



D4.1 | Final report on comparative sociological analysis of the household survey results

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The project in brief

The Energy Union Framework Strategy laid out on 25 February 2015 aims at fostering a cost-efficient energy transition able to deliver secure, sustainable and affordable energy to all European consumers. It has embraced a citizen-oriented energy transition based on a low-carbon transformation of the energy system. At the end of the day, the successful implementation of the Energy Union will materialise in a change in energy production and energy consumption choices. Such choices are heavily shaped by particular economic prerequisites, value systems, gender-based preferences, efficiency of governance and the maturity of civil society.

The ENABLE.EU project attempts to understand the key drivers of individual and collective energy choices, including in the shift to prosumption (when energy consumers start to become also energy producers). The project will develop participatory-driven scenarios for the development of energy choices until 2050 by including the findings from the comparative sociological research. As differences between European countries remain salient, ENABLE.EU will have a strong comparative component.

The final aim of this project is to contribute to more enlightened, evidence-based policy decisions, to make it easier to find the right incentives to reach the twin goals of successful implementation of the Energy Union and Europe's transition towards a decarbonised energy system. To reach this final aim, ENABLE.EU will seek to provide an excellent understanding of the social and economic drivers of individual and collective energy choices with a focus on understanding changes in energy choice patterns. Results will be disseminated to relevant national and EU-level actors as well as to the research community and a wider public.

1. Introduction

Building on a 2010 proposal by Jacques Delors, the European Union is now building its Energy Union that aims at fostering a cost-efficient energy transition able to deliver secure, sustainable and affordable energy to all European consumers.

The Energy Union Framework Strategy laid out on 25 February 2015 embraces a citizens-oriented energy transition. Resting on five pillars¹, it aims at easing the delivery of the EU energy-climate objectives: reduce EU territorial greenhouse gas emissions (20% by 2020, and 40% by 2030), increase the share of energy coming from renewable sources (to 20% by 2020 and to 27% by 2030) and improve energy efficiency (20% by 2020, 27% by 2030).

Those general EU objectives are largely supported by the EU public opinion. According to a special Eurobarometer survey² published in 2014, 80% of the Europeans agree with the statement “fighting climate change and using energy more efficiently can boost the economy and jobs in the EU”. In the meantime, 91% of the surveyed Europeans were supportive of national governments setting renewable energy targets and 92% in favour of governmental support for energy efficiency.³ Democratic legitimacy and public acceptance however need further efforts to be understood and include all stakeholders in the governance of the energy transition; as well as ensuring that public policies are in line with citizens’ preferences.

Aiming at addressing particularly the public acceptance and attitudes towards the low-carbon energy transition in Europe, ENABLE.EU conducted a nationally representative survey among the population in the 11 project’s partner countries – Bulgaria, France, Germany, Hungary, Italy, Norway, Poland, Serbia, Spain, Ukraine and the United Kingdom (See Appendix 1. Survey and sample methodology). The survey methodology was designed to allow both in-depth analysis of country specifics and cross-country comparisons, putting a focus on three key consumption areas – heating and cooling, mobility and use of electricity, as well as governance and prosumers’ issues related to the energy transition. The survey methodology addresses also the needs of the four case studies, implemented within the project⁴, and includes specific blocks of questions covering each of the case studies’ topics, which will enrich the understanding of the drivers and barriers, affecting the individual and collective energy choices across the countries. In addition, the survey results would feed the forthcoming research tasks in the implementation of the ENABLE.EU project, i.e. WP3 and WP5-7. Although the comprehensive literature review has demonstrated⁵ that there have been numerous studies on the same topics in the last decade, the ENABLE.EU survey is much more ambitious, aiming at covering the whole spectrum of factors driving both the individual and collective (e.g. on household level) energy choices and the respective behaviour, thus deepening the understanding of the recent constitution and combination of socio-cultural, economic, technological and governance factors that affect the everyday practices of the European citizens. Taking into account the reviewed theoretical frameworks⁶, the survey covers the following major interrelated issues:

- Household’s socio-economic characteristics (gender, age, income and education levels). Particularly

¹ Energy security, solidarity and trust; A fully integrated European energy market; Energy efficiency contributing to moderation of demand; Decarbonising the economy; and Research, innovation and competitiveness.

² Special Eurobarometer 409 on Climate Change, March 2014, online available at http://ec.europa.eu/public_opinion/archives/ebs/ebs_409_en.pdf, accessed on 15.02.2017.

³ Ibid.

⁴ On heating and cooling, mobility, prosumers, and governance.

⁵ Final comprehensive literature review setting the scene for the entire study, D2.2, June 2017, online at <http://www.enable-eu.com/downloads-and-deliverables/>

⁶ Ibid.

the possible gender-based perceptions, value judgments and practices have been addressed for all the issues;

- Household's energy needs and use of energy in everyday situations (e.g., going to work, heating the home, using transportation) with a focus on the predefined three key consumption areas (heating and cooling, mobility and use of electricity) and governance and prosumers' issues;
- The changes, underwent by individuals or households in the last years regarding their energy habits, energy consumption patterns and everyday energy practices or lifestyles;
- External (e.g. social norms, policies, and infrastructure) and internal factors (e.g. attitudes, values and beliefs), affecting as both drivers or barriers the individual and collective energy choices and the respective behaviours, thus giving some insights into possible cognitive and moral factors driving individual and collective decision making.

The survey conceptualization is based on the need to better understand the role of human everyday practices and how they interplay with the institutional, legal and socio-technical frameworks to produce behavioural habits and sense-making in the processes of implementing the energy transition objectives. It also addresses the need for better conceptual understanding of the shift, which consumers have undergone in recent days - from passive users of energy resources to active contributors to generation of energy, i.e., to prosumers.

The survey results aim at addressing four out of the five project's specific objectives (SOs) as they have been set up in the project proposal, while placing emphasis on/ bringing into focus SO3 Understanding social acceptability of energy transition”:

- Specific objective 1: Define the key determinants of individual and collective energy choices in three key consumption areas - transportation, heating & cooling, and using of electricity, and governance and prosumers' issues;
- Specific objective 2: Expand the knowledge of the interactions between the individual and collective energy choices;
- Specific objective 3: Increase understanding of the social acceptability of energy transition through a participatory foresight and assessment process engaging key stakeholders and selected households;
- Specific objective 4: Expand the knowledge of the governance and social mobilisation practices, which can foster collective energy choices towards the completion of the Energy Union;

In line with these specific objectives and the elaborated theoretical framework of the project, the survey addressed three main research questions:

- What are the main everyday and long-term energy choices regarding the use of energy at home and everyday household activities, and how they differ among the countries?
- What is the combination of factors that influence the energy choices on individual and collective (household) levels and how they differ across the countries?
- What are the characteristics, describing the vulnerable groups and the groups that have been less knowledgeable and less involved in the energy transition?

The methodology and the design of the household survey questionnaire follows the general project theoretical framework, as outlined in the outcomes and conclusions from the project's literature review.⁷ Initially, the survey methodology reflected the working categorisation of factors to be studied in six groups - economic,

⁷ Ibid.

technological, socio-cultural, demographic, behavioural and governance factors. These categorisations were used only as an analytical typology, keeping in mind that there is no clear-cut separation between them and a distinct single factor with its empirical manifestation could belong to more than one category⁸. As a result, many of the theoretical concepts, operationalized at the first stage of the survey methodology development, had overlapping empirical indicators. Both to avoid overlapping among the separate parts (or blocks) of the questionnaire and to make it as user-friendly as possible, during the second stage of the methodology development, the initial categorisation of factors was transformed into a new typology, which follows both a “life-event” logic and a division according to the predefined key areas. Each of these key areas - heating and cooling, low-carbon mobility, shift to prosuming, use of electricity, and governance framework, have become a separate block of empirical indicators (and respective questions) in the final survey methodology, alongside with a block of socio-demographic indicators (See Appendix 2. Survey questionnaire). As the effects of each individual factor are difficult to be assessed or measured and in general, this has not been set up as an objective of the survey and the current analysis, the application of the combined logic between life-events and key areas has been considered as feasible for achieving the survey goals. In addition, the division of the survey questionnaire on separate, but yet inter-related, blocks of questions according to the above key areas, was used also to align the survey methodology to the need for adding specific questions related to the predefined case studies in ENABLE.EU project that correspond to the same key areas. In other words, particular blocks of questions were added to cover only those countries that are included into the respective five case studies, i.e. low-carbon mobility, shift to prosuming, heating and cooling, use of electricity and governance framework. As a result, some questions cover only specific groups of countries and not all 11 countries (See Appendix 2. Survey questionnaire, where the blocks of questions and the respective country coverage are presented).⁹

Table 1. Country coverage by key areas (block of questions) in the survey questionnaire

	BG	FR	DE	HU	IT	NO	PL	RS	ES	UA	UK
General questions	X	X	X	X	X	X	X	X	X	X	X
Mobility				X	X	X	X		X		
Shift to prosuming					X	X		X		X	X
Heating and cooling		X	X	X					X	X	
Use of electricity	X		X					X			X
Governance framework	X	X	X	X		X	X	X		X	X

⁸ E.g. affordability of electric vehicles is an economic factor (income and purchasing power) but also a factor of the governance framework (financial and non-financial incentives for spread of electric vehicles). In addition, the socio-cultural status, demonstrated by the use of an electric vehicle, also could influence the assessment about the affordability, thus transforming it into a complex issue, affected by different factors as they are categorized into an analytical typology.

⁹ In addition, due to practical limitations (cost of survey) the division of the survey questionnaire in separate blocks that covered different groups of countries, aims also at lowering the cost in order to be feasible in the given budget.

2. Interpretation of survey results

Energy choices and behaviour across EU are a result of complex and multifaceted interplay between factors operating at individual, household, regional and country levels. Drivers of energy choices range from individual attitudes and convictions to national-level policies and alternatives that not only stimulate but open new energy choices. Even factors like climate differences, natural resources or country's geo-political and geographical situation take part in determining the final energy behaviour and to some extent - some of the attitudes and beliefs related to energy behaviour.

Having in mind this very complex multi-level interplay of drivers of individual and collective (household) behaviour, the first part of the analysis of the ENABLE.EU household survey results will present a descriptive overview of the results with a strong focus on cross-country differences and the more general and high-level factors which could account for them. In the second part of the analysis, the links between different types of factors (socio-cultural, economic, technological, and governance-related) and household energy behaviour and choices will be explored, as well as individual attitudes and the possible drivers hidden behind such attitudes will be analysed.

2.1. Overview of the results: energy choices of EU citizens and cross-country differences

The results of the survey show large differences between the 11 countries, covered by the survey, based on most of the questions related to the way of living and energy use. For convenience and for the sake of analytical clarity, these results are presented in four main categories:

- Housing, heating and cooling
- Electricity usage
- Shift to prosuming
- Mobility

2.1.1. Housing, heating and cooling

Housing (coverage: all studied countries)¹⁰

The vast cross-cultural differences between the survey countries become evident as soon as the type of dwelling is considered. Living in single-family houses (both detached and attached to other houses) range from nearly 75% in Hungary and 79% in the UK to only 27% in Spain and 36% in Italy.

¹⁰ As described in the Introduction, the survey questionnaire consists of separate, but still inter-dependent, thematic blocks of questions that cover different sub-groups of countries, depending on their inclusion in the project's case studies on low-carbon mobility, shift to prosuming, heating and cooling, use of electricity and governance framework. As a result, in different part of the current analysis, the coverage of the countries by the respective questions also differ.

Table 2. Which best describes your home?

Country	Single-family house detached from any other house	Single-family house attached to one or more other houses (for example: duplex, row or terraced house, or townhome)	Apartment in a building with 2 to 5 flats	Apartment in a building with 6 or more flats	No answer
Hungary	72.0%	2.6%	1.8%	23.1%	0.5%
Serbia	51.3%	8.4%	4.4%	35.9%	0.0%
Norway	46.8%	17.0%	10.6%	25.6%	0.0%
Ukraine	44.0%	4.7%	4.3%	45.8%	1.3%
Germany	43.1%	16.2%	15.9%	21.4%	3.5%
Bulgaria	42.9%	5.7%	4.7%	46.8%	0.0%
France	42.2%	20.3%	10.9%	26.7%	0.0%
Poland	42.1%	4.4%	7.9%	45.6%	0.0%
United Kingdom	22.2%	56.8%	8.4%	12.7%	0.0%
Italy	19.8%	16.1%	22.5%	41.0%	0.5%
Spain	9.6%	17.4%	46.7%	26.3%	0.0%

More than half of the British respondents (57%) live in single-family house attached to other houses, while a large part of Spanish respondents (47%) live in buildings with 2 to 5 flats. Clearly, the disparity between different individual energy choice paths begins as early as the type of dwelling, which is among other factors also driven by cultural, urban and architectural differences, ranging from country to country.

Naturally, there is a strong link between the type of dwelling and its size, e.g. single-family houses being overall larger than apartments (this correlation is statistically significant for the whole sample, $p < 0.001$). This in turn influences household energy behaviour accordingly: larger bills among those who can afford them or partial heating/cooling of the dwelling when households cannot afford heating the whole dwelling.

The average dwelling size in each of the studied countries corresponds to the preferred dwelling type and the average living standard, and the results underline once more the existing differences in the prevalent dwelling types and sizes among the 11 countries. For example, living in the largest category of dwelling (more than 120 m²) ranges from 41% of the population in Norway to only 4% of the population in Ukraine, where 58% of population live in dwellings smaller than 65 m².

Table 3. In which group does your home belong?

Country	Small: Up to 65 m ²	Medium: 66 – 120 m ²	Large: More than 120 m ²	Does not know/ did not answer
Norway	15.3%	40.0%	41.0%	3.6%
Germany	21.1%	51.6%	23.7%	3.6%
France	22.8%	54.5%	21.5%	1.2%
Italy	12.3%	67.7%	18.8%	1.2%
Poland	49.9%	30.3%	17.7%	2.1%
Serbia	40.1%	44.8%	15.0%	0.1%
Spain	16.4%	67.2%	14.2%	2.1%
Bulgaria	26.1%	62.9%	8.0%	3.0%
Hungary	26.2%	66.4%	6.2%	1.3%
United Kingdom	43.1%	51.5%	5.1%	0.3%
Ukraine	58.4%	35.1%	3.9%	2.7%

When it comes to average age of the dwellings, cross-country comparison clearly distinguishes between different sub-groups of countries, with Germany, France and Norway having more than 30% of people living in dwellings built after 1990, while in Bulgaria and Hungary the respective shares are about three times lower and account for 9.8% and 12.5% of the population, respectively. As a whole, in the CEE countries (Serbia, Ukraine, Poland, Hungary and Bulgaria) the dwellings built during the socialist period prevail (i.e., before 1990s), while the Western European countries exhibit diverged patterns. As noted, Germany, France and Norway have the highest share of newer dwellings built after 1990s, the UK has the biggest share of oldest dwellings (46.4% built before 1970s), Spain is in the middle and Italy has a pattern very similar to the socialist countries' group.

Table 4. As far as you know, when was your home built?

Country	Before 1970	1970 to 1989	3 1990 to 2016	99 (Do not know)
Germany	32.0%	28.6%	33.0%	6.4%
France	31.3%	28.9%	32.4%	7.3%
Norway	34.4%	29.3%	31.5%	4.8%
Spain	24.6%	36.1%	27.6%	11.7%
Serbia	28.5%	40.8%	23.1%	7.6%
United Kingdom	46.4%	16.9%	20.5%	16.2%
Ukraine	35.9%	37.8%	17.4%	8.9%

Poland	30.4%	37.7%	17.2%	14.8%
Italy	39.0%	33.5%	14.9%	12.6%
Hungary	45.8%	33.8%	12.5%	7.9%
Bulgaria	38.8%	42.4%	9.8%	8.9%

While the age of the dwelling could be considered as one of the important indicators of its energy efficiency, it is by no means the only factor determining the energy bills. Renovated old houses are much more energy efficient in terms of heating and cooling than the poorly insulated large blocks of flats built between 1970 and 1990 in many of the post-communist countries.

For example, while the UK appears to have the largest percentage of dwellings built before 1970, most of these dwellings are houses, and 70% of the UK population report having at least one type of insulation in their dwelling and 41% report having at least two of the three types of insulation. By comparison, 68% of the population of Ukraine does not have any additional insulation.

While single-family old small houses are quite common both in Ukraine and the UK, the situation in the two countries is very different when it comes to insulation.¹¹ The gap is evident when three groups of states are considered: (1) the Central and Eastern European (CEE) countries like Ukraine, Hungary, Serbia and Bulgaria, where 50% to 68% of the population reports having no additional insulation in their dwellings; (2) countries with warmer climate such as Spain and Italy with similar shares of the population without any insulation, and finally (3) Norway, the UK, Germany and France, where the trend is opposite and the majority of the population lives in dwellings having at least one sort of additional insulation. Particularly, in Germany and the UK, about half of the population (57% in Germany and 41% in the UK) have implemented a combination of two types of additional insulation. Poland is an outlier country from the above trend since despite being part of the CEE countries, external wall insulation is very common (69% of the population report having such insulation).

Table 5. Does your home have any of the following types of insulation?

Country	Types of insulation: Attic and/or roof insulation	Types of insulation: Cavity wall insulation	Types of insulation: External wall insulation	Types of insulation: My home does not have any additional insulation	Types of insulation: (Don't know)
Ukraine	6.4%	3.9%	22.0%	68.3%	5.9%
Spain	8.4%	11.2%	9.7%	59.1%	19.7%
Italy	9.6%	8.9%	7.9%	56.2%	20.6%
Hungary	22.5%	8.6%	28.9%	55.5%	3.2%
Serbia	9.7%	4.9%	34.8%	55.1%	5.3%
Bulgaria	11.5%	8.9%	38.8%	49.7%	2.2%
Poland	26.8%	8.2%	69.0%	24.2%	0.0%

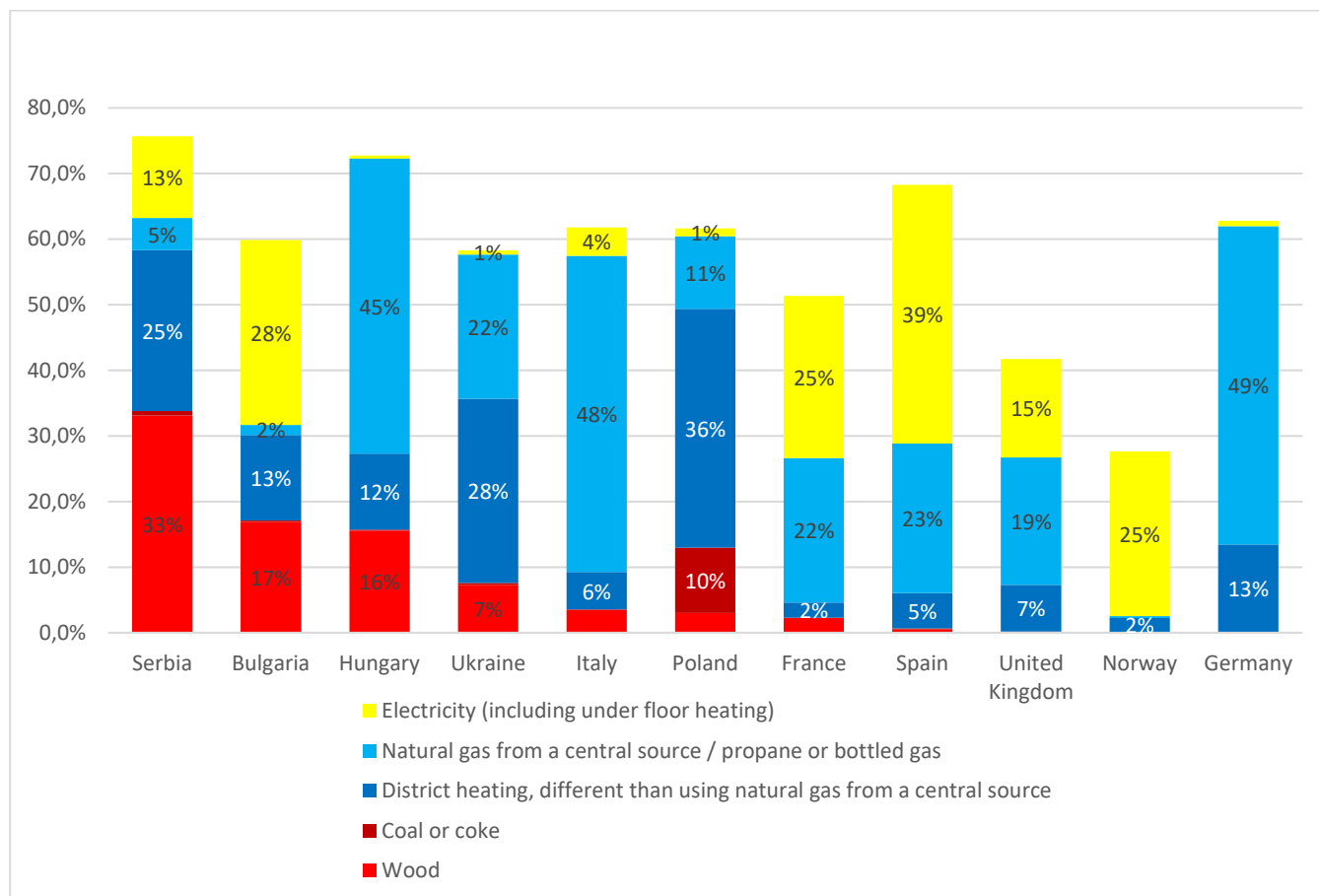
¹¹ It could be supposed that in many cases the renovation of buildings has been done with more energy-efficient materials.

France	46.0%	17.6%	23.9%	19.3%	23.8%
Norway	28.0%	16.4%	18.7%	17.3%	43.8%
United Kingdom	60.7%	44.3%	12.5%	12.8%	17.0%
Germany	64.3%	25.9%	55.8%	11.5%	13.1%

In most of the countries, more than half of the households predominantly rely on a single type of energy source for heating. Only in Norway and in the UK, the majority of households rely on two or more types of energy sources for heating.

Several groups of countries could be analysed according to the preferred single energy source type. District heating is more popular in most of the CEE countries (Serbia, Poland, Ukraine, and Bulgaria). Natural gas from a central source is a very popular source of heating in Germany, Italy and Hungary (over 45%), and arrives as second source in Spain, Ukraine, France (over 20%) and Poland (11%). It is also the most common choice (19%) for UK households who use a single energy type for heating. Electricity is largely used as a single source for heating in Spain (39%), Bulgaria (28%), France (25%) and Norway (25%). Finally, 33% of Serbian households rely on wood for their entire heating, followed by smaller shares in Bulgaria (17%) and Hungary (16%). Poland is the only country, where coal is used as a preferred single energy source by a considerable share of households (i.e. 10%). At the same time, it has also the highest share of households, using district heating, which partially relies also on coal for heat generation. The survey results confirm once more the dependence of the country from this highly polluting energy source and the need for diversification and replacement strategy for the country, if it wants to stay in line with the European priorities for low-carbon future.

Figure 1. Source of heating per country when single type of energy is used (% of households)



Choosing wood as the primary source of heating - 33% of surveyed Serbians use it as the only source of heating and 15% use it for more than half of their heating, explains why a large share of Serbian households (over 70%) do not have precise control over the temperature in their homes. In this trend, Ukraine follows Serbia with a respective share of 54% of the households.

When adjustment of the temperature is possible, most of the households tend to use this option and prefer adjusting the temperature either manually or automatically. The latter is most common in the UK with 44% and in Germany with 40% of people adjusting the temperature automatically, followed by France with 27%. Generally, less than 1/3 of households prefer to set a constant temperature in the heated parts of the dwelling without dynamically adjusting it. Norway is an exception with as much as 39% of households following the same strategy. This could be explained by the lower and more constant average external temperature during the heating season, which makes the adjustments less necessary. The country, where the adjustment of the temperature at home is most widespread is the UK, as 47% of household do it manually and 44% automatically.

Table 6. Which of the following best describes how your household controls your main heating equipment most of the time?

Country	Set one temperature and leave it there most of the time	Manually adjust the temperature (e.g. at night or when no one is at home)	Program the thermostat to automatically adjust the temperature during the day and night at certain times	Our household does not have control over the equipment
Serbia	10.9%	14.8%	4.0%	70.3%
Ukraine	12.1%	30.0%	3.4%	53.9%
Bulgaria	22.2%	42.1%	4.6%	31.1%
Italy	25.7%	26.7%	17.7%	29.9%
Spain	21.6%	37.1%	7.2%	28.7%
Hungary	28.6%	38.7%	4.9%	27.3%
Poland	16.5%	45.8%	11.6%	26.0%
France	26.0%	31.2%	27.3%	15.5%
Norway	38.8%	42.1%	13.1%	5.9%
United Kingdom	7.7%	47.0%	43.5%	1.8%
Germany	20.4%	32.1%	39.5%	0.4%

Electricity and gas smart meters are generally more common in Spain, the UK and France but as a whole are not widespread yet with the exception of electricity smart meters in Spain which are present in 69% of the households. It is also interesting to note that, in several countries, significant percentages of the population do not know whether they have smart meters or not – on average 15% in Italy and Spain and around 10% in Bulgaria, Poland, Germany and France.

Table 7. Use of smart metering devices at home (% of household)

Country	Electricity smart meter			Gas smart meter			Heating smart meter		
	Yes	No	Do not know	Yes	No	Do not know	Yes	No	Do not know
Serbia	1.8%	94.9%	3.3%	0.4%	96.8%	2.8%	0.0%	97.2%	2.8%
Hungary	3.3%	95.4%	1.3%	1.2%	97.6%	1.2%	2.1%	96.8%	1.1%
Ukraine	5.3%	92.3%	2.4%	0.9%	95.2%	3.9%	2.2%	93.9%	4.0%
Bulgaria	6.7%	80.2%	13.1%	0.7%	88.9%	10.4%	1.2%	88.3%	10.4%
Germany	7.6%	82.5%	9.9%	5.3%	85.1%	9.5%	0.5%	89.6%	9.9%
Italy	11.8%	72.4%	15.8%	8.1%	76.8%	15.1%	8.0%	76.7%	15.3%

Poland	16.7%	72.7%	10.6%	2.5%	85.9%	11.6%	7.1%	82.9%	10.0%
France	26.6%	64.8%	8.6%	8.6%	82.4%	9.0%	7.7%	81.8%	10.5%
United Kingdom	27.3%	68.1%	4.6%	21.8%	73.1%	5.1%	8.2%	87.7%	4.2%
Spain	68.8%	18.8%	12.4%	14.3%	70.0%	15.7%	3.6%	80.0%	16.4%

The reasons for not having smart metering system at home vary from country to country with the cost being mentioned as too high by 56% of the Ukrainian respondents who don't have smart meters and by one-fourth of those in Bulgaria, Hungary, and Spain. Another reason (particularly widespread in Hungary, Serbia, and Spain) is that smart meters are still not adopted by the utility companies. A large share of respondents in most countries (more than a quarter in all countries but Hungary and the UK) are not aware of whether they can use smart meters at home. When it comes to the negative perception of smart meters, data misuse and privacy violation are mainly a concern in Germany, the UK, followed by France and Bulgaria. Mentions of fear for health remain rather limited, up to 7% of respondents, with French respondents being the most reluctant (11.9%).

Table 8. Main reasons not to have a 'smart meter' at home (% of households)

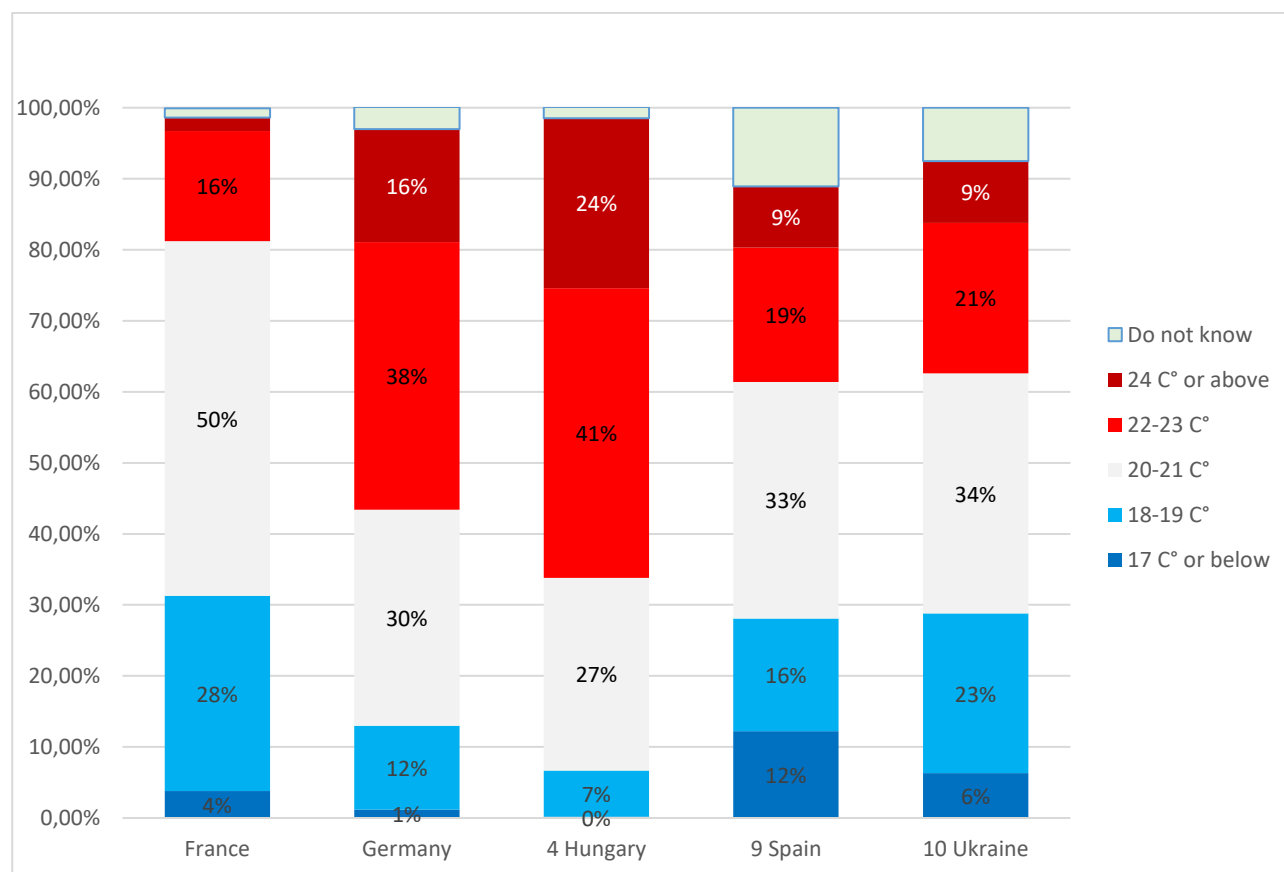
Country	Smart meters are still not adopted by the utility companies	Smart meters are adopted by the utility companies but they are not compulsory	The cost of smart meters is too high	Smart meters violate my privacy, sharing information about my consumption habits	The utility company could misuse the data from the smart meters	I don't know whether I can use smart meters at home	I heard that smart meters can be harmful to health
Bulgaria	26.4%	15.0%	24.9%	6.0%	8.9%	36.8%	6.4%
France	12.7%	13.5%	16.4%	10.9%	7.5%	30.1%	11.9%
Germany	20.4%	28.1%	11.5%	17.8%	19.6%	45.0%	4.5%
Hungary	32.4%	15.4%	25.2%	4.7%	3.8%	17.8%	1.6%
Italy	22.7%	14.3%	13.3%	5.3%	5.0%	33.3%	3.5%
Serbia	38.7%	7.3%	21.7%	5.1%	5.3%	35.6%	3.2%
Spain	33.8%	9.4%	25.2%	5.8%	0.7%	27.3%	0.7%
Ukraine	17.5%	5.2%	56.3%	2.6%	6.7%	27.6%	4.3%
United Kingdom	18.2%	22.0%	10.5%	14.8%	12.8%	13.0%	5.8%

Heating and cooling (coverage: France, Germany, Hungary, Spain, Ukraine)¹²

Average winter temperatures in the dwelling vary from country to country with more people in Hungary Germany reporting higher temperatures (22-24 C°) than in France, Spain and Ukraine. (

Figure 2. Usual temperature in the dwelling during the winter (% of households).

Figure 2. Usual temperature in the dwelling during the winter (% of households)

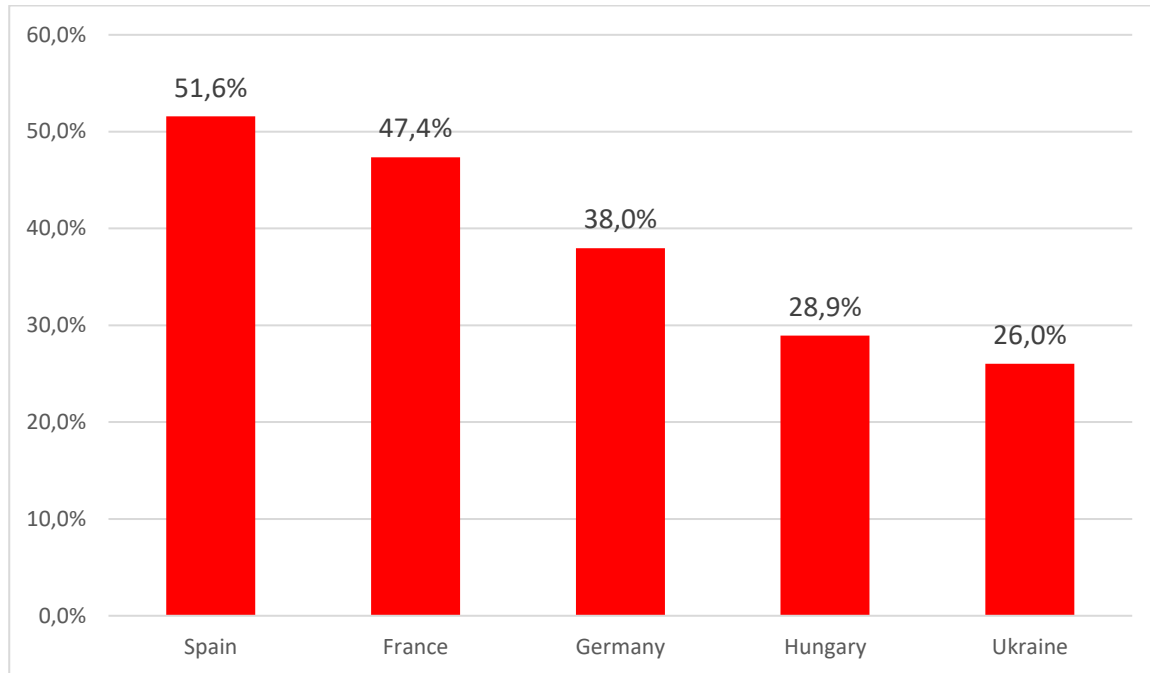


The three countries, where the majority of the households (more than 60%) keep lower average temperature during the winter season, could be divided into two sub-groups according to their heating habits. In France and Spain, about half of the households heat only the rooms, which are in use, while in Ukraine the respective share of households heating only particular rooms is almost twice as low (Figure 3. Share of households, heating only the rooms that are in use (%)). The reasons for this difference could be the combination of climate conditions, cultural traditions and habits, as well as economic and technological factors (e.g. power prices, type of heating source and the availability of options for controlling the level of heating in different rooms). It

¹² As described in the Introduction, particular blocks of questions have been added in the questionnaire to cover only those countries that are included into the respective five case studies (low-carbon mobility, shift to prosuming, heating and cooling, use of electricity and governance framework). As a result, some questions cover only specific groups of countries and not all 11 countries.

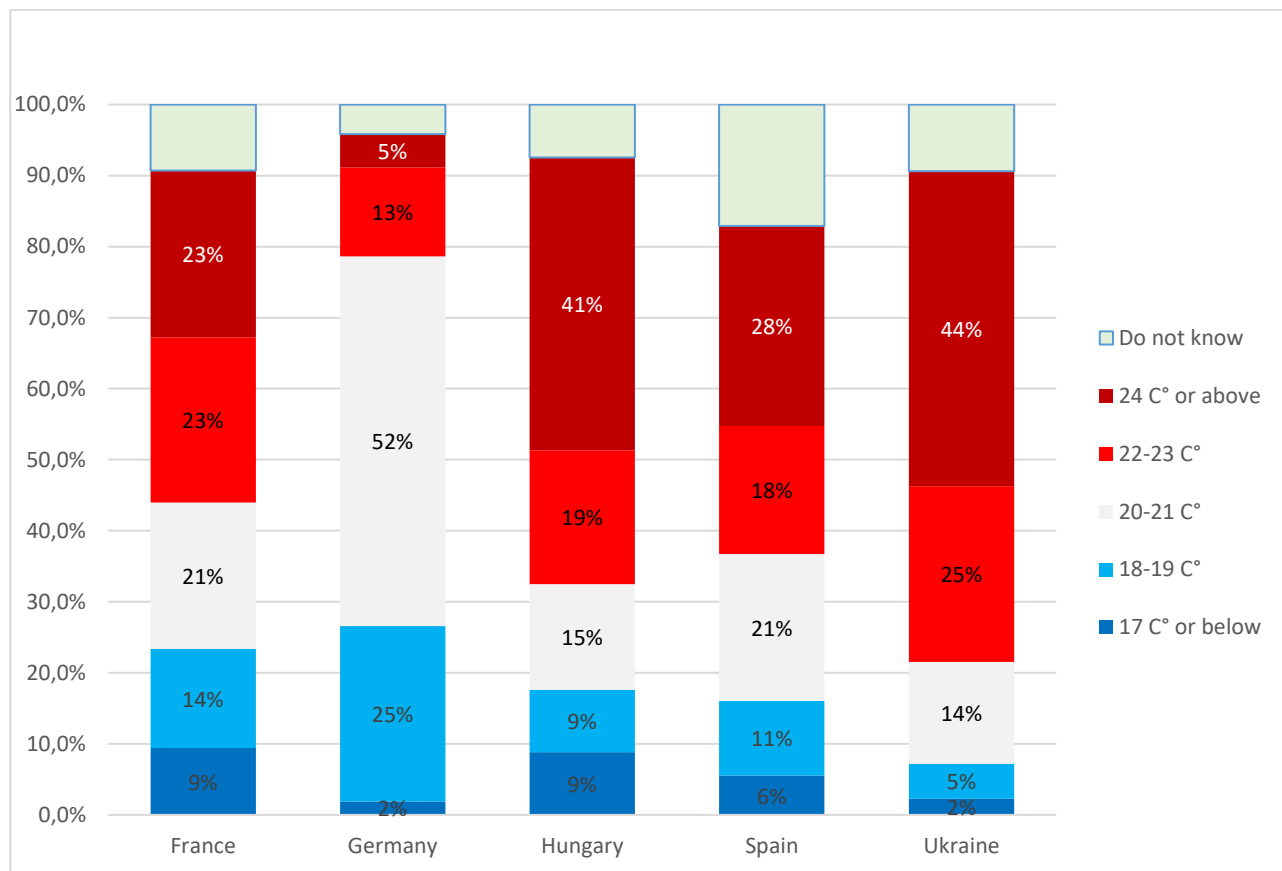
should be noted that as a whole, in all the five studied countries, there is a considerably high share of households (i.e. each fifth to each second) that prefer to save both money and energy, heating only separate rooms at home. At the same time, at least part of these households might be pushed to do so, because they cannot afford to heat the entire home due to financial limitations.

Figure 3. Share of households, heating only the rooms that are in use (%)



On the other hand, the average temperatures in the dwellings during the summer tend to be higher in Hungary and Ukraine than in France, Germany or Spain, which points out that possibly Ukrainians and Hungarians use less cooling for their dwellings during the summer. It should be noted that households in Germany keep their homes largely much warmer during the winter (52% maintain an average temperature higher than 22°C) than during the summer (79% maintain an average temperature below 21°C).

Figure 4. Usual temperature in the dwelling during the summer (% of households)



Households face different challenges when they try to reduce their energy costs for cooling and heating and the survey results shows that there is no strong link between these challenges and the location in terms of country. However, Ukrainians lack the money for refurbishment / supplementary insulation more often than the citizens in the other countries and 72% of the population pose this as an argument for not being able to reduce their energy costs. Other financial arguments like “*I cannot get a loan with favourable conditions to upgrade my heating system or insulate the house*” or “*There is no subsidy available which would allow me to invest in refurbishment*” are also more prevalent in Ukraine and in Hungary than they are in France, Germany or Spain.

On the other hand, households in Germany and Spain tend to be driven more often than the households in the other three countries by non-financial reasons for not reducing energy costs such as “*I think that the renovation would be burdensome as it involves noise and the presence of workers*”. The latter is considered a challenge by 58% of the households in Germany and 44% in Spain while in Hungary, France and Ukraine the shares are 24%, 20% and 15% respectively.

Table 9. Major challenges faced by the households, if they want to reduce their heating/cooling cost (% of households)¹³

Challenges / Country	France	Germany	Hungary	Spain	Ukraine
I do not have the money to invest into refurbishment or supplementary insulation.	44%	28%	44%	49%	72%
I cannot get a loan with favourable conditions to upgrade my heating system or insulate the house.	21%	18%	44%	38%	50%
There is no subsidy available, which would allow me to invest in refurbishment.	26%	22%	46%	33%	58%
I cannot calculate the payback of my investment in refurbishment/ renewable technology.	19%	44%	32%	42%	43%
My dwelling is too large for my family, with high heating costs, but I don't want/can't afford to move to another place.	14%	9%	20%	16%	15%
In the dwelling where I live, the owner and the tenant is not the same person, and at least one does not want to invest in energy-saving measures.	17%	28%	11%	16%	10%
I spend a lot of time in my dwelling, so I cannot lower the temperature during daytime.	35%	32%	30%	26%	36%
I don't have individual metering in my dwelling.	15%	19%	31%	32%	25%
It is not worth to refurbish my old and inefficient dwelling, because construction works would be very expensive relative to the value of the dwelling.	15%	19%	31%	32%	25%
Besides my own energy consumption habits, my energy bill also depends on the energy consumption of other households in the house.	15%	30%	15%	37%	17%
Refurbishing our block of flats needs the consent and financial contribution of all tenants, which is difficult to obtain.	19%	18%	17%	31%	32%
I live in an old building, in which the refurbishment possibilities are limited and might need special permits due to monument protection.	17%	9%	19%	15%	16%
I think that the renovation would be burdensome as it involves noise and the presence of workers.	20%	58%	24%	44%	15%

2.1.2. Electricity usage (coverage: all 11 country)

The use of electrical appliances varies considerably from country to country. Differences could be explained to some extent by factors related to climate cultural and economic reasons:

- only 3% report have air conditioning in Germany and 7% in Poland, while this percentage for Italy is 55% and 49% for Spain;
- while in most of the countries between 90% and 98% of households possess a TV set, in Hungary and

¹³ The question used is: "What are the major challenges you will face if you want to reduce the heating/cooling costs of your household? Please indicate on a scale from 1 to 5, how much the following statements would describe your situation!" Here, the accumulative share for answers "Somewhat" and "Very much" are used to indicate the percentage of people, who point at the respective challenge as an important one.

Italy the share is much lower – respectively 73% and 68%; 89% of Ukrainians do not own a dishwasher machine, while the respective share in Norway is only 7%.

Due to the large cross-country difference in owning different electrical appliance, it is very difficult to compare the average age of appliances in the different countries. While the data for the different appliance types are discussed below, the exact factors determining the large differences in the percentage of population owning or not having a particular appliance type could be only a matter for speculations.

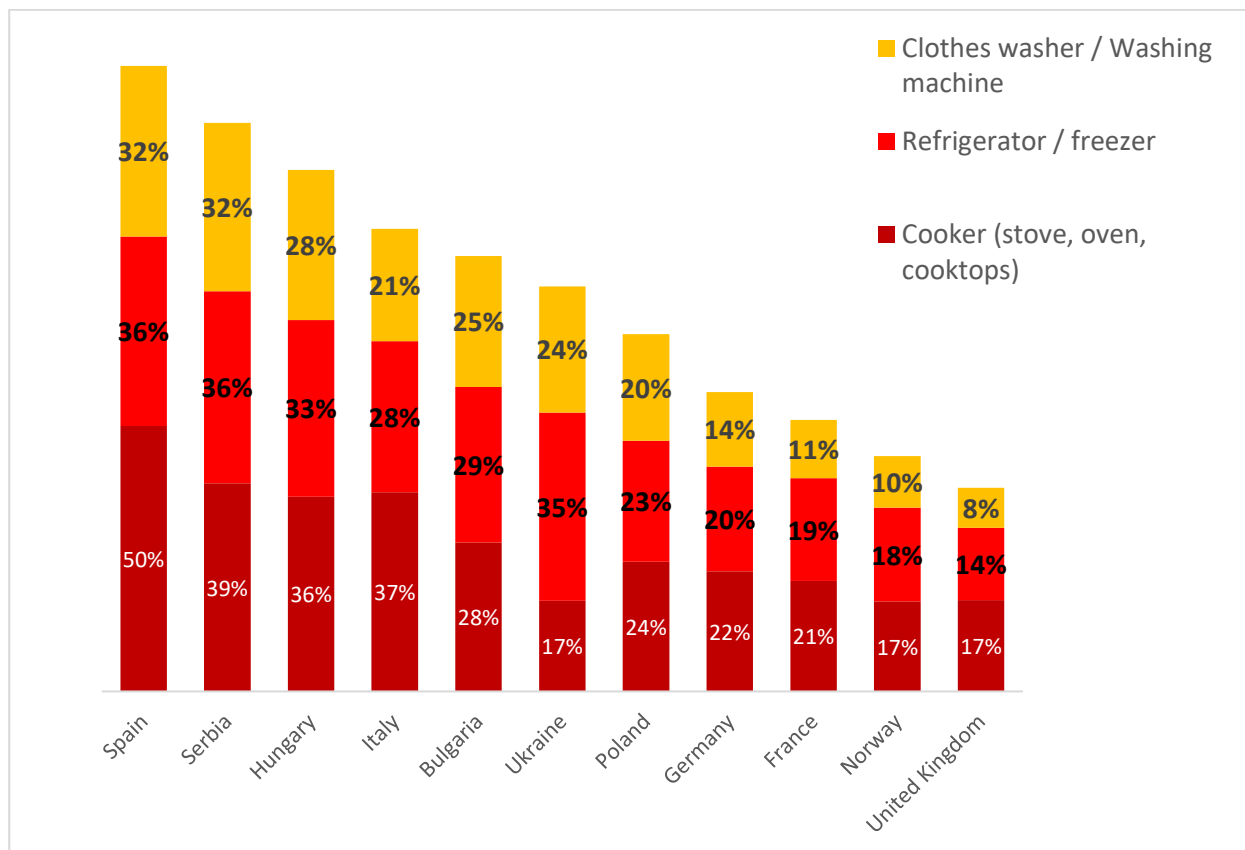
In order to avoid this methodological issue, only three electrical appliance types are compared across countries in terms of age of the units owned by the households: cooker¹⁴, fridge, and washing machine. They were chosen as the most widespread appliances across the four studied countries and as ones with the highest energy consumption among all appliance types, i.e. they determine to large extent the total energy consumption of the households.

The percentage of households where the three appliances are older than 10 years is presented on the graph below for all of the countries. The countries where households have the largest share of newer appliances (less than 10 years) are:

- UK (only 17% of the cookers, 14% of the fridges and 8% of the washing machines are older than 10 years);
- Norway (only 17% of the cookers, 18% of the fridges and 10% of the washing machines are older than 10 years);
- France (21% of the cookers, 19% of the fridges and 11% of the washing machines are older than 10 years), and
- Germany (22% of the cookers, 20% of the fridges and 14% of the washing machines are older than 10 years).

¹⁴ Question refers generally to electric cooker, including stove, oven, and cooktops. It includes also combined gas-electric cookers.

Figure 5. Share of appliances, older than 10 years (% of households)



It should be noted that larger share of the households in Ukraine report not having an electric cooker or oven (47%) and a washing machine (9%). Therefore, their results are not directly comparable with the other countries: while they appear in the middle of the graph if the “over 10 years” category is considered, they will be at the end with smallest percentage of new appliances if the category “up to 3 years old” is considered, for example.

The country with the largest share of oldest electrical appliances is Spain, where for example half of the population reports having an electrical cooker older than 10 years. Serbia follows with the same shares for washing machines and refrigerators but has smaller share of old cookers than Spain (39% having cookers older than 10 years against 50% respectively)

The survey results clearly show that households in Spain use probably the oldest electrical appliances from all the 11 countries. Given the lower GDP countries in the list, one possible explanation could be that behind the pure economic reasons, there are also some cultural reasons for this. However, having in mind that Spain was one of the countries hit very hard by the economic crisis in 2008, the prevalence of economical or cultural reasons could not be judged relying only on the available data.

When it comes to cookers and fridges, most of the households in the 11 countries own a unit with minor exceptions, which were discussed above. While the percentage of older units are presented in the graph above, in term of newest appliances Germany is at the first place with 41% of the cookers, 44% of the fridges and 40% of the washing machines being up to 3 years old. UK follows with the respective percentages: 34% (cookers up to 3 years old), 40% (fridges up to 3 years old) and 44% (washing machines up to 3 years old). A clear exception is Ukraine, where the share of households which do not have an electrical cooker, oven or

cooktop is exceptionally high (i.e. 47%) as compared to the other countries (in average (1%). The main reason is the use of gas cookers that are the most widespread type in this country.

Table 10. Age of appliances (% of households)

Country	Cooker (stove, oven, cooktops)					Refrigerator / freezer				
	Up to 3 years old	4-10 years old	Older than 10 years	Do not have	Do not know	Up to 3 years old	4-10 years old	Older than 10 years	Do not have	Do not know
Bulgaria	22.2%	46.0%	27.9%	1.8%	2.1%	16.9%	51.6%	29.2%	0.8%	1.5%
France	28.0%	45.3%	20.7%	3.5%	2.5%	27.4%	51.5%	19.3%	0.5%	1.3%
Germany	41.2%	35.1%	22.5%	0.0%	1.2%	44.3%	35.4%	19.6%	0.0%	0.6%
Hungary	17.2%	43.3%	36.5%	1.8%	1.1%	14.4%	49.5%	33.1%	2.8%	0.2%
Italy	12.0%	47.6%	37.3%	0.8%	2.4%	15.5%	52.7%	28.4%	0.7%	2.7%
Norway	29.8%	47.8%	16.9%	0.4%	5.2%	31.3%	46.9%	17.6%	0.1%	4.1%
Poland	17.4%	54.2%	24.3%	0.4%	3.7%	19.0%	54.4%	22.7%	0.9%	3.0%
Serbia	12.1%	48.3%	39.0%	0.0%	0.6%	15.4%	47.7%	36.0%	0.1%	0.8%
Spain	11.7%	36.1%	49.7%	0.3%	2.2%	17.0%	45.4%	35.5%	0.5%	1.6%
Ukraine	9.8%	24.5%	17.0%	46.7%	2.0%	8.7%	53.3%	35.3%	1.0%	1.6%
United Kingdom	33.8%	38.9%	17.1%	2.6%	7.6%	40.8%	40.1%	13.6%	0.4%	5.1%

As it was already discussed, using dishwashers varies considerably from country to country. The newest appliances are again in Germany: 34% of the households have a dishwasher purchased in the last 3 years. They are followed by Norway with 33% and France (26%) where dishwashers are not so popular as in the first two countries (32% of the population do not own one in France).

Table 11. Age of appliances (% of households)

Country	Clothes washer / Washing machine					Dishwasher				
	Up to 3 years old	4-10 years old	Older than 10 years	Do not have	Do not know	Up to 3 years old	4-10 years old	Older than 10 years	Do not have	Do not know
Bulgaria	20.0%	50.3%	24.5%	3.4%	1.8%	10.3%	12.1%	1.8%	74.6%	1.2%
France	35.2%	47.4%	10.9%	5.2%	1.2%	26.3%	32.0%	8.4%	31.6%	1.7%
Germany	39.6%	43.6%	14.0%	1.7%	1.2%	34.1%	34.6%	14.3%	15.6%	1.5%
Hungary	17.9%	51.6%	28.2%	2.0%	0.4%	12.8%	12.8%	1.6%	72.5%	0.3%
Italy	20.4%	54.7%	21.0%	1.1%	2.8%	14.5%	31.6%	12.4%	38.7%	2.7%
Norway	35.4%	48.6%	9.7%	2.7%	3.6%	33.2%	44.4%	12.2%	6.9%	3.3%
Poland	17.8%	58.3%	20.0%	0.7%	3.1%	15.6%	28.4%	2.8%	49.1%	4.2%
Serbia	18.9%	48.3%	31.6%	0.6%	0.6%	10.4%	15.0%	3.4%	70.8%	0.4%
Spain	21.2%	44.3%	32.0%	0.8%	1.7%	9.1%	22.8%	17.9%	49.5%	0.8%
Ukraine	13.2%	53.2%	23.6%	8.7%	1.3%	2.6%	3.6%	1.6%	89.4%	2.8%

United Kingdom	44.9%	39.1%	7.5%	3.2%	5.3%	21.0%	18.7%	5.2%	50.0%	5.2%
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There are large cross-country differences in using portable electric heaters and electric water heaters across countries, therefore the percentages reporting different appliance age should be interpreted carefully. Large shares of respondents do not own portable electric heaters – from 86% of the surveyed Hungarians to 38% of Norwegians. Another aspect of the electric heaters is the wide range of energy class options with portable electric heaters for example ranging from energy-efficient but more costly to rather cheap but less efficient in terms of electricity consumption which can be found on the market for as cheap as 10 EUR. Citizens in Bulgaria for example often tend to purchase such very cheap portable heaters, which could explain the relative high percentage (16%) of new appliances in this category for Bulgaria. The usage of electrical water heaters varies a lot from country to country and is very popular in Germany, where again the percentage of newer appliances is considerably higher than in the other countries:

- 56% of the German households report have a boiler purchased in the last 3 years;
- the second largest percentage for this category is in France with only 21%.

Table 12. Age of appliances (% of households)

Country	Portable electric heater(s)					Standalone electric water heater (boiler)				
	Up to 3 years old	4-10 years old	Older than 10 years	Do not have	Do not know	Up to 3 years old	4-10 years old	Older than 10 years	Do not have	Do not know
Bulgaria	15.5%	27.8%	13.9%	40.6%	2.1%	19.7%	40.0%	18.8%	19.2%	2.3%
France	16.3%	15.8%	7.6%	56.9%	3.3%	21.2%	31.7%	15.2%	25.7%	6.2%
Germany	0.6%	5.2%	8.4%	82.3%	3.5%	56.3%	32.5%	1.6%	8.8%	0.8%
Hungary	2.7%	5.4%	5.9%	85.6%	0.5%	4.7%	21.2%	23.7%	49.4%	1.0%
Italy	9.9%	21.2%	9.2%	56.6%	3.0%	6.2%	25.7%	13.9%	50.3%	3.9%
Norway	17.6%	27.8%	10.1%	38.0%	6.4%	13.9%	29.6%	34.1%	9.0%	13.4%
Poland	2.7%	7.2%	11.3%	70.5%	8.3%	4.9%	15.4%	15.3%	56.7%	7.6%
Serbia	7.7%	24.0%	19.4%	46.8%	2.1%	10.9%	37.3%	47.2%	3.8%	0.8%
Spain	11.6%	23.7%	17.4%	44.9%	2.5%	8.4%	23.9%	13.4%	52.5%	1.7%
Ukraine	7.2%	14.2%	6.1%	68.6%	3.9%	10.1%	24.9%	5.6%	57.1%	2.4%
United Kingdom	18.1%	13.4%	5.4%	56.9%	6.2%	17.5%	16.0%	10.8%	43.9%	11.8%

Air conditioning units usage also varies a lot across countries with Bulgaria and Serbia leading with the newest appliances “up to 3 years old”. In terms of TV sets (home theatre systems) Germany again reports having the newest appliances with 54% of the households having a TV that is up to 3 years old. The oldest TV sets are reported in Ukraine, where 34% of the households have TV sets older than 10 years.

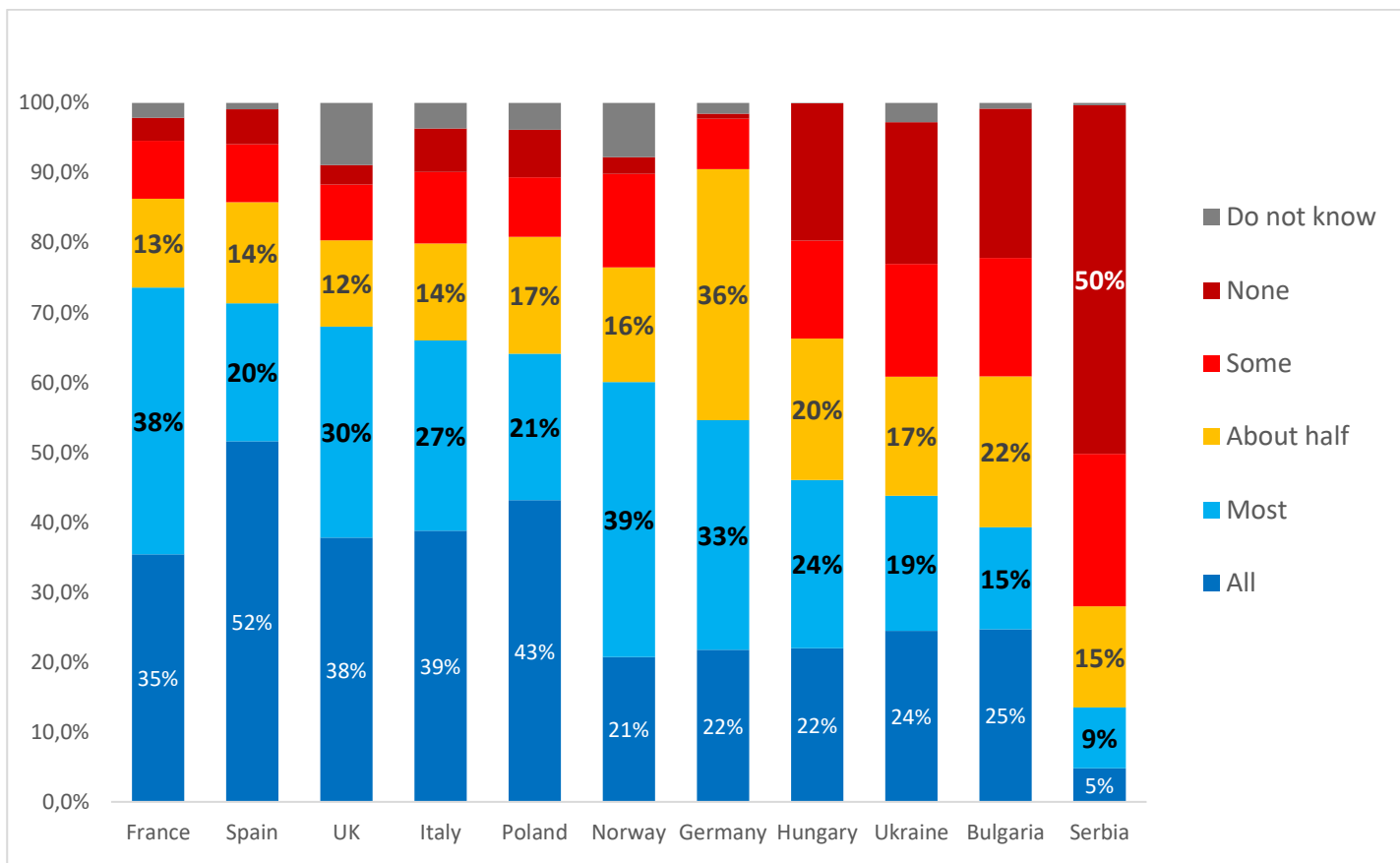
Table 13. Age of appliances (% of households)

Country	Air conditioning units at your home	TV set / Home theater system
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	Up to 3 years old	4-10 years old	Older than 10 years	Do not have	Do not know	Up to 3 years old	4-10 years old	Older than 10 years	Do not have	Do not know
Bulgaria	16.0%	27.0%	3.0%	52.4%	1.6%	40.4%	41.8%	15.5%	1.5%	0.8%
France	9.7%	8.8%	2.9%	74.8%	3.8%	32.9%	49.8%	7.6%	8.4%	1.3%
Germany	2.0%	1.0%	0.0%	94.8%	2.2%	53.8%	39.5%	3.6%	0.0%	3.1%
Hungary	4.1%	5.2%	1.7%	88.8%	0.3%	22.0%	38.0%	13.3%	26.5%	0.2%
Italy	13.6%	31.7%	9.3%	43.0%	2.4%	26.8%	32.2%	8.6%	29.8%	2.6%
Norway	9.2%	13.1%	3.7%	67.1%	6.9%	31.6%	53.6%	6.7%	5.1%	3.0%
Poland	2.8%	3.9%	0.6%	84.6%	8.1%	34.8%	46.9%	12.3%	3.7%	2.3%
Serbia	15.7%	26.5%	9.9%	47.4%	0.5%	46.3%	35.8%	11.0%	6.0%	0.9%
Spain	5.1%	23.2%	20.3%	49.7%	1.7%	32.4%	48.8%	16.3%	0.9%	1.6%
Ukraine	4.5%	11.7%	1.8%	79.1%	2.9%	13.8%	48.0%	34.1%	2.5%	1.5%
United Kingdom	5.0%	4.7%	1.0%	83.2%	6.1%	47.4%	38.1%	4.8%	5.7%	3.9%

In terms of energy efficient bulbs, over 80% of households in France, Spain, the UK, Italy and Poland have at least half of their electrical bulbs that are modern and energy efficient. For at least 60% of households in these countries and in Norway, most or all the bulbs are energy-efficient, especially in Spain where half of the households have only energy-efficient bulbs. On the other hand, the largest percentage of households that have no energy efficient bulbs is in Serbia (50%), while only 14% of Serbian households have all or most of their bulbs that are energy-efficient. Bulgaria, Ukraine and Hungary follow with about 20% of the households that have none of their light bulbs replaced with ones that are more efficient.

Figure 6. Use of energy efficient bulbs (e.g. LED, compact fluorescent or halogen bulbs) (% of households)



While there are certainly economic drivers behind the choice of more energy efficient appliances in the household, there are obvious cultural differences too. While Germany is the leader in percentage of newest appliances, it tends to fall behind in terms of energy saving light bulbs with 36% of the respondents having changed only about half of the light bulbs. While Spain has the oldest electrical appliances (cooker, fridge, washing machine), they tend to invest in energy efficient light bulbs more often than most of the other countries participating in the survey.

These results suggest that the behaviour of energy users could be potentially influenced by information campaigns, which could convince a household to make the small extra step, which is sometimes needed for higher energy efficiency. For example, while Germany could use an information campaign about the benefits of replacing all the light bulbs with energy efficient ones, Spanish households could be updated about the positive outcomes of investing in replacing older appliances with new, high energy class ones.

2.1.3. Shift to prosuming (coverage: Italy, Norway, United Kingdom, Serbia, Ukraine)

Owning technologies for generation of electricity or heating is still quite uncommon practice in the eleven studied countries, with the exception of Norway where nearly half of the population report that they have become prosumers using on-site generation capacities owned either by the household or by the neighbourhood community. Using biomass is the most common option there, mentioned by 33% of the respondents, followed by 15% using geothermal or air-source heat pumps. Using biomass (6.2%) and Geothermal or air-source heat pumps (8%) is relatively common in France as well. In the other countries, the own generation rely mostly on

solar photovoltaics, which are most common in the UK (5.3% of the households), followed by France (3.5%), Italy (2.8%) and Germany (2.7%). Photovoltaics are less common in the other countries with less than 1% of the households reporting generating electricity or heat that way.

Table 14. Use of electricity or heating, generated by RES, (co)-owned by the household (% of households)

Country	Solar panels (PV) for generation of electricity and/or heat	Using biomass for generation of electricity and/or heat	Solar collectors for water heating	Geothermal or air-source heat pumps	None of the previous
Serbia	0.0%	0.1%	0.1%	0.2%	99.6%
Hungary	0.7%	0.0%	0.4%	0.0%	99.0%
Ukraine	0.8%	0.1%	0.4%	0.2%	98.7%
Bulgaria	0.7%	0.0%	1.7%	0.1%	97.7%
Poland	1.1%	0.0%	1.6%	0.0%	97.4%
Spain	0.5%	0.1%	0.8%	1.7%	96.8%
Italy	2.8%	1.7%	2.8%	1.0%	92.1%
United Kingdom	5.3%	2.5%	2.0%	0.6%	92.1%
Germany	2.7%	0.0%	6.5%	0.7%	90.8%
France	3.5%	6.2%	3.7%	7.9%	81.6%
Norway	1.0%	33.1%	0.9%	15.4%	56.5%

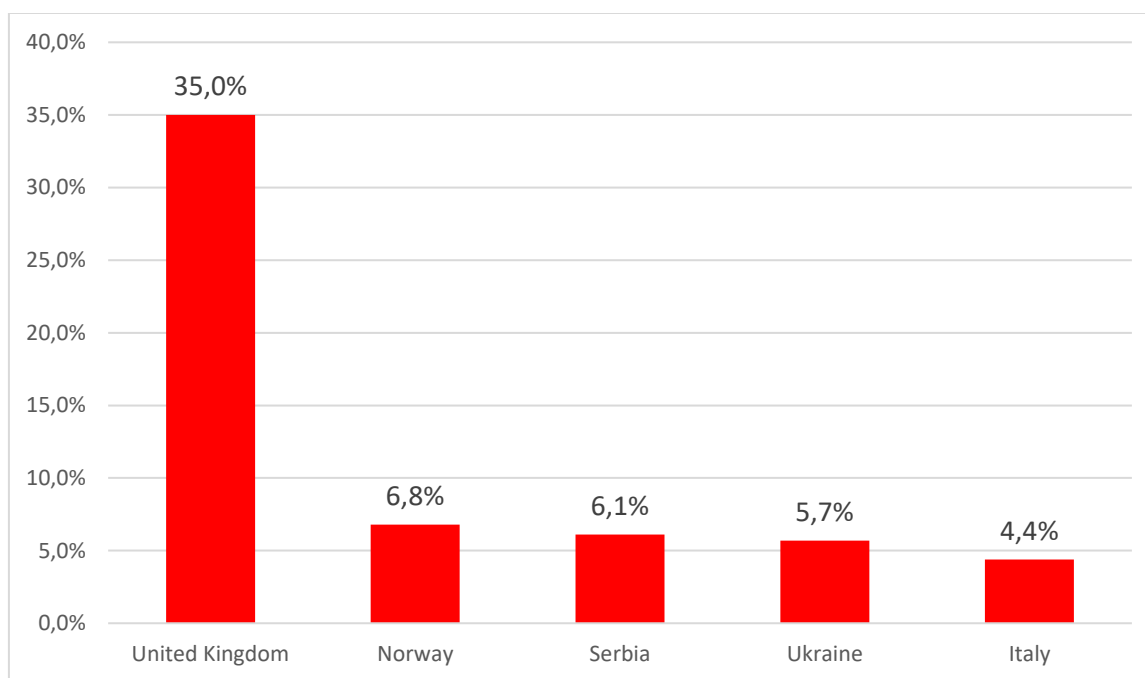
Most of the households owning or co-owning solar photovoltaic panels report that their installation is connected to the public electricity grid, allowing them to sell the produced surplus electricity to the utility company (66%). In the UK the respective share is much higher - 81%, while the number of cases is too small in Italy and Norway, which does not allow for any general conclusions for these two countries. However, the big exception is Serbia, where no respondents with photovoltaics were registered.

Table 15. Shares of households, (co)owning an installation for generation of electricity on site, which is connected to the public electricity grid, allowing the household to sell the surplus electricity to the utility company (% of households)

Country		Yes	No	Do not Know	No answer	Total
Italy	Count	11	6	11	1	29
	%	39%	22%	39%		100%
Norway	Count	9	1	1	1	12
United Kingdom	Count	43	8	3		54
	%	80.9%	14.1%	5.0%		100%

The share of households, considering to install PV systems at their homes in the near future is about six times higher in the UK (35%) than in the other four countries, included into the “shift to prosuming” block of questions. Although the differences between the four countries are close to, or within the level of statistical error, it could be noted that Italy has the lowest share of households intending to invest in PV systems despite the favourable weather conditions in this country.

Figure 7. Share of households, considering installing a solar photovoltaic system at their home/premises in near future (% of households)



The price of installation is the main reason mentioned by households for not considering PV installation - i.e. 70% in Ukraine, 51% in Serbia and about 1/3 of the respondents in the other 3 countries. Still, many people report several other reasons: they are dependent on other; they lack information about such possibility whatsoever (between 16% and 24% in different countries) or they are not sure about certain steps of the process (regulations, technology, installation the overall process, etc.).

Table 16. Main reasons for not considering installing a solar photovoltaic system at home (% of households)

	5 Italy	6 Norway	8 Serbia	10 Ukraine	11 United Kingdom
P7A9 Too expensive	34%	36%	51%	70%	30%
P7A11 The house is unsuitable	11%	21%	10%	16%	13%
P7A12 Dependent on other	16%	30%	12%	10%	26%
P7A2 Do not know about the possibility	19%	18%	24%	16%	18%

P7A3 Conditions are unsuitable	17%	17%	17%	10%	7%
P7A4 Happy with today's solution	15%	23%	16%	8%	4%
P7A5 Not sure about today's regulations and support schemes	3%	14%	7%	13%	8%
P7A6 Not sure about the technology	2%	16%	14%	7%	6%
P7A7 Not sure about the installation	3%	13%	10%	11%	9%
P7A8 Not sure about the process to do this	4%	8%	13%	20%	16%
P7A10 Too time consuming	1%	4%	4%	3%	3%
P7A13 Doubt that the municipal will accept this	1%	5%	5%	4%	6%
P7A14 Doubt that the Distribution System Operator will be positive	1%	2%	5%	2%	4%
P7A1 I already have	1%	1%	0%	1%	0%
P7A15 Not sure about the environmental effect	5%	6%	2%	1%	3%

2.1.4. Mobility (coverage: Hungary, Italy, Norway, Poland, Spain)

When it comes to mobility, owning a petrol/diesel car in the household is naturally more common in the high GDP countries (France 90%, Italy 85%, Germany and Norway 75%) than in the ones with low GDP per capita indicators like Serbia, Hungary, Poland, Bulgaria and especially Ukraine where only 35% of the households own a petrol or diesel car. Alternative fuelled cars working on methane or LPG are quite common in Bulgaria and Poland, however it should be noted that these cars are typically modified petrol/gas cars and the modification is driven by searching for a cheaper fuel alternative.¹⁵ At the same time, petrol and diesel cars in the East European countries typically tend to be much older than those owned in Western and Northern Europe.

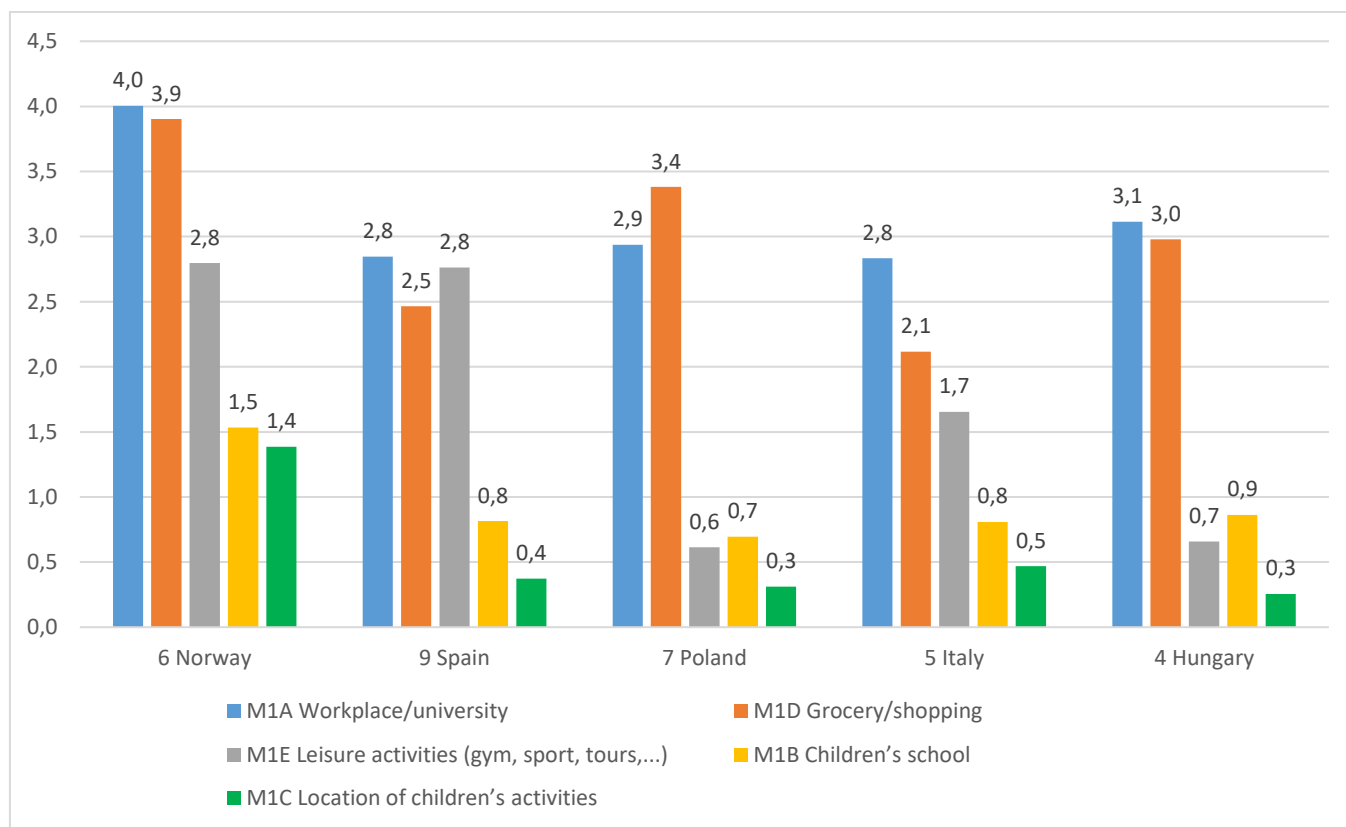
¹⁵ E.g. in Bulgaria the average price of LPG was about EUR 0,55 in 2017, while the average price for diesel and petrol was respectively EUR 1,20-1,30.

Table 17. Share of households, owning at least one of the following vehicles (%)

Country	The household owns at least 1 petrol or diesel car	Petrol car	Diesel car	Alternative fuelled car (methan, LPG)	Electric car	Hybrid car	Motorcycle (or Scooters)	Electric Motorcycle (or Scooter)	Van, truck, caravan	Bicycle	Electric bicycle
France	90.3%	49.4%	60.3%	5.7%	3.1%	4.6%	14.7%	6.6%	7.4%	65.0%	5.9%
Italy	84.6%	61.4%	43.7%	7.3%	1.4%	1.6%	16.9%	2.1%	4.4%	41.6%	2.4%
Germany	78.7%	68.3%	22.3%	0.4%	2.8%	1.7%	13.5%	0.1%	11.7%	87.8%	13.5%
Norway	78.3%	46.7%	46.9%	0.8%	6.2%	9.0%	11.1%	0.6%	9.3%	76.6%	6.7%
United Kingdom	74.1%	56.4%	28.9%	2.9%	2.4%	4.5%	8.7%	2.9%	6.9%	42.9%	2.9%
Spain	67.9%	31.6%	44.6%	0.3%	0.1%	1.2%	7.6%	2.1%	2.2%	35.8%	0.3%
Serbia	67.1%	44.8%	29.3%	5.4%	0.1%	0.5%	6.7%	0.7%	2.7%	55.2%	0.5%
Hungary	65.0%	56.5%	12.8%	0.4%	0.0%	0.9%	5.8%	0.7%	1.3%	59.4%	1.4%
Poland	62.9%	47.8%	21.0%	11.5%	0.3%	0.0%	4.6%	0.6%	1.2%	66.0%	0.2%
Bulgaria	58.4%	34.7%	27.9%	18.2%	1.4%	1.4%	9.1%	1.4%	2.0%	36.3%	1.4%
Ukraine	34.8%	29.0%	7.6%	4.0%	0.3%	0.6%	8.9%	0.8%	1.5%	42.5%	0.9%

Traveling habits vary among the five countries covered by these questions, with respondents from Norway generally reporting travelling most often for most of their typical weekly activities. In all the five countries, usually people travel to their workplace or university (between 3 and 4 days on the average), followed closely by grocery/shopping. In third place come the leisure activities followed by children-related traveling.

Figure 8. How many days in a week do you typically travel (incl. walking) to the following locations? (Mean results, number of days)



The preferred means of transportation in all the countries for the two most frequent travel destinations are diesel/gasoline cars. In the three countries (Hungary, Italy and Spain) where these questions were asked, answers showed that driving a gasoline/diesel car is particularly popular in Italy, where over 62% of the people who travel for work or for grocery shopping do so by car. Walking is the second most popular means of transportation among respondents in Spain, who use it more often than respondents in other countries, especially when it comes to grocery shopping (75% of the Spanish population mention it, compared to 41% in Italy and 46% in Hungary). Bicycles are more common in Hungary than in Italy and Spain with 14% of the Hungarians using bicycle for getting to work and 19% for shopping. In comparison, only 4% of Italian and Spanish people use bicycles for travelling to work. Public transport (bus, metro, tram) is less used as compared to traditional cars and walking, even in Hungary where the largest share of population is using bus (26%).

Table 18. Usual travel modes, used to perform the trip to workplace and shopping (% of people)

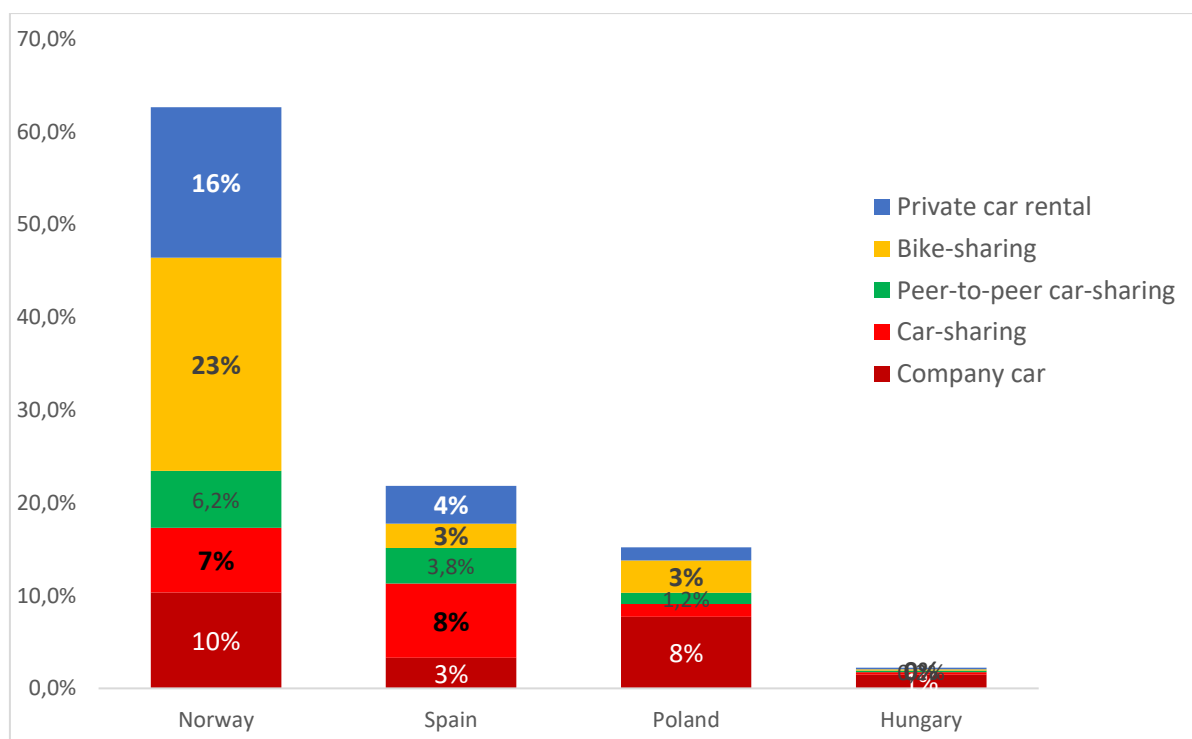
	Trip to the workplace/university			Trip to usual grocery/shopping location		
	Hungary	Italy	Spain	Hungary	Italy	Spain

Traditional car (diesel/ gasoline)	52.7%	64.0%	44.8%	49.6%	62.1%	26.2%
Walking	32.3%	27.1%	44.3%	46.1%	41.2%	74.8%
Bus	25.5%	12.1%	9.3%	9.7%	3.9%	1.2%
Bicycle	14.4%	4.0%	4.4%	19.0%	9.8%	.9%
Metro/Tram	7.6%	3.3%	13.0%	2.1%	.5%	.3%
Motorcycle/ Scooter	1.0%	6.5%	3.9%	.5%	4.0%	.6%
Train	1.4%	5.7%	4.6%	.2%	.2%	0.0%
Alternative fueled car (Methane/ LPG)	.2%	5.6%	0.0%	.4%	5.4%	.1%
Carpooling	.3%	1.8%	1.4%	.8%	2.7%	.1%
Electric/ Hybrid car	0.0%	1.3%	.7%	.4%	1.8%	.1%
Not applicable	0.0%	7.1%	.2%	0.0%	8.4%	0.0%

Results show that traditional cars remain the most preferred option for transportation in these three countries with walking, bicycles and metro/train serving as good alternatives in Spain and Hungary where the share of using traditional cars is smaller than in Italy.

Most of the low-carbon mobility related travelling modes are popular mainly in Norway and very unpopular in Hungary. However, for all the five countries, the use of traditional modes of mobility exceeds in times the low-carbon mobility - company cars are the option that is most often used, followed by bike-sharing and private car rental. Car sharing is not very popular in Poland and Hungary while is used at least occasionally by 7% of respondents in Norway and 8% in Spain.

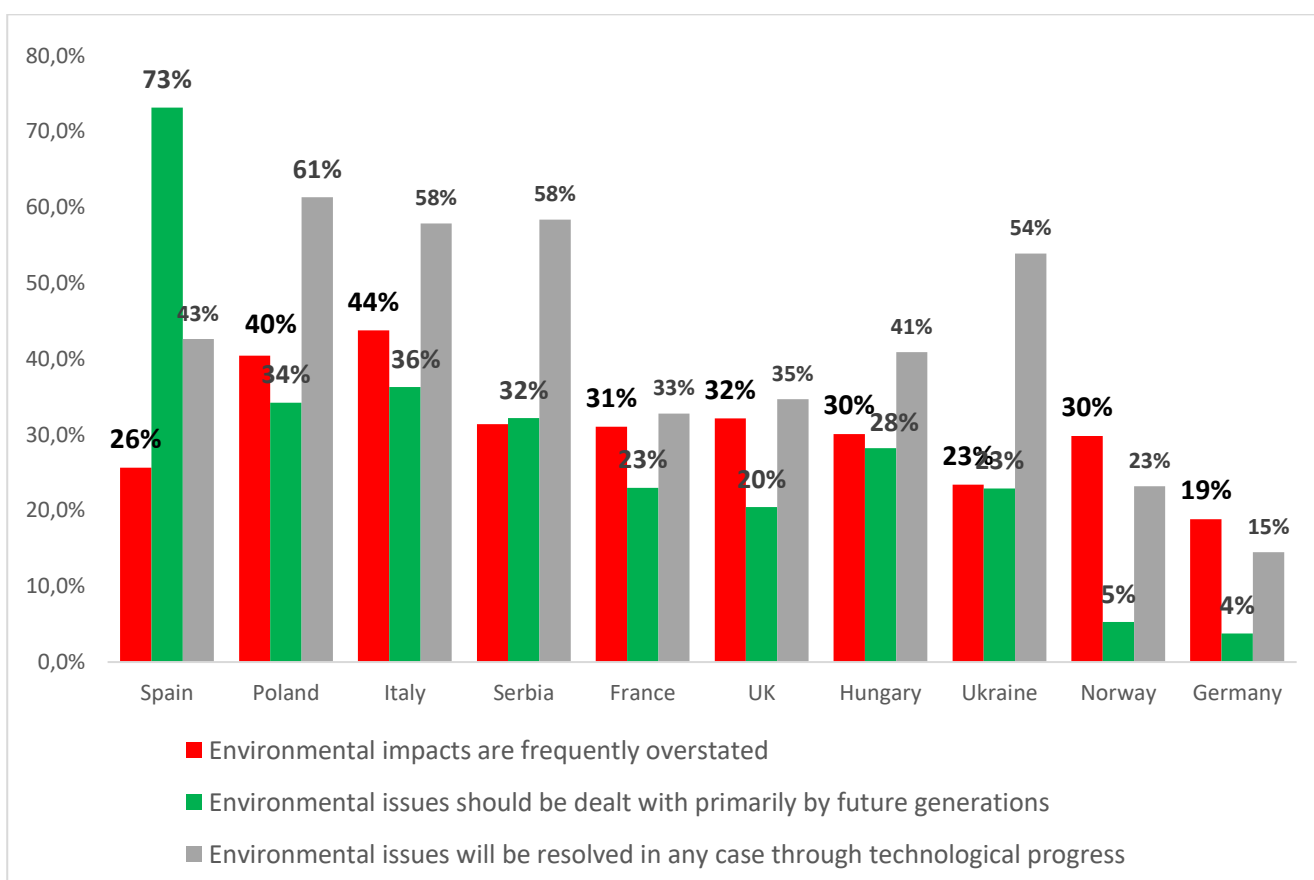
Figure 9. Do you commonly use any of the following modes? (% of people who use the mode at least occasionally)



2.2. Attitudes towards energy efficiency policies and personal involvement in energy saving

General attitudes towards environmental issues are positive. Most of the respondents disagree with the statements that “environmental impacts are frequently overstated” or that “environmental issues should be dealt with primarily by future generation”, with a notable exception: 73% of the Spanish population do agree. When it comes to the role of technology, more than half of the respondents in Ukraine, Serbia, Italy, and Poland agree with the optimistic statement that environmental issues will be resolved through future technological progress. Respondents in Germany and Norway are much more sceptical about it (less than 23% of them agree).

Figure 10. Share of people, which agree with the following statements (%)



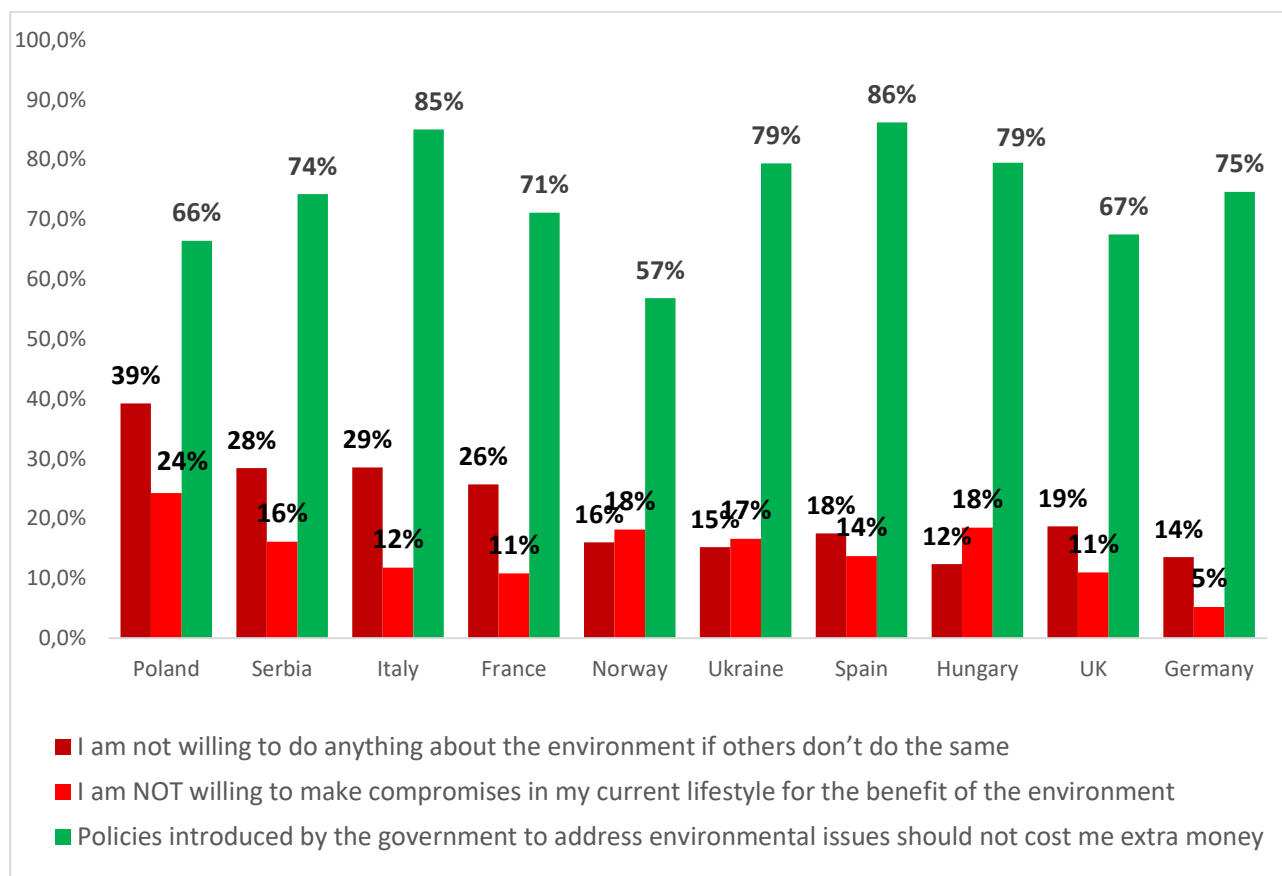
Most of people tend to demonstrate attitudes towards personal involvement in dealing with environmental issues. Among respondents less willing to do anything about the environment if others don't do the same, the largest shares are in Poland, Italy, Serbia and France, (between 26% and 39% of the respondents). The percentage of respondents agreeing with this statement in the other seven countries is between 12% and 18%.

Similarly, those who wouldn't make any compromise in their lifestyle for the benefit of the environment are less than 20% in most of the countries, and only in Poland their share is 24% of the population.

Answers, however, change dramatically when practical policy measures are discussed, which could cost the citizens extra money. The vast majority of the citizens agree that such policies **should not** cost them extra money with the lowest share giving this answer being 57% in Norway. The highest share of people, who think

that the environmental policies should not cost them extra money is in Spain and Italy (85%-86%), while the lowest is in Norway (57%). The results show clearly that the majority of people in all studied countries prefer the environmental policies to be implemented without spending for them extra money.

Figure 11. Share of people, which agree with the following statements (%)



When policy priorities are discussed, energy prices and their regulation according to the living standards of the country are very important for large shares of the population in most of the ten countries (over half of respondents, with more than 80% of Bulgarians and Germans). The development of clean energy sources is considered to be a priority by more than half of the population in France, Germany, Ukraine and the UK and by 44% of the Hungarians and 40% of the Serbians and less than 30% of Bulgarian respondents. Energy efficiency of private and public buildings is mentioned less often as a major policy priority for the country. This answer was given by 26% to 56% of the people, with the highest share being in the UK and the lowest in Hungary. Finally, full liberalization of power markets and phasing-out of nuclear power plants are seldom mentioned: in most of the countries, less than 20% of the respondents mentioned these answers with the exception of 23% of the Serbian supporting market liberalization and 29% of the French considering that nuclear phase-out should be a policy priority for their country.

Table 19. Preferences about main energy policy priorities (% of people)

Country	The development of clean energy sources, e.g. RES (solar, wind, hydro, biomass)	Price of energy, which is socially acceptable and affordable for all people	Energy efficiency of private and public buildings	Power, gas and heating prices should be regulated by the government consistent with the living standards in the country.	Power markets should be fully liberalized, so that energy prices are dependent only on the market.	Phasing-out nuclear power plants (if any) in [COUNTRY]
Bulgaria	29.8%	82.6%	44.0%	58.3%	18.0%	6.6%
France	56.5%	54.3%	38.7%	47.5%	14.4%	28.5%
Germany	60.9%	95.3%	33.9%	26.0%	NA	NA
Hungary	44.0%	53.5%	25.7%	50.5%	16.1%	14.2%
Serbia	40.7%	69.3%	29.0%	63.0%	22.6%	NA ¹⁶
Ukraine	50.1%	75.8%	34.7%	62.0%	19.1%	21.5%
United Kingdom	64.8%	74.8%	54.0%	51.8%	15.9%	23.9%

When it comes to public funded programs, subsidies or financial incentives for introducing or implementing environmental measures¹⁷, less than 20% of the population in the ten covered countries report participating in (using) such programs. This share is highest in France, followed by UK, Norway and Germany. The lowest shares are reported in Serbia and Hungary, with less than 2% of the population, using public funding or financial incentives for any of these environmental measures. On the other hand, more than 10% of respondents in France, the UK, Ukraine, Norway and Bulgaria benefitted from programmes or subsidies aiming at improving energy efficiency.

¹⁶ This questions was not asked in Serbia, as there is no nuclear power plant in this country.

¹⁷ E.g. “use of energy generated by RES”, “use of electric of hybrid cars”, “reducing CO2 emissions generated by the households”, “improving energy efficiency” or “use of motor vehicles with higher environmental standards”.

Table 20. Use of public funded programs, subsidies or financial incentives for introducing or implementing the following environmental measures in the last 3 years (% of people)

Country	Use of energy, generated by RES (e.g. solar, wind, hydro, biomass)			Use of electric or hybrid cars			Reducing the CO2 emissions, generated by your households			Improving the energy efficiency			Use of motor vehicles, meeting higher environmental standards		
	Yes	No	Do not apply	Yes	No	Do not apply	Yes	No	Do not apply	Yes	No	Do not apply	Yes	No	Do not apply
France	11.0%	78.4%	10.6%	9.4%	79.6%	11.0%	12.7%	75.9%	11.4%	17.3%	72.6%	10.1%	13.2%	76.9%	9.9%
United Kingdom	7.0%	80.8%	12.2%	5.0%	80.0%	14.9%	7.1%	80.6%	12.3%	15.6%	74.2%	10.1%	7.9%	77.9%	14.2%
Norway	3.0%	72.2%	24.8%	9.8%	71.8%	18.4%	4.7%	71.9%	23.5%	10.9%	71.6%	17.5%	11.1%	69.1%	19.8%
Germany	7.9%	85.9%	6.2%	3.4%	92.3%	4.3%	1.0%	91.7%	7.4%	4.9%	90.9%	4.2%	13.1%	80.2%	6.7%
Ukraine	1.3%	82.4%	15.8%	1.4%	81.1%	17.0%	3.9%	77.4%	18.0%	12.2%	73.1%	13.6%	5.1%	75.1%	19.0%
Bulgaria	1.4%	87.7%	10.9%	0.7%	88.3%	11.0%	1.3%	88.2%	10.5%	10.4%	81.8%	7.7%	2.8%	85.4%	11.8%
Poland	2.2%	77.4%	20.4%	1.8%	77.3%	20.9%	3.9%	76.9%	19.2%	5.0%	75.6%	19.4%	2.5%	77.6%	19.9%
Hungary	1.5%	94.7%	3.8%	0.9%	95.0%	4.1%	1.0%	96.6%	2.4%	2.0%	95.3%	2.8%	1.5%	95.2%	3.3%
Serbia	0.0%	70.5%	29.5%	0.2%	70.3%	29.5%	0.2%	70.4%	29.4%	1.0%	70.5%	28.5%	0.2%	70.5%	29.3%

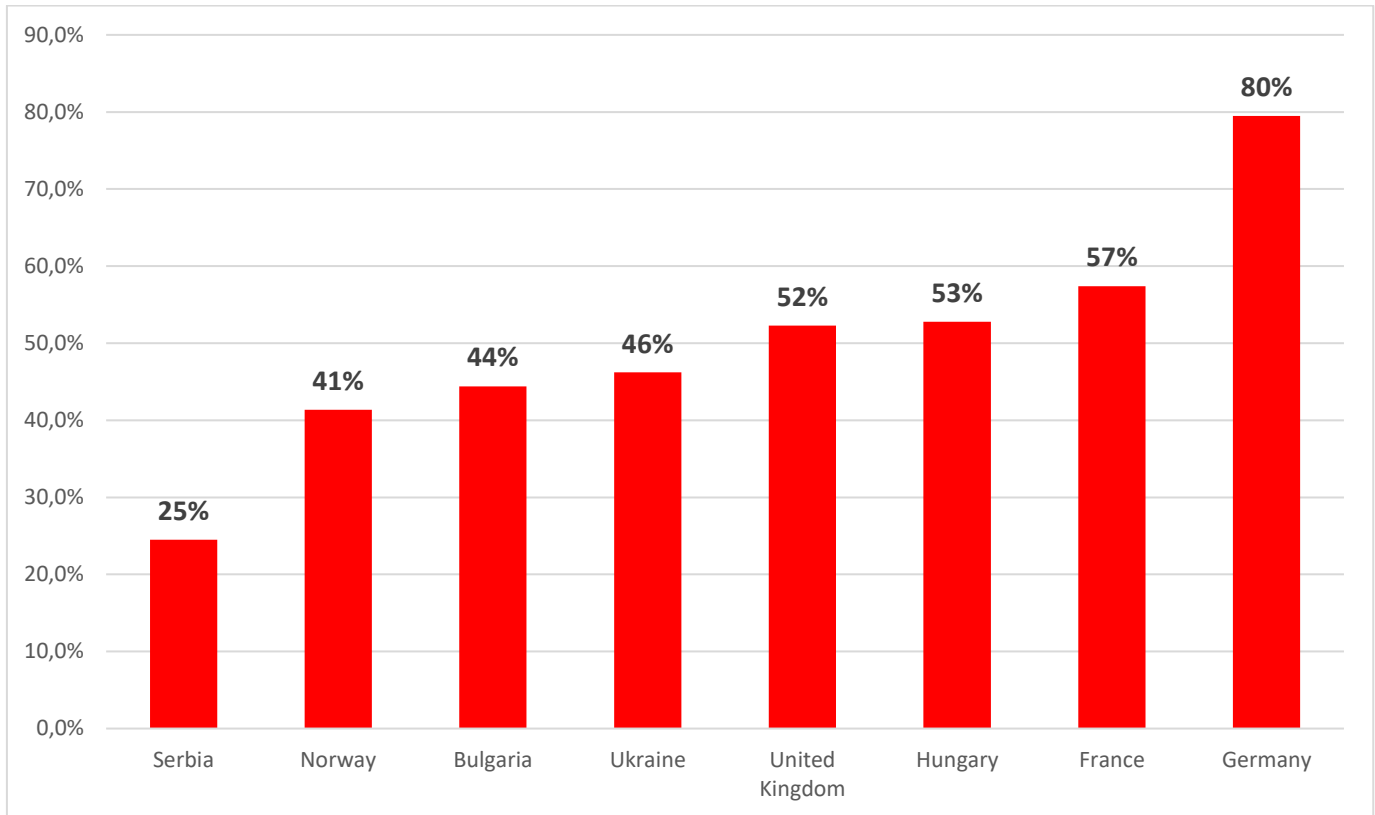
When assessing the effectiveness of different national policies related to energy, respondents in the 9 countries tend to give average or below average scores, especially people in Ukraine, Germany and Serbia tend to be rather dissatisfied with the effectiveness of these policies, while in Norway, Poland and the UK, they give slightly higher scores for effectiveness. The most effective policies on average are “increasing the share of energy generated by RES” and “improving the energy efficiency of the residential sector”, while “mitigating the effects of climate change” receives generally the lowest scores.

Table 21. Assessment of the effectiveness of national low-carbon policies (average assessment score from 1 “very unsuccessful” to 5 “very successful”)

Country	Supporting low-income people to satisfy their energy needs	Reducing the CO2 emissions from the industry and the building sector	Increasing the share of energy, generated by RES	Improving the energy efficiency of the residential sector	Mitigate the effects of the climate change	Lowering the energy intensity of the industry
Norway	2.7	3.3	3.5	3.3	3.1	3.4
Poland	3.0	3.0	3.0	3.1	2.9	3.0
United Kingdom	2.6	2.8	3.0	2.9	2.6	2.7
Hungary	2.8	2.8	2.7	2.8	2.6	2.8
Bulgaria	2.9	2.5	2.6	3.1	2.6	2.6
France	2.6	2.6	2.8	2.8	2.5	2.6
Serbia	2.4	2.3	2.3	2.4	2.1	2.2
Germany	2.2	2.3	2.7	2.4	2.0	2.0
Ukraine	2.4	2.0	2.1	2.1	1.9	2.0

With regard to purchase of equipment, energy efficiency was reported as being a primary factor for choosing a particular item by 80% of the respondents in Germany. Interestingly, while Norwegians seem very concerned with the environment, in this question they are second to last with 41% who considered the energy efficiency of their new household appliances. The reason could be rather economic in the case of high-consumption appliances or cultural in the other cases, than environmental concerns. Long-term decrease in electricity bills might be less important for Norway than for other countries. Still, the trend clearly shows that respondents from richer countries tend to focus more on the energy efficiency of their appliances. In Germany, in particular this is also clearly visible in the highest share of households with new appliances, less than 3 years old.

Figure 122. When buying a new household appliance e.g. washing machine or fridge, you choose it mainly because it was more energy efficient than other models (% of people)



People in Hungary, Italy, Norway, Poland and Spain are generally supportive of government actions related to the improvement of the transportation system. The most supported actions with highest scores involve reducing fares and improving quality of the public transportation, regulating standards of manufacturing, reducing emissions through enforcing new standards for manufacturers and expanding the existing road infrastructure. Naturally, measures affecting people's lifestyles and higher taxes are by far the least supported action.

In terms of country differences, Spanish citizens are generally the most supportive while Hungarians tend to be the least supportive to governmental actions in the transportation system, with the exception of building new roads, which might be supported for other reasons than concern for the environment.

Table 22. Share of people, expressing support to the following government actions (%)

	Hungary	Italy	Norway	Poland	Spain	Average (from 5 countries)
Making public transport more attractive by reducing fares, increasing frequency, and expanding route coverage	3.7	4.1	4.6	4.2	4.5	4.2
Reducing vehicle emissions with regular testing, and manufacturer emissions standards	3.7	4.1	4.3	4.1	4.2	4.1

Improving traffic flow by building new roads, and expanding existing roads.	4.1	3.9	3.8	4.3	4.0	4.0
Making neighborhoods more attractive to walkers and cyclists using bike lanes, and speed controls.	3.9	4.0	4.0	4.1	4.0	4.0
Reducing transportation distances by promoting mixed commercial and residential, an high density development	3.4	3.7	3.5	3.7	3.8	3.6
Reducing transportation needs by encouraging compressed workweeks and working from home	3.5	3.7	3.4	3.7	3.9	3.6
Making public car-sharing and public transport faster by giving them dedicated traffic lanes, and priority at intersections	3.4	3.6	3.0	3.9	3.9	3.6
Discouraging automobile use with road tolls, gas taxes, and vehicle surcharges.	2.9	2.8	2.2	2.8	2.8	2.7

Low-carbon mobility is personal priority for large parts of the population in Germany and Norway, where about half of the population (55% in Germany and 44% in Norway) report to use environmental friendly alternatives to driving their private car. About one third of the citizens (32%) from these two countries have also considered fuel consumption as an important factor when buying a new car. In the other countries, however the shares are much lower with less than 15% of the people in Ukraine, Bulgaria or Hungary mentioning each of the two actions.

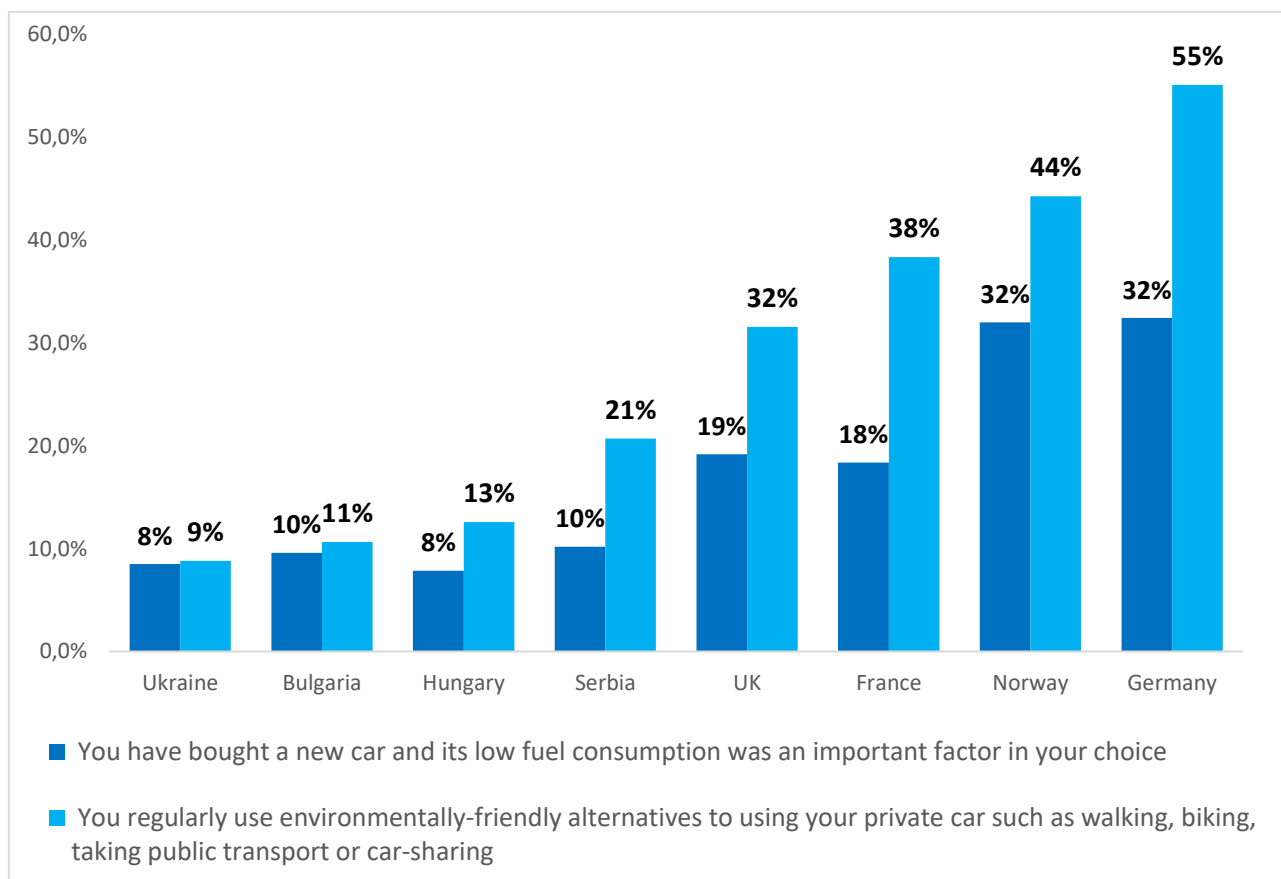
Among the population in the ten covered countries,¹⁸ the share of people who haven't undertaken one of the four suggested actions¹⁹ is highest in Serbia (58%), followed by Bulgaria and Ukraine with 46% of the population. The respective share is considerably lower in the UK, France and especially in Germany and Norway where almost no one answered that they have not undertaken any of the four measures aiming at decreasing the environmental impact.

¹⁸ Bulgaria, France, Germany, Hungary, Italy, Norway, Poland, Serbia, Ukraine, United Kingdom. Only Spain is not covered.

¹⁹ The actions listed as options in the question are:

- You have bought a new car and its low fuel consumption was an important factor in your choice
- You regularly use environmentally-friendly alternatives to using your private car such as walking, biking, taking public transport or car-sharing
- When buying a new household appliance e.g. washing machine or fridge, you choose it mainly because it was more energy efficient than other models
- You have switched to an energy supplier which offers a greater share of energy from renewable sources than your previous one

Figure 133. Which of the following actions have you taken, if any? (% of people)



3. Conclusions

The survey results confirm the existence of vast differences among the studied 11 countries, which are results of the different combination of socio-cultural, economic and technological factors that influence both the experience and the attitudes of the people. While some of the survey findings could be confirmed directly or indirectly by the official statistics and data, there are many results that give a valuable insight on certain trends in the development of low-carbon future in Europe. This will be used in the work on the succeeding project tasks that need to be fed by the survey findings. The latter would support in various ways the forthcoming project activities, e.g., refining the assumptions in the scenario development (WP7), formulate hypotheses about the necessary policy options that need to be considered (WP5) or help to devise the trends in the lifestyle and attitude changes, which will be then discussed and analyzed through the foresight exercises (WP6). For instance, the use of additional insulation as an energy efficiency measure divided the countries into three clear sub-groups that could be applicable for both WP5 and WP6. In the same way, the information collected on the average temperature in the dwellings and the preferred source of heating, could support the formulation of necessary assumptions and the calculation of input data in WP7.

In general, the survey results pointed out to the extreme diversification of the countries regarding the experience and the attitudes that drive the energy choices on both individual and collective (household) level. If according to some aspects, the countries could be grouped into specific sub-groups, corresponding to their common social, economic and political development (e.g. Central and Eastern European vs Western European or high- vs low-GDP countries), the diversity regarding other aspects of the situation makes this grouping not relevant. However, the more advanced stage of development towards low-carbon energy system in Norway, Germany, and the UK and partially in France, has been confirmed by the major survey findings. Even this could be challenged if the shift towards prosuming is considered – with the exception of Norway, where nearly half of the population produces its own energy, other countries in this group lag far behind, while Italy has decreased the gap and has similar results to the UK or Germany.

Appendix 1. Survey and sample methodology

The ENABLE.EU household survey was designed to collect data on energy-related behaviour, opinions and attitudes of citizens on individual and collective (household) level. The survey questionnaire covers social, cultural, technological, economic, and governance factors, driving individual and collective energy-related behaviour and the respective energy choices. The survey was designed and implemented as representative on a national level for each of the 11 participating countries and has been conducted using a prepared in advance common questionnaire, translated in all national languages. Depending on the availability of options, national specifics, price constraints and expert decision of the local project partner, each partner selected different methods for on-field registration of information - face-to-face interviewing survey using paper questionnaire, face-to-face computer-assisted personalized interview (CAPI), or an online survey (see the table below).

Sampling methods and sample size per country

	BG	FR	DE	HU	IT	NO	PL	RS	ES	UA	UK
Face-to-face paper-based interviewing	RS		QS	RS	RS			RS	RS	RS	
Face-to-face CAPI							RS				
Online survey		X				X					X
Sample size (realized)	1000	1500	711	1022	1025	1221	1000	1000	760	1013	1015

Legend: RS – random sample, QS – quota sample

1. Sampling methodology:

Depending on the selected method for on-field registration of information, the following sampling methodologies were applied.

1.1. Face-to-face survey

Each national sample was based on data about age categories, sex and country's administrative division, sourced from the national statistical offices. Two different sampling procedures were applied – random sampling and quota sampling.

Random sampling: The samples were first stratified by NUTS2 or other relevant regions and then – in some countries – further stratified by a predefined typology of urbanization areas (e.g. capital, big towns, small- and mid- towns, rural areas). As a result, in each country a given number of strata have been defined. Using as a reference for the size of each stratum the data on the distribution of general population in the country aged 16+, taken from the national statistical office, the sample was distributed across the predefined number of strata.

At the next step, primary sampling units or clusters have been selected proportionally to the population structure. For each stratum, the necessary number of clusters was selected randomly or in some countries - based on specific selection criteria, usually proportionally to the settlements size. In most of the countries, the urban/rural proportion (towns and cities vs. villages) was preserved in the overall sample of clusters. Number of cluster per settlement depends on the size of settlement – only a single cluster corresponds to smaller settlements, while in larger ones – several clusters were selected proportionally to the size of the settlement and usually following either the division in election sections or specific national administrative division.

In all countries, the “random walk” method was applied as a household selection procedure, based on predefined route, starting point and selection-step (e.g. every 5th house or flats in block of flats in the towns, every 3rd house in villages). In case of block of flats, only one entrance was chosen. Every effort was made to

screen each sampled address and achieve an interview at eligible households, with the following fieldwork requirements:

- Contact attempted at different times of day (including evenings), and at weekends as well as weekdays.
- No substitution of selected addresses – this means that if an address was unproductive or appeared unsuitable from the outside, the interviewer still had to make contact there; they could not choose a neighbor instead.

The interviewer was required to do up to three visits at the sample household at different times of the day, days of the week, and the weekend to conduct an interview. If the interviewer cannot obtain an interview at this household, s/he went to the next address as defined by the “random walk” method. The respondent selection within the household was done using either “last” or “next birthday” techniques. Only one person per household was interviewed.

Finally, the survey companies provided statistical weights for the realized sample to adjust the survey results to the general population characteristics (recruiting criteria).

Quota sampling: The participants of the survey were selected by using a quota sample based on a sample of areas according to the administrative division of the respective country (usually NUTS1 and NUTS2 categories) and the population sizes of the regions/settlements. Based on the allocation of the area sample, a combined quotation based on personal characteristics (age and gender) was created. The latest available information about the general population demographics from the national statistical offices was used to construct the quota. Finally, the survey companies provided statistical weights for the realized sample to adjust the survey results to the general population characteristics (recruiting criteria).

1.2. Online survey

An online research panel was used as the sampling frame in each of the 3 countries (France, Norway and UK), using the online panel of the respective survey company. The selection criteria for constructing the nationally representative sample were age groups, sex and region (based both on the administrative division of the country and urban/rural division). In the UK, the national representative sample was boosted by additional 100 interviews with “prosumers”, which are used only for in-country analysis regarding the respective case study on “shift to prosuming” but are not included into the general cross-country analysis of the survey results. The latest available data about the general population demographics (selection criteria) from the national statistical offices was used to construct the sample. The person to be interviewed was selected directly, based on the in-advance available information about his/her demographic characteristics. In France, the 16-17 are contacted throughout their parents, as the parents’ approval was required according to the national legislation. Finally, the survey companies provided statistical weights for the realized sample to adjust the survey results to the general population characteristics (selection criteria).

Appendix 2. Survey questionnaire

GENERAL questions: to be asked in ALL countries

(Bulgaria, France, Germany, Hungary, Italy, Norway, Poland, Serbia, Spain, Ukraine, United Kingdom)

Section H - HOME / BUILDING CHARACTERISTICS AND HOUSEHOLD POSSESSIONS

H1. Which best describes your home?

Only ONE answer.

1. Single-family house detached from any other house
2. Single-family house attached to one or more other houses (for example: duplex, row or terraced house, or townhome)
3. Apartment in a building with 2 to 5 flats
4. Apartment in a building with 6 or more flats

H2. As far as you know, when was your home built?

Only ONE answer.

1. Before 1950
2. 1950 to 1959
3. 1960 to 1969
4. 1970 to 1979
5. 1980 to 1989
6. 1990 to 1999
7. 2000 to 2009
8. 2010 to 2016
99. (Don't know)

Instruction to the survey company: Please, use the answers with the relevant measurement system. Delete the unnecessary column.

H3. In which group does your home belong?

Only ONE answer.

1 Up to 42 m ²	1 Up to 455 ft ²
2 43 – 65 m ²	2 456 – 700 ft ²
3 66 – 90 m ²	3 701 – 970 ft ²
4 91 – 120 m ²	4 971 – 1295 ft ²
5 120 – 200 m ²	5 1296 – 2160 ft ²
6 More than 200 m ²	6 More than 2160 ft ²
7 Doesn't know/ didn't answer	7 Doesn't know/ didn't answer

H4. How many of the following vehicles your household owns?

One answer per row

		Don't have	Number of vehicles			(Don't know)
			1	2	3+	
A	Petrol car	1	2	3	4	99
B	Diesel car	1	2	3	4	99
C	Alternative fuelled car (methan, LPG)	1	2	3	4	99
D	Electric car	1	2	3	4	99
E	Hybrid car	1	2	3	4	99
F	Motorcycle (or Scooters)	1	2	3	4	99
G	Electric Motorcycle (or Scooter)	1	2	3	4	99
H	Van, truck, caravan	1	2	3	4	99
I	Bicycle	1	2	3	4	99
J	Electric bicycle	1	2	3	4	99

H5. Does your home have any of the following types of insulation?

Tick all that apply

1. Attic and/or roof insulation
2. Cavity wall insulation
3. External wall insulation
4. My home does not have any additional insulation.
99. (Don't know)

H6. What is the approximate percentage share of the energy sources you use for heating?

Indicate the approximate percentage share, based on the bills you paid

1. Electricity (including under floor heating)%
2. District heating, different than using natural gas from a central source?%
3. Natural gas from a central source / propane or bottled gas%
4. Wood%
5. Coal or coke%
6. Pellets%
7. Fuel oil%
8. Waste/garbage%
9. Biomass%
10. Geothermal or air-source heat pump%
11. Other source, please specify.....%
99. Don't know	

H7. What was the cost of heating for your home for the last heating season? Indicate the cost per month or for the whole heating season, depending on how you pay your bills.

Fill only ONE of the answers, most suitable for you:

1. About [national currency] average per month	Continue with the NEXT question
2. About [national currency] for the <u>whole heating season</u>	Skip the NEXT question
99. Don't know	

H7A. Number of months, you pay for heating in the last heating season?

1. Number of months

99. (Don't know)

Instruction to the survey company: Use only one of the following two questions. If there is a country, where the two options are presented, ask both questions

H8A. What was the average monthly bill for electricity of your household over the last 12 months?

..... [National currency]

H8B. What was the last annual bill for electricity of your household?

..... [National currency]

H9. Which of the following best describes how your household controls your main heating equipment most of the time?

Only ONE answer.

1. Set one temperature and leave it there most of the time
2. Manually adjust the temperature (e.g. at night or when no one is at home)
3. Program the thermostat to automatically adjust the temperature during the day and night at certain times
4. Our household does not have control over the equipment

H10. Does your household use electricity or heating, generated by any of the following technologies, which are owned by you or by you and your neighbours/community?

Tick all that apply

1. Solar photovoltaic panels (PV) for generation of electricity and/or heat
2. Using biomass for generation of electricity and/or heat
3. Solar collectors for water heating
4. Geothermal or air-source heat pumps
5. None of the previous

H11. About how old are the most used electrical appliances in your home?

One answer per row. If you have more than one appliance of a given age, please answer for the most often used ones.

		Up to 3 years old	4-10 years old	Older than 10 years	Don't have	Don't know
A	Cooker (stove, oven, cooktops)	1	2	4	5	99
B	Dishwasher	1	2	4	5	99
C	Clothes washer / Washing machine (<i>Do not include community clothes washers that are located in the basement or laundry room of your apartment building</i>)	1	2	4	5	99
D	Refrigerator / freezer	1	2	4	5	99
E	Air conditioning units at your home	1	2	4	5	99
F	Portable electric heater(s)	1	2	4	5	99
G	Standalone electric water heater (boiler)	1	2	4	5	99
h	TV set / Home theater system	1	2	4	5	99

H12. What portion of the light bulbs inside your home are:

One answer per row

		All	Most	About half	Some	None	Don't know
A	Incandescent bulbs ("old" classic bulbs)	1	2	3	4	5	99
B	Energy efficient bulbs (e.g. LED, compact fluorescent bulbs or halogen bulbs)	1	2	3	4	5	99

H13. Does your home have any of the following "smart meters", which records energy consumption in real time and sends this information to your utility company and in some cases includes also a monitor to see (and control) your energy usage?

One answer per row.

	Yes	No	Don't know
Electricity smart meter	1	2	99
Gas smart meter	1	2	99
Heating smart meter	1	2	99
	Skip the NEXT question	Continue with the	

		NEXT question	
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H14. What are the main reasons not to have a “smart meter” at you home?²⁰

Tick all that apply.

1. Smart meters are still not adopted by the utility companies
2. Smart meters are adopted by the utility companies but they are not compulsory
3. The cost of smart meters is too high
4. Smart meters violate my privacy, sharing information about my consumption habits
5. The utility company could misuse the data from the smart meters
6. I don't know whether I can use smart meters at home
7. I heard that smart meters can be harmful to health
8. Other, please specify

H15. How much do you agree with the following statements?²¹

ONE answer per row

	Strongly disagree	Disagree	Agree	Strongly agree	Don't know
I am not willing to do anything about the environment if others don't do the same	1	2	3	4	99
Environmental impacts are frequently overstated	1	2	3	4	99
Environmental issues should be dealt with primarily by future generations	1	2	3	4	99
I am willing to make compromises in my current lifestyle for the benefit of the environment	1	2	3	4	99
Policies introduced by the government to address environmental issues should not cost me extra money	1	2	3	4	99
Environmental issues will be resolved in any case through technological progress	1	2	3	4	99
Protecting the environment is a means of stimulating economic growth	1	2	3	4	99

²⁰ Removed from the survey questionnaire in Norway as not relevant due to factual reasons – the government started a campaign for installing smart meters to all households by 2019.

²¹ Even the question is in the General section, it is mandatory to be asked only in the countries covered by the “Mobility” and “Heating and cooling” sections. In the rest of the countries (Bulgaria, Serbia and the UK) it should be included, if possible.

MOBILITY questions: to be asked ONLY in the following countries:

Hungary, Italy, Norway, Poland, Spain

Section M - MOBILITY

Introduction: In the following 4 questions you will be asked about your usual way of moving from a place to another in your everyday routine. You will be presented a list of destination categories, for each of these, please think of the singular most habitual destination that can be referred to this category and answer according to this.

M1. How many days in a week²² do you typically travel (incl. walking) to the following locations?

ONE answer per row

		Number of days in a week							
		0	1	2	3	4	5	6	7
A	Workplace/university	0	1	2	3	4	5	6	7
B	Children's school	0	1	2	3	4	5	6	7
C	Location of children's activities	0	1	2	3	4	5	6	7
D	Grocery/shopping	0	1	2	3	4	5	6	7
E	Leisure activities (gym, sport, tours,...)	0	1	2	3	4	5	6	7

Ask only for M1 ≠ "0", i.e. only for applicable destinations

M2. Please select the area where are located the following places:

ONE answer per row

		Urban area	Periphery of the urban area	Countryside
A	Your home	1	2	3
B	Your workplace/university	1	2	3
C	Your children's school	1	2	3
D	Children's activities	1	2	3
E	Your usual grocery/shopping	1	2	3
F	Leisure activities (gym, sport, tours,...)	1	2	3

Ask only for M1A ≠ "0"

²² Note for the interviewer: Typical day/week are to be referred to the most common day/week in a year, one can think of, according to her/his current situation.

Trip to Workplace/University:

M3A1. Where do you normally²³ leave from, when you travel to the Workplace/University?

1. Home
2. Workplace/University
3. Children's school
4. Location of children's activities
5. Grocery/Shopping
6. Leisure activities (gym, sport, tours...)

Ask only for M1A ≠ "0"

M3A2. Which of the following travel modes you usually use to perform the trip to the Workplace/University and how much time it takes?

Tick all that apply and mark the respective time, e.g. 5 min walking and 12 minutes bus to reach my workplace...

	Time (hh:mm)
1. Traditional car (diesel/ gasoline)	__:__
2. Alternative fueled car (Methane/ LPG)	__:__
3. Electric/ Hybrid car	__:__
4. Motorcycle/ Scooter	__:__
5. Carpooling ²⁴	__:__
6. Bus	__:__
7. Train	__:__
8. Metro/Tram	__:__
9. Bicycle	__:__
10. Walking	__:__
11. Other, please specify:	__:__
99. Not applicable	

Ask only for M1B ≠ "0"

Trip to Children's school:

M3B1. Where do you normally²⁵ leave from, when you travel to your Children's school?

1. Home
2. Workplace/University
3. Children's school

²³ Please, refer to your most habitual departure location

²⁴ Carpooling defined as moving with a private vehicle but as passenger instead of driver.

²⁵ Please, refer to your most habitual departure location

4. Location of children's activities
5. Grocery/Shopping
6. Leisure activities (gym, sport, tours...)

Ask only for MIB ≠ "0"

M3B2. Which of the following travel modes you usually use to perform the trip to your Children's school and how much time it takes?

Tick all that apply and mark the respective time, e.g. 5 min walking and 12 minutes bus to reach my Children's school ...

	Time (hh:mm)
1. Traditional car (diesel/ gasoline)	__:__
2. Alternative fueled car (Methane/ LPG)	__:__
3. Electric/ Hybrid car	__:__
4. Motorcycle/ Scooter	__:__
5. Carpooling ²⁶	__:__
6. Bus	__:__
7. Train	__:__
8. Metro/Tram	__:__
9. Bicycle	__:__
10. Walking	__:__
11. Other, please specify:	__:__
99. Not applicable	

Ask only for MIC ≠ "0"

Trip to the Location of the children's activities:

M3C1. Where do you normally²⁷ leave from, when you travel to your Children's activities location?

1. Home
2. Workplace/University
3. Children's school
4. Location of children's activities
5. Grocery/Shopping
6. Leisure activities (gym, sport, tours...)

Ask only for MIC ≠ "0"

M3C2. Which of the following travel modes you usually use to perform the trip to your Children's

²⁶ Carpooling defined as moving with a private vehicle but as passenger instead of driver.

²⁷ Please, refer to your most habitual departure location

activities location and how much time it takes?

Tick all that apply and mark the respective time, e.g. 5 min walking and 12 minutes bus to reach my Children's activities location ...

	Time (hh:mm)
1. Traditional car (diesel/ gasoline)	__:__
2. Alternative fueled car (Methane/ LPG)	__:__
3. Electric/ Hybrid car	__:__
4. Motorcycle/ Scooter	__:__
5. Carpooling ²⁸	__:__
6. Bus	__:__
7. Train	__:__
8. Metro/Tram	__:__
9. Bicycle	__:__
10. Walking	__:__
11. Other, please specify:	__:__
99. Not applicable	

Ask only for MID ≠ "0"

Trip to the Your usual grocery/shopping:

M3D1. Where do you normally²⁹ leave from, when you travel to your usual grocery/shopping location?

1. Home
2. Workplace/University
3. Children's school
4. Location of children's activities
5. Grocery/Shopping
6. Leisure activities (gym, sport, tours...)

Ask only for MID ≠ "0"

M3D2. Which of the following travel modes you usually use to perform the trip to your usual grocery/shopping location and how much time it takes?

Tick all that apply and mark the respective time, e.g. 5 min walking and 12 minutes bus to reach your usual grocery/shopping location ...

	Time (hh:mm)
1. Traditional car (diesel/ gasoline)	__:__

²⁸ Carpooling defined as moving with a private vehicle but as passenger instead of driver.

²⁹ Please, refer to your most habitual departure location

2. Alternative fueled car (Methane/ LPG)	__:__
3. Electric/ Hybrid car	__:__
4. Motorcycle/ Scooter	__:__
5. Carpooling ³⁰	__:__
6. Bus	__:__
7. Train	__:__
8. Metro/Tram	__:__
9. Bicycle	__:__
10. Walking	__:__
11. Other, please specify:	__:__
99. Not applicable	

Ask only for MIE ≠ "0"

Trip to your Leisure activities location:

M3E1. Where do you normally³¹ leave from, when you travel to your usual Leisure activities location?

1. Home
2. Workplace/University
3. Children's school
4. Location of children's activities
5. Grocery/Shopping
6. Leisure activities (gym, sport, tours...)

Ask only for MIE ≠ "0"

M3E2. Which of the following travel modes you usually use to perform the trip to your usual Leisure activities location and how much time it takes?

Tick all that apply and mark the respective time, e.g. 5 min walking and 12 minutes bus to reach your usual Leisure activities location ...

	Time (hh:mm)
1. Traditional car (diesel/ gasoline)	__:__
2. Alternative fueled car (Methane/ LPG)	__:__
3. Electric/ Hybrid car	__:__
4. Motorcycle/ Scooter	__:__
5. Carpooling ³²	__:__

³⁰ Carpooling defined as moving with a private vehicle but as passenger instead of driver.

³¹ Please, refer to your most habitual departure location

³² Carpooling defined as moving with a private vehicle but as passenger instead of driver.

6. Bus	__:__
7. Train	__:__
8. Metro/Tram	__:__
9. Bicycle	__:__
10. Walking	__:__
11. Other, please specify:	__:__
99. Not applicable	

Ask only for M1 ≠ "0", i.e. only for applicable destinations

M4. How many kilometers does the trip to the following destinations take?

ONE answer per row

		Distance in km	(Don't know / No answer)
A	Workplace/University	_____ km	99
B	Children's school	_____ km	99
C	Location of children's activities	_____ km	99
D	Grocery/Shopping	_____ km	99
E	Leisure activities (gym, sport, tours...)	_____ km	99

M5. What importance do the following factors have in your decision between different methods of travel?

ONE answer per row

		1 Not at all Important	2	3	4	5 Very Important	Don't Know
A	Cost	1	2	3	4	5	99
B	Travel time	1	2	3	4	5	99
C	Comfort	1	2	3	4	5	99
D	Flexibility	1	2	3	4	5	99
E	Safety	1	2	3	4	5	99
F	Privacy	1	2	3	4	5	99
G	Air quality impact	1	2	3	4	5	99
H	CO2 emissions impact	1	2	3	4	5	99
I	Reliability	1	2	3	4	5	99
J	Availability of method	1	2	3	4	5	99

K	Reputation	1	2	3	4	5	99
L	Other, please specify:	1	2	3	4	5	99

M6. Do you commonly use any of the following modes?

ONE answer per row

	Mode	Never	Occasionally	Often	Always	Not applicable
A	Company car	1	2	3	4	5
B	Car-sharing ³³	1	2	3	4	5
C	Peer-to-peer car-sharing ³⁴	1	2	3	4	5
D	Bike-sharing ³⁵	1	2	3	4	5
E	Private car rental ³⁶					

M7. With regard to the following vehicles, did you benefited of any type of help or advantage ?

ONE answer per row

		Traditional car	Alternative fuelled car (LPG, methane)	Electric car	Hybrid car	Bicycle	Electric bicycle	Buses	No, I didn't
A	Financial subsidy	1	2	3	4	5	6	7	8
B	Tax reduction	1	2	3	4	5	6	7	8
C	Mobility improvement	1	2	3	4	5	6	7	8
D	Other, please specify:	1	2	3	4	5	6	7	8

M8. What is your level of support for the following government actions that would influence your transportation system:

ONE answer per row

		1 Strongly Opposed	2	3	4	5 Strongly Supportive	Don't Know
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³³ Car-sharing: public or private service supplying cars, which are used for a short periods of time

³⁴ Peer-to-peer car-sharing: car-sharing or carpooling system based on an online service platform, (e.g. BlaBlaCar, Carpooling.com, etc.)

³⁵ Bike-sharing: public or private service supplying bikes which are rent for a short period of time

³⁶ Private car rental: private or company car, which is rent for longer period of time, e.g. a day or more

A	Improving traffic flow by building new roads, and expanding existing roads.	1	2	3	4	5	99
B	Discouraging automobile use with road tolls, gas taxes, and vehicle surcharges.	1	2	3	4	5	99
C	Making neighbourhoods more attractive to walkers and cyclists using bike lanes, and speed controls.	1	2	3	4	5	99
D	Reducing vehicle emissions with regular testing, and manufacturer emissions standards	1	2	3	4	5	99
E	Making public car-sharing and public transport faster by giving them dedicated traffic lanes, and priority at intersections	1	2	3	4	5	99
F	Making public transport more attractive by reducing fares, increasing frequency, and expanding route coverage	1	2	3	4	5	99
G	Reducing transportation distances by promoting mixed commercial and residential, an high density development	1	2	3	4	5	99
H	Reducing transportation needs by encouraging compressed workweeks and working from home	1	2	3	4	5	99

M9. Thinking about your daily experiences, how serious do you consider the following problems related to transportation to be?

ONE answer per row

		1 Not at all Important	2	3	4	5 Very Important	Don't Know
A	Traffic congestion you experience while driving	1	2	3	4	5	99
B	Traffic noise you perceive at home or doing your activities	1	2	3	4	5	99
C	Excessive presence of vehicles occupying urban spaces	1	2	3	4	5	99
D	Vehicle emissions, which impact local air quality	1	2	3	4	5	99
E	Accidents caused by aggressive or absent minded drivers	1	2	3	4	5	99
F	Vehicle emissions, which contribute to global warming	1	2	3	4	5	99
G	Unsafe communities due to speeding	1	2	3	4	5	99

	traffic	
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M10. How much are you satisfied with the following facilities where you live and conduce your activities?

ONE answer per row

	1 Very Low	2	3	4	5 Very High	Not applicable	Don't Know
Parking space	1	2	3	4	5	6	99
Public transport timetables	1	2	3	4	5	6	99
Public transport coverage	1	2	3	4	5	6	99
Bike lanes	1	2	3	4	5	6	99
Pedestrian lanes	1	2	3	4	5	6	99
Public shared-bikes	1	2	3	4	5	6	99
Public shared-cars	1	2	3	4	5	6	99

Instruction to the survey company: If possible don't ask the respondents for their post code but ask the interviewer to write it down.

M11. Could you precise your municipality?

.....

PROSUMER questions: to be asked ONLY in the following countries:

Italy, Norway, United Kingdom, Serbia, Ukraine

Section P - PROSUMERS

Ask only if H10 = 1

P1. If you have an installation for generation of electricity on site, is it connected to the public electricity grid, allowing you to sell the surplus electricity to the utility company?

1. Yes
2. No
99. (Don't know)

Ask only if H10 = 1

P2. Through which channel(s) did you get information about solar photovoltaic (PV) systems, when you decided to install such a system?

Tick all that apply.

1. Neighbours
2. Family/friends/colleagues
3. Persons I/we know in the business
4. Advertisements
5. Called upon by a vendor of PV systems
6. Called upon by a Distribution System Operator/Power supplier
7. Performed own investigations
8. Authorities
9. Other, please specify:
99. Do not know

Ask only if H10 = 1

P3. For how long have you had a solar photovoltaic (PV) system (approximately)?

Only ONE answer

1. Less than 1 year
2. 1-2 years
3. 3-5 years
4. More than 5 years
99. (Don't know)

Ask only if H10 = 1

P4. What was the most important reason(s) to install a solar photovoltaic (PV) system?

Tick all that apply.

1. Interest in the technology
2. Want to get experience with the technology (Work with similar topic)

3. Want to save money on future
4. Want to contribute to a better environment
5. Want to contribute to an increase of the market for PV systems
6. Want to have a larger independency from central power retailers
7. Other, please specify:
99. (Do not know)

Ask only if H10 = 1

P5. Who in the household is mainly responsible for the following, related to the solar photovoltaic (PV) system?

One answer per row

		Myself	Partner male	Partner female	Other	Split between several	Don't know
A	Acquisition of the PV system	1	2	3	4	5	99
B	Installation	1	2	3	4	5	99
C	Information about generated electricity	1	2	3	4	5	99
D	Contacts with vendor	1	2	3	4	5	99

ASK ONLY IF H10 ≠ 1.

P6. Do you consider installing a solar photovoltaic (PV) system at your home / premises in near future?

Only ONE answer

1. Yes	Skip the NEXT question
2. No	Continue with the NEXT question
99 Do not know	

ASK ONLY IF H10 ≠ 1.

P7. What is the main reason(s) that you do not consider to install a solar photovoltaic (PV) system?

1. I already have
2. Do not know about the possibility
3. Conditions are unsuitable
4. Happy with today's solution
5. Not sure about today's regulations and support schemes
6. Not sure about the technology
7. Not sure about the installation
8. Not sure about the process to do this
9. Too expensive
10. Too time consuming
11. The house is unsuitable
12. Dependent on other
13. Doubt that the municipal will accept this
14. Doubt that the Distribution System Operator will be positive

15. Not sure about the environmental effect

16. Other, please specify

99. Don't know

Ask ONLY if P6 = YES and IF H10 ≠ 1.

P8. How important are the following conditions related to your interest in installing a PV system?

		Ver y littl e	Quit e little	Neith er little or much	Quit e muc h	Ver y muc h	Don 't kno w
A	Interest in the technology	1	2	3	4	5	99
B	Want to get experience with the technology	1	2	3	4	5	99
C	Want to save money on future electricity costs	1	2	3	4	5	99
D	Want to contribute to a better environment	1	2	3	4	5	99
E	Want to contribute to an increase of the market for PV systems	1	2	3	4	5	99
F	Want to have a larger independency from central power retailers	1	2	3	4	5	99
G	Other, please specify:	1	2	3	4	5	99

Ask ONLY if H10 = 1

P9. Would you agree to be contacted by us once more in next months in order to conduct a short interview (talk) with you on the topic of being both producer and consumer of electricity? To compensate you for the time, there will be a fixed financial reward for participating in this additional interview.

If yes, please, write down your name, e-mail and/or telephone number

Name: e-mail: tel.:

HEATING & COOLING questions: to be asked ONLY in the following countries:

France, Germany, Hungary, Spain, Ukraine

Section C – HEATING & COOLING

C1. What is the usual temperature in your dwelling when you are at home, during the winter and the summer?

One answer per row

		24 C° or above	22-23 C°	20-21 C°	18-19 C°	17 C° or below	Don't know
A.	Winter temperature	1	2	3	4	5	99
B.	Summer temperature	1	2	3	4	5	99

C2. Do you use air conditioner to cool your dwelling? ³⁷

Only ONE answer

1. Yes	Continue with the NEXT question
2. No	Skip the NEXT question

C2A. Approximately what percentage of your electricity bill does cooling account for?

1.%

99. Don't know

C3. Which of the following best describes the way you heat your dwelling?

Only ONE answer

- The room temperature is the same in all the rooms.
- We heat only the rooms that are in use.

C4. What are the major challenges you will face if you want to reduce the heating/cooling costs of your household? Please indicate on a scale from 1 to 5, how much the following statements would describe your situation!

One answer per row

	Not at all	Not really	Neutral	Somewhat	Very much	Not applicable	Don't know
A. I don't have the money to invest into refurbishment or supplementary insulation.	1	2	3	4	5	6	99

³⁷ Not included in the survey questionnaire in France as not relevant

B. I cannot get a loan with favourable conditions to upgrade my heating system or insulate the house.	1	2	3	4	5	6	99
C. There is no subsidy available which would allow me to invest in refurbishment.	1	2	3	4	5	6	99
D. I cannot calculate the payback of my investment in refurbishment/renewable technology.	1	2	3	4	5	6	99
E. My dwelling is too large for my family, with high heating costs, but I don't want/can't afford to move to another place.	1	2	3	4	5	6	99
F. In the dwelling where I live, the owner and the tenant is not the same person, and at least one does not want to invest in energy-saving measures.	1	2	3	4	5	6	99
G. I spend a lot of time in my dwelling, so I cannot lower the temperature during daytime.	1	2	3	4	5	6	99
H. I don't have individual metering in my dwelling.	1	2	3	4	5	6	99
I. It is not worth to refurbish my old and inefficient dwelling, because construction works would be very expensive relative to the value of the dwelling.	1	2	3	4	5	6	99
J. Besides my own energy consumption habits, my energy bill also depends on the energy consumption of other households in the house.	1	2	3	4	5	6	99
K. Refurbishing our block of flats needs the consent and financial contribution of all tenants, which is difficult to obtain.	1	2	3	4	5	6	99
L. I live in an old building, in which the refurbishment possibilities are limited and might need special permits due to monument protection.	1	2	3	4	5	6	99
M. I think that the renovation would be burdensome as it involves noise and the presence of workers.	1	2	3	4	5	6	99

C5. Please indicate on a scale from 1 to 5 how much the following reasons influence your heating/cooling energy savings?

One answer per row

	Not at all	Not really	Neutral	Somewhat	Very much	Not applicable	Don't know
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A. I don't get frequent enough feedback on my actual energy consumption.	1	2	3	4	5	6	99
B. I don't pay much for heating; paying the bill is not a problem for me.	1	2	3	4	5	6	99
C. My energy bill is too complicated, I cannot interpret it.	1	2	3	4	5	6	99
D. I use my garbage for heating so I've already managed to reduce my energy bill.	1	2	3	4	5	6	99
E. I have already done what I could to reduce my energy bill.	1	2	3	4	5	6	99
F. I feel discouraged because my neighbours are not energy-conscious.	1	2	3	4	5	6	99
G. I can control the room temperature in my house, but I often forget to turn down the heating at night or when I am away from home.	1	2	3	4	5	6	99
H. I plan to save heating costs, but always tend to postpone my saving plans.	1	2	3	4	5	6	99
I. I'm annoyed of my neighbours heating with garbage.	1	2	3	4	5	6	99

C6. How much the following measures would help you to reduce your heating and cooling energy consumption? Please indicate on a scale from 1 to 5!

One answer per row

	Not at all	Not really	Neutral	Somewhat	Very much	Don't know
A. Receiving feedback on your energy consumption comparable to previous periods or to your neighbourhood/similar households.	1	2	3	4	5	9
B. Receiving more information on smart and easy techniques leading to lower energy consumption.	1	2	3	4	5	9
C. More frequent measuring and billing provided by your energy supplier.	1	2	3	4	5	9
D. Receiving regular energy-saving tips and reminders from your supplier to conduct energy-saving actions.	1	2	3	4	5	9

C7. How much the following would help you to reduce your heating and cooling energy consumption? Please indicate on a scale from 1 to 5!

One answer per row

	Not at all	Not really	Neutral	Somewhat	Very much	Don't know

a. “Energy saving counsellor” program, getting targeted advice on energy savings possibilities from independent experts.	1	2	3	4	5	9
b. “Household energy saving” advices in the media including information on energy-saving options (information about best practices, subsidies, technological options, financial constructs (loan etc.))	1	2	3	4	5	9
c. Opportunity for refurbishing dwellings with the help of an energy service company or the energy supplier in a way that the resulting energy-savings finance the investment.	1	2	3	4	5	9
d. Refurbishing houses with the help of the local community or organisations in the construction works, at an affordable price.	1	2	3	4	5	9
e. Information on the availability of national energy efficiency grants and assistance with the applications.	1	2	3	4	5	9
f. Expanding the energy subsidies’ program (e.g. financial aid for covering your heating bills, or providing free firewood for the deprived)	1	2	3	4	5	9

ELECTRICITY questions: to be asked ONLY in the following countries:

Bulgaria, Germany, Serbia, United Kingdom

Section E – ELECTRICITY

Instruction for the survey company: Please, use the relevant national currency.

E1. How much do you think 1 kWh of electricity currently costs in [COUNTRY] on average? Please indicate your best guess without checking your bill or other resources.

1. (amount in [cents] [pense])

99. Don't know

Instruction for the survey company: Please, use the relevant national currency.

E2. Please estimate, how much electricity costs occur for an average household in [COUNTRY] when running:

ONE answer per row

		0-19 [cents] [pense]	20-39 [cents] [pense]	40-59 [cents] [pense]	60-79 [cents] [pense]	80-100 [cents] [pense]	More than 100 [cents] [pense]	Don't know
A.	A TV set for an hour	1	2	3	4	5	6	99
B.	A washing machine (load of 5kg at 60°C) for an hour	1	2	3	4	5	6	99

E3A. Assuming an average household in [COUNTRY], which of the following two activities consumes more electricity?

Only ONE answer

1. Bringing 1 litre of water to a boil in an average pot with lid

3. Running a washing machine with a load of 5kg at 60°C

3. Both consume about the same

99. Don't know

E3B. Assuming an average household in [COUNTRY], which of the following two activities consumes more electricity?

Only ONE answer

1. Bringing 1 litre of water to a boil in an average pot with lid

2. Bringing 1 litre of water to a boil in an electric kettle

3. Both consume about the same

99. Don't know

E3C. Assuming an average household in [COUNTRY], which of the following two activities consumes more electricity?

Only ONE answer

1. Running a tube TV for 1 hour
2. Running a flat screen TV for 1 hour
3. Both consume about the same
99. Don't know

E4. To what extent do the following factors detain other people from saving electricity? Please, use a scale from 1 to 5, with 1 = "not at all" and 5 = "very much".

ONE answer per row

		1 not at all	2	3	4	5 very much
A	They are busy with other, more important, things.	1	2	3	4	5
B	They do not know how to save electricity.	1	2	3	4	5
C	They forget to conduct energy saving actions.	1	2	3	4	5
D	They tend to postpone their electricity saving plans to tomorrow.	1	2	3	4	5

E5. Do you use any kind of reminders to engage in energy conservation actions?

Choose all that apply

1. I do not use reminders.
2. Note in calendar or on the fridge
3. I ask others to remind me.
4. Mobile phone reminders.
5. Other reminders (please, specify):

E6. Do you have any routines for your energy conservation actions?

Choose all that apply

1. I do not have routines.
2. I check each room every time before leaving the house.
3. I switch lights off before leaving rooms.
4. I unplug electronic appliances just after using them.
5. Other routines (please, specify):

E7. Switching off the television only with the remote control is something that...

ONE answer per row

		Strongly Disagree	Mildly Disagree	Neutral	Mildly Agree	Strongly Agree
A	Is anchored in my practices (through its repetition)					
B	I do it while thinking about something else					
C	I perform without being fully aware of it					
D	Would be difficult to change (as it would require a lot of effort)					
E	I do consciously because other behaviour is too effortful for me					

GOVERNANCE questions: to be asked ONLY in the following countries:

Bulgaria, France, Germany, Hungary, Italy, Norway, Poland, Serbia, Ukraine, United Kingdom

Section G - GOVERNANCE

G1. Which of the following actions have you taken, if any?

Choose all that apply

1. You have bought a new car and its low fuel consumption was an important factor in your choice
2. You regularly use environmentally-friendly alternatives to using your private car such as walking, biking, taking public transport or car-sharing
3. When buying a new household appliance e.g. washing machine or fridge, you choose it mainly because it was more energy efficient than other models
4. You have switched to an energy supplier which offers a greater share of energy from renewable sources than your previous one³⁸
5. None of the above

G2. In your opinion, what should be the main energy policy priorities of your country?³⁹

Choose all that apply

1. The development of clean energy sources, e.g. RES (solar, wind, hydro, biomass)
2. Price of energy, which is socially acceptable and affordable for all people
3. Energy efficiency of private and public buildings
4. Power, gas and heating prices should be regulated by the government consistent with the living standards in the country.
5. Power markets should be fully liberalized, so that energy prices are dependent only on the market.⁴⁰
6. Phasing-out nuclear power plants (if any) in [COUNTRY]⁴¹

G3. Over the last 3 years, have you (your household) used any public funded programs, subsidies or financial incentives for introducing or implementing any of the following?

Choose all that apply

	Yes	No	Don't apply
A. Use of energy, generated by RES (e.g. solar, wind, hydro, biomass)	1	2	3
B. Use of electric or hybrid cars	1	2	3
C. Reducing the CO2 emissions, generated by your households	1	2	3
D. Improving the energy efficiency	1	2	3
E. Use of motor vehicles, meeting higher environmental standards	1	2	3

³⁸ SKIP this option, if it does not exist in your country

³⁹ Not included in the survey questionnaire in Norway.

⁴⁰ Not included in the survey questionnaire in Germany, because these two options have been already applied in the German policy.

⁴¹ Not included in the survey questionnaire in Germany, because of the decision for phasing out all NPPs in the country. Not included also in Serbia, as it does not have recently a nuclear power plant.

G4. How would you assess the development of the following infrastructure over the last 3 years in the location (town, city, village), where you are living?

One answer at each row

	It has improved significantly	It has improved somehow	There is no change	It has worsen somehow	It has worsen significantly	Do not apply
A. Public transport, incl. underground metro if exists	1	2	3	4	5	6
B. Bicycle lanes	1	2	3	4	5	6
C. Pedestrian zones	1	2	3	4	5	6
D. Public shared bicycles	1	2	3	4	5	6
E. Public infrastructure for charging electric vehicles	1	2	3	4	5	6

G5. Do you agree with the following statements? Please, answer using a scale from 1 to 5, where 1 = Totally agree and 5 = Totally disagree.

One answer at each row

	1 Totally agree	2	3	4	5 Totally disagree	Don't know
A. Cars' usage in city centres should be severely limited in order to lower the air pollution	1	2	3	4	5	99
B. Only rich people can afford to install solar panels or another RES for own generation of energy at home	1	2	3	4	5	99
C. Owners of cars that meet higher environmental standards should pay smaller taxes	1	2	3	4	5	99
D. I agree to pay higher price for electricity, if it is generated from renewable energy sources	1	2	3	4	5	99
E. There should be tax exemptions or tax reliefs, if someone buys an electric or hybrid car	1	2	3	4	5	99

G6. How would you assess the effectiveness of the following national policies?

One answer at each row

	1 Very successful	2	3	4	5 Very unsuccessful	Don't know
A. Supporting low-income people to satisfy their energy needs						

B. Reducing the CO2 emissions from the industry and the building sector						
C. Increasing the share of energy, generated by RES						
D. Improving the energy efficiency of the residential sector						
E. Mitigate the effects of the climate change						
F. Lowering the energy intensity of the industry						

Section S - SOCIAL AND ECONOMIC CHARACTERISTICS

S1. How many women and men at the following ages, live in this household for at least 6 months of the year?

Indicate the number of people in each cell. If there are no people at the given age, write "0".

		Up to 18 year old	18-65 year old	Above 65 year old
A.	Women	--	--	--
B.	Men	--	--	--

S2. What is the highest level of studies, you have completed?

Only ONE answer.

1	No formal education or below primary
2	Primary education
3	Secondary and post-secondary non-tertiary education
4	Tertiary education first stage, i.e. bachelor or master
5	Tertiary education second stage (PhD)
9	(Don't know)

S3. What best describes your current employment status?

Only ONE answer.

1	Employed full-time
2	Employed part-time
3	Long time not employed (more than 3 months)
4	Retired / pensioner
5	Student
6	Other economically inactive person
99	(Don't know)

S4. What year were you born?

1.

99. (Don't know / refuse to answer)

S5. What is your gender?

Only ONE answer.

1. Male
2. Female

S6. Which phrase describes best the area where you live?

Only ONE answer.

1. A big city (more than 0,5 mln people)
2. The suburbs or outskirts of a big city
3. A town or a small city
4. A country village
5. A farm or home in the countryside
6. (Don't know)

S7. Has your household or any member of it received any financial aid from a public institution, which has helped you to pay your energy bills in the last 12 months (incl. so called social tariffs)?

Only ONE answer.

1. Yes -> for Ukraine ONLY: continue with the NEXT question
2. No -> for Ukraine ONLY: Skip the next question

Question to be asked ONLY in Ukraine

S7UA. What type of energy supplies are covered by the financial aid, received by you?

Tick all that apply

1. Gas supply
2. Electricity supply
3. Heat supply
4. Water supply
5. Other (please specify)

S8. Which of the descriptions bellow comes closest to how you feel about your household's income nowadays?

Only ONE answer.

1. Living comfortably on present income
2. Coping on present income
3. Finding it difficult on present income
4. Finding it very difficult on present income
99. (Don't know)

Instruction to the survey company: You can remain only one of the columns below ("per month" or "per year") if the people in the country calculate their income correspondingly.

S9. What was the average total monthly income of your household, after tax and compulsory deductions, from all sources, over the last 12 months? If you don't know the exact figure, please give an estimate.

Please, tick only ONE answer.

	Per month	Per year
--	-----------	----------

1	Up to [national currency] ⁴²	Up to [national currency]
2	...	...
3	...	...
4	...	...
5	...	...
6	...	...
7	...	...
8	...	...
9	...	...
10	Over ... [national currency]	Over ... [national currency]
98	Refused to answer	
99	(Don't know)	

Conclusion

⁴² Deciles of the income as given by the national statistics