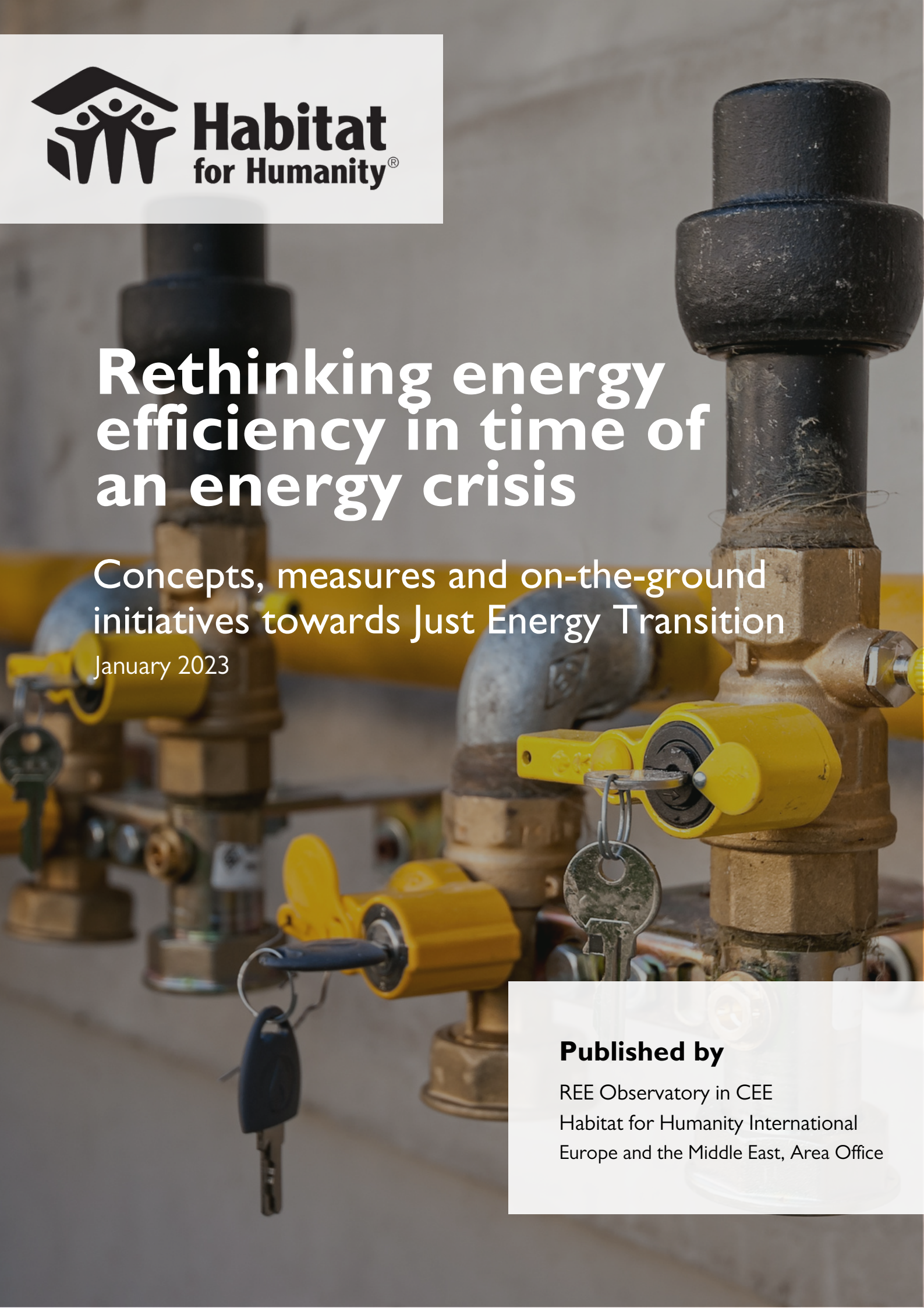

Rethinking energy efficiency in time of an energy crisis

Concepts, measures and on-the-ground initiatives towards Just Energy Transition

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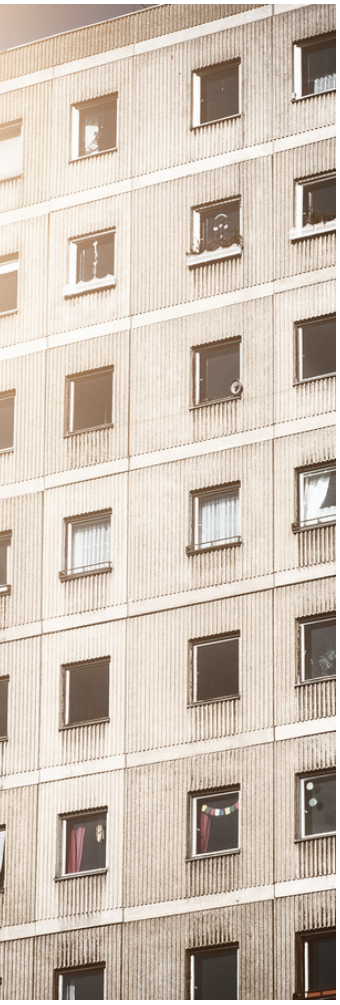

Foreword

Today, Europe is facing an energy, climate, and social crisis. It is now more urgent than ever to showcase how energy, climate and social policy objectives can be combined. Current policies have proved to be inadequate to deliver a just energy transition. A more ambitious policy framework considering social fairness is needed. Habitat for Humanity International, Europe and the Middle East, Area Office (HFHI EME) dedicates its second volume of articles by the HFHI Residential Energy Efficiency (REE) Observatory in Central and Eastern Europe (CEE) to energy sufficiency, which aims to combine energy, climate and social policy objectives through delivering energy services equitably while respecting planetary boundaries.

The first article explores how needs (sufficient energy services) can be distinguished from wants, as well as considers whether, and how, such distinctions could be formulated and integrated into policies to reduce energy poverty.

HFHI EME believes that community-led deep renovations of multi-apartment buildings can mitigate the negative impacts of the energy crisis on vulnerable households while providing a long-term solution towards just energy transition. Based on this view we collected the rest of the articles, one of which aims to understand the neglected aspects of energy poverty, especially how it appears in multi-apartment buildings in countries typically lacking welfare and less resilient to face social and economic shock. The third article assesses Minimum Energy Performance Standards (MEPS) in their wider social and policy context and their contribution to reaching a just energy transition in post-socialist countries. Results show that governments' commitments are low to support vulnerable households in this process, which should be changed through developing more robust, generous and targeted grant schemes and considering socially mixed financially situated ownership structures of multi-apartment buildings.

Based on the ground experience gained in North Macedonia, the fourth article shows why citizen and community engagement are essential in successfully delivering energy-efficiency retrofits of multi-apartment buildings. It explains how Energy Efficiency Resource Centers providing advice and facilitation play a vital role in the renovation process. The last article explores the main motivation of homeowners for building renovation in Hungary and it introduces the first Hungarian Resource Center (One-stop-shop), RenoPont, that helps residents through their entire renovation process.

We hope that this timely publication will prove a valuable addition to the conversation around the energy crisis, and will shed more light on the concept of energy efficiency, which is is still too often an overlooked solution in this ongoing debate.

György Sümeghy
Associate Director, Policy & Advocacy
HFHI EME

This publication is the second collection of academic articles of the REE Observatory in CEE.
The articles represent shorter versions of previously published longer studies.

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Energy sufficiency in policy and practice: the question of needs and wants

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ABSTRACT

Transformation of energy demand is one of three pillars for action identified in the IPCC's 1.5 °C report. To deliver emissions reductions of the scale required, this transformation will need to be radical. While policy approaches of 'energy efficiency first' and 'multiple benefits of energy efficiency' have the potential to increase action and reduce carbon, a more ambitious framing is needed. Sufficiency, or energy service sufficiency, could be a strong framework to deliver energy services equitably while respecting planetary boundaries. But the concept of sufficiency cannot be separated from judgements on what is 'enough' or from principles of distributional justice: it steps outside conventional energy policy boundaries.

This paper explores the possibility of distinguishing between needs and wants – a debate with a long history – and considers whether and how such distinctions may be embodied in policies such as rising block and demand-based tariffs, energy labesl based on consumption, product bans and building standards to reduce and prevent energy/fuel poverty. The focus is on residential and mobility energy services. Ideas from the literature will be presented and interrogated in light of European experience and debates on energy sufficiency and fuel poverty, and a model for reaching a national consensus on basic needs will be offered.

Energy policy based on access to sufficient services will involve questioning expectations and norms about what 'enough' means and who gets to decide. Moving to a sufficiency framing will involve challenging social and political debates, and technological advances will not allow us to side-step these. The energy policy community is a good place to start these discussions, because we already have some socio-technical options to offer, along with experience in defining services and standards, which can be developed on the path to much-reduced use of fossil fuel.

Keywords: *energy sufficiency, energy efficiency policy, EU policy, energy justice*

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Since it is a republication of an existing article, the structure of this article is stated in its original format and thus not following the structure of the other articles in this publication.

I. INTRODUCTION

This publication (Fawcett and Darby, 2019) was originally published in eceee 2019 Summer Study on energy efficiency: Is efficient sufficient?.

In October 2018, the Intergovernmental Panel on Climate Change (IPCC) released its report on the impacts of global warming 1.5 °C above pre-industrial levels (IPCC, 2018). It made headlines around the world with its vivid warnings of the dangers of increasing climate change, and called for "rapid, far reaching and unprecedented changes in all aspects of society" to reduce these risks. The report reinforced the vital importance of transformations to energy demand, and also showed that actions on energy demand have significant net co-benefits for nearly all areas of human development and natural ecosystems.

Limiting global warming to 1.5 °C could go hand in hand with ensuring a more sustainable and equitable society. While there are many governmental statements in support of taking action on climate change, the evidence is that change is not happening at anything like the rate required. In November, the United Nations Environment Programme released its 'Emissions Gap Report 2018' (UNEP, 2018), which concluded that nations need to 'triple efforts to reach the 2 °C target' (which is less demanding than the 1.5 °C target in the IPCC report). Supposedly ambitious future scenarios can nonetheless show increasing energy demand. For example, the International Energy Agency's recent, ambitious 'efficient world' scenario to 2040 (IEA, 2018), results in higher global energy demand than today. The UK Government's Clean Growth Strategy (BEIS, 2017b), which has a strong focus on technological innovation, contains insufficient policy to deliver the significant cuts to carbon emissions promised.

The idea that sufficient changes to use of fossil fuel energy can be delivered without changes to the way our societies organise, use and think about energy and its benefits seems increasingly untenable. The recent international Extinction Rebellion movement, which has taken direct action to highlight climate change and species and habitat loss, uses the language of 'climate emergency' to describe the state we are in and calls for radical economic, social and political change. The energy demand research community itself is exploring new ways of thinking. This paper is part of that process. Its aim is to explore the idea of energy sufficiency, to focus on the distinction between needs and wants embodied in this idea, and to present initial thoughts about how this idea could be translated into policy action.

The work presented here builds on conceptual work on energy sufficiency undertaken as part of the eceee energy sufficiency project (Darby and Fawcett, 2018). Other papers in the series include one on sufficiency and the rebound effect (Sorrell et al., 2018) and energy sufficiency in products (Toulouse and Attali, 2018). eceee has also held a number of workshops across Europe to engage the wider community in debating and building on knowledge. The project aims to bring together current knowledge on sufficiency, develop new thinking and analysis, suggest how sufficiency policy could be developed in Europe, and to act as a resource for the research, policy and NGO communities.

This programme of research and engagement com-

es out of a history of interest in sufficiency by eceee and its members. The first call to consider a new policy paradigm of 'sufficiency in energy services' came at the 2003 Summer Study. The authors pointed to a fundamental 'self-deception' within the energy policy community: the term 'efficiency' was (wrongly) routinely equated with the concepts of 'sufficiency' and 'sustainability' (Wilhite and Norgard, 2003). eceee began to take up the challenge of sufficiency. Their response to the 2005 EU Green Paper 'A European strategy for sustainable, competitive and secure energy' suggested that the EU needed to go beyond technical energy efficiency measures and addressing the challenging issue of curbing demand for energy services in a politically acceptable fashion. More recently, a number of papers at Summer Studies have advanced knowledge on sufficiency (Brischke et al., 2015; Darby, 2007; Thomas et al., 2015).

The structure of the paper is as follows. First, we present our definition of energy sufficiency and briefly compare it with other definitions. Then a visual representation of energy service sufficiency is presented. Next, we consider the distinction between needs and wants. One particular theory of need is presented, as an example of how needs and wants might be distinguished, followed by counter-arguments. A method for distinguishing needs and wants is presented. Then we consider how the ideas of needs and wants fit with existing approaches to policymaking in energy demand, and how these ideas might be advanced or tested, building on existing policy debates and policy tools. The paper closes with discussion and conclusions.

2. DEFINING ENERGY SUFFICIENCY

In work for the eceee sufficiency project, we developed a definition of energy sufficiency (Darby and Fawcett, 2018). We began with a simple definition: Sufficiency is an amount of something that is enough for a particular purpose (1). From the above, a working definition of energy sufficiency was developed: Energy sufficiency is a state in which people's basic needs for energy services are met equitably and ecological limits are respected. The term energy sufficiency is also used to refer to an organising principle for achieving that state.

This definition is deliberately high-level and conceptual, and inspired by the literature on sufficiency and the good life. It offers a broad framing of the concept of sufficiency, and it is discussed in relation to similarly broad issues: planetary limits, sustainable development goals, equity, timing and scale in our conceptual report.

There is no single agreed definition of energy sufficiency. As Sorrell et al (2018:3) note: "Some authors consider energy sufficiency to be a particular state or outcome defined by a level of energy service consumption that is consistent with both human well-being and environmental limits, while others consider it to be a direction defined by reduction in energy service consumption that also reduces the associated environmental impacts." Our definition clearly fits in the first category. The second type of definition can be characterised as being about 'energy sufficiency actions'. Examples of sufficiency action definitions, include "energy sufficiency refers to changes in individual behaviours

(1) http://www.oxfordlearnersdictionaries.com/definition/english/sufficiency

that lead to lower demand for energy services" (Moser et al., 2015). More detailed definitions have been identified for particular projects. A project which focused on household appliances defined energy sufficiency as a strategy to reduce energy consumption by three strategies: quantitative reduction of sizes, features, usage times of devices etc.; substitution of technical equipment in households; adjustment of services delivered to meet user needs (Brischke et al., 2015). Different definitions can be helpful for different purposes, but can also cause confusion. In this paper, sufficiency is used in its broad sense, as per our definition above.

Many of the words and phrases in our definition could be questioned. What are 'basic needs'? Why 'energy services' rather than energy? What do we mean by 'equitably, and what 'ecological limits' do we have in mind? In the remainder of the paper, most focus is on exploring the meanings of 'basic needs' and 'equitably'. We recognise that the focus on energy services, rather than energy itself, adds to the complexity of operationalising a definition of sufficiency. But it is only through focusing on services that we can do some justice to the nature of the global sufficiency challenge.

3. VISUALISING SUFFICIENT ENERGY SERVICES

Our definition of sufficiency mentions both 'ecological limits' and 'basic needs'. The space between these upper and lower boundaries is where sufficient energy services sit. This can be visualised as a doughnut (Figure 1) – following the work of Kate Raworth. She developed a 'doughnut diagram' for Oxfam, a development NGO, which identifies a 'safe and just space for humanity' that lies between a 'social foundation' where basicó needs are met, and an 'environmental ceiling'(Raworth, 2012). The social foundation reflects the concept of universal human needs for a variety of goods, services and freedoms (water, income, education, resilience, voice, jobs, energy, social equity, gender equality, health, food), in line with the approach taken in setting the Sustainable Development Goals. Its environmental ceiling is defined in terms of nine planetary boundaries. Raworth's subsequent book 'Doughnut economics' (Raworth, 2017) provides a critique of mainstream economic thinking and has developed new approaches to economic thinking to help deliver the safe and just space for humanity envisaged in the doughnut.

In our adaptation of the doughnut model, the external environmental limits relate to

- sources of energy for human use and the associated greenhouse gases and pollutants;
- materials used in infrastructures of supply and demand (that is, everything from mines and power stations to pipes, wires, buildings, vehicles, roads, machine tools, heating systems and electrical appliances);
- land and water used to provide energy services, whether this involves growing biomass, storing water for a hydro generation or hosting mines and generating capacity (2).

In the inner ring of the energy sufficiency doughnut, the focus is on energy services to meet needs for shelter, health, work, mobility and communication.

The doughnut offers a powerful visual representa-

(2) The land-and-water-footrpint issue relates to the concept of power density - see Smil, 2015

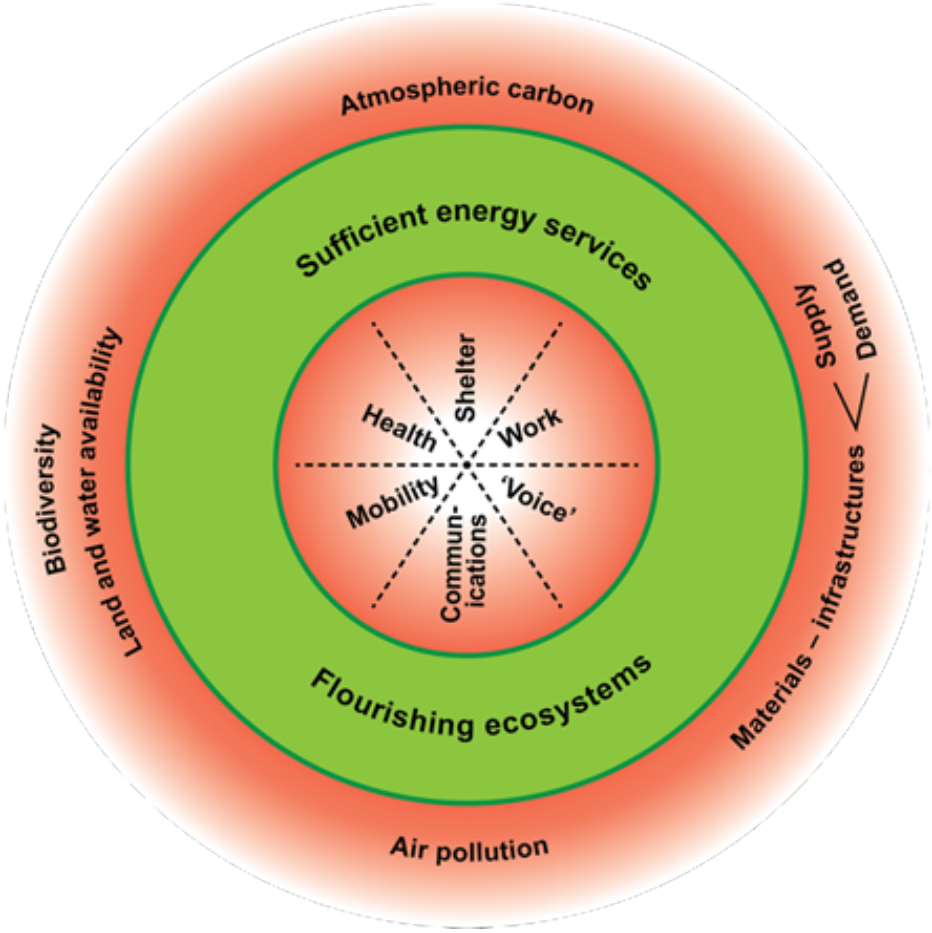

Figure 1: An adaptation of the doughnut for use in thinking about energy sufficiency.

tion and incorporates the two principal characteristics of sufficiency as discussed above: the idea of absolute limits (sufficiency as a restraint) and of minimum requirements (sufficiency as satisfaction, or 'enough'). Di Giulio and Fuchs (2014) have taken a similar approach to developing 'sustainable consumption corridors'. Rather than using the language of wants versus needs, they talk about the concept of the good life, minimum and maximum needs, and the maximum natural and social resources individuals are entitled to.

4. NEEDS, WANTS AND SUFFICIENCY IN THEORY

4.1. Long history of the debate

Our definition of energy sufficiency is focused on 'people's basic needs' – with the clear implication that needs are a distinct category from wants. There are complex and long-standing debates as to whether there is a distinction between human needs and wants, and if so, how this can be defined. Some of these debates emerge from philosophical/

political/social science traditions, with others arising from the requirements of public policy. For example, policy constantly embodies judgements about how much income is enough for people in different situations. Davis, Hirsch et al. (2015), writing from this applied tradition, summarise the theoretical literature on needs and identify two key areas of debate:

- whether human needs have any universal or objective features;
- what an account of human need should look like, with different approaches to: material and non-material necessities; absolute and relative norms; expert and public/'lay' judgement about what are necessities.

There is a smaller body of work on needs and wants in relation to energy and energy services (e.g. Darby, 2007; Wilhite and Norgard, 2003). But the same types of debate occur, as energy services can deliver both material and non-material requirements (e.g. warmth, cooked food, entertainment) and subject to arguments about appropriate standards (absolute versus relative). Below, we consider one particular theory of need, as an example of how needs and wants might be distinguished. Then we look at the counter-argument for there not being a meaningful distinction between needs and wants.

4.2. A theory of need

The theory of need introduced here is that developed by Len Doyal and Ian Gough. They theorised that human needs are universal, with objective features, and include both material and non-material needs (Doyal and Gough, 1991). This work has recently been developed further (Gough, 2015, 2017). They argue that a sound theory of need provides firm foundations on which to build sustainability targets for public policy. 'Need' refers to a particular category of goals which are held to be universalisable The contrast with 'wants' – goals that derive from an individual's particular preferences – is central to the argument. The universality of need rests on a belief that if needs are not satisfied then serious harm will result: 'fundamental disablement in the pursuit of one's vision of the good, whatever that vision is' (Gough 2015:1196).

Doyal and Gough (1991) identified two basic needs: physical health and autonomy. They then asserted the universal character of eleven 'intermediate needs' (or needs satisfiers), material and non-material. These were: nutritious food and water; protective housing; a non-hazardous work environment; a non-hazardous physical environment; safe birth control and child-bearing; appropriate health care; security in childhood; significant primary relationships; economic security; physical security; appropriate education. They recognised that the means of satisfying these needs was culturally variable. This approach of identifying universal needs, which may be met differently in different cultures and at different times, is similar to that which underlies the Sustainable Development Goals (3).

Gough proposes that this theory of need provides a better basis for understanding and delivering human well-being within environmental limits, than three alternative approaches: welfare economics and preference satisfaction; hedonic psychology and

(3) http://www.undp.org/content/undp/en/home/sustainable-development-goals.html

happiness; and the capability approach developed by Sen (1999). For further discussion of the capability approach, and how it relates to ideas of sufficiency, see Darby and Fawcett (2018).

4.3. Needs and wants as indistinguishable

A distinction between wants and needs is integral to our definition of sufficiency, but there are arguments on both theoretical and empirical grounds that no such distinction can be drawn. This section presents brief examples of these arguments, but does not seek to be comprehensive.

Considering theory first, the basis of welfare economics and preference satisfaction is that individuals are the best judges of their interests or preferences / wants (as noted in Gough, 2015). The principle of consumer sovereignty follows from this: that what is produced and consumed should be determined by individuals' private consumption and work preferences. These, of course, vary greatly according to circumstances and inclinations, therefore there can be no valid distinction between wants and needs. This approach fits with mainstream political thinking in many parts of the world and with the neoclassical economic paradigm. However, there are critiques of this position from within economics. The preference satisfaction theory it is based on does not adequately cover, for example, publicly-provided or free goods such as fresh air, cycle lanes or street lights.

Empirical data demonstrate how there has been constant renegotiation of what may be considered as basic needs, usually in the direction of increased consumption of energy and other resources (Wilhite and Lutzenhhiser, 1997). For example, the average living space per person (and the energy needed to service it) continues to increase in most developed countries, and the use of refrigeration, cooling and other energy services is increasing rapidly in developing countries (Wilhite, 2016). What was once an expensive service, only accessible to the most privileged people, can become cheap and commonplace within a few decades or less. This does not necessarily show that there can be no distinction between needs and wants, but that goods and services can readily move from one category to another - which leads to questions of the usefulness of this distinction.

Finally, a strong case for a low-carbon transition can be made without invoking arguments about needs and wants. For example, Wilhite (2016) lays out a theory of habit, arguing that it can provide a conceptual frame that acknowledges deeply held collective and individual dispositions for high energy consumption and provides insights into how low carbon policy can engage with high energy habits. This theory suggests more infrastructurally-oriented policies for reducing carbon emissions that would, for example, reduce working hours and change the nature of work; make collective transport more convenient and reasonably priced; increase the sharing of living spaces and products; and reduce the dependency of food systems on refrigeration.

4.4. Discussion on theory of needs and wants

There is disagreement as to whether making a distinction between needs and wants is theoretica-

lly justified, is empirically possible or is of use in policy making. We have been persuaded by the 'theory of need' approach, and retain the distinction in our definition. In the remainder of the paper, we look at means of distinguishing between wants and needs, and consider whether and how this distinction could be embedded in energy policy.

5. NEEDS AND WANTS: EMPIRICAL DISTINCTIONS

The development of a Minimum Income Standard (MIS) in the UK seeks to establish what can legitimately be considered a 'need' within a society, by asking the members of that society to make a collective judgement about what to include. Despite arguments against the existence of objective human needs, laypeople instinctively feel that they do exist and can be identified (Davis et al., 2015). This MIS is calculated by specifying 'baskets' of goods and services required by different types of household in order to meet minimum needs and to participate in society (Davis et al., 2016; Padley and Hirsch, 2017). The minimum is defined as follows, based on consultation with groups of citizens:

> A minimum standard of living in the UK today includes, but is more than just, food, clothes and shelter. It is about having what you need in order to have the opportunities and choices necessary to participate in society. (Padley and Hirsch 2017:3)

This definition has much in common with Doyal and Gough's theory of need, although the language used is different. The MIS is updated annually to re-quirements has remained relatively stable since 2008 (Davis et al., 2016).

The assessment of minimum standards for household energy use in the MIS relies heavily on expert rather than lay judgment. Energy use is taken to be a function of dwelling size and it is assumed that typical housing will have gas central heating with a radiator in each room. A fuel expert calculates energy requirements for cooking, lighting, heating etc. based on typical room dimensions and insulation levels for the kinds of housing relevant for each of a number of household types and sizes (Davis, Hirsch et al. 2015:54).

The MIS is important in showing that it is possible, through careful participatory research, to reach social consensus on what minimum needs are in a given time and place, and that this consensus may be stable, at least over the short to medium term. It is also important in recognising a social dimension to standard of living. This offers some prospect of operationalising the concept of sufficiency. But the process by which it is decided also shows the significance of context: it has been derived for a single country, with a single legislature. This fits with the philosophy of Individually Determined National Contributions under the UNFCCC, brought in at the time of the 2015 Paris conference: each nation is, in effect, determining how it will achieve sufficiency.

6. APPROACHES TO POLICY CHANGE

6.1. Outlining the challenges

What would adopting sufficiency as one of the guiding principles of energy policy mean? To think about this idea, we use the UK as an example of an industrial/post-industrial economy. First, government would need to set the level of sufficient energy services, by using a methodology like the Minimum Income Standard. It would also need to know the level of these which would be delivered within planetary boundaries. Figure 2 is a simple diagram of total energy services plotted against the proportion of the population whose energy needs are met. It shows the balance of energy service needs and wants, and how moving from current consumption to sufficient energy services would reduce the space available for meeting energy service wants. The suggestion, based on the prevalence of fuel poverty (BEIS, 2017a; Scottish Government, 2018) and those who are unable to access adequate mobility services (Sustrans, 2012), is that up to a fifth of the population currently do not have their energy service needs met. Other than that, it is not to scale. The arrows show the direction of change needed.

From the diagram, one of the key unknowns is how big A is – i.e. if all energy service needs were met, how much additional energy service would be permitted within the national 'budget'? Indeed, it is unclear if A is a positive number – whether all needs can be met within ecological limits (making reasonable assumptions about low carbon technologies/energy sources/ infrastructures of supply etc). Under conditions of sufficiency, this diagram should be in one dimension, as 100 % of needs would be met, and the key questions are what space (if any) is left for wants, and how should this space be shared.

Energy policy would then face a number of new challenges, including to:

1. establish what sufficient energy services are and ensure the sufficient energy services 'cap' is not exceeded;
2. ensure all are able to meet their energy service needs through a combination of individual and public provision of infrastructure, heat/cooling and power;
3. manage the transition from current energy services to the new, lower, sufficient energy services, in a way which is socially acceptable.

The first challenge is fundamental. The Minimum Income Standard method can be a starting point. However, as noted earlier, basing a definition on energy services creates problems of measurement. The second challenge is closely linked to issues of energy or fuel poverty - something which is of increasing concern and is being incorporated in more EU and national level policy. The third challenge is a version of the central challenge for any energy policy responding to the climate change imperative. Even if we agree on limits to wants, and what constitutes needs, there will be different views on how the remaining space for 'wants' should be managed.

6.2. Needs and wants in current energy policy

Policy on residential energy demand does not typically use the language of needs and wants, it fo-

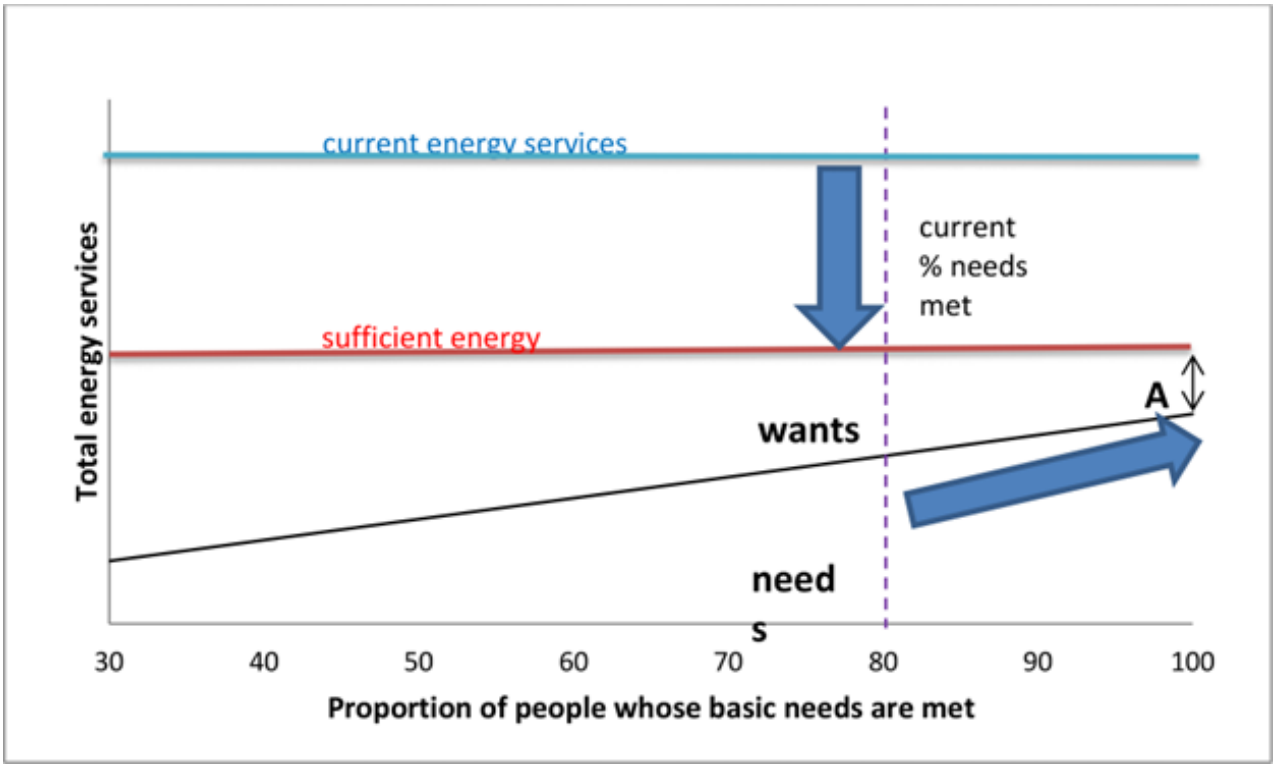

Figure 2. Illustration of energy services, wants and needs (not to scale!).

cuses largely on energy efficiency and adoption of lower carbon or renewable energy sources, with some policy around changing behaviour. However, given national policies around affordable warmth and energy / fuel poverty, it is apparent that governments have adopted the idea that some energy services are needs, which society should ensure everyone has access to. Once some levels of energy service have been defined as needs (e.g. affordable warmth), does this mean everything else can be considered a want?

There are ongoing disputes in energy policy which could be interpreted as being arguments about what level of consumption is a necessity . The 'gilets jaunes' protests in France were sparked in part by a rejection of proposed increases in taxation of motor fuel (Willshire, 2018). The increase in taxation was put forward as an environmental policy measure. The stated logic of the protests was that car travel is a necessity, particularly for people living rurally, and thus increasing fuel taxes was fundamentally unfair. Similar arguments have been used in other countries in protests and debates on taxation of fuels – although fuel prices are just one component of the cost of motoring, and one element of environmental taxation (Fawcett, 2010). Clearly, whether car travel is perceived as necessary, depends in part on the availability of public transport alternatives. In the MIS work, in recent years a car has been included in the necessary basket of goods for families with children for the first time, as the focus groups thought bus systems were no longer good enough to allow children to participate in normal social life without access to a

car (Davies et al, 2015). Arguably, transport has an insatiable 'further and faster' character, making it particularly difficult topic when discussing the distinction between wants and needs. The embryonic movement for slow living may be one counter to this (e.g. Parkins, 2004; Fullagar et al., 2012).

6.3. A focus on wants

Policies to reduce energy service 'wants' and consequent energy consumption, could focus on reducing average consumption of energy, or could specifically target high consumption (or both, of course). High consumption could be defined in terms of household consumption, or the consumption of particular products / homes / services, or all of these. Deciding which approach to take would require better understanding than we currently have on the distribution of energy consumption, particularly if we want to avoid penalising vulnerable high consumers (who exist in significant numbers (Preston et al., 2013). This would be a different focus for energy policy, and there are many issues to research.

6.4. Beyond individuals

Energy systems are characterised by demand, supply and infrastructures of demand and supply such as buildings, transport networks and fuel pipelines. These infrastructures are out of the direct control of individuals and can have enormous influence on consumption patterns. For example, someone living in a concrete-and-glass apartment in a tropical country might reasonably consider air-conditioning to be a need, while a neighbour in a vernacular home would not do so; a worker obliged to live in the countryside, without good public transport, because of the high price of city housing might reasonably think that owning and using a private car is a need, whereas her colleague at work who lives in the city would be able to travel to work easily without a car. This social as well as individual nature of resource consumption characterised as 'social loading' by Wilhite and Luzenhiser (1997), poses a major challenge to designing policy which separate needs from wants.

7. BUILDING ON EXISTING POLICY

Although sufficiency is an idea recently introduced into energy policy debates, it has a considerable overlap with reducing energy consumption or energy conservation. It connects with a number of existing debates about the design of energy markets and individual policy instruments. Examples of these debates, and their link with sufficiency is given below. For more detailed discussion of product policy and sufficiency, see Toulouse and Attali (2018).

7.1. Designing energy markets: pricing structures for household energy

The design of pricing structures for household energy connects to both the limits and equity aspects of energy sufficiency. How household energy charges are structured determines whether people pay more or less per kWh and/or per kW as consumption and instantaneous electricity demand rises (or falls). Two options which work in opposite directions are standing charges and rising block tariffs. There is a strong logic behind having a standing charge. This fixed cost within the energy bill ensures that all users share the cost of transmission, distribution, metering and billing infrastructure equally and then pay for their consu-

mption separately. The lower household consumption, the higher percentage standing charges are of the total bill, and the higher the effective price per kWh. There have been longrunning debates about removing standing charges from energy bills (Pyrko and Darby, 2011), although to little effect thus far in the UK (Warren, 2012). Regulatory approaches favour this type of 'cost-reflective' pricing and national regulators typically act against cross-subsidies between groups of customers (Baker and White, 2008).

By contrast, rising block tariffs are designed so that costs per kWh rise as consumption rises. They are one of several options which might deliver more sustainable tariff structures, in terms of economic, environmental and social objectives (Baker and White, 2008). Rising block tariffs exist in a number of countries, for example one of these has been introduced in Spain as part of Article 7 policies (Ricardo-AEA, 2015). In South Africa, a 'poverty tariff ' has been instituted that allows for 50 kWh per month of free electricity (Winkler, 2007), This is available only to customers who agree to the installation of prepayment meters (Makonese et al., 2012).

Another sufficiency-related approach to electricity pricing links cost to the demand capacity of the customer: a 'demand charge' is a component of the tariff, so that customers pay more for the privilege of being able to operate several large appliances at once. For many years, for example, roughly 90 % of Italian residential customers paid a tariff that capped instantaneous demand at 3 kW. This type of arrangement is inherently equitable (although customers with electric heating would need special provision) and helps to keep peak load within manageable limits. The interests of the utility and the state can therefore be a powerful factor in defining sufficiency, at the aggregate if not the individual level (Hayden, 2013).

Currently, the main focus on tariff development is in time-of- use pricing, due to concerns about peak electricity demand and the integration of renewables into electricity supply. Dynamic, time-of-use pricing does not inevitably disadvantage poorer customers (Faruqui et al., 2010), but distributional impacts need careful attention. Customers vary considerably in terms of the energy-using activities they normally carry out at peak times and in the extent to which they can shift them. The association of flexibility with income is not straightforward: for example, a single working parent with young children is likely to have less flexible demand than a pensioner with similar income and housing.

7.2. Designing policy around consumption or efficiency?: product standards and labels

Policy on products could be designed around either absolute consumption or efficiency. There is concern that the current efficiency basis for most policy instruments, especially minimum standards and energy labels, could be less effective than an alternative consumption (or sufficiency) framing. Energy labels are the most visible component of EU energy efficiency policy. From their introduction on cold appliances in 1995 they have gone on to be applied to most significant household appliances, cars and homes themselves. For homes and appliances, these labels are efficiency labels. For some appliances, particularly cold appliances and washing machines, the efficiency standards are easier to reach in larger models, for technical reasons. As a result, there has been concern that a

market shift to higher efficiency might, perversely, lead to higher consumption. For cars, a different approach has been taken in the UK implementation of EU legislation, with labels on energy efficiency and carbon emissions per km being absolute values, rather than related to engine size, vehicle weight or other size characteristics of the car.

For appliances, it appears an efficiency label has generally been effective in supporting reductions in consumption. This is shown by EU sales data for cold appliances (refrigerators, freezers and fridge-freezers), washing machines and tumble driers illustrate (Michel et al., 2015). For cold appliances, 2004–2014, the average declared energy consumption has been reduced by 25 %, with size increasing by just 3 %. Washing machines have become much more efficient, but the impact on energy consumption is less clear. The average declared energy consumption of tumble driers sold decreased both in France (by 28 %) and Portugal (38 %) between 2004 and 2014 (figures not supplied for the EU as a whole). Fortunately, the fears of efficiency labels having a perverse effect in terms of consumption have largely been unrealised. For vehicles, the picture is less positive. There have been widely reported scandals related to the accuracy of emissions testing, particularly related to particulates and air pollution, but also to carbon emissions per km (Brand, 2016). Where efficiency has been tied to vehicle weight, there have been hidden incentives to escalate the size of vehicles in order to claim relatively high efficiency: this has been counter-productive in terms of sufficiency and energy consumption.

7.3. Limiting personal consumption

There are very few, if any, cases of products being banned due to energy consumption. There is no upper size of the home which can be built, supercar which can be designed or fridge-freezer purchased. EU product policy has effectively banned the least energy-efficient products, and this has led to significant energy savings. While this policy approach has delivered very important reductions in energy use, it has not challenged unlimited consumption. However, there are some examples of government policy which does seek to influence consumption - the case of the size of homes is considered briefly next.

Governments tend to have views on how much residential space per person is acceptable. They may have both minimum and maximum standards for space per person/household – although the maximum typically only applies where housing costs are paid for or subsidised by the state. The ideas of both 'under occupation' and 'over-crowding' are common in the housing and social welfare literature, and government statistics. Two UK public policy decisions have tended to reduce residential space. Firstly, minimum space standards for new dwellings have been removed from the planning policy. Secondly, the amount of space that tenants in social housing are entitled to has been reduced, with a 'bedroom tax' imposed. Neither of these changes were related to energy policy or sufficiency concerns, although both are likely to reduce the amount of space occupied by parts of the population. In housing which is already the smallest in Europe, this raises welfare concerns (Morgan and Cruikshank, 2014).

In the absence of passive house standards, or zero carbon heating fuels, the amount of space occupied per household or per person is important when thinking about sufficiency, because of the link between space and energy needed for heating. Ide-

as about reducing space per person have been explored in the sufficiency literature (e.g. Thomas et al., 2018). As indicated above, dwelling size intersects with many other aspects of life – and a lack of space may prevent people from meeting social needs. Two lessons arise from this - the first is that non-energy policy can be very important in determining energy use. Secondly, when designing energy sufficiency policy, energy outcomes are not the only consideration. The overall purpose of a focus on sufficiency - incorporating justice, human welfare and environmental limits - must be central to the design of individual instruments or policy packages.

8. DISCUSSION

This paper set out to describe the definition of energy service sufficiency developed as part of the wider eceee project, and to interrogate further the distinction between needs and wants, which is one of its fundamental characteristics. If the idea of sufficiency, and sufficient energy services in particular, is to be persuasive and useful, it needs both a clear intellectual and theoretical framework, and to be capable of being translated into a set of policies.

8.1. The challenge of sufficiency

Sufficiency is a difficult idea. The question is, what makes it difficult? The inside ring of the doughnut is very similar to the globally agreed Sustainable Development Goals. The upper boundary, at least for greenhouse gas emissions, also reflects a global agreement. Why so difficult, given that we are reflecting global agreements on minimum needs and maximum limits? First, these are strikingly different in nature. The outer boundary comes from a scientific consensus on atmospheric physics, geochemical flows and so forth. The inner boundary is far more contentious: judgements on what is sufficient are place- and time-sensitive and also influenced by history, by infrastructures and cultural norms. But the distributional issue, the acknowledgement of needs and allocation of resources between people, is arguably the most difficult single issue. The ideas of limits conflict with economic growth imperatives and with much classical economic theory. The change from a focus on energy efficiency, which is a means of achieving a range of energy goals, to talking about the 'ends' – what human beings need, and how to provide that within a safe natural environment – is a quantum shift.

Energy efficiency has been able to fit with standard economic assumptions and a variety of political outlooks (Mallaburn and Eyre, 2014), but it's not clear that sufficiency will do this, as it operates from a distinctly different starting point. Sufficiency forces the issue of climate change and environmental degradation to the centre of our politics. As an aspiration, it may be acceptable, but it is likely to be resisted when the concrete consequences of such an approach are elaborated. It could also be risky for energy policy specialists and those proposing it, as they may be marginalised and ignored. On a more positive note, introducing energy sufficiency as a central concern of energy policy could be a route to having difficult conversations in a constructive way.

8.2. Testing the idea of sufficiency

Work on the Minimum Income Standard shows there is a workable method for distinguishing needs

and wants at national level, and that consensus can be reached and be periodically updated to take account of social change. It enables and records public discussion that produces not just lists of agreed necessities but a set of rationales that tell us why certain items are included and others are not. Such discussions could themselves be seen as part of a process of creating and maintaining a sufficiency-based society. For the ten years over which this definition has been reviewed in the UK, perceived needs did not increase significantly and some decreased. However, this has been a period of low economic growth and 'austerity' (low investment in public services), and over longer time scales we might expect the minimum needs identified to increase. In Doyal and Gough's language, it is the 'intermediate needs' here which are changing, the ways in which people meet their fundamental need of pursuing a good life / participating in society.

In any event, we can expect the ways needs are met to change over time. There seem to be two imperatives here. One is to assess need realistically in macro/aggregate terms of sufficiency – in terms of the outer ring of the doughnut. The other is to have effective systems in place for assessing and meeting basic needs within each legislature.

8.3. Missing scales in the sufficiency literature

The discussion around needs and wants in this article has been framed around individuals, and the energy services considered have been those in the residential sector and personal travel. This is not surprising as the idea of 'inner ring' sufficiency arises from thinking about individual lives, and it is a consumption rather than production side perspective. However, sufficiency ideas need also to be applied to communities and organisations at a variety of scales. How can the idea of sufficient energy services be translated into organisational and business activities and public life? What level do we set sufficiency at, and at what level do we embed it in policy? For example, how could we decide how much energy a university chemistry department needs? Would that ever be an answerable question?

8.4. Reconsidering our definition

While recognising the needs/wants debate is complex, we took the position that distinguishing needs and wants by social consensus has been shown to be possible; such consensus can be a useful input to policy. A definition which uses the concept of energy services is more difficult to operationalise, and more thought and research into this is required.

Making a distinction between needs and wants is not the only basis for a serious response to climate change and other environmental limits. Policy responses to high levels of consumption can sidestep a 'needs and wants' framing, focussing more single-mindedly on environmental goals and the achievement of these in ways that are socially just. Yet in practice, debate and negotiation about environmental goals almost inevitably raise questions of equity, needs and wants. The early arrival of 'grandfathering' as a contentious issue in the Kyoto negotiations illustrates this. Even if, in principle, it is not necessary to think in terms of needs and wants, they are hard to avoid in politics. Disagreements on this issue are certainly worth considering further. However, they need not stand in the way of action to take European consumption patterns in a new direction.

9. CONCLUSIONS

Sufficiency can be used as an organising principle for living within ecological limits. Putting it into practice is a huge task and we have only begun to outline some of the aspects of this. While recognising that sufficiency will always be contentious, we see it as an important concept to feed into policy at a time when so much is at stake for climate, biosphere and human welfare. It means facing up to the need for substantially different ways of life, which will still have to emerge from existing materials, institutions, ideas and processes.

A central issue in making the necessary changes will be the debate over what needs, including energy services, are basic and non-negotiable. We have argued that boundaries between needs and wants do exist de facto in the minds of people everywhere. They are constantly negotiated as societies develop and it is therefore vital to have processes for carrying out this negotiation in an open way and with reference to ecological limits.

Limits to consumption are much harder to agree on than limits to (in)efficiency, which involve judgements about technologies and cost, rather than how much is enough. To make progress with exploring consumption limits, a better understanding of patterns of household energy consumption, variability between households, links to income, access to infrastructure and the relationship between resources and energy services will be important. Defining over-consuming products may be less difficult, but has generally been avoided to date, with standards, labels and performance requirements being set in terms of efficiency.

This work on sufficiency is still in its early stages. However, we believe it usefully opens up conversations around needs and wants, about ensuring enough energy services for all, and what those might be, while responding to the calls from scientific, civil society and political leaders for rapid change to protect the natural environment on which we all depend.

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Social justice and more ambitious energy performance requirements in the post-socialist context

FEANTSA publication

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ABSTRACT

In order to reach a just energy transition, putting energy performance requirements into a wider social and policy context is essential. This article assesses Minimum Energy Performance Standards in their wider nexus in the post-socialist regions. Results show that reliable, long-term renovation schemes exist to modernize the building stock. Governments' commitments, however, are low to support especially vulnerable households in this process, which should be changed through developing more robust and generous grant schemes targeting low-income households. Multi-apartment buildings with mixed financially situated households require complex interventions, where the role of building managers and homeowners associations is key in utilizing the available funding. The article is an abbreviated version of a background document prepared for FEANTSA.

Keywords: *Minimum Energy Performance Standards, low-income households, just energy transition*

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I. INTRODUCTION

This article is based on a report entitled Social Justice and More Ambitious Energy Performance Requirements in the Post-Socialist Context (FEANTSA, 2022). To achieve a just energy transition conflicting aims need to be reconciled, thus efforts in achieving a zero-emission building stock should ensure that energy performance requirements will not create an affordability problem for low or middle-income households. Therefore, putting energy performance requirements into a wider social and policy context is essential, as this can provide the necessary policy solutions that allow simultaneous support of both (climate and social) aims. This requires, however, a change in the current EU narrative (BPIE, 2022) and the formulation of energy policies, which benefit the energy poor and low-income residents. The current European Performance of Buildings Directive (EPBD) recast and the Social Climate Fund are most likely not sufficient to achieve this aim.

Energy performance requirements are parts of a wider social and policy context. The role of the public sphere and the combined effects of different policy areas are key in supporting Minimum Energy Performance Standards (MEPS) and mitigating their unwanted consequences. Thus, the evaluation of the social impact of MEPS needs to be connected to the availability of public support for modernizing homes.

There are fully implemented, overarching MEPS, which cover the whole building stock, while there are 'softer' energy efficiency (EE) requirements, which affect only a few segments of the building stock (e.g. public sector) or certain trigger points, e.g. major renovation. The former exists only in some form (because they are required by European Directives). 'Softer' EE standards, which characterize MEPS in the post-socialist regions, vary a lot in efficacy.

In both Eastern European and Western European countries, there are questions about how well MEPS have been implemented and enforced (1). In most cases, the direct results of the more ambitious EE requirements introduced by Member States are not measurable yet. Since the mandatory MEPS will be introduced only as part of the EBPD recast, their social or economic impact is impossible to gauge now. What is possible to assess is how already existing ('soft') MEPS and public support schemes for EE interventions have impacted low-income residents. The aim of the article, therefore, is to assess MEPS in their broader context, especially in the post-socialist EU Member States.

In the three post-socialist areas of the EU (Baltic countries, post-socialist Central and Eastern European (CEE) countries, and the Balkan Member States), more renovations take place than in the EU on average, but they tend to be less deep (Sunderland, 2021). At the same time, EU policies create a disadvantage for CEE and Balkan Member States (BPIE, 2022), as these states rely more on fossil fuels. Furthermore, post-socialist regions are characterized by lower wages and weaker welfare states than their Western European counterparts. Energy poverty rates also tend to be higher (ComAct, 2021), which means that residents' willingness and capacity to co-finance renovations is lower, while the need for affordable housing and

(1) Even in the case of the few Western European front-runners, impact assessment is limited, as the impact of EE standards can be measured only several years following the introduction (as enforcement dates are many years after introduction).

more comfortable and healthier homes is higher. EE refurbishments are supported almost in every country – albeit with varying intensity and using various support structures – but the lack of a skilled workforce is often a major bottleneck to increasing renovation rates (Taylor, 2021).

2. METHODOLOGY

EE standards vary a lot across the three post-socialist regions of the EU as well as states' willingness to support renovations and low-cost social housing. In the following, the paper analyzes four cases from the three regions:

- Lithuania from the Baltics
- Croatia from the Balkan region
- Slovakia and Hungary from the CEE region

The four cases illustrate different policy approaches and strategies. The assessment was built on expert interviews, surveys and desktop research.

3. RESULTS

3.1. Lithuania

The 'JESSICA I and II' programs provide a good example of a mainstream renovation scheme, which supports deep renovation and the inclusion of energy poor people as well. Thus it is a program that can serve as a model, how the introduction of MEPS can lead to a socially just energy transition. In Lithuania it has definitely been a very interesting and widespread practice to fully subsidize owners entitled to social benefits. Responsible municipalities, however, were not willing to use the 100% subsidy and raised a lot of conditions that were not easy to fulfill. Some municipalities even apply a reverse rule, namely if a household is eligible for 100% subsidy and still votes against renovation, their social benefits are being reduced (renovacija.lt, 2020).

The MEPS came into force only on the 1st of May 2022. Similarly to other energy performance regulations targeting 'major renovations', the Lithuanian approach does not oblige all to be renovated (infolex.lt, 2020). The aim of the MEPS in Lithuania is to ensure that relatively costly interventions serve EE, thus it does not apply automatically to the dwellings of lower-income owners who cannot afford such a major renovation.

Within the framework of JESSICA II, multi-family apartment buildings (MABs) receive a subsidy for energy-efficient modernisation, with 100% on all expenses for low-income households. The support, however, is available only for the most vulnerable few percent of the population for the heating and hot water subsidy, which is certainly less than the whole energy-poor population (ComAct, 2021). Therefore, the homes of those low-income households who are not eligible for the full subsidy and not covered by the MEPS could remain without energy-efficient refurbishment. Changing energy prices and slightly more accommodating program conditions, however, could have an effect in the direction of increasing the number of lower-income households engaging in renovations.

3.2. Croatia

The complex programs in Croatia are coordinated by the Environmental Protection and Energy Efficiency Fund (2) and target various building types (in the residential sector they include among others a program for retrofitting family houses, one for retrofitting multi-family residential buildings and a

(2) https://www.fzoeu.hr/en/home/8

program for mitigating energy poverty in special protection areas). This complexity of programs is considered a good practice, which combines ambitious EE requirements with supporting residents in general and vulnerable groups specifically. The program provides support for energy auditing and one-stop shops. This is a crucial aspect of the program, allowing low-income households to engage in EE, and as such should be considered an important policy instrument to support the socially just introduction of MEPS.

MEPS for buildings in Croatia are not particularly strict. The country has implemented the previous EPBD versions but has no full MEPS covering the whole building stock. The newly constructed buildings have to comply with high EE standards and need to possess a certain proportion of their energy consumption covered by renewables, while existing buildings do not have these types of obligations, only in case the building is expanded. Furthermore, there are no EE standards for a major renovation, meaning that refurbishments of private dwellings do not have to meet any EE requirements, as long as they are not including the extension of the building nor does the owner use the public subsidy. Grant schemes for renovating residential buildings and installing renewables are currently financed mostly from EU funds, including a socially targeted grant with 100% intensity.

The Fund incentivises deep energy efficient interventions, as the amount of subsidy increases with the 'depth' of renovation. The impact of the measures are visible on the EE of the building stock, which has improved a lot between 2000 and 2018. However, the total energy consumption of buildings has not changed, due to increased number and size of dwellings, and the increase in appliances used per dwelling (Odyssee-Mure, 2018). With public support, the payback period of the interventions for households is usually less than 10 years, thus energy savings are in most cases larger than the monthly rate of payment, which contributes to general affordability.

The socially targeted 100% subsidy has very strict eligibility criteria based on the receipt of certain social benefits, which mainly target the long-term unemployed and those with disability. Eligible people cover only around 50,000 people, the ~1.25% of the population of Croatia. However, only homeowners and buildings with clear ownership status can participate, which excludes the most vulnerable people, because they often do not have legal ownership of the buildings, or lack appropriate papers to prove their ownership. The socially targeted program is available only for single-family buildings, but the government plans to expand the program to MABs.

3.3. Slovakia

The Slovakian EE scheme is probably one of the most developed ones in the region, and the country has been leading the efforts not only by providing a stable subsidy system but also by introducing incrementally increasing EE standards for the newly built stock.

Before 1993 (when Slovakia became an independent state), MABs were not renovated but maintained well by the big state management companies. Renovation of residential buildings however has been a priority for the government

and is considered relatively successful (currently about 70% of all MABs are renovated) compared to many countries of the region. The transition and privatization in the housing sector went relatively smoothly, which probably contributed to the successful renovation program. Building manager companies took over the management of MABs and organized renovations. Government campaigns have been promoting active participation for homeowners in homeowners associations (HOAs) and highlighting the importance of building renovation and maintenance.

The legal framework of HOAs in Slovakia is considered well-developed. The law prescribes condominiums to create a renovation fund from owners' contributions, although the enforcement of it is difficult. Since ownership structures of MABs are typically socially mixed, in the case of poor owners, only a small amount can be collected. Condominiums have to review the condition of the building every year and fix the problems, often using up its savings.

Since 1996, State Housing Development Fund (SHDF) as a revolving fund has provided favorable long-term loans for various purposes, including refurbishment of residential dwellings. The program is designed to incentivize more complex renovations, since the deeper interventions they make, the lower the interest rate is. The grant element (provided by the Ministry of Transport and Construction) decreased on purpose slowly from year to year, and the loan element increased, resulting in that by 2022 there is no grant in the state budget.

EE standards are getting stricter in Slovakia. The EPBD has been implemented since 2013. Among others, it sets out a timeline for a step-by-step tightening of the minimum requirements of MEPS for the future. Adverse effects of implementing EPBD at the national level is linked to low-cost housing for the socially deprived Roma population. DOM, a Slovak NGO supporting self-help construction projects, found itself in a temporary difficulty due to the increasing EE standards and aligned requirements making the construction much more expensive than before. The obstacle created by the new standards, however, was only temporary. Currently, the increasing market prices create the most crucial financial problem. On the positive side, air pollution decreased dramatically as a result of more energy-efficient buildings, so overall the Roma communities benefited from the stricter standards.

There is, however, no social targeting in the Slovakian renovation program and the Ministry of Transport and Construction does not plan to introduce any help or support targeted at low-income residents of the MABs. Therefore, the program was not successful in making renovation accessible for about 30% of MABs. In order to make the program more accessible to the most vulnerable social groups, a more generous grant element is needed.

3.4. Hungary

The Hungarian case is an outlier in many respects. The country had a subsidy-intensive support scheme in place for the first decade of 2000, focusing on MABs allowing numerous buildings to be renewed. Until 2007, 190,000 (23%) of the country's 820,000-panel apartments were renovated in some form (Jauernik, 2011). The energy consumption of the affected apartments

decreased by 8-50% The second decade, however, brought lower support for MABs and increasing support for family houses. Importantly, despite some dedicated support schemes, the main mechanism for refurbishment is not targeted to improve EE but to help families with children, whereby energy savings are more of a side effect. Additionally, the termination of the country's Bausparkasse scheme in 2018 put a further burden on MABs. As a result, despite the widespread renovation activity that goes on in the country, the deep renovation interventions are sporadic. Owners of MABs seem to wait, and see if EE support schemes with better conditions will be introduced.

In 2017, a Residential Energy Efficiency Loan Programme was introduced and financed dominantly from EU funds offering interest-free loans for EE renovation of family houses and MABs. No more than 25% of the funds was allowed to be used for the renovation of MABs. Very few MABs were able to benefit from this subsidy scheme as the administrative requirements were too strict to meet. The program was halted in 2021 as the dedicated funds ran out.

In the meantime, in 2021 EE obligation scheme was introduced, however, it is far from being developed in detail. In the same year, the government announced a program for installing solar panels either independently or linked to installing new electricity-based heating systems and to the change of windows. The program provides 100% grant for those households, where the income of the property owners does not exceed the average income in Hungary. One of the disadvantages of this subsidy scheme is that it supports the instalment of solar panels and heating systems without compulsorily insulating the building envelope. Thus the energy consumption of the property is not reduced, only the energy source is replaced by a more environment friendly one.

How the introduction of MEPS will affect the households is yet unknown. Additionally, the need to renovate is not helped by the political climate either. The cap on fuel prices as well as the cap on the household utility bills became a major political discussion point in Hungary, most likely significantly influencing the outcome of the last elections (2022), as well as influencing the country's behavior in the negotiation process about the EU sanctions on Russia. As a result, for certain building types – like a classic tenement building in the inner city of Budapest – the EE renovations are completely uneconomical. Nevertheless, this is about to change: the energy cap was revoked in 2022 in face of the budgetary woes the government was facing. The cap was maintained for the so-called "average consumption". Energy prices consumption above this doubles in case of electricity and increases seven times for gas. It is estimated that between one-third and half of the households will have increased utility bills putting extreme burden for especially single family houses.

Energy poverty is not connected to EE renovation programs at all. However, work has started in the Ministry of Interior – with the involvement of experts from NGOs like Habitat for Humanity Hungary or the Hungarian Energy Efficiency Institute – to develop energy poverty indicators.

4. CONCLUSION AND RECOMMENDATIONS

Reliable, long-term renovation schemes exist in the post-socialist region. National renovation programs, even if the grant element is not huge, can be successful in modernizing a significant part of the building stock. However, governments' commitment toward supporting renovations and particularly low-income households vary a lot across the post-socialist part of Europe.

Different types of MABs require different interventions. Due to the high homeownership rates in the assessed countries, the role of building managers and HOAs is key in utilizing the available funding. Targeted training, information provision and general support both for the housing managers and interested residents could provide the solution to unlock more potential for the renewal even among the poorer households.

EE standards for buildings in post-socialist EU states do not include fully implemented MEPS. The enforcement of MEPS can be a problem. The impact of MEPS implementation depends on the enforcement and support provided by the decision-makers. Enforcement has to go hand in hand with enabling and helping - especially in the housing sector. The regulation does not have to mean primarily sanctions. For a successful introduction of MEPS in the assessed post-socialist countries, where owner-occupied sectors are more dominant, generous grant schemes are required, particularly where households are on lower incomes and house values are lower.

National renovation programs in the assessed countries currently are unable to make renovations affordable for the majority of the energy-poor. The most vulnerable groups have a complex set of social-legal-economic difficulties, which make renovation inaccessible for most of them. Homes without a clear legal status in Croatia or Roma settlements facing discrimination beyond their other problems can not use even the 90-100% subsidy schemes. Despite policymakers tend to focus only on a selected group of people and leave

others behind, the focus on the energy poor and how to solve the energy poverty issue is increasing everywhere, resulting in the introduction of targeted renovation supporting schemes for the neediest in some countries. However, these are typically meant for a very selected group of people and do not cover the whole energy-poor population of the concerned country. The successful introduction of MEPS might require the expansion of this restricted targeting.

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The face of energy poverty today - lessons from five CEE and CIS countries

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ComAct Community Tailored Actions for Energy Poverty Mitigation

ABSTRACT

The paper presents survey results from five former socialist block countries, among which three are members of the European Union. The survey, carried out in 2021, aimed to understand the neglected aspects of energy poverty: understanding how it appears in multi-apartment buildings, what is the most affected demographic group, and what are the main factors determining energy poverty. The results were obtained prior to the energy crisis, thus they could be regarded as a baseline for further inquiries, especially for former Socialist countries that are hit the hardest since they typically lack the welfare regimes to cushion the social and economic shock. The paper relies on the work of the EU Horizon 2020 funded Community Tailored Actions for Energy Poverty Mitigation (ComAct) project, most importantly the Guidebook on the concept of energy poverty and its relevance in the five pilot countries.

Keywords: *energy poverty, multi-apartment buildings, CEE region, homeowners*

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I. INTRODUCTION

The paper introduces the results of two large scale research papers carried out in the framework of the H2020 financed ComAct project (1) (Turai et al. 2021a, Turai et al. 2021b (2)).

Energy poverty (EP) as a concept has a long tradition, and energy subsidies for low-income households have been a major part of social policy in Western Europe and Central and Eastern Europe (CEE) as well as former Soviet Republics (CIS). The definition and use of indicators for identifying EP are very different across the countries, and therefore cover different target groups. Importantly, existing definitions use the household, and not the building, as a unit, although building-level definitions would be helpful in developing targeted building-level energy efficiency (EE) interventions and policies for multi-apartment buildings (MABs).

Due to different political and economic circumstances, such as the higher homeownership rate (90%) in MABs and the worse performing building stock, EP rates in CEE and CIS region are much higher than in Western Europe. Apart from high EP levels, these two regions have other things in common: underheating is widespread due to low income, solid fuels such as wood are used for heating (which are not part of common EP statistics), and insufficient financial subsidies available for building renovation. Furthermore, proper cooling is becoming an increasingly important issue as the climate crisis worsens, thus it should be recognised as a primary indicator.

in the assessed regions, energy prices are in general more moderate than in Western Europe, but their share of the usually low household incomes are much higher. In CEE, CIS and Balkan countries the physical state of MABs is much worse, but renovation measures require the involvement of low-income owners. Furthermore, issues around privatization and liberalization fundamentally influence energy markets and affordability. Price subsidies and price regulations in the past have contributed to the affordability of energy, but at the same time they hinder EE interventions.

1.1. Introducing the assessed five countries

Based on available data, EP rates in the assessed five countries vary. Bulgaria has the highest share of energy-poor households (10-35%) among the EU Member States. The current Bulgarian renovation programme has no income components. Hungary has a relatively low level of EP compared to the other countries (5-10%). Even though EP is found rather in rural areas' single family houses, MABs have very specific problems (such as a large variety of apartment owners) that make renovation more challenging from an organizational point of view. There are no socially targeted renovation subsidies available.

Lithuania has the second highest EP level at 10-26%. MABs in urban areas are more affected by EP in comparison to single family houses in rural areas. There are some measures aiming to alleviate EP like heating allowances and socially targeted renovation schemes.

(1) https://comact-project.eu/the-project/

(2) https://comact-project.eu/pilot_content/guidebook-on-the-concept-of-energy-poverty-and-its-relevance-in-the-comact-five-pilot-countries

North Macedonia already includes EP in some strategic documents and has policies targeting vulnerable energy consumers. The rate of energy-poor households is approximately that of Lithuania and Bulgaria. Although the condition of buildings is worse in rural areas, the problem of EP is much more severe in urban areas due to the affordability of energy.

Ukraine – pre-war – had a large EP problem since the phase-out of its very high energy subsidies during the last five to six years. There are subsidy schemes, but as there is a large energy-poor population and the building stock has very low energy performance, it is difficult to target these schemes to the most vulnerable consumers.

2. METHODOLOGY

To understand the way EP appears in MABs in the region, to survey the difficulties it causes, and to try to assess how it influences households' willingness to pay, an extensive research was carried out in the five ComAct project countries. It consisted of desktop research in its first phase, trying to understand the way EP was dealt with in these countries, followed by a survey to deepen and refine this knowledge.

2.1. Market research

The survey aimed to provide evidence-based information on the nature of EP in urban MABs in CEE, CIS and the Balkan region. It was implemented in the five pilot sites of the ComAct project: Burgas in Bulgaria, Budapest in Hungary, Skopje - municipalities of Karpos and Kavadarci in North Macedonia, Odessa in Ukraine, and Kaišiadorys and Tauragė in Lithuania.

Sampling of the survey happened on several levels, as it had to ensure that the survey found a very specific population segment: households living in MABs that have a higher than average share of energy poor residents. As a result, the survey is not meant to be statistically representative, although national data, where available, did provide an important reference point.

The survey was conceived to reflect the ongoing processes in energy poor areas and shed light on how EP becomes apparent in an urban MABs context, where very little is known about the context of EP and how it influences the potential renovation processes. Thus, the survey aimed to highlight the main factors behind EP in the region and to find a population that was the most exposed to EP in the MABs. To do so, in each pilot site, MABs were chosen

- where major EE interventions have not yet taken place, in a worse technical position than the average;
- that were in lower status areas in their cities
- where the residents' social status is presumably lower than the average.

In 2021, 200-225 (1.025 in total) households in pilot countries were assessed, all of which were all living in their own dwelling (not tenants) and were vulnerable from an EP point of view. The sampling was based on slightly different criteria in each pilot country – depending on the availability of population data.

3. RESULTS

3.1. Socio-economic characteristics of the surveyed households

The surveyed households are situated in stable neighborhoods, where the population is mixed. The unemployment rate was relatively low everywhere, and could not exert a tangible influence on the EP for this analysis.

Although household size is often a factor in determining EP, the sample contained only a few families with many (more than 3) children. On the contrary, the sample is dominated by households where the share of single person households is high, namely the overwhelming majority (80%) of respondents live in households without children. This reflects the common character of urban poverty, which is more focused on single-person households, which dramatically worsens a household's probable ability to cope with crises, pay its bills (including energy ones), or pay for EE investments.

The income of the surveyed people depends a lot on their age structure. Older respondents have less income than younger ones. In the sample generally respondents over the age of 60 are much less satisfied with their financial situation. Therefore, the data highlighted the importance of age as a determining factor influencing the financial situation and, thus, the vulnerability of older respondents.

3.2. Building characteristics

The building conditions were analyzed by surveyors' subjective assessment as there was no opportunity to connect the survey with technical audits. According to the surveyors' external evaluation, most of the MABs, where the survey took part, are in a bad physical and/or technical state (which is in line with how the sampling was carried out, see in section 2.1.). Regarding the social composition of the buildings, a significant connection between the financial situation of the respondent and the building conditions can be seen, namely, respondents with lower income are more likely to live in buildings that were found to be in an unsatisfactory condition by the surveyor.
Regarding the dwelling size in the sample, the sample seems very balanced – around 50 m2 -, from which only Bulgaria stands out, where the average dwelling size is 20-25 m2 bigger than apartments in the four remaining countries.

Heating system is a crucial characteristic of the buildings that profoundly influences the cost of heating and also a household's possibilities to regulate its consumption, thus it can directly influence the EP of the households. The survey looked at the use of district heating, as it is environmentally friendly but on the other hand a rather inflexible way of heating, since it is often hard to regulate and adapt to the actual dwelling use. Even though there are large variations between countries, district heating is important in most assessed countries as a primary heating method.

Looking at the general heating picture country-by-country, households that are not using district heating as their primary heating source, often choose individual electric solutions or an air conditioner. Both of these options are feasible and preferred in Southern countries. Solid fuels such as coal and biomass are more widespread in CEE

than in the western part of Europe. Residents of MABs in the region use a variety of heating methods, including various solid ones like wood and coal, which makes it very different from their Western counterparts. The reasons for using these fuels are lack of modern energy services, such as gas, renewables or sufficient energy infrastructure.

3.3. Energy poverty in terms of thermal comfort and affordability

EP has multiple faces and measuring them by different indicators will lead to different factors behind EP and will highlight somewhat different groups suffering from EP. Some indicators put the financial consequences of EP into the focus (affordability - spending more than 15% of the income on energy), others highlight difficulties of not being able to provide sufficient thermal comfort for their homes. Thus it is useful to make local surveys to highlight the different faces of EP. Building on this, the ComAct survey aimed to highlight the main factors behind EP in the region. To reach that goal, energy-poor households first had to be identified. For this, a list of potential EP indicators were identified that can be calculated using the survey data. These indicators are:

- The inability to keep homes adequately warm in winter: This is a commonly recognised primary indicator of EP that has a subjective characteristic (how people feel about being or not being able to warm their homes) and an affordability parameter taking the financial capacity of respondents into account.
- The inability to keep homes comfortably cool in summer: As climate change intensifies, heat-waves endanger the health of more and more people, highlighting the growing importance of the ability to keep homes cool.
- The share of households whose energy expenses exceed 15% of their income: This indicator is close to the 2M indicator described above, but as we do not have exact information on the median rate of energy and income ratios in the pilot cities, we had to set a common threshold which is close to the median rates in most European states.
- Energy cost/income ratio: This does not show whether or not the household is energy poor, but allows us to estimate the extent of the affordability problem faced by the household.

Based on the list of defined indicators, the local survey addressed the two dimensions of EP: thermal comfort and affordability, illustrated in Figure 1.

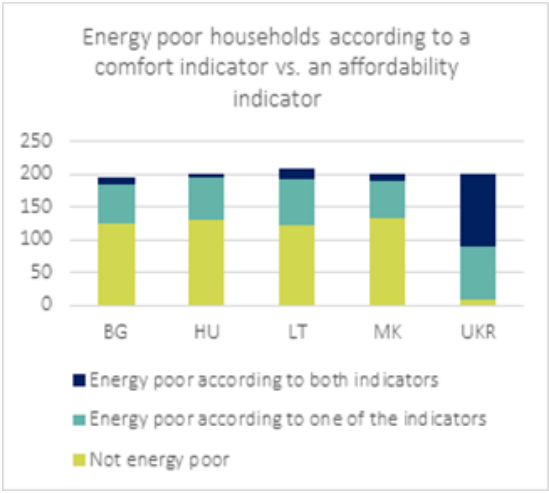

Figure 1: Energy poor households according to affordability and thermal comfort dimensions (Turai et al. 2021b)

On one hand, the survey highlights that the subjective thermal discomfort of the residents is higher everywhere than one of the official EP indicators - the share of households spending more than 15% of their income on energy – would suggest. Additionally, keeping the home comfortably cool in summer seems to be much more difficult than keeping the dwelling sufficiently warm in winter in Hungary and Lithuania, where usage of an air conditioner is not that widespread, especially among low-income people.

On the other hand, survey results also show that there are only a few households that can be considered energy poor from all different aspects. This might be attributed to the different strategies households pursue, e.g. some insist on lowering the utility costs (thus have a low share of energy bills compared to their income), but they sacrifice their thermal comfort. Additionally, the technical characteristics of the buildings can differ. While some households would have sufficient income to pay the utility bills, the bad energy parameters of the building combined with the non-regulated district heating system make it impossible for them to heat the rooms properly.

The survey also highlighted that the Ukrainian population – at least in Odessa – was far more affected by EP than the population of other countries (based on pre-war data).

3.4. Factors behind energy poverty

One of the most important research aims was to reveal the most relevant factors behind EP, which can help in identifying those social groups and building types that have the highest risk of EP.

The study shows that low-income is the main factor of EP, which has a clear connection to the affordability dimension of EP, namely how much a household spends on energy compared to its income, which is connected to the affordability dimension of EP. Thermal comfort dimension is less sensitive to income, which can be on one hand explained by the fact that the thermal comfort indicators measure self-assessed thermal discomfort, which may not correspond to the actual financial situation. On the other hand, thermal comfort can be influenced by technical parameters, e.g. living in a building with poor EE. Less subjective measurement of thermal comfort is the temperature in the living room in winter. Looking at this more carefully, however, it can be seen that in four of five countries, people who under-heat their apartment have lower incomes than people who do not. Even though the results highlight that low income is the most general cause of EP, it is worth looking at other causes of the problem, as well as the target groups that are highlighted by the interaction of income and other factors to find the most effective tools in fighting EP.

According to the study the most vulnerable household types of MABs in terms of EP are the ones, where elderly people (mostly women) with low income live alone in bigger dwellings. It is the most striking when affordability problems come to the picture. The analysis shows that low income, living alone and high age are affecting energy affordability independently from each other, which means that living alone increases the risk of EP in case of younger people too. The data also shows that vulnerability of both the elderly and single households lies in the relatively large living space/person, meaning that m²/person is a reliable

predictor of EP, especially when it comes to affordability (illustrated Figure 2. below).

The outstanding EP rate among single pensioners has a strong gender character. The share of women among pensioners living alone and suffering from too high energy costs is 85% across the countries.

Families with children are generally considered a group being at risk of EP, however, having children has not been proved to be a risk factor in the context of MABs. The reason could lie in the sample, as most families in the sample of MABs have only one or two children. A risk factor of EP is supposed to be more visible if the sample included additional families with 3 or more children.

Besides social factors, there are physical ones, which impact EP. For instance high-rise buildings are more affected (especially in BG and UKR), while the position of the dwelling does not have an impact on EP. Furthermore, the energy poor live usually in a bigger area/person as it is already mentioned in Section 3.3. The study also found

that the state of the building does not play a role in making a household energy poor in itself, except for the pre-fabricated block of flats in Lithuania, Hungary and North Macedonia.

Besides social factors, there are physical ones, which impact EP. For instance high-rise buildings are more affected (especially in BG and UKR), while the position of the dwelling does not have an impact on EP. Furthermore, the energy poor live usually in a bigger area/person as it is already mentioned in Section 3.3. The study also found that the state of the building does not play a role in making a household energy poor in itself, except for the pre-fabricated block of flats in Lithuania, Hungary and North Macedonia.

Although the effect of heating types on EP seems to be weaker than income and age, it is worth noting that different heating sources can influence the thermal comfort level and/or heating affordability. In the survey, the effect of the heating system turned out to be highly dependent on the local context, but it can be said that the more electric heating and stove usage correlates to higher EP rates. A controllable heating system,

Figure 2: Impacting factors behind energy poverty of the elderly (Turai et al. 2021b)

however, does not necessarily go together with lower EP rates since if the controlled heating source is expensive, controlled heating will also remain expensive. Secondary heating sources complement the primary heating sources only for households with a high enough income to pay for them. In their case, secondary heating sources increase thermal comfort significantly. However, for those households that have low income the problem of not being able to warm up their homes properly remains.

3.5. Willingness to pay for renovation

Despite the common assumption that building communities with relevant share of energy poor households are not able/eager to contribute financially to the cost of renovation of the common areas of the building, the survey has proven that in each pilot country majority of the respondents (sometimes more than 2/3) are willing to pay – preferably in installments.

The survey revealed that the most decisive factor for contributing more to the renovation costs is the income level of the household, but the subjective assumption regarding the financial state of the household (having or not having sufficient income) also matters. Furthermore, the survey revealed that there are other supplementary factors beside income, that might be influential and through which the payment motivation might be increased even in a community with low general payment capacity. The factors are the following:

- the age of residents: younger residents, mainly if they have children, are more willing to contribute to the renovation costs; older residents are less eager to contribute to the renovation costs, and buildings with a high share of energy-poor households tend to have a higher rate of older residents.
- the housing community's constituency: residents in financially and organisationally more stable communities are willing to contribute more to the renovation expenses.
- people are more willing to pay in installments as it has a lower financial risk for them.

4. CONCLUSION AND RECOMMENDATIONS

The countries in the CEE and CIS regions have the most energy-poor people in Europe, where any price increase can have devastating economic and social consequences, and thus political ones as well. The region is very vulnerable to changing prices of fossil fuels and is already deeply affected by the consequences of EP.

Survey results underpin that research needs to focus on how EP works and what are the household types, rather than on EP related indicators, which vary a lot country by country. EP has a thermal comfort dimension, which affects whether the household can ensure adequate thermal comfort in a dwelling, and an affordability dimension, which is about the financial burden of energy costs. The two dimensions of EP are often connected and affect the same groups, however, in some cases, they behave differently. As an example, elderly people suffer more from affordability problems than younger households in all countries, while the thermal comfort dimension affects elderly people only in part of the countries. The same applies to single households, partly

because it is often the elderly who live alone. The building category where the surveyed buildings belong shows even bigger differences between the two dimensions in most countries.

Research results show that the most decisive factors behind EP in MABs (both regarding its thermal comfort and affordability aspects) are:

- income levels of households (low-income residents are much more affected),
- age (older people are much more affected)
- the size of the dwelling per one family member (bigger dwellings with fewer inhabitants are much more affected).

Based on these three factors the most vulnerable group from EP point of view are the old-age pensioners, living alone in bigger units. In this category, female residents are significantly overrepresented. While socio-demographic (income, age, the size of the living space/person) factors are relevant in terms of EP in all five pilot locations, technical factors (like heating types or building size) are more country-specific.

Beside age and income factors, cohesion among the residents plays a role in the willingness to pay for renovation. Those who are dissatisfied with the community and are afraid of high arrear rates are less likely to contribute. It is proved, however, that stable building communities are the foundations of renovation activities. Even in those MABs where a relevant share of the households can be considered energy poor, the majority of the respondents show a willingness to contribute financially to the renovation costs, especially in installments. This means that involving energy poor communities in building renovations can be one of the most efficient and sustainable ways of tackling EP in MABs. Therefore, efforts of states or local municipalities to strengthen the operation of MABs are essential. Such efforts may include well-designed legislations behind MABs, establishing joint loan financial schemes, providing technical assistance for communities to improve the efficiency of management, and supporting MABs in arrear management.

Yet, the results are from a period before the sudden and drastic energy price increases. They are nevertheless very important: they provide the baseline, to which current expectations about how the individual countries will manage the crisis can be compared to. They will be especially useful in light of the current policy changes that can have far reaching economic and political consequences in a region, where welfare regimes do not have the tenacity to absorb the social and economic shock caused by the surging prices.

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Community engagement in the energy efficiency of multi-apartment buildings

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ABSTRACT

This article intends to emphasize the relations between citizen participation, citizen engagement, community engagement and energy efficiency retrofits of multi-apartment buildings, through the best practices of Habitat for Humanity Macedonia (Habitat Macedonia). After a thorough analysis of several theoretical models, it shows why citizen and community engagements are essential in successfully delivering renovations and prescribes how Energy Efficiency Resource Centers can play a vital role in this process.

Keywords: *citizen engagement, community engagement, Energy Efficiency Resource Centers*

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1. INTRODUCTION

This article is based on a case study published in Energy Efficiency and Residential Buildings Management in Central and Eastern Europe - Compendium of Best Practices- (Habitat for Humanity Macedonia, 2022) touching upon citizen participation, citizen engagement and community engagement, which provide important elements for any democratic society. Numerous development initiatives and projects require citizen participation and use different forms and methods to provide their actual involvement in the processes. Still, the impression is that the more we talk about citizen engagement, the less there is real civic participation in the development and decision-making processes. On the other hand, the energy efficiency (EE) of multi-apartment buildings (MABs) and energy poverty (EP) of homeowners is a burning issue in Central and Eastern European (CEE) countries due to various reasons. Tackling this challenge requires an organized approach and the involvement of all stakeholders in the sector. This article intends to share efforts on enhancing citizen engagement in mitigating EP through EE measures of MABs.

2. METHODOLOGY

2.1. Analyzing the state of play of EE in MABs

Some of the CEE countries are EU Member States, while the rest of them have candidate status, but all of them, notwithstanding whether they are European Union (EU) Member States and/or members of the Energy Community (1) are obliged to follow the EU principles and regulations on EE. Most of the EU initiatives are aimed at creating an integrated energy system based on binding rules and principles. Due to the energy crisis in the past two years, several EU Directives are now under the process of review, including the most important ones for the residential sector, such as the Energy Performance of Buildings Directive (2) (EPBD) and Renewable Energy Directive (3) (RED II).

Considering that more than 45% of the urban population in CEE is living in MABs (4), low retrofitting level in these countries becomes a general problem for the governments. In Western Balkan countries there is a lower quality of residential buildings than in the other parts of Europe. A low rate of retrofitted buildings and a high level of poverty, accompanied by the lack of socio-economic mechanisms for protection of vulnerable groups, make the Western Balkan's region a place with high pollution, high household energy consumption and high EP rate.

Therefore, EE intervention of the MABs requires a specific approach for planning and implementation. One of these specific approaches is what Habitat Macedonia has been doing: enhancing community engagement through involving all stakeholders, including homeowners and their associations, local governments, academic and expert communities, business and civil society sectors in EE decisions. The inclusion of the residential sector in EE processes is crucial for a successful implementation

(1) The Energy Community is an international organization which brings together the European Union and its neighbors to create an integrated pan-European energy market. The organization was founded by the Treaty establishing the Energy Community signed in October 2005 in Athens, Greece, in force since July 2006. The key objective of the Energy Community is to extend the EU internal energy market rules and principles to countries in South East Europe, the Black Sea region and beyond on the basis of a legally binding framework.

(2) https://ec.europa.eu/commission/presscorner/detail/en/qanda_21_6686

(3) https://energy.ec.europa.eu/topics/renewable-energy/renewable-energy-directive-targets-and-rules/renewable-energy-directive_en

(4) https://ec.europa.eu/eurostat/web/products-eurostat-news/-/ddn-20210521-1

of national strategies, policies and programs, and for the fulfilment of respective EU goals and objectives.

2.2. Assessing the elements of community engagement models for EE

Citizen engagement in activities at local / community level is the essence of democratic societies. Nowadays, however, global society is faced with many challenges. We live in a time of false democracy and easy manipulation of civic participation in social processes. Technology, social media and social distance between people have created a space for formal, instead of meaningful citizen involvement. Globalization, poverty, unemployment, the domination of IT technology in people's everyday life and low level of education are tearing society apart, breaking down the linkages between civil society, government and the private sector. Thus, the need for active and meaningful participation of all stakeholders is imperative for keeping society vigorous for further socio-economic and human development.

Based on Arnstein, there are different approaches to create models for citizen engagement (see Figure 1. below) in the community decision-making processes.

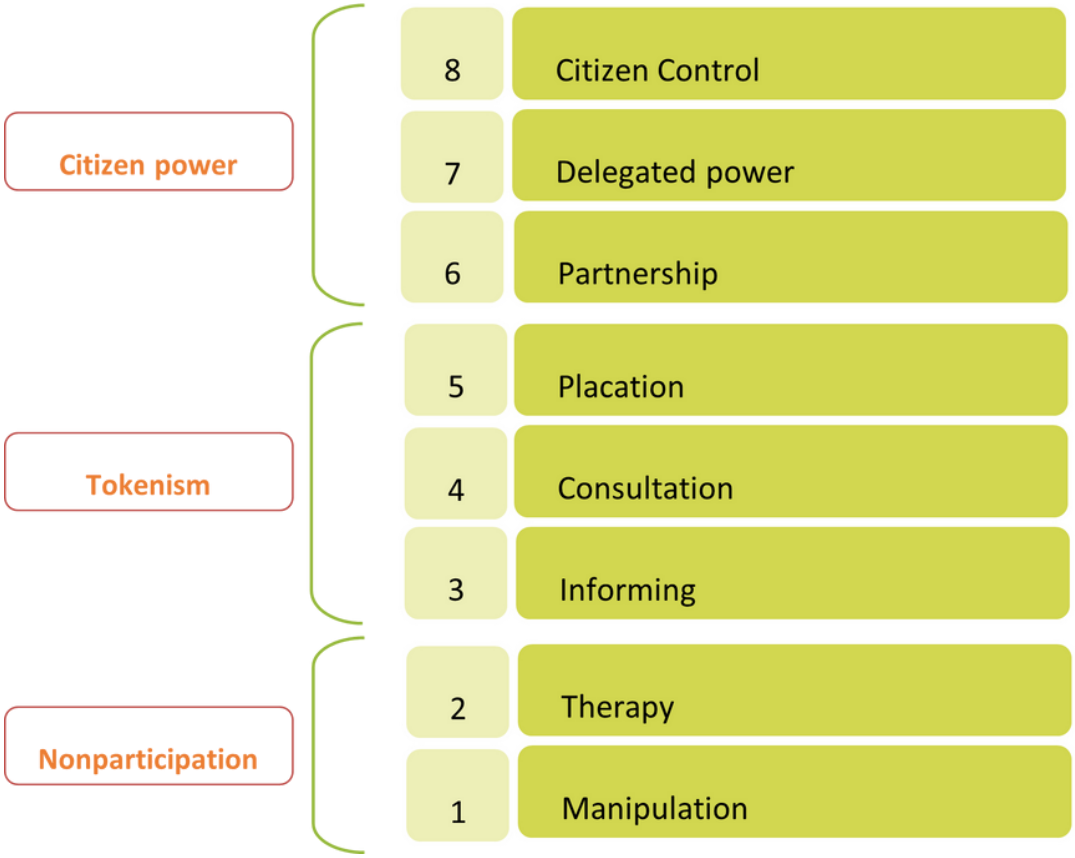

Figure 1: Levels of participation (Arnstein, 1969)

On Figure 1. we can see, as we go higher on the ladder the higher citizen engagement in the decision making process is. The first two levels on the ladder are 1.Manipulation and 2. Therapy, which are used whenever there is a need to show citizen participation, while power-holders are in a position to educate and/or "cure" participants. In the context of EE in MABs, the first two steps mean that the citizens are merely exposed to public relations campaigns, which emphasize the problem and offer solutions, but without any participation possibility. Sometimes, municipalities are just offering their renovation plans, and using media to promote their plans as the best solutions for citizens. The Tokenism, which includes 3. Informing, 4.Consultations and 5. Placation (high level of Tokenism) is used whenever there is a need for symbolic efforts as citizen engagement levels. Tokenism in citizen engagement in EE actions can be either sharing one-way information (leaflets, brochures on EE) without feedback possibility or organizing surveys, neighborhood meetings or gatherings, where people are discussing how to renovate the building, but have no power for decision making because the subsidies are coming from the local authorities without defined criteria. Further up the ladder are levels of citizen power with increasing degrees of decision-making partnership. The partnership enables them to negotiate and engage in decision-making processes with traditional power holders.

An active and meaningful participation of all stakeholders can be achieved only through meaningful and productive involvement of all stakeholders resulting in community engagement, which relies on citizen engagement as household members, and the engagement of NGO and business sector representatives and their participation in the processes for sustainable EE. To put it simply: to have a community engagement, we need citizen participation and engagement (5). Differences and interlinkages between the three terms (citizen participation and engagement, community engagement) are illustrated in Figure 2. below.

Citizen participation is motivated and initiated by the citizens and is considered a bottom-up approach. This informal approach requires a high level of societal inclusiveness and awareness among the citizens. Its main challenge is how to mobilize the citizens and how to achieve massive support to target larger policy domains. Citizen engagement is a broader term for the involvement of citizens, placing the citizens at the center of policymakers' considerations, not just as a target, but also as agents. Under the right circumstances, citizen engagement can help local governments to improve public service delivery, public financial management, governance, social inclusion and empowerment. Citizen engagement provides the sound basics for proper community engagement, which has become crucial for more democratic, sustainable and just energy transitions via delivering strategic objectives with long term results.

Besides citizen's participation, citizen's engagement and community engagement, social capital of the community is another important element in creating a supportive "ecosystem". Social capital of communities means to establish trust-based networks including the reinforcement of relationships among families, communities and org-

(5) There is a slight difference between the terms citizen engagement and citizen participation. Namely, the key difference between participation and engagement is that citizen engagement requires an active, intentional dialogue between the citizens and the public decision-makers, whereas citizen participation can come from citizens only.

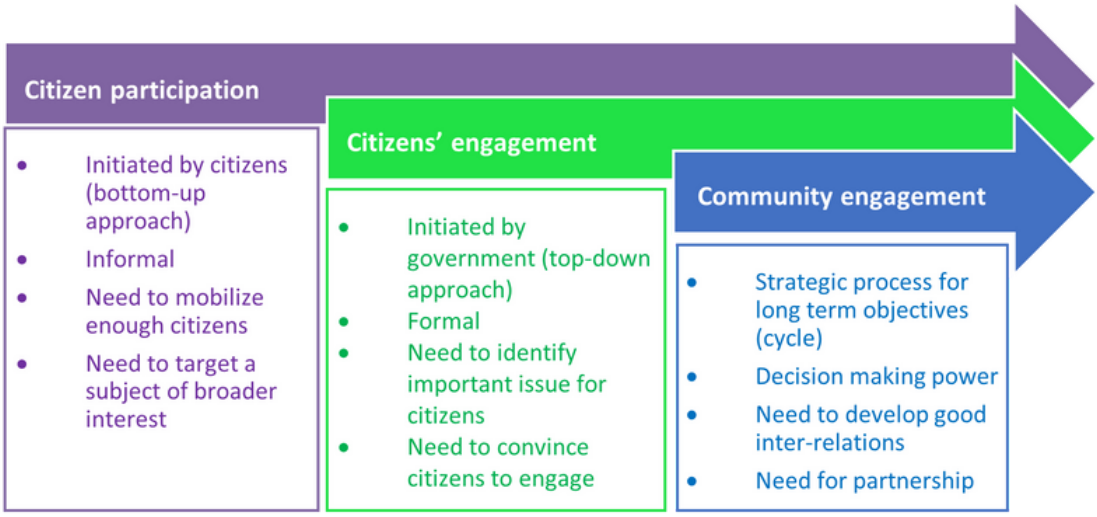

Figure 2: Citizen engagement and participation, community engagement (Own graph)

anizations. Social capital revolves around three dimensions: 1. interconnected networks of relationships between individuals and groups (social ties or social participation), 2. levels of trust that characterize these ties, and 3. resources or benefits that are both gained and transferred by virtue of social ties and social participation (Poteyeva, 2018). Social capital has proven to be very important in delivering societal well-being. Studies have found that levels of social capital are positively correlated to the levels of employment in communities, academic performance, individual physical health, economic growth, immigrant and ethnic enterprising, while enhanced social capital has a positive impact on EE at the household level (McMichael, 2007).

Considering the social nature of energy consumption and the importance of the relations among people, especially at community level, social capital can be used to spread useful and trusted information, mobilize local community groups to organize collective action, and even to build social capital into the community. In the context of EE for MABs, social capital has a positive impact on triggering new ideas linked to EE and employing different types of capital: economic (finances, technology, resources), human (knowledge, skills, behavior), cultural (values, beliefs, social prestige). Social capital, with the trust and common sense about EE at the community level can contribute to reducing energy consumption, motivate the use of more efficient energy services and home appliances, as well as develop initiatives for environment protection and climate change mitigation.

Given the complexity of EP and the EE of MABs, it is crucial to consider all of the involved parties, their relationships, and the circumstances supporting or hindering EE investments. The creation of a "supportive ecosystem for EE" means that citizens, homeowners who live in MABs and who are organized in homeowners associations (HOAs) play the main role in the process accompanied by local authorities, NGOs and the business sector. All parties in this "ecosystem" have their responsibilities, decision-

making power and motivation to participate, which enable them to build capacities of the sector and create an environment for further improvements in residential EE.

2.3. Analyzing community engagement techniques in light of EE in MABs

Citizen participation is still underused as a mechanism for improving the residential EE of MABs in CEE countries. There are different EU-funded or other projects targeting residential EE and most of them specifically require a compulsory element to engage stakeholders within the project.

Mapping stakeholders at the beginning of the community engagement activities is a recommended tool to identify, recognize and analyze all relevant actors in the residential EE sectors, which gives a general picture also on their inter-relations, interest and decision-making power. There are four different types of stakeholders' influence in the process that are important to focus on, each of them requires different approaches and specific methods to reach the considered stakeholder types.

Figure 3. presents the hierarchy of community engagement techniques, starting from information sharing, which covers a big number of stakeholders and requires less effort, to partnership, which can be made with only few stakeholders, but requires greater efforts. It also shows the relationship among the level of stakeholders' engagement, their interest to participate and their power in the decision-making process.

Pull communications can be used at the beginning of the processes, which is followed by higher levels of engagement. Pull communications usually include different types of communication tools such as brochures, announcements, posters, presentations, social media activities, press releases. Push communications is a two-way process, and is used in a situation when the power-holders are interested in hearing the opinion of the citizens, but they have the authority to decide whether to accept it or not (6). Tools and methods of it include public hearings, panel discussion, round tables conferences.

Consultation is used in a situation when there is a need for an exchange of opinion, or the power-holders are interested in modifying their proposals. The consultation is appropriate in the context when there is a clear vision and plan for the intervention, but still there are several alternatives to consider. Methods for consultation include research, analyses, consultative meetings. Participation is a high form of civil engagement when all stakeholders in the process have the benefits of the joint venture. Participation is possible only in the situation when stakeholders have a clear idea and interest about the intervention via e.g. advisory groups, rules and procedures for joint activities. Partnership is the highest form of stakeholders' engagement that anticipates equal power and interest of stakeholders for the intervention. Community cooperatives or self-managing local councils are examples of this kind of community engagement.

Good example of community engagement on residential EE are energy communities (7), which

(6) https://www.stakeholdermap.com/stakeholder-engagement.html#ment
(7) https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/energy-communities-overview-energy-and-social-innovation, approached, March 2022

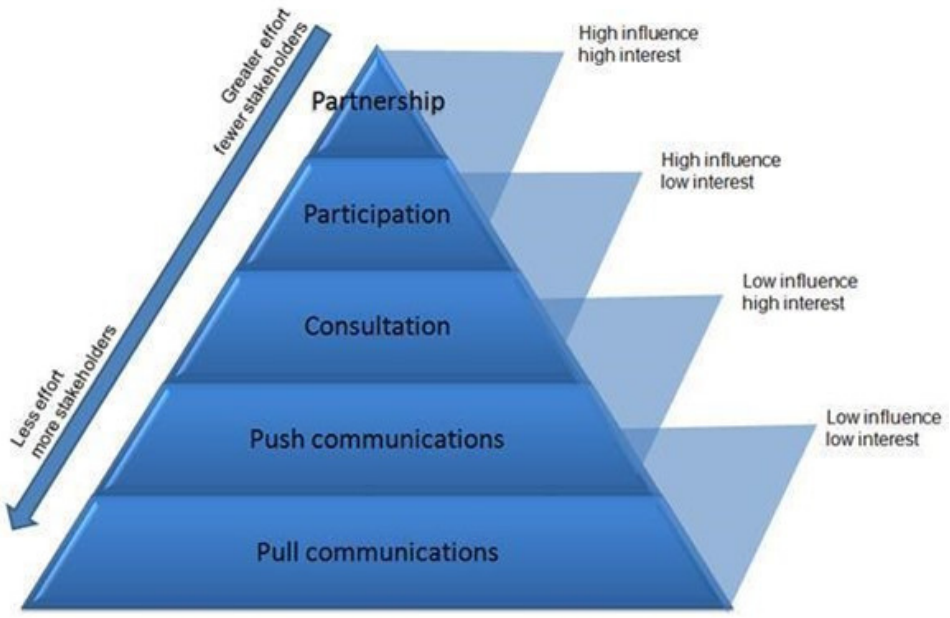

Figure 3: Level of influence, interest and required efforts (8)

bring consumers and producers together and allow them to exchange energy locally through an open, democratic system. By actively involving consumers, renewable energy can be rolled out, so that all concerned citizens have access to green electricity and contribute to the integration of this energy in a flexible energy system. In this regard, energy communities can be considered as a community engagement tool, in which stakeholders with high influence and high interest are creating partnership in upgrading energy management. Through energy communities, citizens are able to work together individually (as a renewables self-consumer or as an active customer), they can join forces within the same apartment building (as jointly acting renewables self-consumers or as jointly acting final customers) or they can organize themselves in a larger group (as a renewable energy community or as a citizen energy community). Energy communities are already recognized in the EU legislation, while in some national legal systems their forms and arrangements are still lacking.

3. HABITAT MACEDONIA'S BEST PRACTICES IN COMMUNITY ENGAGEMENT FOR EE IN MABS

Since 2010, Habitat Macedonia has been implementing six specific projects (9) incorporating community engagement to enhance residential EE retrofits in MABs. Starting from organizing informative meetings at MABs level through consultations with the stakeholders, to

(8) https://www.stakeholdermap.com/stakeholder-engagement.html#ment

(9) Habitat Macedonia residential EE projects are: 1. E&E Regional Energy Security and Market Development (2009-2011)- USAID; 2. Improving energy efficiency for low-income households (2011-2015)- USAID; 3. Market Development Initiative (2014-on-going) – HFHI-TCIS ; 4. Residential Energy Efficiency for the Low Income Households (2017-2022) 5. ComAct (2020-on-going) – EU, Horizon2020, 6. EXCITE (2020-on-going) EU, Horizon2020

with HOAs, Habitat Macedonia has put great efforts into mobilizing and engaging communities. Habitat Macedonia has been doing this through following the needs and responses from the homeowners, while considering the interests of other stakeholders, e.g. municipalities, banks and construction companies.

At the beginning of EE upgrades in MABs, the main focus was on accessing support from the local government and motivating construction companies to cooperate and establish a joint venture. Community engagement was not considered as a crucial activity. Habitat Macedonia renovated the first building in 2009. The renovation was done with the involvement of the municipality of Karposh (Skopje) and a specialized company for windows and doors. In the financial model the municipality provided a grant for the façade, while the homeowners invested in the replacement of windows and doors through affordable payment conditions from the specialized company, to which Habitat Macedonia provided a cumulative loan.

After the first building renovation, it became clear that engaging homeowners is the crucial part in the successful EE retrofitting process. It also became evident that the interest and capacities of the construction companies, local self-government units, finance institutions, consultants, relevant state institutions as well as the socio-political, economic, technical and other external factors needed to be addressed.

The project "Improving energy efficiency for the low income households" (2011-2015), financed by USAID and Habitat for Humanity International offered a more organized approach in community engagement and a comprehensive methodology on how to target all segments in the EE of MABs ecosystem. The project was organized followingly:

- Component A: Develop and test market-based models for EE upgrades in collective housing units;
- Component B: Improve management of collective housing units in Macedonia;
- Component C: Facilitate investment, entrepreneurship and job creation on EE;
- Component D: Foster a broad-based societal platform that affirms EE consumption of clean energy and advocates for efficient and targeted state involvement in the housing sector.

During the five year project, 36 buildings in six different municipalities were renovated and six financial models were tested. Community engagement was an essential part of the retrofits. Numerous informative and educative materials were produced, underpinned by training and promotional events in order to disseminate the information and increase awareness. During the project an extra officially approved curricula subject was introduced in the technical schools, in which so far 4526 students and 169 high-school teachers have participated.

In cooperation with relevant NGOs as well as state institutions, the legal and social environment of scaling up EE retrofits have been enhanced through amending the legislation and drafting the Housing Law, the Law on Energy Efficiency and the Social Housing Law. Numerous round tables, group discussions, panel and other public gatherings have

been organized to share knowledge and to raise awareness among experts, homeowners, authorities and citizens. Stakeholders groups (10), as a form of ensuring participation and partnership in building retrofits, were established within the project. The gained knowledge was also utilized in projects from other areas (11).

Based on our project experiences (12), we concluded that the most efficient way to engage citizens is to set up EE Resource Centers RCs, which provide more complex services than one-stop-shops in the frame of closely following up the whole renovation process as well as carrying out social facilitation activities including e.g. capacity building event organization. Therefore, EE RCs provide places to exchange ideas, information and knowledge for scaling up EE retrofits, which form a significant part of Habitat Macedonia's interventions for MABs. In Macedonia, there are one online RC sun by Tenant's Associations (13) and two personal community set EE RCs in Karpos and Kavadarci. These RCs enable direct support to the citizens living in MABs and other interested parties such as NGOs, governmental institutions, the academic community, and the business sector supporting citizen initiatives for EE and environmental protection. They provide technical and legal support to homeowners; organize capacity-building activities, such as training, consultancy and coaching; as well as provide hands-on advice especially for low-income households on a variety of issues in order to improve EE and the management of buildings.

4. CONCLUSIONS

In order to successfully deliver EE retrofits of MABs, robust community engagement based on sound citizen participation and engagement is essential. Energy Efficiency Resource Centers are valuable tools for improving community engagement via capacity building and knowledge sharing. They also play a role in enhancing the legal and financial environment for EE retrofits and thus in implementing EE activities. Furthermore, EE RCs play a role in establishing debates and groups of activists that will advocate and lobby in favor of an improved legal and financial framework for residential EE and for citizen involvement in public decision-making and reform processes.

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(10) Stakeholders Advisory Groups (SAGs) were a part of the community engagement activities in other projects for energy efficiency (e.g. Community Tailored Actions for Energy Poverty Mitigation - ComAct) and they contributed to a better planning, implementation and monitoring of project activities

(11) Habitat Macedonia's projects for upgrading quality of life in the marginalized communities are: Promoting Housing Rights for Roma (2010); Developing Indicators for Social Inclusion (2011-2012); Legislation of the Roma Housing (2012-2016); Roma Housing Rights for Sustainable Urban Development (2014); Developing Sustainable Model for Roma Employability (2015); Enhancing Sustainable Urban Development for Roma Communities (2019-20220).

(12) https://comact-project.eu/the-project/

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Further relevant resources can be found at the following link: https://bit.ly/3ySCVqm

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Research results of RenoHUb project and experiences of RenoPont, the first Hungarian one-stop-shop

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ABSTRACT

Large part of the building stock in Hungary is outdated in terms of energy efficiency and requires modernisation, but the renovation rates are far from expectations in quantity and quality. The RenoHUb project was set up to change this, designing the first Hungarian one-stop-shop (RenoPont) to help residents through the entire renovation process. A series of background studies were carried out to understand the needs of homeowners who want to energy renovate their flat or house (we call them renovators) and how to help them most effectively. The results showed that the main motivations for renovators are aesthetics and comfort and that renovating an average family home can increase its market value by 20%. The project is currently funded by the European Union's Horizon 2020 programme, but the service is aimed to be self-sustained by the end of the project period.

Keywords: *one-stop-shop, energy efficiency, renovation wave*

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I. INTRODUCTION

It is not an exaggeration to say that energy efficiency (EE) has become a central issue almost all over the world today. Already in 2015, the European Commission set out the principle of 'Energy Efficiency First' as one of the EU's founding principles, but the unprecedented rise in energy prices in recent months has brought EE even more into focus. In 2020, Hungary's energy intensity was 1.8 times the EU-27 average (Eurostat, 2022), meaning that Hungarian consumers used 1.8 times more energy per unit of GDP.

When it comes to EE in Hungary, the domestic residential building stock has an enormous potential for energy savings. Around 40% of the country's primary energy consumption is related to buildings and one third to households. In total, there are 4.4 million residential buildings in Hungary, three quarters of which were built before 1980. At that time, EE was not considered at all in construction, nor was it regulated by law. It is therefore not surprising that most of the housing stock in Hungary is outdated and energy inefficient, with an average energy performance of energy performance certificate (EPC) category FF (200-250 kWh/m²/a), which means that the average Hungarian residential building consumes at least twice as much energy as a 'modern' (but not nearly zero energy) building classified as CC (100-130 kWh/m²/a).

According to estimations by experts, approximately 100-130 thousand apartments would need to be refurbished each year in order to modernise the building stock, whilst the actual yearly renovation rate is far lower in Hungary. Here less than 3% in case of shallow, less than 1% regarding medium (resulting in 30-60% energy savings) and approximately 0.1-0.2% regarding deep renovations (resulting in more than 60% energy savings) (Szórádi, 2020). The other problem is that in most cases energy renovations are carried out reactively, without a technical plan and without the involvement of experts, usually after something breaks down. The consequence is frequently that no significant improvement in EE is achieved. Sub-optimal solutions are carried out, which do not exploit the potential of a certain building for energy savings and thus lock it in higher energy consumption for decades (lock-in effect). It is therefore necessary to change renovation habits and to encourage renovators towards complex renovations based on technical designs that exploit energy saving potentials (Illésné Szécsi et al., 2021). This realisation led to the creation of the RenoHUb project.

The RenoHUb project aims to stimulate a renovation wave and help renovators to maximise the savings potential of their property. The project is being implemented under the European Union's Horizon 2020 programme between November 2019 and April 2023. The project is led by Energiaklub Policy Institute and Methodology Centre, with consortium partners: the Hungarian Energy Efficiency Institute (MEHI), AACM Central Europe Llc, IMRO-DDKK and the Hungarian Family House Owners Association (1).

RenoPont, a one-stop-shop advisory network supporting the energy renovation of residential buildings, was established as the service of the pro-

(1) Read more about RenoHUb partners here: https://renohub-h2020.eu/partners/

ject. The two pillars of the system are the RenoPont website (www.renopont.hu) and a network of RenoPont consultancy offices (2) with a unified image. The aim of the project is that the RenoPont service becomes self-sustaining by the end of the project period.

In order to design an effective service, we outlined several background researches. Firstly, a market research in the first year of the project to get to know the potential renovators in depth: to see their motivations and fears about renovation, to learn about their needs and how we can help them effectively in the renovation process. We also developed an innovative and user-friendly building energy calculator to help our customers get an initial overview. Furthermore, we looked at the impact of energy renovation on the value of a property, which is presented in the next chapter along with the calculator as well as the results of the background research mentioned above and the RenoPont service itself.

2. METHODOLOGY

2.1. Market research

To better understand the needs of renovators and the obstacles they face, we conducted a market research in 2020. Thanks to a 3-day online blog and four focus group interviews, we gained an insight into the interviewees' attitudes towards renovation and what kind of help they would need throughout the process – i.e. what they would expect from RenoHUb's service.

The online blog was a case study of a moderated discussion over 3 days, using a logging technique. Our aim was to explore attitudes and personal experiences with EE and renovation, and to learn about the specific communication of renovators. Twenty people participated in this survey, they had to meet a number of filters, the most important of which was whether they had replaced windows, insulated or upgraded their heating in the previous 5 years.

In the focus group interviews, less emphasis was placed on mapping attitudes towards renovation: the main aim here was to test the concept of prospective services available in renovation advisory offices and on the online platform. The focus group interview is usually a moderated discussion of 6-8 people, followed by the client from behind a detective glass. In our case, because of the COVID situation, the interview was conducted online, thus we followed it through a YouTube channel. Four focus group interviews were conducted in this way, with 6-6 participants. The groups were designed to separately investigate those living in multi-apartment buildings (MABs) or single-family houses, and those who are before or after the energy renovation.

2.2. The building energy calculator (3)

An important feature of the RenoPont website (4) is the calculator, which allows interested parties planning a renovation to make a preliminary calculation of the energy performance of their homes. The calculations give an indication of the

(3) The calculator can be found at https://renopont.hu/kalkulator and can be used after a short registration (name, email address), in Hungarian.

(4) https://renopont.hu/renopont

current energy use of the building, and the user can then choose between renovation solutions and estimate the energy savings and emission reductions that can be achieved. The calculator is designed for residential use to help preliminary decision-making on EE upgrading of residential buildings, and has been designed in cooperation with the Budapest University of Technology and Economics.

The calculator has been developed to be used by prospective users without the need for expert knowledge, but it is not suitable for accurate calculations and does not replace expert work. However, thanks to an innovative solution, the calculator provides a more accurate result than expected. It does not only calculate on the basis of the data provided by the user (floor area, masonry, year of construction, type of windows, etc.), but also supplements them with the typical technical data of the specific building type (identified by the user's input). This is possible because domestic buildings are generally constructed with typical technical parameters of the period, which can be altered by the user inputs indicating technical parameters of the already implemented renovation works.

The study that provides the basis for the calculator describes in detail the Hungarian building types and their technical characteristics and the algorithm of the calculator (Csoknyai & Horváth, 2020). After running the calculator, the outputs are the assessed energy classification of the building, its approximate annual energy consumption and CO2 emission, and how much of this could be neutralised by planting trees. The calculator also evaluates the quality of the building's structural elements and mechanical systems to help users identify what energy renovation is needed. However, it does not give any more help than this, encouraging them to contact RenoPont offices to seek professional help for renovation (RenoHUb, 2020b).

2.3. Research on the relationship between EE and property value

The RenoHub project also included a unique research project led by the Hungarian Energy Efficiency Institute, in which the value of Hungarian residential property changes was examined according to its EE rating.

By combining the property characteristics based on the 2011 census housing questionnaires from the Hungarian Central Statistical Office (KSH), property market values recorded in the post-sale tax procedure in 2019 from the National Tax and Customs Administration (NAV) and data of energy certificates from year 2019 from the Lechner Knowledge Centre; new database of national importance was created. Since data merging was based on addresses and parcel numbers, the survey was only carried out for addresses that were undoubtedly identical, which resulted in 8,000 Hungarian detached houses as sample (N=8007).

3. RESULTS

3.1. Results from the market research

Based on the research it is clear that the most important motivations for renovation are aesthetics, increasing comfort levels and (energy/cost) savings. Painting, relocating walls, and possibly a new window will help renovators have a "beautiful," "bright," "cultured" home

instead of "drafty and ugly," "accident-prone". For many people, that is the most important thing – and even more relevant than their investment's payback. It was a surprising realisation for us that most people are not thinking in terms of energy renovation to save money, but basically in making their homes more beautiful and modern, and this may have elements that affect the energy performance of the building. Systematically planned renovations to save energy were not common in our research – and this was confirmed by a later, representative research by MEHI (Illésné Szécsi et al., 2021), where we measured that only 25% of the renovations were based on a renovation (or energy) plan made by a professional. Increasing the level of comfort is another important advantage of EE renovations, which can help with problems such as "the windows are not closing well", "the walls are not insulating well", "we are cold by the wall". Saving money also goes hand in hand with EE, and helps to ensure that the investment is recoverable in the long term, or at least, up to a month after renovations to have a lower energy costs to be paid. Although the pay-off on energy renovations was still very poor at this time due to the government's cuts in utility costs, most energy renovations (which are well-planned and implemented) can provide short-term, visible results.

Additional motivations were greater control (reliable, more controllable, economical heating system), safety, which also applied to burglary (safety shutter fitting), and carbon monoxide safety. Another important aspect is health: where the windows were constantly dampened and moldy, the ledge is swollen; a well-designed and executed renovation ensuring the vanishing of mold and dehumidification could bring great relief to the residents.

One of the most common fears about more complex renovations is that there is a tremendous amount of hassle, from ranging phone calls to meetings, from waiting for contractors to cleaning up renovation areas. "It was horrible, it took years of my life, now I'm there to give it all up," one participant summed up. The management of many small decisions, the stress, numerous resignations give the families difficult times. If they are not surrounded by the right professionals and contractors, the process can often become chaotic and renovators can often feel that they have lost control.

Closely related to this is the issue of predictability: how long the renovation will take, how much will it cost? Will the money be enough? Will the specialist really come? Unfortunately, often no one can give a reassuring answer to these at the beginning of the process.

Predictably, finance is one of the most critical issues, and the big question here is not only whether it will be enough, but also whether the renovator has managed to find the best value for money regarding the technical solution and a reliable professional who will really provide quality for the renovator's money. The question here is, where can a really reliable professional be found? This also causes great fear, and unfortunately renovators who often turn to their neighbours, friends and relatives for contact and information, make the same mistake as those who recommended the contractor.

An important question is trust: who do the renovators believe, who gives good advice? The neighbour, the contractor, the energetic, maybe other professionals? The person who gives information, does really have the proper and actual answer? Do the contractors offer a realistic price? Answering these questions is also hampered by a general lack of information: renovators are laymen who are often unable to answer contractors' questions, so they would be very grateful for reliable, understandable information and for decision support.

Accordingly, in the focus group research, the concept of our one-stop-shop was very well received by prospective renovators, especially the structured information and help available, the financial and authorisation advice and the database of reliable contractors (RenoHUb, 2020a).

3.2. Results of research on the relationship between EE and property value

The relationship between price per square metre and energy consumption was analysed by four settlement categories. The basic trends are the same for municipalities, county seats and cities: the price of buildings with good EE is higher, but as one moves from average to lower energy performance, no further price decrease can be observed. The exception is Budapest, where there is no clear correlation: the location of the property plays a greater role in the price, so that properties in older, prestigious areas are more expensive even if their energy quality is poor.

The final research was based on linear regression modelling, meaning that all diverse building characteristics describing age, size, location, number of rooms etc. were eliminated and only the energy certificate category's effect was analysed on the property's market value. The results clearly showed that, other characteristics being equal, there is a premium in the price of more energy efficient houses, i.e. the investment in modernisation leads to a price increase, which can be seen at Figure 1. on the next page.

The results shown in Figure 1. above indicate that homes with nearly zero energy demand (at least energy class BB or below 100 kWh/m2/year annual energy consumption) are more than 50% more expensive than those of similar characteristics but with the worst (JJ) class (above 500 kWh/m2/year). These energy efficient family homes command a premium of around 30% over the 'average' category (FF, 201-250 kWh/m2/year) of the requirements, while the worst (JJ) class buildings sell for almost 20% less than FF (RenoHUb, 2021).

3.3. The RenoPont service

The RenoPont service was designed by the RenoHUb consortium, based on background studies such as the above mentioned ones or investigations of the one-stop-shop models successfully operating in several European countries.

The RenoPont service is targeted at owners of detached houses and MABs, as well as MAB managers. The one-stop-shop services cover the whole spectrum of the renovation process: from preliminary energy savings calculations, through

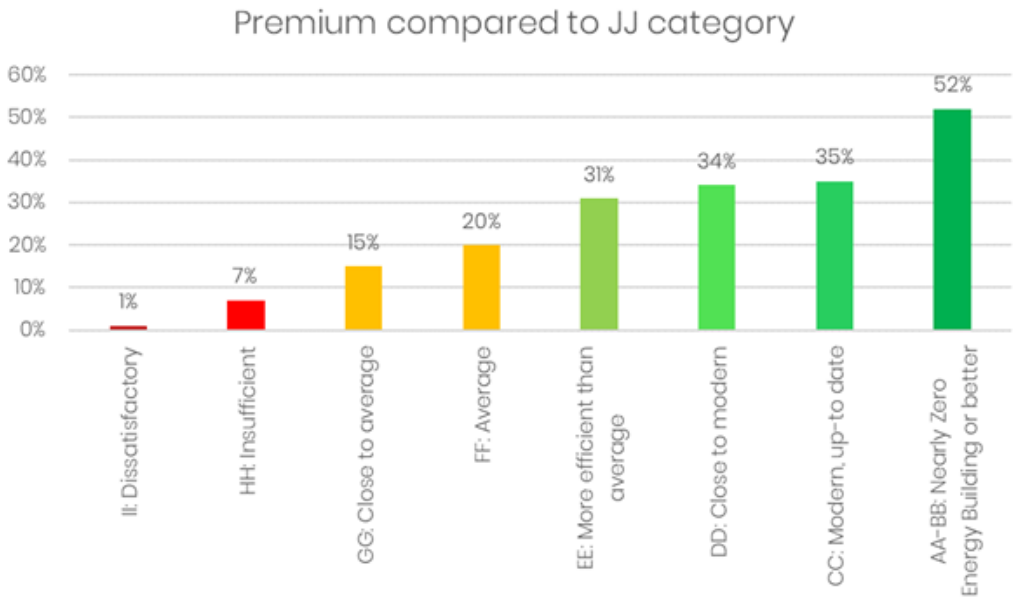

Figure 1. Price premium compared to JJ category after energy renovation. Source: RenoHUb, 2021

technical and financing advice, to recommendation of qualified energy and technical experts and contractors. The two pillars of the RenoPont service are the RenoPont website and the RenoPont offices.

The RenoPont website provides all relevant information on energy renovation. Visitors can read about the technical features and benefits of deep renovation, subsidy and financing options, warranty and redress issues, and a glossary and template documents to help renovators. The website also offers the energy savings calculator detailed in the previous chapter, a database of professionals and the possibility to book an appointment for an in-office or online consultation. Another pillar of the service is the dynamically expanding office network. There are currently four RenoPont offices in Budapest and three in rural areas. Our offices are staffed with consultants, and we offer in-person and online consultations as well.

3.3.1 The RenoPont customer journey

Customer journey encompasses all the phases a customer – in our case a homeowner – goes through from the moment of identification of the energy renovation needs until the end of the renovation process, or in other words, renovators go on to this journey within their renovation. The ideal customer journey according to the RenoPont methodology involves the least possible stress and leads to optimal technical results following the below listed 8 steps , in which the established RenoPont service would guide the customer through.

1. Orientation

As there are a lot of decisions that property owners have to make during energy renovation, it is important to be aware of the basics. Our website helps them understand the energy renovation process, the steps involved and what to look out for. We share information about the benefits of EE and deep renovation, showcase good examples of completed renovations in family homes and MABs, and include an online calculator to see how much energy can be saved in a particular home with different levels of renovation.

2. Personal advice

Once renovators gain the basic knowledge, several questions arise, which can be addressed during one-to-one consultations. This is an opportunity for the homeowner to discuss their questions and ideas about their own property with one of our colleagues. This service is available in the RenoPont offices or online free of charge.

3. Energetic assessment

The next step is to have the property assessed by an energy specialist. Based on this, an accurate and detailed renovation plan will be drawn up.

4. Finalising the financing plan and the renovation plan

The next step is to identify subsidies and other financial possibilities. Once the financial options have been clarified, the renovation plan can be finalised.

5. Preparations for the renovation

Once the plans are in place, there are three areas where renovation planners may need to take action: financial (grant management, application), regulatory (permits) and organisational (finding contractors, requesting quotes, choosing a contractor, contracting). Advice on each of these tasks can be found on the website.

6. Technically supervised construction

It is important that a technical inspector supervises the construction. It is his/her responsibility to ensure that everything is carried out according to the technical plans. If he/she finds any discrepancies, he/she will have them corrected by the contractor before handover, so that the property owner is not left with the unpleasant task of checking and accounting for them, which he probably does not have the expertise to do.

7. Acceptance and certification

If both the technical inspector and the owner find everything in order, the acceptance takes place. By ordering a new energy performance certificate, the improvement in the energy performance of the property can be formalised.

8. Proper use, guarantees and feedback

After the renovation, it is important to pay attention to the conscious and economical use, proper operation and maintenance. Advice on these and on warranty repairs can be found also on the website (RenoPont, 2022).

4. EXPERIENCE AND LESSONS LEARNT

In the first months of operation, we saw very modest interest. The measures taken in recent years to reduce utility costs (by keeping energy prices artificially low in Hungary) have not helped

the population to become conscious energy consumers (Weiner & Szép, 2022).

Customers come to us almost exclusively after booking an appointment. Especially before the rise in utility prices, many people came to the office for information only, with no firm intention of renovating in the near future. We believe that this will change now, because increasing energy prices have made energy upgrades more urgent, especially in the detached house segment.

The number of face-to-face and online consultations is roughly the same. The first consultation usually lasts around 30-40 minutes: face-to-face consultations are slightly longer, online consultations slightly shorter. Before the first meeting, we send an email to the client asking them to bring relevant documents (plans, technical specifications, etc.) related to the property concerned. During the first consultation, we usually discuss the weaknesses of the property and outline the resulting recommendations for intervention. We also discuss possible subsidies and financial options. If the client comes to us with very specific questions and ideas, we also try to draw their attention to the benefits of a complex renovation. For our clients with a family house, due to the fact that the renovation is more complicated and involves more questions, but also because the scope for change is greater, we usually recommend that an energy specialist assesses the home and makes more precise investment proposals.

An important part of our service is the recommendation of professionals (energy specialists, contractors). To ensure that we can recommend reliable and competent professionals and contractors to our clients, we cooperate with a company specialising in the certification of construction companies. However, the uploading of our database of professionals is progressing slower than expected. The construction industry has been booming for years, and in the last few years professionals have received a lot of orders, so only a few think that they would benefit from being included in our database. Given the high level of distrust of contractors among renovators, we believe that expanding our database of professionals is key to the success of the project. It would be important to ensure that all trades and all regions are represented by an adequate number of professionals. In addition, emphasis should be placed on the ongoing client and practice-oriented training of office consultants, whose competence and credibility are essential.

After giving advice, we try to follow up on the progress of our clients' property upgrades. We, however, have not yet received any feedback on completed complex renovations so far. The reason for this is that the waiting list for specialists is long so renovations usually last longer than expected.
As we are developing our office network, we are seeing an openness and demand from many municipalities in presenting our service in their area. We have partnerships with several municipalities, where they provide the staff and premises, while we provide the training of the appointed consultants.

At the moment the service is still free and numerous people use it, but the future pricing of the service is an urgent question as well as the issue of becoming self-sustaining by the end of the project period. Pricing ideas include the removal of

the fee-free consultancy and setting a commission from professionals in the database, possibly from recommended building material suppliers. All this should be done without compromising our brand independence.

In the spring of 2022, our staff joined the Europa One-Stop-Shops Mentoring Programme, where we can learn from more experienced mentors about how their business model has worked. We are confident that we can find a way to operate profitably and achieve the project's goals, contributing to a more environmentally and socially sustainable future.

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PUBLICATIONS

ENOVA: Report on a survey conducted among low-income households in historic buildings from the late 19th and early 20th centuries in the Municipality of Centar

ENOVA, a leading provider of environmental, health, safety, and risk-related services in Bosnia and Herzegovina published a report based on a survey conducted among low-income households living in historic buildings in the Municipality of Centar, Skopje. The survey was conducted in the framework of the USAID-funded Residential Energy Efficiency for Low-Income Households (REELIH) project. The report presents the results of the survey.

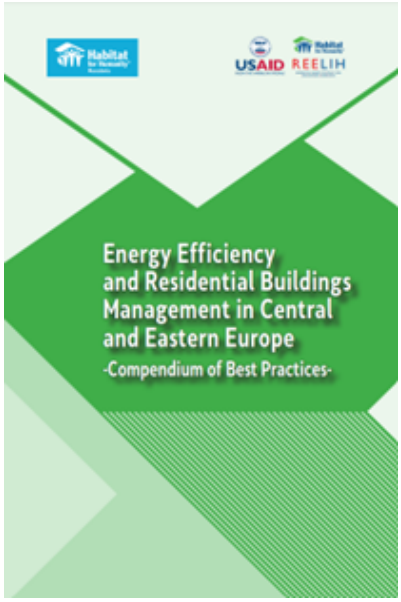
The full report can be read here.

Habitat for Humanity Macedonia: Energy Efficiency and Residential Buildings Management in Central and Eastern Europe - Compendium of Best Practices

Habitat for Humanity Macedonia brought together the best practices from Central and Eastern European countries presenting the positive experiences in implementing national energy efficiency initiatives and programs in the residential sector.

Considering the specificities of energy efficiency in residential buildings, as a particularly important issue in this region, the publication provides an overview of successful practices of energy efficiency measures, different aspects of overcoming challenges and achieving positive results. The publication covers examples from Slovakia, Estonia, Poland, Bulgaria, Armenia, and North Macedonia.

The full study can be read here.



HÉTFA Research Institute: publication

In 2021, Hétfa Research Institute – commissioned by Habitat for Humanity Hungary – examined the macroeconomic impacts of the worst-performing residential buildings in Hungary by using its own CGE model and cost-benefit analysis.

The study analyzed the impacts of two hypothetical renovation scenarios on the national economy and households and monetized them when it was possible. The results show that Hungary would benefit from the renovation of the worst-performing residential buildings, as it contributes to the growth of the GDP, increases employment level, improves air quality and standard of living, and helps to reach climate policy goals.

However, in order to exploit these possibilities, grants should be targeted carefully. Return of energy efficiency investments in households depends on the rate of support provided by the state, and without proper incentives and regulation, household members may not favour these types of investments.

The full study /in Hungarian only/ can be read here.

INZEB: A subject to an examination: "Clean" Energy Bills for all citizens in the EU

The energy crisis across Europe has left citizens facing inflated energy bills. In addition to the financial burden, there is also a psychological one. Since the bills are often incomprehensible and unclear to understand, they may burden households with unidentified additional costs on consumption.

In this context, INZEB with its partners published a report on "Clean" Energy Bills for all citizens in the EU. The report explains the format that energy bills should follow to be understandable, giving sufficient explanation to all the bill lines. The report presents similarities and differences between 25 EU countries regarding energy bills, pointing to good practices and acceptable templates.

The full report can be read here.

PROJECTS

EDINA: Energy-efficient development of special revitalisation zones and urban areas

Institute of Urban and Regional Development together with the Energy Conservation Foundation (FPE) and IWO - Housing Initiative for Eastern Europe implements the EDINA project, which aims to prepare a toolkit for measures and ways to improve energy efficiency in municipalities implementing revitalisation programs also in areas with difficult ownership relations or spatial conditions.

Building knowledge and capacities for assessing energy efficiency indicators (for example through the energy efficiency calculator)raises awareness of the beneficial environmental impacts of renovation projects. The project developed a toolkit on Improving the energy efficiency of residential buildings in revitalization areas, which contains information on improving energy efficiency in revitalization areas and methods of comprehensive improvement of energy efficiency by improving the technical performance of buildings in the investment processes. EDINA also produced training programs and materials addressing the international public but especially distributed in Lithuania, Latvia, and Hungary.

This project is part of the European Climate Initiative (EUKI), which is a project financing instrument by the German Federal Ministry for Economic Affairs and Climate Action (BMWK).

Learn more about the EDINA project here and in project videos here.

POWERPOOR: Empowering Energy Poor Citizens through Energy Cooperative Initiatives

PowerPoor project is an EU-funded Horizon2020 project implemented by a consortium of 14 partners from 11 European countries (Belgium, Bulgaria, Croatia, Estonia, Germany, Greece, Hungary, Latvia, Luxembourg, Portugal and Spain), across geographic regions of Europe representing different needs and characteristics.

The main aim of PowerPoor is to support programs/schemes for energy-poor citizens and to encourage the use of alternative financing schemes, like establishing energy communities/cooperatives, or crowdfunding. PowerPoor facilitates experience and knowledge sharing, as well as the implementation of small-scale energy efficiency interventions and the installation of renewable energy sources while increasing the active participation of citizens. Pilot energy-poor support programs/schemes are designed, developed, and implemented in eight countries across Europe - Bulgaria, Croatia, Estonia, Greece, Hungary, Latvia, Portugal and Spain - led by a network of certified Energy Supporters and Energy Communities Mentors with the support of Stakeholder Liaison Groups.

Learn more about the POWERPOOR project here.

ABOUT HABITAT FOR HUMANITY INTERNATIONAL

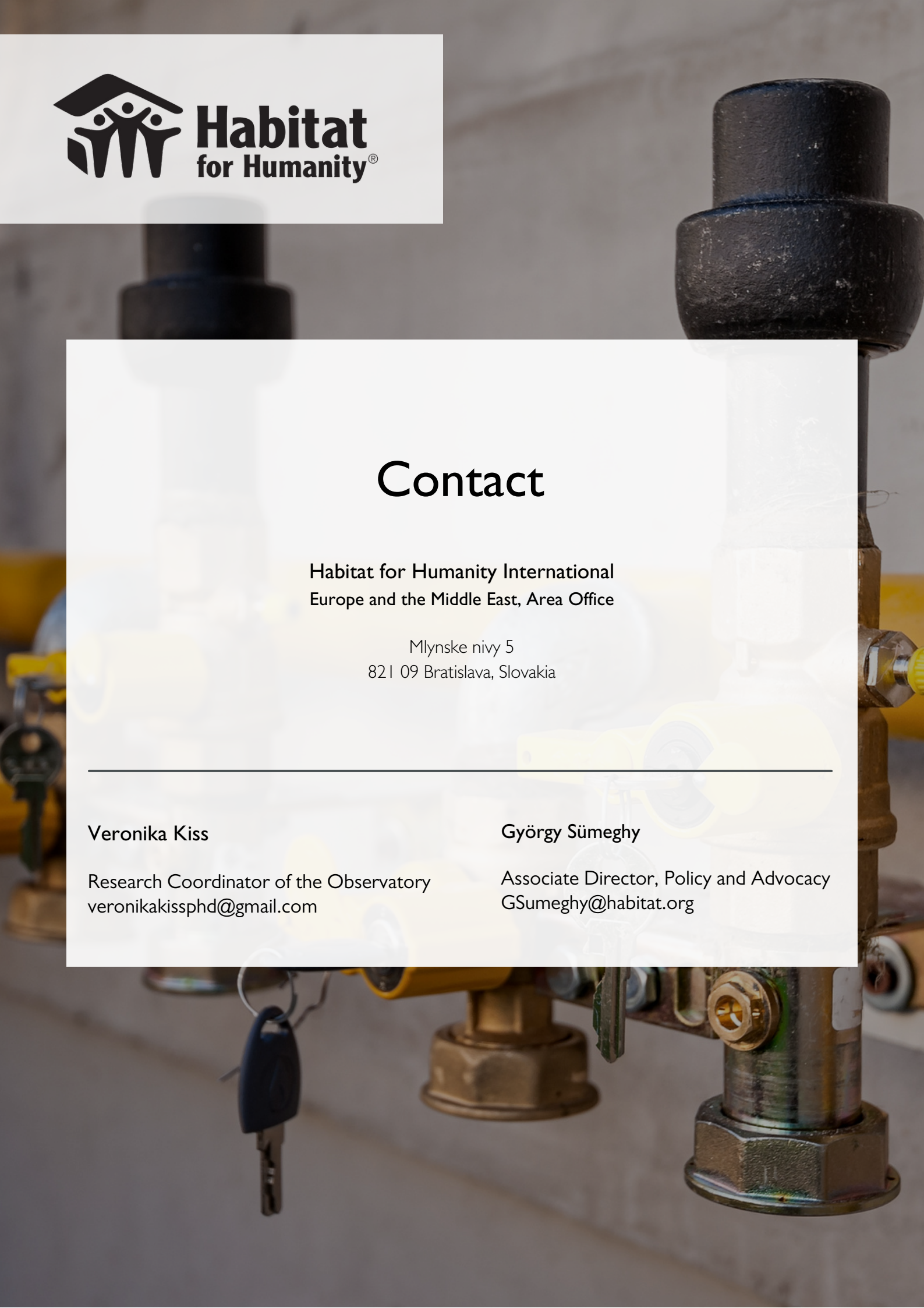
Driven by the vision that everyone deserves a decent place to live, Habitat for Humanity International is an international NGO that helps individuals and families achieve the strength, stability and self-reliance through decent and affordable shelter. With a presence in nearly 70 countries, our work includes residential energy efficiency; incremental housing support services; basic services such as water and sanitation, security of tenure, resilient and sustainable construction; inclusionary financing; community development; and policy advocacy. Habitat for Humanity International has programs and offices in 10 EU Member States and 6 countries in Energy Community countries outside the EU. In Europe, HFHI is a member of the European Housing Forum and a partner of Housing Europe and UN-ECE.

Habitat for Humanity International, Europe and the Middle East, Area Office (HFHI EME) is a regional office with a seat in Bratislava, Slovakia. HFHI is a global, non-profit housing organisation with over 40 years of experience with a mission to empower people in the world's poorest communities to overcome the chronic lack of decent, affordable housing. HFHI EME has been involved in the work of residential energy efficiency in Central and Eastern Europe, the Balkans and the Baltics since 2010. In addition to residential energy and poverty, HFHI EME in Europe and neighboring countries engages in the following areas: advocacy and housing rights, housing micro-finance, skills training and financial literacy and housing of vulnerable groups.

For our REE approach, check the following:
REELIH project: getwarmhomes.org
ComAct project: comact-project.eu

Habitat for Humanity®

To find out about what we do, scan this QR code.



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