis of the attitudes and perceptions towards energy practices. There was no specific question asked about cooking, and so any mention of cooking emerged in the context of participants daily activities, and, for some, in the context of energy consumption.

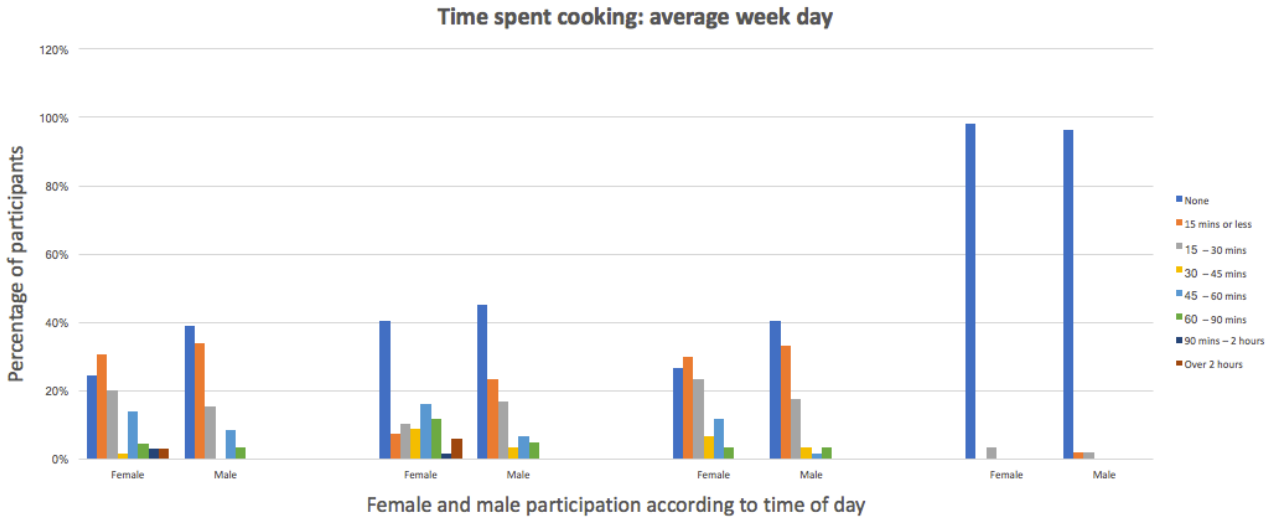

Figure 2: Gender breakdown of time spent cooking over an average weekday, across all communities

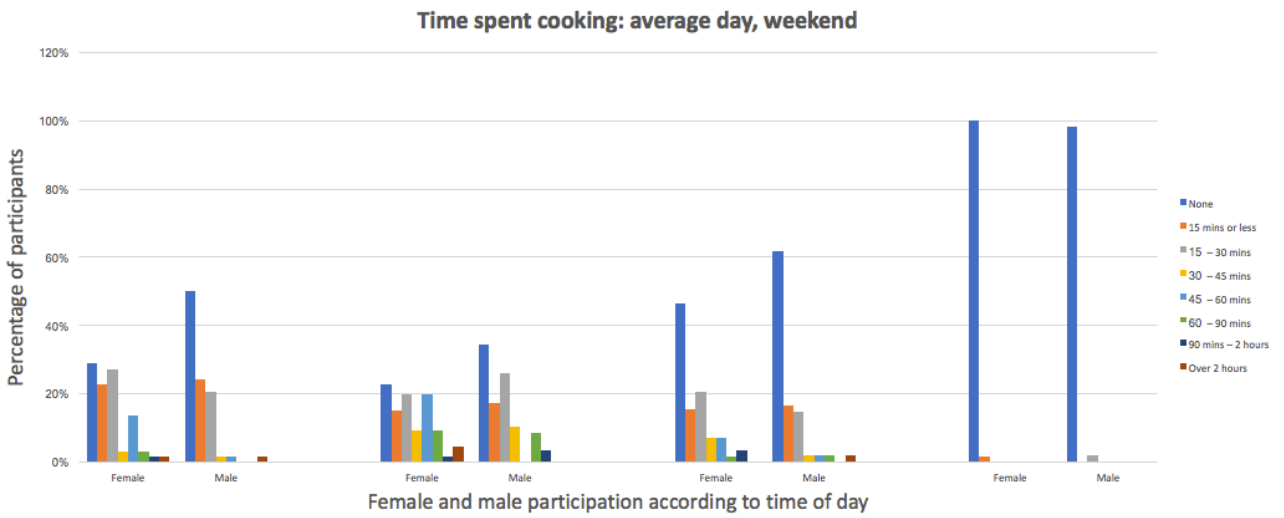

Figure 3: Gender breakdown of time spent cooking over an average weekend day, across all communities

The participants, with rare exception, did not discuss cooking in any great detail. There was a general awareness that cooking is a practice that consumes a lot of energy, however, most participants, beyond mentioning the energy source they used for cooking, typically electricity or gas, cooking, or even just eating a meal, was mentioned only in passing while they described their daily activities.

Silva (2000) explores the connection between the development of cooking technologies and the de-gendering of cooking finds that the connection between gendered expectations and technological innovations are "nuanced and complex" and show that gender boundaries in the kitchen, in particular, are being redrawn. These changes are taking place in societies where traditional family patterns are changing as women with children increasingly work outside the home, and consequently men have more domestic responsibilities. Drawing on Actor Network Theory she outlines the development of kitchen technology, and in particular the development of regulated ovens, and the microwave oven as contributing to the increased de-gendering of cooking.

With regard to the participants from the communities of practice, it was very noticeable that women talked about cooking far more often, and in more detail, than men did, and it was clear that in two-parent families, women had primary responsibility for food preparation and cooking. However, there was a noticeable trend amongst men, and in particular young fathers, that showed a more egalitarian division of household responsibilities, particularly with regard to their children, and they tended to be engaged with their children's daily lives and care needs. While older men rarely mentioned cooking at all, or did so in the context of referring to their wife's cooking young fathers referred to feeding their children.

> I wake up, I take a coffee, I give breakfast to my daughter, we change nappies, we go out, we go to the nursery school, I go to work, … and then I have dinner at home and we start bathing with the baby and after dinner, we make lunch, a bit of a TV show, if I can, and we go to sleep… This would be the daily routine more or less…

Enric, Gràcia

In keeping with their participation in their children's lives, young fathers were also very aware of how the household energy demands were increased by the presence of children in the home.

> We were a lot better until the small fella came along. We were a lot more efficient. but since he landed, efficiency is gone out the window. I don't know what we're doing with it. I think there's a lot more heating and water needed, a lot more kettles being boiled for bottles, a lot more heating of the house. We suddenly got very conscious of keeping the house warmer

Liam, Dunmanway

It was particularly notable however, that across the majority of participants when asked about what they considered to be the most energy intensive of their daily activities, cooking was only rarely mentioned as requiring large amounts of energy. Although for those who recognised and did address the energy requirements of cooking, they often very conscious of the amount of energy their ovens in particular used. One women explained how she tried to economise, more from a sense guilt over wasting energy rather than from fear of not being able to afford energy.

> So, for example when I cook with the oven I try to do it in trays, not portions, I try to cook for various days in a row. Because I feel very bad if I turn on the oven and I waste that much energy to make these tiny things. As it is going to be on for an hour we can cook a chicken in it

Alba, Gràcia

However, it was the most socio-economically deprived participants, both men and women, who in discussing their own cooking practices, or those of others who illuminate the privations caused by energy poverty. The two men who particularly mentioned cooking in their interviews were both focussed on being as frugal as possible as they had very limited incomes. One elderly gentleman of limited financial means from Le Trapèze, who relied on pre-packed frozen meals revealed his preference for boil in the bag food to reduce his energy consumption.

> I buy a lot of Picard products, because it's frozen food, already prepared. It doesn't take too much time to cook. I am single, I'm alone. So, I put it in the oven, it takes 30 minutes. The oven must be at a temperature of 220°C, and it consumes a lot. … But I think it is still too many 30 minutes of heat. If I could only cook things in casseroles, with boiling water. And when I do that, I use very hot water to reduce the time of boiling. And then it's 10 minutes. So, it saves energy.

Gabriel, Le Trapèze

The other man cooked in bulk, and froze the food in portions for his meals in order to cook as cheaply as possible. Concern with economising where possible on energy consumption was evident across all communities, the majority of participants were very aware of the cost of energy, and electricity in

particular. One female Stockbridge resident in showing how she economises on her energy consumption, also shows how she prioritises her adult son's needs above her own

> It's constantly on your mind, when you think about it. You think we've got the oven on. You're cooking the tea every night for your son coming in from work. While it's in there, if I'm having a jacket potato tomorrow, in goes the jacket potato. Warm that in the [microwave] so you don't have to put the oven on all day tomorrow to make the jacket potato. Do you get where I'm going?
>
> Ellen, Stockbridge

Food has a symbolic significance over and above its practical properties that extends back into prehistory. Mary Douglas (Douglas 1966) identifies how food taboos are utilised as a way of maintaining group identity, both in the distant pre-historical past, as well as in the present. Anthropological and feminist analyses of the, traditionally unrecognised and neglected, significance of 'feeding' has revealed the significance of food and cooking for social maintenance. Marjorie deVault argues that feeding is "a social practice that constructs family" (DeVault 1994, p.13).

According to DeVault "in particular households, individuals engage in specific versions of the work of care, constructing located, idiosyncratic versions of family life. As they go about this work, in material settings, they refer to and draw upon cultural ideologies of family life (though hardly any households actually look like the cultural ideal). By doing the work of "wife" and "mother", women quite literally *produce* family life from day to day, through their activities with others" (DeVault 1994).

Lack of knowledge of how much energy is used in cooking, and how energy can be reduced by implementing different cooking methods was explored in detail by one participant who raised it. She makes the interesting point that people don't know enough about simple methods to reduce energy consumption when cooking – a point borne out by the fact that so many participants did not even list cooking as being energy intensive.

> Cooking depending on how you cook … in a way it's a shame that understanding electricity is very difficult, y'know, in terms of a using a cooker. You can put on a pot of rice … y'know obviously you heat it to six and then you turn it down, and you get a simmer, but in terms of knowing, you could probably switch it off ten or 15 minutes before it's actually cooked because the heat will cook it. But nobody thinks like that really, and you're not taught either to think like that really … if you know about it you can adapt your ways of cooking because I think cooking is very, very, intensive energy … I often turn things off now when I realise that okay actually they will, y'know it's all about timing, and how long will they take to cook. There's a lot of knowledge involved in cooking it's a very, very, complicated activity that people underestimate, I think.
>
> Lucy, Dunmanway

The subject of cooking was also brought up as a means of getting people together. Communal meals cooked together by members of the Stockbridge community on a weekly basis provided an opportunity for people to get together.

> Yes, that's just once a week, but it's just like a get together, like this. The hub is just where we all get together and catch up with everything and get a few things sorted out if you need any help with anything. It's just a get together for a gab and a chat and catch up with obviously your neighbours and stuff like that and whoever goes. … It's basically just a get together and like Carol and Jan just said, get a few bits in, have your dinner there, have a catch-up and stuff like that.
>
> Allister, Stockbridge

Some of the residents of Stockbridge also suggested that cooking and sharing meals amongst small groups of friends could provide a way of saving energy, and promoting individual and community resilience.

> I mean if that was the situation where you could only heat your house up … If you had a house – if your money was that bad you could say, "Friends can come to mine for that week and I'll heat mine, then you go to theirs for the next week." … And then you're staying warm, you're in company and you've eaten and that gets you through your winter … You could cook your meal that day, you know, your friends and do that for one week and then the next week you go and sit in someone else's house for that week. They use their heating. So, every fourth week, you'd use…
>
> Ellen, Stockbridge

5.2.3 Laundry and cleaning

Laundry practices are of particular interest in energy research on inconspicuous household energy consumption because of the amount of energy consumed carrying them out in the typical household. The time-use survey demonstrates that there is a stark imbalance between women and men in the time spent on laundry and cleaning. Far more men than women are more likely to spend no time at all on laundry and cleaning during any time-period, and no men are found in the time-categories for the greatest length of time spend on laundry and cleaning. These results demonstrate a much greater gap between women and men in time spent on laundry and cleaning.

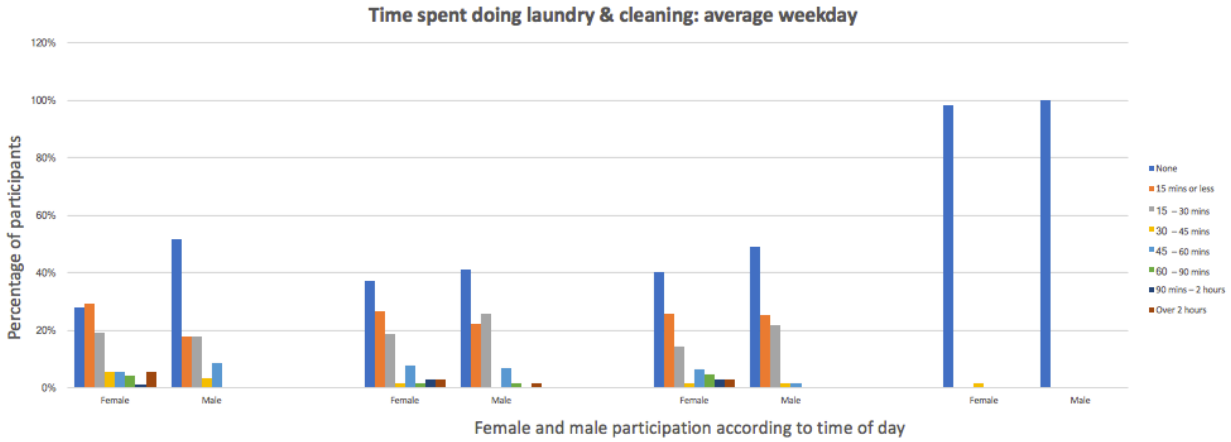

Figure 4: Gender breakdown of time spent on laundry and cleaning over an average weekday, across all communities

Contrasting the weekend schedule with the weekday revels an even starker gender divide.

Figure 5: Gender breakdown of time spent laundry and cleaning over an average weekday, across all communities

The qualitative engagements with the participants from the communities confirm the gender gap in laundry and cleaning practices found in the time-use survey showing significant gender differences with regard to the attention that participants paid to the practices in their responses. In the interviews and focus groups, participants were not specifically asked about their laundry or cleaning practices, they were asked a number of questions relating to their daily routines, and their opinion of hygiene practices in general. Unlike cooking which younger men, in particular, include as part of their daily routine, it is clear that women are responsible for doing the laundry, and have primary responsibility for the cleaning. Most men did not include doing laundry as part of their daily routine, or indeed, with few exceptions, hardly mention it at all. It is noteworthy that the man who mentioned laundry and washing machines most of all, did not in fact own a washing machine finding it more economical to use a laundry service.

As in the case of cooking, again, being a younger father was related to participating more actively in domestic practices in the home.

> I have a very clear example. I have a fourteen-year-old son and I never put on so many laundry washes in my life. And it is not because we are three at home, I have lived with friends being three and it was not like that. Certainly, you have a child…many times I joked with my partner… how can we run so many washing machines, we are three people… I became aware of this, of course having a child has more energetic implications, but well, it is not related with the number of people, you can be three people and not running so many washes, but if you are three and you have a child
>
> Arnav, Gràcia

Poverty also has an impact on laundry practices. William, in Stockbridge, conscious of the high cost of electricity paid extra to buy an eco-washing machine, despite being in dire financial straits. However, he is constantly struggling with energy costs and believed that the investment would be worth it.

Women in both Stockbridge and Secondigliano described the different methods that they employed in order to reduce their laundry costs. In Secondigliano, there was particular mention made by some women to doing their laundry at off-peak times to avail of cheaper electricity rates. In Stockbridge one female resident also discussed how she had to economise on energy and identified reducing washing. Describing her purchasing decisions, she put it like this:

> I go for the A ones, the ones that are not gonna... I do ... I've got a condenser dryer, and in a way it was probably, I don't know whether it is as friendly as normal dryers but I do try and go for the best ratings because I know its gonna cost me bloody more, do you know what I mean? So, I might as well as pay for it … by buying the item than seeing my leccy go. It's nuts
>
> Lily, Stockbridge

Research into domestic practices demonstrates that laundry is a highly gendered practice, and that women's identities and sense of self-worth, in particular, are connected to their performance of these practices (Pink 2004). In this context, the contrast between women's and men's attitudes towards laundry is evoked by a Dunmanway community member discussing laundry after the arrival of his first child.

> Laundry, I suppose yeah, you get plenty of laundry with small people in the house, an awful lot more than we ever had before …. But like, from washing clothes point of view like, there's, like I know from up above at home [the old farmhouse] there's more segregation of clothes into all sorts of heaps, and all that sort of lark like, and, you know, no half running of washing machines and what not, because they're different groups or categories like. I lived in the UK for a while, and I lived in New Zealand for a while, and I had to look after myself like, and, everything went into the one washing machine, and in case it shrunk, you washed it with cold water, and, but everything seemed to come out reasonably clean out of it anyway like so, I dunno is half of it just up here (in the head) like, I'm not sure like.
>
> Liam, Dunmanway

Not only is he not convinced by the need to separate clothing himself, but he is unimpressed with the idea that any degree of care is required at all with regard to the conduct of the laundry practices.

Women of all ages recognise the benefits of an electric washing machine, and a number of them expressed their gratitude for washing machines.

> I think probably that the washing machine was the greatest invention ever because it freed up women to do other stuff.
>
> Caoimhe, Dunmanway

However, there was a recognition that laundry practices had changed over time, bringing with it negatives as well as positives.

> And the washing machines, the washing machines, setting a washing machine every day, is… right? Before, we wore the same clothes the whole week, on Saturday we showered and washed clothes, right? And now, we have created consumeristic needs because I don't think it is necessary neither shower every day or get our hair washed up every day (she laughs) and clothes don't, don't, don't, don't… There are people who wear clean clothes one day and they wash it the same day. I mean, I have a friend who wears clean clothes every day. All this is such an energy waste… Bad habits has been created, bad habits I think, right? Currently is that easy to consume, right? Putting one thing in the washing machine pushing a button, before it used to
>
> Xita, Gràcia

Another Gràcia resident, in describing her own washing practices reflected on how easy it has now become to engage in washing practices without really thinking about it, reflecting the invisible nature of energy discussed in **D3.3 Intersectional Analysis of Perceptions an Attitudes Towards Energy Technologies**.

> Pushing the button and it works itself, right? … I think there has been such progress, right? It happens to be very easy, but then there is abuse … it's so easy, we wash anything [gestures] and, and, and this, then it has been taken to other extremes. In my opinion that's what's happening, I do this because it is very easy, putting clothes, soap or water, that's all and let's hang it all up, right? On the contrary, washing used to be a hard work, right? And the ease means the use has been multiplied because it is not an effort for you, … well that's how I think…
>
> Manela, Gràcia

Not only did older men not mention doing laundry, it was clear that they still regarded domestic work as the work of women. However, this does not necessarily equate to a perceived loss of agency for the women they referred to (Pink 2004). The level of nuance involved can be seen in the following exchange with Riccardo in Secondigliano. When asked about cleaning practices, and who does them, in his home he responded

> My wife spent her whole day cleaning [Interviewer: you do nothing in the house?] oh (and laughs) [Interviewer: what do you do?] I do the clean-up after lunch...the table. I clean the floor. If my wife isn't feeling ok, I do the dishes. I help with the house. I run errands...I run errands
>
> Riccardo, Secondigliano

5.2.4 Personal hygiene/showering

A recognition by participants of people's personal hygiene practices, and their relationship with energy, also emerged from the research. What we consider to be acceptable practices for cleaning, and what are appropriate levels of acceptable "dirt" are very different to people's attitudes from the past. In describing their personal hygiene practices residents across all the communities, laundry and personal washing were seen as being somewhat interchangeable.

> I don't know why but we wash everyday ... Before, we wore the same clothes the whole week, on Saturday we showered and washed clothes, right? [now] There are people who wear clean clothes one day and they wash them the same day. I mean, I have a friend who wears clean clothes every day. All this is such an energy waste … Currently it is very easy to consume, right? Putting one thing in the washing machine pushing a button, before it used to
>
> (Xita, Gràcia)

This expressed awareness of rates of energy consumption rising exponentially with changes in washing practices and greater levels of personal convenience came from a number of participants, with many also wishing to see energy consumption levels reduce from this rise. However, there was little real consideration given as to how changes in current personal hygiene practices might contribute to this desired reduction. When accounting for one's subsequent levels of energy use it is interesting to see how deeply entangled these attitudes and practices are one's wider world view, sense of morality, personal negotiation and material knowledges. Personal hygiene is as much linked to cultural and societal norms and don't always remain static throughout one's lifetime. One participant explained how, once married, his washing habits changed in response to new expectations being made of him by others. Also, he explained how he baths her daughter daily despite not necessarily agreeing with this practice in principle, justifying it along environmental and health considerations. He added that the different understandings he and her wife have about cleanliness is a current source of conflict between them, and expressed that he is in constant negotiation with her:

> Unfortunately, yes, yes…I tend to shower more, more than before [getting married]. But it is very important [to reduce bath frequency] to save water … I mean… It is very important, for the skin for example, a lot, I don't, I don't agree with having these numbers of showers per day… It is a fight I always have with my wife I am not only talking about me but about my daughter, and well, there are people that … that starts to ... who don't shower their kids every day and… maybe three times per week, I shower her every day. I don't think it is good for a one-year old kid, seven showers every day … Well, the soap, it's ok with water, but I don't know if it is, [soap] isn't good for the skin, it isn't good all this, but well, look, it doesn't change…
>
> (Enric, Gràcia)

As discussed by Pink and Mackley (2012, p.7), citing Harold Wilhite (2005, p.2), "energy itself is an invisible flow. People do not consume energy per se but rather the things energy makes possible such as light, clean clothes, travel, refrigeration and so on". Therefore, it is important to focus "not only on energy but on the enmeshed network of related practices and habits through which people consume energy" (Pink & Mackley 2012). We can see that the aspiration to conserve water and the potential health concerns associated with everyday bathing are a source of conflict in this household and demonstrate how energy practices are linked to ideas of cleanliness, health, education and nursing; and that this constant negotiation goes beyond the simple act of "consuming" as offered to us by the energy as a commodity paradigm narrative.

5.3 Socio-economic interactions with energy: choice, resilience and solidarity

In looking at socio-economic interactions with energy we have identified a number of themes which show that an array of factors such as income, educational attainment, working status, habitat and socio-political context all influence individual energy practices and behaviour.

Energy poverty is a theme that has emerged strongly in our qualitative findings. From our grounded analysis, we have identified both direct and indirect ways in which energy reinforces and reproduces patterns of poverty and deprivation. Albeit there is a substantial contrast between our six communities, the evidence indicates that emerging trends and shifts in energy production and consumption can be problematic for communities already in poverty. Furthermore, these can heighten existing patterns of marginalization, disempowerment and displacement.

Indeed, we have seen that socio-economic practices diverge considerably between those that benefit from a wealthy lifestyle and those that experience poverty. Among the six communities where we conducted in-depth qualitative research, Le Trapèze in Paris stands out as one of the wealthiest communities while the community in Stockbridge in Liverpool stands out as one of the most deprived. There are also noteworthy issues pertaining to energy poverty in both Secondigliano and Vila de Gràcia. The process by which we have arrived at this assessment of community socio-economic privilege is based on a grounded approach which has included participatory observation, anecdotal evidence collected during fieldwork and data derived directly from our semi-structured interviews and focus groups in each community. This engagement with each community has allowed us to comprehend the multiple forms of socio-economic advantage or disadvantage and see how they shape behaviour and interactions with energy. Furthermore, we have also seen that the physical and social context in each community frames most socio-economic relations as it can either constrain or enable individual attitudes and behaviours. Table 2 on the following page offers an overview of a range of contextual factors which we have identified as significant in different ways. We will discuss some of these aspects in detail to demonstrate with examples, how energy is experienced very differently by individuals with an abundance and a dearth of socio-economic resources.

Narratives pertaining to energy poverty are thus most prevalent in Stockbridge, Secondigliano and Vila de Gràcia. Additionally, there are a number of intersecting factors such as community cohesion, habitat, age and gender which position our different participants and their interactions with energy in different contexts. This process allows us in turn to dissect and reconstruct practices informed by our three, key socio-demographic dimensions (*i.e.,* socio-economic, age and gender).

Socio-economic privilege thus, emerges in different ways as a critical dimension for understanding community interactions with energy. The table above highlights a number of socio-economic characteristics in each community and helps contextualize and position our communities in reference a range of qualitative indicators, which illustrate a diverse context. This process of comparison and analysis supports the identification and examination of the multiplicity of different factors which either enable or inhibit the ability to make choices, have influence over and adapt to a changing energy system. *(continued on page 62)*

	Dunmanway Co Cork	Vila de Gràcia Barcelona	Le Trapèze Paris	Secondigliano Naples	Stockbridge Merseyside	UCC Cork City
Geographical Location	Rural, peripheral area	Inner city, neighbourhood	District situated in greater metropolitan area	Peripheral district outside greater metropolitan area	Peripheral district outside greater metropolitan area	Inner city community
Mobility	Concerns regarding public transport provision (regularity and price)	High rating of mobility and transport provision	Some concerns regarding public transport provision (regularity and catchment spread)	Area prone to heavy road traffic	Issues of isolation and limitations due to distance from inner city locations	Heterogeneous community. Well serviced public transport area
Physical Environment and Amenities	Concerns over increased industrialisation of the countryside	Good range of services and amenities in the area. Highly urbanised environment	Fair range of services and amenities. Good balance between green and urban spaces	Some concerns over gradual deterioration of local parks and amenities. Waste and air pollution is a problem	Fair to poor range of services and amenities. Area benefits from access to woodland areas	High awareness of dominance of IT technology for all aspects of daily student life. Bike friendly areas
Housing ownership profile	Large proportion of home owners	Large proportion of home owners and tenants in private rented accommodation	Large number of home owners and a smaller proportion of social housing	A mix of private-rented, home ownership and social housing provision.	A very high proportion of social housing.	High proportion of students living in family-owned homes or smaller section living in shared private-rented accommodation
Urbanization Processes	Development of national energy grid included installation of pylons and wind turbines	Gentrification, rejuvenation and greater multicultural presence.	Re-development of brown field sites and recovery of green areas	Deterioration of urban infrastructure	Some accounts of regeneration and retro-fit programmes	Growing demand for affordable student accommodation
Community Energy-based initiatives	Leveraging collective and energy savings to support local charity organisations. Small-scale alternative trading practices replacing cash transactions.	Energy hacking practices. Community energy solidarity groups for the poor Anti- energy monopoly campaigns. Growth of energy cooperatives.	Eco-neighbourhood programme has not translated into high collective engagement with energy issues. Unestablished community	Church-led support for vulnerable residents	Protests against implementation of new Biomass system in social housing complexes. Charities and local community initiatives supporting those in poverty	Low collective engagement with energy issues

Table 2: Overview of Community Socio-economic profile

(continued from page 60) ….

As already mentioned, Stockbridge community has stood out from the other communities as the most problematic in terms of energy poverty issues. This finding was surprising because this was not the only community in the study struggling with high rates of unemployment and with very low-income households. Notably, Secondigliano in Naples has a very similar profile which if further compounded by the influence of organized crime clans, known as the Camorra, which have a stake and a degree of control over issues such as waste disposal, housing developments and renewable energy developments. Vila de Gràcia in Barcelona also emerged as a community where energy poverty is considered an issue which affects more vulnerable groups in the area. However, despite these different profiles, Stockbridge stands out as the community which experiences higher levels of energy poverty. While the study is not based on an exhaustive quantitative assessment of common socio-economic indicators such as average levels of income, educational attainment or employment status, our interpretations are built on the in-depth analysis of narratives from our local participants which enables us to consider the broader experience and manifestations of poverty. From this analysis, we were able to ascertain that energy and energy poverty is crucially involved in processes of disempowerment, disadvantage and displacement which is experienced as a real barrier for people in Stockbridge struggling to secure a more stable livelihood.

Looking at the theme of energy poverty in Stockbridge a range of factors emerged as important. Firstly, we noted that poverty permeates most of the narratives participants offered to us in relation to energy. Issues concerning the cost of energy, the role it plays in the daily lives of local residents and the impact that it has on the wellbeing of the community were all offered from a viewpoint of disadvantage and a sense of struggle. A heightened awareness of energy costs and energy use appears to stem from ongoing socio-economic constraints which makes everyday energy use and practices more visible than we have recorded in our other communities. Stockbridge is a community with a high percentage of low income families and this seems to have direct implications in terms of energy use. Many participants reported budgeting for small everyday tasks such as boiling kettles, cooking meals, heating the home, taking a bath. What is more notable is that this budgeting is not performed on a monthly basis, as is most common practice among households, but seems to be performed often on a task by task basis. This awareness is further compounded by the fact that inability to meet energy and other expenses has life changing implications for many people in the community

> My dad, he lives on his own now, well, he's had to literally move out of his 2-bed flat and got put into a pensioner's flat. Because one, he was paying bedroom tax. He was literally left with £10 a week, after paying all the bills with food to live on. I was like, what the hell, and there were times where he would sit there with no heating, do you know what I mean?
>
> (Lily, Stockbridge)

As the quote above demonstrates, maintaining independence in old age is problematic for some residents. Heating in particular during the winter months was something which people from all age cohorts reported as problematic. Moreover, the increasing costs of energy related to heating practices in the home had spill-over effects on to other aspects of people's lives because there was little financial flexibility to cope with

these rising costs. There is thus a sense of weak financial resilience to cope with the growing costs of energy and contain their impact on other aspects of life. For example, instances where participants reported problems dealing with energy heating costs other issues such as food poverty, ill health and isolation seemed to be conflated.

> This young lad walked in from the flats with a voucher and they gave him food and he turned around and said, "I don't want that. I don't want that. I don't want that." And she went, "That's [not on]." I went, "Listen to him, ask him why?" Because he had no energy to cook. He had no gas and electric to cook it.
>
> (Ellen, Stockbridge)

This quote demonstrates the interlinked manner in which poverty, as it relates to energy, moves on to affect many other aspects of life. Furthermore, it also suggests that it can be problematic to underestimate how difficult it is for some households to pay for energy bills and their struggle to ensure the basic fulfilment of needs such as food and shelter whose quality depends on access to energy to cook and warm food and provide heating in the house. This issue appeared more heightened for people with a disability either age related or derived from other health problems, who linked very strongly access to basic needs with health outcomes and with controlling health issues such as pain.

While the quote represents a more extreme example, other respondents in Stockbridge did highlight concerns over energy use, including use for food preparation, washing and cleaning, heating and travelling. For these respondents looking at energy beyond meeting these daily basic needs becomes less easy and less desirable.

> Really, I don’t think there’s not many people who wanna save the world sort of thing, they only living for the day.
>
> (Jessica, Stockbridge)

This extract and similar ones from Stockbridge are telling from a socio-economic perspective as they highlight the dominance of narratives which single out immediate needs rather than long-term considerations for energy use. Self-discipline and control over basic daily routines also appears as a valuable strategy for those experiencing hardship and finding difficulty in financing their immediate daily energy costs. In this context, we have noted that people are very frugal with the way they use energy and they adopted a range of micro-scale strategies from cooking in bulk, using thermos flasks, using battery operated LED lighting and using plastic sheeting for insulation.

Other significant factors seem to have hindered the social and financial resilience of the community of Stockbridge in relation to energy issues. Particularly in relation to control over energy costs and energy sources. Stockbridge community has a very high percentage of people living in social housing and the Villages Housing Association is the local non-for-profit social housing provider. The Villages (as it is known) was commended by a few participants for carrying out local regeneration programmes and for the retro-fit work of some of these dwellings. However, many respondents were also very critical of the biomass heating system that was installed by the Villages, most participants claim that it has significantly increased

the heating costs of people in social housing in the area. We had accounts from some of our respondents reporting serious difficulty in heating their homes. Problems with energy costs associated with the introduction of the Biomass system led to implementation of alternative measures such as sourcing individual electrical heating systems and drastically reducing already limited heating usage.

> Now we're plugged into this like- the Villagers now, we're plugged into this [biomass] system. I can't set up a fire in my flat so, there's, there's sometimes there's limits- you're pushed into a system where you're forced to pay for the use of utilities and you can't log out the system even if you wanted to try.
>
> (Henry, Stockbridge)

This participant is communicating a significant sense of disempowerment and lack of choice which stems directly from the imposition of a new biomass system which is seen as detrimental to the welfare of local social housing residents who were already disadvantaged. This sense of disempowerment was very noticeable in many of the narratives coming from our participants in Stockbridge.

> You know like- you know a lot of people feel they're never gonna get on like that, you know what I mean? It's very hard to make that shift [to a better life]. It's like you're pushed down by the government, you're pushed down by your energy and everything, the costs and so in a way to be honest, I think a lot of people in Stockbridge village are, kind of, depressed like (laughter)
>
> (Henry, Stockbridge)

This sense of disempowerment permeated the narratives and concerns of our participants both in terms of their concerns for older and more vulnerable people in the community as well as also reflecting concerns for the prospects of younger generations. Furthermore, there is a sense of lack of national solidarity for those that are disadvantaged which also feeds into growing perceptions of marginalization and socio-economic disadvantage.

> That's the main word, isn't it, community. There's less of that over the years. Britain's done a really good job in dividing itself. Wales want to be Wales, Scotland want to be Scotland. South doesn't want to be anything part of North, of England. Erm, it's only a status. It should never have been about status, it always has been about status even back to the 1500s, if you had money you got further in life, erm, but we're supposed to have grown from that. Erm, it doesn't make you any less of a person because you're on benefits. You don't know the person's history or know the person's life. My husband worked up until he had a breakdown, he provided for us and worked from the age of 15 but people only see 'he's on benefits' and that's all they see.
>
> (Jessica, Stockbridge)

Other contextual barriers in the area reinforce and reproduce these patterns of socio-economic deprivation. Issues of isolation, mobility and displacement are highlighted as affecting prospects of overcoming problems related to poverty. For instance, the peripheral location of Stockbridge social housing is seen as problematic. Particularly because the majority of this community, in terms of older residents

living here, come from inner city Liverpool and were relocated to this area in the mid 1960's where new social housing provision was on offer. However, this location offers very little employment opportunities and the costs of travelling for those struggling are a barrier towards financial stability and socio-economic upward mobility.

Similar to Stockbridge we have the community of Secondigliano. Local residents from Secondigliano were also displaced from their neighbourhood in inner city Naples after an earthquake in the 1980's. New developments in this particular peripheral area of the region consisted mainly of social housing with poor supporting amenities. After the earthquake many displaced families from inner city Naples, and particularly those most disadvantaged, were moved from the historic, inner-city neighbourhoods in Naples and into Secondigliano. This led to a high concentration of poverty and social disadvantage which was worsened by the loss of social networks and community supports from the original neighbourhoods. A sense of marginalisation and lack of political influence is still felt by many local people who refer to either the centre of Naples or central politics as the relevant actors in energy system change.

> Mila: 'Here in Secondigliano we're a little further away from downtown, we're left to our own devices'.
> Niccolo: 'It is no political matter, absolutely.'
>
> (Mila and Niccolo, Secondigliano)

Issues linked to lack of educational attainment, poor environmental conditions to bring up and raise children, lack of employment opportunities for young people, and the stronghold of organised crime activities and influence in the community, appeared as factors which reinforce socio-economic deprivation in the Secondigliano neighbourhood. Similar to Stockbridge these narratives highlight the significance of meeting immediate and short-term needs.

> Sadly, a good percentage . . . [of] people here always had, also because of need, the aim to look to other aspects . . . small things
>
> (Davide, Secondigliano)

Crime and environmental degradation appear as an ongoing problem which further impede the transition of the community to cleaner and perhaps more sustainable livelihoods. Lack of trust in the political system, concerns over the influence of corrupt institutions was an issue for many people when thinking about potential transitions in the energy system. This informs much of the behaviour and perceptions of the energy system.

> I mean, by now, this forsaken camorra has put its hands on everything...even on the green economy. Do you know that by now many wind farms are all in the hands of the Camorra that built them to take the funds from European community? I mean, we must also be careful about all this
>
> (Alice, Secondigliano)

Poverty experiences coupled with a lack of trust in political institutions has a direct influence in terms of attitudes towards energy and in particular views of change. A range of factors has contributed to a

narrative of social and economic decline in the area which includes poor local economic resilience as well as poor regional economic performance, reemphasizing the historical north and south socio-economic divide in Italy. This sense of decline is expressed in our participant's narratives in terms of social and environmental conditions in the area. For instance, air pollution is mentioned often and it is perceived to be caused by what is seen as an out-dated transport system. Equally, the household energy system is seen as inadequate to bring about necessary change for the community. Additionally, some participants see socio-cultural decline and lack of community awareness of energy issues as a barrier for ensuring community engagement with energy issues. Evidence, indicates that the community of Secondigliano perceives itself at the periphery of both political and economic initiatives and this sense of disconnect informs most everyday interactions with energy where individuals feel they have little control and influence and direct their efforts solely on minimising energy consumption in the household. The following quote provides evidence of this community wide perception:

> I think that, from an energy point of view, we're far behind. We are not ready to give it up yet and we still haven't developed equally reliable alternatives or systems. We need a growth model and confidence in these means . . . the idea of renewable energy is confined to a niche, as far as I know there is no alternative system to supplant the current one because of the lack of projects and information so now the only alternative is saving energy as much as possible.
>
> (Mila and Niccolo, Secondigliano)

The community of Vila de Gràcia in Barcelona is one where we have noted that the issue of energy poverty was most politicised and where community members expressed more solidarity towards those less advantaged in the community. Specifically, local people feel strongly against energy monopolies which are perceived to 'prey' on people's vulnerability to lock them into expensive energy supply contracts which substantially increases their energy expenses. The strong sense of community ownership in relation to energy, energy poverty and the transition of the energy system into more sustainable sources are all issues which appear to be gaining collective momentum, at both neighbourhood and city wide level in Barcelona.

> I mean, starting from the project I talked you about, you know? Local projects to educate people on energy waste awareness, or to cover the expenses of vulnerable people to have a minimum income guaranteed, right? And this is already an important social change for the community. I think we are living an important moment and it is conspicuous. I think that Barcelona is always an example and it is the paradigm of everything. For instance, Barcelona or Berlin guarantee schemes. I think in a community level, there has been a great work, but it can be even better but it's just started.
>
> (Enric, Gràcia)

However, while the neighbourhood is seen to benefit from a wide range of community and voluntary groups and associations which bring a range of positive capacities and resources to the locality it is was also also noted by some participants that these groups can be limited to foster particular ideas or interests of specific groups in the community which unwittingly may exclude other people from the community. In terms of energy this divide was seen prevalent in terms of house owners and those on rented

accommodation. In particular participants in rented accommodation have indicated that they are very much aware of their disadvantaged position as tenants which limits their options and has an influence in their everyday behaviour at household level.

> I imagine meetings where people are talking about either private or public issues. I don't attend any of these meetings anymore because there isn't such a thing, when we are not the flat owners. They meet at the state agency, right? Because they are managing their [property], they are all owners. So, for example I am not talking with my neighbours about nothing unless I knock on their doors to ask for something. But, I mean, one example would be to get back to the flat neighbour's meetings. There are very different people there, right? Talking about a common topic like "Listen, we've thought about changing the building lights, setting solar panels … we've thought about signing up to a standard domestic rate tariff, are you OK with that schedule?"
>
> (Alba, Gràcia)

Many participants in rented accommodation have expressed more limitations and lack of choice in terms of the energy supplier they use, use of appliance and retrofitting homes for improved energy efficiency. Further pressures in the community which are felt more widely by the community are a range of gentrification processes, which include growth in tourism and associated commercial developments which have led growing concerns over being pushed out of the area which is valued for its central location, it's convivial community spirit, good access to services and the transport system.

Contrasting heavily with issues of energy poverty, identified in Stockbridge, Secondigliano and Gràcia, the community in Le Trapèze in Paris, shows that interactions with energy can be very different when arising from wealthy, well-resourced neighbourhoods. For instance, while many of our participants in the other communities reported a range of energy reducing strategies in the home, such as changing to energy efficient light bulbs, installing smart meters, placing timers on showers and other appliances to name a few, the same measures did not follow to reducing energy use in the workplace. Our participants in Le Trapèze in comparison with other communities held jobs at a managerial or higher level which allowed or prompted them to extend their influence over their immediate household environment and into the workplace. Many of these participants also reported having leadership roles at local level in terms of overseeing the deployment of new technologies in Le Trapèze which, as an eco-neighbourhood, has seen a large range on new energy system put in place recently.

Access to a healthy environment, spacious surrounding and good quality sources of food was a key priority for many of the residents in the making of their home and in choosing how and where they live. This narrative was particularly strong among parents with young children. Crucially, many participants narrated to ability to choose what was important for them and to live in a manner which best reflects these values.

> It is a balance between my consciousness for energy, and my consciousness which definitely increased from the moment I had children and starting a family, setting up a home. We were very careful of always living in new accommodations with low building consumption
>
> (Camille, Le Trapèze)

Another interesting contrasting position between participants in this wealthy neighbourhood and the more deprived neighbourhoods was the ease with which many of the participants engaging with the technicalities associated with the implementation of new technologies, their merits in terms of efficiencies and the political context in which these can be best implemented. While both in Secondigliano and Le Trapèze many of the participants were less comfortable expanding on their understanding of different dimensions of the energy system in contrast the community in Le Trapèze were more assertive and confident in their knowledge. While there were various levels of knowledge and assertiveness from participants across the six communities, in Le Trapèze it was manifestly higher than in all the other neighbourhoods.

One aspect where Le Trapèze as a newly established community seemed to lack in comparison with the other neighbourhood was in terms of local community cohesion and interaction. There were less community groups and initiatives visible in the area and large participants reported little knowledge of their neighbours lives and of local issues. Figure 6 below positions our different communities with reference to wealth-poverty status and community-individual based orientations.

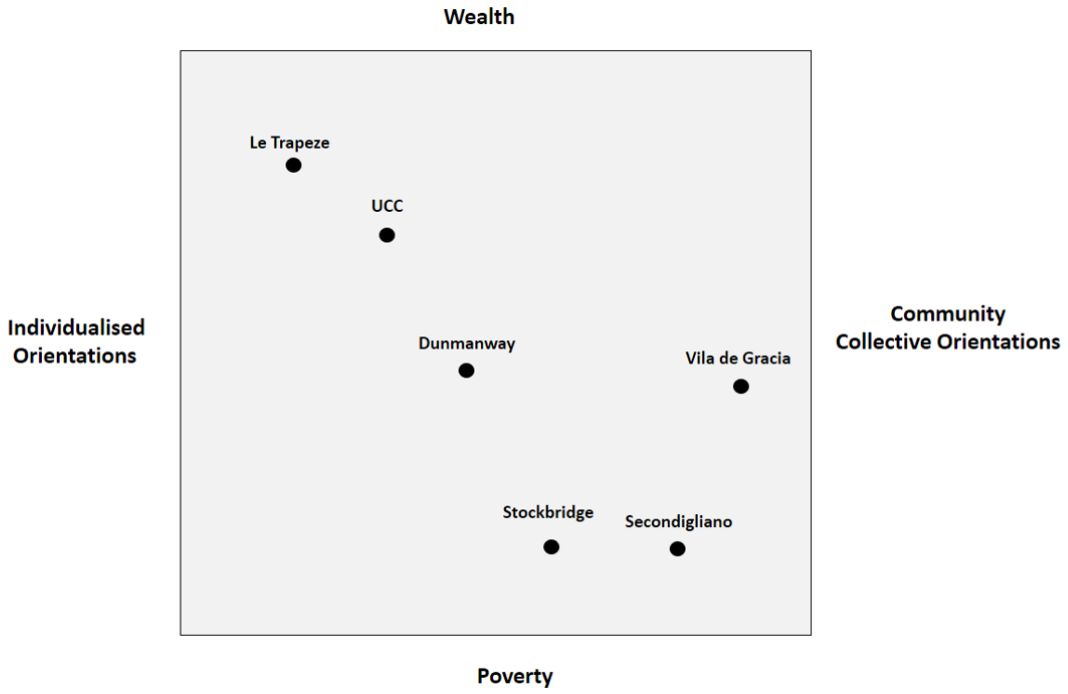

Figure 6: Representation of the six communities in terms of wealth/poverty and individual/collective orientations

5.4 Multigenerational and age dimensions of energy use and behaviour

In this section, we hope to expand our intersectional analysis by drawing on diverse notions associated with age which include differences in how older, middle-aged and younger generations perceive and experience energy. This approach has enabled us to identify a range of valuable themes and based on these, we have grouped a number of narratives ideas related to energy. This includes an appraisal of how these narratives have evolved and how they are textured by specific life events, particular experiences or stages in life. This qualitative analysis of the interviews and focus group materials is guided by a grounded inductive process

which has enabled us to examine in greater detail how energy behaviour and practices are determined by different aspects related to age.

In order to provide an illustrative and more generalisable overview of the diverse themes that we encountered we have clustered some of these findings and developed a typology that highlights particular commonalities between specific attitudes towards energy and age factors. This typology has allowed us to organise our findings and appraise the wider implications of age related processes in relation to energy practices and behaviours.

The typology (see Figure 7) uses a continuum model which highlights the evolving, multigenerational qualities of the energy system. Based on our qualitative findings we combine this multigenerational dimension with sets of particular practices and experiences of energy. Thus, this data shows that some narratives around energy have a temporal orientation which informs how our participants interpret their own relationship with the energy system. In essence, we have noted that the energy system as it has evolved has established a set of values, expectations and patterns of behaviour, which are distinct from one generation to another. The data shows moreover that these biographical experiences of energy are one valid aspect of people's present-day interactions with energy.

Electrification of households was an experience that some of our participants, especially native of more rural or peripheral areas in Europe experienced in their lifetime. Accounts of the evolving engagements with electricity in the home emerged from some of our older cohort participants, those 65 years old and over, the accounts relate often to direct experiences of this transition. We have noted that these past experiences of life 'off-the grid' very much permeated their understanding and value of energy.

It is thus with older generations that energy is often portrayed as a 'gift' and a 'privilege' which considerably improved livelihoods and household practices compared to the more time consuming and arduous tasks prior to universal access to electricity in the home. This is in stark contrast with present day views of energy, which highlight the (in)visibility of energy as a key qualifying factor of their relationship with the energy system. Some participants make reference to both these contrasting perceptions to highlight a shift in values and connection with the energy system. However, these narratives appear more strongly correlated with our older cohorts, particularly those aged 65 years and older.

The manner in which energy systems have evolved overtime and how people access it has a number of implications in terms of how it its perceived and valued. For instance, many older participants recounted their family's daily routine prior to electrification as requiring substantial amounts of labour and time. Furthermore, these activities informed their immediate connection with the environment and nature. These accounts give examples of how human-environmental interactions were much more grounded on experiences of labour and subsistence. Washing clothes, preparing food, keeping houses warm, which were all tasks that required greater amounts of time and work. Furthermore, for some of these older participant's contemporary values based on 'rural idyll' images of nature as picturesque and self-sustaining are often at odds with the views of households in the countryside prior to electricity. The following quote from Alice in Italy illustrates this point:

my mother was born in a mountain village in [Italy] . . . They did not have the bathroom at home. In winter, she always had her hands full of chilblains because they had to go and wash clothes in the creek. They did not have shoes [. . .] I mean, now we imagine that their life was idyllic and for them it was mainly uncomfortable. It was a hardship. But they lived in this way, and for example I do not like living in the city, right? When I see the glimpse of natural landscapes, especially bare, especially rocky, I say, "Oh how beautiful," my mother said instead "Madonna how ugly!" Because she remembered the discomfort of her childhood, full of difficulties

(Alice, Secondigliano)

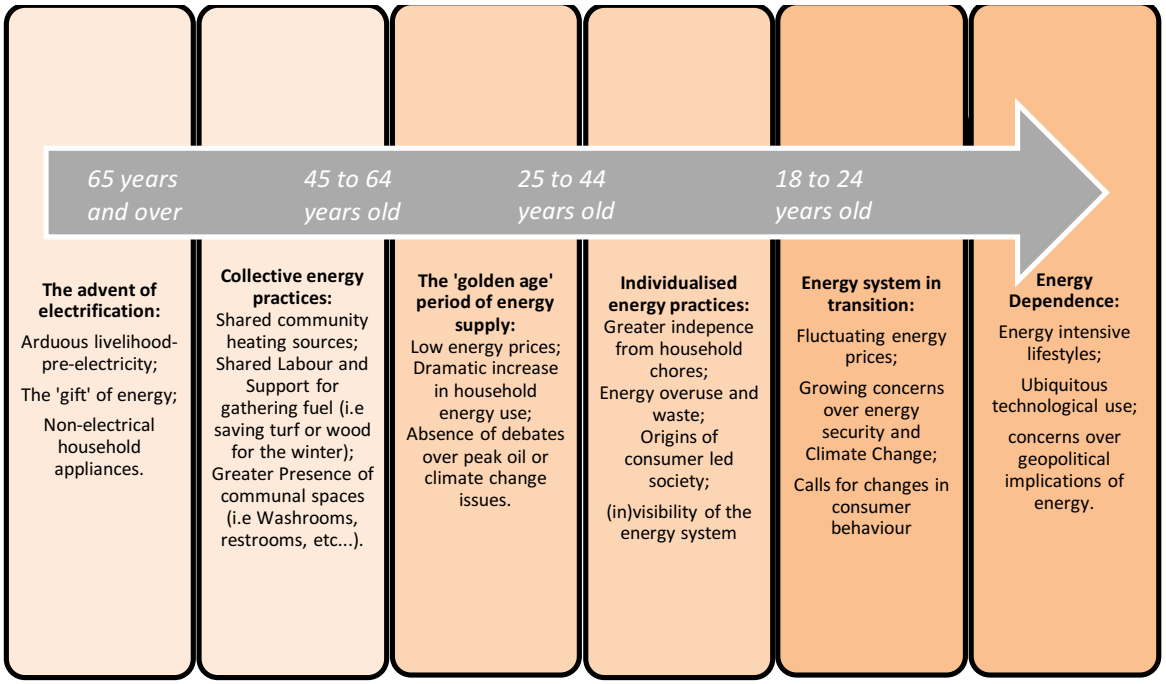

Figure 7: A continuum model combining a multigenerational dimension with specific experiences and perceptions of energy

With the advent of electricity there were changes in the home and in people's everyday household routines. However, these changes were gradual and new technologies as well as new practices were slowly introduced in the home. James, one of our interview participants who comes from the Dunmanway community in Ireland, illustrates this point:

Just because the electricity was there doesn't mean you had something to plug into it. You know, I can remember when there was no [electrical] toaster. You did the toast on the gas grill. You used to burn it to a crisp. Em, and I'm not that old. I barely remember my grandmother. What I know, is that her iron used to go on the fire. You know those old ones that you heat up? And she used that up until the late '80s

(James, Dunmanway)

It was also interesting to note the evolution of certain practices in the home. For example, while electricity became more readily available there was a process of transition involved. For instance, there were accounts of older people 'discreetly' washing things by hand after installing a washing machine in the home or people being reluctant to replace their older non-electric household appliances with new electrical models. Suggesting that there was a gradual period of adaptation and transition when electricity was introduced into people's homes. As energy became more embedded into people's lives, energy practices also became more closely bound with the grid itself and with that a substantial increase in energy use which had an impact in household practices from personal hygiene to housekeeping and food preparation. This is often linked to greater comforts and convenience at home. The following extract from Gabriel from our French community provides an example of the impact that such changes had for people in their homes:

> my grand-parents didn't have everything running with electricity, they used candles and oil lamps. But my parents, since the 1960s, with the creation of fridges, *etc.* they were very happy, it was like a miracle. So, they went all the way. And I was like them in the euphoria. Take a bath when we wanted, have hot water as we wanted, put whatever we wanted in the fridge.
>
> (Gabriel, Le Trapèze)

Another considerable shift engendered by new engagements with energy, shows how energy use practices became considerably more individualised than they used to be. Community 'collision-spaces' such as washrooms were replaced by individual washing machines. Equally home-heating, entertainment and mobility became individualised with the appearance of central heating systems, televisions and cars. The following quote from Leonardo in our Italian community illustrates this point:

> Yes, when I was a kid ... we were a community thanks to the chimney, you could warm yourself with the fire in the chimney. If my house was on the second floor there would have been no heater, like now. There also was the famous brazier, you could use it for heat, to dry your laundry
>
> (Leonardo, Secondigliano)

While practices have become more individualized there is also a growing concern with the interconnectedness of energy with socio-political issues. Present day narratives relating to current shifts in the energy system are deeply connected with concerns over increased industrialization of all aspects of life and globalization processes. In this instance, a reversal of some of these processes was portrayed as positive by our participants across different age groups, but younger cohorts have made reference to these issues more often. Calls for more localized or in some instances, regional control over resources and sources of energy production are viewed as an alternative. These apprehensions stem from concerns over geopolitical instability at a global level as well as views that building independent and more localized energy sources is the only way to exert control over the future. Grace a female participant from our Dunmanway community in Ireland illustrates this point:

> Because at the moment there is so much fear. Because people are worried, you know. Ah if we don't keep this alliance with this country we won't be able to get this thing which we actually need for our people to survive. I think that it was just create a lot more stability in general
>
> (Grace, Dunmanway)

Most participants have reflected and acknowledge the fact that energy systems developed in a way which allowed for greater comfort and quality of life, however the socio-environmental expense of this comfort is a growing concern. Fluctuating energy prices, pollution and greater dependence on energy systems were the most highlighted from our fieldwork material. In fact, dependence appeared strongly in people's narratives of present-day day connections with energy which they see as growing every day with developments in technology. There is therefore a sense of loss also connected with perceptions of change in the energy system, a loss of independence which is tied to dwindling mechanisms and practices which were more self-reliant and autonomous. For younger people in particular, daily routines were strongly centred around technology and ensuring this technology had enough charge for their needs. The following extract taken from an interview with Emma from our student cohort community in UCC exemplifies this:

> I am charging my phone, I am charging my laptop, I am charging my power bank to keep my phone alive . . . My Energy-I mean as I have gotten older . . . my life revolves around charging things. I can't go to bed at night unless the three things are charging.
>
> (Emma, UCC)

This evolving multigenerational account highlights changing views and behaviours towards the energy system. Interestingly, these changes are often perceived by many of our participants as inevitable and imminent rather than found in the distant future. Indeed, many of our participants articulated a desire for change and have located this not as a remote phenomenon but something which is perceived as 'on our door-step', so to speak. However, ideas about the future of the energy system and how it is evolving, were not uniform. There was a notable difference in accounts from older participants (those sixty-five and over). For this particular cohort, change seemed far more removed and less desirable. Often informed by early experiences of hardship and comparing this to energy as it is used today, with all its comforts and conveniences. Prospects of life-style changes and reducing energy consumption was less appealing to this cohort compared to others. In fact, rather than seeing future changes as something new, older people often associated current mainstream narratives of the future as 'going back'. Awareness of energy use, concerns over political commitment to see change as well as issue regaining some control over who and how the energy system evolves permeates the narratives of a large proportion of our young cohorts' narratives linked to energy transitions.

Table 3 was developed to highlight a cluster of specific narratives associated with energy transitions which are linked to specific age group cohorts. Our analysis of attitudes to change relative to our four age cohorts (*i.e.,* 15-24; 25-44; 45-64 and 65+) indicate that there are a number of specific perceptions about change in the energy system which are linked to specific age cohorts. The first of these attitudes we have found is largely expressed by our older participants, those aged 65 and over and it denotes an open reluctance to change. This particular cohort has been more open about their reluctance to undergo considerable changes in their present-day use and engagement with energy. Issues such reduction of energy use in the home, employment of new technologies and shifts in energy sources by and large appear far less desirable and harder to adapt for older cohorts compared with our younger cohorts. A range of influencing factors are linked to these perceptions which include observations of a comparably lower life expectancy relative to younger generations, difficulty in prioritizing substantial energy change in older age and misgivings about giving up hard-earned comforts. Furthermore, this reluctance to change is also related to observations that present day society wastes energy and that engagement with new technologies leads to overuse. The position of older people in relation to energy transitions therefore seems, in comparison with other cohorts, to be substantially more ambiguous and less inclined to willingly accept substantial changes in the way they both consume and interact with energy. One of our older participant's makes reference to this and exemplifies the more general point:

> I find it very difficult, very difficult, because for people of my age it is difficult to prioritize something like this. Do you know why? I think there is something very important: People of my age find it very hard to switch off the lights because we come from a very poor time where we only had small lightbulbs of 60kw in the living room in order to avoid any expense. We come from this… So, if I can pay it now, what the fuck, you know? . . . young people may have other attitudes, other ways of thinking and acting and you [points to the researcher] still have years of life (he laughs). Do you think that these three men have a lot of years left? [points at his older male companions]. Plus, we have a basic education, and then we worked extra hard, 12 hours per day, this old man here too, this other too, and this other too [points at his older male companions again]
>
> (Felip, Gràcia)

Table 3: Age Related Attitudes towards energy system transitions and change

	General attitude	Key ideas	Cohort
I	Reluctance to change	Finding it hard to transition, not wanting to give up comforts, shorter term perspective in due to perceptions of shorter life expectancy, energy transition difficult to prioritise in old age. Energy today is often wasted and overused. Long-term perception of change.	65+
II	A problem for the next generation	This is a task for the coming generations. Younger generations are more aware, more educated and have a better upbringing. Younger generations have more years of life to see these changes through. Current quality of life standards are valued high. Long-term perception of change.	45-64; 65+
III	Caring for future generations	Key priority is to achieve sustainability. Ensure wellbeing for future generations. Narratives associated with concerns for young families and welfare of children. Short and long-term perception of change.	45-64; 25-44
IV	See change now	Critical view of slow pace of change, wanting to see greater efforts toward transition, socio-political factors are a barrier toward change. Greater emphasis on citizenship and reclaiming control over energy issues. Short term perception of change.	18-24; 25-44

Additionally, there is a concern among older generations that an energy transition may signify more precarious or more expensive access to energy as it was experienced in the past. Some of the observations are rooted in recent experiences. For example, our community in Stockbridge has seen the deployment of a Biomass technology system in social housing buildings which has been negatively received by people due to higher costs of heating. The following quote from William in Stockbridge illustrates this point:

> My mum struggled. I don't think she did struggle as much as us. Well, you know what I mean. It seems as if it's going back that way to be honest with you.
>
> (William, Stockbridge)

Another interrelated attitude towards energy is that energy transition is a task which should be taken on by younger generations. This attitude toward change is on some ways linked to the previous one which highlights the shorter life expectancy of older generations. However, narratives associated with this attitude are linked to those aged 65 years and older, but is also prevalent in the 45-64 years cohort. Furthermore, additional observation regarding this position include ideas that younger generations are more aware of energy issues and have a better education and therefore they are better equipped to lead in the implementation of these changes. Furthermore, references to comfort and quality of life are valued very highly by this cohort.

One participant, Riccardo, who spoke to us about his experiences living in a suburb of a large southern Italian city, first acknowledged not having thought much about how the energy system might change into the future before then identifying the potential for positive changes in pollution levels, and health-related issues for his neighbourhood by switching to what he considered to be clean energy. However, this sentiment with its emphasis on a consumer-driven narrative – switching to what are considered "better" products – was itself coloured by the belief that there is little opportunity to control or to implement such change. Later in the interview he somewhat pessimistically framed his own generation's perceived sense of helplessness within a self-critical narrative that shifts responsibility onto the next generation, suggesting that:

> We weren't able to make a change because, let's say the bad word, we were a bit stupid. So, the hope that I sincerely have is towards the new generation. They have more ideas, they are smarter, so much more than us. [My] hope is with them
>
> (Riccardo, Secondigliano)

While the first two attitudes are largely associated with our two older generations and also signify an approach which sees energy transitions from a long-term perspective the following last two attitudes we have identified are in contrast largely associated with our younger generations and have a comparatively shorter-term outlook on change.

Caring for the next generations is an attitude that we have found prevalent among those aged between 25-44 and 45-64. Additionally, we have also found that these narratives are usually associated with parents of young families which link their concern for the welfare of their family with securing a more sustainable energy system and lifestyles. Concerns for the environment, leaving a positive legacy for the younger people and tackling climate change issues are influencing factors in this outlook on energy transitions.

Finally, the desire to see change now is an attitude towards energy transitions that we have identified mainly associated with younger generations. While this outlook is not representative of the overall range of responses we have noted in young people's interviews and focus they nevertheless appear as a substantial influence. This approach to change which looks for shorter-term and more immediate evidence of change is driven by a critical outlook on what has been achieved to-date and the recognition that there is at present little political will to make the necessary changes happen. To a degree this attitude is also associated with the need to regain greater control over the energy system through local based projects and citizenship mobilization movements which may counteract processes such as globalization and privatization that have enabled the creation of energy monopolies which are difficult to challenge.

6 Conclusions

Categorisations and social divisions based on gender, socio-economic privilege and age can be useful ways of looking at energy practices in order to understand where and how energy interactions become conflated with identity issues or are the object of processes of inequality and privilege which frame and reproduce particular relationships with the energy system. However, these factors are often sidestepped in policy as well as research. Our own previous review of existing literature conducted for Deliverable 3.1, where we mapped and examined available information pertaining to socio-demographic factors that influence the energy system, shows that existing datasets, and much of the research in which these are based, tend to be disaggregated according to fairly narrow sets of socio-demographic and socioeconomic variables matched with often selected forms of energy use (Gaffney *et al.,* 2015). Furthermore, the report also shows that it is often the case that there is an absence of more holistic conceptualizations which incorporate more subjective notions of energy behaviour and which engage with less tangible and quantifiable expressions of energy practices (Gaffney *et al.,* 2015).

The approach that was adopted both during fieldwork and during the analysis and write-up stages of this piece of research has been very different, as we have strived to capture and evaluate what can be often considered as fleeting moments of daily life. Making the private sphere often the object of our inquiry and analysis we have looked to draw meaning and significance from daily practices which are oftentimes either considered irrelevant or are obscured due to its ubiquitous presence. Indeed, we have strived to appraise the symbolic significance of these 'mundane' everyday practices as we have noted that they are often embodied manifestations of wider values and norms which are in turn implicated in processes of gendering, life course aspects of age and socio-economic privilege or disadvantage.

We have developed a practice approach to the study of energy use which has taken into account the context of socio-technical systems where these occur. This was achieved by carrying out extensive fieldwork research in six communities across Europe which considers a diversity of different social, economic and geographical contexts. The communities, where we have engaged in empirical research include both affluent, poor and mixed neighbourhoods. This comparative approach has allowed us to see how community differences may affect the way in which individuals interact with energy. Cultural diversity from various European contexts, urban environments, rural environments, inner city locations and peripheral suburban life are some of the contextual variables which add further depth to this study. The mix-methods strategy that we employed, which entailed both quantitative and qualitative field research, has led to a richness of data materials which strengthens the depth of analysis that we offer. For instance, the use of participant observation has added value to our profiling of each community, leading to insights with regards community interactions, local surroundings, household dynamics that provides a richness to our community profile that would otherwise be framed and arguably limited to, usual population schematics based on census statistical descriptions.

Section 2 of the report offers a range of insights from the literature which look the trace some of the valuable debates around energy practices and behaviours. These core ideas, while very different, demonstrate how various aspects of energy behaviour have been mobilized or at least how various

approaches suggest that energy behaviour can be mobilized in order to promote change. For instance, social market approaches offer a range of tools such as market segmentation to uncover barriers for change. Behavioural economics offer a means to engage with aspects influencing consumer choice such as long and term thinking, bounded rationality, and pro-social influences. Practice theory in this context is the means to transcend some of these more specific and narrow forms of energy use. Because, it is often the case that many of these approaches have framed energy users as 'consumers' which can be limiting for example by using economic references as a focus, explaining and determining behaviour as a form of individual choice to the detriment of other factors such as community membership, citizenship, gender and other socio-demographic factors. A focus on energy practice looks to overcome many of these potential limitations by looking at the interlinked manner which behaviour is bounded by structural, contextual and socio-economic factors. In this sense, we acknowledge that individual behaviours and practices are essentially social, where groups hold a collective influence in terms of identity, processes of knowledge and capacity for action. The intersectional concern for acknowledging difference in a connected manner adds further depth to this overall approach by appraising the influence of gender, age and socio-economic privilege in tandem, as opposed to adding emphasis to just one of these and disregarding the contextual significance of other components of an individual's identity and interaction with its immediate environment.

Our findings which include a breakdown of qualitative information based on our semi-structured interviews, focus groups, participant observation and the quantitative data from the time-use surveys, shows that there are significant disparities based on gender and socio-economic privilege which have a definite influence in how people behave in relation to energy. For example, there is a gender gap in relation to time spent doing laundry and cleaning duties which demonstrate that women are the main actors in performing these duties. Furthermore, this gender aspect is not just a reflection of household labour divides and time management but also speaks of patterns of gender based norms and values.

There are, of course, more than gender aspect to laundry practices and the data also shows that socio-economic aspects have a real influence in how participants perceive and act, for example, poverty is seen to lead to the development of a range of strategies which are at once a reflection of lack of choice and an example of coping mechanism in the face of financial hardship.

The subsequent section, which looks at energy poverty and socio-economic issues in more detail, highlights a number of processes from disempowerment to displacement and inequality, which permeate many of the narratives of our participants living in more deprived areas, notably in Stockbridge. The connection between wealth and community cohesion in our findings suggests that social capital derived from networks of support and ability to collectively articulate common needs is both uneven across our communities. We have identified a range of community supports and initiatives which have a potential effect in terms of mitigating against experiences of poverty and social inequality. This was particularly evident in our community in Gràcia.

Age related practices, provide additional insights, which shows that a range of age specific factors are valuable for understanding individual and community interactions with energy. We have seen in this instance, that practices and attitudes to energy are influenced by multi-generational experiences of the

energy system. Furthermore, they are also driven by self-perceptions of age and adaptation which considerably frame how participants position themselves in relation to changes in energy systems into the future. However, while age is a strong reference to consider in relation to social practices, there are issues pertaining to gender and to socio-economic privilege which have intersecting influence. It is important to highlight that these are often interlinked and have work to produce different effects in different areas. For instance, we have seen in Stockbridge examples of energy poverty in old age leading to loss of home and independence while in Secondigliano we noted that the immediate impact of energy poverty for younger cohorts included limitations in terms of access to education and employment opportunities.

The findings show that multi-generational perceptions of energy over time are based on different values and experiences of the energy system. This is to an extent representative of the evolving nature of the energy system. However, we have also noted that traces of older values, structures and experiences still permeate current day practices related to energy. In this sense, energy practices can be best understood as an ever-changing palimpsest. Whereby new objects and practices are superimposed on earlier ones, but where significant traces remain of these previous energy regimes which are oftentimes an integral and foundational component of present day interactions. In similar fashion, generational ideas of gender and socio-economic privilege are both uneven and are complicated by layers of meaning which reflect the evolving nature of energy and social interactions with it.

Note: It is intended that this report will be updated over the remaining duration of the project, based on ongoing dialogue with the communities; continued reflexive analysis of the collected data; and insights from complementary outputs with an updated report envisaged for release in quarter one, 2018.

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Appendix 1: Participant profiles – interviews

Code	Name	Sex	Age	Occupation	Community
EN-UCC-IN-1	Emily	Female	18-24	Student	UCC
EN-UCC-IN-2	Emma	Female	18-24	Student	UCC
EN-UCC-IN-3	Jack	Male	18-24	Student	UCC
EN-UCC-IN-4	Aoife	Female	18-24	Student	UCC
EN-UCC-IN-5	Ava	Female	18-24	Student	UCC
EN-UCC-IN-6	Adam	Female	18-24	Student	UCC
EN-UCC-IN-7	Daniel	Male	18-24	Student	UCC
EN-DUN-IN-1	Lucy	Female	45-65	Professional worker	Dunmanway
EN-DUN-IN-2	Conor	Male	45-64	Unemployed/underemployed	Dunmanway
EN-DUN-IN-3	Ciara	Female	45-64	Professional worker	Dunmanway
EN-DUN-IN-4	Marianne	Female	45-64	Professional Worker	Dunmanway
EN-DUN-IN-5	James	Male	45-64	Unemployed/underemployed	Dunmanway
EN-DUN-IN-6	Grace	Female	25-44	Maternity Leave	Dunmanway
EN-DUN-IN-7	Caoimhe	Female	25-44		Dunmanway
EN-DUN-IN-8	Liam	Male	25-44	Farmer	Dunmanway
EN-DUN-IN-9	Niamh	Female	25-44	Professional worker	Dunmanway
EN-TRA-IN-1	Lucas	Male	45-64	Professional Worker	Le Trapèze
EN-TRA-IN-2	Louis	Male	25-44	Professional Worker	Le Trapèze
EN-TRA-IN-3	Camille	Female	25-44	Professional Worker	Le Trapèze
EN-TRA-IN-4	Ethan	Male	25-44	Professional Worker	Le Trapèze
EN-TRA-IN-5	Gabriel	Male	65+	Retired	Le Trapèze
EN-TRA-IN-6	Nathan	Male	65+	Retired	Le Trapèze
EN-TRA-IN-7	Sarah	Female	25-44	Home-maker	Le Trapèze

EN-STO-IN-1	George	Male	45-64	Unemployed/underemployed	Stockbridge
EN-STO-IN-2	Olivia	Female	45-64	Professional Worker	Stockbridge
EN-STO-IN-3	Jessica	Female	45-64	Unemployed/underemployed	Stockbridge
EN-STO-IN-4	William	Male	45-64	Manual Labourer	Stockbridge
EN-STO-IN-5	Lily	Female	25-44	Home Maker	Stockbridge
EN-STO-IN-6	Thomas	Male	25-44	Professional Worker	Stockbridge
EN-STO-IN-7	Henry	Male	45-64	Professional Worker	Stockbridge
EN-SEC-IN-1	Riccardo	Male	45-64	Unemployed/underemployed	Secondigliano
EN-SEC-IN-2	Leonardo	Male	65+	Retired	Secondigliano
EN-SEC-IN-3	Sofia	Female	45-64	Home maker	Secondigliano
EN-SEC-IN-4	Davide	Male	18-24	Student	Secondigliano
EN-SEC-IN-5	Alice	Female	45-64	Semi-skilled worker	Secondigliano
EN-SEC-IN-6	Francesca	Female	65+	Retired	Secondigliano
EN-SEC-IN-7	Anna	Female	25-44	Part-time worker	Secondigliano
EN-GRA-IN-1	Giulia	Female	25-44	Manual Labourer	Vila de Gràcia
EN-GRA-IN-2	Agnès	Female	25-44	Professional Worker	Vila de Gràcia
EN-GRA-IN-3	Alba	Female	25-44	Professional Worker	Vila de Gràcia
EN-GRA-IN-4	Albert	Male	25-44	Professional Worker	Vila de Gràcia
EN-GRA-IN-5	Agustí	Male	45-64	Professional Worker	Vila de Gràcia
EN-GRA-IN-6	Enric	Male	25-44	Professional Worker	Vila de Gràcia
EN-GRA-IN-7	Felip	Male	65+	Retired	Vila de Gràcia

Appendix 2: Participant profiles – focus groups

Code	Name	Sex	Age	Occupation	Community
EN-GRA-FG1-P1	Arnav	Male	25-44	Manual Labourer	Vila de Gràcia
EN-GRA-FG1-P2	Montserrat	Male	25-44	Semi-skilled worker	Vila de Gràcia
EN-GRA-FG1-P3	Aniol	Male	25-44	Self-employed	Vila de Gràcia
EN-GRA-FG1-P4	Aran	Female	25-44	No answer	Vila de Gràcia
EN-GRA-FG1-P5	Arnau	Male	45-64	Professional Worker	Vila de Gràcia
EN-GRA-FG1-P6	Bru	Male	25-44	No answer	Vila de Gràcia
EN-GRA-FG2-P1	Assumpta	Female	25-44	Professional Worker	Vila de Gràcia
EN-GRA-FG2-P2	Cerni	Male	25-44	Professional Worker	Vila de Gràcia
EN-GRA-FG2-P3	Xita	Female	65+	Professional Worker	Vila de Gràcia
EN-GRA-FG2-P4	Nadal	Female	25-44	Student	Vila de Gràcia
EN-GRA-FG2-P5	Remei	Female	25-44	No answer	Vila de Gràcia
EN-GRA-FG2-P6	Manela	Female	18-24	Student	Vila de Gràcia
EN-UCC-FG1-P1	Una	Female	18-24	Student	UCC
EN-UCC-FG1-P2	Iseult	Female	18-24	Student	UCC
EN-UCC-FG1-P3	Mona	Female	18-24	Student	UCC
EN-UCC-FG1-P4	Aisha	Female	18-24	Student	UCC
EN-UCC-FG1-P5	Aidan	Male	25-44	Student	UCC
EN-UCC-FG2-P1	Ailis	Female	18-24	Student	UCC
EN-UCC-FG2-P2	Aisling	Female	25-44	Student	UCC
EN-UCC-FG2-P3	Alana	Female	18-24	Student	UCC
EN-UCC-FG2-P4	Alan	Male	25-44	Student	UCC
EN-UCC-FG2-P5	Bridget	Female	18-24	Student	UCC

EN-DUN-FG1-P1	Caitlin	Female	45-64	Professional Worker	Dunmanway
EN-DUN-FG1-P2	Doreen	Female	45-64	Professional Worker	Dunmanway
EN-DUN-FG1-P3	Eamon	Male	45-64	Unemployed/underemployed	Dunmanway
EN-DUN-FG2-P1	Muriel	Female	65+	Retired	Dunmanway
EN-DUN-FG2-P2	Mary	Female	45-64	Unemployed/underemployed	Dunmanway
EN-DUN-FG2-P3	Ciaran	Male	45-64	Self-Employed	Dunmanway
EN-DUN-FG3-P1	Maeve	Female	65+	Retired	Dunmanway
EN-DUN-FG3-P2	Maura	Female	65+	Retired	Dunmanway
EN-DUN-FG3-P3	Mairgherad	Female	65+	Retired	Dunmanway
EN-DUN-FG3-P4	Nora	Female	65+	Retired	Dunmanway
EN-DUN-FG3-P5	Noreen	Female	65+	Retired	Dunmanway
EN-DUN-FG3-P6	Orla	Female	65+	Retired	Dunmanway
EN-DUN-FG3-P7	Patricia	Female	65+	Retired	Dunmanway
EN-DUN-FG3-P8	Shawna	Female	65+	Retired	Dunmanway
EN-SEC-FG1-P1	Aida	Female	18-24	Student	Secondigliano
EN-SEC-FG1-P2	Annah	Female	45-64	No answer	Secondigliano
EN-SEC-FG1-P3	Cristina	Female	25-44	Student	Secondigliano
EN-SEC-FG1-P4	Eva	Female	45-64	Home Maker	Secondigliano
EN-SEC-FG1-P5	Enrico	Male	25-44	Semi-skilled worker	Secondigliano
EN-SEC-FG1-P6	Elisa	Female	25-44	Professional Worker	Secondigliano
EN-SEC-FG1-P7	Emilio	Male	18-24	Student	Secondigliano
EN-SEC-FG1-P8	Lucia	Female	18-24	Student	Secondigliano
EN-SEC-FG1-P9	Enzo	Male	45-64	Manual Worker	Secondigliano
EN-SEC-FG1-P10	Fabio	Male	25-44	Semi-skilled worker	Secondigliano
EN-SEC-FG2-P1	Letizia	Female	18-24	Semi-skilled worker	Secondigliano

EN-SEC-FG2-P2	Niccolo	Male	45-64	Professional Worker	Secondigliano
EN-SEC-FG2-P3	Tulio	Male	25-44	No answer	Secondigliano
EN-SEC-FG2-P4	Mila	Female	45-64	Home Maker	Secondigliano
EN-SEC-FG2-P5	Oriana	Female	18-24	Semi-skilled worker	Secondigliano
EN-SEC-FG2-P6	Rosa	Female	45-64	Semi-skilled worker	Secondigliano
EN-SEC-FG2-P7	Rosetta	Female	45-64	Semi-skilled worker	Secondigliano
EN-SEC-FG2-P8	Valentina	Female	65+	Home Maker	Secondigliano
EN-SEC-FG2-P9	Traviata	Female	45-64	Semi-skilled worker	Secondigliano
EN-SEC-FG2-P10	Venezia	Female	65+	No answer	Secondigliano
EN-STO-FG1-P1	Adele	Female	25-44	Professional worker	Stockbridge
EN-STO-FG1-P2	Adriane	Female	18-24	Home Maker	Stockbridge
EN-STO-FG1-P3	Alison	Female	25-44	Home Maker	Stockbridge
EN-STO-FG1-P4	Brenda	Female	25-44	Home Maker	Stockbridge
EN-STO-FG1-P5	Jane	Female	45-64	Professional Workers	Stockbridge
EN-STO-FG1-P6	Mildred	Female	25-44	Unemployed/underemployed	Stockbridge
EN-STO-FG1-P7	Margery	Female	25-44		Stockbridge
EN-STO-FG1-P8	Marsha	Female	25-44	Semi-skilled worker	Stockbridge
EN-STO-FG2-P1	Heather	Female	45-64	Unemployed	Stockbridge
EN-STO-FG2-P2	Ellen	Female	45-64	Unemployed	Stockbridge
EN-STO-FG2-P3	Ida	Female	45-64	Unemployed	Stockbridge
EN-STO-FG2-P4	Allister	Male	45-64	Unemployed	Stockbridge
EN-STO-FG2-P5	James	Male	45-64	Unemployed	Stockbridge
EN-TRA-FG1-P1	Amber	Female	25-44	Professional Worker	Le Trapèze
EN-TRA-FG1-P2	Adrien	Male	25-44	Professional Worker	Le Trapèze
EN-TRA-FG1-P3	Lorraine	Female	45-64	Professional Worker	Le Trapèze

EN-TRA-FG1-P4	Nadya	Female	45-64	Self-employed	Le Trapèze
EN-TRA-FG1-P5	Nichol	Female	25-44	Professional Worker	Le Trapèze
EN-TRA-FG1-P6	Rafaelle	Male	45-64	Professional Worker	Le Trapèze
EN-TRA-FG2-P1	Raquelle	Female	45-64	Home Maker	Le Trapèze
EN-TRA-FG2-P2	Remi	Male	45-64	Managerial/Technical Worker	Le Trapèze
EN-TRA-FG2-P3	Susette	Female	25-44	Unemployed/underemployed	Le Trapèze
EN-TRA-FG2-P4	Elaine	Female	45-64	Professional Worker	Le Trapèze
EN-TRA-FG2-P5	Rene	Male	25-44	Professional Worker	Le Trapèze
EN-TRA-FG2-P6	Eloise	Female	45-64	Retired	Le Trapèze
EN-TRA-FG2-P7	Jean	Male	25-44	Professional Worker	Le Trapèze
EN-TRA-FG2-P8	Jaspar	Male	65+	Retired	Le Trapèze

Appendix 3: Interview schedule

Interview Questions Opinions on Energy Use

- How do you feel about energy?
- What is your opinion on energy use?
- How do you use energy in comparison to your parents and your grandparents?
- Has your parents' use of energy changed over time, say from when you were a child to now?
- Has your energy use changed over the years? And if so, in what way?
- How would you compare how you use energy to your children's use of energy?
- What is your opinion of your neighbours' energy use?
- What is your opinion of the use of energy in your community?
- Have you seen much change in energy use in your area?
- What do you want from the energy system?

Activities/Routines

- Could you describe your daily routine, or typical activities, over the course of the day?
- Thinking about your day-to-day activities, which would you identify as being the most energy intensive?
- Thinking about a longer period, perhaps a week or a month, or even longer, can you describe other less regular activities that involve energy?
- When you think about your daily or weekly activities, include household, what would you identify as being the most energy intensive?
- Thinking about your day to day energy use, are there any particular energy-saving measures that you or

your family have undertaken?

Rural/Urban

- With regard to energy, are there particular issues that rural dwellers experience in comparison to urban dwellers?
- With regard to energy, are there particular benefits to living in a rural area in comparison to living in an urban area?

Networks/Communities

- What have you learned or gained from visiting other communities?
- How do you think that members of a community can develop their awareness of energy and energy use?

Consumption/Purchasing

- When it comes to buying large household items, such as washing machines, or fridges, how do you decide what to buy, and what criteria do you use — price, energy efficiency, appearance *etc.*
- When it comes to buying a car, how do you decide what to buy, and what criteria do you use — price, fuel consumption, make/model *etc.*?
- Do you think that hygiene practices have changed over your lifetime?

Future of the Energy System

- Have you thought about how the energy system might change in the future?
- How would you like to see it change?

Appendix 4: Focus group plan

Refreshments to be made available to participants on arrival

Introduction

We will introduce ourselves to the participants and give a brief explanation of the project.

Warm up exercise

Ask participants to introduce themselves and tell the group a little about themselves (interests, hobby *etc.*). I will start off.

Questions part 1

- How do you feel about energy?
- What is your opinion on energy use?
- How do you think that members of a neighbourhood or a community can develop their awareness of energy and energy use?

PLA exercise

Participants to complete Page1 of the PLA exercise. Identify what categories scored highest and scored least.

Follow up questions

- We will:
    - discuss as a group the participants' views on the results of the ranking exercise. Particularly the highest and lowest scored categories in the exercise
- Do you think if we were to do this exercise 20 years ago would the results be similar?
- Which of the categories do you think would be the easiest to change, as **an individual**, in order to improve energy efficiency and decrease consumption?
- Which of the categories do you think would be the easiest to change, as **a community**, in order to improve energy efficiency and decrease consumption?

Additional themes for group discussion

- Are there any national or community led initiatives that you can identify that centre on energy issues? *(prompts: protests against new policies, environmental awareness information campaigns; new technologies, educational programmes etc.*)
- What are your thoughts concerning new energy production and consumption technologies?
- Can you share with us your views and experiences regarding the energy supply system in your locality?
- In your opinion how do different life stages (*i.e.,* childhood, marriage, old age, onset of disability) affect your attitudes towards energy? Can you provide specific examples?

- If you think back to the recent elections in your area, was energy a major factor in the political debates? Were there any significant policies or concerns highlighted at the time?

Questions part 2

- After having taken part in this focus group have you views changed on energy?
- Are you involved in any energy projects in your neighbourhood?
    - If so, can other neighbourhoods learn from your experience.
    - If not, do you think you might get involved in something like this in the future?

Appendix 5: Time-use survey

ENTRUST- Time-Use Survey

Community:	
Surveyor:	
Date:	

Instructions

Please answer questions as they relate to you. For most answers, check the box(es) most applicable to you and fill in the blanks if applicable to you.

About You

1. Your Age

(Please select only one.)

- ☐ 18-24
- ☐ 25-44
- ☐ 45-64
- ☐ 65+

2. Your Gender

(Please select only one.)

- ☐ Female
- ☐ Male

3. Your Relationship Status

(Please select only one)

- ☐ Single
- ☐ Dating/In a relationship
- ☐ Married
- ☐ Co-Habiting
- ☐ Divorced/Separated
- ☐ Widowed
- ☐ Other *Please Specify*_____

1

4. Your Occupation Status

(Please select only one)

- ☐ Full-time Employed
- ☐ Part-time employed
- ☐ Self-employed
- ☐ Semi-retired
- ☐ Retired
- ☐ Unemployed
- ☐ Student
- ☐ Unable to work due to disability
- ☐ Other *Please Specify*_____

4. Your Occupation Type

(Please select only one)

- ☐ Professional Worker
- ☐ Managerial/Technical Worker
- ☐ Non-manual worker
- ☐ Skilled Manual
- ☐ Semi-skilled
- ☐ Unskilled
- ☐ Other *Please Specify*_____

About Your Home

5. Your Household Composition. Do you live…?

(Please select only one.)

- ☐ Alone
- ☐ With Parents/Sibling/s
- ☐ With Partner
- ☐ With Partner and Children
- ☐ With Children
- ☐ With Friends/House-Share
- ☐ Other *Please Specify*_____

6. Your House Type.

(Please select only one.)

- ☐ Detached House
- ☐ Semi-detached House
- ☐ Apartment
- ☐ Mobile Home
- ☐ Other *Please Specify*_____

2

7. Type of occupancy.

(Please select only one.)

- ☐ Owner Occupied (with mortgage)
- ☐ Owner Occupied (No mortgage)
- ☐ Rented (Private Landlord)
- ☐ Rented (Local authority)
- ☐ Other *Please Specify*_____

8. Duration of occupancy

How long have you lived in your current home? _____

Type of Activity

9. Laundry and Cleaning: Time-use (week)

*Please tick the boxes below matching the time **you** spend on a typical **week day** doing laundry and cleaning*

Morning													
5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30

Afternoon													
12:00	12:30	13:00	13:30	14:00	14:30	15:00	15:30	16:00	16:30	17:00	17:30	18:00	18:30

Night Time													
19:00	19:30	20:00	20:30	21:00	21:30	22:00	22:30	23:00	23:30	00:00	00:30	1:00	1:30

Late Time											
2:00		2:30		3:00		3:30		4:00		4:30	

3

10. Laundry and Cleaning: Time-use (weekend)

*Please tick the boxes below matching the time **you** spend on a typical **weekend day** doing laundry and cleaning*

Morning													
5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30

Afternoon													
12:00	12:30	13:00	13:30	14:00	14:30	15:00	15:30	16:00	16:30	17:00	17:30	18:00	18:30

Night Time													
19:00	19:30	20:00	20:30	21:00	21:30	22:00	22:30	23:00	23:30	00:00	00:30	1:00	1:30

Late Time									
2:00		2:30		3:00		3:30		4:00		4:30	

11. Laundry and Cleaning: extra questions

11.1 Where would most of the activities relating to laundry and cleaning take place?
(*please provide names of one of more locations or places that apply*)

_____

11.2 Who is with you when you are carrying out these activities?
(*please identify in general one or more individuals which would usually be with you when you are carrying out these activities*)

_____

11.3 Are you usually engaged in any other activities during the times you are doing the laundry and cleaning?

Yes ☐ No ☐

If Yes, please identify which other activities you are engaged in usually

_____

4

12. Traveling (week)

*Please tick the boxes below matching the time **you** spend on a typical **week day** travelling*

Morning													
5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30

Afternoon													
12:00	12:30	13:00	13:30	14:00	14:30	15:00	15:30	16:00	16:30	17:00	17:30	18:00	18:30

Night Time													
19:00	19:30	20:00	20:30	21:00	21:30	22:00	22:30	23:00	23:30	00:00	00:30	1:00	1:30

Late Time											
2:00		2:30		3:00		3:30		4:00		4:30	

13. Traveling (weekend)

*Please tick the boxes below matching the time **you** spend on a typical **weekend day** travelling*

Morning													
5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30

Afternoon													
12:00	12:30	13:00	13:30	14:00	14:30	15:00	15:30	16:00	16:30	17:00	17:30	18:00	18:30

Night Time													
19:00	19:30	20:00	20:30	21:00	21:30	22:00	22:30	23:00	23:30	00:00	00:30	1:00	1:30

Late Time											
2:00		2:30		3:00		3:30		4:00		4:30	

5

14. Travelling: extra questions

14.1 Where would most of the activities relating to travelling take place? (*please provide names of one of more locations or places that apply*)

_____

14.2 Who is with you when you are carrying out these activities?
(*please identify in general one or more individuals which would usually be with you when you are carrying out these activities*)

_____

14.3 Are you usually engaged in any other activities during the times you are travelling?

Yes ☐ No ☐

If Yes, please identify which other activities you are engaged in usually

_____

15. Food preparation (week)

*Please tick the boxes below matching the time **you** spend on a typical week day on all food preparation related activities*

Morning													
5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30

Afternoon													
12:00	12:30	13:00	13:30	14:00	14:30	15:00	15:30	16:00	16:30	17:00	17:30	18:00	18:30

Night Time													
19:00	19:30	20:00	20:30	21:00	21:30	22:00	22:30	23:00	23:30	00:00	00:30	1:00	1:30

Late Time											
2:00		2:30		3:00		3:30		4:00		4:30	

6

16. Food preparation (weekend)

*Please tick the boxes below matching the time **you** spend on a typical weekend day on all food preparation related activities*

Morning													
5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30

Afternoon													
12:00	12:30	13:00	13:30	14:00	14:30	15:00	15:30	16:00	16:30	17:00	17:30	18:00	18:30

Night Time													
19:00	19:30	20:00	20:30	21:00	21:30	22:00	22:30	23:00	23:30	00:00	00:30	1:00	1:30

Late Time											
2:00		2:30		3:00		3:30		4:00		4:30	

17. Food Preparation: extra questions

17.1 Where would most of the activities relating to food preparation take place? (*please provide names of one of more locations, places that apply*)

_____

17.2 Who is with you when you are carrying out these activities?
(*please identify in general one or more individuals which would usually be with you when you are carrying out these activities*)

_____

17.3 Are you usually engaged in any other activities during the times you are preparing food?

Yes ☐ No ☐

If Yes, please identify which other activities you are engaged in usually

_____

7

Appendix 6: Fieldwork Diary template

Fieldwork Diary

Please reflect on your experiences while on fieldwork and record any observations that you see as significant emerging from this experience. Observations include your first encounters and initial impressions of the neighbourhood, gaining access to research situations and participants, any ethical or other difficulties encountered. When recording these observations please also reflect on your impressions with regards community setting, relationship with neighbours and initial responses to research ideas (i.e. how was the issue of energy in general received by people). These observations may include any general comments and also any specific issues pertaining to energy practices more specifically. Additionally, you can also add any visual materials that you think illustrate key ideas about the community and/or their social practices in terms of energy.

Please complete the following sections of the field diary:

Name of Researcher_____

Community Name_____

Observation type	***Key themes***	***Individual observations***
Initial impressions of community	socio-demographic profile, community cohesion, strong or weak sense of community identity, sense of networking and participation	
General impressions of the local surroundings	Local resources, landscape, visible energy elements, location, mobility patterns, urban design	
General impressions of recruitment	Ease of access, use of gatekeepers, type of recruitment used, profile of respondents, relationship with researcher	
If you gained access to people's homes, your impressions of these.	Technologies, household dynamics, degree of comfort, ease of access, immediate surroundings	
Any ethical or other difficulties		
Other observations	Refined understanding of energy, energy sources, dynamics between different socio-demographic cohorts, etc…	