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STORE&GO

Innovative large-scale energy storage technologies and power-to-gas concepts after optimization

D7.8

Report on social and public acceptance determinants in selected EU-countries

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Executive Summary

Following Directive 2009/28/EC of the European Parliament, European countries look for possibilities to increase renewable energy production. This also means construction of major renewable energy production plants. However, while overall public opinion to such changes can be positive, when it comes to actual project realisation a low level of acceptance or even a strong local opposition may arise. So identifying factors that have an impact on social acceptance can be crucial for persistent success of the further energy transition. While a vast literature is available on the social acceptance of specific renewable energy technologies, existing research lacks assessments regarding comprehensive transformations to local energy systems. Moreover, the promising energy storage technology power-to-gas has not yet been addressed in acceptance studies.

In this respect, the main goal of this Deliverable is to investigate factors that determine social acceptance of power-to-gas (PtG) technology in four involved in the STORE&GO project countries, namely Germany, Austria, Italy and Switzerland. In order to reach this goal, a survey of 500 households in each of the four countries was conducted. This survey included a choice experiment examining the preferences of European households with respect to PtG and alternative energy infrastructures. Further on, the survey also collected information on household knowledge and attitude with respect to renewable energy, as well as their current socio-demographic characteristics and their experiences with respect to their electricity provider and consumption issues (power outages, delays in bill payment, etc.).

Results from the analysis show that solar farms and power-to-gas infrastructure increase acceptance of local energy communities, while wind farms have an ambiguous effect, and introduction of gas power plants and power lines decreases acceptance. Additionally, we investigated whether stated support from political opinion leaders at the local, national, and EU levels can increase the acceptance of renewable energy systems. Results suggest that Italian choices can be influenced by the opinions of EU and national governmental bodies, and that Swiss choices are sensitive to the opinions of local politicians.

With regards to other investigated parameters, which are also suggested by previous research like place attachment, residing near power plants or income level – none of these turn out to have an impact on acceptance of renewable energy infrastructures in our sample. However, the socio-demographic characteristics like gender, education and employment revealed persistent impact on households' acceptance of PtG and alternatives. We find that women, elder groups, part-time employed as well as respondents with secondary or elementary education compared to university prefer to stick to the current status and are more resistant to suggested changes in terms of the renewable energy infrastructures. However, the households with kids compared to those without tend to have a higher preference for the suggested renewable energy infrastructure to current state.

1 Introduction

European countries are committed to increase in renewable energy production (2009/28/EC 2001; European Commission 2016). This includes construction of new renewable power plants. However, public opinion may still have concerns about the construction of such plants, which may cause a lower level of acceptance or even protests to further development of renewable energy projects. Moreover even when general public opinion polls are positive, when it comes to an actual project a strong local opposition may take place (Liebe & Dobers 2019).

While PtG is already a rather investigated technology from the business and economic point of view, the social perspective and the acceptance of PtG are often left uncovered (Leeuwen & Mulder 2018; Mazza et al. 2018; Eveloy & Gebreegziabher 2019). We aim to fill in this gap with this Deliverable based on previous research and empirical data collected from 2.000 households in four European countries.

The previous research stresses among others the importance of attitudes, including visual perception, perceived environmental harm, perceived energy cost and personal risk as factors that have an impact on individual's opposition to such energy technologies as coal, natural gas, nuclear power, and wind power plants (Liebe & Dobers 2019; Johansson & Laike 2007; Ansolabehere & Konisky 2009). Similar factors may have an impact on acceptance of PtG and are in this respect relevant for our study. Further on, the proximity of the potential construction to respondents home is also examined in several studies. The so-called "Not-in-My-Backyard" phenomenon when the public perceives infrastructure projects as necessary but they strongly oppose these projects in their proximity is mentioned also with respect to renewable energy (Schively 2007). Yet the found results are mixed suggesting the proximity may have a positive or negative or no impact depending on the type of power plant considered or respondent's country of origin (Ek 2005; Ansolabehere & Konisky 2009; Read et al. 2013). As (Liebe & Dobers 2019) claim the concept of proximity may play a less important role than social norms in the respective region – how climate change or renewable energies are perceived by the respective social group to which the individual belongs. In this context, it is also interesting to clarify whether policy-makers at different levels – local, country and European – have a certain impact on such energy-related norms of an individual.

The main goal of this Deliverable is to investigate factors that determine the social acceptance of the power-to-gas (PtG) technology in four countries involved in the STORE&GO project, namely Germany, Austria, Italy and Switzerland. In order to reach this goal a survey of 500 households in each of the four countries was conducted. This survey included a choice experiment examining the preferences of European households with respect to PtG and alternative energy infrastructures. Further on, the survey also collected information on household knowledge and attitude with respect to renewable energy, as well as their current socio-demographic characteristics and their experiences

with respect to their electricity provider and consumption issues (power outages, delays in bill payment, etc.).

In the further sections we provide a detailed explanation of the methodology applied in the survey, followed by an analysis of descriptive results which gives a first overview of the collected information as well as some first differences and similarities in the four countries in the renewable energy context. In section 4, we examine the determinants of social acceptance for PtG and alternatives using the data from the applied choice experiment.

2 Survey Methodology

2.1 Survey Process

2.1.1 Structure

The aim of Task 7.4 was the conduction of a household survey in four countries (Austria, Switzerland, Italy, and Germany) to identify opportunities and obstacles related to the large-scale production and utilization of green methane. Formally there is no additional partner within this task, but the Energy Institute had an informal cooperation with University of Groningen (RUG) (WP 8) which included also a realization of a part in the survey. Therefore, the Energy Institute focused on stated preferences related to electricity generation, storage and distribution in its analysis (Subgoal 1), while RUG part included investigation of the stated preferences related to the willingness-to-pay for green methane (Subgoal 2). The design of work was done by Energy Institute and RUG while the field work was implemented by a contractor, a French opinion and market research organisation (Efficience 3).

The structure and timeline of the survey process in task 7.4 was as follows:

- **Design** of the survey including the **main questionnaire**, the **screener questionnaire** incl. determination of the quotas and the booklet by Energy Institute (and RUG) (January – August 2017)
- **Check** of the formal and content-related criteria, **translation** of the questionnaire into the respective national language (French, German, Italian) and Online / CATI **programming** of the survey by Efficience 3 (September and October 2017)
- **Conduction of the screening process** with an short questionnaire including sending the booklet and links to the participants by Efficience 3 (in November 2017)
- **Implementation of the main survey** in online & CATI mode by Efficience 3 (in November/December 2017)
- **Completion** of the survey and **transmission** of the data set by Efficience 3 (in December 2017)
- **Evaluation and analysis** of the data set by Energy Institute (January – November 2018)

2.1.2 Sample

2.1.2.1 Sample Characteristics

The STORE&GO Sample comprises 2.000 households, which means 500 households per country (Germany, Switzerland, Italy and Austria). Each of the four country samples is divided in Sample A

and Sample B, which is further implemented 50 % online and 50 % CATI[1]. The restricted number of inhabitants in the targeted areas leads to extend the survey area to neighbour cities/region (surveyed region). Sample A contains 100–150 households from larger regions (e.g. Brandenburger Land) around the test sites in order to create no risks for "over-attention" of the residents around the test sites of the planned power-to-gas plants. Sample B consists of 350–400 households from the rest regions of the countries. Table 1 gives an overview of the test sites in the projects and the surveyed regions including the number of inhabitants.

Table 1: Overview test sites and surveyed regions in the STORE&GO-project

Country	Test site	Number of inhab-itants	Surveyed region	Number of inhabit-ants
Germany	16928 Pritzwalk	12.929	Brandenburg Land	2,45M
Switzerland	4500 Solothurn	16.163	Bern+Fribourg cantons	1,31M
Italy	71029 Troia	7.411	Luccera, Foggia, Bari, Barletta	2,00M
Austria	4740 Pilsbach	608	Upper Austria	1,43M

Source: Own illustration.

2.1.2.2 Survey mode

The survey mode aimed at the conduction of telephone (CATI) and online interviews (1.000 households CATI, 1.000 households Online). In the CATI mode, respondents were pre-recruited by a screening questionnaire, after that the booklet was sent (online or postal), and the interviews were conducted upon reception of the booklet. The online respondents received the booklet online. As the respondents had to have the booklet in front of them during the interview, the availability of the booklet was checked before starting the interview. The telephone interview took about 25 minutes.

2.1.2.3 Screener - quotas

The survey process included strict quotas to ensure a representative sample among the population of Austria, Germany, Switzerland and Italy. In order to get an adequate sample we implemented a pre-selection with five questions regarding age, profession, hometown, income and zip code (see attached screener questionnaire in the annex).

[1] Computer Assisted Telephone Interview

Table 2: Defined general quotas for the screening process in the STORE&GO project

Question in the screener regarding the…	Suggested Quota
Age	Maximum 35 % per age band, not less than 10 % per age band
Profession	Minimum of 70 % to be working (full time & part time)
Area	Maximum 70 % per code[2]
Monthly net income per household	30 % approx. high income – no less than 20 %[3] 40 % approx. middle income – no less than 30 % 30 % low income – no less than 20 %[4]
Zip Code	Not less than 30 % each

As a consequence, screener quotas were worked out per country related to the country specific characteristics. Based on the population and their sociodemographic characteristics, bands for the screener questions were defined for each country (see example for Austria in Table 3).

Table 3: Defined quotas for the screening process in detail (for Austria)

Q	Indicator	Distribution in % of total
	Population	**100%**
1	**AGE**	
	<19	20%
	20-34	20%
	35-45	15%
	46-65	28%
	>65	17%
2	**Profession**	
	Total Working	59%
	Working full time	43%
	Working part time	16%
	Not working - Full time University or college student	41%
	Not working – Unemployed, house-wife/house-husband or in training	
	Not working – retired	

[2] a) Town/city (with more than 10,000 inhabitants) and b) A village or very small town (with less than 10,000 inhabitants)
[3] 2.500 Euro (AT), 2.300 Euro (GER), 1.800 Euro (IT), 5.100 CHF (CH)
[4] 1.500 Euro (AT), 1.300 Euro (GER), 1.000 Euro (IT), 3.100 CHF (CH)

3	**Area**		
	Town/city (with more than 10,000 inhabitants)		49%
	A village or very small town (with less than 10,000 inhabitants)		51%
4	**Monthly net income per household**		
	Low	[<1.535 Euro]	30%
	Middle	[1.535 – 2.407]	40%
	High	[> 2.407]	30%
5	**Gender**		
	Female		51%
	Male		49%

Source: Own Calculation based on EUROSTAT Data.

2.1.2.4 Subsamples for the choice experiment

In order to investigate acceptance of power-to-gas and alternative technologies of households in the four investigated countries, we included a choice experiment in the survey. Based on the choice experiment for new energy infrastructures and technologies (part I in the questionnaire), the sample A ("test sites") and sample B ("rest of country") of each country sample had to split further into a CATI sub sample and an online sample with a share of 50 % each. Furthermore, we divided these subsamples in four versions (I-IV) which underline the political support of different levels (mayor, federal chancellor, European Commission) for a given option each scenario in the survey experiment. Depending on the version, the support of the respective politician for a selected option (1, 2 or 3) was highlighted in the scenarios ("…*Please also consider in your decision that you became aware from media reports that* ***the mayor of your home*** *town strongly supports Option 2*"). The political preferences for the respective options are determined as follows[5]:

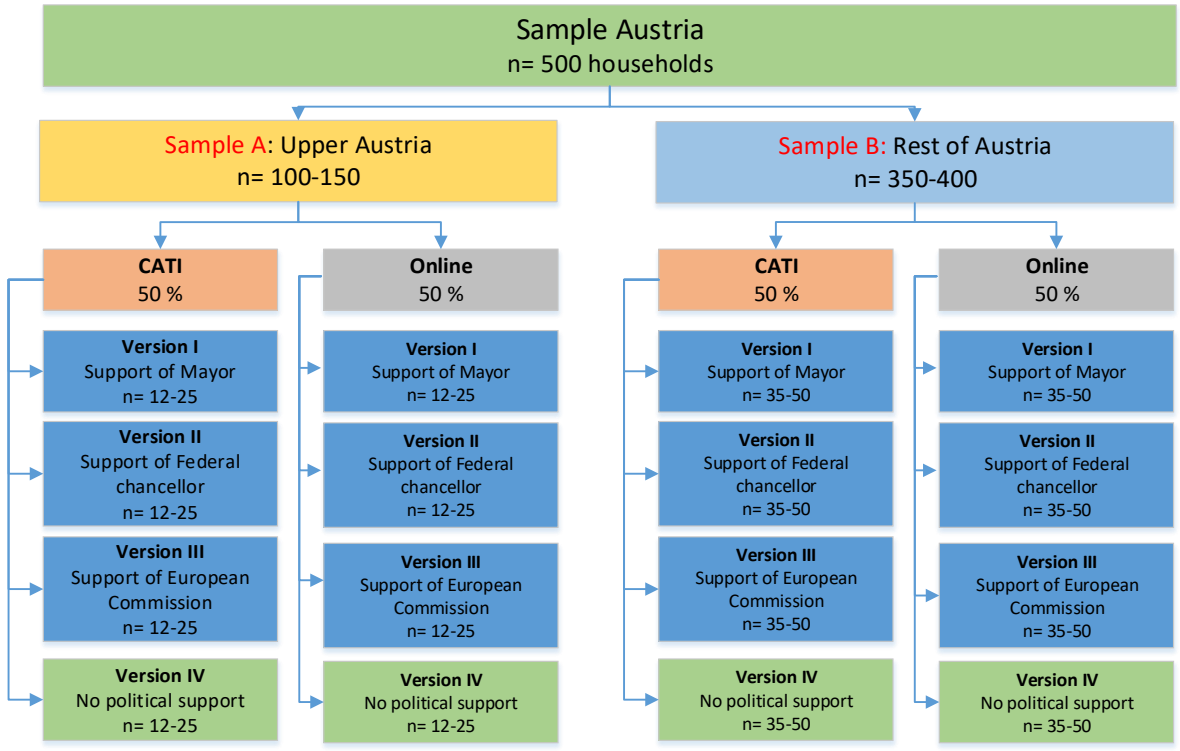
Table 4: Political preference for options in the respective scenarios

Scenario	Respective political preference for …
1	option **1**
2	option **2**
3	option **2**
4	option **3**
5	option **2**

[5] The preference of the politician was the same for all languages.

The support of the respective politician was always the same within one interview but different from one interview to another in accordance with the versions (I-IV). Therefore, the political support remains the same within an interview (e.g. always “the mayor”) for a subsample. Figure 1 shows the structure of the country sample Austria as an example.

Figure 1: Country Sample “Austria” with subsamples & quotas



Source: Own illustration

Additionally, every scenario has a different monthly fee which is charged from the household by the community. Meaning each option of each scenario had a randomized amount within the bands of **0/2/10/25/50/100 Euro** for the Austrian, German and Italian respondents and within a range of **0/2/10/25/55/110 CHF** for the Swiss respondents.

It is important for the randomization that the amount varies between the scenarios and between respondents. In the case of “option 3” (“the current energy production” as energy infrastructure) the same fee within the scenarios, but varied across the respondents was offered.[6]

[6] The amounts remain also the same within the scenario 1) option 1 and scenario 2) option 2 (both: Photovoltaic + Power to Gas).

2.1.3 Design of the booklet

Previous studies using discrete choice experiments have included icons or pictures to depict attribute levels in order to make the choice scenarios easier for the respondent to digest, and thus reduce the potential effects of cognitive disengagement or heuristic choice patterns (Campbell et al. (2008)).Further on, Johansson & Laike (2007) suggest visual representation has an impact on the acceptance or opposition to renewable energy technologies, so inclusion of visuals demonstrating how each suggested technology will look like is highly recommended in our case.

In our STORE&GO study, we also designed a booklet containing the visual representation of the energy infrastructures located in a suburban landscape for each of the suggested options (see Figure 2 and Table 5). These pictures were shown together with the textual description of the available options in different scenarios within the choice experiment for energy infrastructures and technologies (part I). The images with visual representation were identical in all the four surveyed countries (Austria, Germany, Switzerland and Italy).

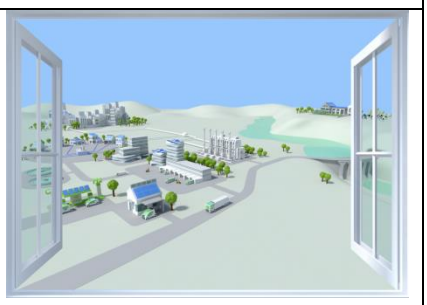
Figure 2: Example for one illustrated option in a scenario (Power-to-gas facility incl. wind park)

Source: Own illustration.

In total, we had five scenarios with three options each. Therefore, three pictures are shown with the respective energy infrastructure and technologies in every scenario. While “option 3” always remains the current state – reflecting current energy production (mix of renewable and fossil energy production plants), “option 1” and “option 2” vary in each of the five scenarios. Table 5 shows the combination of the options for each scenario in our choice experiment.

Table 5: Combination of energy infrastructures technologies in the scenarios – Overview

Scenario 1		
Option 1: Wind Park + Power-to-gas facility	**Option 2** Photovoltaic Panels + Power lines	**Option 3** Current Energy Supply
		
Scenario 2		
Option 1: Gas plant + Power lines	**Option 2** Photovoltaic Panels + Power-to-gas facility	**Option 3** Current Energy Supply
		
Scenario 3		
Option 1 Wind Park + Power-to-gas facility	**Option 2** Photovoltaic Panels + Power lines	**Option 3** Current Energy Supply
		
Scenario 4		
Option 1: Wind Park + Gas plant	**Option 2** Wind Park + Power-to-gas facility + Gas Plant	**Option 3** Current Energy Supply

		
Scenario 5		
Option 1: Photovoltaic Panels + Power-to-gas facility + Gas Plant	**Option 2:** Wind Park + Power lines	**Option 3:** Current Energy Supply
		

Source: Own compilation

2.1.4 Design of the questionnaire

The aim of the survey was to collect data in order to understand the perceptions and opinions to renewable energies as well as energy infrastructures in a country comparison. For this purpose, the survey was divided in different parts. The first part included general questions, while the second part of the survey was a so-called “choice experiment”. Therefore, the people were asked several questions about the energy infrastructure in their neighbourhood. The main questionnaire as well as the screener and the booklet are attached in the annex. In the following sections, we explain the structure and content of the questionnaire.

2.1.4.1 Questions on household characteristics & sociodemographic questions

At the beginning of the survey, we included a few questions to get a better understanding of the personal situation and environment of the respondents in order to have a possibility to further group the responses with those of similar participants. In this part of the survey we collected information on the crucial socio-demographic characteristics of the households like the current address, the legal relationship with the home, the number of the people living in the household, the number of children under 14 years and the highest level of education of the interviewed persons.

2.1.4.2 General questions on renewable energies

The next part of the questionnaire focused on opinions about renewable energies and related technologies in general. These questions were closely related to the social acceptance topic in order to

find out more about the general attitude to renewable energy sources. Hereby, questions about (already installed) renewable energy technologies and systems contributing to the respondents' household's electricity or heat supply were asked. Further questions referred to experiences with larger plants for the production or storage of renewable energies located in the neighbourhood and the general attitude to renewable energy projects. Also, experiences with the energy supplier concerning electricity and heat are asked within the questionnaire. This was followed by specific questions on previous knowledge about the existence of processes which make it possible to turn excess renewable electricity into burnable gases, such as hydrogen or methane. Additionally, the experiences with different fuel types (CNG/LPG, electricity, hydrogen, biofuels) as well as the considered criteria when buying a car (the purchase price of the car, the emissions of the car etc.) were also interesting for our approach. Last but not least, the people were asked, if they had ever heard that natural gas vehicles (CNG or LPG) also can be fuelled with gas produced from renewable energies. This question is also closely connected to the power-to-gas context.

3 Descriptive results

In the following section the descriptive results of the above mentioned survey methodology are presented. Each of the presented further tables includes data for each of the four examined countries. *Frequency* column provides information on absolute number of respondents who chose the respective answer out of the 500 respondents from the full sample per country. *Percent* column is the relative number of respondents who chose the respective answer out of the full sample of 500 respondents for each country. *Valid percent* is a category relevant for conditional questions, which were only asked a specific subsample (if a certain answer is given on a previous question). In case of such questions system *missing* is indicated and *valid percent* column is the relative share of respondents who chose the respective answer out of the subsample who were asked this question.

3.1 Demographics

To provide the most statistically representative results for the whole population of the four investigated countries, respondents of the survey in Italy, Austria, Germany, and Switzerland were asked to share information about their main socio-demographic characteristics like age, employment status, gender, income level, highest level of education, household type, size and ownership status. Descriptive analysis of these parameters is presented in the following subsections.

3.1.1.1 Age

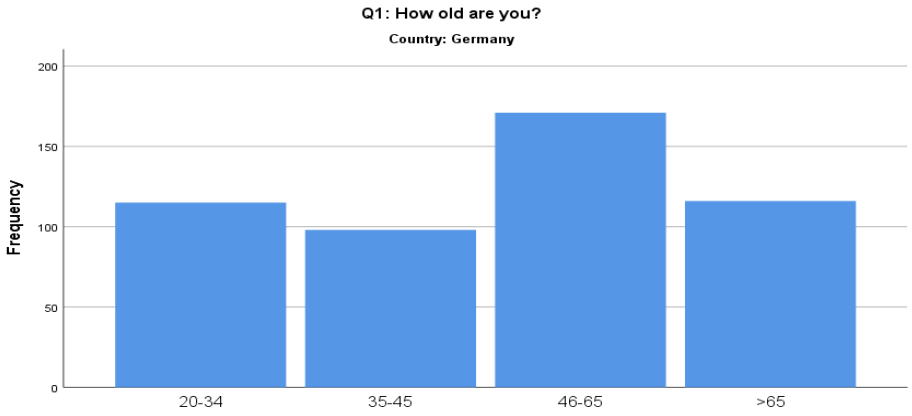
In order to provide statistically representative results with inclusion of all the relevant age groups, the respondents were asked to provide information about their age. For all the four countries the highest percentage of respondents are form 46 to 65 years old (approximately 35% of the whole respondents per country), the rest is mostly evenly distributed between age categories 20 to 35 years old, 35 to 45 years old and older than 65 years with 20 to 25 percent per category,

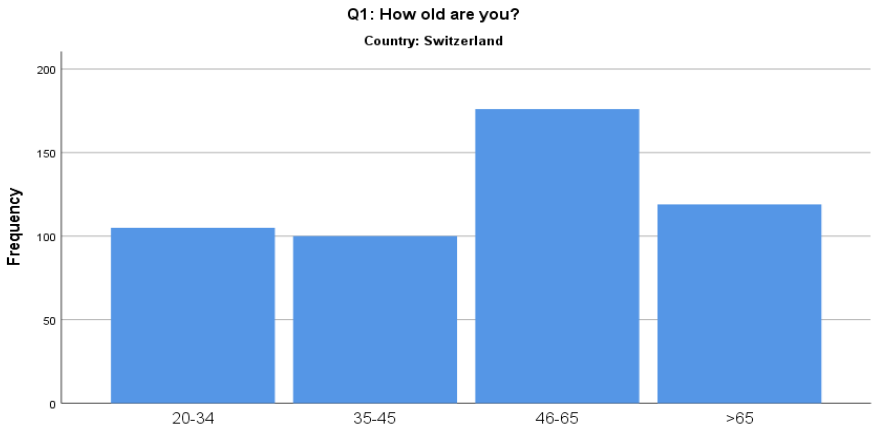
Q1: How old are you?

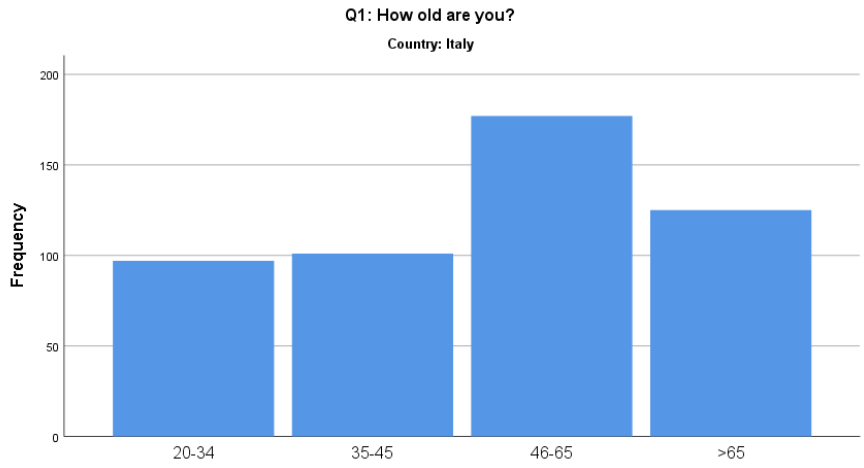
Country			Frequency	Percent	Valid Percent	Cumulative Percent
Germany	Valid	20-34	115	23,0	23,0	23,0
		35-45	98	19,6	19,6	42,6
		46-65	171	34,2	34,2	76,8
		>65	116	23,2	23,2	100,0
		Total	500	100,0	100,0	
Austria	Valid	20-34	108	21,6	21,6	21,6
		35-45	106	21,2	21,2	42,8
		46-65	170	34,0	34,0	76,8
		>65	116	23,2	23,2	100,0
		Total	500	100,0	100,0	
	Valid	20-34	105	21,0	21,0	21,0

Switzerland		35-45	100	20,0	20,0	41,0
		46-65	176	35,2	35,2	76,2
		>65	119	23,8	23,8	100,0
		Total	500	100,0	100,0	
Italy	Valid	20-34	97	19,4	19,4	19,4
		35-45	101	20,2	20,2	39,6
		46-65	177	35,4	35,4	75,0
		>65	125	25,0	25,0	100,0
		Total	500	100,0	100,0	

Bar Chart







3.1.1.2 Employment

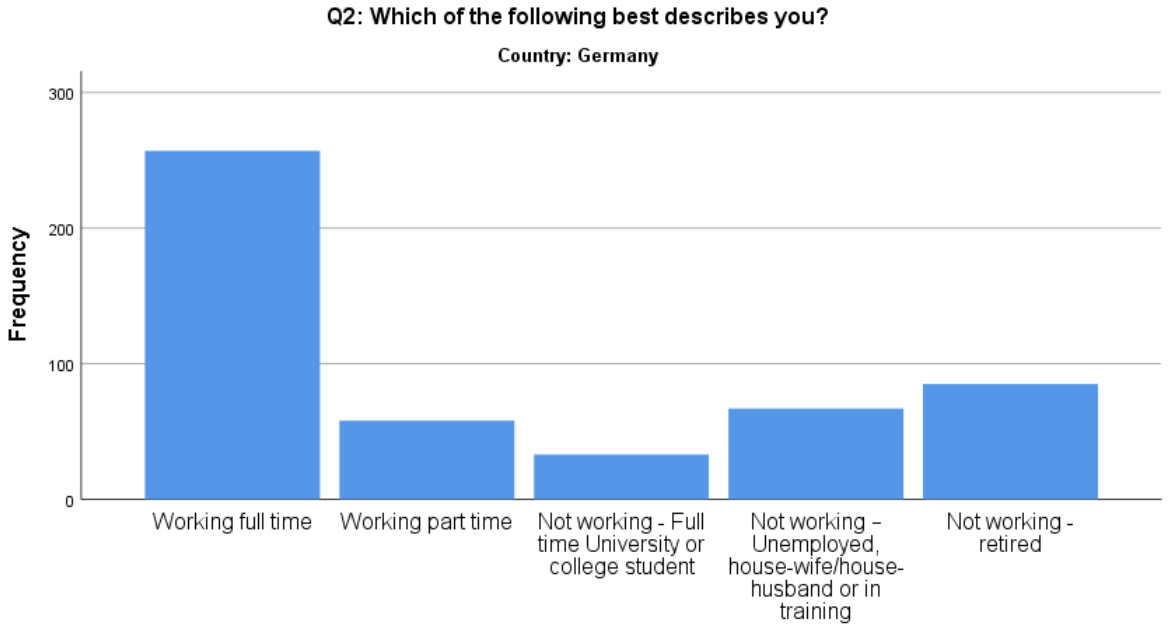
In all the four countries, the majority of respondents are working full time: 51,4 percent in Germany, 46 in Austria, 52,2 in Switzerland and 40,2 in Italy. The second most popular category is represented by respondents falling in the category of "Not working – retired" with 17 percent in Germany, 24 in Austria, 23 in Switzerland and 26,2 in Italy. The third largest category for all the countries expect Switzerland are respondents whose employment status can be described as "Not working – Unemployed, house-wife/house-husband or in training". For Switzerland, the third category with 12,4 percent of the respondents is represented by part-time employed. The smallest category for all the four countries are full-time university or college students.

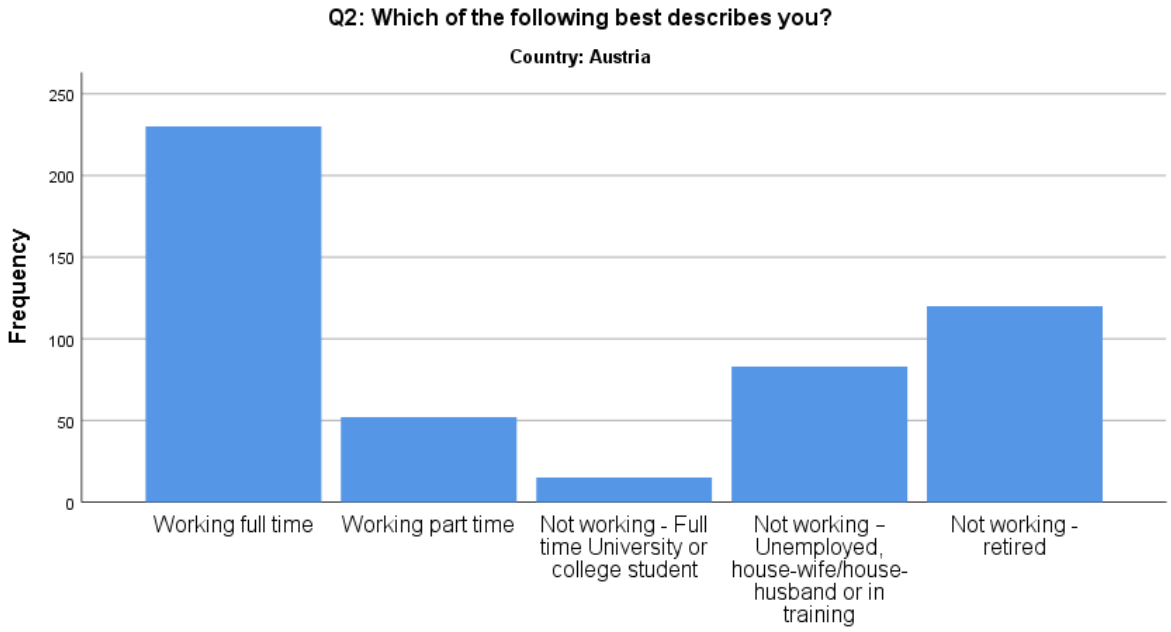
Q2: Which of the following best describes you?

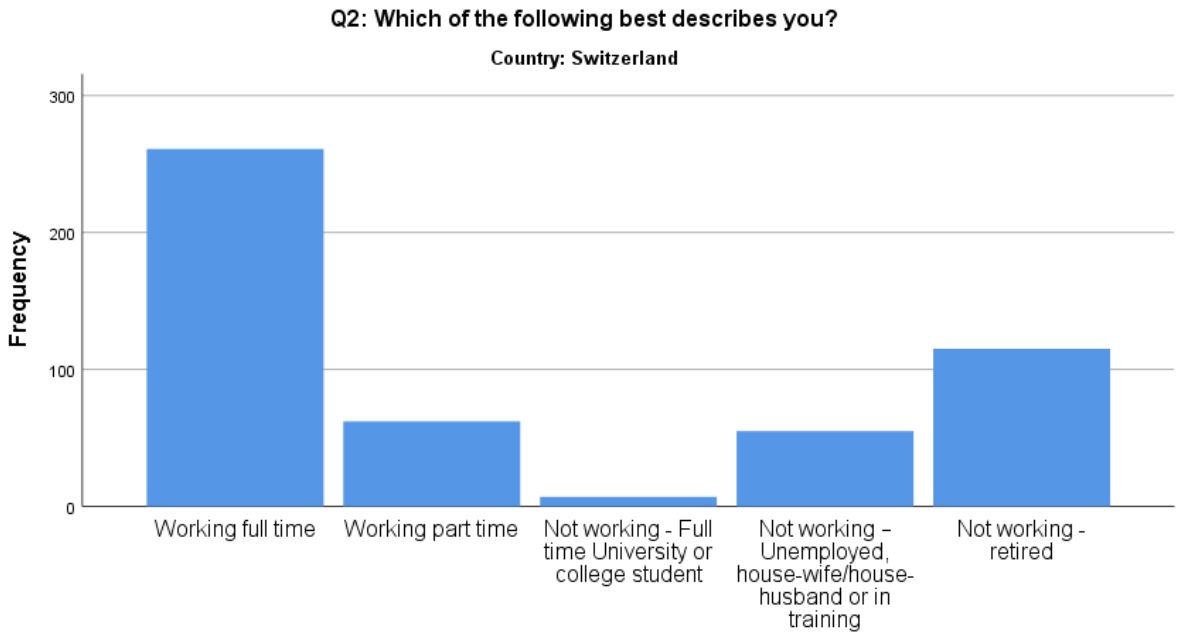
Country			Frequency	Percent	Valid Percent	Cumulative Percent
Germany	Valid	Working full time	257	51,4	51,4	51,4
		Working part time	58	11,6	11,6	63,0
		Not working - Full time University or college student	33	6,6	6,6	69,6
		Not working – Unemployed, house-wife/house-husband or in training	67	13,4	13,4	83,0
		Not working – retired	85	17,0	17,0	100,0
		Total	500	100,0	100,0	
Austria	Valid	Working full time	230	46,0	46,0	46,0
		Working part time	52	10,4	10,4	56,4
		Not working - Full time	15	3,0	3,0	59,4

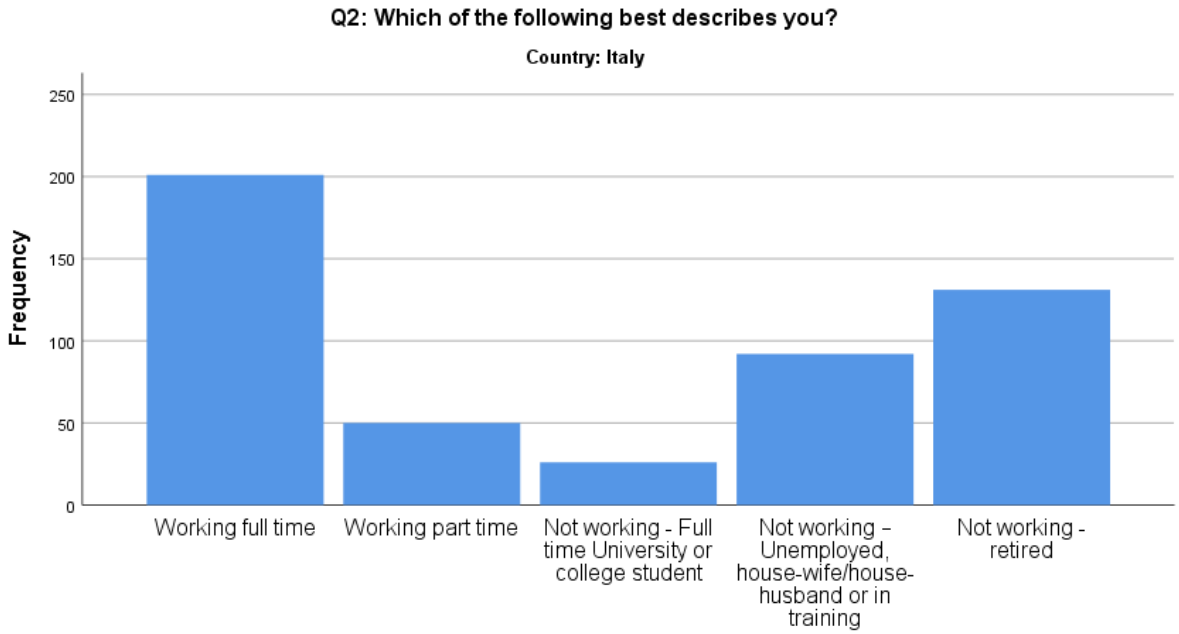
		University or college student				
		Not working – Unemployed, housewife/house-husband or in training	83	16,6	16,6	76,0
		Not working – retired	120	24,0	24,0	100,0
		Total	500	100,0	100,0	
Switzerland	Valid	Working full time	261	52,2	52,2	52,2
		Working part time	62	12,4	12,4	64,6
		Not working - Full time University or college student	7	1,4	1,4	66,0
		Not working – Unemployed, housewife/house-husband or in training	55	11,0	11,0	77,0
		Not working – retired	115	23,0	23,0	100,0
		Total	500	100,0	100,0	
Italy	Valid	Working full time	201	40,2	40,2	40,2
		Working part time	50	10,0	10,0	50,2
		Not working - Full time University or college student	26	5,2	5,2	55,4
		Not working – Unemployed, housewife/house-husband or in training	92	18,4	18,4	73,8
		Not working – retired	131	26,2	26,2	100,0
		Total	500	100,0	100,0	

Bar Chart


Q2: Which of the following best describes you?
Country: Germany
Frequency
300
200
100
0
Working full time
Working part time
Not working - Full time University or college student
Not working – Unemployed, house-wife/house-husband or in training
Not working - retired


Q2: Which of the following best describes you?
Country: Austria
Frequency
250
200
150
100
50
0
Working full time
Working part time
Not working - Full time University or college student
Not working – Unemployed, house-wife/house-husband or in training
Not working - retired





3.1.1.3 Rural vs. Urban population

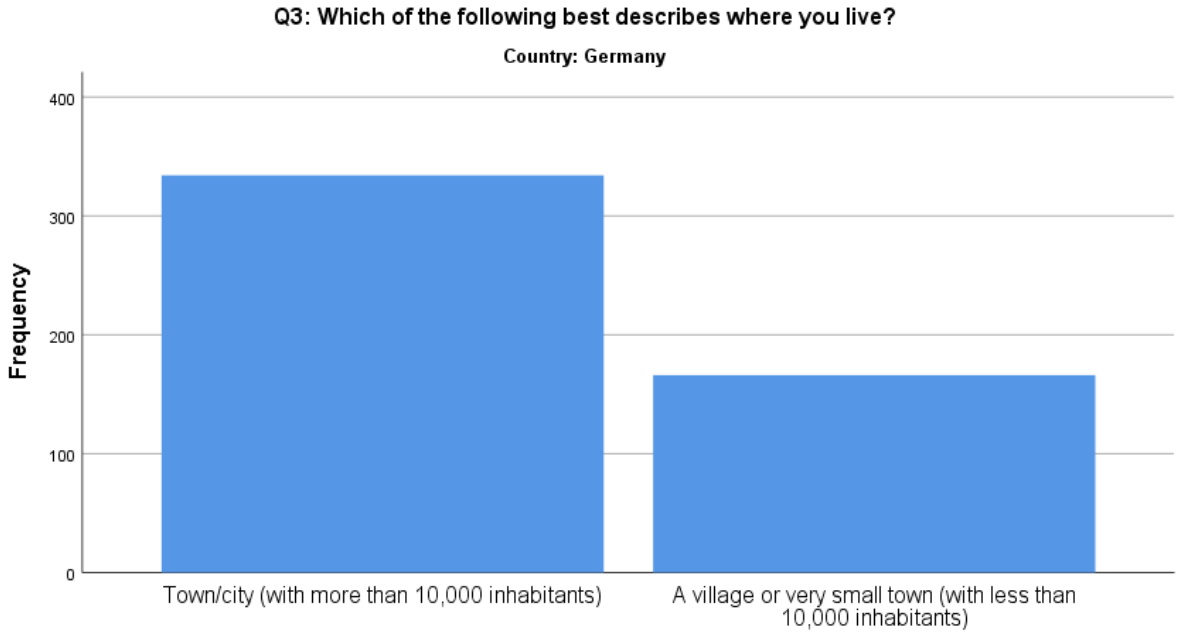
Another important socio-demographic characteristic is whether respondents are living in rural or urban areas. To find it out, the respondents were asked whether they are living in a village with less than 10.000 inhabitants or in a town with more than 10.000 inhabitants. In Germany and Italy the majority of the respondents (334 or 66,8 percent in Germany and 372 respondents and 74,4 percent in Italy) represent urban population. In Austria the shares of urban and rural respondents are almost equal (52,6 and 47,4 percent respectively). Switzerland is the only one of the four countries with a

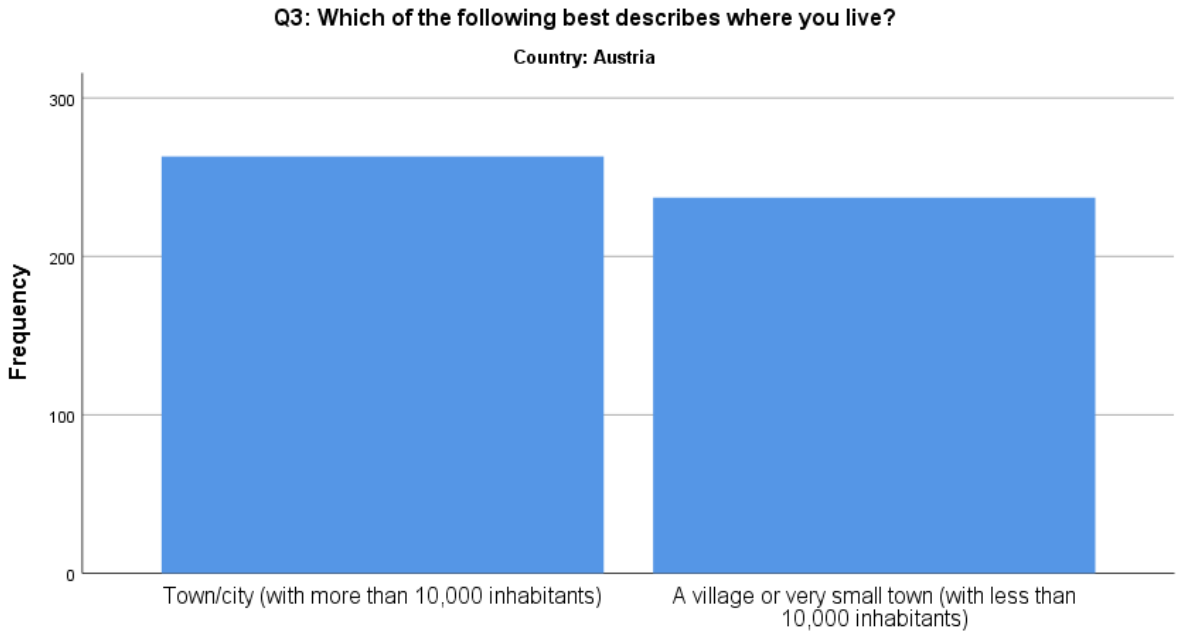
dominant share of rural population with 268 respondents living in villages or very small towns with less than 10.000 inhabitants (53,6 %).

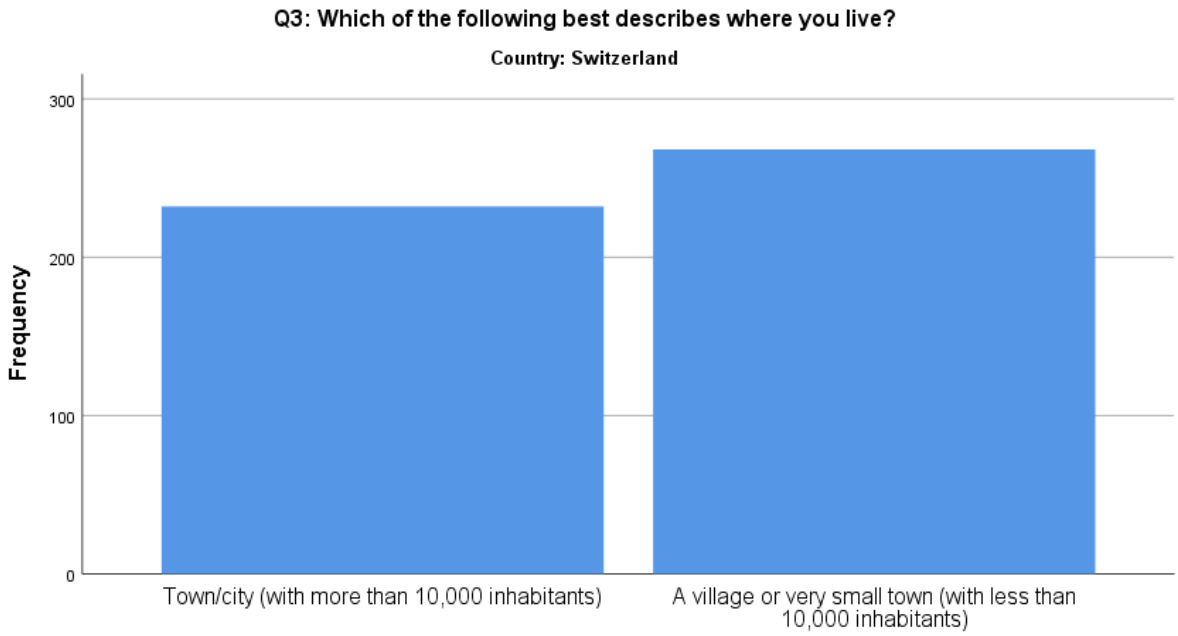
Q3: Which of the following best describes where you live?

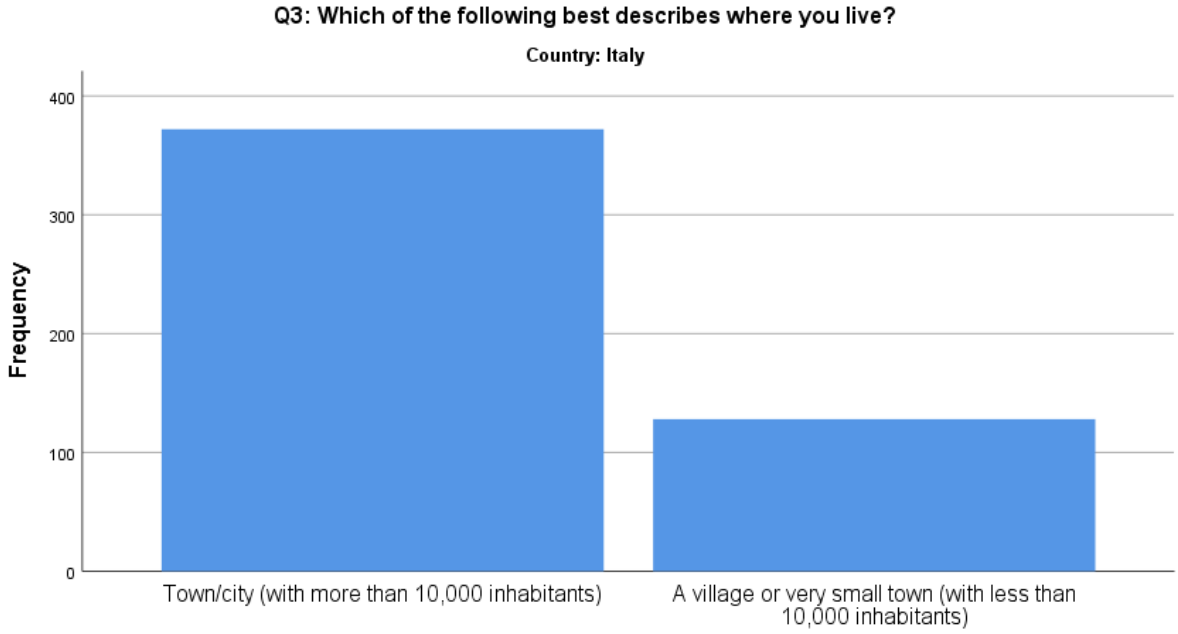
Country			Frequency	Percent	Valid Percent
Germany	Valid	Town/city (with more than 10,000 inhabitants)	334	66,8	66,8
		A village or very small town (with less than 10,000 inhabitants)	166	33,2	33,2
		Total	500	100,0	100,0
Austria	Valid	Town/city (with more than 10,000 inhabitants)	263	52,6	52,6
		A village or very small town (with less than 10,000 inhabitants)	237	47,4	47,4
		Total	500	100,0	100,0
Switzer-land	Valid	Town/city (with more than 10,000 inhabitants)	232	46,4	46,4
		A village or very small town (with less than 10,000 inhabitants)	268	53,6	53,6
		Total	500	100,0	100,0
Italy	Valid	Town/city (with more than 10,000 inhabitants)	372	74,4	74,4
		A village or very small town (with less than 10,000 inhabitants)	128	25,6	25,6
		Total	500	100,0	100,0

Bar Chart


Q3: Which of the following best describes where you live?
Country: Germany
Frequency
400
300
200
100
0
Town/city (with more than 10,000 inhabitants)
A village or very small town (with less than 10,000 inhabitants)


Q3: Which of the following best describes where you live?
Country: Austria
Frequency
300
200
100
0
Town/city (with more than 10,000 inhabitants)
A village or very small town (with less than 10,000 inhabitants)





3.1.1.4 Income level

According to Devine-Wright (2008) age, gender, class and income are among the key personal factors that have a significant impact on attitude towards renewable energy and energy related topics in general. With this respect in order to control for potential differences in social acceptance of renewable energy and infrastructure of households with different income level, the respondents were asked to indicate their income level. As income questions are considered highly sensitive and often left unanswered, the respondents were asked to choose whether hers or his income fall in a range rather than asking for an exact size of household income. Based on their answers, the respondents were attached to a certain income group: *lower income* if the respondent income is below the lower

income threshold, *higher income* if the respondent income is greater the higher income threshold and *middle income* if the respondent's income is higher than the lower income threshold, but lower than the higher income threshold. The threshold values which were taken from national statistic for each country are given in the tables below. In Germany and Switzerland, the respondents are rather evenly distributed in the three mentioned above groups. Austrian sample has a relatively higher share of high income respondents (185 or 37% of the sample) and a lower share of lower income group respondents (144 or 28,8%). For Italy we observe a higher share of middle income respondents, this groups represent 42 percent of the sample (213 respondents) and lower share of lower income groups with 26,2 percent of the sample or 131 respondents.

Lower income threshold

Country		
Germany	Valid	1.300 Euro
Austria	Valid	1.500 Euro
Switzerland	Valid	3.100 CHF
Italy	Valid	1.000 Euro

Higher income threshold

Country		
Germany	Valid	2.300 Euro
Austria	Valid	2.500 Euro
Switzerland	Valid	5.100 CHF
Italy	Valid	1.800 Euro

Income distribution

Country			Frequency	Percent	Valid Percent	Cumulative Percent
Germany	Valid	Lower income	159	31,8	31,8	31,8
		Higher income	178	35,6	35,6	67,4
		Middle income	163	32,6	32,6	100,0
		Total	500	100,0	100,0	
Austria	Valid	Lower income	144	28,8	28,8	28,8
		Higher income	185	37,0	37,0	65,8
		Middle income	171	34,2	34,2	100,0
		Total	500	100,0	100,0	
Switzerland	Valid	Lower income	151	30,2	30,2	30,2
		Higher income	178	35,6	35,6	65,8
		Middle income	171	34,2	34,2	100,0
		Total	500	100,0	100,0	

Italy	Valid	Lower income	131	26,2	26,2	26,2
		Higher income	156	31,2	31,2	57,4
		Middle income	213	42,6	42,6	100,0
		Total	500	100,0	100,0	

3.1.1.5 Gender

Another important sociodemographic factor, which should be considered in our analysis, is gender. The target of having equal representation of male and female respondents was set and reached for all the four countries with minor variations: slightly higher male representation in Austria and Switzerland with 53,2% and 54,6% of the samples respectively.

Q6_Gender

Country			Frequency	Percent	Valid Percent	Cumulative Percent
Germany	Valid	Male	246	49,2	49,2	49,2
		Female	254	50,8	50,8	100,0
		Total	500	100,0	100,0	
Austria	Valid	Male	266	53,2	53,2	53,2
		Female	234	46,8	46,8	100,0
		Total	500	100,0	100,0	
Switzerland	Valid	Male	273	54,6	54,6	54,6
		Female	227	45,4	45,4	100,0
		Total	500	100,0	100,0	
Italy	Valid	Male	254	50,8	50,8	50,8
		Female	246	49,2	49,2	100,0
		Total	500	100,0	100,0	

3.2 Household characteristics

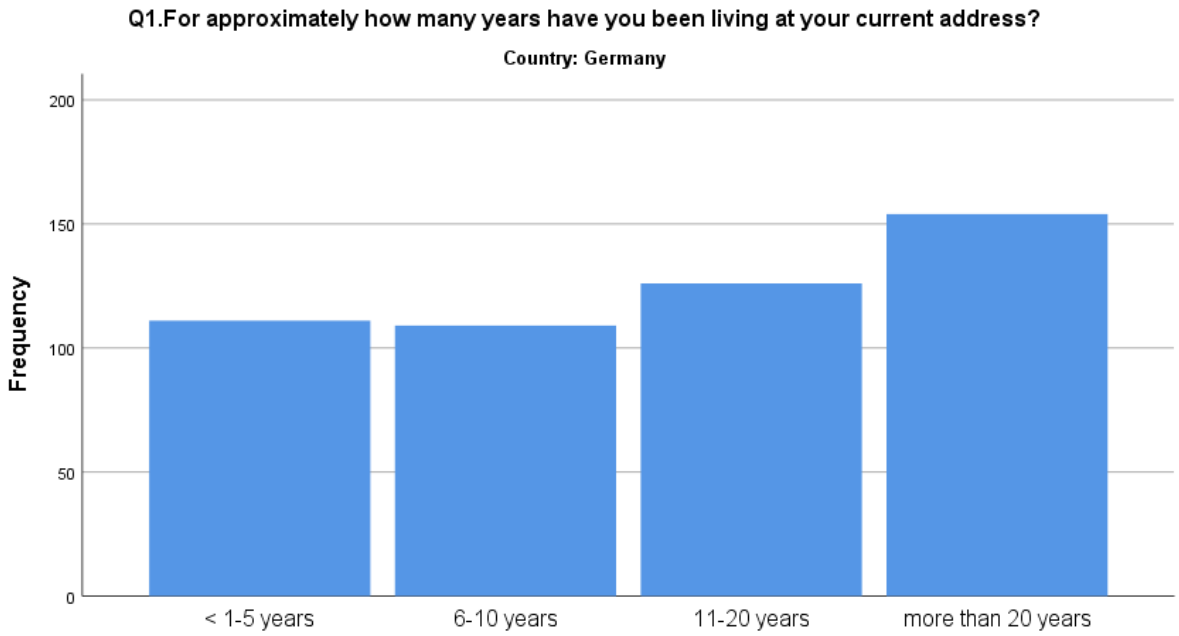
3.2.1.1 Length of residence at the current address

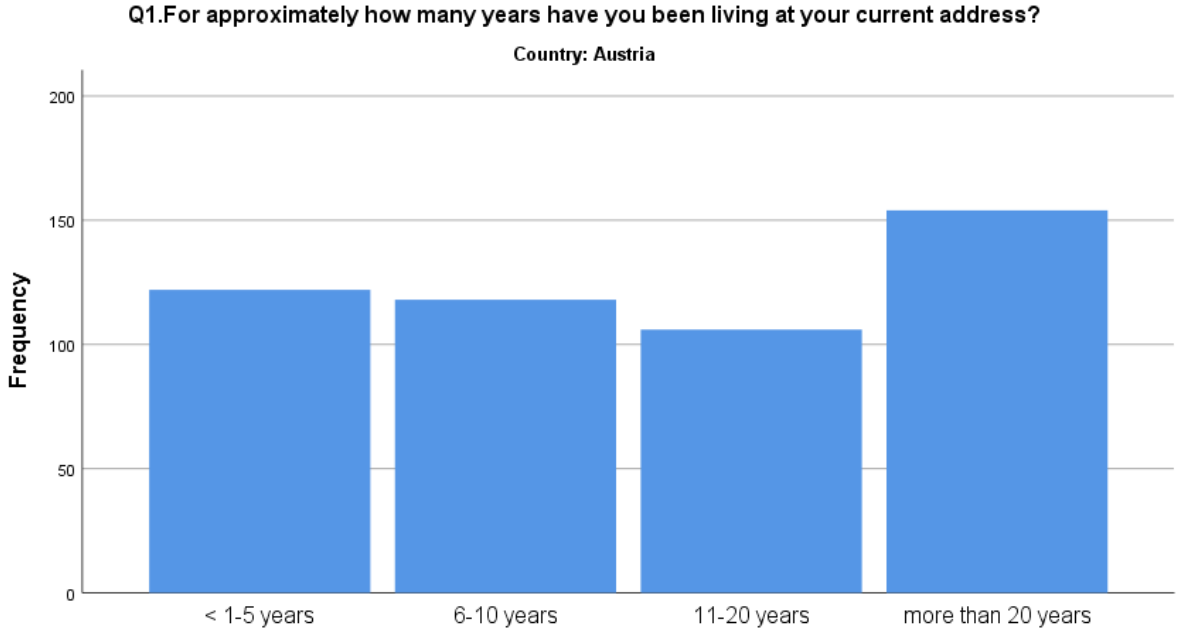
The length of residence could be an important factor signaling among others “place attachment”, which following Devine-Wright (2008) and (Liebe & Dobers 2019) can have an effect on acceptance of renewable energy infrastructures. Respondents were offered four categories to choose from: residing at the current address less than on year and up to 5 years, 6 to 10 years, 11 to 20 years and more than 20 years. Austria and Germany show a similar pattern with dominant share of respondents (30.8% in both cases) representing the category “More than 20 years” and the rest equally distributed between the other three categories. In Switzerland, the respondents are evenly distributed across all the four categories, while in Italy the majority of respondents (45%) reside at the current address

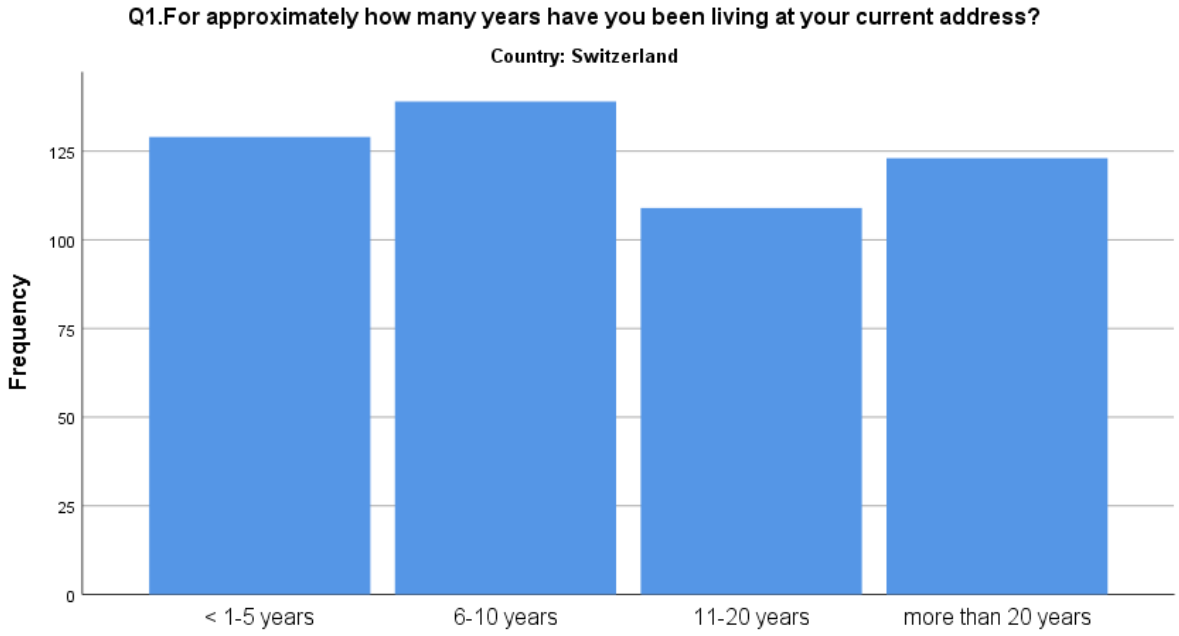
for more than 20 years. Compared to other countries Italy has a lower share of respondents in categories <1-5 years and 6 to 10 years.

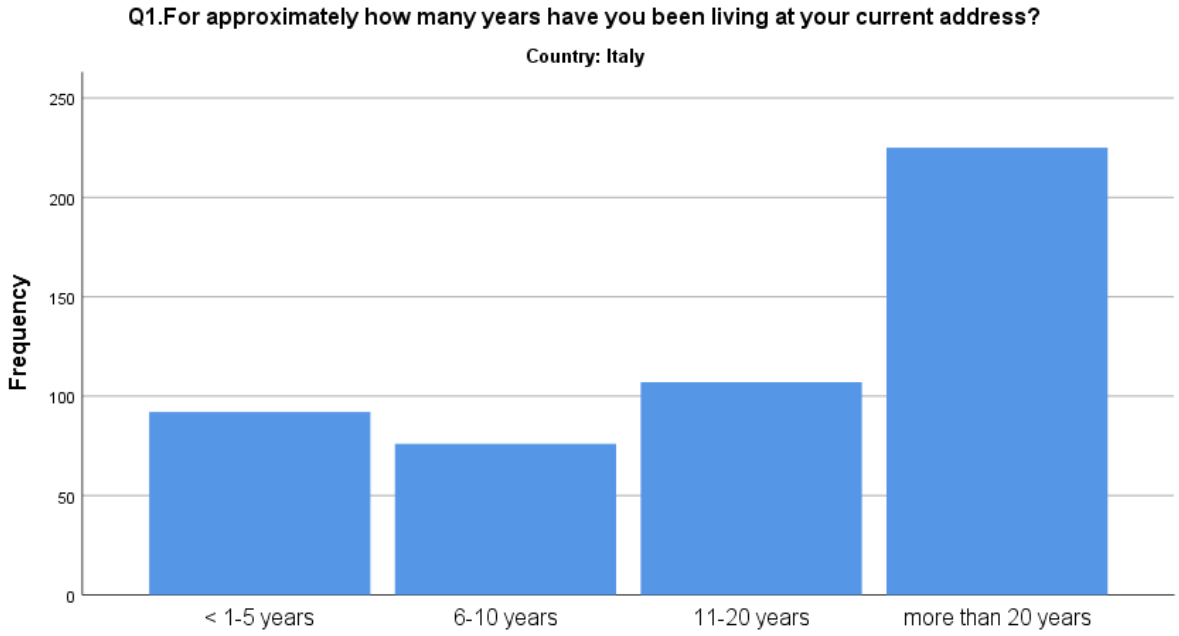
Q1.For approximately how many years have you been living at your current address?

Country			Frequency	Percent	Valid Percent	Cumulative Percent
Germany	Valid	< 1-5 years	111	22,2	22,2	22,2
		6-10 years	109	21,8	21,8	44,0
		11-20 years	126	25,2	25,2	69,2
		more than 20 years	154	30,8	30,8	100,0
		Total	500	100,0	100,0	
Austria	Valid	< 1-5 years	122	24,4	24,4	24,4
		6-10 years	118	23,6	23,6	48,0
		11-20 years	106	21,2	21,2	69,2
		more than 20 years	154	30,8	30,8	100,0
		Total	500	100,0	100,0	
Switzerland	Valid	< 1-5 years	129	25,8	25,8	25,8
		6-10 years	139	27,8	27,8	53,6
		11-20 years	109	21,8	21,8	75,4
		more than 20 years	123	24,6	24,6	100,0
		Total	500	100,0	100,0	
Italy	Valid	< 1-5 years	92	18,4	18,4	18,4
		6-10 years	76	15,2	15,2	33,6
		11-20 years	107	21,4	21,4	55,0
		more than 20 years	225	45,0	45,0	100,0
		Total	500	100,0	100,0	


Q1.For approximately how many years have you been living at your current address?
Country: Germany
Frequency
200
150
100
50
0
< 1-5 years
6-10 years
11-20 years
more than 20 years


Q1.For approximately how many years have you been living at your current address?
Country: Austria
Frequency
200
150
100
50
0
< 1-5 years
6-10 years
11-20 years
more than 20 years





3.2.1.2 Ownership status

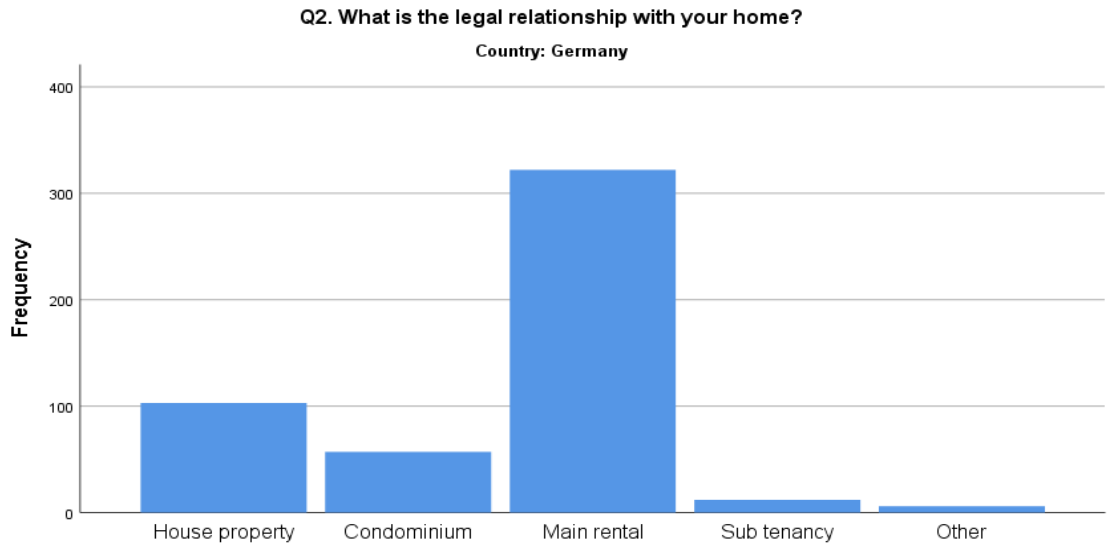
Among others, Davis (2010) suggests the importance of legal relationship to dwelling with regards to energy technologies acceptance. Suggested categories among which the respondents could choose included house property, condominium, main rental, sub tenancy or other. Based on the results of our survey a similar pattern for Germany, Austria and Switzerland can be detected (also from the graphical representation of the data): majority of respondents in these countries are renting

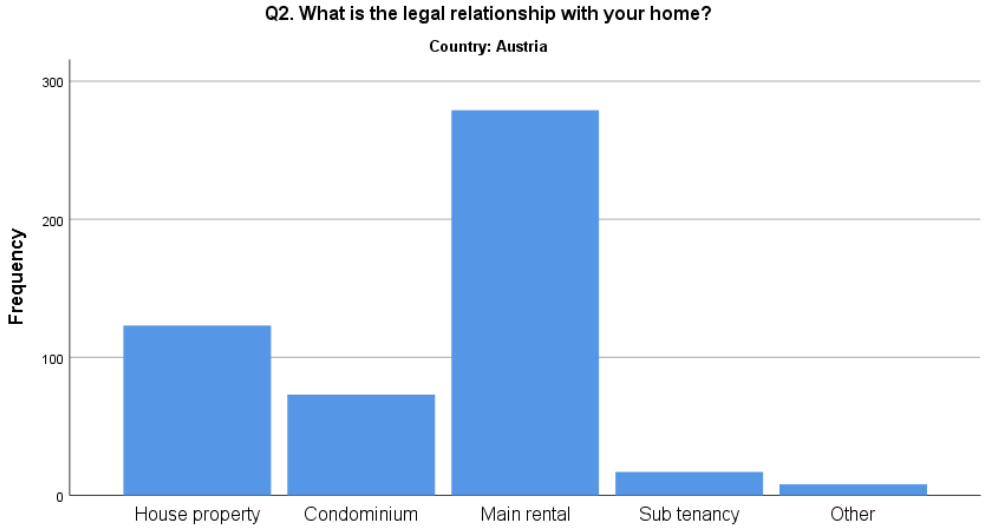
their homes (55 to 64,4%) followed by a significant share of respondents (from 20,6 to 24,6) who own their dwellings. A different situation is found in Italy where 262 respondents (52,4% of the sample) live in condominiums and almost 30% of the sample (140 respondents) own their property.

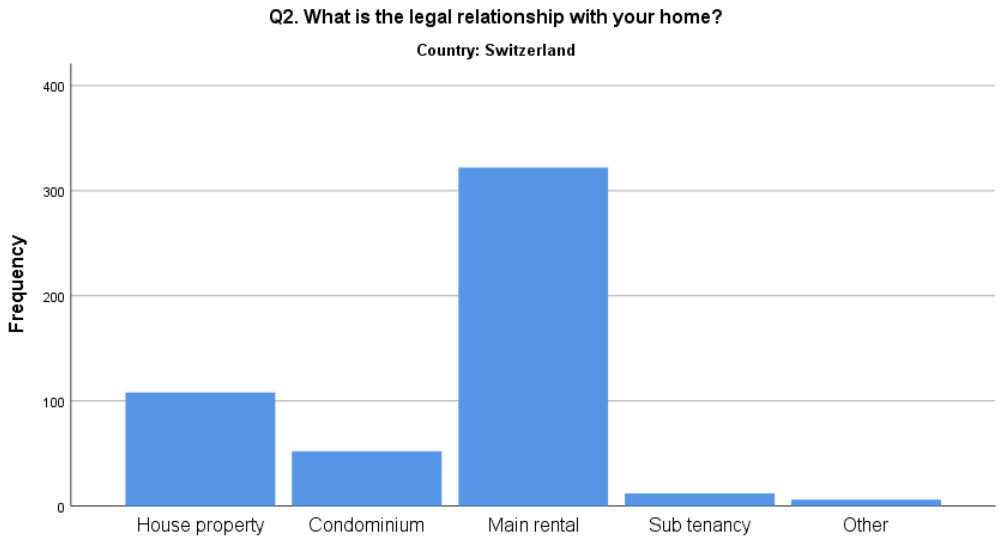
Q2. What is the legal relationship with your home?

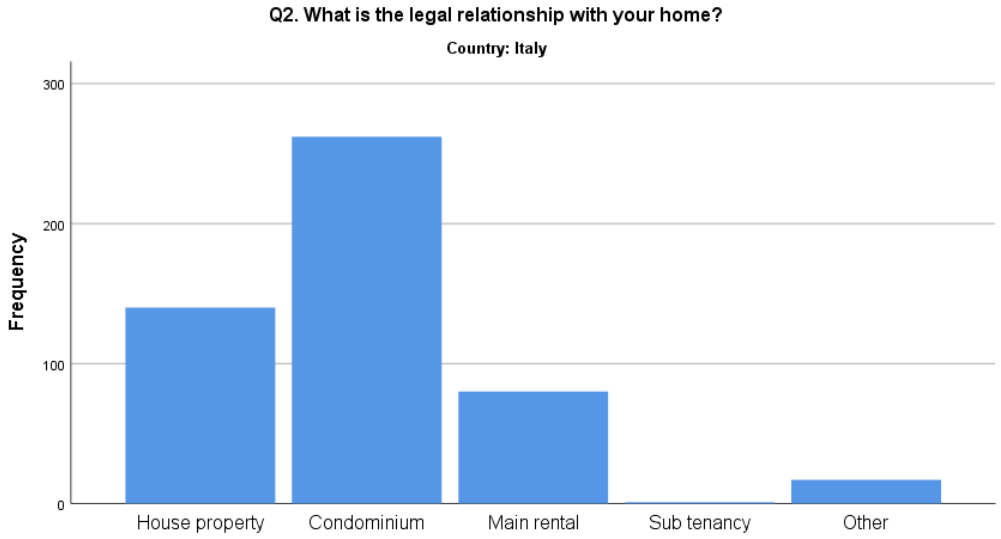
Country			Frequency	Percent	Valid Percent	Cumulative Percent
Germany	Valid	House property	103	20,6	20,6	20,6
		Condominium	57	11,4	11,4	32,0
		Main rental	322	64,4	64,4	96,4
		Sub tenancy	12	2,4	2,4	98,8
		Other	6	1,2	1,2	100,0
		Total	500	100,0	100,0	
Austria	Valid	House property	123	24,6	24,6	24,6
		Condominium	73	14,6	14,6	39,2
		Main rental	279	55,8	55,8	95,0
		Sub tenancy	17	3,4	3,4	98,4
		Other	8	1,6	1,6	100,0
		Total	500	100,0	100,0	
Switzerland	Valid	House property	108	21,6	21,6	21,6
		Condominium	52	10,4	10,4	32,0
		Main rental	322	64,4	64,4	96,4
		Sub tenancy	12	2,4	2,4	98,8
		Other	6	1,2	1,2	100,0
		Total	500	100,0	100,0	
Italy	Valid	House property	140	28,0	28,0	28,0
		Condominium	262	52,4	52,4	80,4
		Main rental	80	16,0	16,0	96,4
		Sub tenancy	1	,2	,2	96,6
		Other	17	3,4	3,4	100,0
		Total	500	100,0	100,0	

Bar Chart


Q2. What is the legal relationship with your home?
Country: Germany
Frequency
400
300
200
100
0
House property
Condominium
Main rental
Sub tenancy
Other


Q2. What is the legal relationship with your home?
Country: Austria
Frequency
300
200
100
0
House property
Condominium
Main rental
Sub tenancy
Other





3.2.1.3 Household size

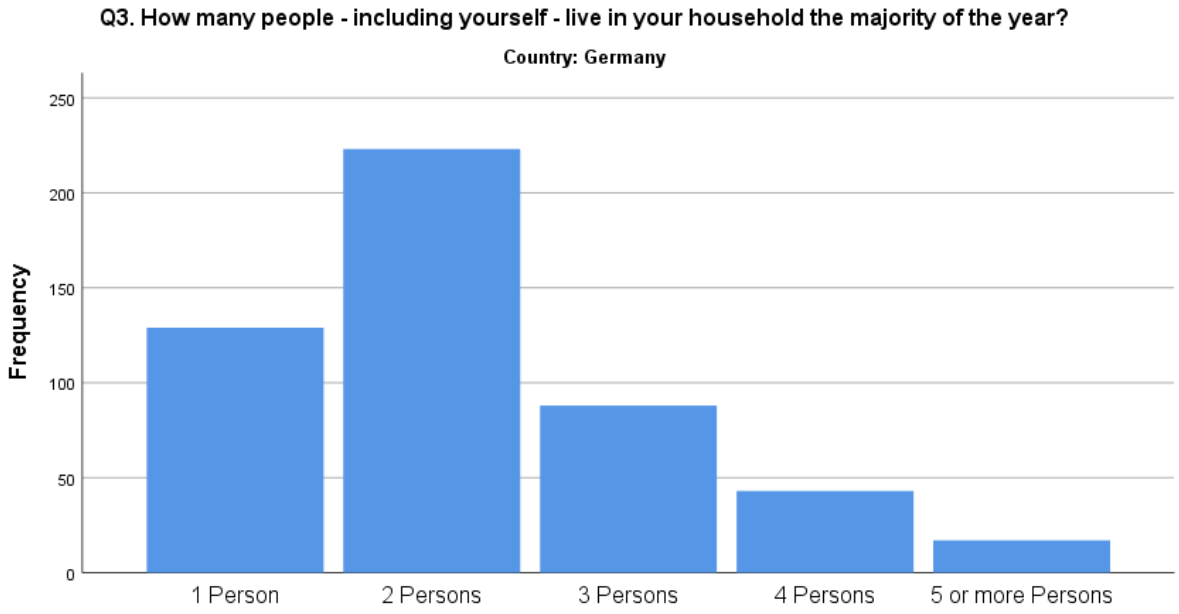
Household size is another important factor in the context of renewable energy acceptance. For instance, De Groote et al. (2016) and Sommerfeld et al. (2017), suggest that households with 3–4 persons are much more likely to adopt PV compared to single households. This is explained by the fact that larger households also consume more electricity and usually have higher expenses than single households, so they are more likely to adopt renewable or energy saving technologies as they can spread the fixed costs of adoption over more members. At the same time according to household composition statistic in Europe (Eurostat (2017)), the average household size in the EU-28 is 2,3 persons, and while the share of larger households (three, four and five persons) faces a strong reduction, the number of single households is strongly increasing. According to the data collected in

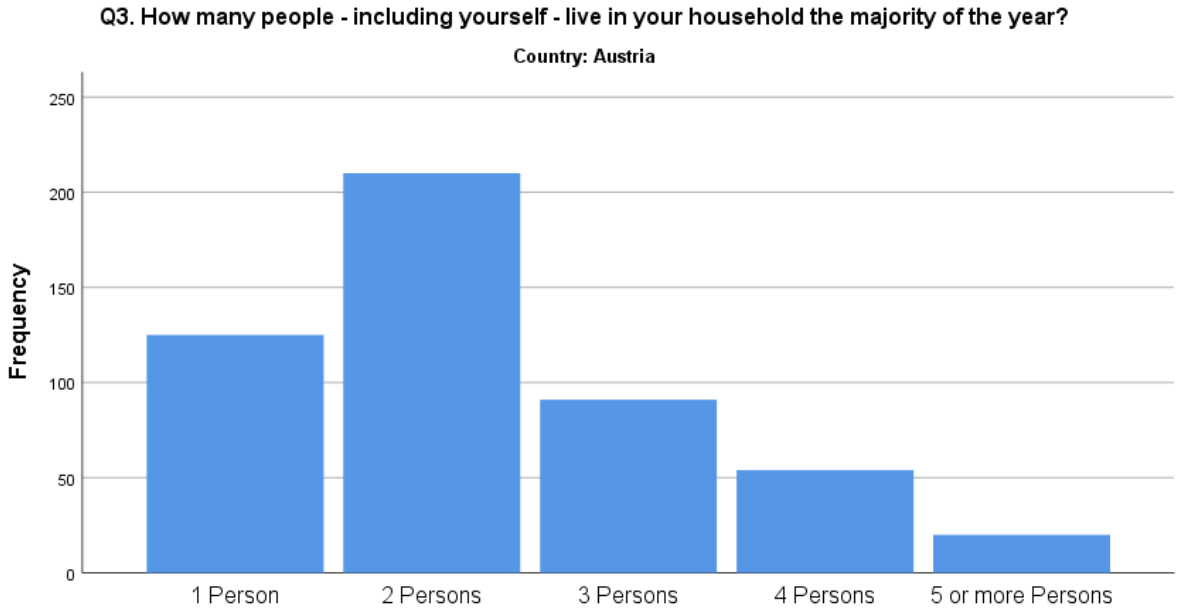
our survey, we as previously observe almost identical distribution of responses in Germany, Austria and Switzerland with majority of respondents representing two persons households (44,6%, 42% and 45,4% respondents respectively), followed by single households as the second largest category with 24 to 25,8% of the respondents. In Italy a different situation is observed while 2 person households are also the largest category with 172 respondents (34,4%), the second largest is 3 person household (24,4%) followed by 4 person households (21,8%), demonstrating a trend for larger household sizes compared to the other three countries.

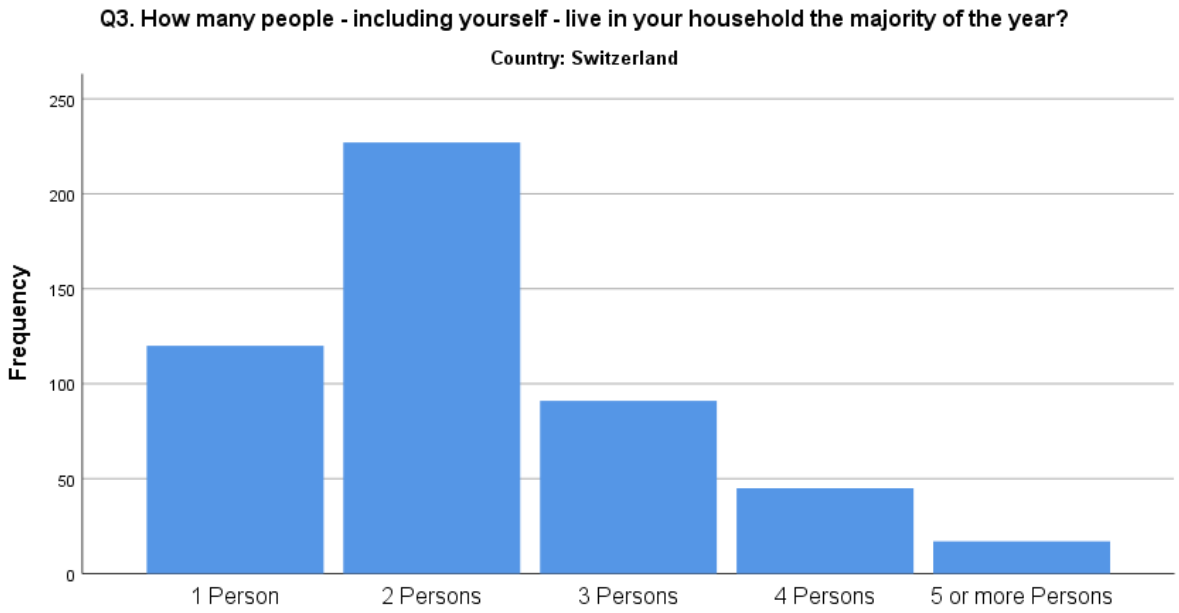
Q3. How many people – including yourself – live in your household the majority of the year?

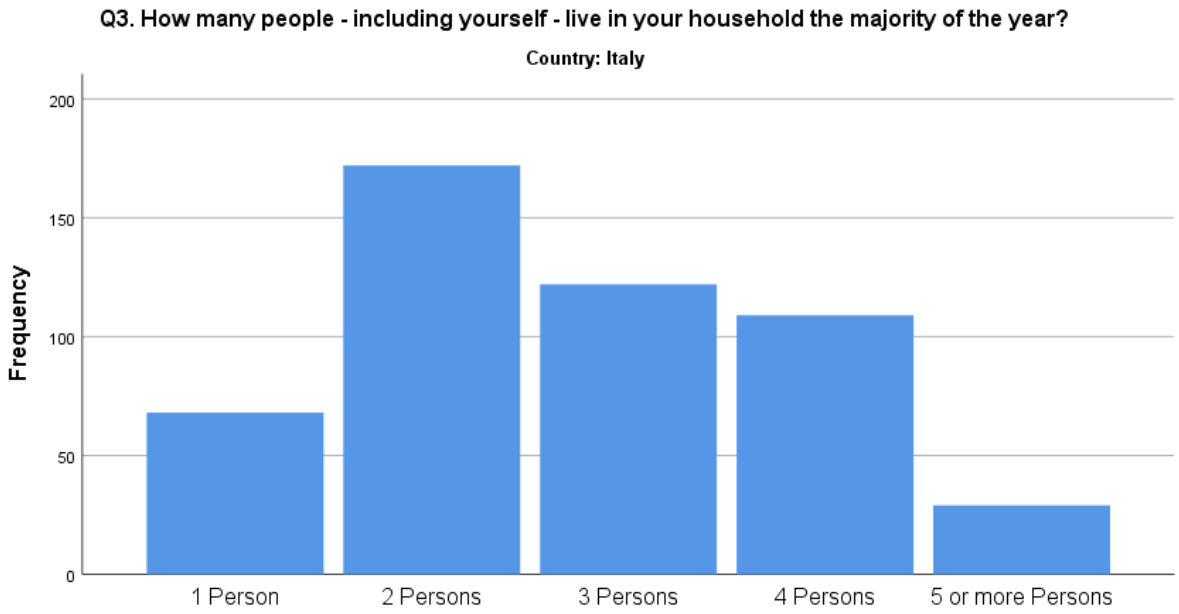
Country			Frequency	Percent	Valid Percent	Cumulative Percent
Germany	Valid	1 Person	129	25,8	25,8	25,8
		2 Persons	223	44,6	44,6	70,4
		3 Persons	88	17,6	17,6	88,0
		4 Persons	43	8,6	8,6	96,6
		5 or more Persons	17	3,4	3,4	100,0
		Total	500	100,0	100,0	
Austria	Valid	1 Person	125	25,0	25,0	25,0
		2 Persons	210	42,0	42,0	67,0
		3 Persons	91	18,2	18,2	85,2
		4 Persons	54	10,8	10,8	96,0
		5 or more Persons	20	4,0	4,0	100,0
		Total	500	100,0	100,0	
Switzerland	Valid	1 Person	120	24,0	24,0	24,0
		2 Persons	227	45,4	45,4	69,4
		3 Persons	91	18,2	18,2	87,6
		4 Persons	45	9,0	9,0	96,6
		5 or more Persons	17	3,4	3,4	100,0
		Total	500	100,0	100,0	
Italy	Valid	1 Person	68	13,6	13,6	13,6
		2 Persons	172	34,4	34,4	48,0
		3 Persons	122	24,4	24,4	72,4
		4 Persons	109	21,8	21,8	94,2
		5 or more Persons	29	5,8	5,8	100,0
		Total	500	100,0	100,0	

Bar Chart


Q3. How many people - including yourself - live in your household the majority of the year?
Country: Germany
Frequency
250
200
150
100
50
0
1 Person
2 Persons
3 Persons
4 Persons
5 or more Persons


Q3. How many people - including yourself - live in your household the majority of the year?
Country: Austria
Frequency
250
200
150
100
50
0
1 Person
2 Persons
3 Persons
4 Persons
5 or more Persons





3.2.1.4 Presence of children in the household

Following Ek (2005) who states that questions on the number of children help to provide a more accurate picture of characteristics of the households and can play an important role in the context of energy related decisions, we collected information on the presence of children under 14 years old in the household. Single households consisting of one person were not asked this question, which

explains the number of missing observations per each country. The responses in all the four countries are distributed in a similar way with majority of respondents (around 50% of the full sample in each country) having no children under 14 in their households and around 20% of households with children under 14.

Q4. Are there any children under the age of 14 years living in your household?

Country			Frequency	Percent	Valid Percent	Cumulative Percent
Germany	Valid	Yes	114	22,8	30,7	30,7
		No	257	51,4	69,3	100,0
		Total	371	74,2	100,0	
	Missing	System	129	25,8		
	Total		500	100,0		
Austria	Valid	Yes	112	22,4	29,9	29,9
		No	263	52,6	70,1	100,0
		Total	375	75,0	100,0	
	Missing	System	125	25,0		
	Total		500	100,0		
Switzerland	Valid	Yes	105	21,0	27,6	27,6
		No	275	55,0	72,4	100,0
		Total	380	76,0	100,0	
	Missing	System	120	24,0		
	Total		500	100,0		
Italy	Valid	Yes	99	19,8	22,9	22,9
		No	333	66,6	77,1	100,0
		Total	432	86,4	100,0	
	Missing	System	68	13,6		
	Total		500	100,0		

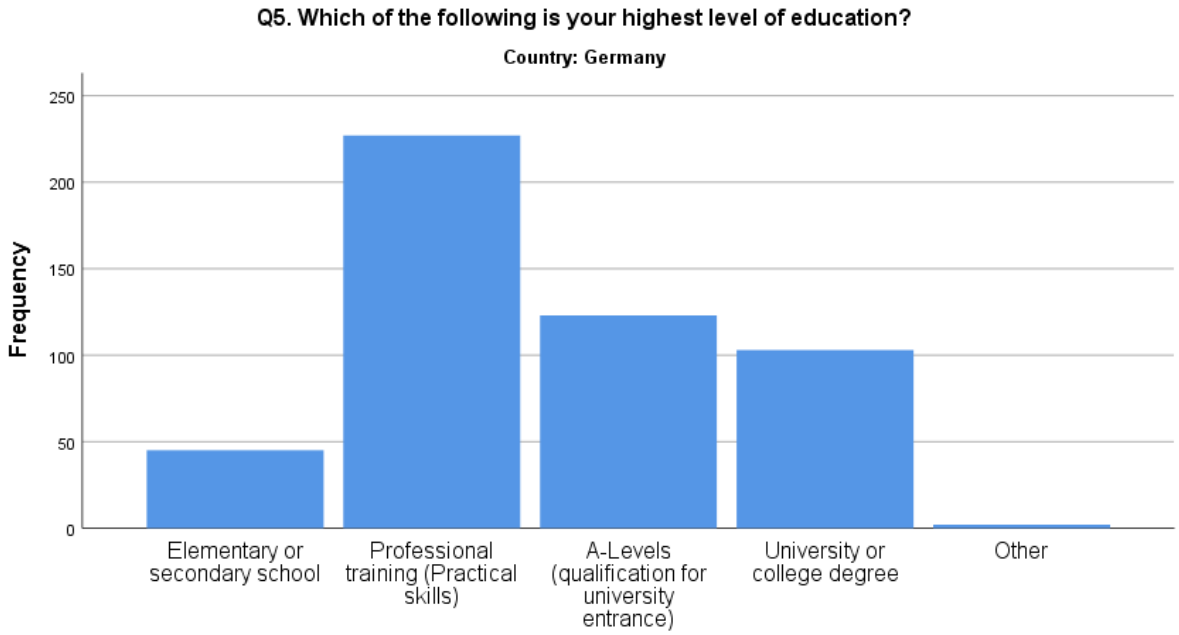
3.2.1.5 Education

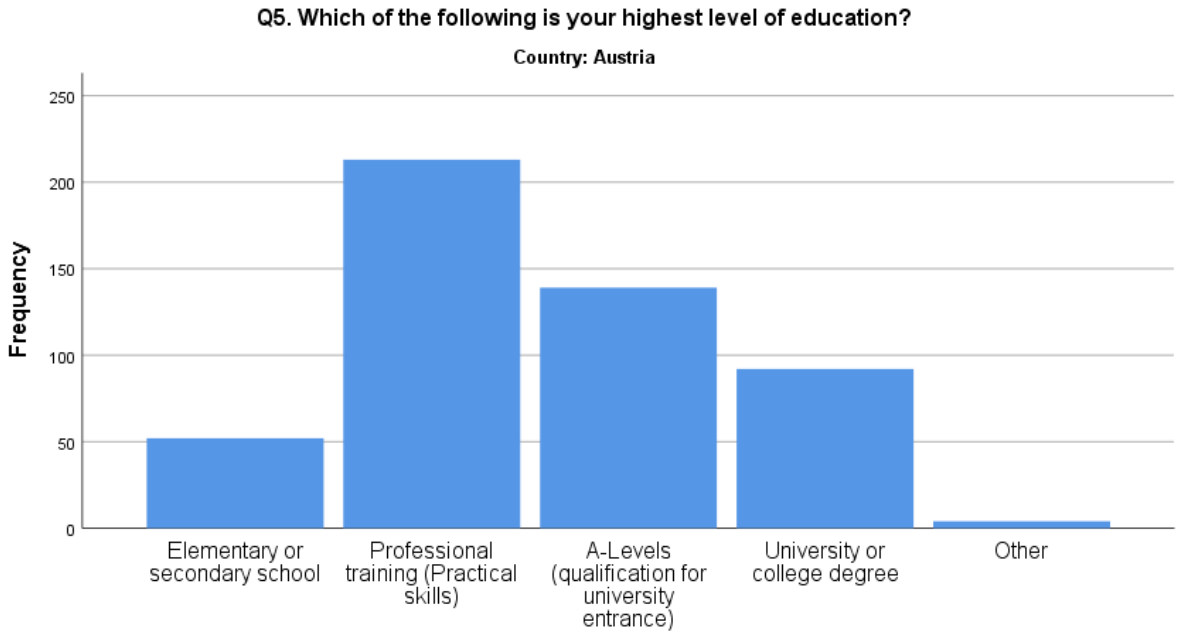
Caird & Roy (2010) indicate that education is a critical factor in the context of household renewable energy acceptance and adoption of such technologies as for example PV. With respect to education, we again observe almost identical answers' distribution in Austria, Germany and Switzerland with the majority of respondents falling in the professional training category followed by university or college degree. In Italian sample, the majority of respondents have stated A-Levels (qualification for university entrance) as their highest level of education.

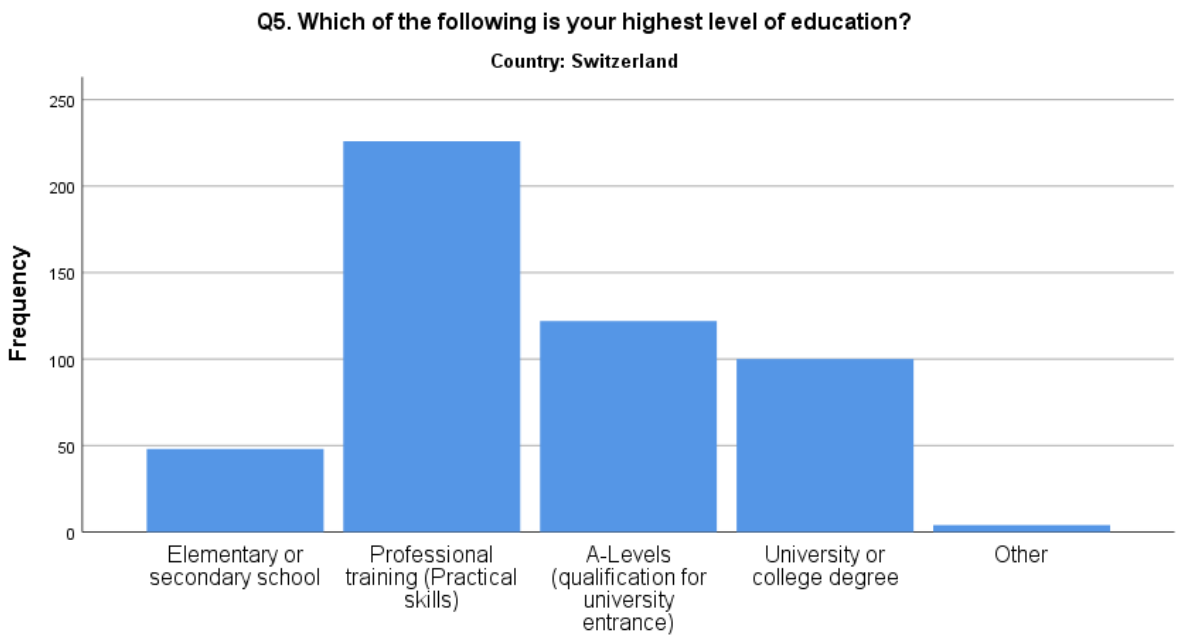
Q5. Which of the following is your highest level of education?

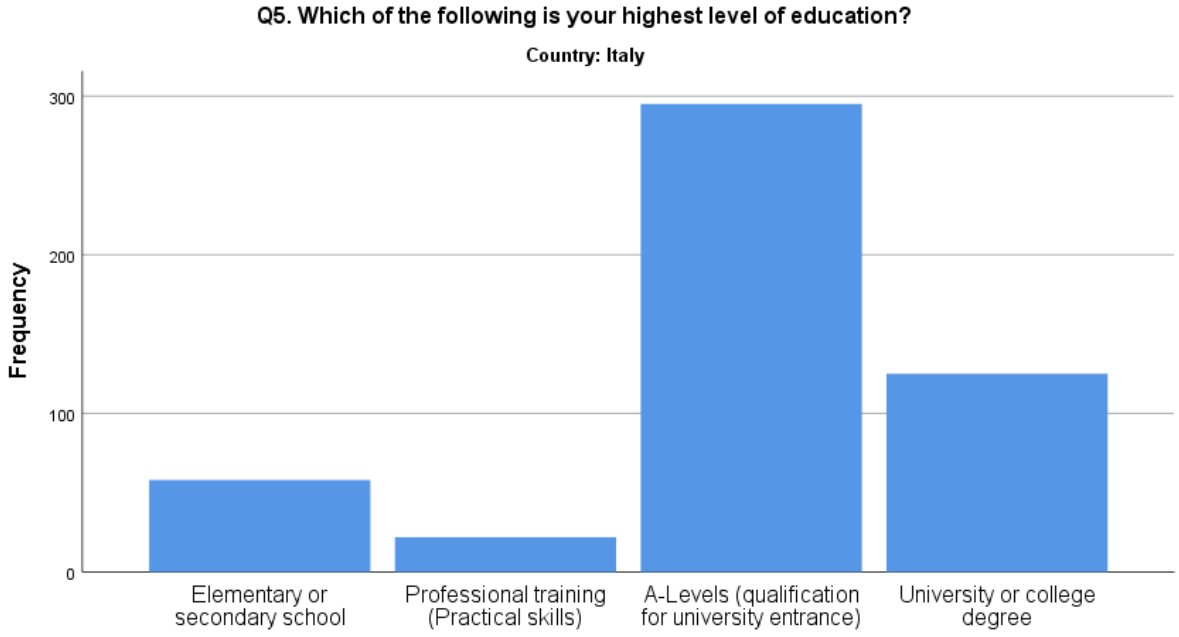
Country			Frequency	Percent	Valid Percent	Cumulative Percent
Germany	Valid	Elementary or secondary school	45	9,0	9,0	9,0
		Professional training (Practical skills)	227	45,4	45,4	54,4
		A-Levels (qualification for university entrance)	123	24,6	24,6	79,0
		University or college degree	103	20,6	20,6	99,6
		Other	2	,4	,4	100,0
		Total	500	100,0	100,0	
Austria	Valid	Elementary or secondary school	52	10,4	10,4	10,4
		Professional training (Practical skills)	213	42,6	42,6	53,0
		A-Levels (qualification for university entrance)	139	27,8	27,8	80,8
		University or college degree	92	18,4	18,4	99,2
		Other	4	,8	,8	100,0
		Total	500	100,0	100,0	
Switzerland	Valid	Elementary or secondary school	48	9,6	9,6	9,6
		Professional training (Practical skills)	226	45,2	45,2	54,8
		A-Levels (qualification for university entrance)	122	24,4	24,4	79,2
		University or college degree	100	20,0	20,0	99,2
		Other	4	,8	,8	100,0
		Total	500	100,0	100,0	
Italy	Valid	Elementary or secondary school	58	11,6	11,6	11,6
		Professional training (Practical skills)	22	4,4	4,4	16,0
		A-Levels (qualification for university entrance)	295	59,0	59,0	75,0
		University or college degree	125	25,0	25,0	100,0
		Total	500	100,0	100,0	

Bar Chart


Q5. Which of the following is your highest level of education?
Country: Germany
Frequency
250
200
150
100
50
0
Elementary or secondary school
Professional training (Practical skills)
A-Levels (qualification for university entrance)
University or college degree
Other


Q5. Which of the following is your highest level of education?
Country: Austria
Frequency
250
200
150
100
50
0
Elementary or secondary school
Professional training (Practical skills)
A-Levels (qualification for university entrance)
University or college degree
Other





3.3 Attitude with respect to renewable energy and energy related infrastructure

In the following section, results of the questions reflecting respondent's knowledge and attitudes with respect to energy generated from renewable energy sources such as wind, solar, or hydropower and energy related infrastructure are discussed.

3.3.1.1 Renewable energy sources are a safe alternative to fossil fuels.

In this question, the respondents were asked to express their agreement or disagreement with a statement “Renewable energy sources are a safe alternative to fossil fuels.” The respondents could choose between strongly agree, agree, disagree and strongly disagree. In all the four countries, the majority of the respondents consider renewable energy resources a safe alternative to fossil fuels. The cumulative percent of respondents who agree and strongly agree in Germany, Austria, Switzerland and Italy is 87,2%, 93,6%, 91% and 97,2% respectively. Italy shows the highest rate of agreement with this statement.

Q6. Renewable energy sources are a safe alternative to fossil fuels.

Country			Frequency	Percent	Valid Percent	Cumulative Percent
Germany	Valid	Strongly agree	192	38,4	38,4	38,4
		Agree	244	48,8	48,8	87,2
		Disagree	54	10,8	10,8	98,0
		Strongly disagree	10	2,0	2,0	100,0
		Total	500	100,0	100,0	
Austria	Valid	Strongly agree	229	45,8	45,8	45,8
		Agree	239	47,8	47,8	93,6
		Disagree	23	4,6	4,6	98,2
		Strongly disagree	9	1,8	1,8	100,0
		Total	500	100,0	100,0	
Switzerland	Valid	Strongly agree	214	42,8	42,8	42,8
		Agree	241	48,2	48,2	91,0
		Disagree	34	6,8	6,8	97,8
		Strongly disagree	11	2,2	2,2	100,0
		Total	500	100,0	100,0	
Italy	Valid	Strongly agree	269	53,8	53,8	53,8
		Agree	217	43,4	43,4	97,2
		Disagree	12	2,4	2,4	99,6
		Strongly disagree	2	,4	,4	100,0
		Total	500	100,0	100,0	

3.3.1.2 Renewable energy sources can reduce the dependence on foreign energy sources.

Around 90% of the respondents in all four countries agree or strongly agree with the statement that renewable energy resources can reduce dependence on foreign energy sources. The highest share

of respondents that disagree and strongly disagree with this statement is observed in Switzerland with 10,8% of the sample that disagrees with the statement and 1,2% that strongly disagree.

Q6. Renewable energy sources can reduce the dependence on foreign energy sources.

Country			Frequency	Percent	Valid Percent	Cumulative Percent
Germany	Valid	Strongly agree	203	40,6	40,6	40,6
		Agree	230	46,0	46,0	86,6
		Disagree	53	10,6	10,6	97,2
		Strongly disagree	14	2,8	2,8	100,0
		Total	500	100,0	100,0	
Austria	Valid	Strongly agree	255	51,0	51,0	51,0
		Agree	196	39,2	39,2	90,2
		Disagree	47	9,4	9,4	99,6
		Strongly disagree	2	,4	,4	100,0
		Total	500	100,0	100,0	
Switzerland	Valid	Strongly agree	205	41,0	41,0	41,0
		Agree	235	47,0	47,0	88,0
		Disagree	54	10,8	10,8	98,8
		Strongly disagree	6	1,2	1,2	100,0
		Total	500	100,0	100,0	
Italy	Valid	Strongly agree	255	51,0	51,0	51,0
		Agree	218	43,6	43,6	94,6
		Disagree	22	4,4	4,4	99,0
		Strongly disagree	5	1,0	1,0	100,0
		Total	500	100,0	100,0	

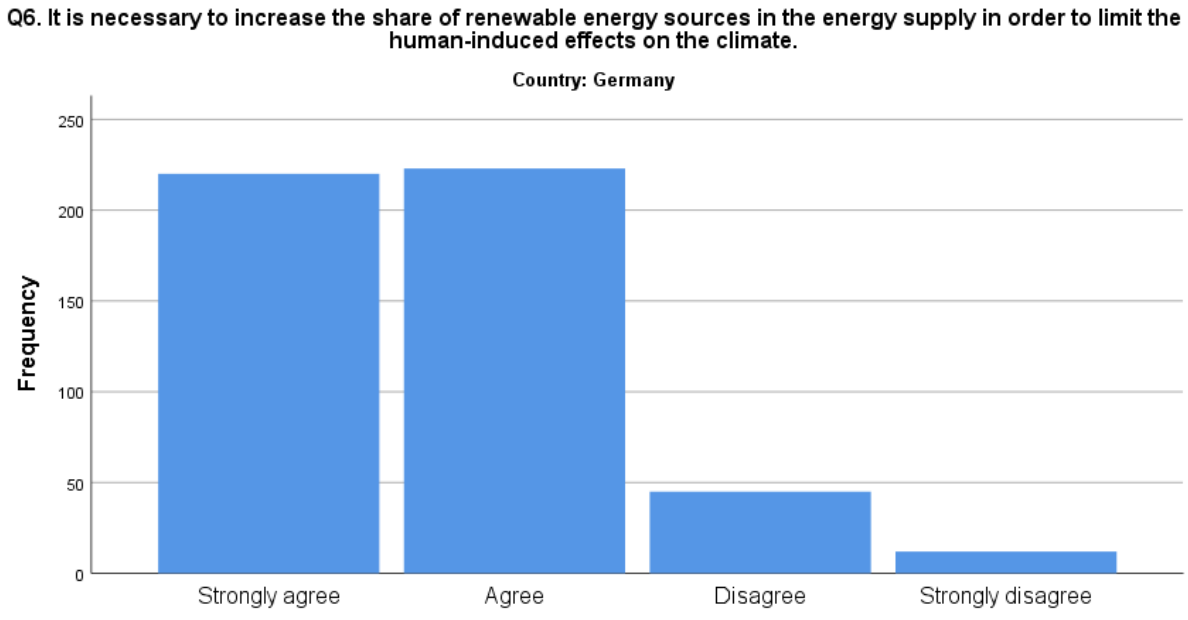
3.3.1.3 It is necessary to increase the share of renewable energy sources in the energy supply in order to limit the human-induced effects on the climate.

When asked about their attitude to the statement about the necessity to increase the share of renewable energy sources in the energy supply in order to limit human-induced effects on the climate, in all the four countries around 90% of the respondents expressed agreement or strong agreement. The highest share of respondents that agree or strongly agree with the statement is found in Italy where these two categories represent 97,2% of the sample.

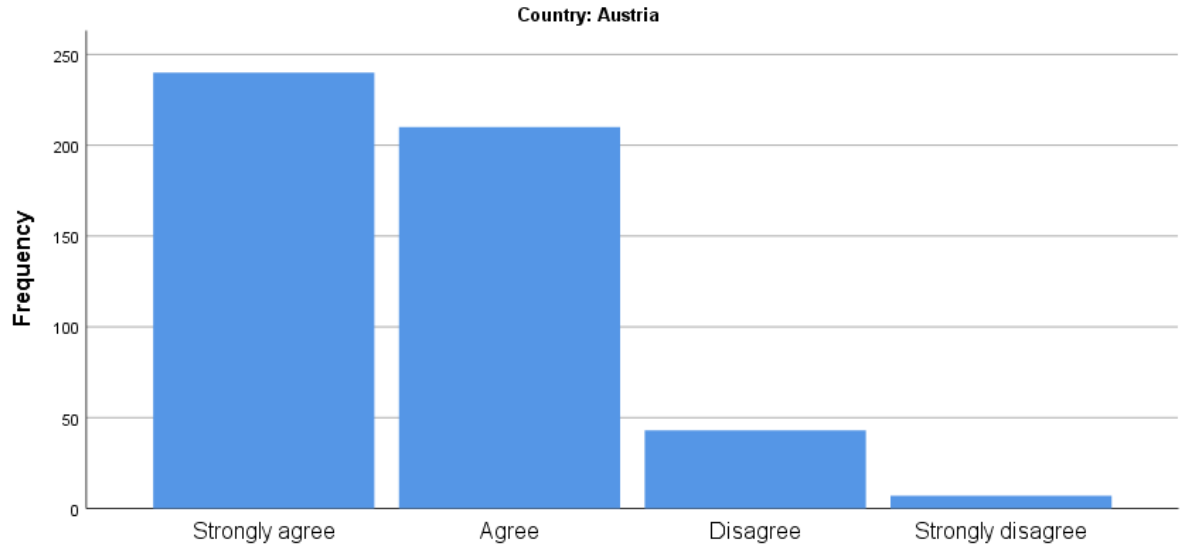
Q6. It is necessary to increase the share of renewable energy sources in the energy supply in order to limit the human-induced effects on the climate.

Country			Frequency	Percent	Valid Percent	Cumulative Percent
Germany	Valid	Strongly agree	220	44,0	44,0	44,0
		Agree	223	44,6	44,6	88,6
		Disagree	45	9,0	9,0	97,6
		Strongly disagree	12	2,4	2,4	100,0
		Total	500	100,0	100,0	
Austria	Valid	Strongly agree	240	48,0	48,0	48,0
		Agree	210	42,0	42,0	90,0
		Disagree	43	8,6	8,6	98,6
		Strongly disagree	7	1,4	1,4	100,0
		Total	500	100,0	100,0	
Switzerland	Valid	Strongly agree	229	45,8	45,8	45,8
		Agree	218	43,6	43,6	89,4
		Disagree	43	8,6	8,6	98,0
		Strongly disagree	10	2,0	2,0	100,0
		Total	500	100,0	100,0	
Italy	Valid	Strongly agree	304	60,8	60,8	60,8
		Agree	182	36,4	36,4	97,2
		Disagree	11	2,2	2,2	99,4
		Strongly disagree	3	,6	,6	100,0
		Total	500	100,0	100,0	

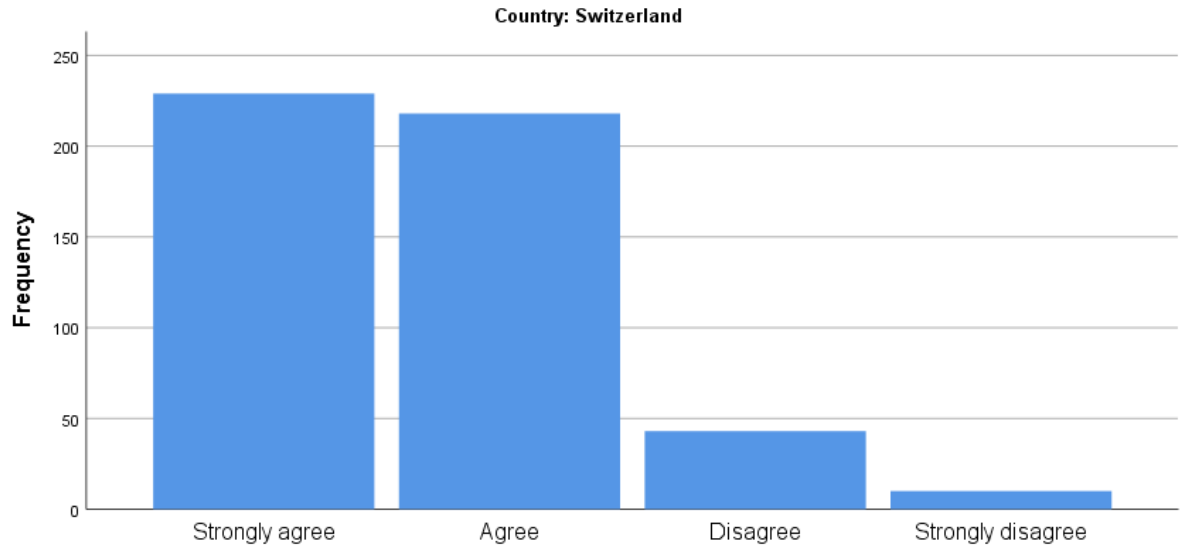
Bar Chart

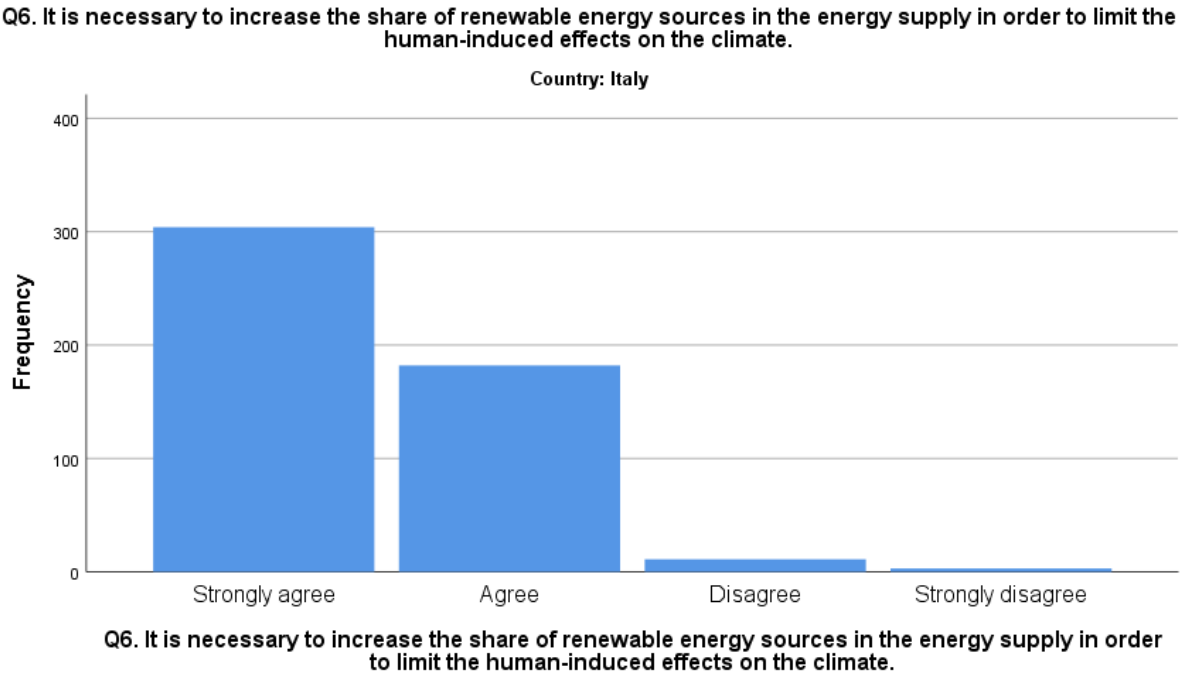


Q6. It is necessary to increase the share of renewable energy sources in the energy supply in order to limit the human-induced effects on the climate.



Q6. It is necessary to increase the share of renewable energy sources in the energy supply in order to limit the human-induced effects on the climate.





3.3.1.4 Country specific share of renewables is high enough and does not have to be increased further.

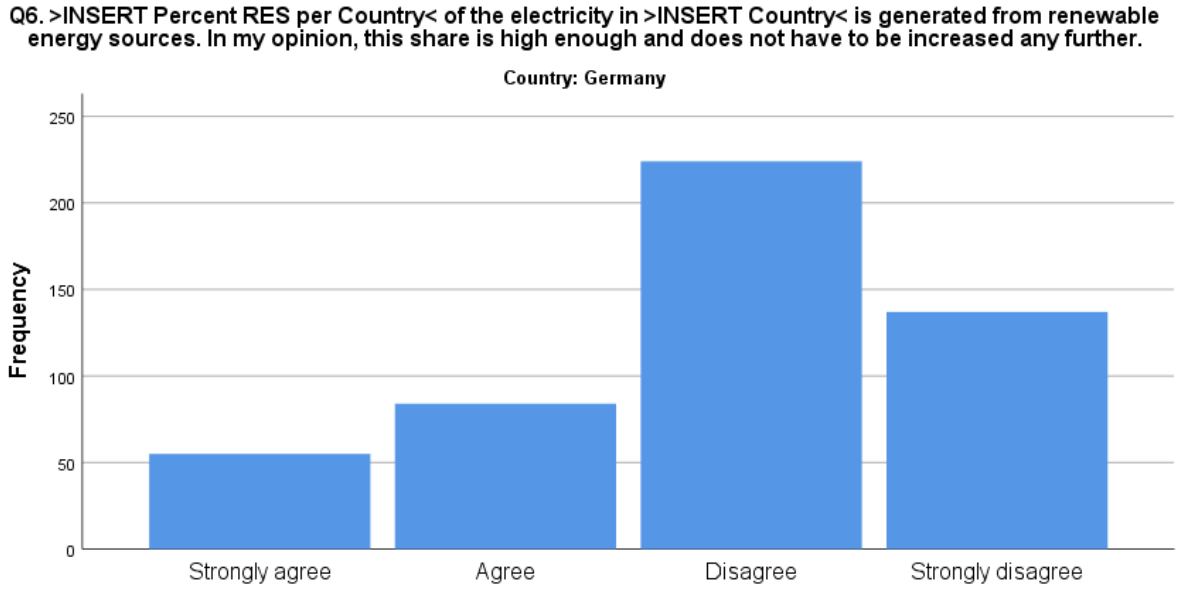
The respondents were asked to give their opinion on the share of country specific renewable energy source. Based on graphical representation of the results a similar pattern with slight deviation can be observed for all the four investigated countries. Around 70% of the respondents in all the four countries expressed disagreement with this statement.

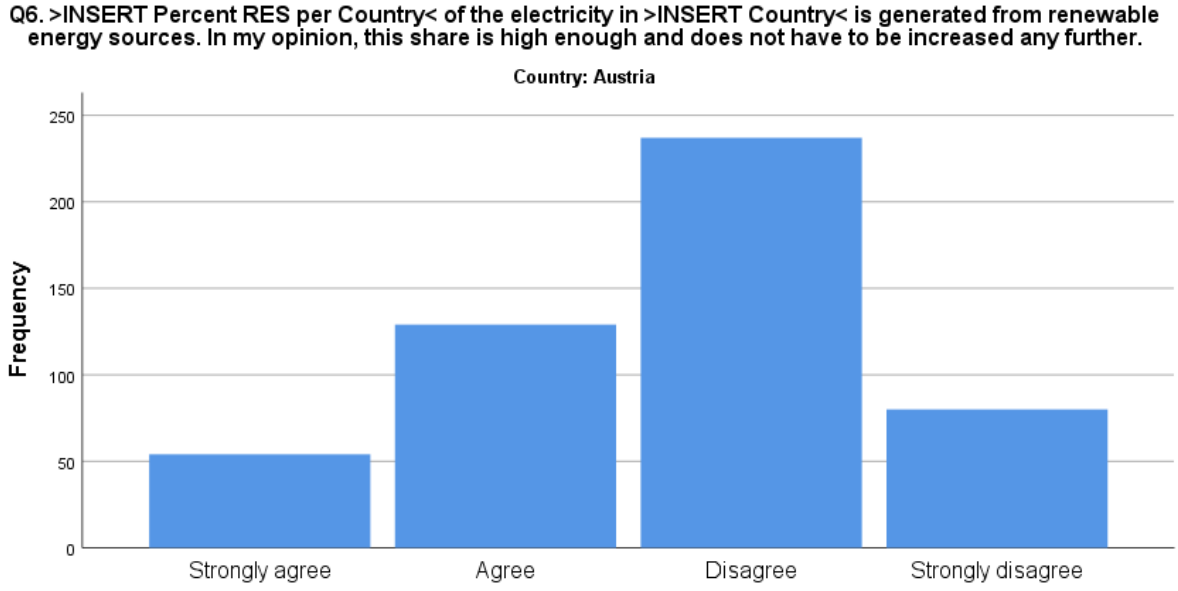
Q6. >INSERT Percent RES per Country< of the electricity in >INSERT Country< is generated from renewable energy sources. In my opinion, this share is high enough and does not have to be increased any further.

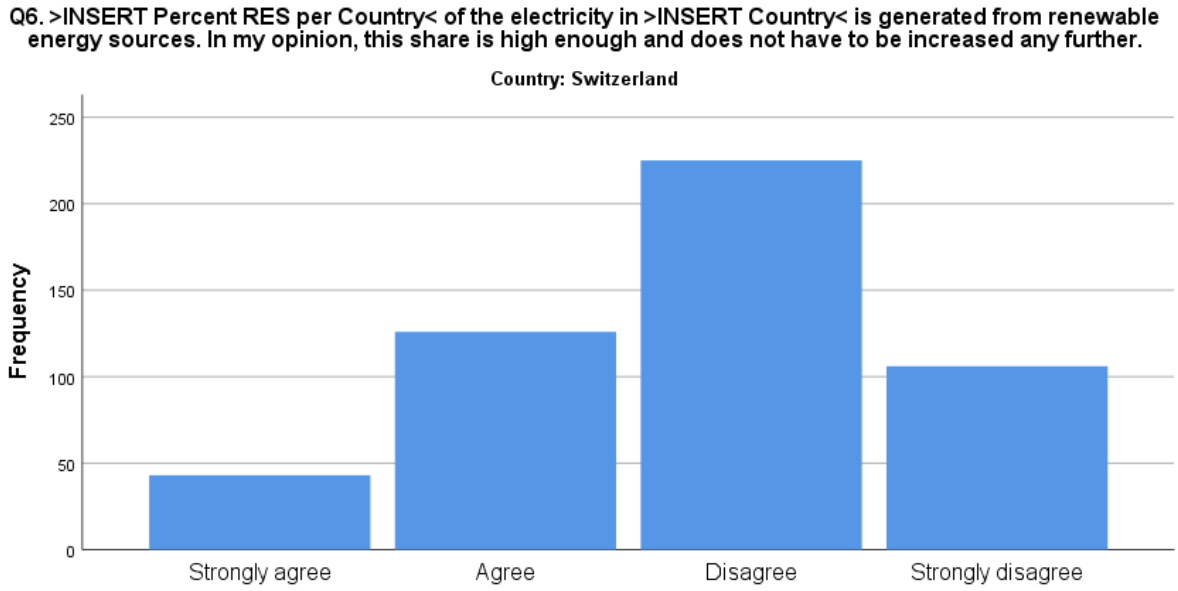
Country			Frequency	Percent	Valid Percent	Cumulative Percent
Germany	Valid	Strongly agree	55	11,0	11,0	11,0
		Agree	84	16,8	16,8	27,8
		Disagree	224	44,8	44,8	72,6
		Strongly disagree	137	27,4	27,4	100,0
		Total	500	100,0	100,0	
Austria	Valid	Strongly agree	54	10,8	10,8	10,8
		Agree	129	25,8	25,8	36,6
		Disagree	237	47,4	47,4	84,0
		Strongly disagree	80	16,0	16,0	100,0
		Total	500	100,0	100,0	
Switzerland	Valid	Strongly agree	43	8,6	8,6	8,6

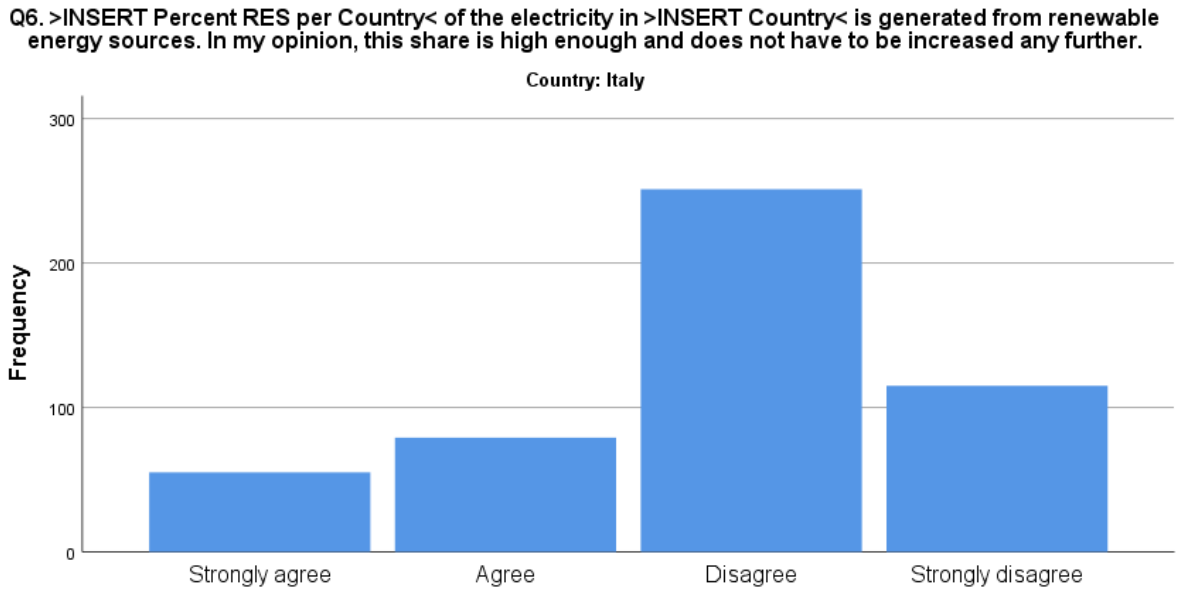
		Agree	126	25,2	25,2	33,8
		Disagree	225	45,0	45,0	78,8
		Strongly disagree	106	21,2	21,2	100,0
		Total	500	100,0	100,0	
Italy	Valid	Strongly agree	55	11,0	11,0	11,0
		Agree	79	15,8	15,8	26,8
		Disagree	251	50,2	50,2	77,0
		Strongly disagree	115	23,0	23,0	100,0
		Total	500	100,0	100,0	

Bar Chart









3.3.1.5 Attitude to electric mobility

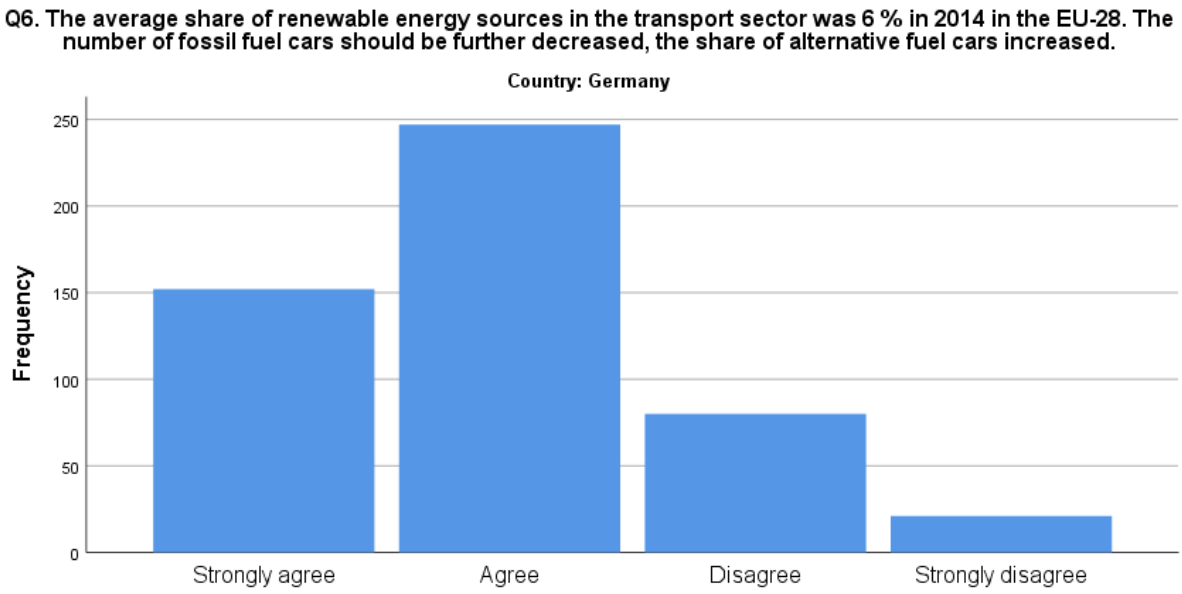
The interviews households were asked to express their agreement or disagreement with the following statement “The average share of renewable energy sources in the transport sector was 6 % in 2014 in the EU-28. The number of fossil fuel cars should be further decreased, the share of alternative fuel cars increased”: Austria, Germany and Switzerland show very similar distribution of answers: 45 to 49% of the sample agree with the statement, 30 to 36% strongly agree, 12 to 16% disagree and 3 to 4% strongly disagree with the statement. In Italian sample even a higher share of respondents agrees or strongly agrees with the statement – 93%, and only 5,6% and 1,2% disagree

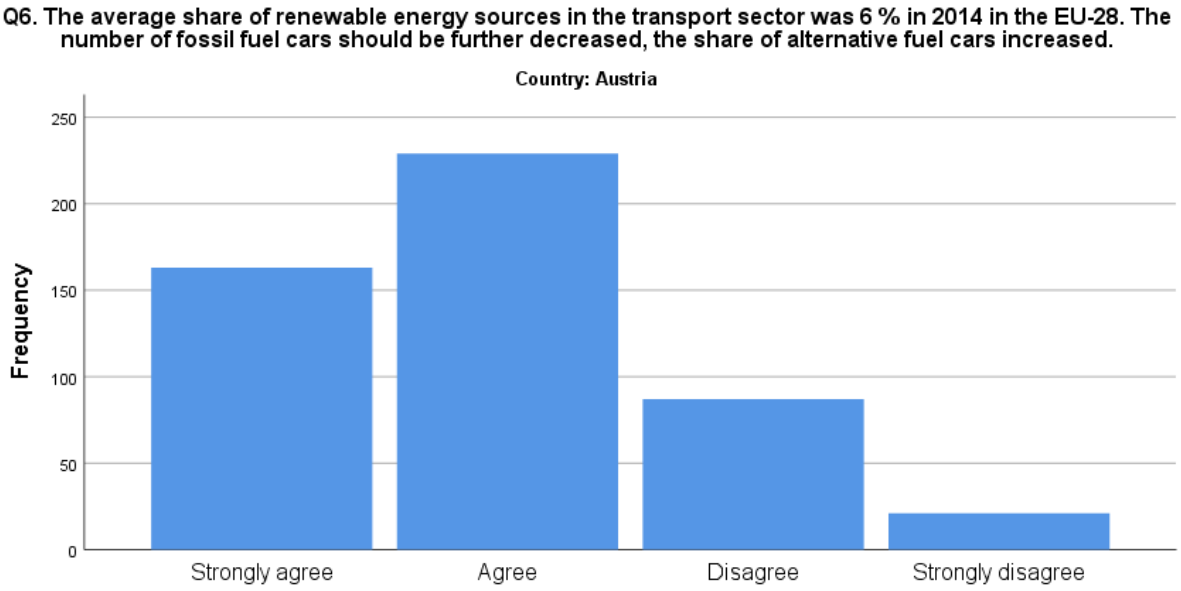
and strongly disagree from the statement. These results show a strong support of alternative cars increase in all the four countries, however Italy show the strongest level of support.

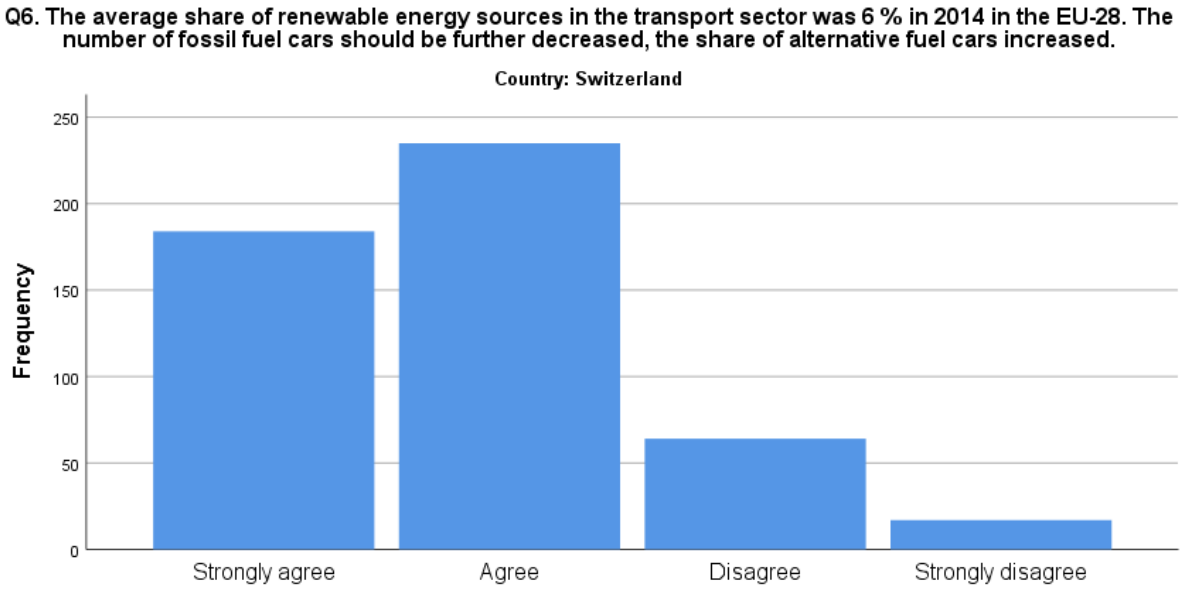
Q6. The average share of renewable energy sources in the transport sector was 6 % in 2014 in the EU-28. The number of fossil fuel cars should be further decreased, the share of alternative fuel cars increased.

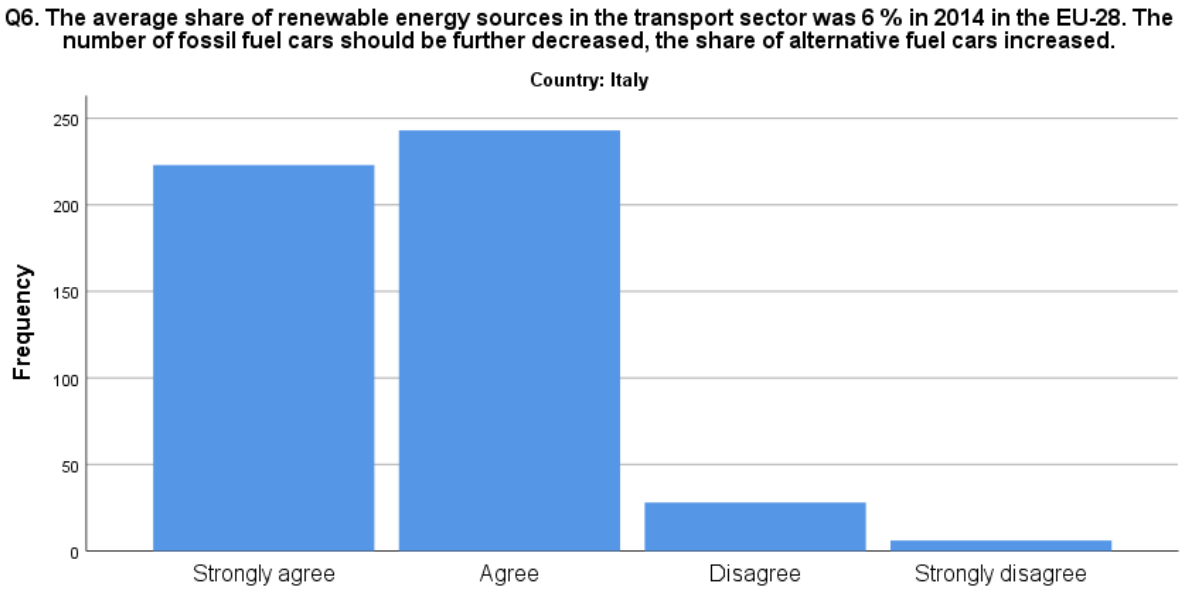
Country			Frequency	Percent	Valid Percent	Cumulative Percent
Germany	Valid	Strongly agree	152	30,4	30,4	30,4
		Agree	247	49,4	49,4	79,8
		Disagree	80	16,0	16,0	95,8
		Strongly disagree	21	4,2	4,2	100,0
		Total	500	100,0	100,0	
Austria	Valid	Strongly agree	163	32,6	32,6	32,6
		Agree	229	45,8	45,8	78,4
		Disagree	87	17,4	17,4	95,8
		Strongly disagree	21	4,2	4,2	100,0
		Total	500	100,0	100,0	
Switzerland	Valid	Strongly agree	184	36,8	36,8	36,8
		Agree	235	47,0	47,0	83,8
		Disagree	64	12,8	12,8	96,6
		Strongly disagree	17	3,4	3,4	100,0
		Total	500	100,0	100,0	
Italy	Valid	Strongly agree	223	44,6	44,6	44,6
		Agree	243	48,6	48,6	93,2
		Disagree	28	5,6	5,6	98,8
		Strongly disagree	6	1,2	1,2	100,0
		Total	500	100,0	100,0	

Bar Chart


Q6. The average share of renewable energy sources in the transport sector was 6 % in 2014 in the EU-28. The number of fossil fuel cars should be further decreased, the share of alternative fuel cars increased.
Country: Germany
Frequency
250
200
150
100
50
0
Strongly agree
Agree
Disagree
Strongly disagree


Q6. The average share of renewable energy sources in the transport sector was 6 % in 2014 in the EU-28. The number of fossil fuel cars should be further decreased, the share of alternative fuel cars increased.
Country: Austria
Frequency
250
200
150
100
50
0
Strongly agree
Agree
Disagree
Strongly disagree





3.3.1.6 Attitude to building wind power and PV plants in own country

Households' attitude to renewable energy was investigated based on their assessment of the following statement: "In order to further increase the share of renewable energies in power generation, it is necessary to build more wind power plants and photovoltaics plants in my country." We find similar answers' distribution in all the four countries: the majority of respondents agrees with the statement, followed by a significant share of respondents who strongly agree with the statement (30 to 40%), on a third place are respondents that disagree with the statement followed by a relatively small share of respondents that strongly disagree with the statement. Such distribution of answers shows strong acceptance and of renewable energy increase in the respondents' country of residence.

Q6. In order to further increase the share of renewable energies in power generation, it is necessary to build more wind power plants and photovoltaics plants in my country.

Country			Frequency	Percent	Valid Percent	Cumulative Percent
Germany	Valid	Strongly agree	152	30,4	30,4	30,4
		Agree	238	47,6	47,6	78,0
		Disagree	84	16,8	16,8	94,8
		Strongly disagree	26	5,2	5,2	100,0
		Total	500	100,0	100,0	
Austria	Valid	Strongly agree	162	32,4	32,4	32,4
		Agree	271	54,2	54,2	86,6
		Disagree	56	11,2	11,2	97,8
		Strongly disagree	11	2,2	2,2	100,0
		Total	500	100,0	100,0	
Switzerland	Valid	Strongly agree	179	35,8	35,8	35,8
		Agree	241	48,2	48,2	84,0
		Disagree	64	12,8	12,8	96,8
		Strongly disagree	16	3,2	3,2	100,0
		Total	500	100,0	100,0	
Italy	Valid	Strongly agree	202	40,4	40,4	40,4
		Agree	252	50,4	50,4	90,8
		Disagree	41	8,2	8,2	99,0
		Strongly disagree	5	1,0	1,0	100,0
		Total	500	100,0	100,0	

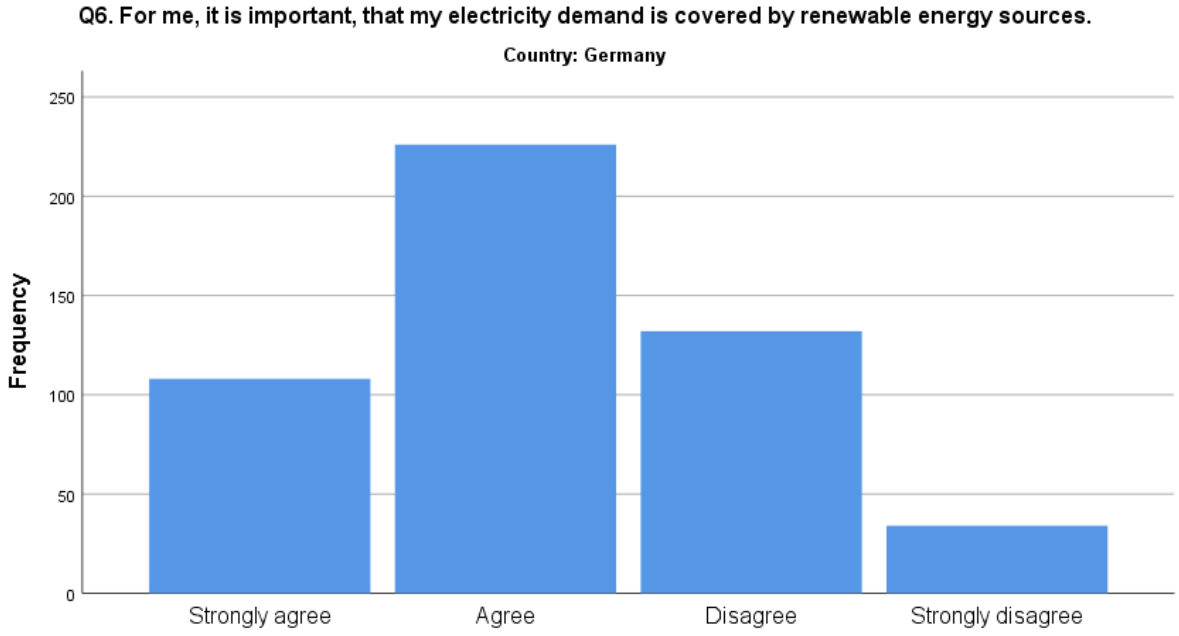
3.3.1.7 Attitudes to green electricity

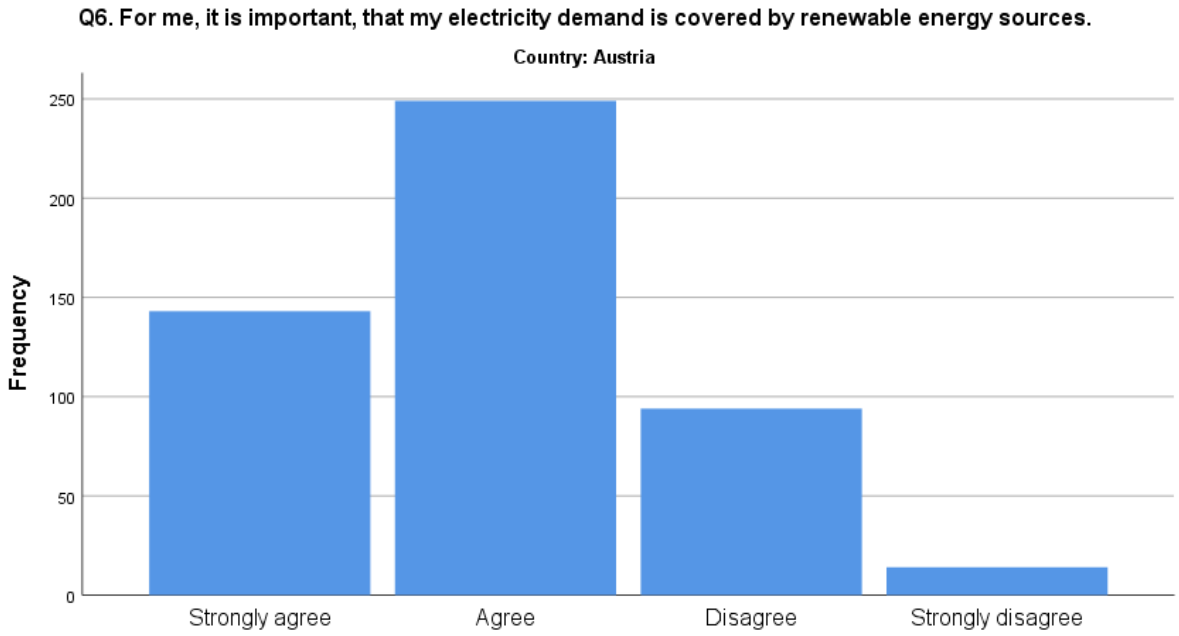
In order to investigate respondents' attitude to green electricity (electricity sourced from renewable energy) we asked whether they agree or disagree with the following statement "For me, it is important, that my electricity demand is covered by renewable energy sources." Although in all the four countries the majority of respondent claim to agree or strongly agree with the statement, it is interesting to observe that the lowest share of support for green electricity compared to other countries is expressed by respondents from Germany: only 66,8% of the sample compared to 78,4 in Austria, 73,8 in Switzerland and 94% in Italy.

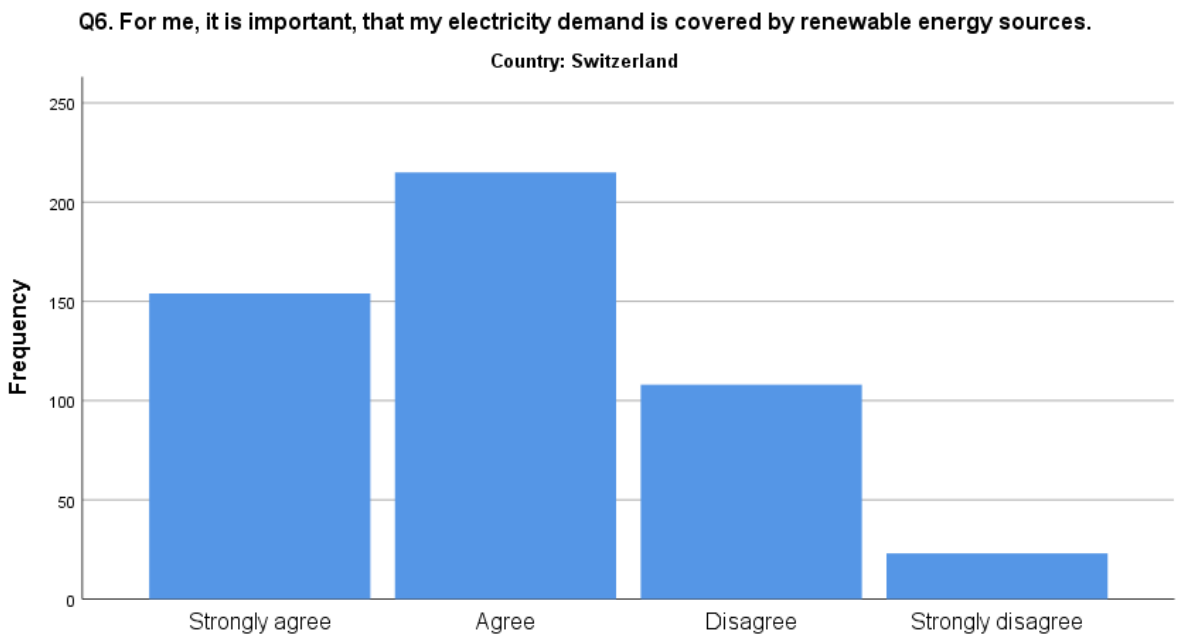
Q6. For me, it is important, that my electricity demand is covered by renewable energy sources.

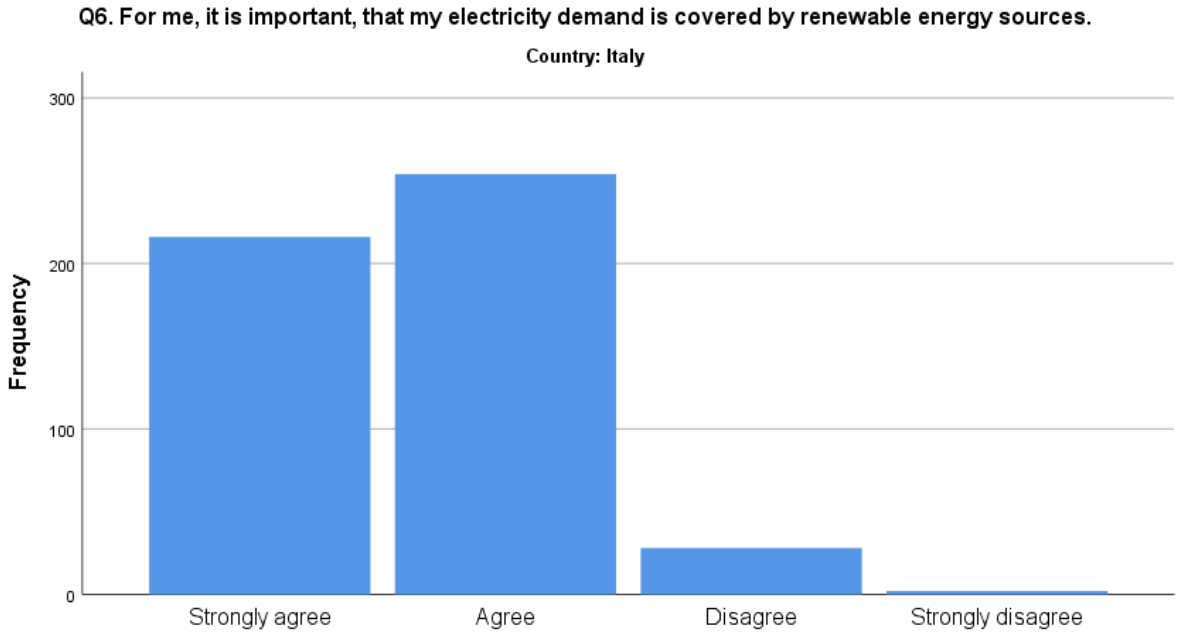
Country			Frequency	Percent	Valid Percent	Cumulative Percent
Germany	Valid	Strongly agree	108	21,6	21,6	21,6
		Agree	226	45,2	45,2	66,8
		Disagree	132	26,4	26,4	93,2
		Strongly disagree	34	6,8	6,8	100,0
		Total	500	100,0	100,0	
Austria	Valid	Strongly agree	143	28,6	28,6	28,6
		Agree	249	49,8	49,8	78,4
		Disagree	94	18,8	18,8	97,2
		Strongly disagree	14	2,8	2,8	100,0
		Total	500	100,0	100,0	
Switzerland	Valid	Strongly agree	154	30,8	30,8	30,8
		Agree	215	43,0	43,0	73,8
		Disagree	108	21,6	21,6	95,4
		Strongly disagree	23	4,6	4,6	100,0
		Total	500	100,0	100,0	
Italy	Valid	Strongly agree	216	43,2	43,2	43,2
		Agree	254	50,8	50,8	94,0
		Disagree	28	5,6	5,6	99,6
		Strongly disagree	2	,4	,4	100,0
		Total	500	100,0	100,0	

Bar Chart


Q6. For me, it is important, that my electricity demand is covered by renewable energy sources.
Country: Germany
Frequency
250
200
150
100
50
0
Strongly agree
Agree
Disagree
Strongly disagree


Q6. For me, it is important, that my electricity demand is covered by renewable energy sources.
Country: Austria
Frequency
250
200
150
100
50
0
Strongly agree
Agree
Disagree
Strongly disagree





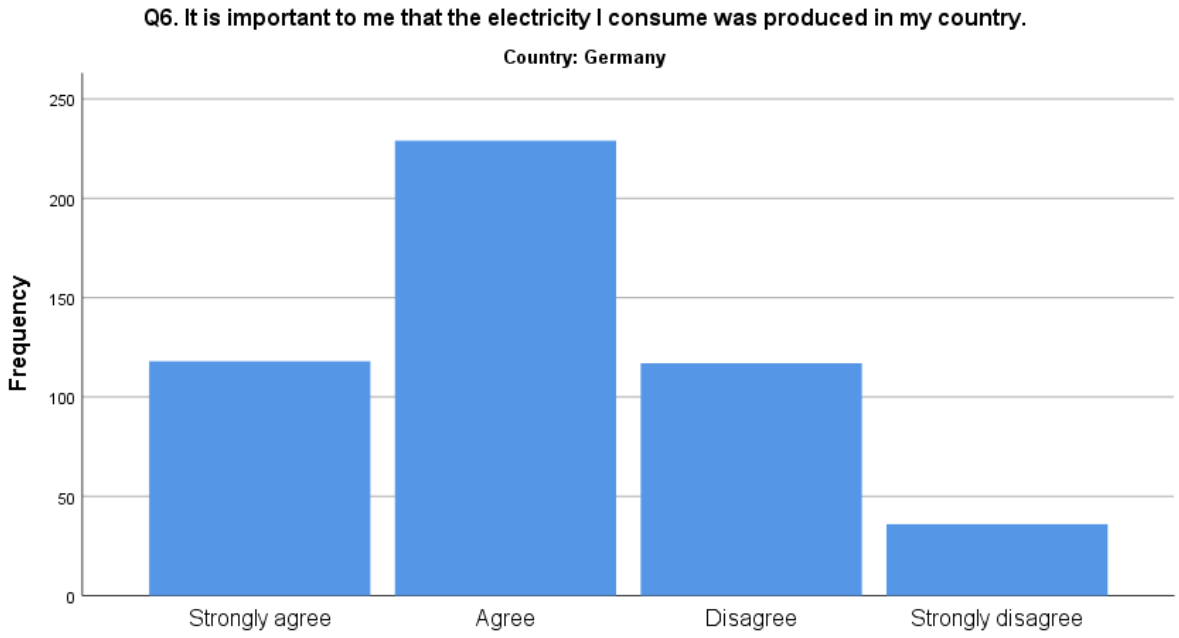
3.3.1.8 Attitude to locally produced electricity

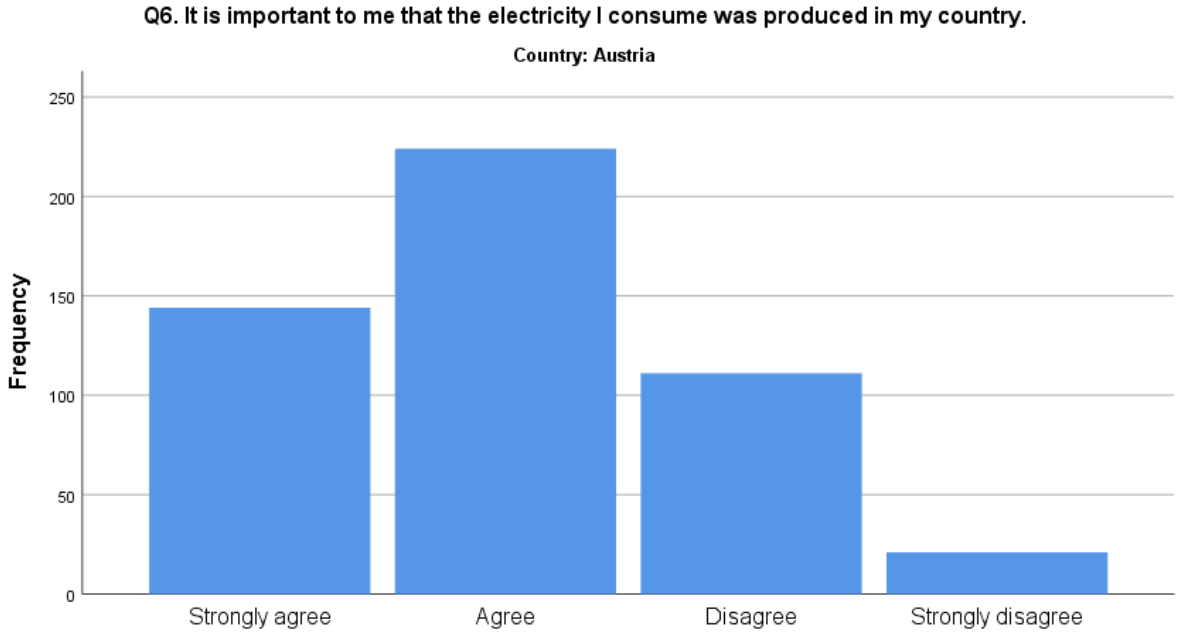
Among other factors, the attitude to whether electricity that a household consumes is produced locally or not was also examined. The majority of households in Germany, Austria, Switzerland and Italy agree with the statement “It is important to me that the electricity I consume was produced in my country.” The lowest share of respondents that support the statement is observed in Germany. Interestingly none of the Italian respondents opted for category strongly disagree.

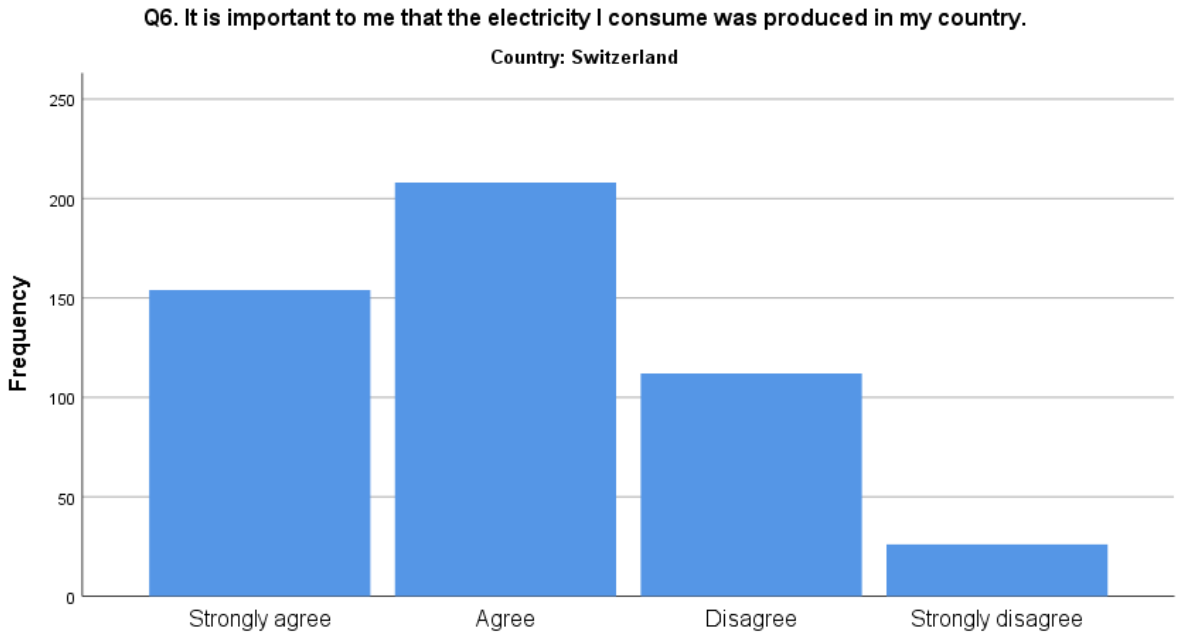
It is important to me that the electricity I consume was produced in my country.

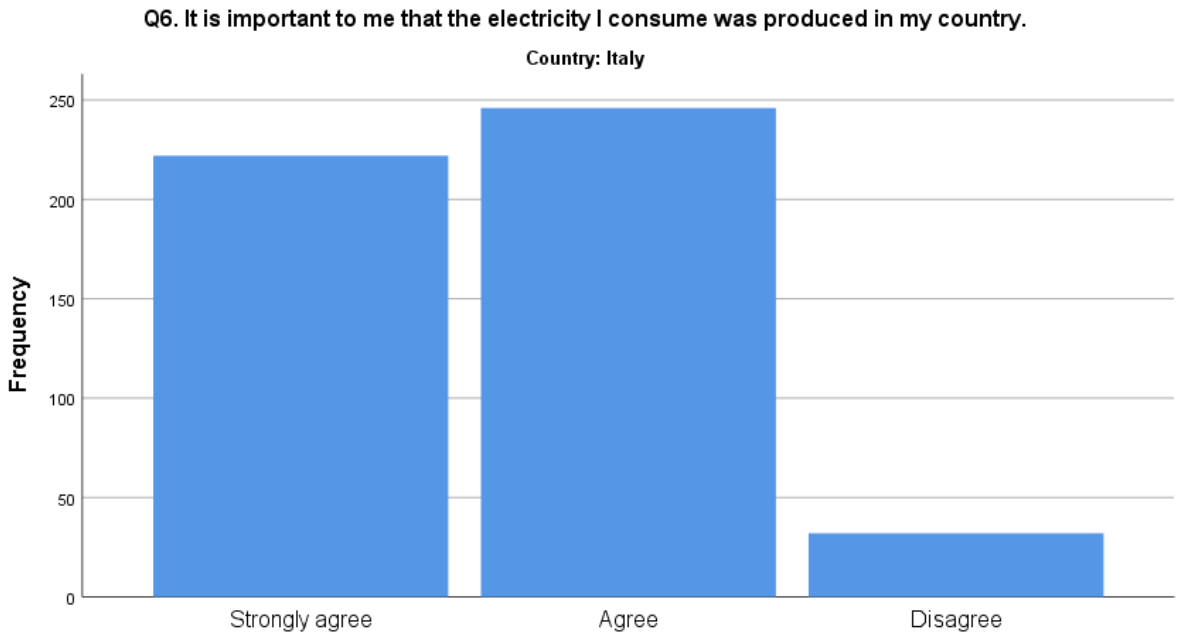
Country			Frequency	Percent	Valid Percent	Cumulative Percent
Germany	Valid	Strongly agree	118	23,6	23,6	23,6
		Agree	229	45,8	45,8	69,4
		Disagree	117	23,4	23,4	92,8
		Strongly disagree	36	7,2	7,2	100,0
		Total	500	100,0	100,0	
Austria	Valid	Strongly agree	144	28,8	28,8	28,8
		Agree	224	44,8	44,8	73,6
		Disagree	111	22,2	22,2	95,8
		Strongly disagree	21	4,2	4,2	100,0
		Total	500	100,0	100,0	
Switzerland	Valid	Strongly agree	154	30,8	30,8	30,8
		Agree	208	41,6	41,6	72,4
		Disagree	112	22,4	22,4	94,8
		Strongly disagree	26	5,2	5,2	100,0
		Total	500	100,0	100,0	
Italy	Valid	Strongly agree	222	44,4	44,4	44,4
		Agree	246	49,2	49,2	93,6
		Disagree	32	6,4	6,4	100,0
		Total	500	100,0	100,0	

Bar Chart




Q6. It is important to me that the electricity I consume was produced in my country.
Country: Austria
Frequency
250
200
150
100
50
0
Strongly agree
Agree
Disagree
Strongly disagree


Q6. It is important to me that the electricity I consume was produced in my country.
Country: Switzerland
Frequency
250
200
150
100
50
0
Strongly agree
Agree
Disagree
Strongly disagree



3.3.1.9 Attitude to household appliances energy consumption

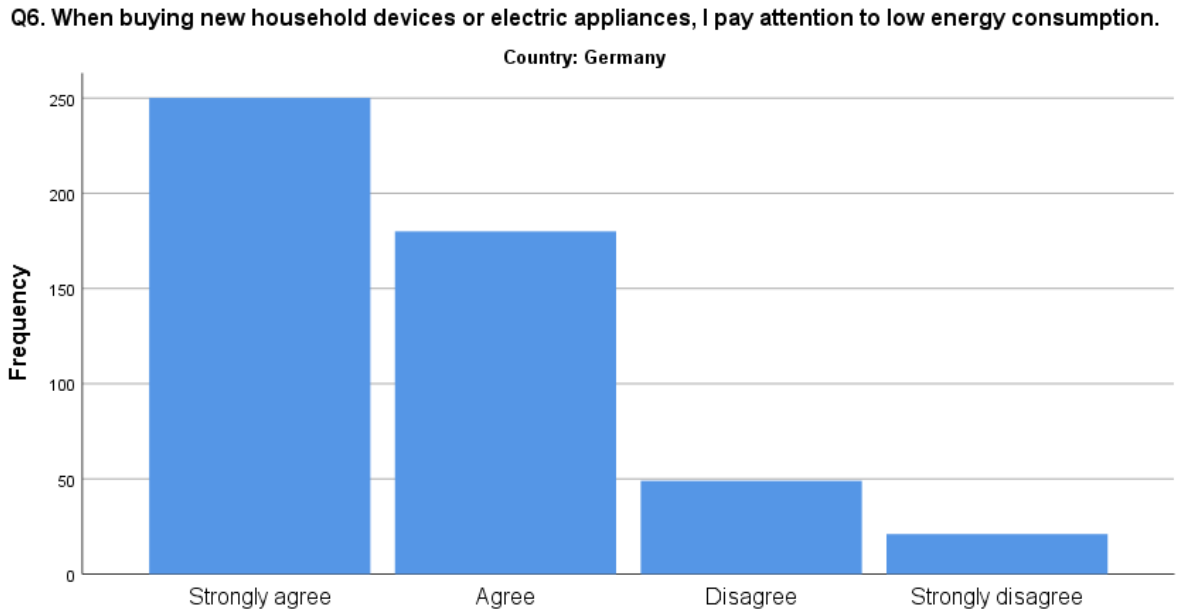
Among other factors we investigated whether the respondents are concerned about energy efficiency topics in theirs daily life, for instance while buying new household appliances. Apparently in all the four countries the majority of respondents strongly agrees with the statement “When buying new household devices or electric appliances, I pay attention to low energy consumption” : 250 respondents in Germany, 234 in Austria, 223 in Switzerland and 324 in Italy. The second largest category is represented by respondents who agree with the statement. The interpretation of the results for this question is rather straightforward: the majority of households in all the four countries expressed agreement with the statement meaning that they claim to pay attention to the energy efficiency of the household appliances they consider to buy.

Q6. When buying new household devices or electric appliances, I pay attention to low energy consumption.

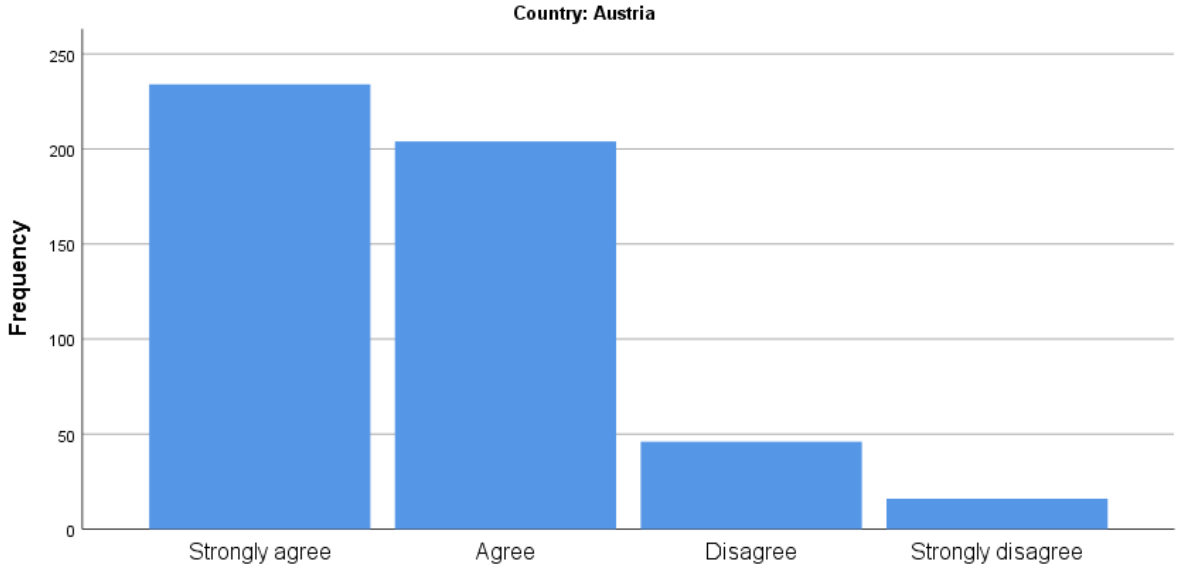
Country			Frequency	Percent	Valid Percent	Cumulative Percent
Germany	Valid	Strongly agree	250	50,0	50,0	50,0
		Agree	180	36,0	36,0	86,0
		Disagree	49	9,8	9,8	95,8
		Strongly disagree	21	4,2	4,2	100,0
		Total	500	100,0	100,0	
Austria	Valid	Strongly agree	234	46,8	46,8	46,8
		Agree	204	40,8	40,8	87,6
		Disagree	46	9,2	9,2	96,8
		Strongly disagree	16	3,2	3,2	100,0
		Total	500	100,0	100,0	

Switzerland	Valid	Strongly agree	223	44,6	44,6	44,6
		Agree	221	44,2	44,2	88,8
		Disagree	42	8,4	8,4	97,2
		Strongly disagree	14	2,8	2,8	100,0
		Total	500	100,0	100,0	
Italy	Valid	Strongly agree	324	64,8	64,8	64,8
		Agree	166	33,2	33,2	98,0
		Disagree	8	1,6	1,6	99,6
		Strongly disagree	2	,4	,4	100,0
		Total	500	100,0	100,0	

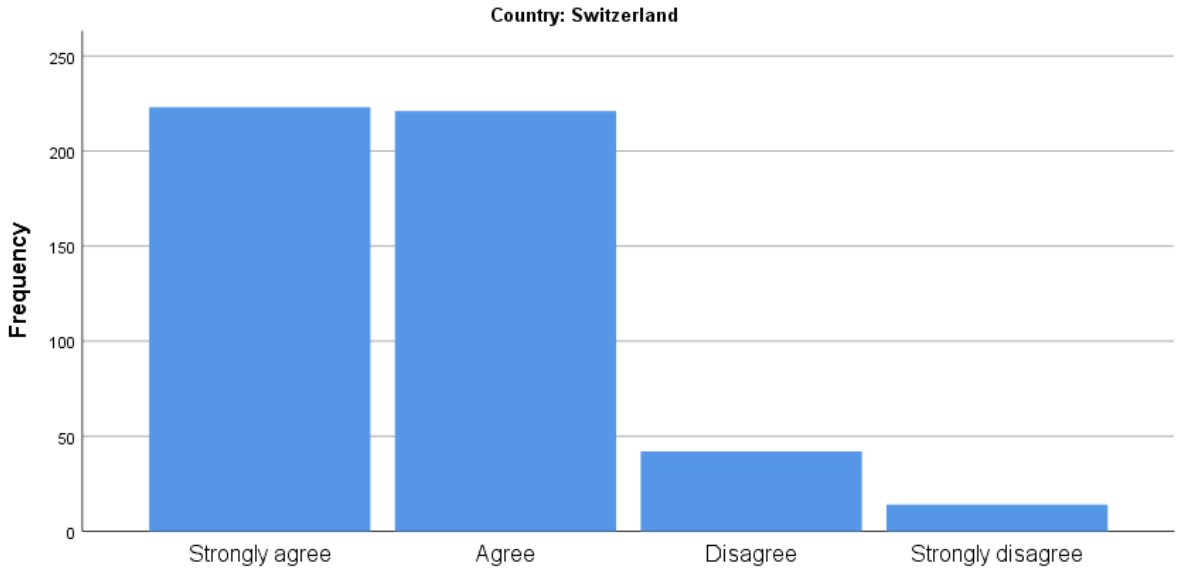
Bar Chart

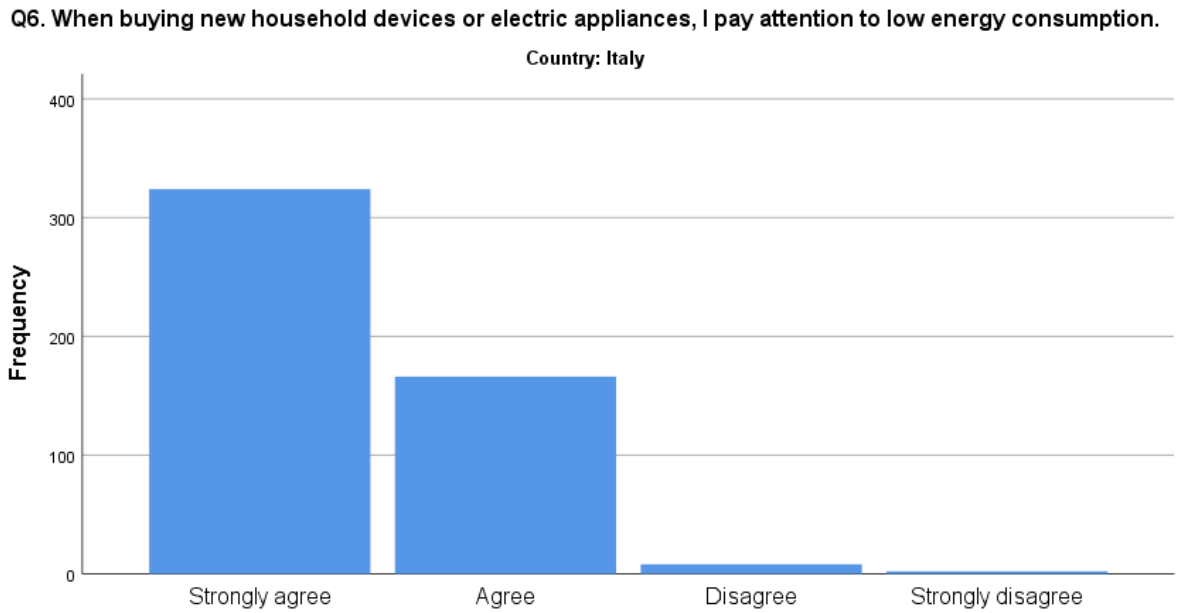


Q6. When buying new household devices or electric appliances, I pay attention to low energy consumption.



Q6. When buying new household devices or electric appliances, I pay attention to low energy consumption.





3.3.1.10 Presence of renewable energy technologies in household

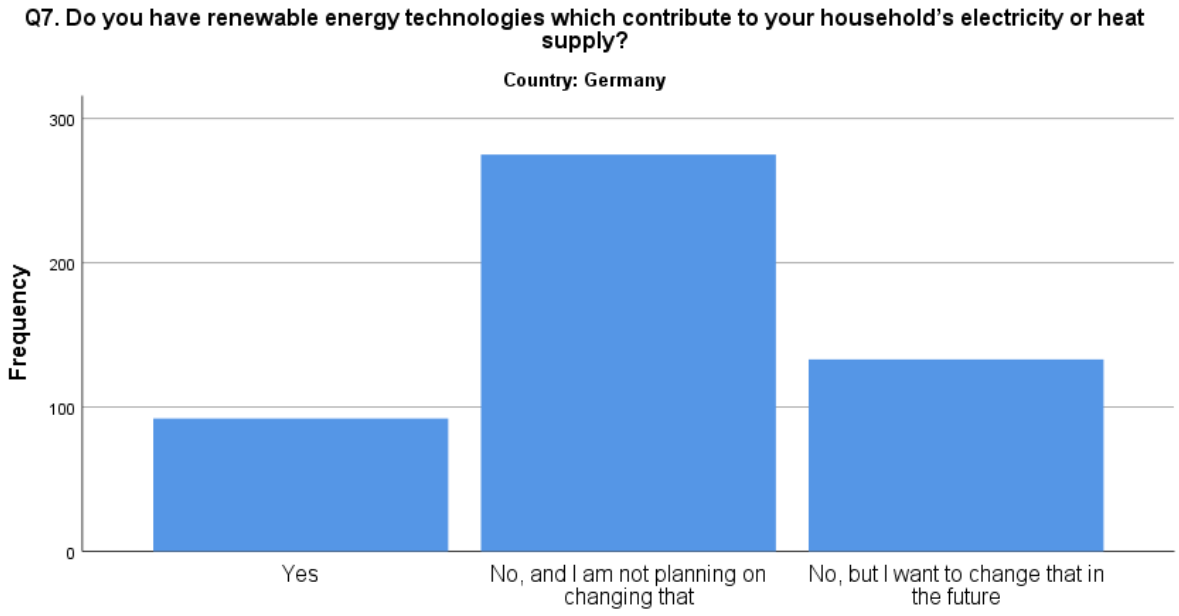
While examining the presence of renewable energy technologies in households in the four surveyed countries, we find that the highest share of renewable technologies already present in the households is in Austria with 32,4% of respondents, the lowest is in Germany with 18,4%. Italy has the highest share of households that do not possess such technologies yet but want to change it in the future with 42,2% of the sample. Germany has the highest share of respondents who do not own such technologies and do not plan to change that among the four countries, with 55% of the respondents.

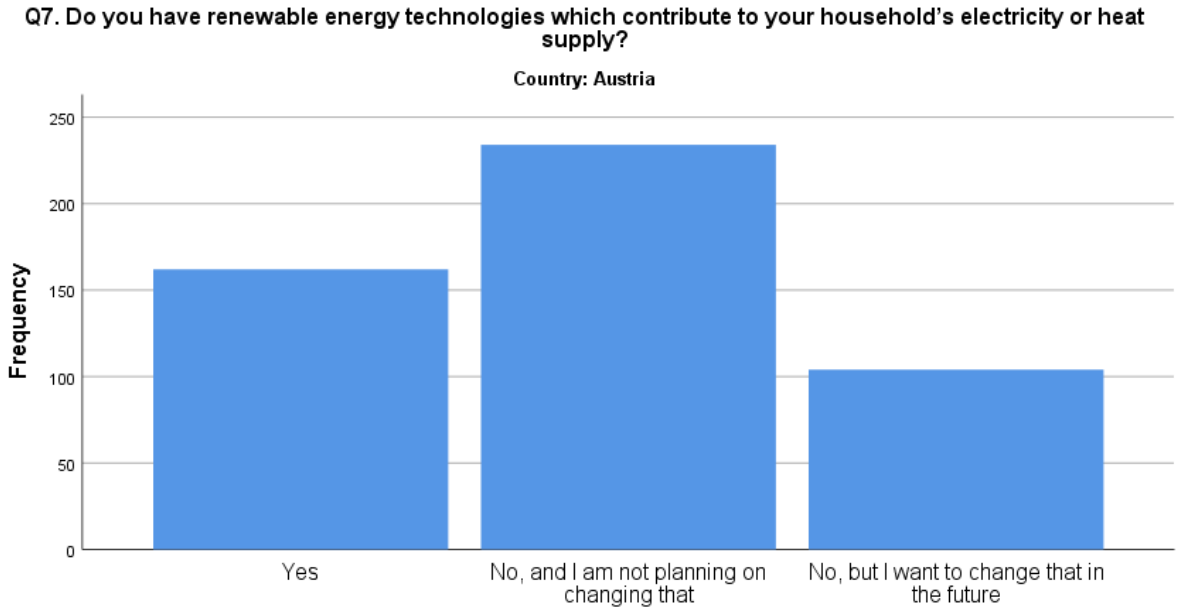
Q7. Do you have renewable energy technologies which contribute to your household's electricity or heat supply?

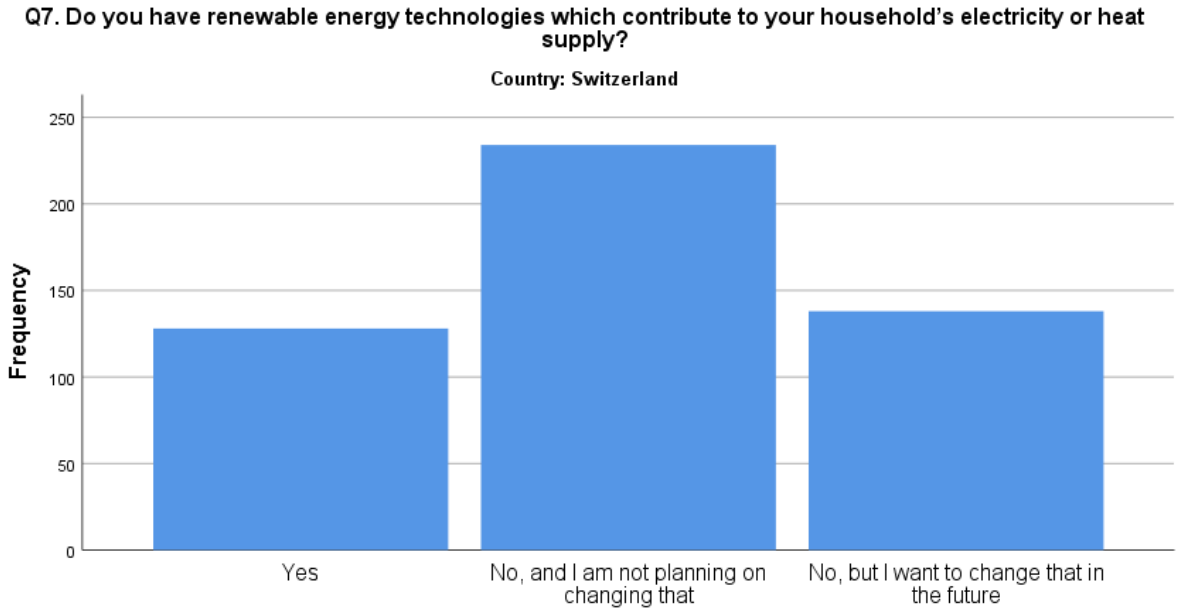
Country			Frequency	Percent	Valid Percent
Germany	Valid	Yes	92	18,4	18,4
		No, and I am not planning on changing that	275	55,0	55,0
		No, but I want to change that in the future	133	26,6	26,6
		Total	500	100,0	100,0
Austria	Valid	Yes	162	32,4	32,4
		No, and I am not planning on changing that	234	46,8	46,8
		No, but I want to change that in the future	104	20,8	20,8
		Total	500	100,0	100,0

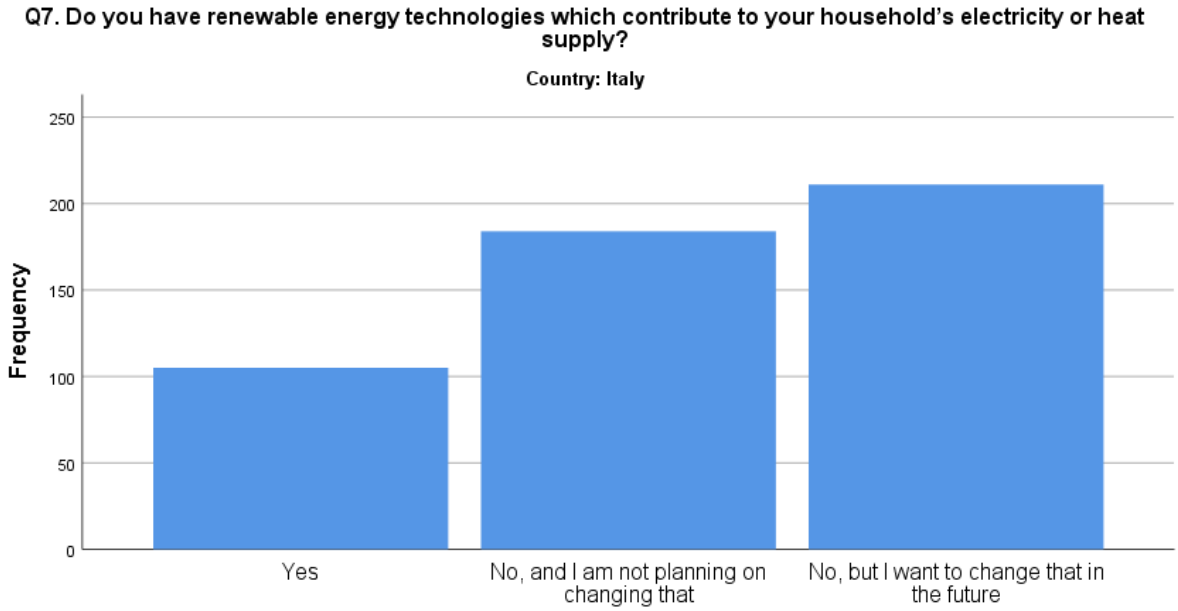
Switzer-land	Valid	Yes	128	25,6	25,6
		No, and I am not planning on changing that	234	46,8	46,8
		No, but I want to change that in the future	138	27,6	27,6
		Total	500	100,0	100,0
Italy	Valid	Yes	105	21,0	21,0
		No, and I am not planning on changing that	184	36,8	36,8
		No, but I want to change that in the future	211	42,2	42,2
		Total	500	100,0	100,0

Bar Chart




Q7. Do you have renewable energy technologies which contribute to your household's electricity or heat supply?
Country: Austria
Frequency
250
200
150
100
50
0
Yes
No, and I am not planning on changing that
No, but I want to change that in the future


Q7. Do you have renewable energy technologies which contribute to your household's electricity or heat supply?
Country: Switzerland
Frequency
250
200
150
100
50
0
Yes
No, and I am not planning on changing that
No, but I want to change that in the future



3.3.1.11 Solar/photovoltaic

If respondents claimed to have some renewable energy system installed in their household they were asked to identify whether it was a solar or photovoltaic system. The share of missing values is explained by the fact that only the respondents who gave a positive answer on the previous question, were asked to answer this question. Based on the answers we can see that the highest share of households with PV or solar systems is found in Austria with 71 households or 14,2% of the sample. The lowest share of PV is present in Germany with 44 households or 8,8%.

Q8. Which renewable energy systems do you have in your household?-Solar/photovoltaic

Country			Frequency	Percent	Valid Percent	Cumulative Percent
Germany	Valid	No	44	8,8	47,8	47,8
		Yes	48	9,6	52,2	100,0
		Total	92	18,4	100,0	
	Missing	System	408	81,6		
	Total		500	100,0		
Austria	Valid	No	91	18,2	56,2	56,2
		Yes	71	14,2	43,8	100,0
		Total	162	32,4	100,0	
	Missing	System	338	67,6		
	Total		500	100,0		
Switzerland	Valid	No	83	16,6	64,8	64,8

		Yes	45	9,0	35,2	100,0
		Total	128	25,6	100,0	
	Missing	System	372	74,4		
	Total		500	100,0		
Italy	Valid	No	60	12,0	57,1	57,1
		Yes	45	9,0	42,9	100,0
		Total	105	21,0	100,0	
	Missing	System	395	79,0		
	Total		500	100,0		

3.3.1.12 Wood stove/ biomass boiler

Compared to other countries Austria has also the highest share of wood stoves or biomass boilers with 75 households, followed by Switzerland with 55 households, and Germany showing the lowest presence of such technologies in the examined households with only 36 households claiming to have them installed at home.

Q8. Which renewable energy systems do you have in your household?-Wood stove / biomass boiler

Country			Frequency	Percent	Valid Percent	Cumulative Percent
Germany	Valid	No	56	11,2	60,9	60,9
		Yes	36	7,2	39,1	100,0
		Total	92	18,4	100,0	
	Missing	System	408	81,6		
	Total		500	100,0		
Austria	Valid	No	87	17,4	53,7	53,7
		Yes	75	15,0	46,3	100,0
		Total	162	32,4	100,0	
	Missing	System	338	67,6		
	Total		500	100,0		
Switzerland	Valid	No	73	14,6	57,0	57,0
		Yes	55	11,0	43,0	100,0
		Total	128	25,6	100,0	
	Missing	System	372	74,4		
	Total		500	100,0		

Italy	Valid	No	60	12,0	57,1	57,1
		Yes	45	9,0	42,9	100,0
		Total	105	21,0	100,0	
	Missing	System	395	79,0		
	Total		500	100,0		

3.3.1.13 Heat pumps

The heat pumps are present in households in all the four countries with the highest share found in Switzerland (50 households) and the lowest in Germany (16 households).

Q8. Which renewable energy systems do you have in your household?-Heat pump

Country			Frequency	Percent	Valid Percent	Cumulative Percent
Germany	Valid	No	76	15,2	82,6	82,6
		Yes	16	3,2	17,4	100,0
		Total	92	18,4	100,0	
	Missing	System	408	81,6		
	Total		500	100,0		
Austria	Valid	No	128	25,6	79,0	79,0
		Yes	34	6,8	21,0	100,0
		Total	162	32,4	100,0	
	Missing	System	338	67,6		
	Total		500	100,0		
Switzerland	Valid	No	78	15,6	60,9	60,9
		Yes	50	10,0	39,1	100,0
		Total	128	25,6	100,0	
	Missing	System	372	74,4		
	Total		500	100,0		
Italy	Valid	No	72	14,4	68,6	68,6
		Yes	33	6,6	31,4	100,0
		Total	105	21,0	100,0	
	Missing	System	395	79,0		
	Total		500	100,0		

3.3.1.14 Wind power

Wind power is very rarely present in the households: only 5 households claim to have such systems in Germany, 3 in Austria and Switzerland and 1 in Italy.

Q8. Which renewable energy systems do you have in your household?-Wind power

Country			Frequency	Percent	Valid Percent	Cumulative Percent
Germany	Valid	No	87	17,4	94,6	94,6
		Yes	5	1,0	5,4	100,0
		Total	92	18,4	100,0	
	Missing	System	408	81,6		
	Total		500	100,0		
Austria	Valid	No	159	31,8	98,1	98,1
		Yes	3	,6	1,9	100,0
		Total	162	32,4	100,0	
	Missing	System	338	67,6		
	Total		500	100,0		
Switzerland	Valid	No	125	25,0	97,7	97,7
		Yes	3	,6	2,3	100,0
		Total	128	25,6	100,0	
	Missing	System	372	74,4		
	Total		500	100,0		
Italy	Valid	No	104	20,8	99,0	99,0
		Yes	1	,2	1,0	100,0
		Total	105	21,0	100,0	
	Missing	System	395	79,0		
	Total		500	100,0		

3.3.1.15 Which systems have you considered for the future renewable energy supply in your household?-Solar/photovoltaic

The majority of the respondents in all the four countries who consider installing renewable energy systems in their household chose solar as their preferred option. The highest number of households who claim to consider installing PV systems in their households is found in Italy with 157 respondents, followed by Switzerland with 90, Austria with 82 and Germany with 81.

Q9. Which systems have you considered for the future renewable energy supply in your household?-Solar/photovoltaic

Country			Frequency	Percent	Valid Percent	Cumulative Percent
Germany	Valid	No	52	10,4	39,1	39,1
		Yes	81	16,2	60,9	100,0
		Total	133	26,6	100,0	
	Missing	System	367	73,4		
	Total		500	100,0		
Austria	Valid	No	22	4,4	21,2	21,2
		Yes	82	16,4	78,8	100,0
		Total	104	20,8	100,0	
	Missing	System	396	79,2		
	Total		500	100,0		
Switzerland	Valid	No	48	9,6	34,8	34,8
		Yes	90	18,0	65,2	100,0
		Total	138	27,6	100,0	
	Missing	System	362	72,4		
	Total		500	100,0		
Italy	Valid	No	54	10,8	25,6	25,6
		Yes	157	31,4	74,4	100,0
		Total	211	42,2	100,0	
	Missing	System	289	57,8		
	Total		500	100,0		

3.3.1.16 Which systems have you considered for the future renewable energy supply in your household?-Wood stove / biomass boiler

Wood stoves and biomass boilers are considered by lower number of households compared to PVs. The highest absolute number of respondents is found in Italy with 49 households, the lowest in Switzerland with 22.

Q9. Which systems have you considered for the future renewable energy supply in your household?-Wood stove / biomass boiler

Country			Frequency	Percent	Valid Percent	Cumulative Percent
Germany	Valid	No	107	21,4	80,5	80,5
		Yes	26	5,2	19,5	100,0
		Total	133	26,6	100,0	
	Missing	System	367	73,4		
	Total		500	100,0		
Austria	Valid	No	80	16,0	76,9	76,9
		Yes	24	4,8	23,1	100,0
		Total	104	20,8	100,0	
	Missing	System	396	79,2		
	Total		500	100,0		
Switzerland	Valid	No	116	23,2	84,1	84,1
		Yes	22	4,4	15,9	100,0
		Total	138	27,6	100,0	
	Missing	System	362	72,4		
	Total		500	100,0		
Italy	Valid	No	162	32,4	76,8	76,8
		Yes	49	9,8	23,2	100,0
		Total	211	42,2	100,0	
	Missing	System	289	57,8		
	Total		500	100,0		

3.3.1.17 Which systems have you considered for the future renewable energy supply in your household?-Heat pump

Based on the results of our survey the highest number of respondents who consider installing heat pumps in their households is in Switzerland. The lowest number is in German with 26 households. In general, the number of households who have considered heat pumps in all the four countries is lower compared to number of households that considered PV.

Q9. Which systems have you considered for the future renewable energy supply in your household?-Heat pump

Country			Frequency	Percent	Valid Percent	Cumulative Percent
Germany	Valid	No	107	21,4	80,5	80,5
		Yes	26	5,2	19,5	100,0
		Total	133	26,6	100,0	
	Missing	System	367	73,4		
	Total		500	100,0		
Austria	Valid	No	76	15,2	73,1	73,1
		Yes	28	5,6	26,9	100,0
		Total	104	20,8	100,0	
	Missing	System	396	79,2		
	Total		500	100,0		
Switzerland	Valid	No	84	16,8	60,9	60,9
		Yes	54	10,8	39,1	100,0
		Total	138	27,6	100,0	
	Missing	System	362	72,4		
	Total		500	100,0		
Italy	Valid	No	163	32,6	77,3	77,3
		Yes	48	9,6	22,7	100,0
		Total	211	42,2	100,0	
	Missing	System	289	57,8		
	Total		500	100,0		

3.3.1.18 Which systems have you considered for the future renewable energy supply in your household?-Wind power

The number of households that consider installing wind power systems in their households is relatively the same in all the four investigated countries representing two to three percent of the sample.

Q9. Which systems have you considered for the future renewable energy supply in your household?-Wind power

Country			Frequency	Percent	Valid Percent	Cumulative Percent
Germany	Valid	No	120	24,0	90,2	90,2
		Yes	13	2,6	9,8	100,0
		Total	133	26,6	100,0	
	Missing	System	367	73,4		
	Total		500	100,0		
Austria	Valid	No	95	19,0	91,3	91,3
		Yes	9	1,8	8,7	100,0
		Total	104	20,8	100,0	
	Missing	System	396	79,2		
	Total		500	100,0		
Switzerland	Valid	No	124	24,8	89,9	89,9
		Yes	14	2,8	10,1	100,0
		Total	138	27,6	100,0	
	Missing	System	362	72,4		
	Total		500	100,0		
Italy	Valid	No	196	39,2	92,9	92,9
		Yes	15	3,0	7,1	100,0
		Total	211	42,2	100,0	
	Missing	System	289	57,8		
	Total		500	100,0		

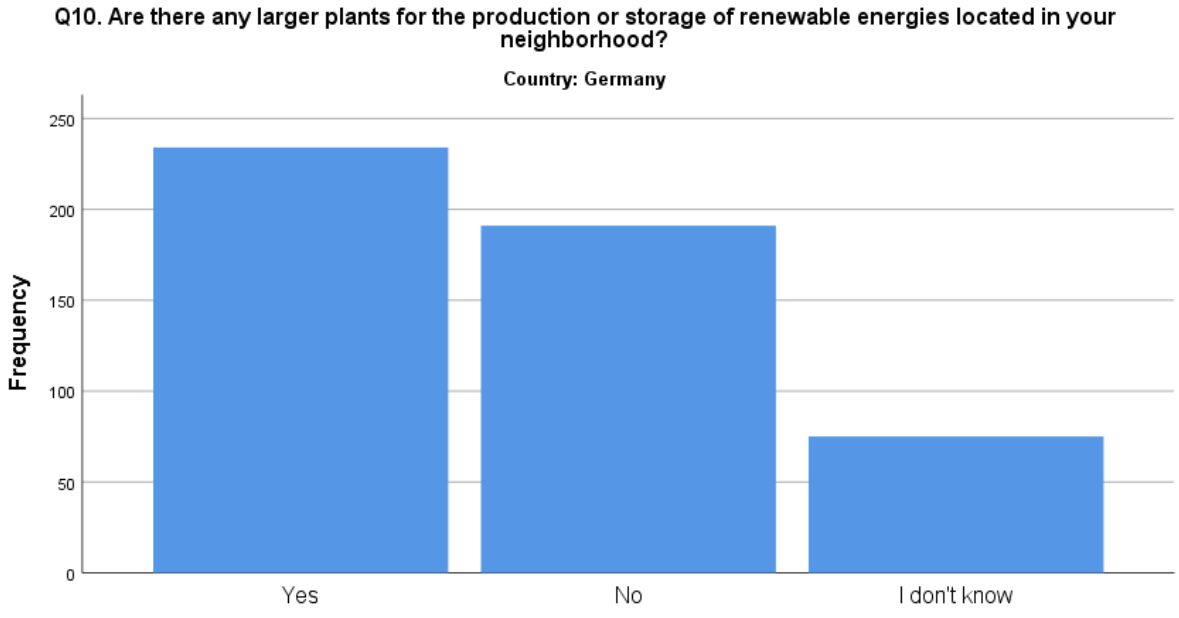
3.3.1.19 Larger plants for the production or storage of renewable energies located in the neighborhood

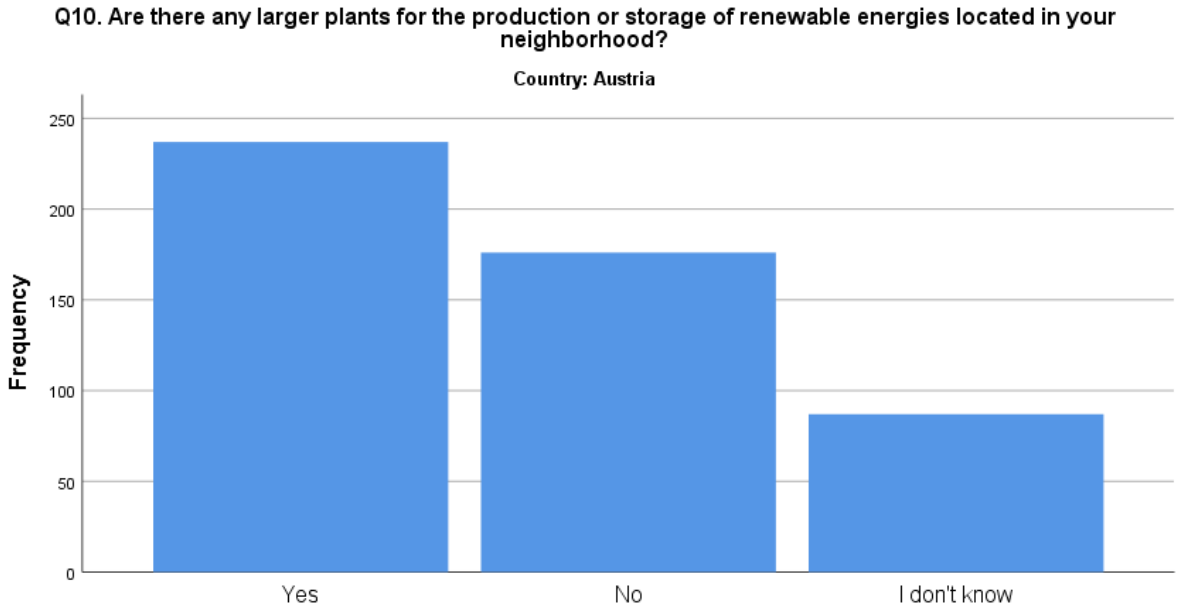
In order to differentiate between households who are already well familiar with production or storage facilities for renewables and those that have less knowledge or experience, and also to control whether the presence of such a facility has an impact on acceptance, the interviewed households were asked to identify if there is a production or storage plant for renewables in their neighborhood. We observe a rather similar pattern in Germany, Austria and Switzerland whether almost half of the respondents (44 to 47 %) claim to have such facilities in their neighborhood.

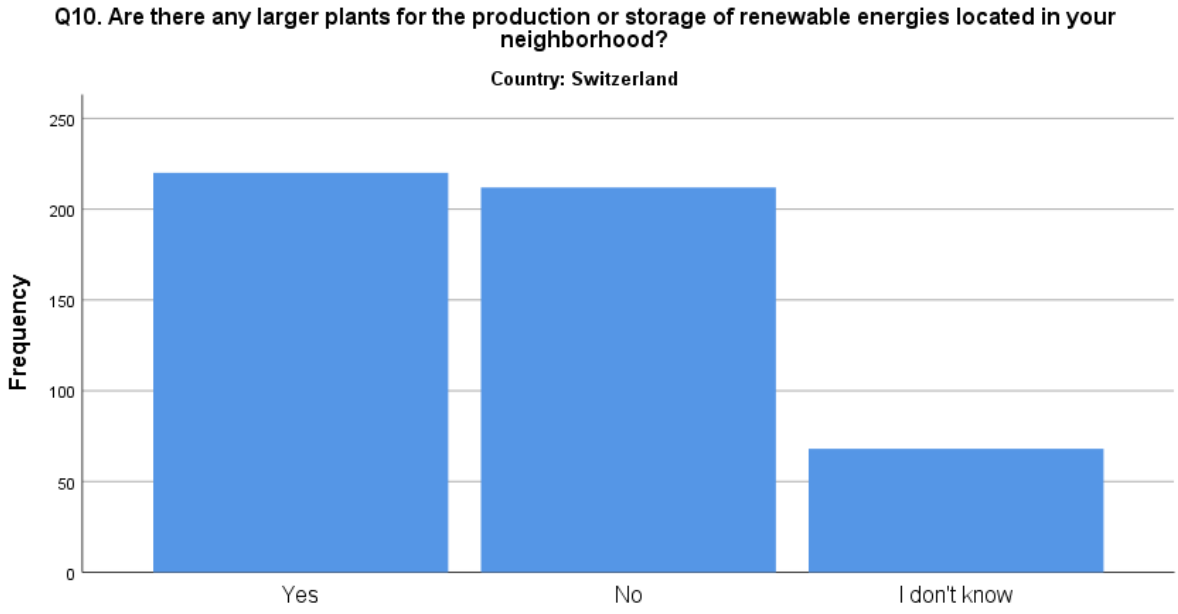
Q10. Are there any larger plants for the production or storage of renewable energies located in your neighborhood?

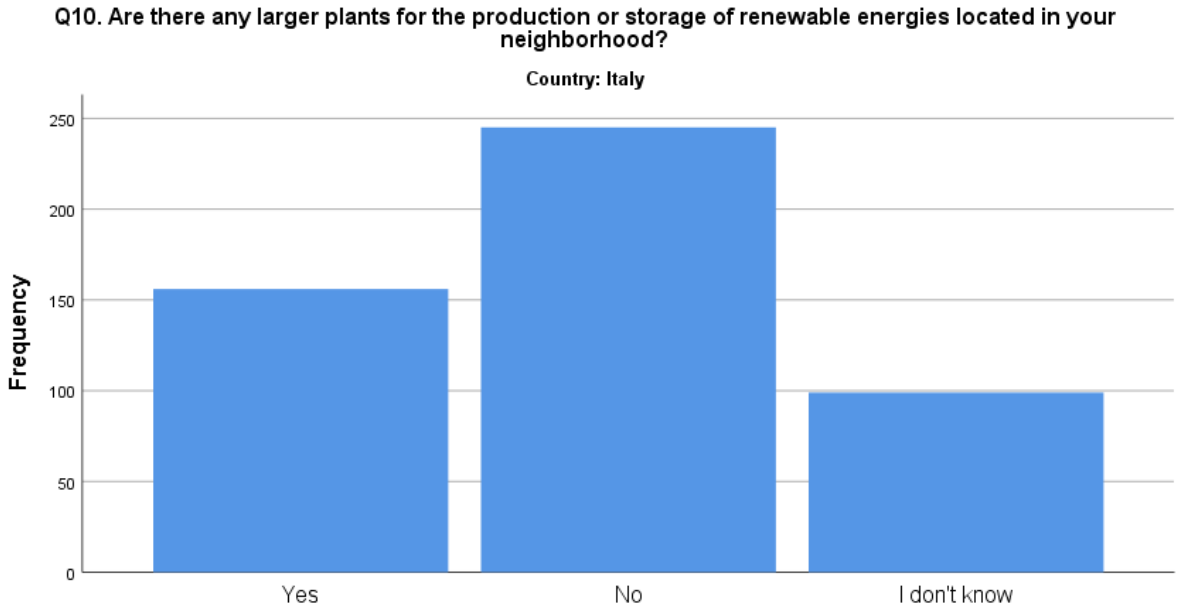
Country			Frequency	Percent	Valid Percent	Cumulative Percent
Germany	Valid	Yes	234	46,8	46,8	46,8
		No	191	38,2	38,2	85,0
		I don't know	75	15,0	15,0	100,0
		Total	500	100,0	100,0	
Austria	Valid	Yes	237	47,4	47,4	47,4
		No	176	35,2	35,2	82,6
		I don't know	87	17,4	17,4	100,0
		Total	500	100,0	100,0	
Switzerland	Valid	Yes	220	44,0	44,0	44,0
		No	212	42,4	42,4	86,4
		I don't know	68	13,6	13,6	100,0
		Total	500	100,0	100,0	
Italy	Valid	Yes	156	31,2	31,2	31,2
		No	245	49,0	49,0	80,2
		I don't know	99	19,8	19,8	100,0
		Total	500	100,0	100,0	

Bar Chart




Q10. Are there any larger plants for the production or storage of renewable energies located in your neighborhood?
Country: Austria
Frequency
250
200
150
100
50
0
Yes
No
I don't know


Q10. Are there any larger plants for the production or storage of renewable energies located in your neighborhood?
Country: Switzerland
Frequency
250
200
150
100
50
0
Yes
No
I don't know



3.3.1.20 Wind power plant built in the neighbourhood

Significant variety is observed in the answers on this question in the four countries. This variety might be strongly related to the installed wind power capacity in the respective countries. Germany has the highest share in absolute and relative values (53,8% of the respondents have a wind power plant installed in their neighborhood), followed by Italy with 41% (however only 64 respondents compared to 126 in Germany in absolute terms), followed by Austria with 27,4% (65 respondents in absolute terms) and finally only 8,6% in Switzerland.

Q11. Which one of the plants have been built in your neighborhood?-Wind power

Country			Frequency	Percent	Valid Percent	Cumulative Percent
Germany	Valid	No	108	21,6	46,2	46,2
		Yes	126	25,2	53,8	100,0
		Total	234	46,8	100,0	
	Missing	System	266	53,2		
	Total		500	100,0		
Austria	Valid	No	172	34,4	72,6	72,6
		Yes	65	13,0	27,4	100,0
		Total	237	47,4	100,0	
	Missing	System	263	52,6		
	Total		500	100,0		
Switzerland	Valid	No	201	40,2	91,4	91,4
		Yes	19	3,8	8,6	100,0

		Total	220	44,0	100,0	
	Missing	System	280	56,0		
	Total		500	100,0		
Italy	Valid	No	92	18,4	59,0	59,0
		Yes	64	12,8	41,0	100,0
		Total	156	31,2	100,0	
	Missing	System	344	68,8		
	Total		500	100,0		

3.3.1.21 Solar power plant in the neighborhood

When asked whether the renewable power plant situated in their neighbourhood is a solar plant, all the four countries have very similar responses in absolute and relative terms with 53 to 66% of the respondents having a solar power plant in their neighbourhood. The highest share of 66% is observed in Italy and the lowest of 53,2% in Switzerland.

Q11. Which one of the plants have been built in your neighborhood?-Solar / photovoltaic

Country			Frequency	Percent	Valid Percent	Cumulative Percent
Germany	Valid	No	101	20,2	43,2	43,2
		Yes	133	26,6	56,8	100,0
		Total	234	46,8	100,0	
	Missing	System	266	53,2		
	Total		500	100,0		
Austria	Valid	No	110	22,0	46,4	46,4
		Yes	127	25,4	53,6	100,0
		Total	237	47,4	100,0	
	Missing	System	263	52,6		
	Total		500	100,0		
Switzerland	Valid	No	103	20,6	46,8	46,8
		Yes	117	23,4	53,2	100,0
		Total	220	44,0	100,0	
	Missing	System	280	56,0		
	Total		500	100,0		
Italy	Valid	No	53	10,6	34,0	34,0
		Yes	103	20,6	66,0	100,0

		Total	156	31,2	100,0	
	Missing	System	344	68,8		
	Total		500	100,0		

3.3.1.22 Biomass plant in the neighborhood

The highest number of respondents claiming to have a biomass plant in their neighborhood is observed in Austria with roughly 20%, while the lowest is in Switzerland with 9,1%. Still the number of respondents who have biomass plants in their neighborhood is rather low compared to wind and solar power plants in all the four investigated countries.

Q11. Which one of the plants have been built in your neighborhood?-Biomass

Country			Frequency	Percent	Valid Percent	Cumulative Percent
Germany	Valid	No	207	41,4	88,5	88,5
		Yes	27	5,4	11,5	100,0
		Total	234	46,8	100,0	
	Missing	System	266	53,2		
	Total		500	100,0		
Austria	Valid	No	191	38,2	80,6	80,6
		Yes	46	9,2	19,4	100,0
		Total	237	47,4	100,0	
	Missing	System	263	52,6		
	Total		500	100,0		
Switzerland	Valid	No	200	40,0	90,9	90,9
		Yes	20	4,0	9,1	100,0
		Total	220	44,0	100,0	
	Missing	System	280	56,0		
	Total		500	100,0		
Italy	Valid	No	138	27,6	88,5	88,5
		Yes	18	3,6	11,5	100,0
		Total	156	31,2	100,0	
	Missing	System	344	68,8		
	Total		500	100,0		

3.3.1.23 Hydro power plant in the neighborhood

Based on the results of our survey the highest share of respondents that have hydropower plants in their neighborhood are found in Switzerland with 103 respondents or 46,8% followed by Austria with 95 respondents or 40,1%. Significantly lower shares are observed in Italy and Germany with only 14 and 21 respondents respectively representing 9%.

Q11. Which one of the plants have been built in your neighborhood?-Hydro power plants

Country			Frequency	Percent	Valid Percent	Cumulative Percent
Germany	Valid	No	213	42,6	91,0	91,0
		Yes	21	4,2	9,0	100,0
		Total	234	46,8	100,0	
	Missing	System	266	53,2		
	Total		500	100,0		
Austria	Valid	No	142	28,4	59,9	59,9
		Yes	95	19,0	40,1	100,0
		Total	237	47,4	100,0	
	Missing	System	263	52,6		
	Total		500	100,0		
Switzerland	Valid	No	117	23,4	53,2	53,2
		Yes	103	20,6	46,8	100,0
		Total	220	44,0	100,0	
	Missing	System	280	56,0		
	Total		500	100,0		
Italy	Valid	No	142	28,4	91,0	91,0
		Yes	14	2,8	9,0	100,0
		Total	156	31,2	100,0	
	Missing	System	344	68,8		
	Total		500	100,0		

3.3.1.24 Biogas power plant in the neighborhood

Based on the results of our survey, biogas power plants are found to be the most present in the neighborhoods of respondents from Germany with 19,2% of the sample, followed by Austria with 10,1%. However, in general biogas is not very widely present compared to other types of power plants.

Q11. Which one of the plants have been built in your neighborhood?-Biogas

Country			Frequency	Percent	Valid Percent	Cumulative Percent
Germany	Valid	No	189	37,8	80,8	80,8
		Yes	45	9,0	19,2	100,0
		Total	234	46,8	100,0	
	Missing	System	266	53,2		
	Total		500	100,0		
Austria	Valid	No	213	42,6	89,9	89,9
		Yes	24	4,8	10,1	100,0
		Total	237	47,4	100,0	
	Missing	System	263	52,6		
	Total		500	100,0		
Switzerland	Valid	No	202	40,4	91,8	91,8
		Yes	18	3,6	8,2	100,0
		Total	220	44,0	100,0	
	Missing	System	280	56,0		
	Total		500	100,0		
Italy	Valid	No	148	29,6	94,9	94,9
		Yes	8	1,6	5,1	100,0
		Total	156	31,2	100,0	
	Missing	System	344	68,8		
	Total		500	100,0		

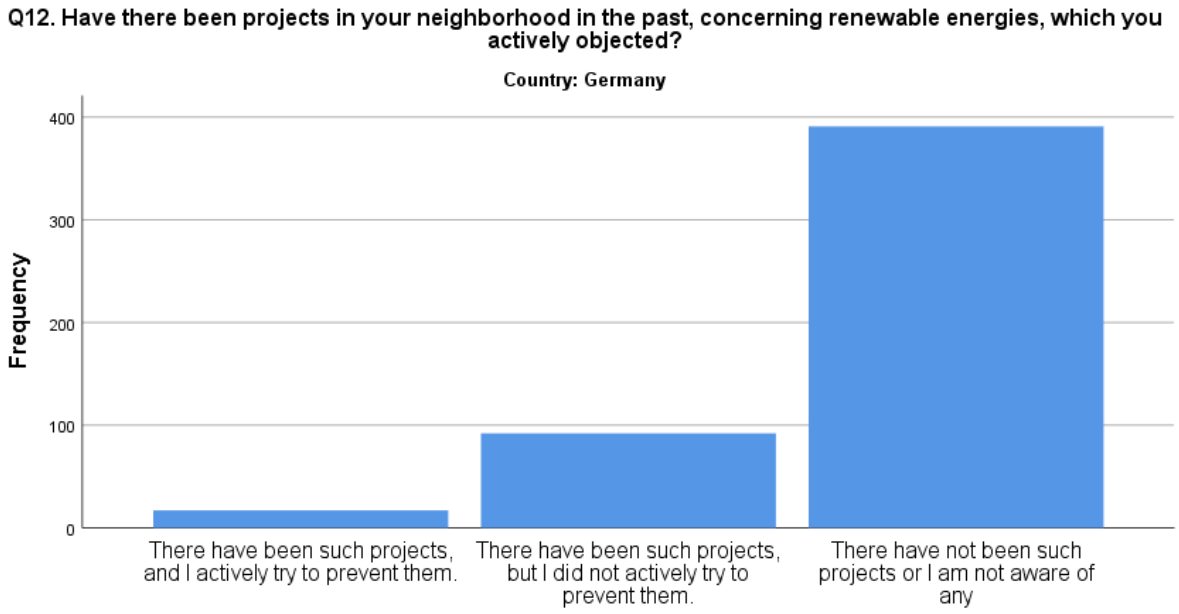
3.3.1.25 Attitude concerning renewable energies projects in the neighborhood

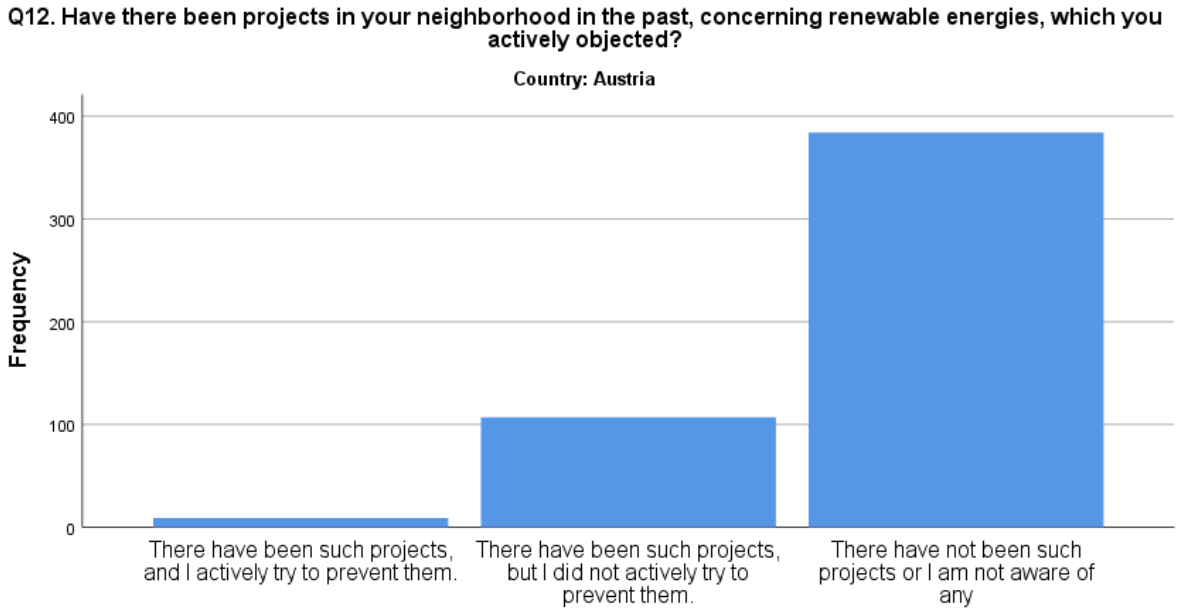
When asked about their attitude to renewable energy projects in their neighborhood, the survey respondents from all the four countries seem to be comparably similar: around 80% of the sample in each country say there are no such projects in their neighborhood or they are not aware of those. Roughly 18% claim there are such projects and they have not actively tried to prevent them. Further on 2–3 % of the examined countries claim to have tried to actively prevent such projects. Such results should be taken into consideration in policy making to increase awareness and acceptance. For renewable energy projects, there is still a long way to go in all the four countries.

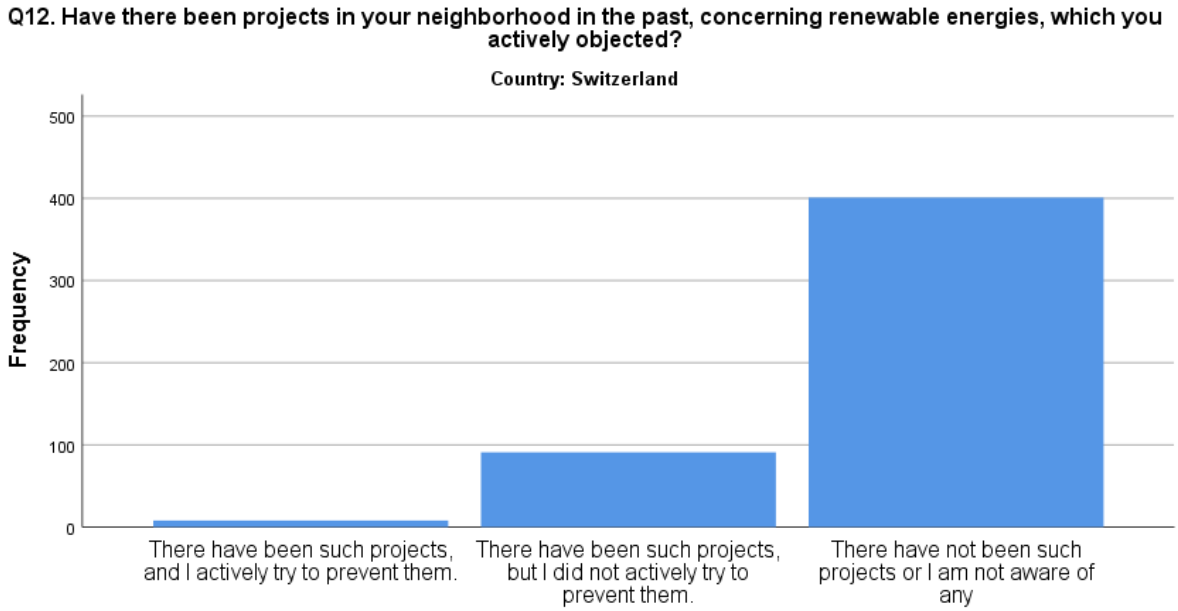
Q12. Have there been projects in your neighborhood in the past, concerning renewable energies, which you actively objected?

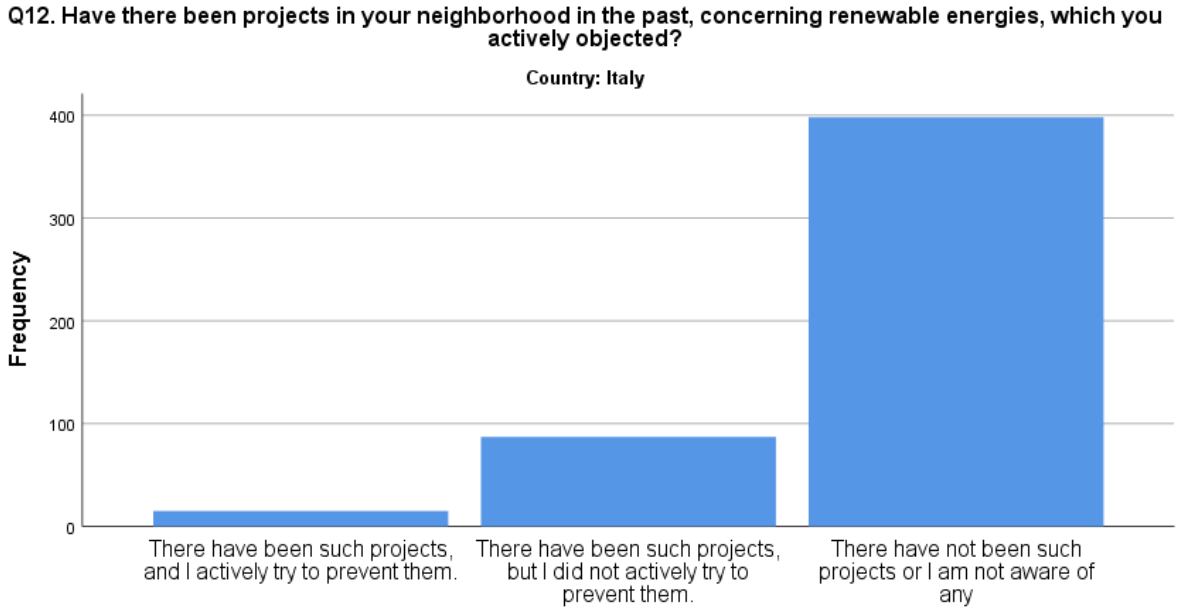
Country			Frequency	Percent	Valid Percent	Cumulative Percent
Germany	Valid	There have been such projects, and I actively try to prevent them.	17	3,4	3,4	3,4
		There have been such projects, but I did not actively try to prevent them.	92	18,4	18,4	21,8
		There have not been such projects or I am not aware of any	391	78,2	78,2	100,0
		Total	500	100,0	100,0	
Austria	Valid	There have been such projects, and I actively try to prevent them.	9	1,8	1,8	1,8
		There have been such projects, but I did not actively try to prevent them.	107	21,4	21,4	23,2
		There have not been such projects or I am not aware of any	384	76,8	76,8	100,0
		Total	500	100,0	100,0	
Switzerland	Valid	There have been such projects, and I actively try to prevent them.	8	1,6	1,6	1,6
		There have been such projects, but I did not actively try to prevent them.	91	18,2	18,2	19,8
		There have not been such projects or I am not aware of any	401	80,2	80,2	100,0
		Total	500	100,0	100,0	
Italy	Valid	There have been such projects, and I actively try to prevent them.	15	3,0	3,0	3,0
		There have been such projects, but I did not actively try to prevent them.	87	17,4	17,4	20,4
		There have not been such projects or I am not aware of any	398	79,6	79,6	100,0
		Total	500	100,0	100,0	

Bar Chart


Q12. Have there been projects in your neighborhood in the past, concerning renewable energies, which you actively objected?
Country: Germany
Frequency
400
300
200
100
0
There have been such projects, and I actively try to prevent them.
There have been such projects, but I did not actively try to prevent them.
There have not been such projects or I am not aware of any


Q12. Have there been projects in your neighborhood in the past, concerning renewable energies, which you actively objected?
Country: Austria
Frequency
400
300
200
100
0
There have been such projects, and I actively try to prevent them.
There have been such projects, but I did not actively try to prevent them.
There have not been such projects or I am not aware of any





3.3.1.26 Participation in one or more demonstrations against the planned projects

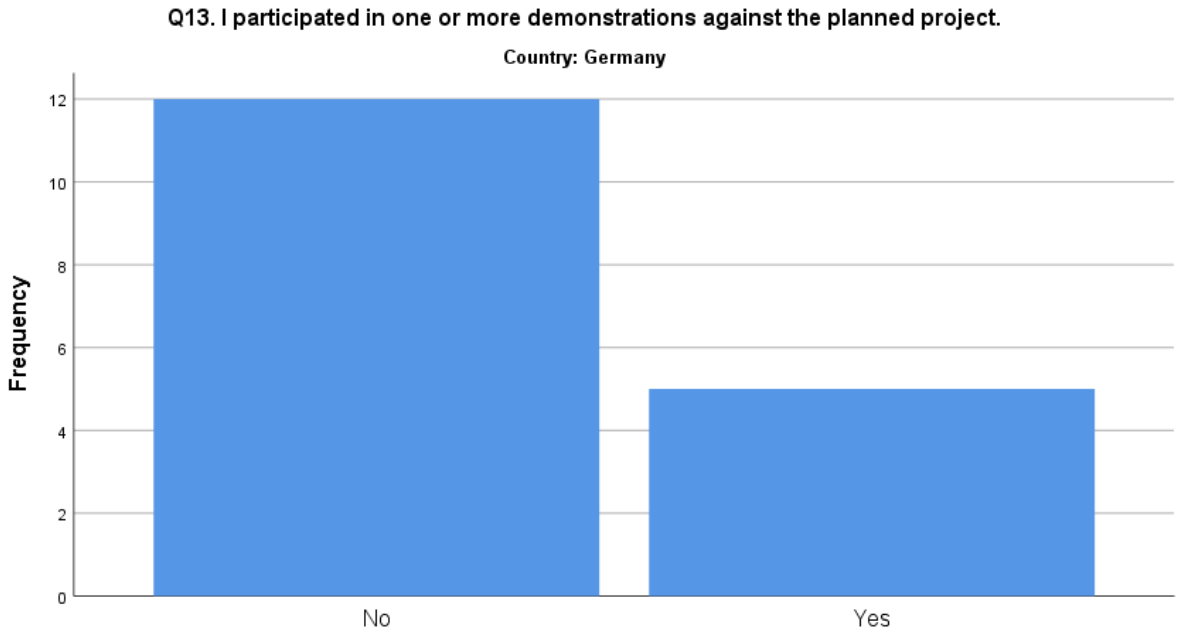
In order to get further understanding of how exactly the respondents expressed their objection to renewable energy projects in their neighborhood, a question about participation in demonstrations against such projects was included in our survey. Only the respondents who said to have actively objected to renewable energy projects in the previous questions were asked this question, which explains the low number of responses and high number of missing values. The lowest number of respondents who participated in a demonstration in absolute and relative values is found in Austria

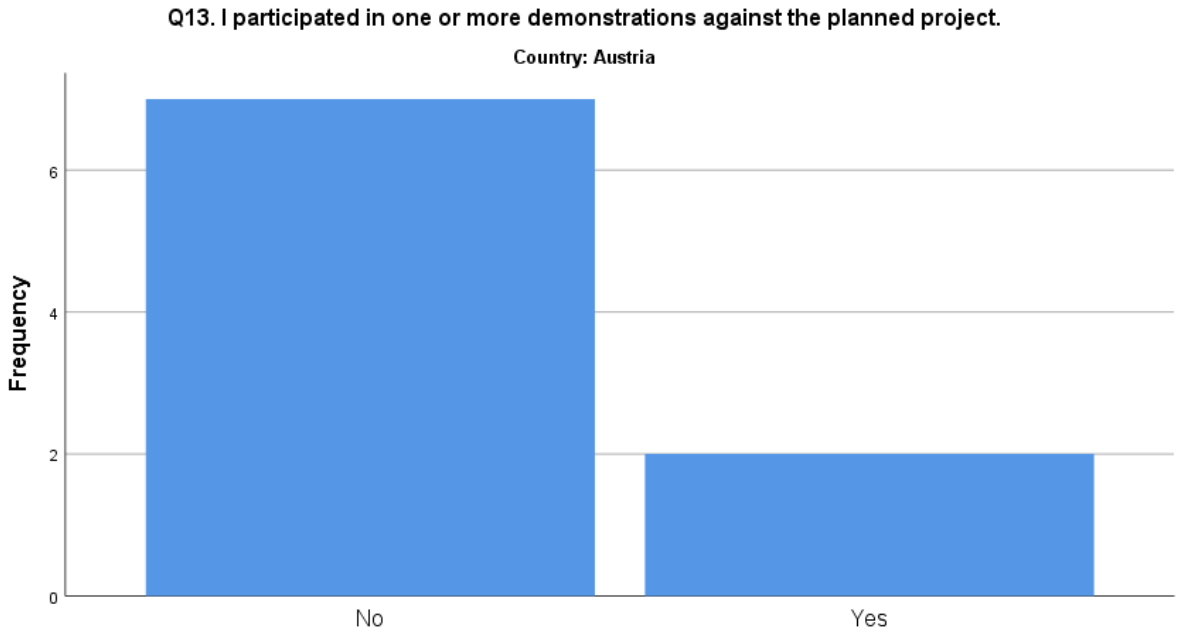
– with 2 respondents representing 22% of the Austrian respondents who claim to have actively protested against renewable energy projects. The highest number of 6 respondents or 40% of the subsample claiming to have actively protested to renewable energy projects is found in Italy.

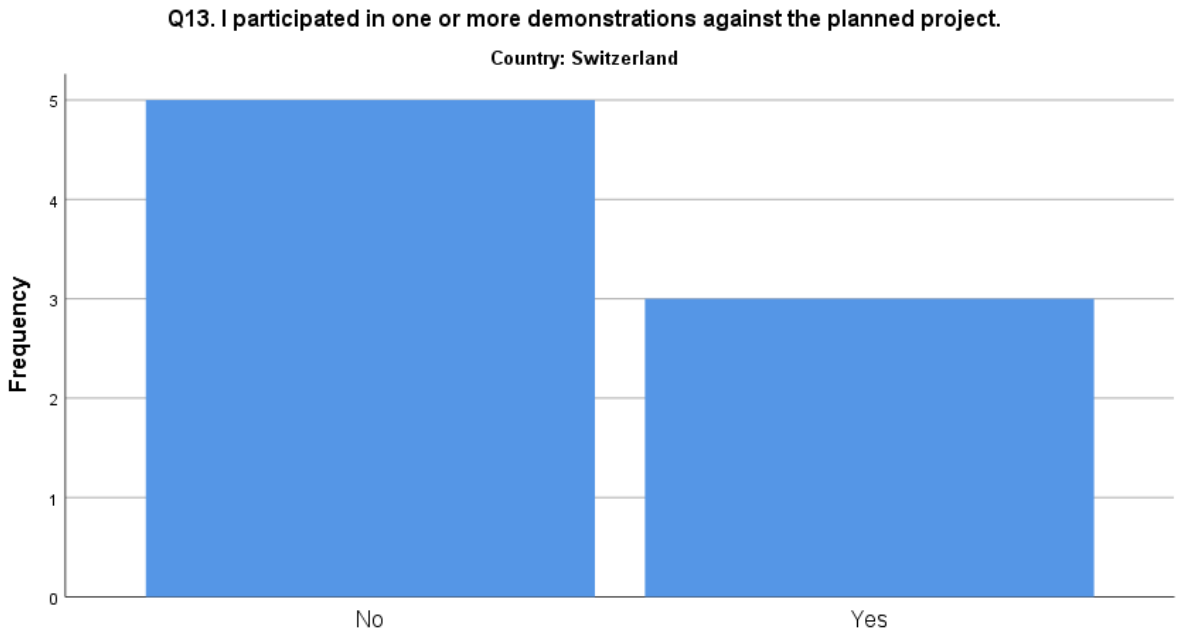
13. I participated in one or more demonstrations against the planned project.

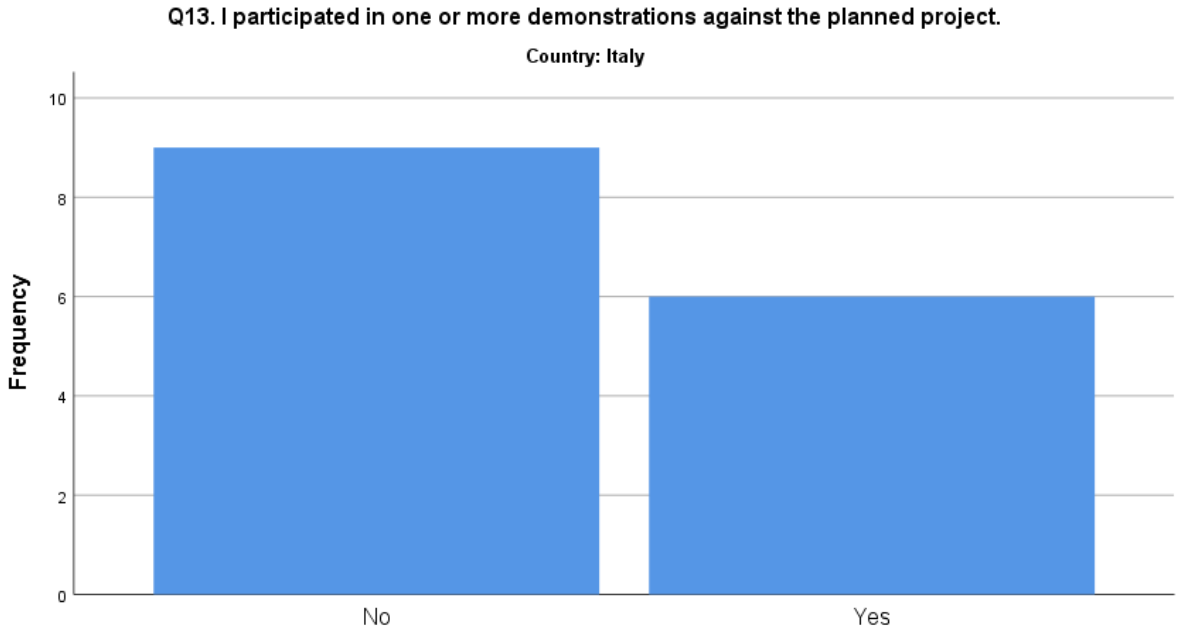
Country			Frequency	Percent	Valid Percent	Cumulative Percent
Germany	Valid	No	12	2,4	70,6	70,6
		Yes	5	1,0	29,4	100,0
		Total	17	3,4	100,0	
	Missing	System	483	96,6		
	Total		500	100,0		
Austria	Valid	No	7	1,4	77,8	77,8
		Yes	2	,4	22,2	100,0
		Total	9	1,8	100,0	
	Missing	System	491	98,2		
	Total		500	100,0		
Switzerland	Valid	No	5	1,0	62,5	62,5
		Yes	3	,6	37,5	100,0
		Total	8	1,6	100,0	
	Missing	System	492	98,4		
	Total		500	100,0		
Italy	Valid	No	9	1,8	60,0	60,0
		Yes	6	1,2	40,0	100,0
		Total	15	3,0	100,0	
	Missing	System	485	97,0		
	Total		500	100,0		

Bar Chart


Q13. I participated in one or more demonstrations against the planned project.
Country: Germany
Frequency
12
10
8
6
4
2
0
No
Yes


Q13. I participated in one or more demonstrations against the planned project.
Country: Austria
Frequency
6
4
2
0
No
Yes





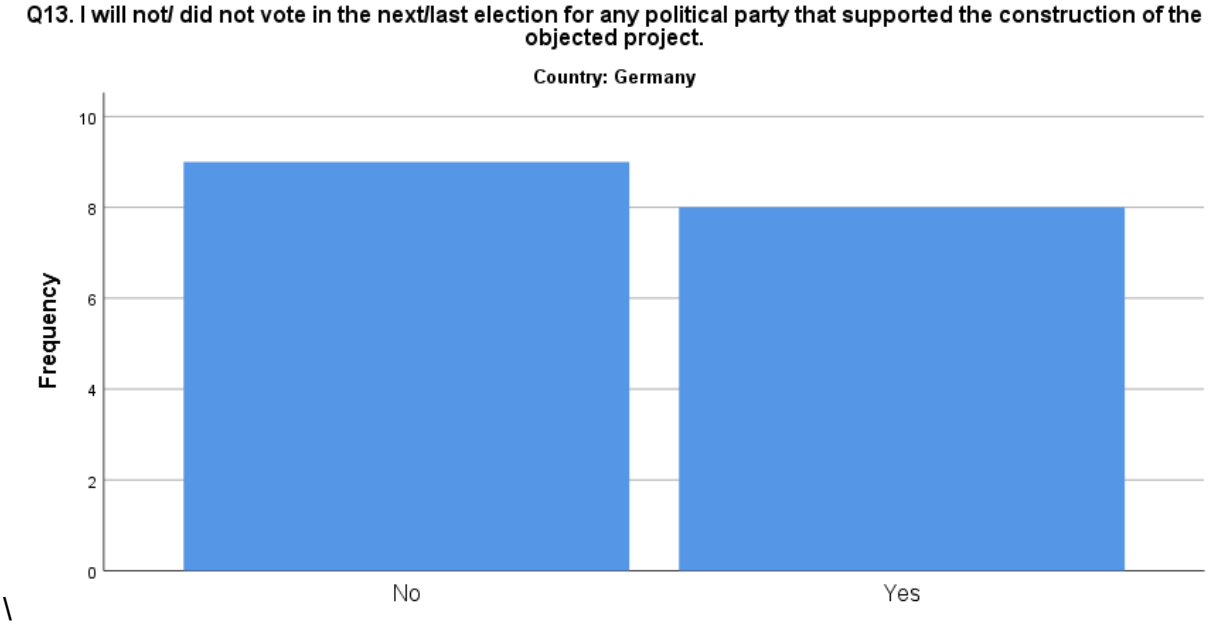
3.3.1.27 No support for political party that supported the construction of the objected project.

Another way to express one's objection to a renewable energy project is by vote. In this case again only the respondents who expressed their objection to renewable energy projects were offered this questions in order to clarify the form of their protest. Based on the responses we see that around 40% of households in Germany, Austria and Switzerland expressed their political will by voting or not planning to vote for any political party supporting the objected project. Interestingly none of the respondents in Italy opted for this option of objection.

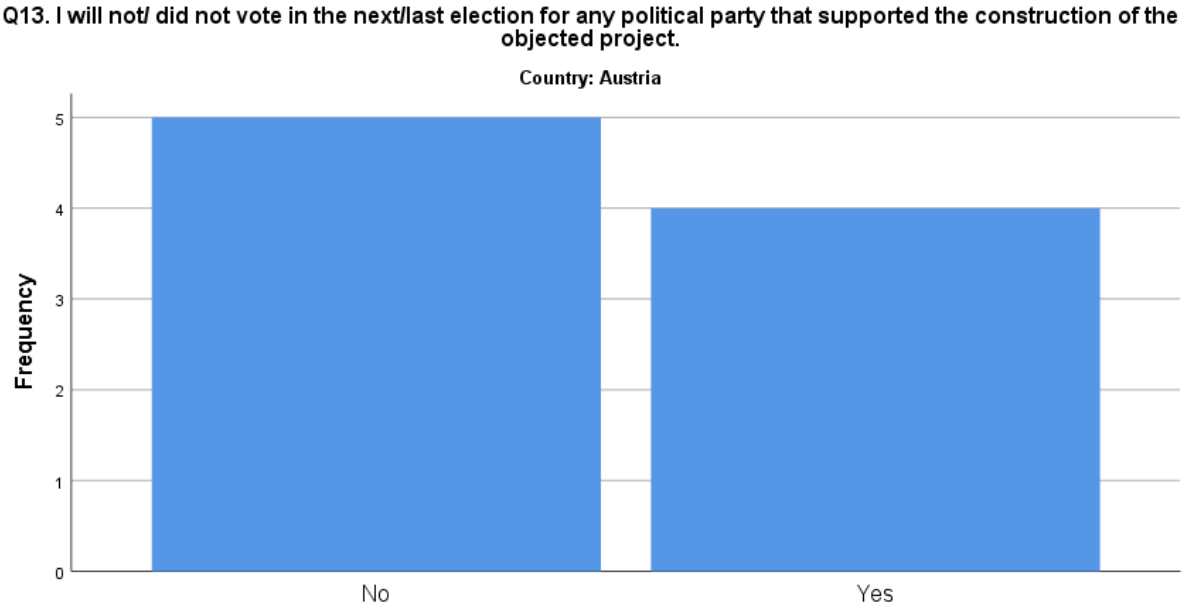
Q13. I will not/ did not vote in the next/last election for any political party that supported the construction of the objected project.

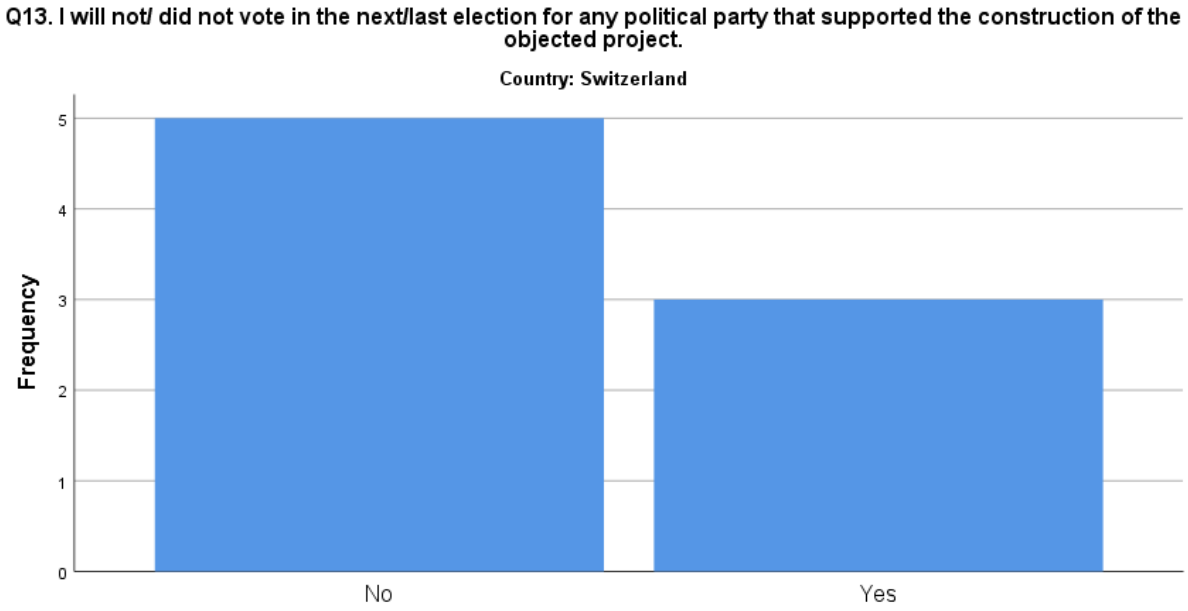
Country			Frequency	Percent	Valid Percent	Cumulative Percent
Germany	Valid	No	9	1,8	52,9	52,9
		Yes	8	1,6	47,1	100,0
		Total	17	3,4	100,0	
	Missing	System	483	96,6		
	Total		500	100,0		
Austria	Valid	No	5	1,0	55,6	55,6
		Yes	4	,8	44,4	100,0
		Total	9	1,8	100,0	
	Missing	System	491	98,2		
	Total		500	100,0		
Switzerland	Valid	No	5	1,0	62,5	62,5
		Yes	3	,6	37,5	100,0
		Total	8	1,6	100,0	
	Missing	System	492	98,4		
	Total		500	100,0		
Italy	Valid	No	15	3,0	100,0	100,0
	Missing	System	485	97,0		
	Total		500	100,0		

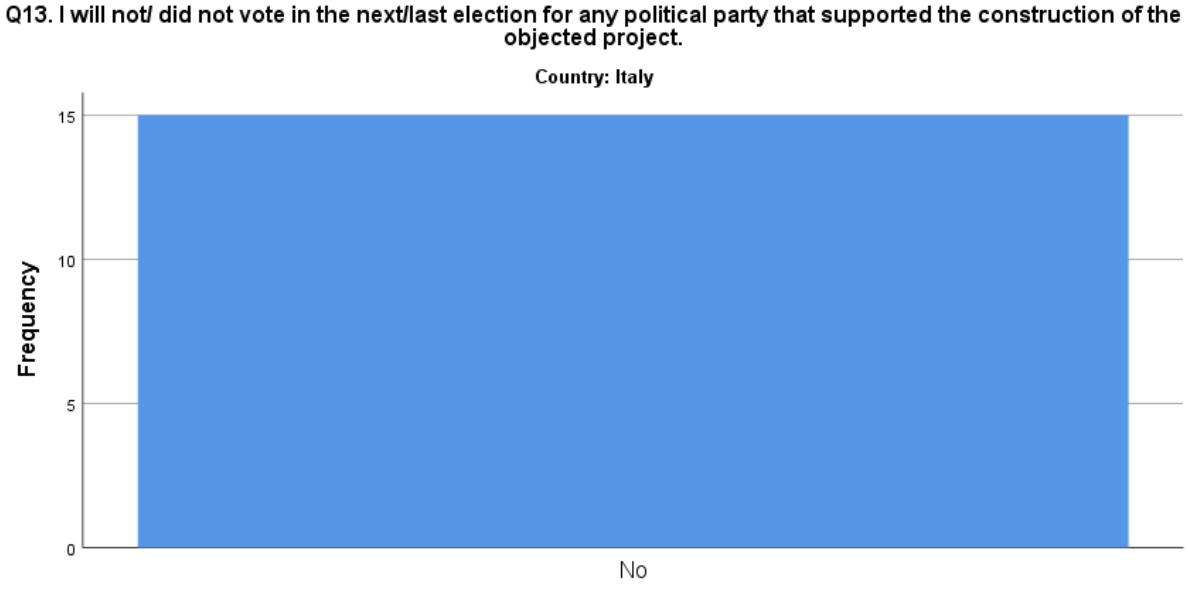
Bar Chart


Q13. I will not/ did not vote in the next/last election for any political party that supported the construction of the objected project.
Country: Germany
Frequency
10
8
6
4
2
0
No
Yes

\


Q13. I will not/ did not vote in the next/last election for any political party that supported the construction of the objected project.
Country: Austria
Frequency
5
4
3
2
1
0
No
Yes





3.3.1.28 Moving to a neighborhood without renewable energy projects planned.

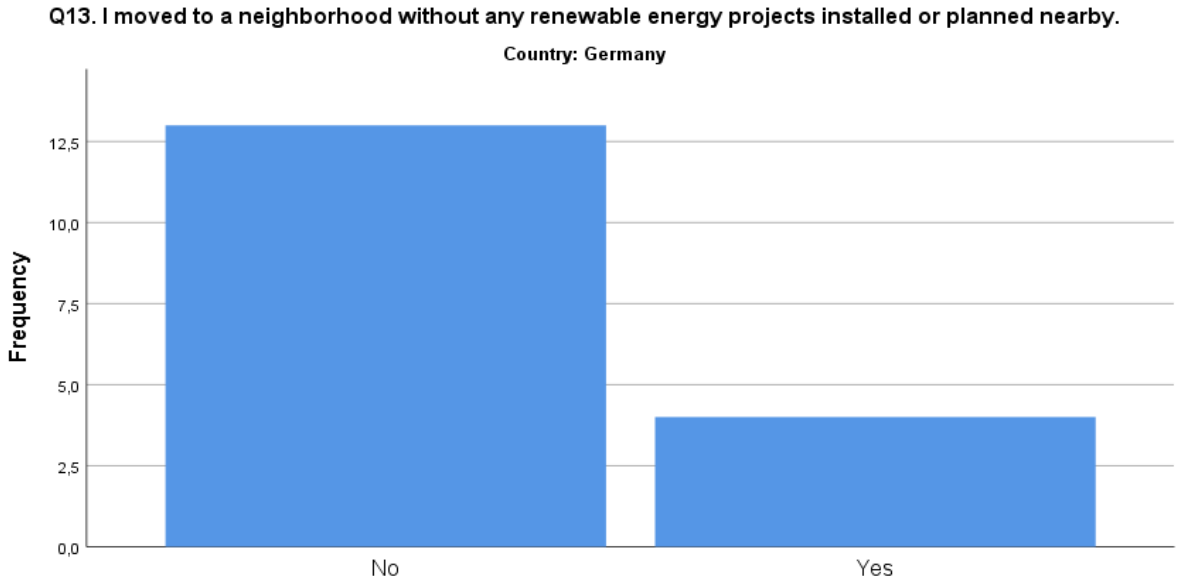
As an extreme way of objecting to renewable energy projects involving a major action the respondents were asked whether they moved to a neighborhood where no renewable energy project was installed or was planned to be installed. Although again this question was only asked the small subsample of „protesters", we find that there is a number of people in each of the four countries who claim to have moved to another neighborhood due to their objection to renewable energy projects.

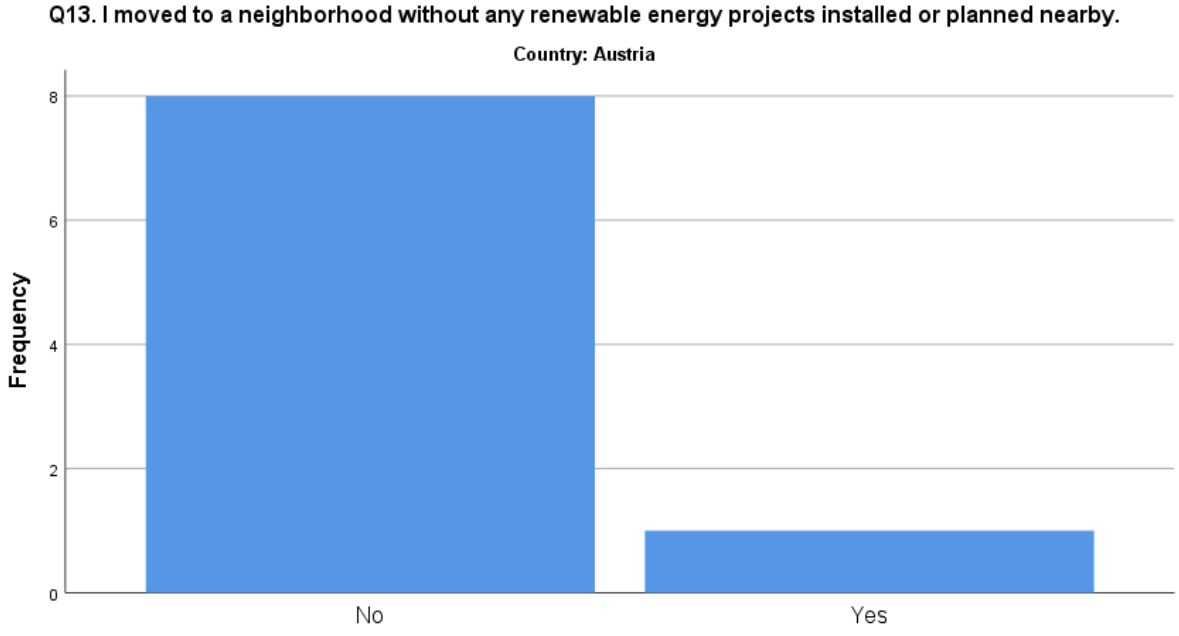
The highest number of four such respondents is found in Germany, followed by Italy with three, Switzerland with two and one in Austria. In relative terms the respondents that moved represent from 11 to 23% of the respective subsample or 0,2 to 0,8% of the full sample in the investigated countries.

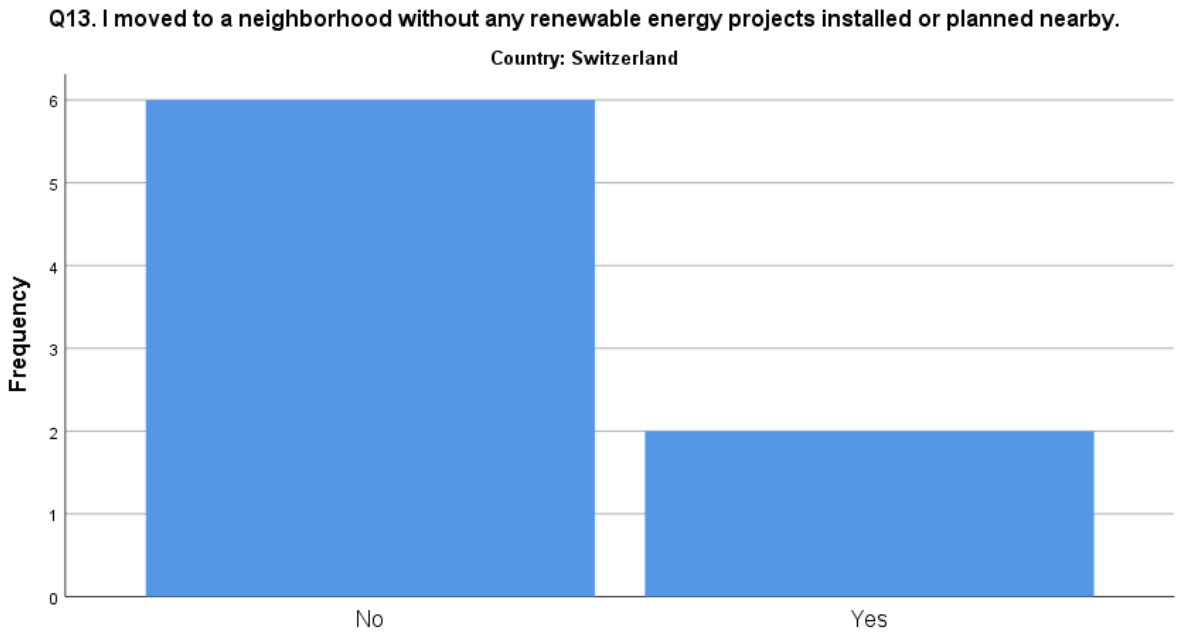
Q13. I moved to a neighborhood without any renewable energy projects installed or planned nearby.

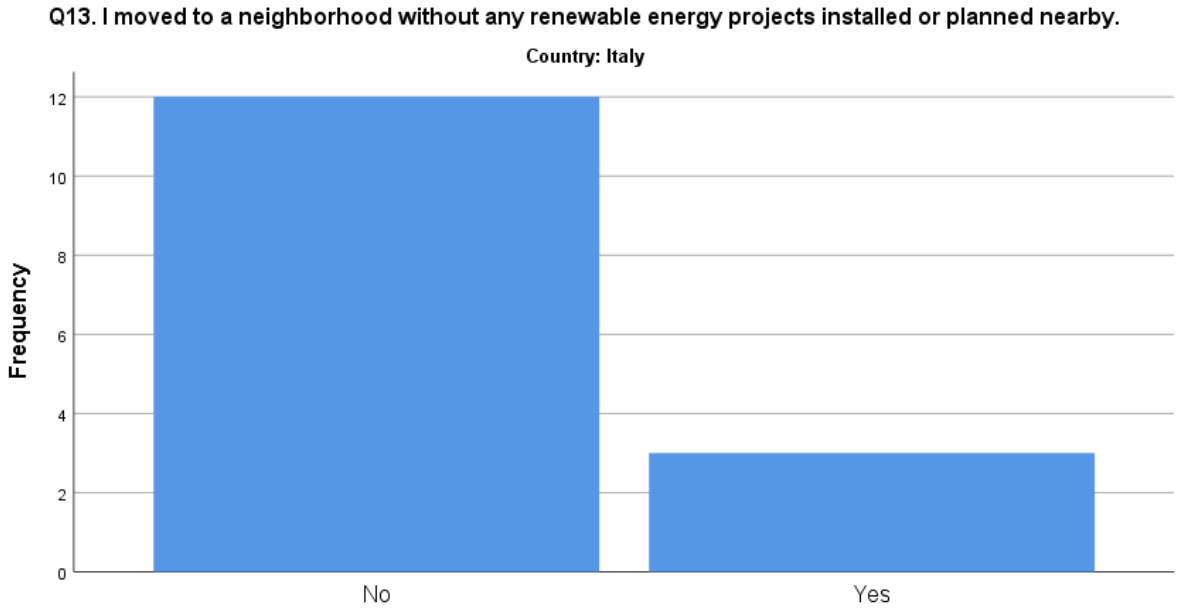
Country			Frequency	Percent	Valid Percent	Cumulative Percent
Germany	Valid	No	13	2,6	76,5	76,5
		Yes	4	,8	23,5	100,0
		Total	17	3,4	100,0	
	Missing	System	483	96,6		
	Total		500	100,0		
Austria	Valid	No	8	1,6	88,9	88,9
		Yes	1	,2	11,1	100,0
		Total	9	1,8	100,0	
	Missing	System	491	98,2		
	Total		500	100,0		
Switzerland	Valid	No	6	1,2	75,0	75,0
		Yes	2	,4	25,0	100,0
		Total	8	1,6	100,0	
	Missing	System	492	98,4		
	Total		500	100,0		
Italy	Valid	No	12	2,4	80,0	80,0
		Yes	3	,6	20,0	100,0
		Total	15	3,0	100,0	
	Missing	System	485	97,0		
	Total		500	100,0		

Bar Chart


Q13. I moved to a neighborhood without any renewable energy projects installed or planned nearby.
Country: Germany
Frequency
12,5
10,0
7,5
5,0
2,5
0,0
No
Yes


Q13. I moved to a neighborhood without any renewable energy projects installed or planned nearby.
Country: Austria
Frequency
8
6
4
2
0
No
Yes





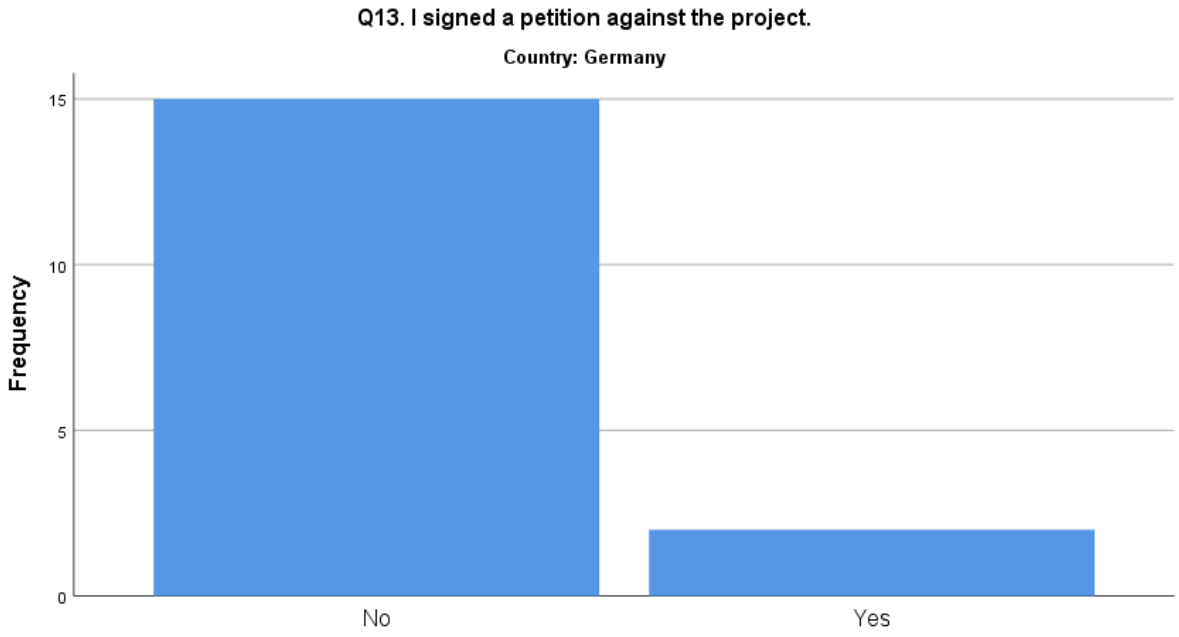
3.3.1.29 Signing a petition against the project.

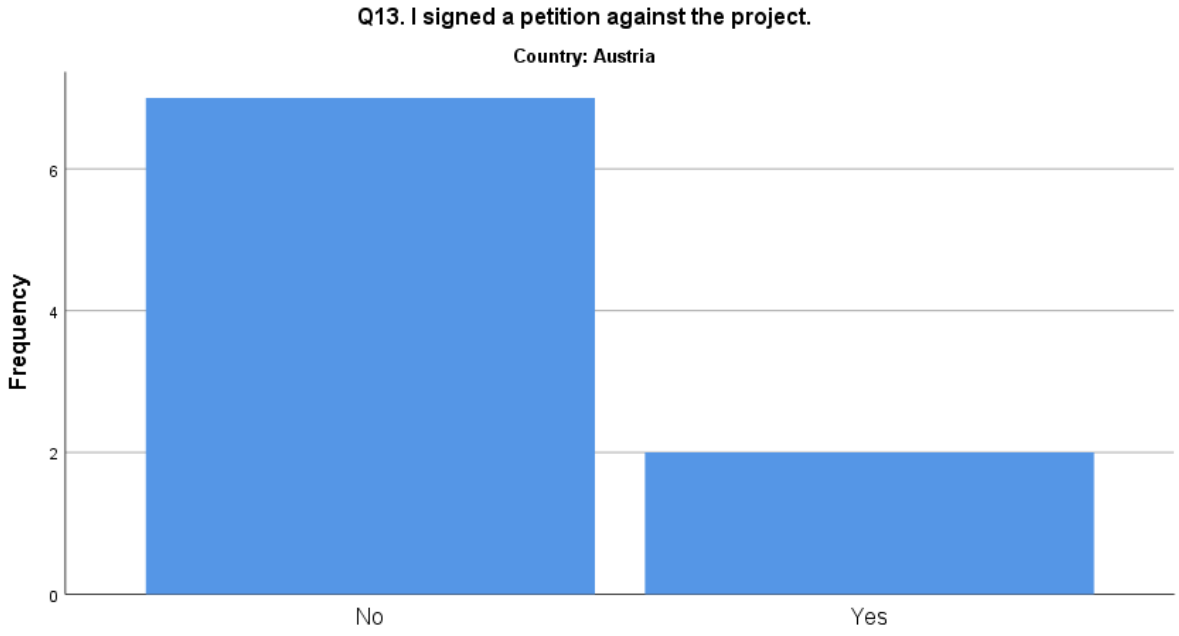
Another way to express one's disapproval of renewable energy projects is by signing a petition against such a project. Although this way of objection seems to be a rather simple one, none of the respondents in Switzerland signed such a petition. For the other three countries, there are two respondents in Germany, two in Austria, and four in Italy. The results show that, for instance, in the case of Germany of the number of people who moved to another neighborhood is twice higher than that of those that signed the petition. Still in both cases we are talking about a very small share of the full sample.

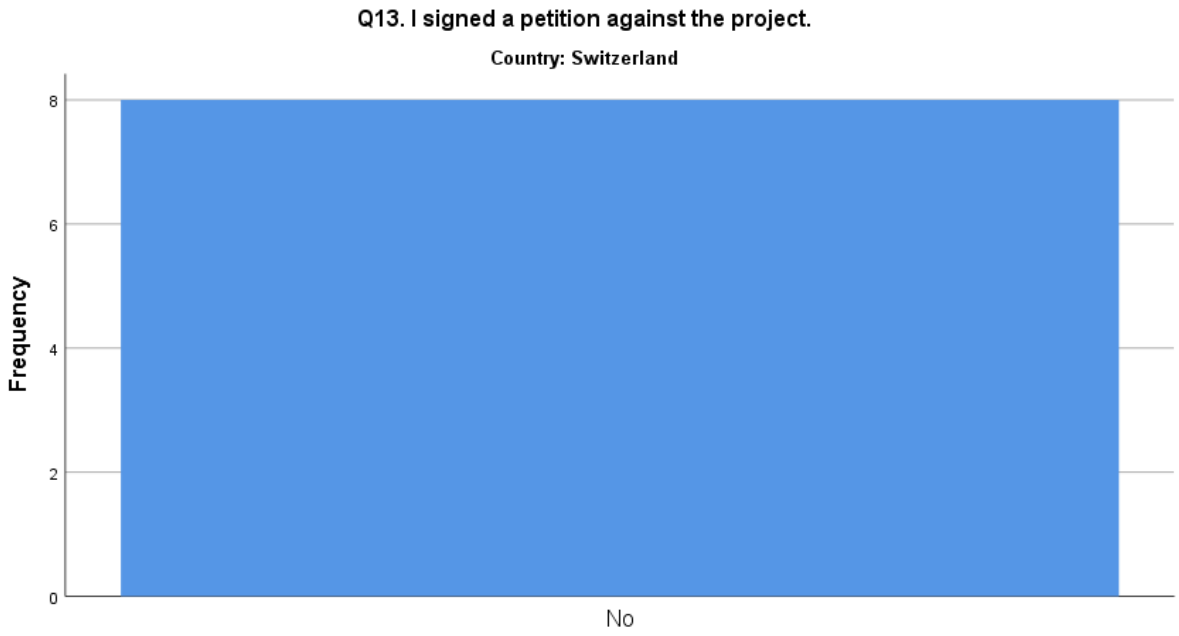
Q13. I signed a petition against the project.

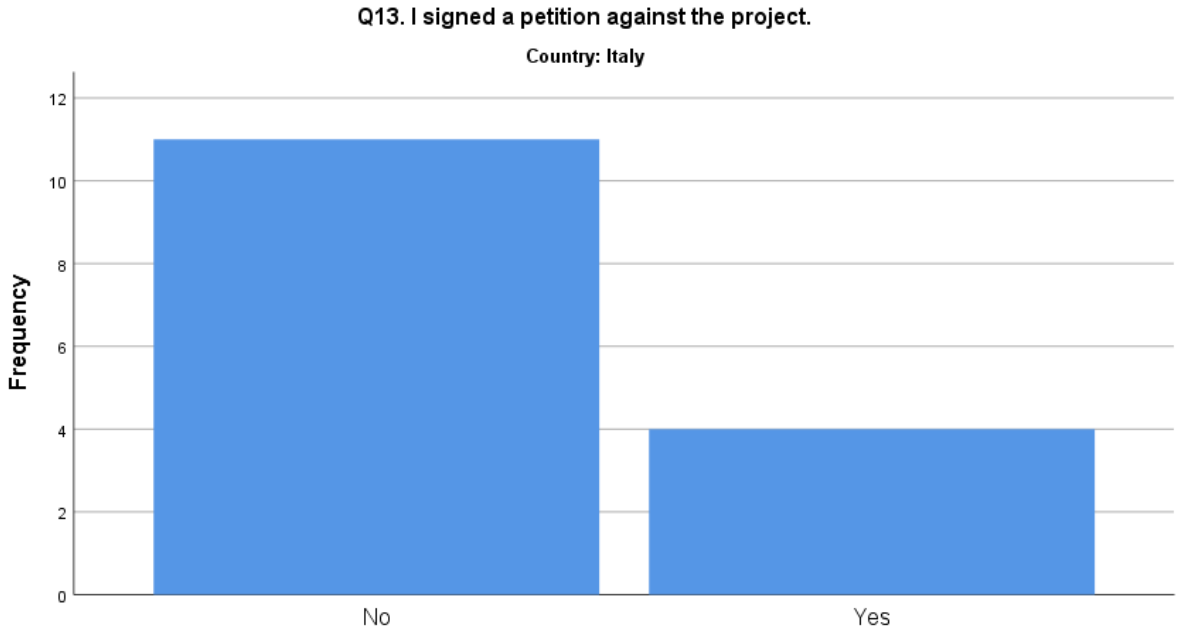
Country			Frequency	Percent	Valid Percent	Cumulative Percent
Germany	Valid	No	15	3,0	88,2	88,2
		Yes	2	,4	11,8	100,0
		Total	17	3,4	100,0	
	Missing	System	483	96,6		
	Total		500	100,0		
Austria	Valid	No	7	1,4	77,8	77,8
		Yes	2	,4	22,2	100,0
		Total	9	1,8	100,0	
	Missing	System	491	98,2		
	Total		500	100,0		
Switzerland	Valid	No	8	1,6	100,0	100,0
	Missing	System	492	98,4		
	Total		500	100,0		
Italy	Valid	No	11	2,2	73,3	73,3
		Yes	4	,8	26,7	100,0
		Total	15	3,0	100,0	
	Missing	System	485	97,0		
	Total		500	100,0		

Bar Chart


Q13. I signed a petition against the project.
Country: Germany
Frequency
15
10
5
0
No
Yes


Q13. I signed a petition against the project.
Country: Austria
Frequency
6
4
2
0
No
Yes





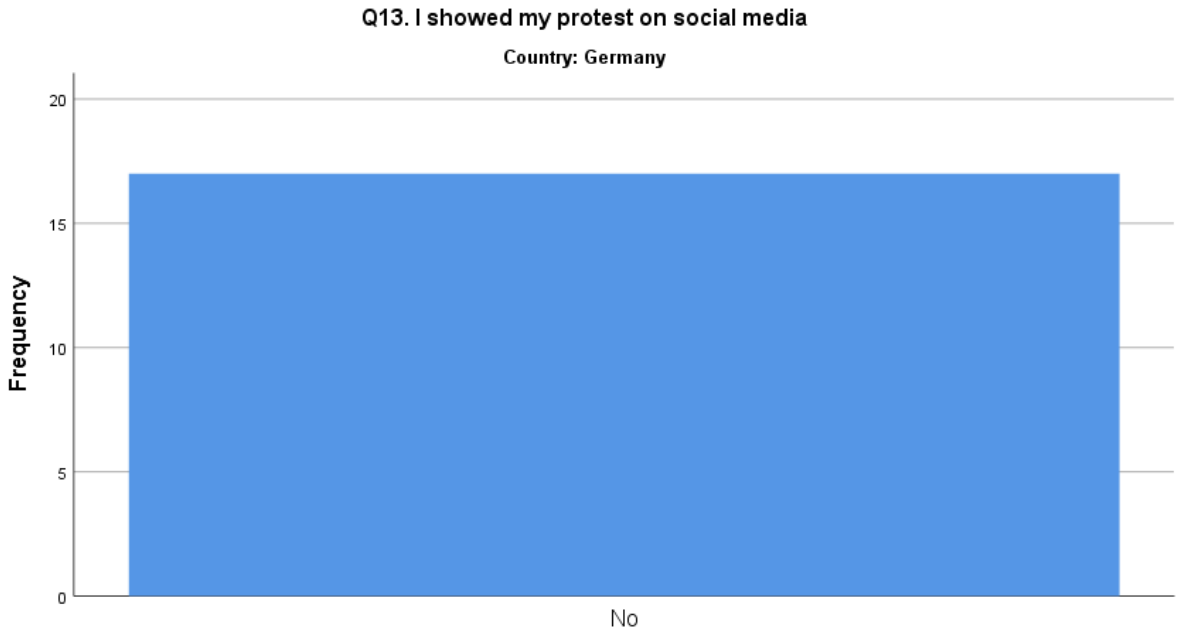
3.3.1.30 Showing protest on social media

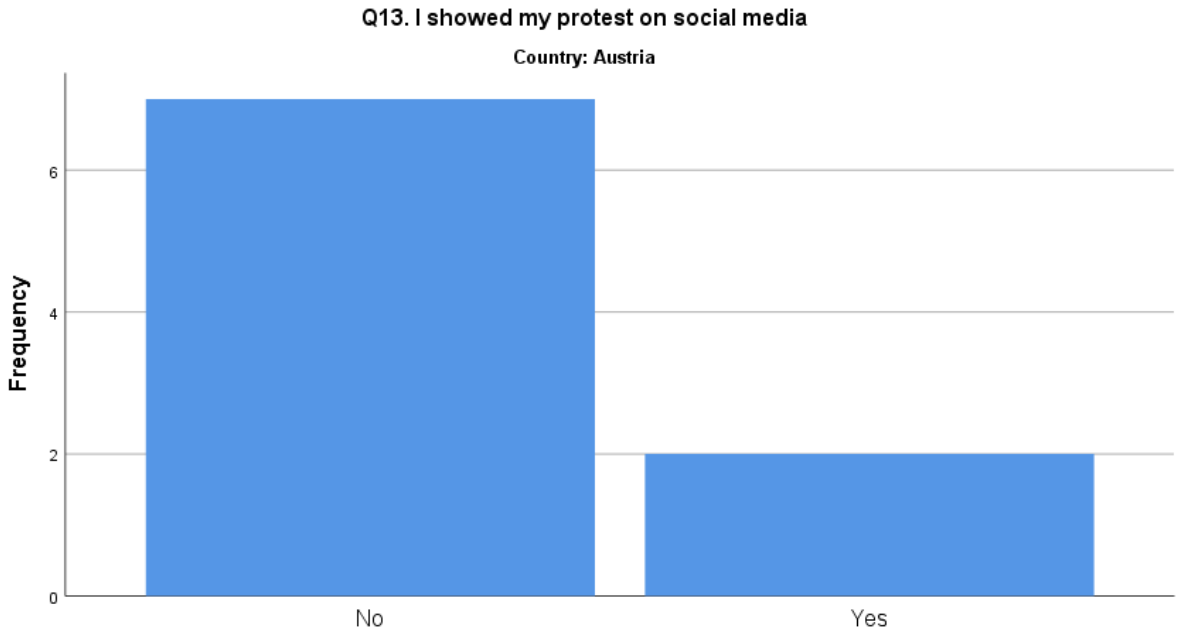
With the widespread use of cellphones, tablets and mobile internet, one of the easiest and fastest ways to express your disagreement nowadays is through social media. However, only two respondents in Austria and Italy did use this form of a protest, while none of the respondents in Germany and Switzerland chose this way of protest.

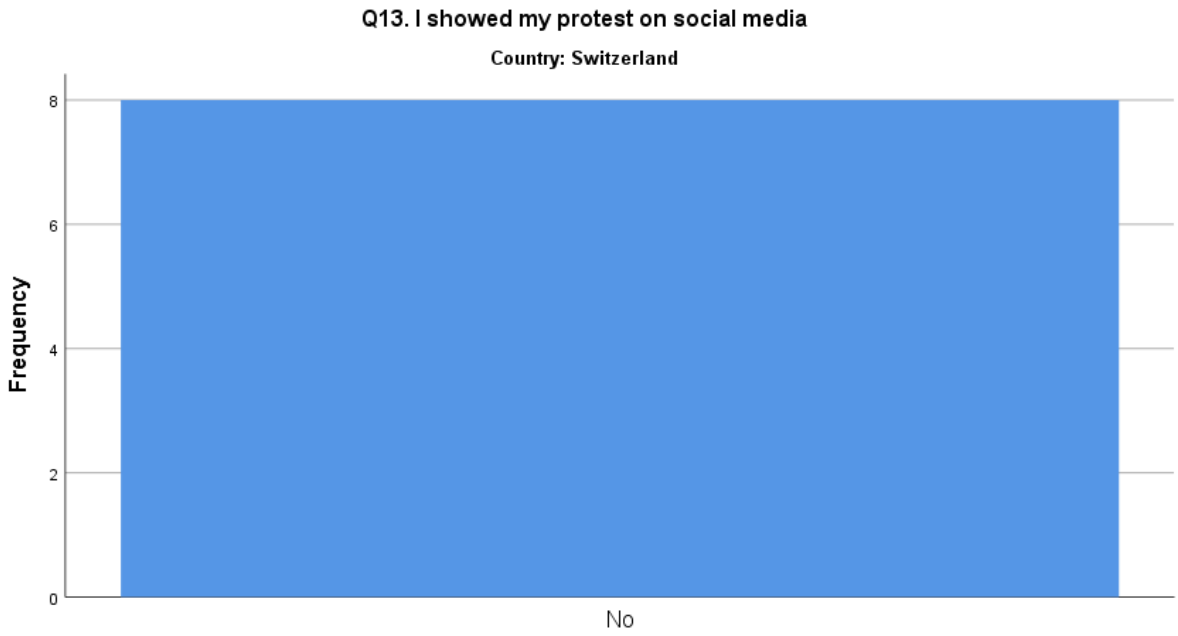
Q13. I showed my protest on social media

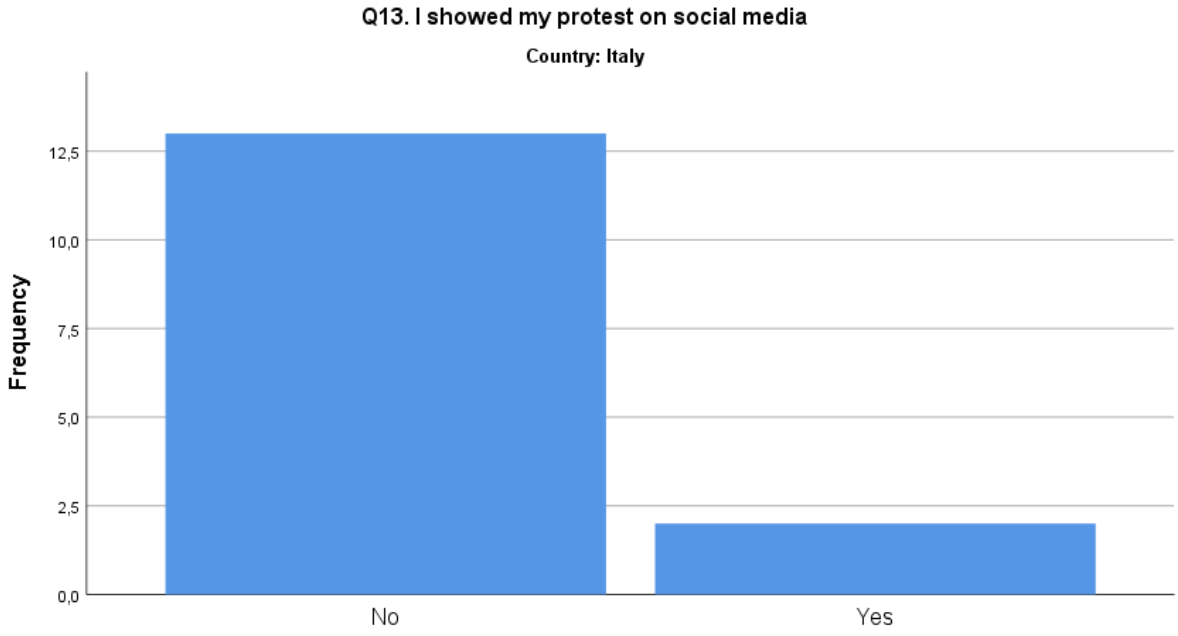
Country			Frequency	Percent	Valid Percent	Cumulative Percent
Germany	Valid	No	17	3,4	100,0	100,0
	Missing	System	483	96,6		
	Total		500	100,0		
Austria	Valid	No	7	1,4	77,8	77,8
		Yes	2	,4	22,2	100,0
		Total	9	1,8	100,0	
	Missing	System	491	98,2		
	Total		500	100,0		
Switzerland	Valid	No	8	1,6	100,0	100,0
	Missing	System	492	98,4		
	Total		500	100,0		
Italy	Valid	No	13	2,6	86,7	86,7
		Yes	2	,4	13,3	100,0
		Total	15	3,0	100,0	
	Missing	System	485	97,0		
	Total		500	100,0		

Bar Chart


Q13. I showed my protest on social media
Country: Germany
Frequency
20
15
10
5
0
No


Q13. I showed my protest on social media
Country: Austria
Frequency
6
4
2
0
No
Yes





3.4 Respondent attitudes regarding power-to-gas

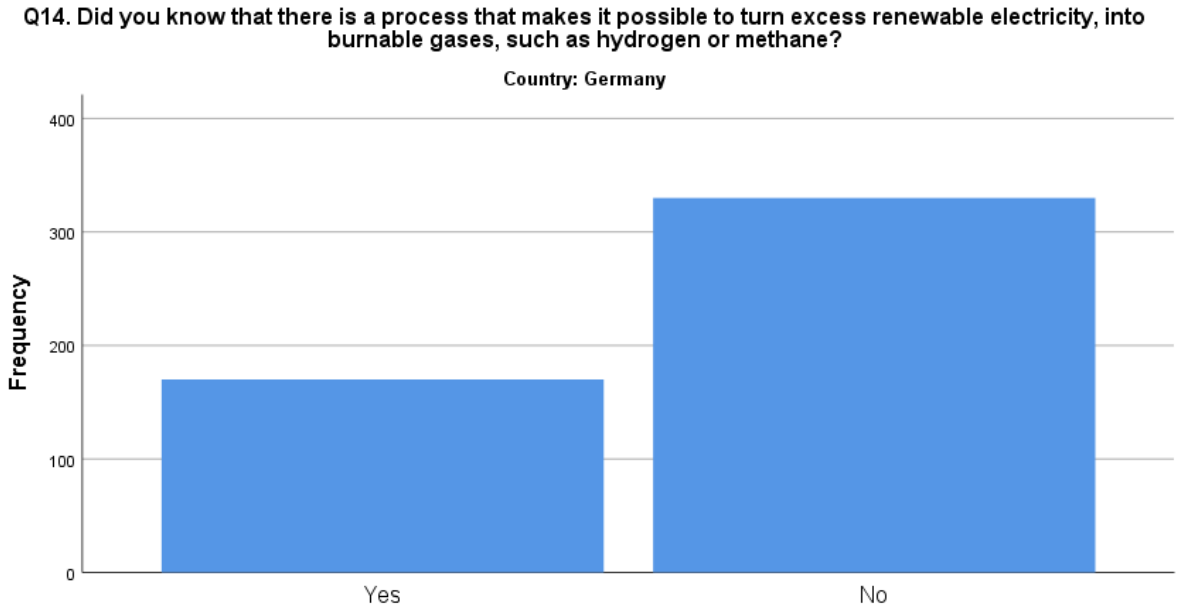
3.4.1.1 Knowledge about power-to-gas process

We examined the level of awareness and knowledge about the power-to-gas technology process in the four countries. There is a rather similar distribution of answers in all the four countries: 34 to 43,8% expressed knowledge about the described process technology. In Switzerland, we observe the highest number of respondents who are familiar with the technology, 219 or 43,8%. The lowest number is found in Germany with 170 respondents or 34%.

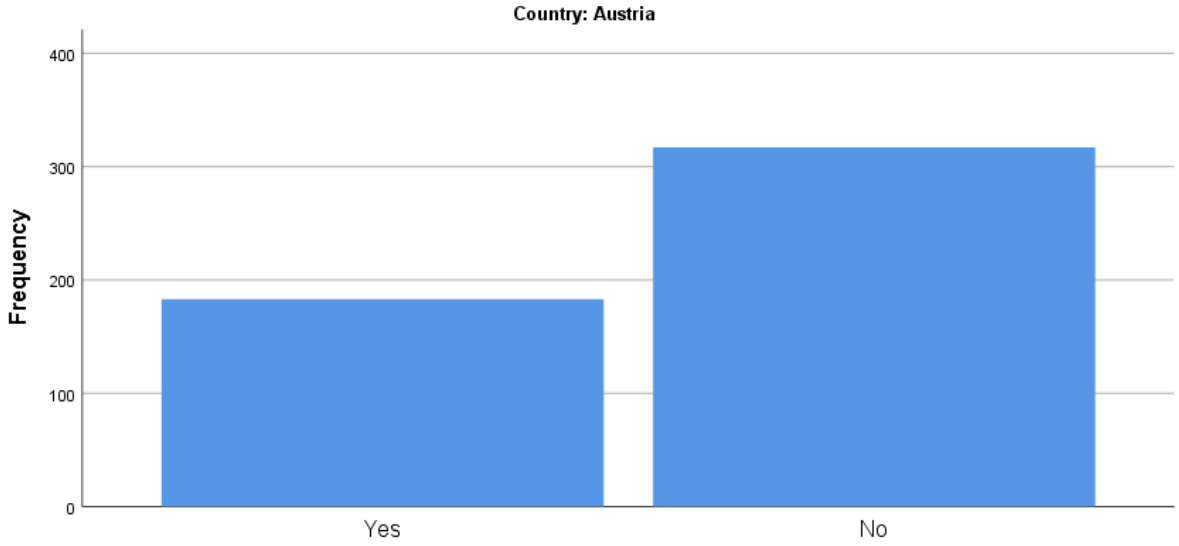
Q14. Did you know that there is a process that makes it possible to turn excess renewable electricity, into burnable gases, such as hydrogen or methane?

Country			Frequency	Percent	Valid Percent	Cumulative Percent
Germany	Valid	Yes	170	34,0	34,0	34,0
		No	330	66,0	66,0	100,0
		Total	500	100,0	100,0	
Austria	Valid	Yes	183	36,6	36,6	36,6
		No	317	63,4	63,4	100,0
		Total	500	100,0	100,0	
Switzerland	Valid	Yes	219	43,8	43,8	43,8
		No	281	56,2	56,2	100,0
		Total	500	100,0	100,0	
Italy	Valid	Yes	181	36,2	36,2	36,2
		No	319	63,8	63,8	100,0
		Total	500	100,0	100,0	

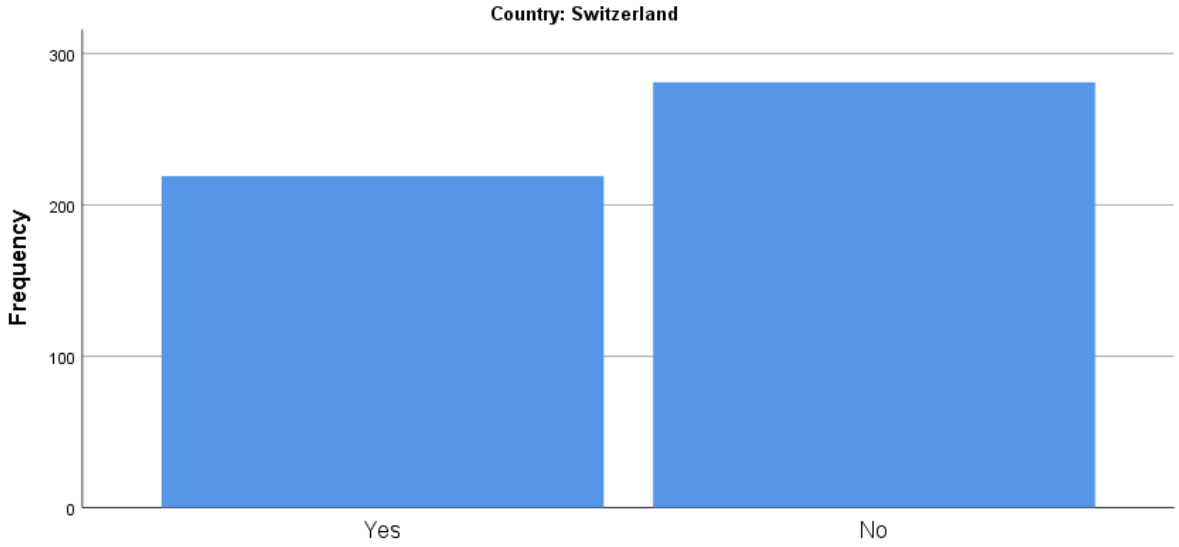
Bar Chart

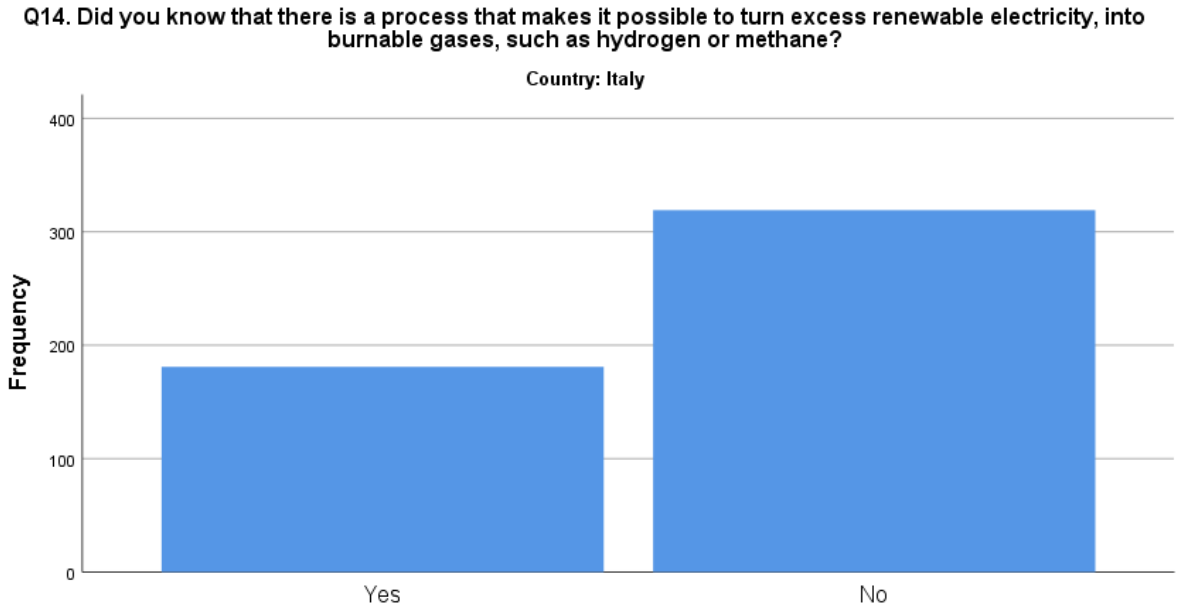


Q14. Did you know that there is a process that makes it possible to turn excess renewable electricity, into burnable gases, such as hydrogen or methane?



Q14. Did you know that there is a process that makes it possible to turn excess renewable electricity, into burnable gases, such as hydrogen or methane?





3.4.1.2 Previous knowledge about power-to-gas storage technology

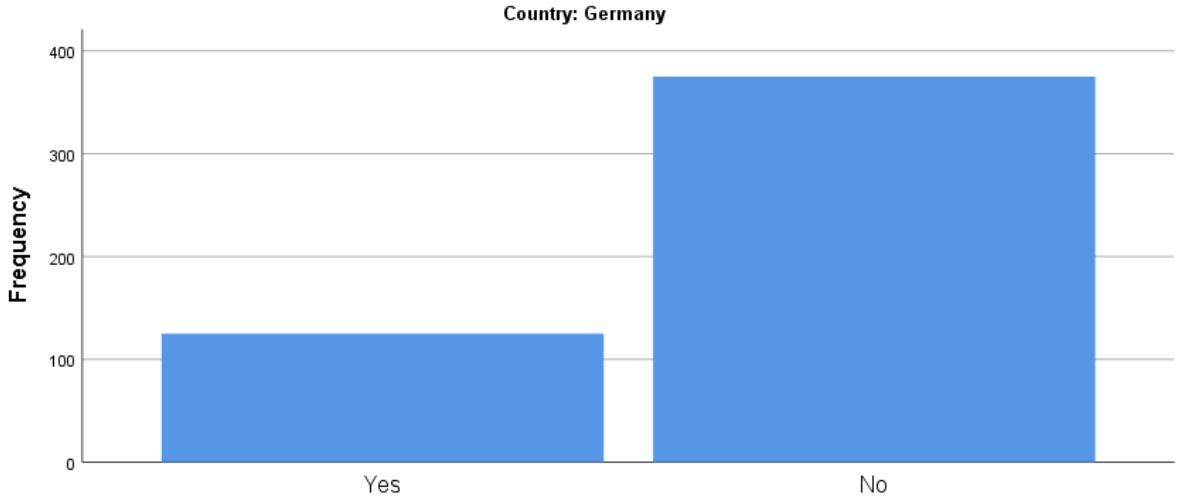
Further on, the respondents were asked about their knowledge of power-to-gas storage technology. We observe a rather similar to the previous question pattern; however, less people are familiar with power-to-gas: the highest level of awareness is in Switzerland with 28,4%, followed by Austria with 26,8%, Germany with 25% and Italy with 20,6% of the respondents who have heard about the power-to-gas storage technology before.

Q15. This technology is called „Power-to-Gas“. One advantage is that the produced hydrogen or methane can be fed into the already existing gas grids. Have you already heard about the storage technology “Power-to-Gas”?

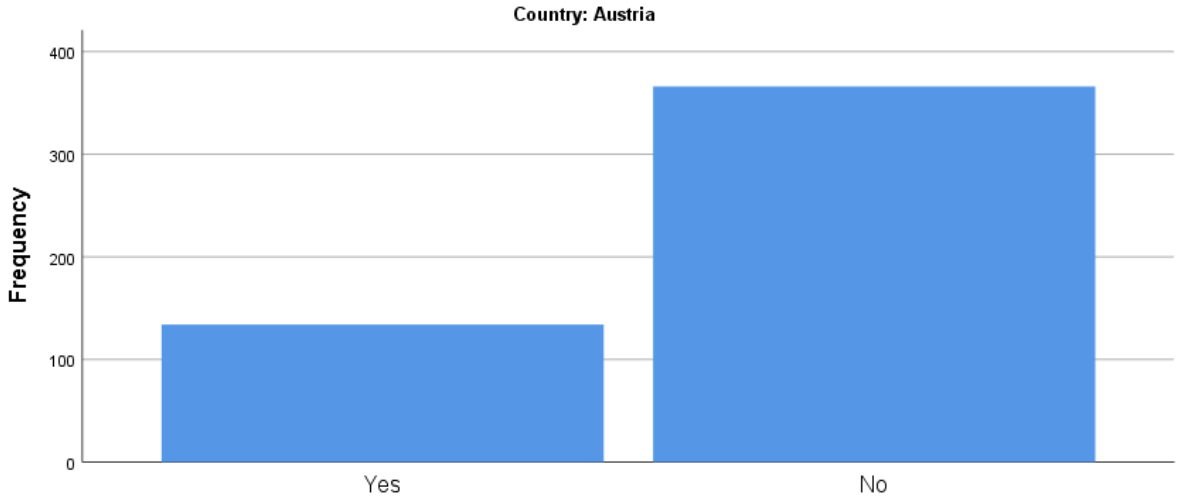
Country			Frequency	Percent	Valid Percent	Cumulative Percent
Germany	Valid	Yes	125	25,0	25,0	25,0
		No	375	75,0	75,0	100,0
		Total	500	100,0	100,0	
Austria	Valid	Yes	134	26,8	26,8	26,8
		No	366	73,2	73,2	100,0
		Total	500	100,0	100,0	
Switzerland	Valid	Yes	142	28,4	28,4	28,4
		No	358	71,6	71,6	100,0
		Total	500	100,0	100,0	
Italy	Valid	Yes	103	20,6	20,6	20,6
		No	397	79,4	79,4	100,0
		Total	500	100,0	100,0	

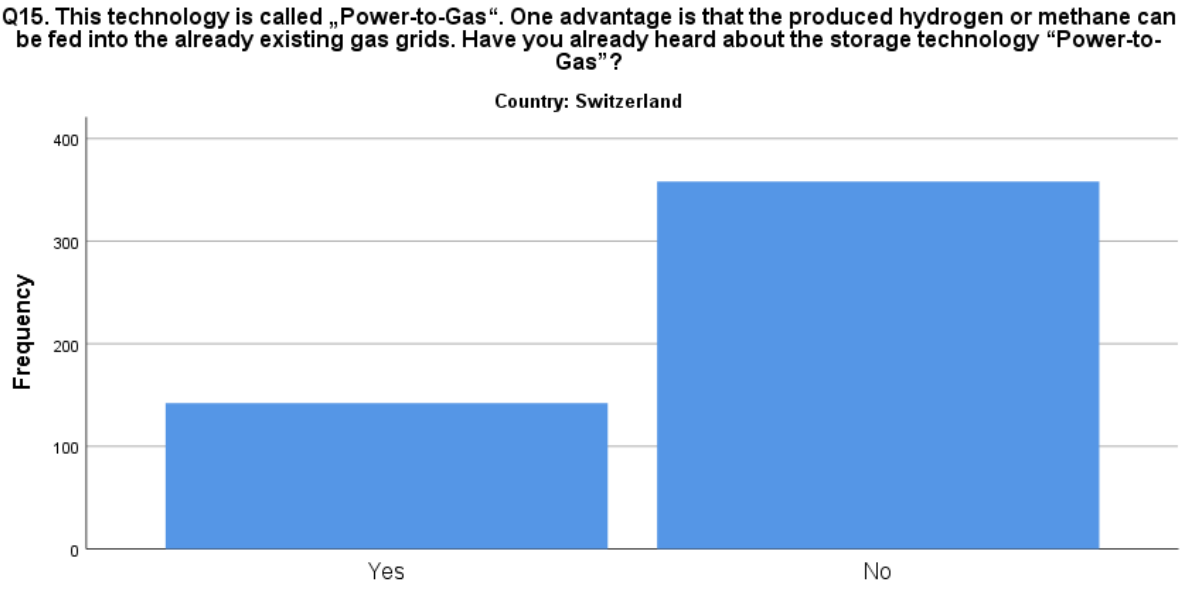
Bar Chart

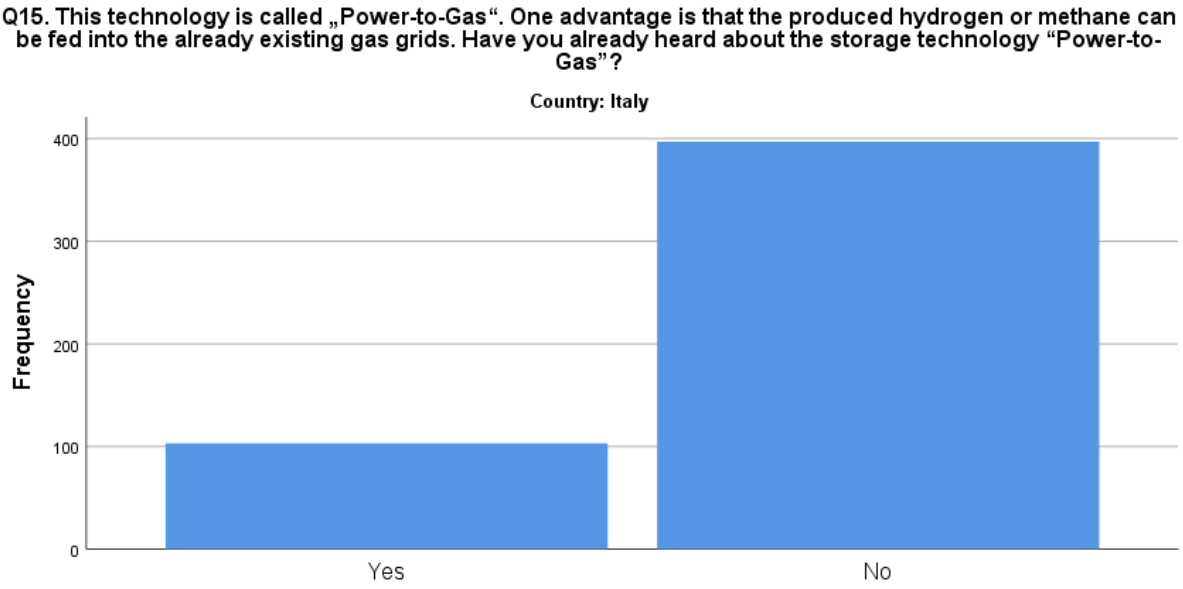
Q15. This technology is called „Power-to-Gas“. One advantage is that the produced hydrogen or methane can be fed into the already existing gas grids. Have you already heard about the storage technology “Power-to-Gas”?



Q15. This technology is called „Power-to-Gas“. One advantage is that the produced hydrogen or methane can be fed into the already existing gas grids. Have you already heard about the storage technology “Power-to-Gas”?







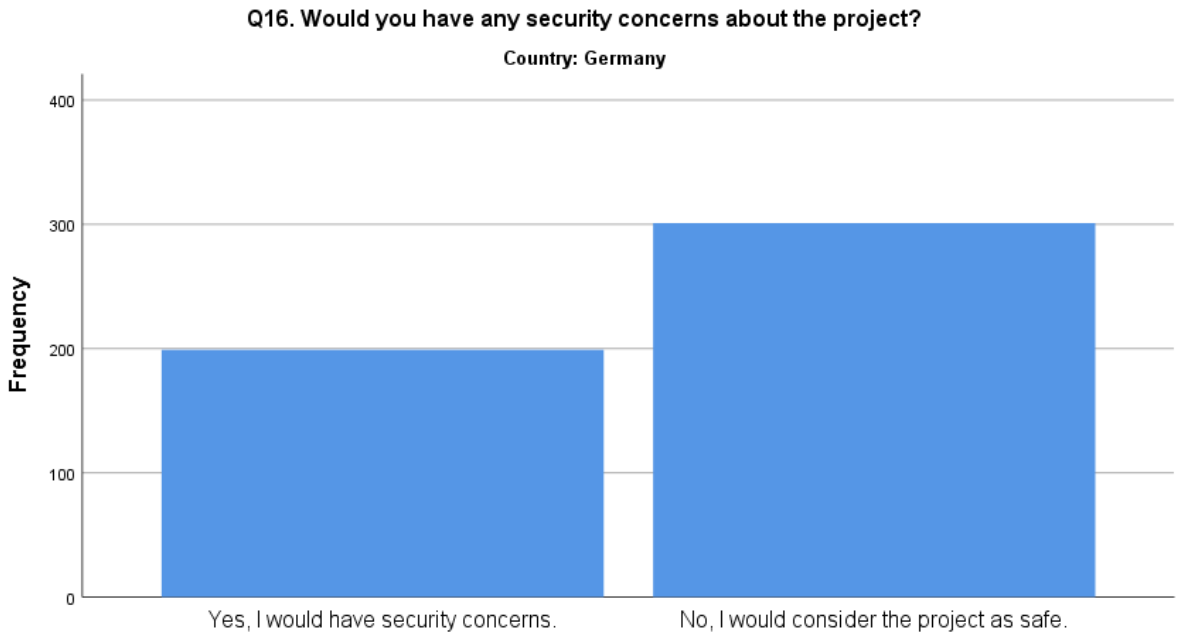
3.4.1.3 Security concerns about power-to-gas storage project

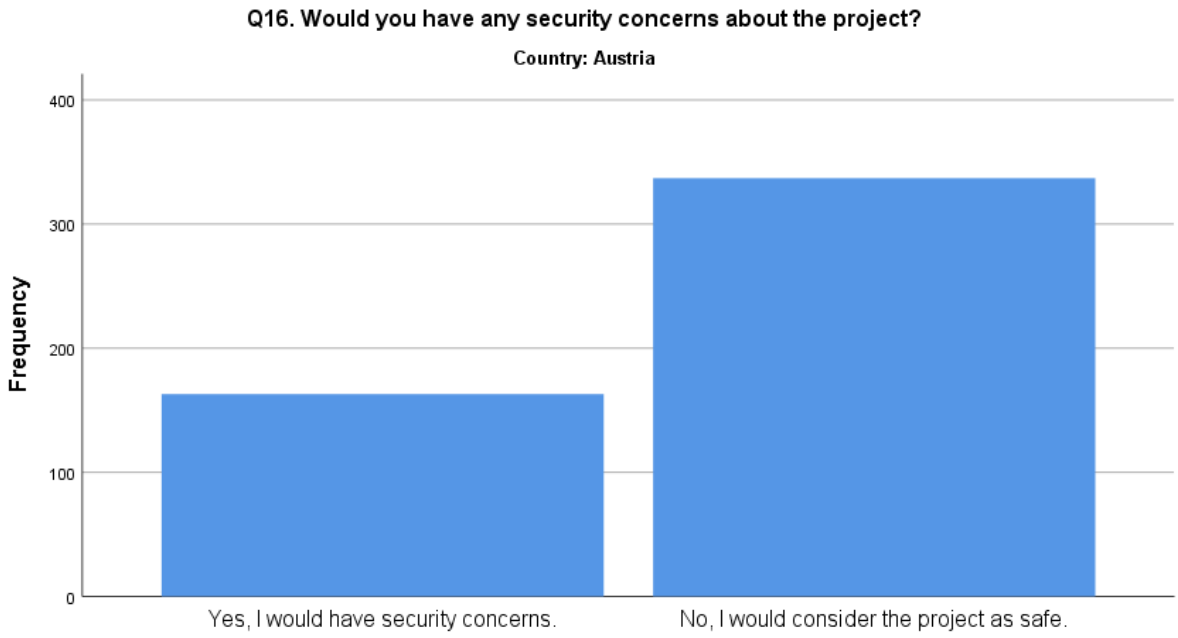
Although the observed share of respondents with security concerns with respect to power-to-gas projects in all the four countries is higher than the share of respondents with previous knowledge, we can distinguish a clear trend of negative relation between the knowledge and concerns about the investigated technology. Namely, the country with the highest number of residents who have previous knowledge about the power-to-gas storage technology also has the lowest share of concerns, only 29,8% (Switzerland). While Italy having the lowest level of awareness about the technology among all the four countries also shows the highest level of concerns with 49% of the sample.

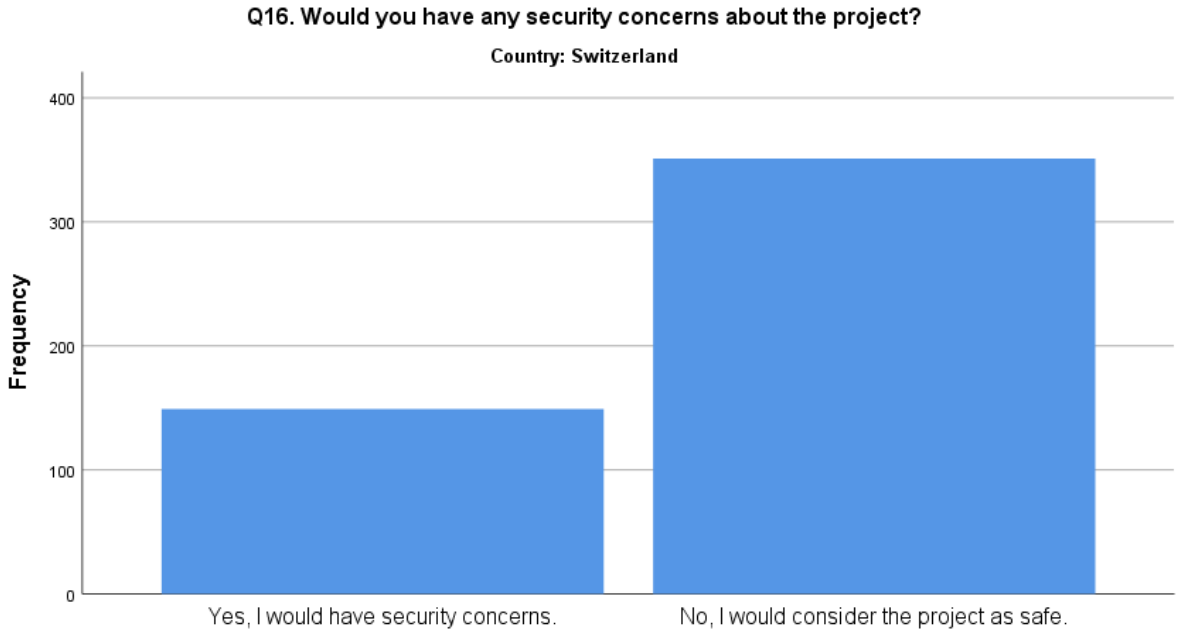
Q16. Would you have any security concerns about the project?

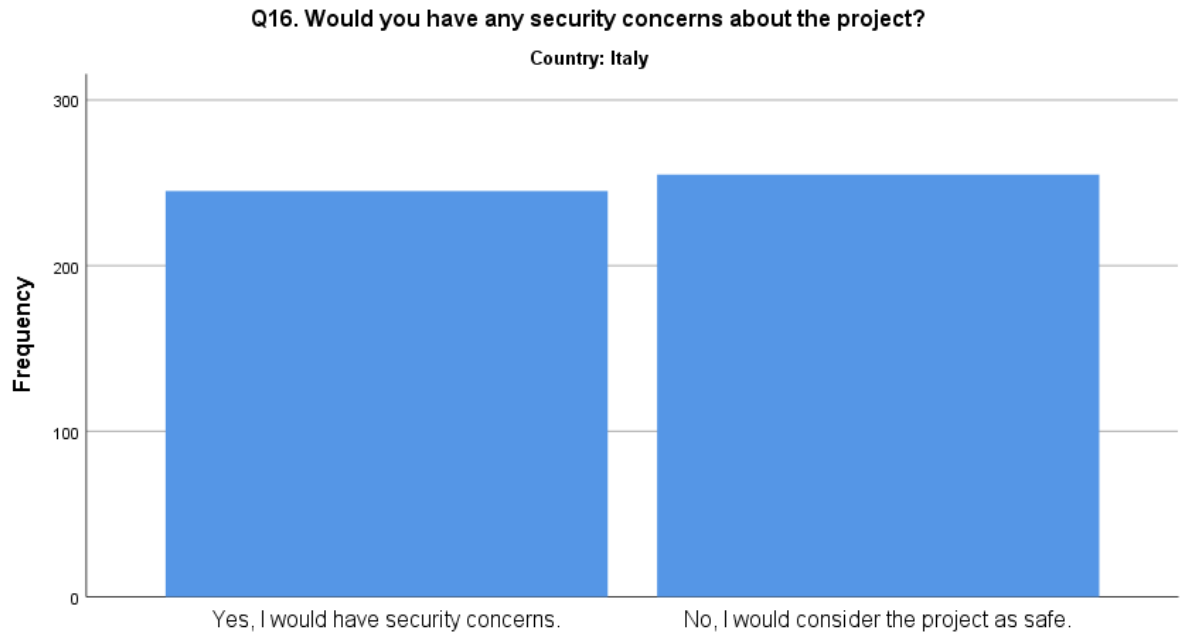
Country			Frequency	Percent	Valid Percent
Germany	Valid	Yes, I would have security concerns.	199	39,8	39,8
		No, I would consider the project as safe.	301	60,2	60,2
		Total	500	100,0	100,0
Austria	Valid	Yes, I would have security concerns.	163	32,6	32,6
		No, I would consider the project as safe.	337	67,4	67,4
		Total	500	100,0	100,0
Switzer-land	Valid	Yes, I would have security concerns.	149	29,8	29,8
		No, I would consider the project as safe.	351	70,2	70,2
		Total	500	100,0	100,0
Italy	Valid	Yes, I would have security concerns.	245	49,0	49,0
		No, I would consider the project as safe.	255	51,0	51,0
		Total	500	100,0	100,0

Bar Chart




Q16. Would you have any security concerns about the project?
Country: Austria
Frequency
400
300
200
100
0
Yes, I would have security concerns.
No, I would consider the project as safe.


Q16. Would you have any security concerns about the project?
Country: Switzerland
Frequency
400
300
200
100
0
Yes, I would have security concerns.
No, I would consider the project as safe.



3.4.1.4 Importance to be informed at an early stage when large electricity generation plants are planned in one's village or near one's home.

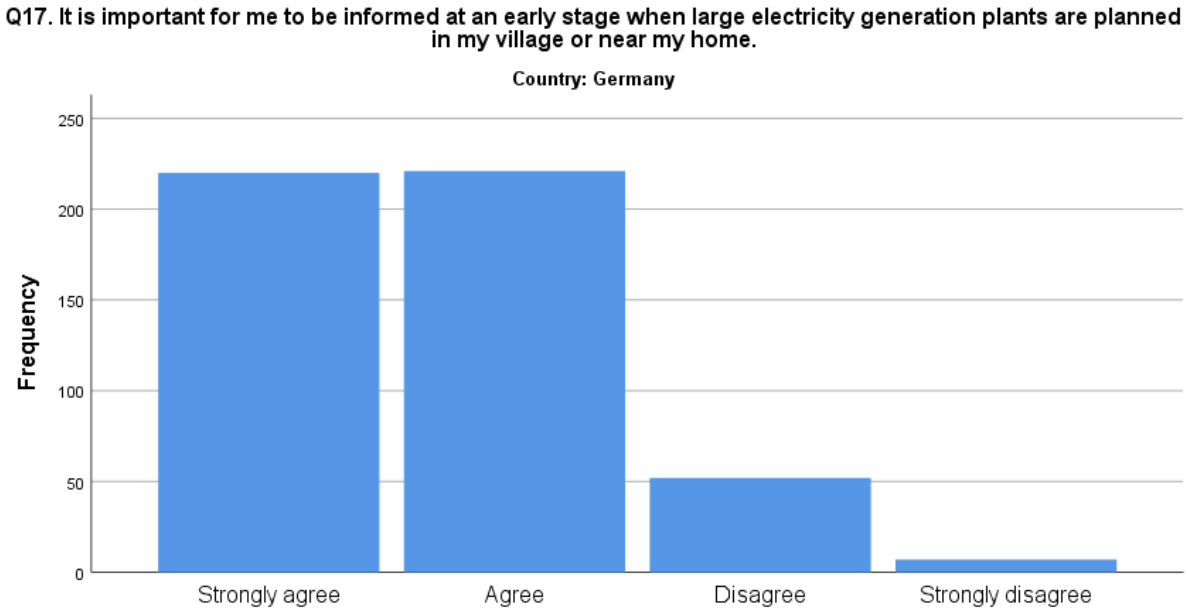
A question whether the respondents consider it important to be informed at an early stage when large electricity generation plants are planned in their village or near their home was also included in the survey. There was a possibility to agree, strongly agree, disagree or strongly disagree with the statement. Italy is the country where the majority of respondents (289 respondents or 59.6%) expressed strong agreement with the statement. The country with the lowest level of agreement with the statement is Germany (220 respondents or 44%). At the same time the overall level of agreement (strong or not) with the statement demonstrates that individuals in all the four countries consider it important to be informed at an early stage when large electricity plants are being built in their village or near their home.

Q17. It is important for me to be informed at an early stage when large electricity generation plants are planned in my village or near my home.

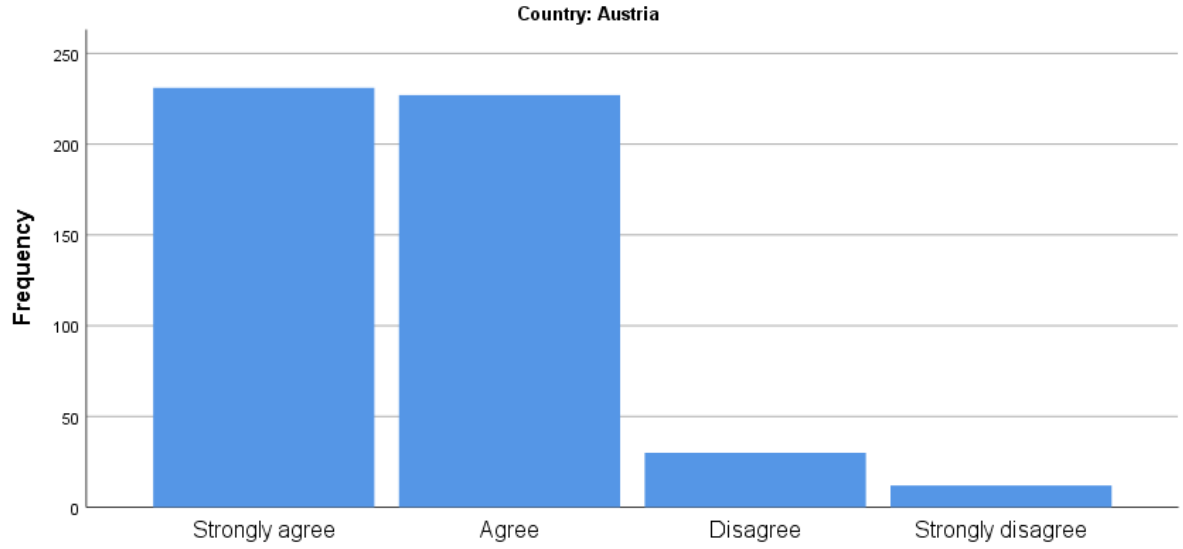
Country			Frequency	Percent	Valid Percent	Cumulative Percent
Germany	Valid	Strongly agree	220	44,0	44,0	44,0
		Agree	221	44,2	44,2	88,2
		Disagree	52	10,4	10,4	98,6
		Strongly disagree	7	1,4	1,4	100,0
		Total	500	100,0	100,0	
Austria	Valid	Strongly agree	231	46,2	46,2	46,2
		Agree	227	45,4	45,4	91,6

		Disagree	30	6,0	6,0	97,6
		Strongly disagree	12	2,4	2,4	100,0
		Total	500	100,0	100,0	
Switzerland	Valid	Strongly agree	221	44,2	44,2	44,2
		Agree	238	47,6	47,6	91,8
		Disagree	36	7,2	7,2	99,0
		Strongly disagree	5	1,0	1,0	100,0
		Total	500	100,0	100,0	
Italy	Valid	Strongly agree	298	59,6	59,6	59,6
		Agree	187	37,4	37,4	97,0
		Disagree	14	2,8	2,8	99,8
		Strongly disagree	1	,2	,2	100,0
		Total	500	100,0	100,0	

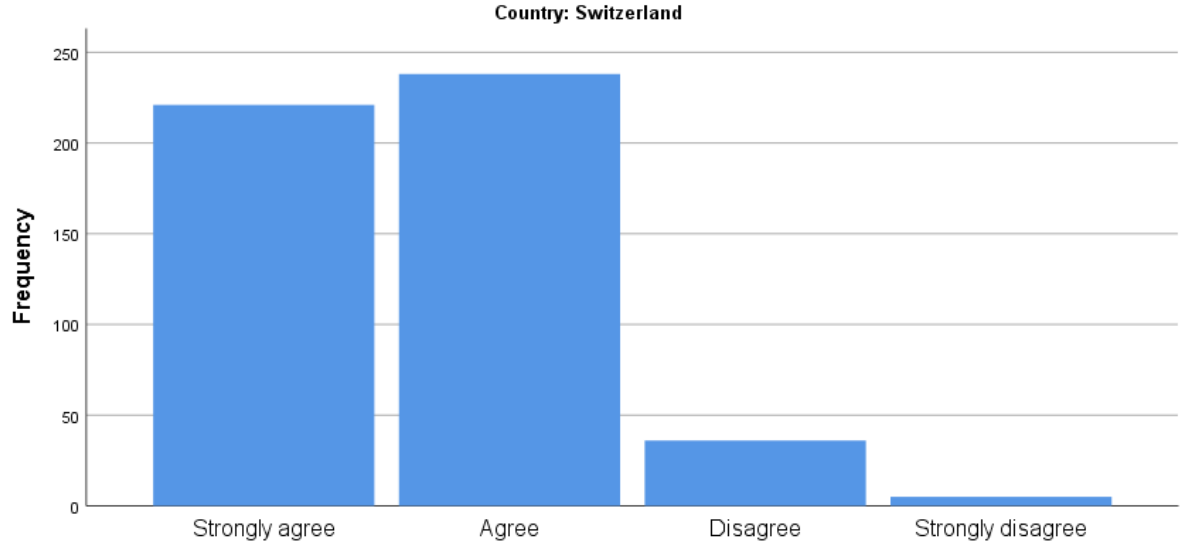
Bar Chart

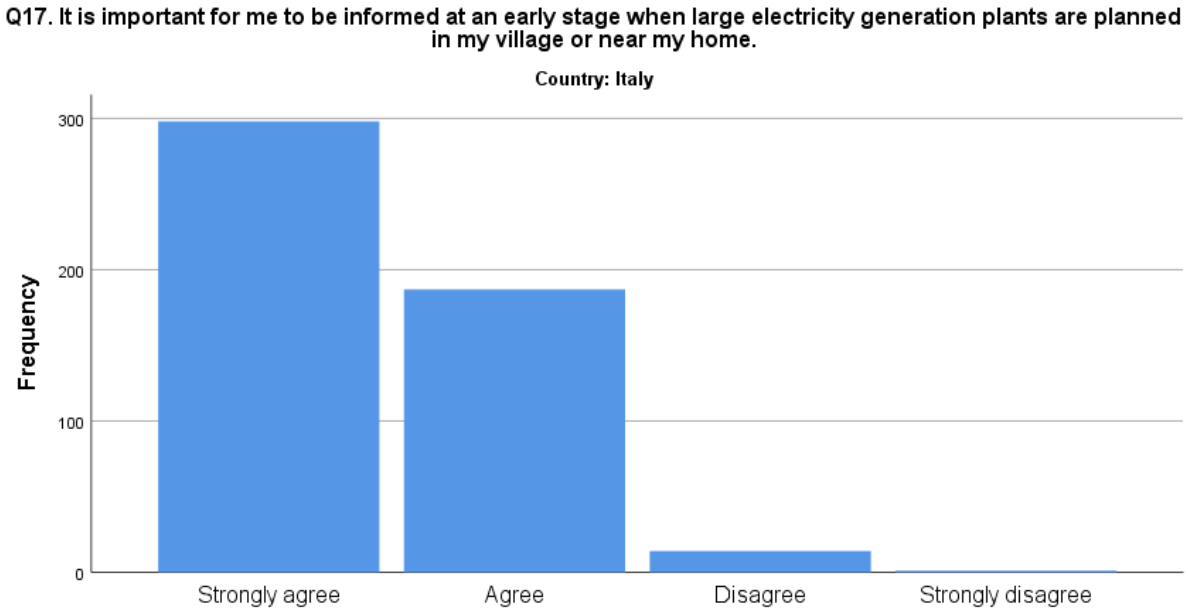


Q17. It is important for me to be informed at an early stage when large electricity generation plants are planned in my village or near my home.



Q17. It is important for me to be informed at an early stage when large electricity generation plants are planned in my village or near my home.





3.4.1.5 Referendum about planned large power plants

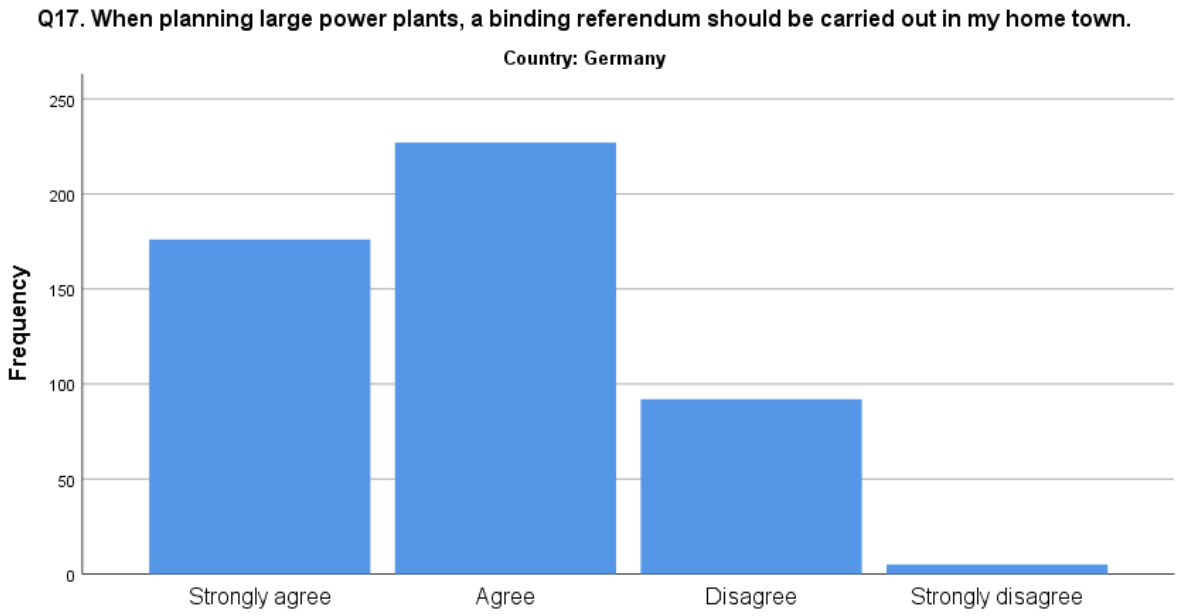
The majority of individuals in all the four examined countries agrees or strongly agrees with the statement “When planning large power plants, a binding referendum should be carried out in my home town.” Cumulative percent for option agree and strongly agree is the highest in Germany with 80,6% and the lowest in Italy with 73,3%.

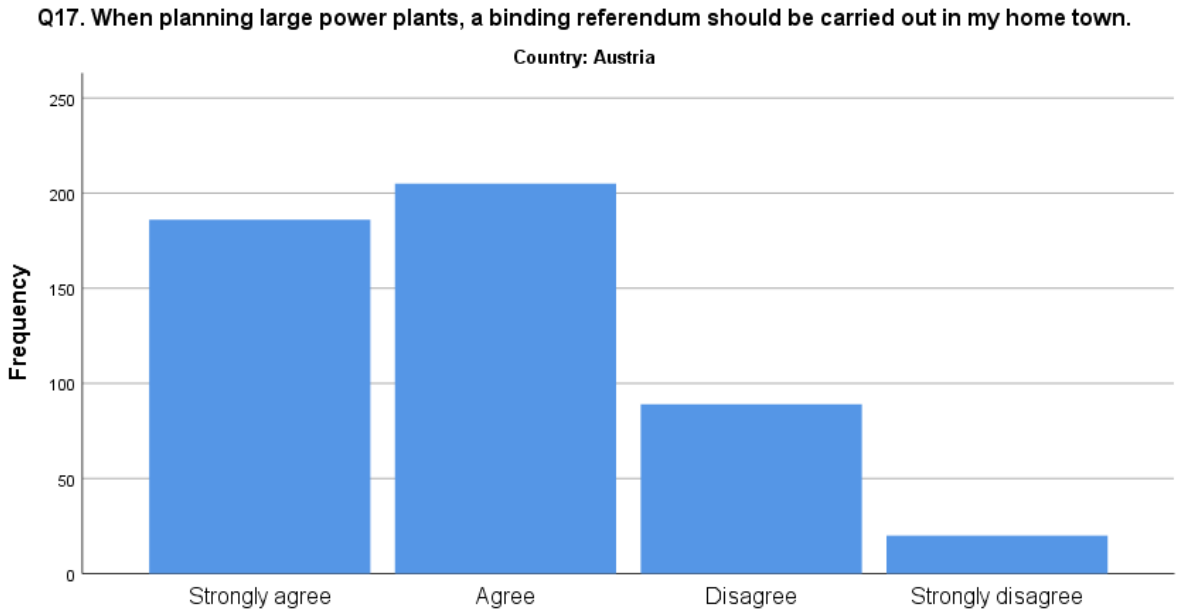
Q17. When planning large power plants, a binding referendum should be carried out in my home town.

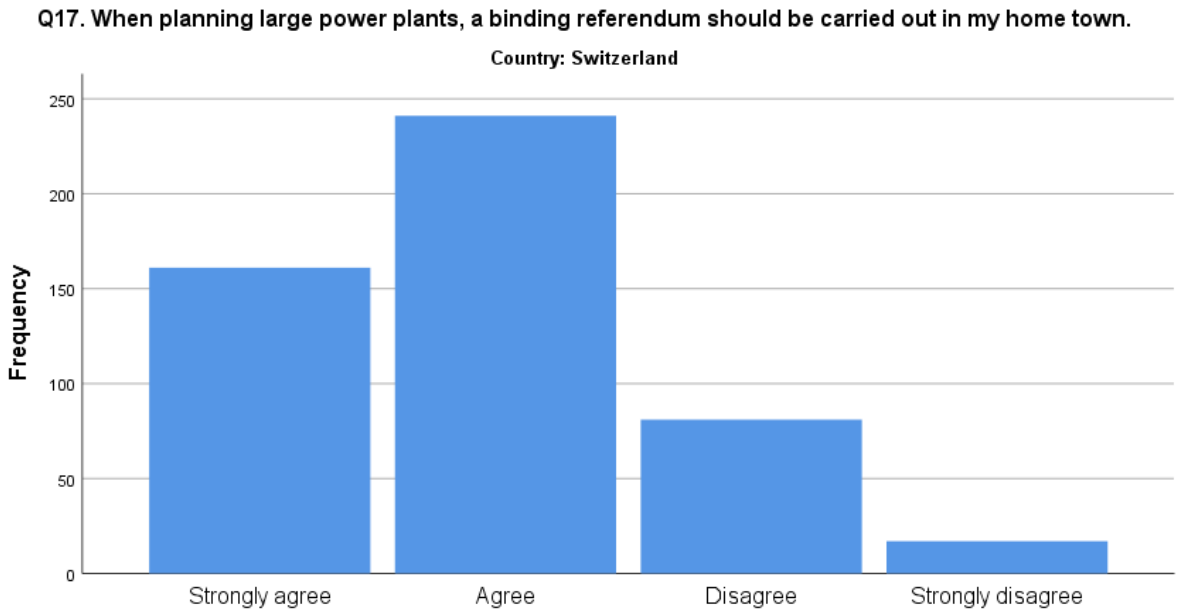
Country			Frequency	Percent	Valid Percent	Cumulative Percent
Germany	Valid	Strongly agree	176	35,2	35,2	35,2
		Agree	227	45,4	45,4	80,6
		Disagree	92	18,4	18,4	99,0
		Strongly disagree	5	1,0	1,0	100,0
		Total	500	100,0	100,0	
Austria	Valid	Strongly agree	186	37,2	37,2	37,2
		Agree	205	41,0	41,0	78,2
		Disagree	89	17,8	17,8	96,0
		Strongly disagree	20	4,0	4,0	100,0
		Total	500	100,0	100,0	
Switzerland	Valid	Strongly agree	161	32,2	32,2	32,2
		Agree	241	48,2	48,2	80,4
		Disagree	81	16,2	16,2	96,6
		Strongly disagree	17	3,4	3,4	100,0
		Total	500	100,0	100,0	
Italy	Valid	Strongly agree	141	28,2	28,2	28,2
		Agree	225	45,0	45,0	73,2
		Disagree	119	23,8	23,8	97,0

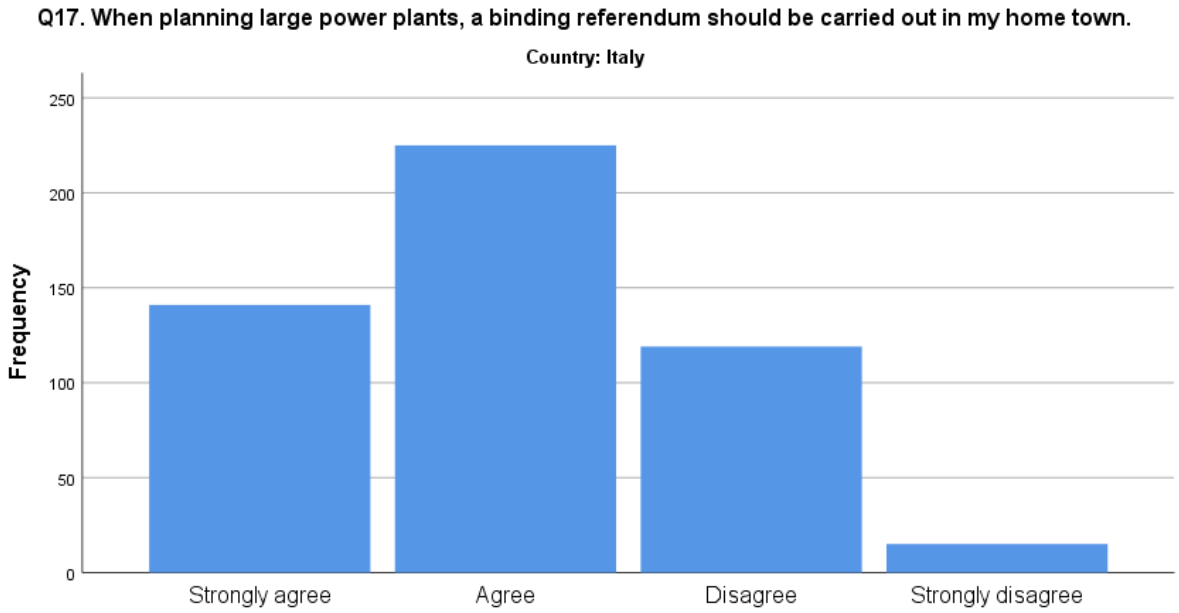
	Strongly disagree	15	3,0	3,0	100,0
	Total	500	100,0	100,0	

Bar Chart









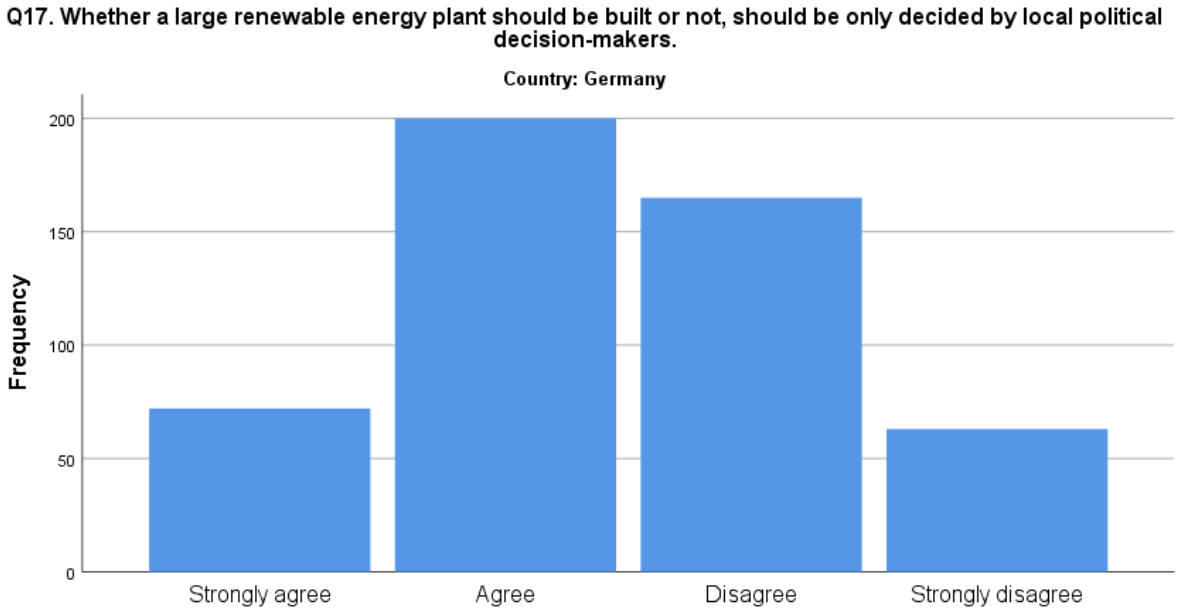
3.4.1.6 Whether a large renewable energy plant should be built or not, should be only decided by local political decision-makers

We also investigated the households' attitude to the decision-making process concerning a construction of a large renewable energy plant. The respondents were specifically asked to agree or disagree (strongly or not) with the statement that the decisions for such questions should only be made by local politicians. According to our results the lowest cumulative percent of respondents who agree and strongly agree with this statement is observed in Italy with 36,8% who believe such decisions should be made by local politicians, the highest share is found in Germany with 54,4%. This distribution of answers demonstrates a certain attitude and trust level to local politicians in the surveyed countries.

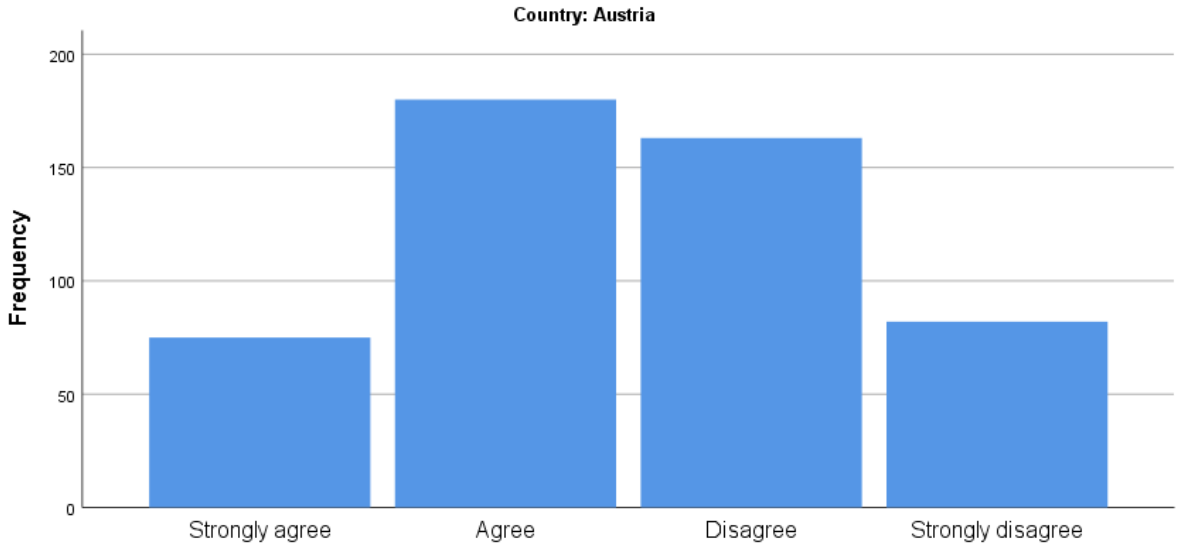
Q17. Whether a large renewable energy plant should be built or not, should be only decided by local political decision-makers.

Country			Frequency	Percent	Valid Percent	Cumulative Percent
Germany	Valid	Strongly agree	72	14,4	14,4	14,4
		Agree	200	40,0	40,0	54,4
		Disagree	165	33,0	33,0	87,4
		Strongly disagree	63	12,6	12,6	100,0
		Total	500	100,0	100,0	
Austria	Valid	Strongly agree	75	15,0	15,0	15,0
		Agree	180	36,0	36,0	51,0
		Disagree	163	32,6	32,6	83,6
		Strongly disagree	82	16,4	16,4	100,0
		Total	500	100,0	100,0	
Switzerland	Valid	Strongly agree	79	15,8	15,8	15,8
		Agree	163	32,6	32,6	48,4
		Disagree	177	35,4	35,4	83,8
		Strongly disagree	81	16,2	16,2	100,0
		Total	500	100,0	100,0	
Italy	Valid	Strongly agree	54	10,8	10,8	10,8
		Agree	130	26,0	26,0	36,8
		Disagree	243	48,6	48,6	85,4
		Strongly disagree	73	14,6	14,6	100,0
		Total	500	100,0	100,0	

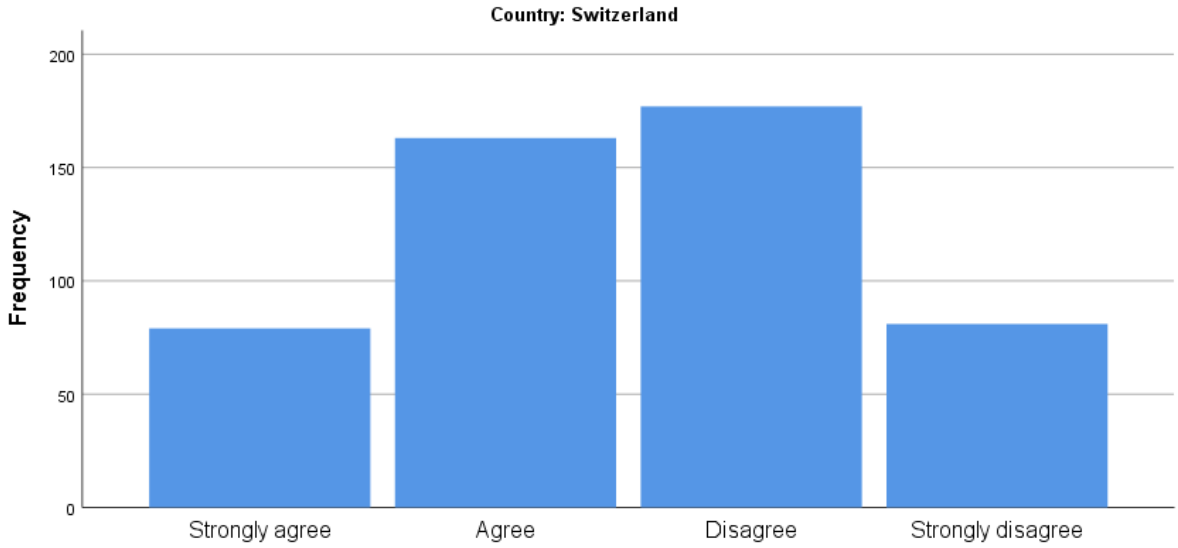
Bar Chart

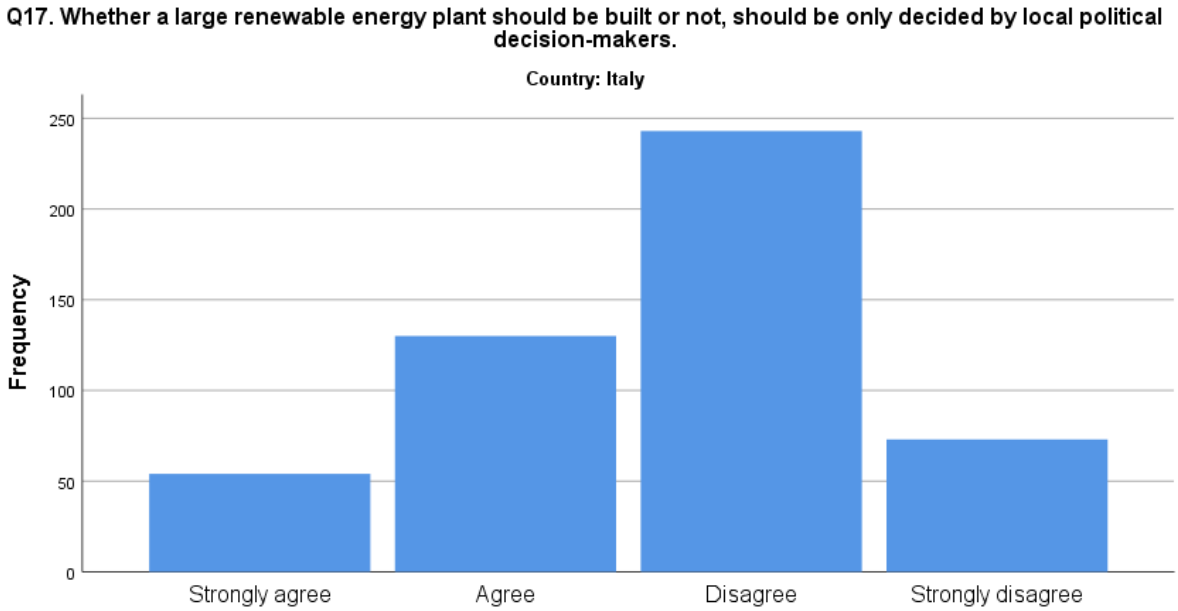


Q17. Whether a large renewable energy plant should be built or not, should be only decided by local political decision-makers.



Q17. Whether a large renewable energy plant should be built or not, should be only decided by local political decision-makers.





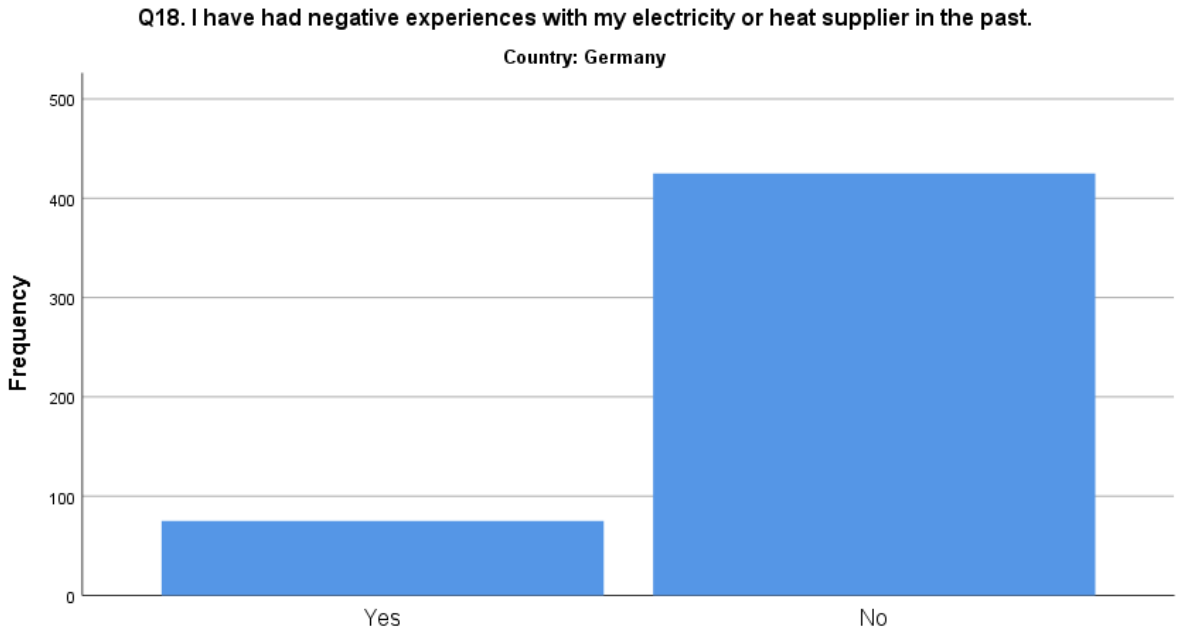
3.4.1.7 Negative experiences with electricity or heat supplier

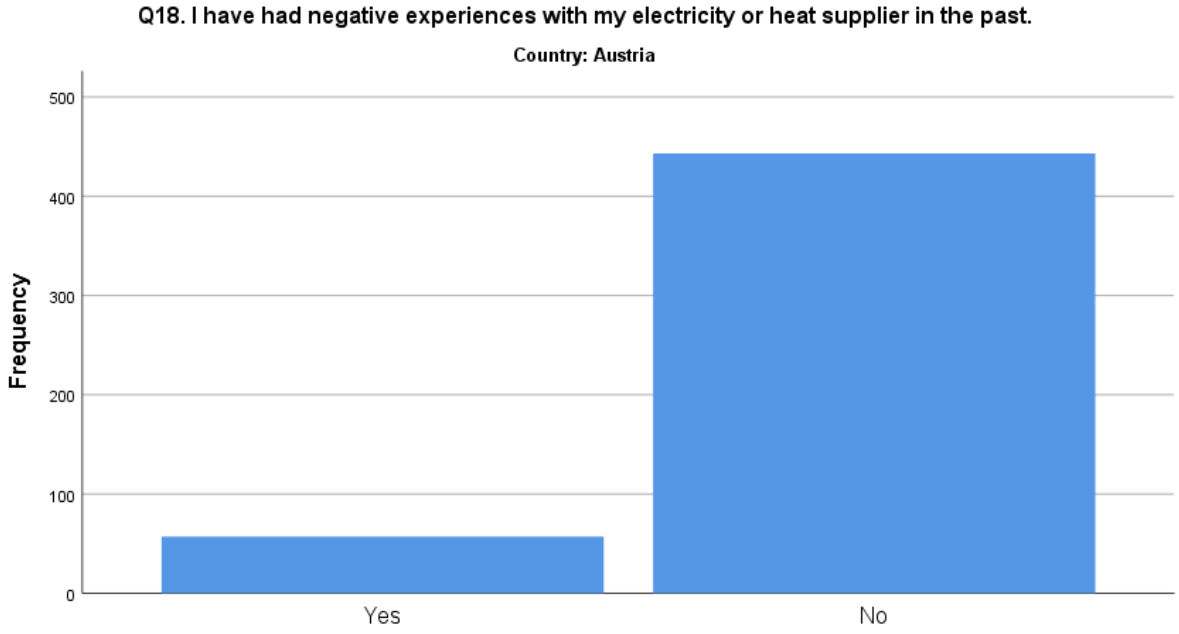
We also investigated whether interviewed households have had any negative experiences with their electricity or heat supplier in the past. We observe 122 (24,2% of the sample) respondents from Italy who claim to have had such negative experiences. Followed by Germany with 75 respondents (15%) and Austria with 57 respondents (11,4%). At last Switzerland demonstrates the lowest number of respondents with negative previous experiences with their electricity or heat supplier – only 35 respondents or 7% of the sample.

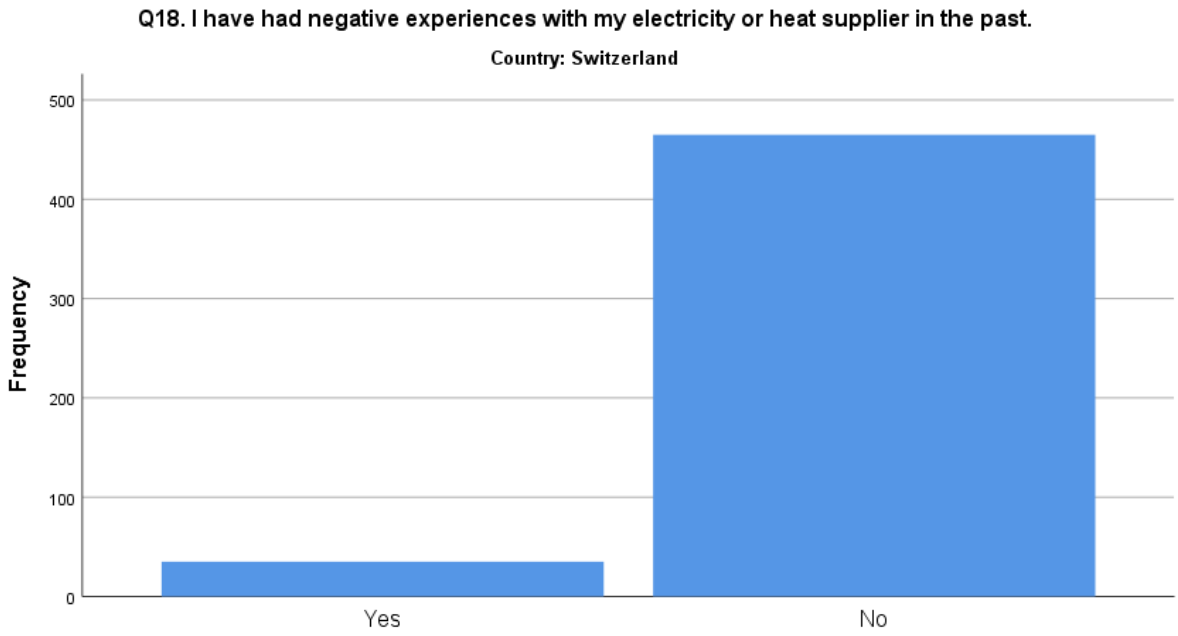
Q18. I have had negative experiences with my electricity or heat supplier in the past.

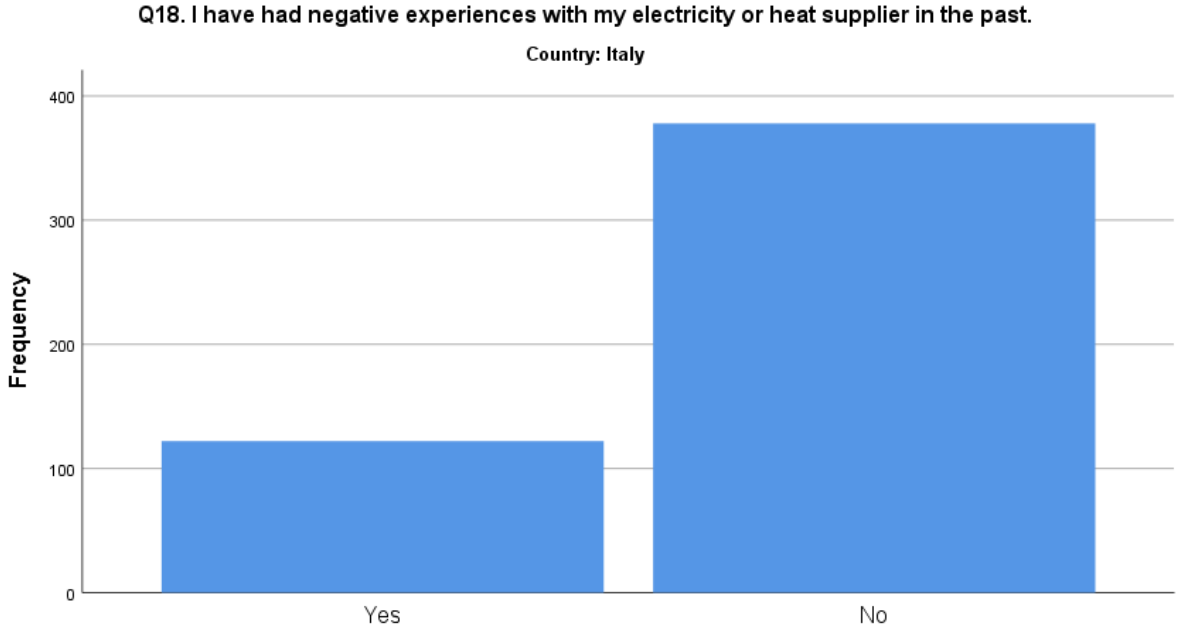
Country			Frequency	Percent	Valid Percent	Cumulative Percent
Germany	Valid	Yes	75	15,0	15,0	15,0
		No	425	85,0	85,0	100,0
		Total	500	100,0	100,0	
Austria	Valid	Yes	57	11,4	11,4	11,4
		No	443	88,6	88,6	100,0
		Total	500	100,0	100,0	
Switzerland	Valid	Yes	35	7,0	7,0	7,0
		No	465	93,0	93,0	100,0
		Total	500	100,0	100,0	
Italy	Valid	Yes	122	24,4	24,4	24,4
		No	378	75,6	75,6	100,0
		Total	500	100,0	100,0	

Bar Chart


Q18. I have had negative experiences with my electricity or heat supplier in the past.
Country: Germany
Frequency
500
400
300
200
100
0
Yes
No


Q18. I have had negative experiences with my electricity or heat supplier in the past.
Country: Austria
Frequency
500
400
300
200
100
0
Yes
No





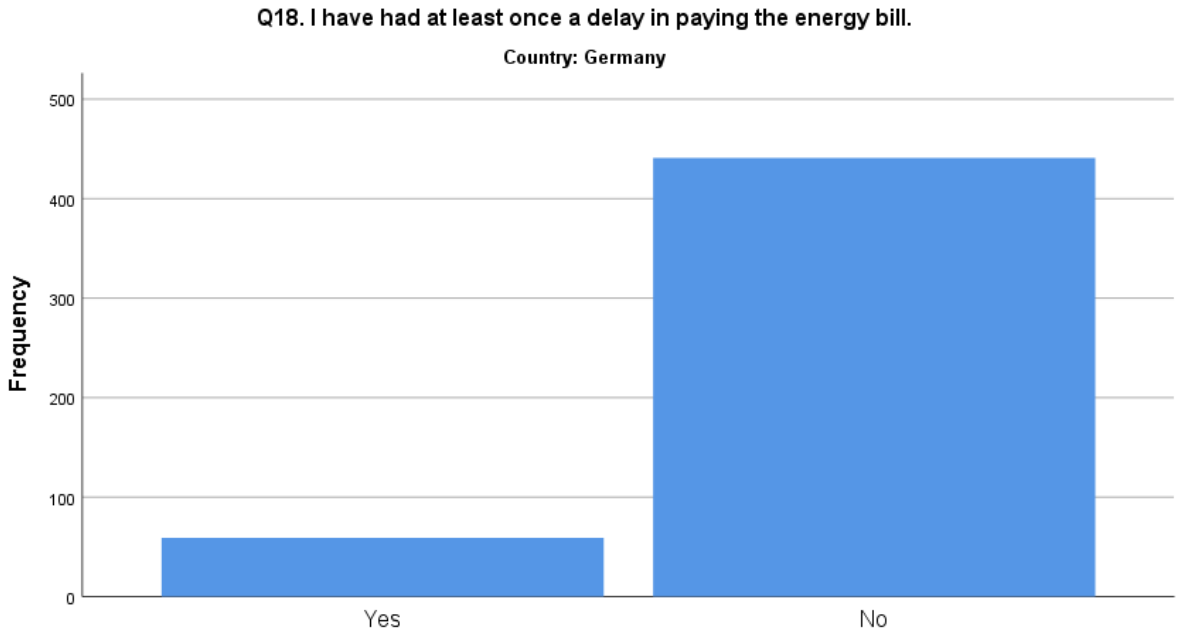
3.4.1.8 Delay in paying energy bill

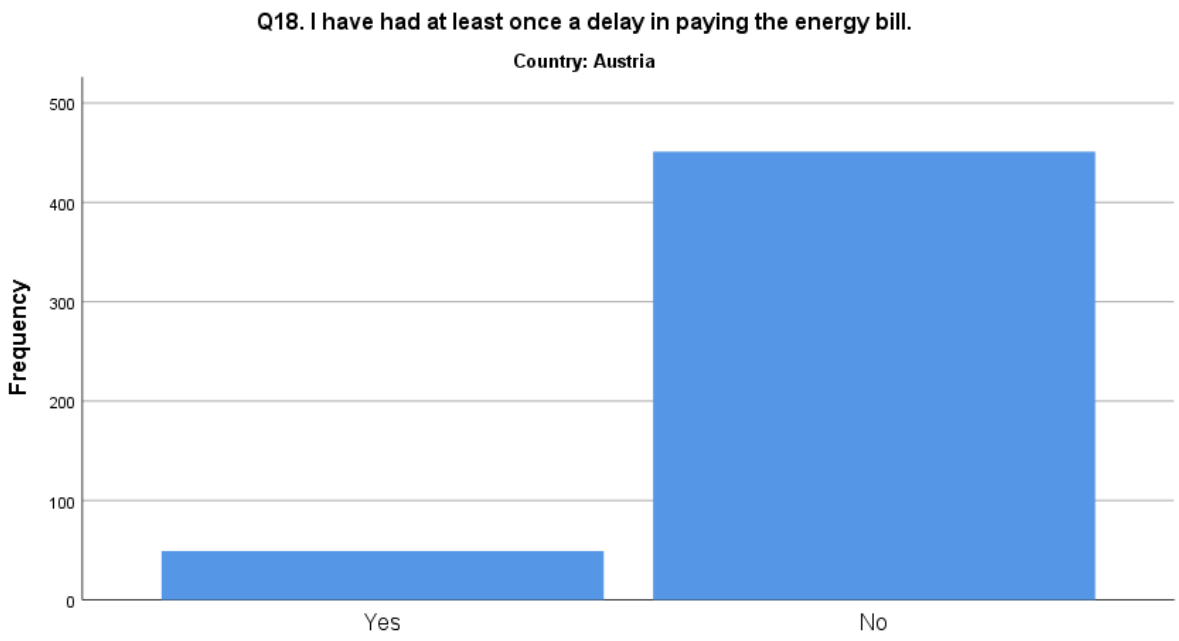
We asked respondents about issues with energy bill payments. Based on the responses we see that roughly 28% of Italians in our sample experienced delays in paying their energy bill at least once. This is the largest share among the four countries. Germany, Austria and Switzerland have each only around 10% of the surveyed population who have experienced such issues.

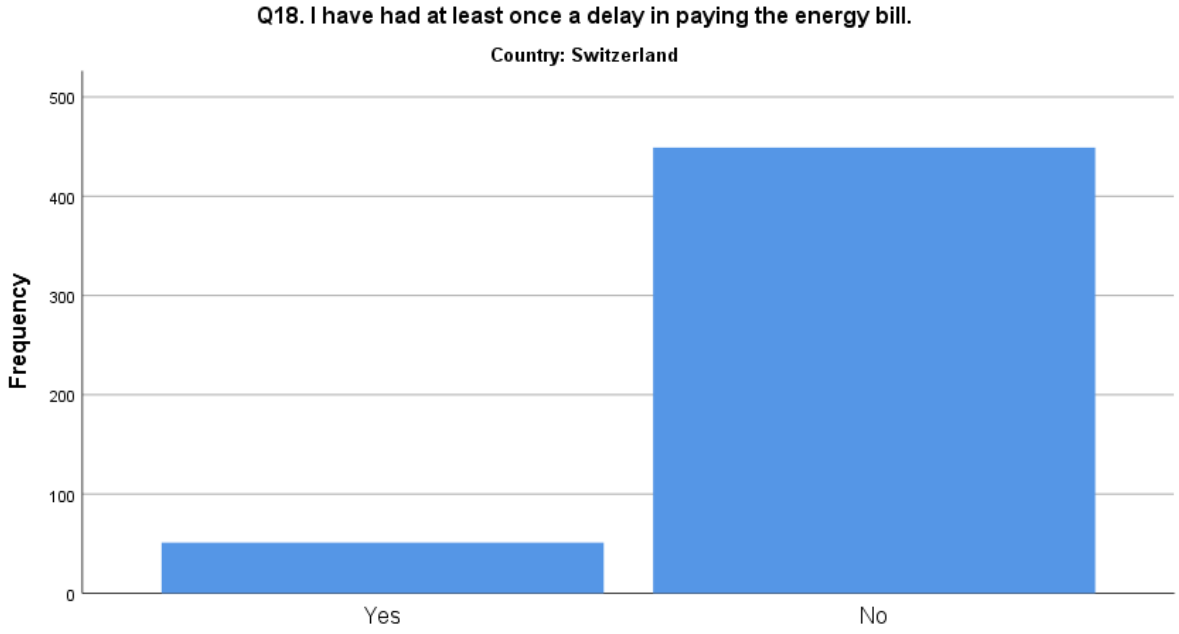
Q18. I have had at least once a delay in paying the energy bill.

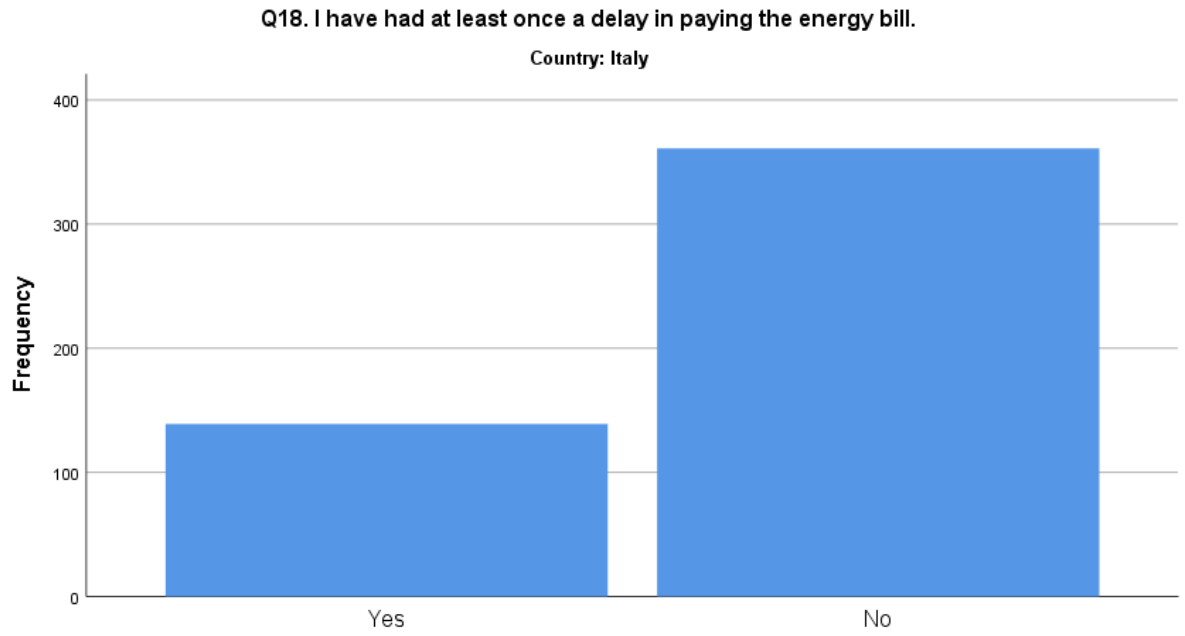
Country			Frequency	Percent	Valid Percent	Cumulative Percent
Germany	Valid	Yes	59	11,8	11,8	11,8
		No	441	88,2	88,2	100,0
		Total	500	100,0	100,0	
Austria	Valid	Yes	49	9,8	9,8	9,8
		No	451	90,2	90,2	100,0
		Total	500	100,0	100,0	
Switzerland	Valid	Yes	51	10,2	10,2	10,2
		No	449	89,8	89,8	100,0
		Total	500	100,0	100,0	
Italy	Valid	Yes	139	27,8	27,8	27,8
		No	361	72,2	72,2	100,0
		Total	500	100,0	100,0	

Bar Chart




Q18. I have had at least once a delay in paying the energy bill.
Country: Austria
Frequency
500
400
300
200
100
0
Yes
No


Q18. I have had at least once a delay in paying the energy bill.
Country: Switzerland
Frequency
500
400
300
200
100
0
Yes
No



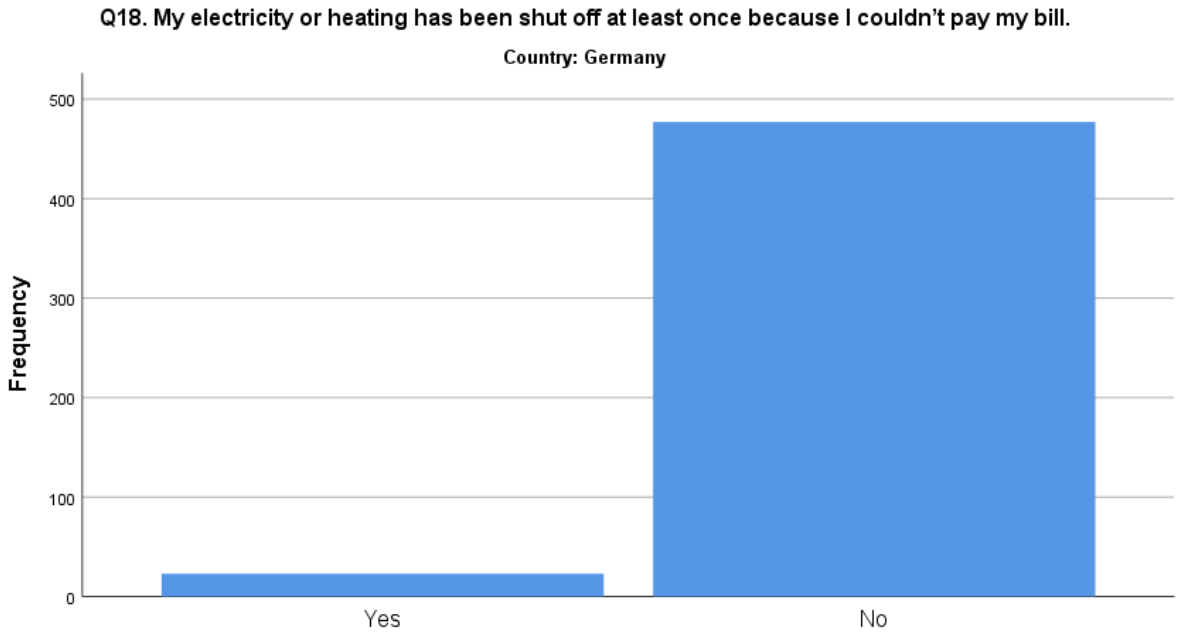
3.4.1.9 My electricity or heating has been shut off at least once because I couldn't pay my bill

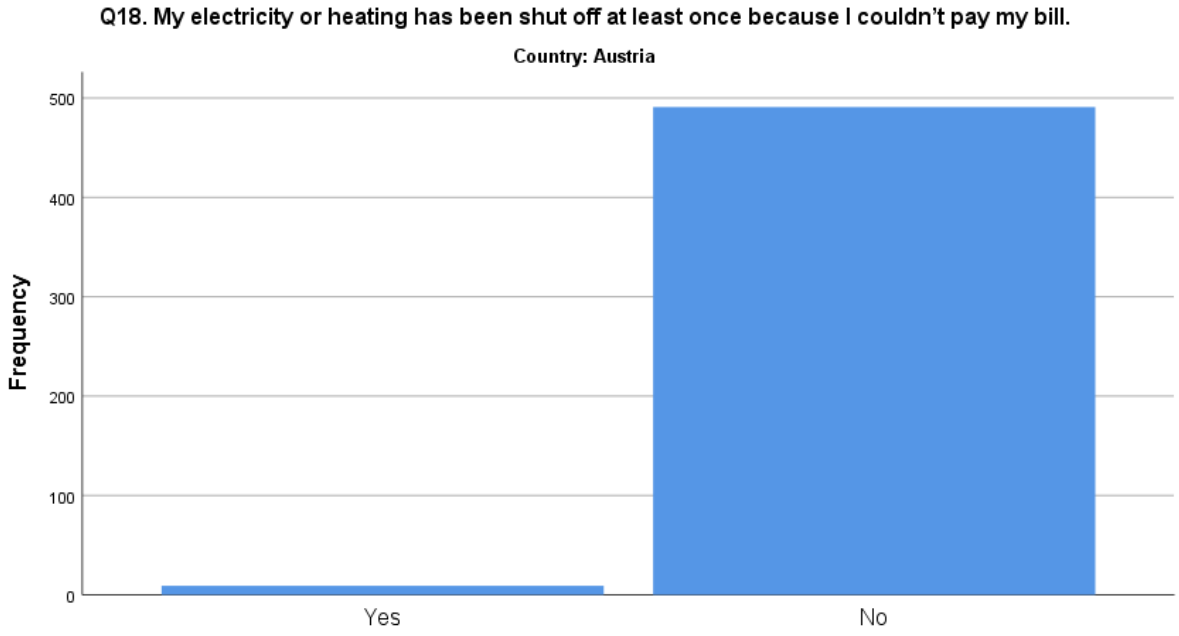
We also asked if a respondent's electricity or heating has been shut off at least once because he or she couldn't pay the bill. Although the percentage of households that did experience their heat or electricity shut off is relatively low in our sample, there is still a strong variation between the countries: the lowest percentage is found in Austria 1,8%, followed by Switzerland with 3,2%, Germany 4,6% and Italy with 6,2%.

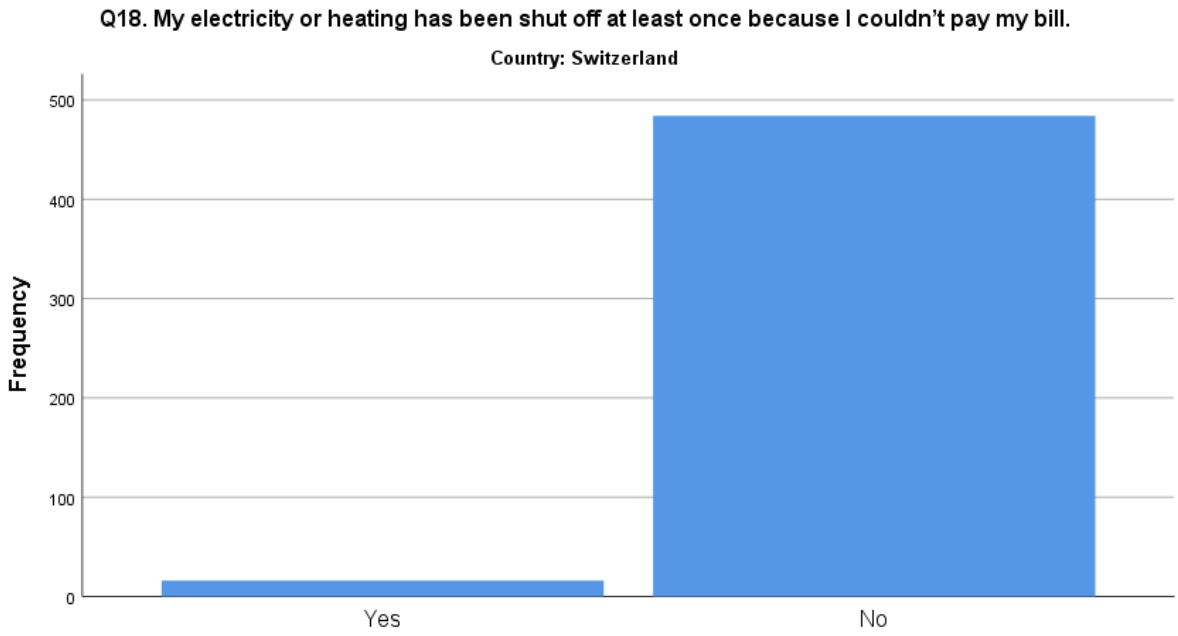
Q18. My electricity or heating has been shut off at least once because I couldn't pay my bill.

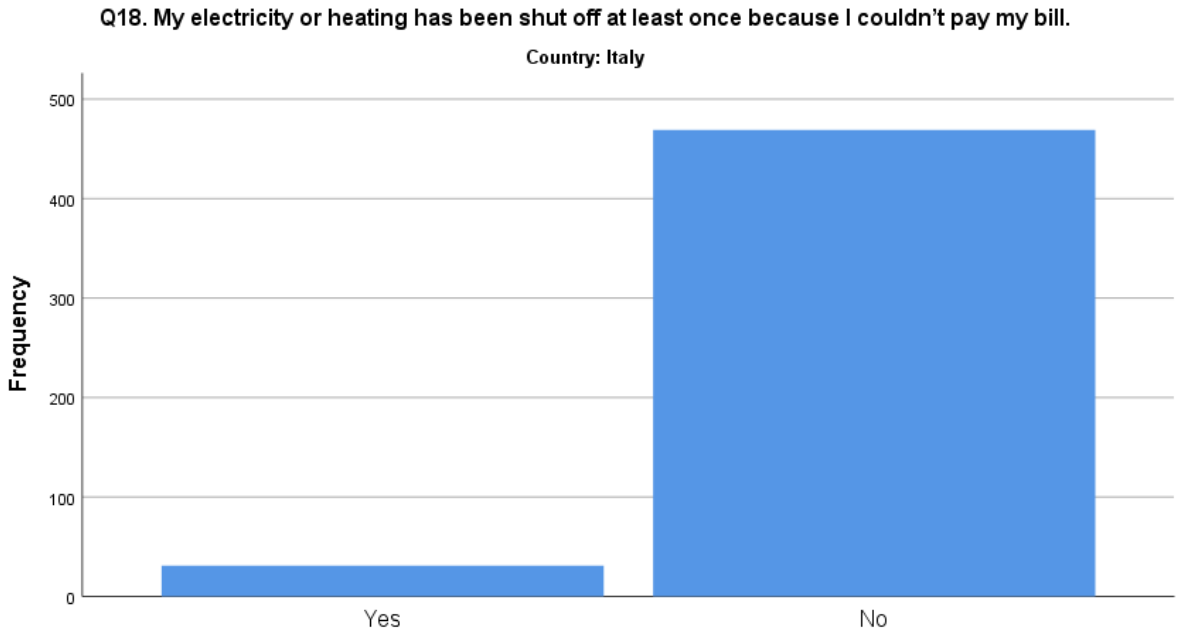
Country			Frequency	Percent	Valid Percent	Cumulative Percent
Germany	Valid	Yes	23	4,6	4,6	4,6
		No	477	95,4	95,4	100,0
		Total	500	100,0	100,0	
Austria	Valid	Yes	9	1,8	1,8	1,8
		No	491	98,2	98,2	100,0
		Total	500	100,0	100,0	
Switzerland	Valid	Yes	16	3,2	3,2	3,2
		No	484	96,8	96,8	100,0
		Total	500	100,0	100,0	
Italy	Valid	Yes	31	6,2	6,2	6,2
		No	469	93,8	93,8	100,0
		Total	500	100,0	100,0	

Bar Chart


Q18. My electricity or heating has been shut off at least once because I couldn't pay my bill.
Country: Germany
Frequency
500
400
300
200
100
0
Yes
No


Q18. My electricity or heating has been shut off at least once because I couldn't pay my bill.
Country: Austria
Frequency
500
400
300
200
100
0
Yes
No





3.4.1.10 Power outage within the last 12 months

Italy shows the highest number of respondents that have experienced a power outage that lasted longer than 60 minutes with the last 12 months – 90 households or 18% of the sample. Followed by Austria with 12,6%, Germany with 9% and Switzerland with 7,6%.

Q18. Within the last 12 months I have had at least one power outage which lasted longer than 60 minutes.

Country			Frequency	Percent	Valid Percent	Cumulative Percent
Germany	Valid	Yes	45	9,0	9,0	9,0
		No	455	91,0	91,0	100,0
		Total	500	100,0	100,0	
Austria	Valid	Yes	63	12,6	12,6	12,6
		No	437	87,4	87,4	100,0
		Total	500	100,0	100,0	
Switzerland	Valid	Yes	38	7,6	7,6	7,6
		No	462	92,4	92,4	100,0
		Total	500	100,0	100,0	
Italy	Valid	Yes	90	18,0	18,0	18,0
		No	410	82,0	82,0	100,0
		Total	500	100,0	100,0	

3.5 Mobility related questions

In this section, we examined the households' experience with cars driven by alternative fuels as well as their general preferences when making a decision about a potential car purchase.

3.5.1.1 Natural Gas (CNG or LPG)

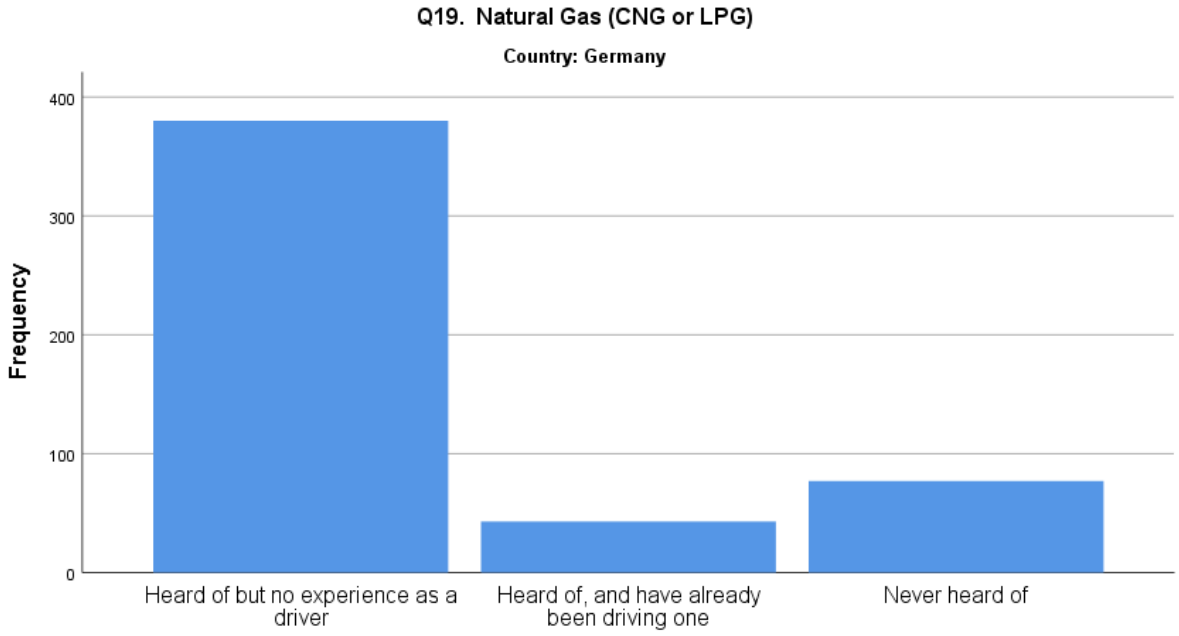
In the following four questions we asked the respondents to evaluate fuel types based on their previous knowledge and experience about it. The options among which they could choose included "Heard of, but no experience as a driver", "Heard of and have already been driving one" and "Never heard of". When asked about natural gas driven car Austria, Switzerland and Germany seem to show rather similar distribution of the answers – vast majority has heard of but has no experience, while 8–9% have heard and have an experience. A completely different situation is observed in Italy where 31,4% of the sample have experience with natural gas driven vehicles.

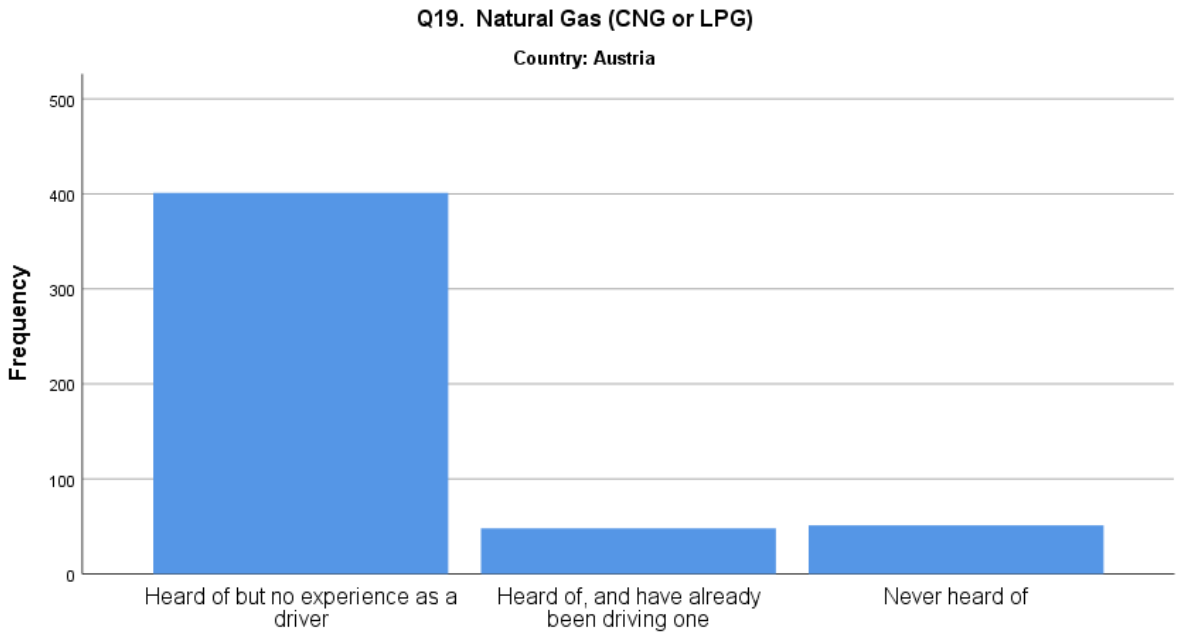
Q19. Natural Gas (CNG or LPG)

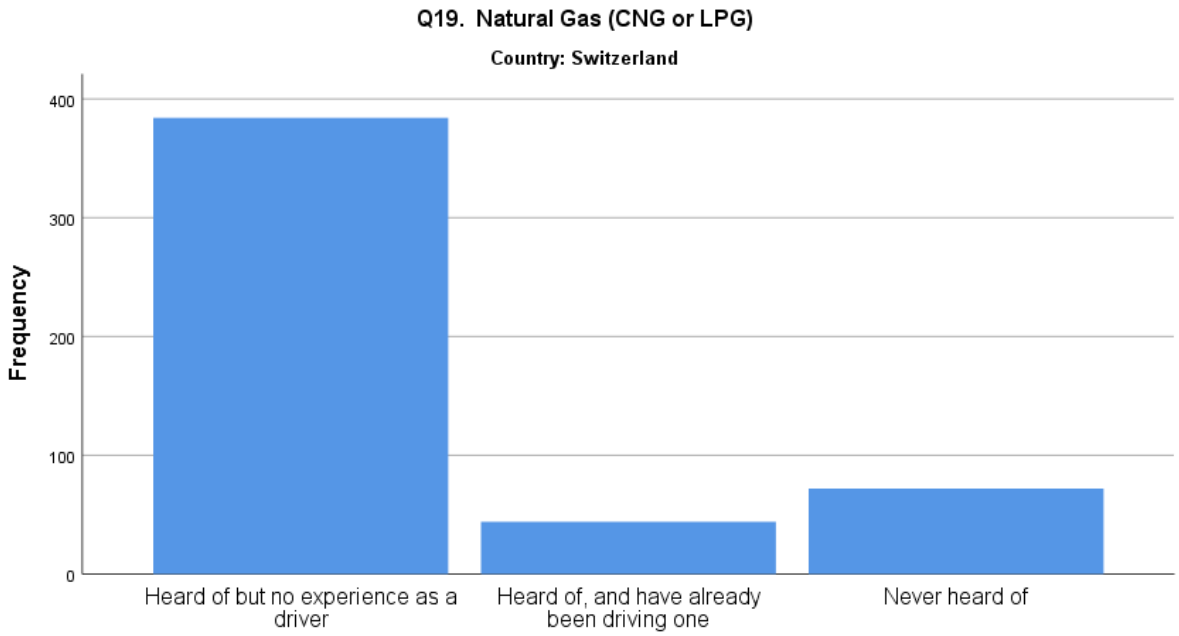
Country			Frequency	Percent	Valid Percent
Germany	Valid	Heard of but no experience as a driver	380	76,0	76,0
		Heard of, and have already been driving one	43	8,6	8,6
		Never heard of	77	15,4	15,4
		Total	500	100,0	100,0
Austria	Valid	Heard of but no experience as a driver	401	80,2	80,2
		Heard of, and have already been driving one	48	9,6	9,6

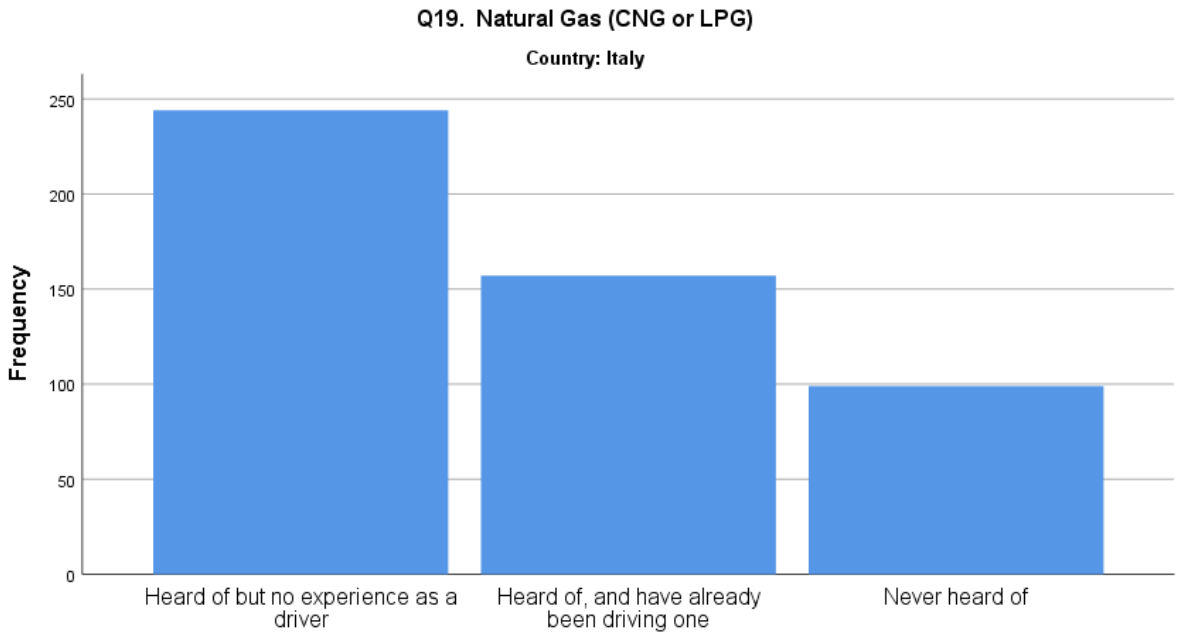
		Never heard of	51	10,2	10,2
		Total	500	100,0	100,0
Switzerland	Valid	Heard of but no experience as a driver	384	76,8	76,8
		Heard of, and have already been driving one	44	8,8	8,8
		Never heard of	72	14,4	14,4
		Total	500	100,0	100,0
Italy	Valid	Heard of but no experience as a driver	244	48,8	48,8
		Heard of, and have already been driving one	157	31,4	31,4
		Never heard of	99	19,8	19,8
		Total	500	100,0	100,0

Bar Chart




Q19. Natural Gas (CNG or LPG)
Country: Austria
Frequency
500
400
300
200
100
0
Heard of but no experience as a driver
Heard of, and have already been driving one
Never heard of


Q19. Natural Gas (CNG or LPG)
Country: Switzerland
Frequency
400
300
200
100
0
Heard of but no experience as a driver
Heard of, and have already been driving one
Never heard of



3.5.1.2 Electricity

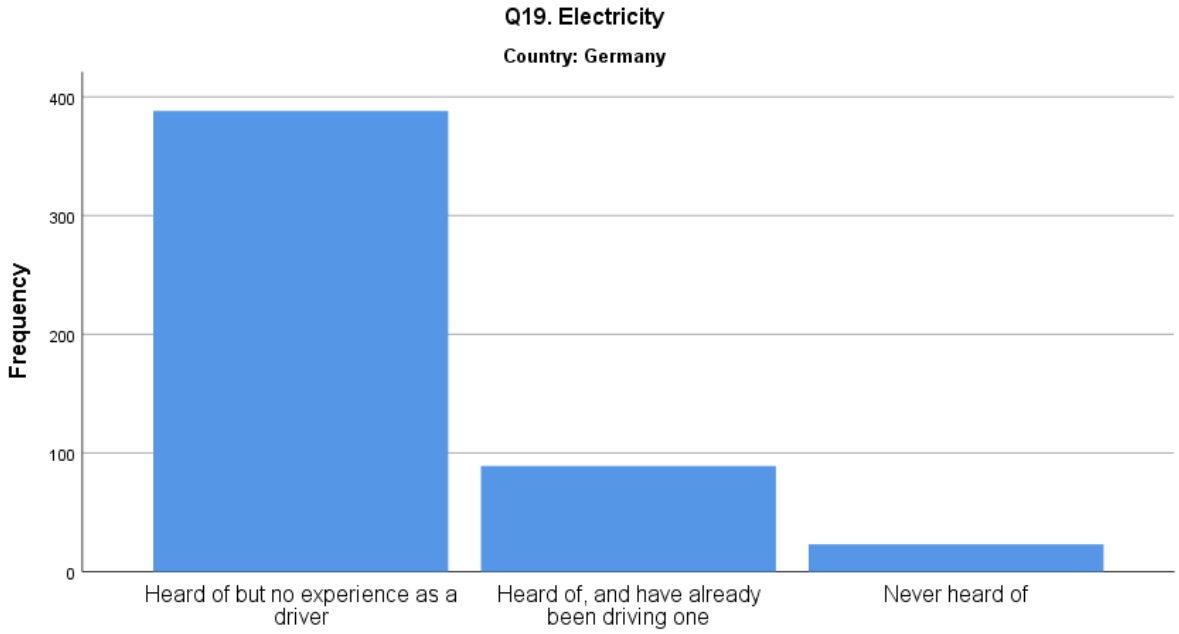
When asked about electric cars again Austria, Germany and Switzerland are rather similar with around 80% of the sample have heard, but have no experiences driving, 15 to 20 % have experience (Switzerland the highest share of 20,4% or 102 respondents) and 2 to 4% have never heard of. Italy shows a bit different values, but still comparable: 62,4 have heard of, 30,4% have experience and 7,2% have never heard of. Summing up Italy has the highest share of respondents among the four countries in both categories of those who have practical experience of driving an electric car and those who have no previous knowledge about such cars.

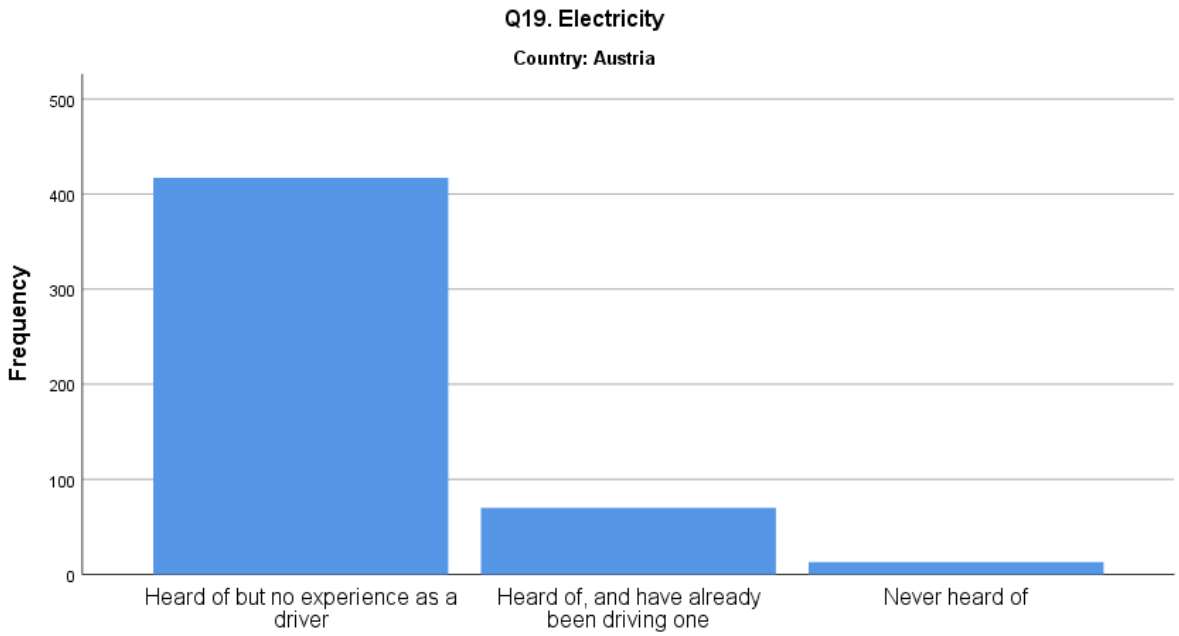
Q19. Electricity

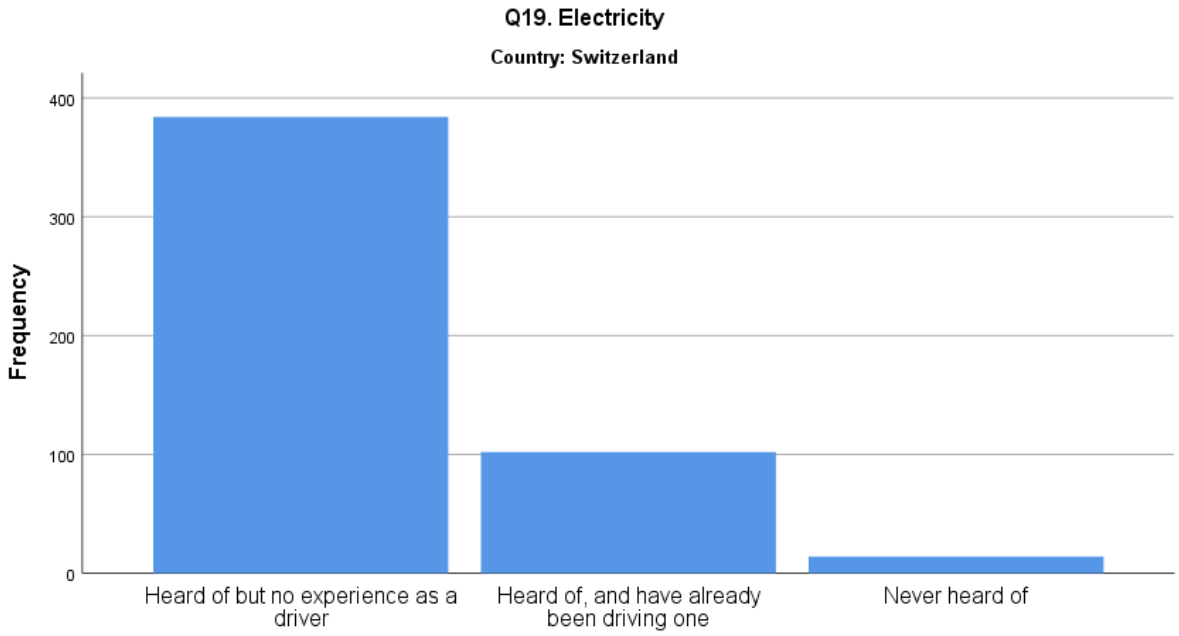
Country			Frequency	Percent	Valid Percent
Germany	Valid	Heard of but no experience as a driver	388	77,6	77,6
		Heard of, and have already been driving one	89	17,8	17,8
		Never heard of	23	4,6	4,6
		Total	500	100,0	100,0
Austria	Valid	Heard of but no experience as a driver	417	83,4	83,4
		Heard of, and have already been driving one	70	14,0	14,0
		Never heard of	13	2,6	2,6
		Total	500	100,0	100,0
Switzerland	Valid	Heard of but no experience as a driver	384	76,8	76,8

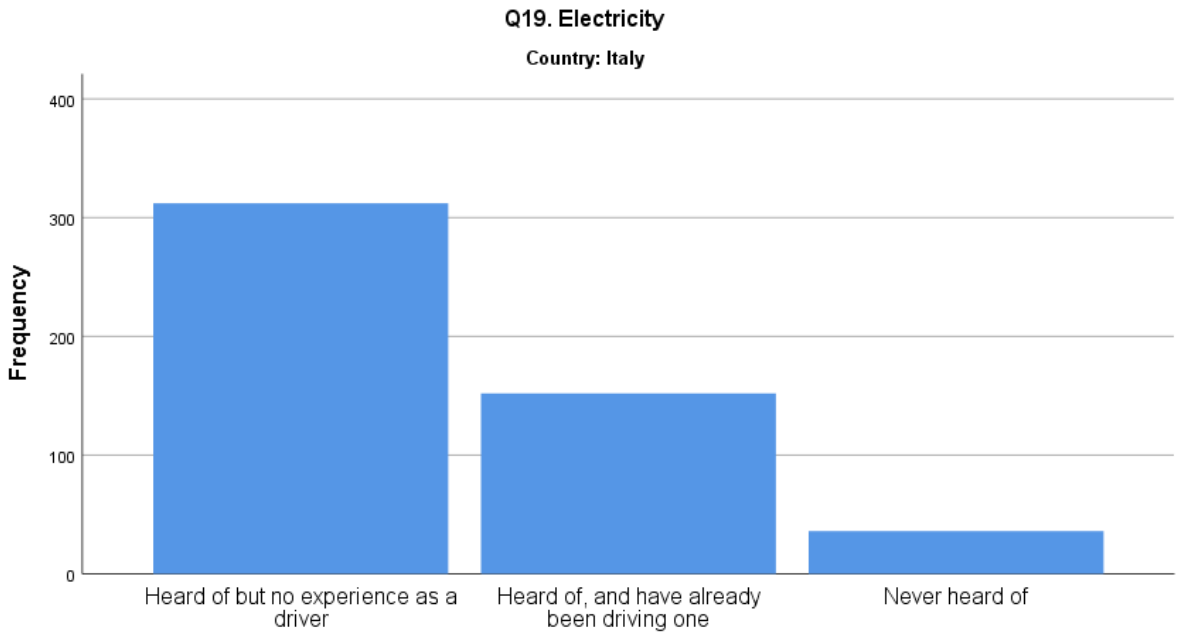
		Heard of, and have already been driving one	102	20,4	20,4
		Never heard of	14	2,8	2,8
		Total	500	100,0	100,0
Italy	Valid	Heard of but no experience as a driver	312	62,4	62,4
		Heard of, and have already been driving one	152	30,4	30,4
		Never heard of	36	7,2	7,2
		Total	500	100,0	100,0

Bar Chart




Q19. Electricity
Country: Austria
Frequency
500
400
300
200
100
0
Heard of but no experience as a driver
Heard of, and have already been driving one
Never heard of


Q19. Electricity
Country: Switzerland
Frequency
400
300
200
100
0
Heard of but no experience as a driver
Heard of, and have already been driving one
Never heard of



3.5.1.3 Hydrogen

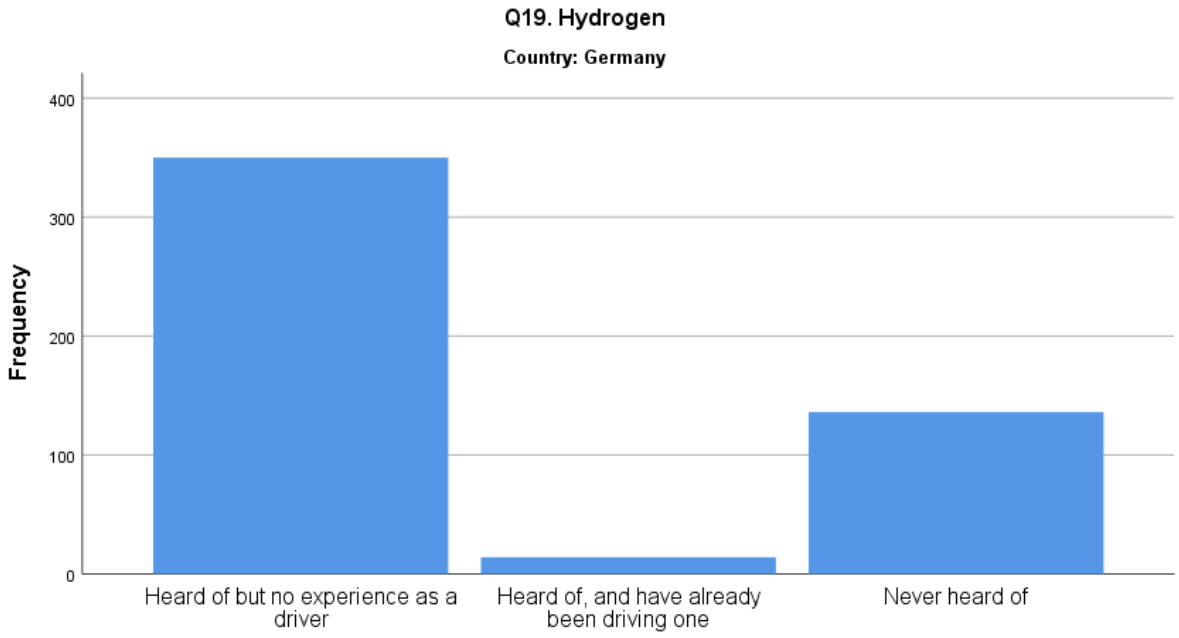
The results for all the four countries about the hydrogen driven cars are almost the same: roughly 2% have experience driving such a car, 60 to 70% have heard of, and 27 to 32% have never heard of such cars.

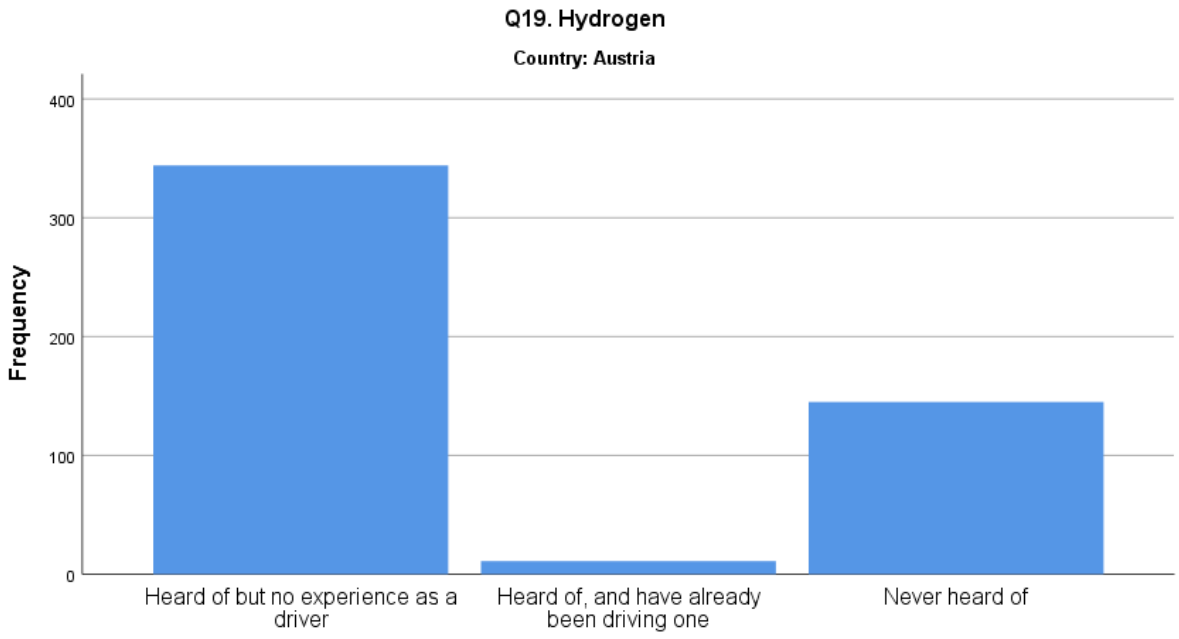
Q19. Hydrogen

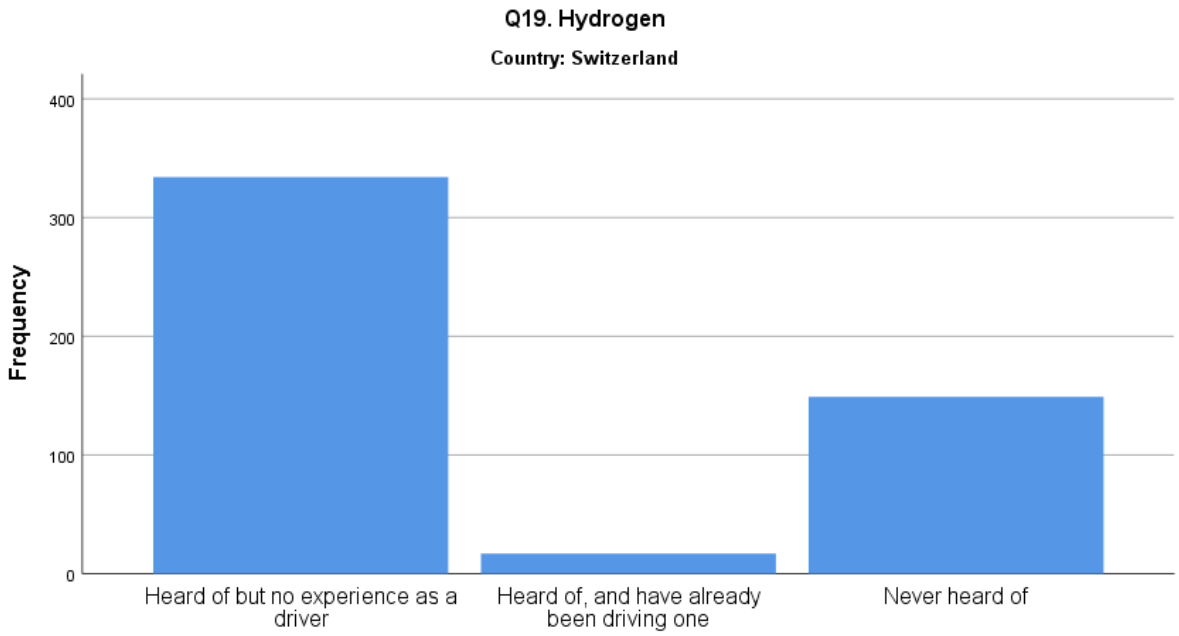
Country			Frequency	Percent	Valid Percent
Germany	Valid	Heard of but no experience as a driver	350	70,0	70,0
		Heard of, and have already been driving one	14	2,8	2,8
		Never heard of	136	27,2	27,2
		Total	500	100,0	100,0
Austria	Valid	Heard of but no experience as a driver	344	68,8	68,8
		Heard of, and have already been driving one	11	2,2	2,2
		Never heard of	145	29,0	29,0
		Total	500	100,0	100,0
Switzerland	Valid	Heard of but no experience as a driver	334	66,8	66,8
		Heard of, and have already been driving one	17	3,4	3,4
		Never heard of	149	29,8	29,8
		Total	500	100,0	100,0
Italy	Valid	Heard of but no experience as a driver	322	64,4	64,4

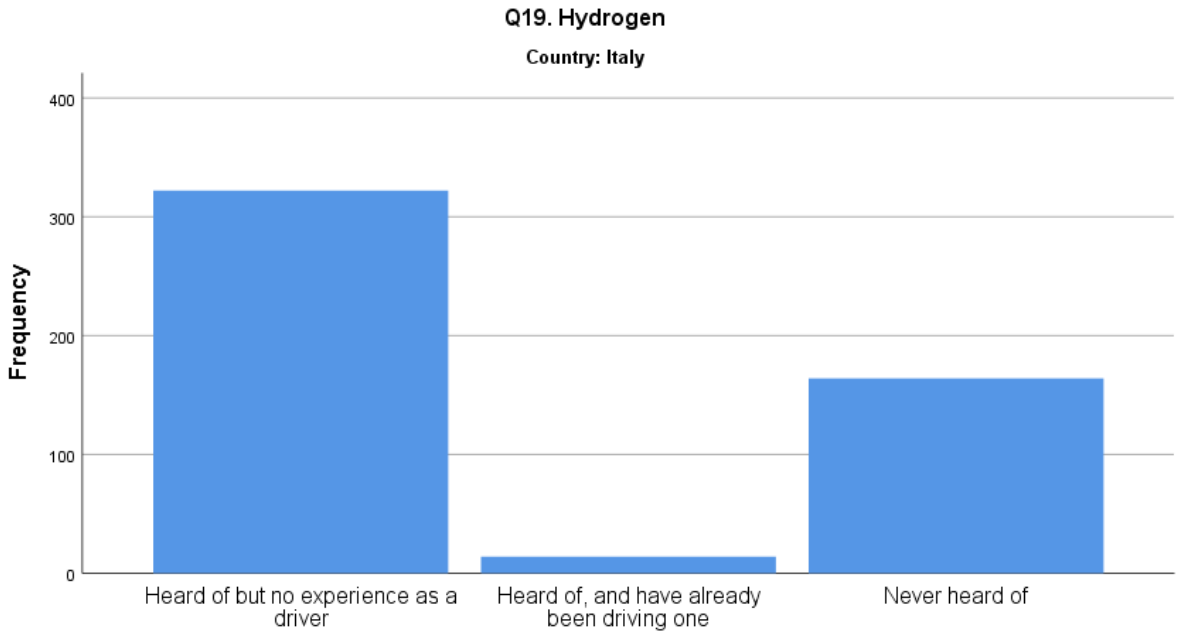
	Heard of, and have already been driving one	14	2,8	2,8
	Never heard of	164	32,8	32,8
	Total	500	100,0	100,0

Bar Chart









3.5.1.4 Biofuels

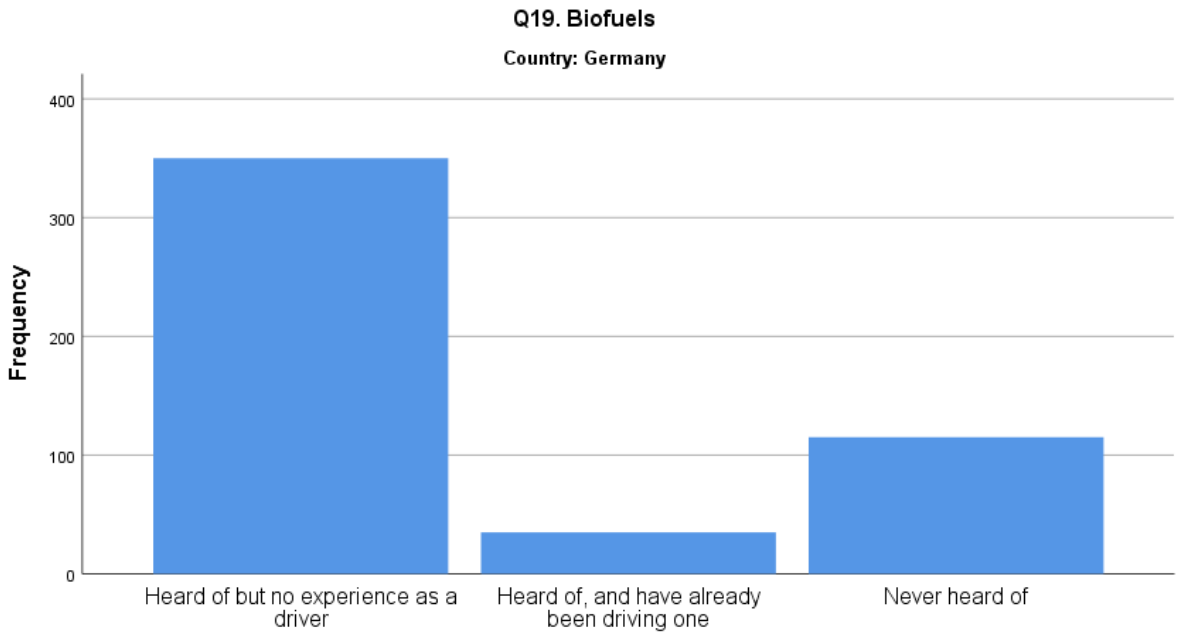
For cars driven by biofuels again all the four countries have almost identical distribution of answers: with about 7% having experience driving such cars and the majority being familiar with the technology only.

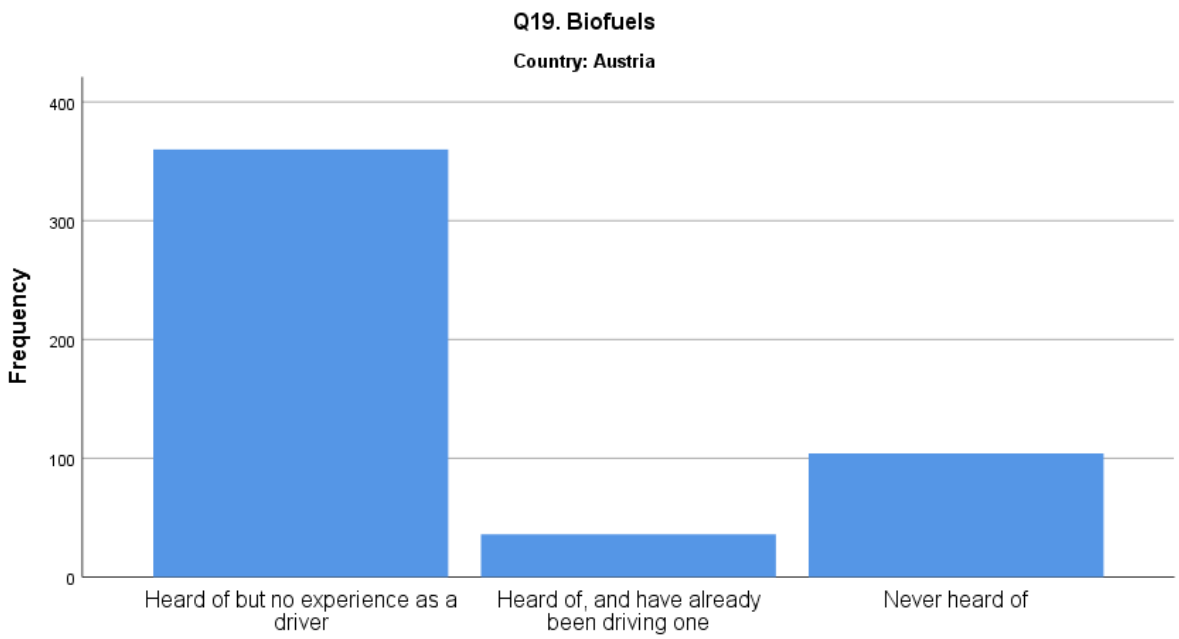
Q19. Biofuels

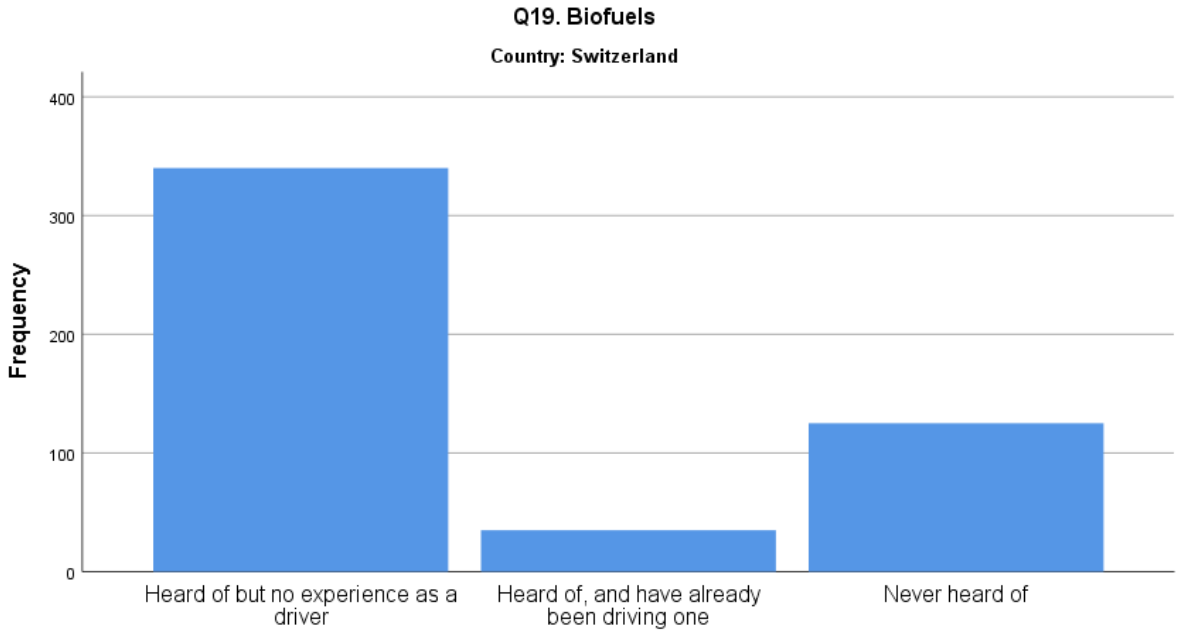
Country			Frequency	Percent	Valid Percent
Germany	Valid	Heard of but no experience as a driver	350	70,0	70,0
		Heard of, and have already been driving one	35	7,0	7,0
		Never heard of	115	23,0	23,0

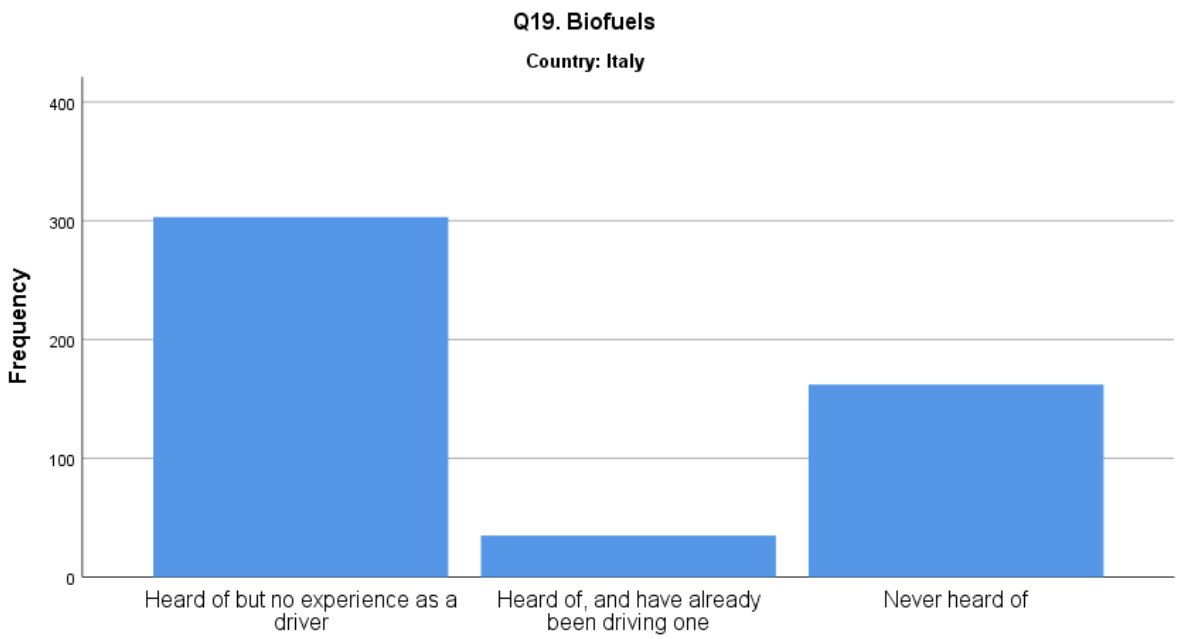
		Total	500	100,0	100,0
Austria	Valid	Heard of but no experience as a driver	360	72,0	72,0
		Heard of, and have already been driving one	36	7,2	7,2
		Never heard of	104	20,8	20,8
		Total	500	100,0	100,0
Switzer-land	Valid	Heard of but no experience as a driver	340	68,0	68,0
		Heard of, and have already been driving one	35	7,0	7,0
		Never heard of	125	25,0	25,0
		Total	500	100,0	100,0
Italy	Valid	Heard of but no experience as a driver	303	60,6	60,6
		Heard of, and have already been driving one	35	7,0	7,0
		Never heard of	162	32,4	32,4
		Total	500	100,0	100,0

Bar Chart




Q19. Biofuels
Country: Austria
Frequency
400
300
200
100
0
Heard of but no experience as a driver
Heard of, and have already been driving one
Never heard of


Q19. Biofuels
Country: Switzerland
Frequency
400
300
200
100
0
Heard of but no experience as a driver
Heard of, and have already been driving one
Never heard of



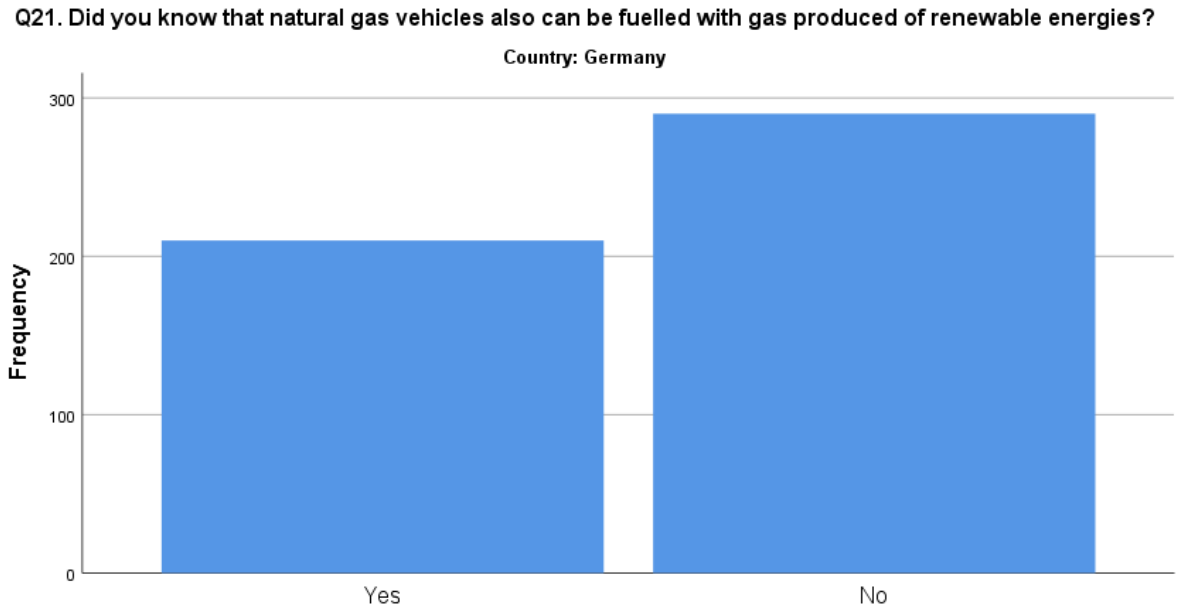
3.5.1.5 *Knowledge about possibility to fuel natural gas vehicles with renewable energy produced gas*

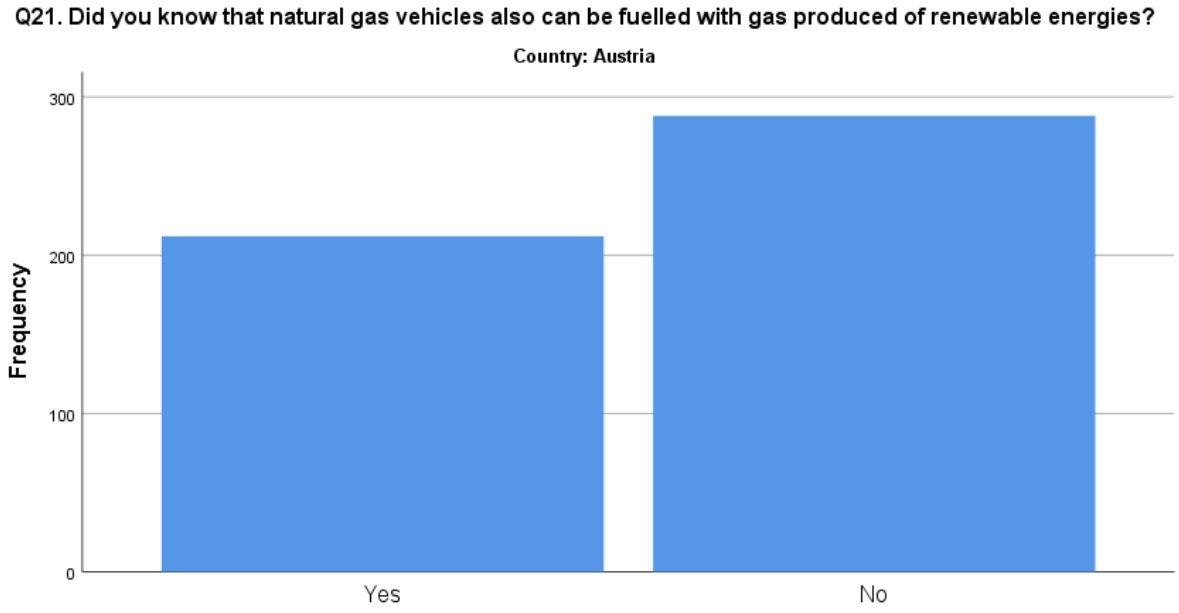
The survey included a question if the respondents know that natural gas vehicles also can be fueled with gas produced from renewable energies. Answers to this question of respondents from Austria and Germany are nearly the same – around 42% said that they know about this fact, while around 58% did not know. In Switzerland, the answers are divided almost equally between those who know and those who do not know. In Italy, only 31,4% of respondents have known about it and 68,6% have not.

Q21. Did you know that natural gas vehicles also can be fueled with gas produced of renewable energies?

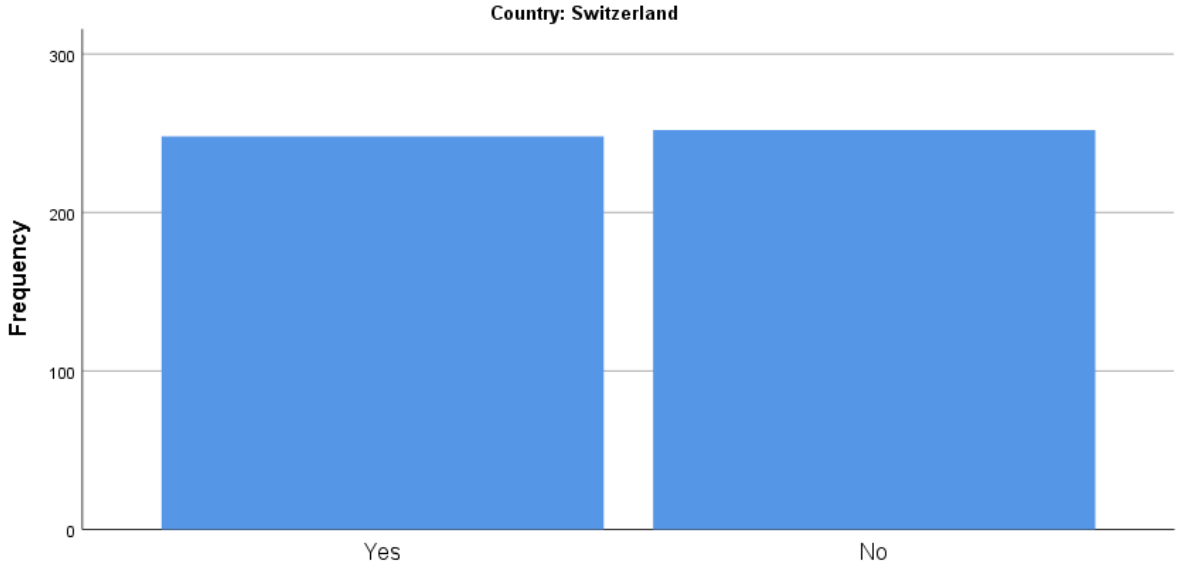
Country			Frequency	Percent	Valid Percent	Cumulative Percent
Germany	Valid	Yes	210	42,0	42,0	42,0
		No	290	58,0	58,0	100,0
		Total	500	100,0	100,0	
Austria	Valid	Yes	212	42,4	42,4	42,4
		No	288	57,6	57,6	100,0
		Total	500	100,0	100,0	
Switzerland	Valid	Yes	248	49,6	49,6	49,6
		No	252	50,4	50,4	100,0
		Total	500	100,0	100,0	
Italy	Valid	Yes	157	31,4	31,4	31,4
		No	343	68,6	68,6	100,0
		Total	500	100,0	100,0	

Bar Chart

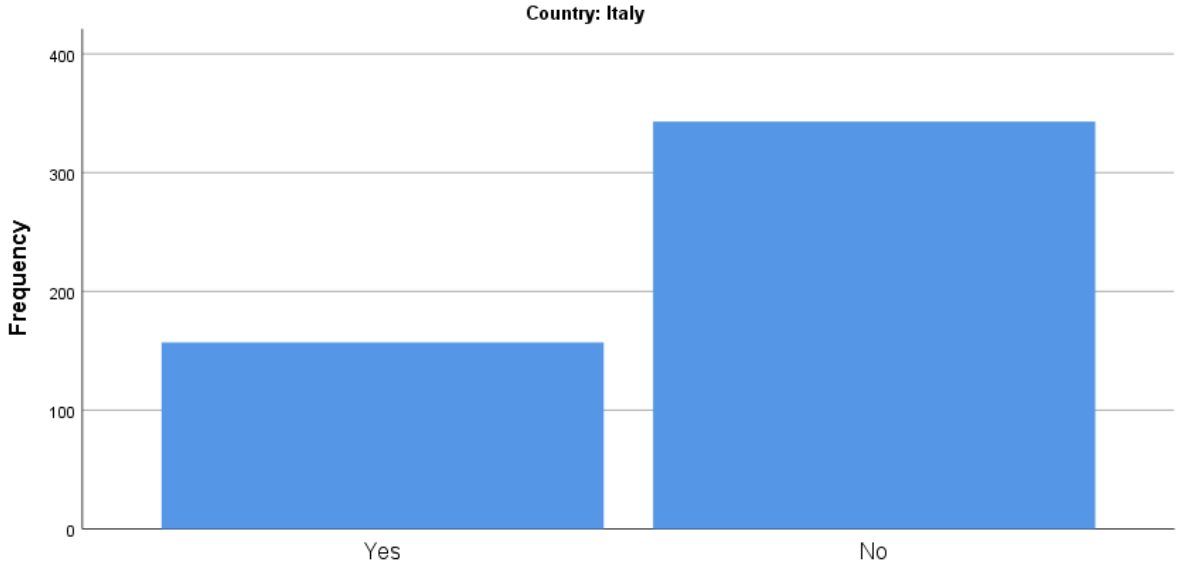

Q21. Did you know that natural gas vehicles also can be fuelled with gas produced of renewable energies?
Country: Germany
Frequency
300
200
100
0
Yes
No


Q21. Did you know that natural gas vehicles also can be fuelled with gas produced of renewable energies?
Country: Austria
Frequency
300
200
100
0
Yes
No

Q21. Did you know that natural gas vehicles also can be fuelled with gas produced of renewable energies?



Q21. Did you know that natural gas vehicles also can be fuelled with gas produced of renewable energies?



4 Public acceptance of power-to-gas and alternatives

In this section, an econometrics analysis of public acceptance of power-to-gas and alternatives including gas, wind and PV power plants is presented. The first subsection gives a description of the experimental design, followed by a brief explanation of the applied econometric methodology, and a discussion of the main results.

4.1 Scenarios in the choice experiment (Part I)

Before discussing the results of the choice experiment, we would like to provide a description of the experiment design, including the example of one of the suggested scenarios, which is a necessary step for further understanding of the results and methodology.

The main part of the survey was conducting the choice experiment in two steps. The first part was focused on new energy Infrastructures and technologies. The second part dealing with car purchasing behaviour was conducted as a choice experiment, which was worked out by our partner the RUG University and was conducted only online. As this paper only comprises the choice experiment about the energy infrastructures, we exclude the further explanation of the mobility scenarios (part II).

The content of the choice experiment was constructed as follows:

- Introduction story of the starting point and conditions
- Offering five scenarios with three options regarding different energy infrastructures, with pictures for every single option per scenario shown in a booklet in order to support the decision
- Asking the respondents' preferences under the given political support and the given amount the respondents will have to pay per month for each option

In the infrastructures and technologies choice experiment, the respondents were offered five scenarios suggesting different energy infrastructures in their neighbourhood. In each case, the respondents were asked to indicate one most and one least preferred option out of the three options per scenario. To be able to do so, the respondents had to take a look at the present booklet, which included comparable pictures of energy infrastructures for each option in each of the five scenarios.

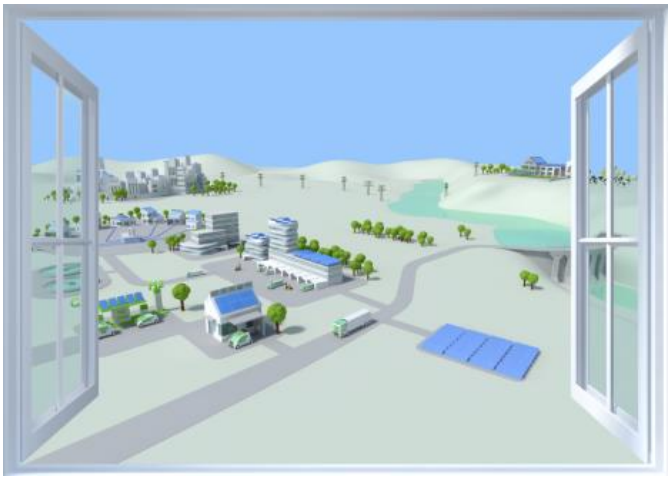
The booklet shows pictures of future electricity supply for each option in the respondent's neighbourhood. All the three options represent the provision of the same amount of electricity and the same level of supply reliability as experienced today. If a scenario contains the construction of a new infrastructure, like a wind power plant, it is considered to be built within approximately 500 m away from the home of the respondents. One of the alternatives within the scenarios is the current state of energy production from a mix of different energy sources, both fossil and renewable.

Each of the scenarios of energy provision, whether it involves the construction of new infrastructure in the community or not, comes at a different cost for respondents. These costs shall be split between all households in the community and the respective share payable by the respective household will be given along with each of the following scenarios. The cost is a monthly fee charged on a monthly basis from each household for the next five years on top of their electricity bill. Below we show an example of one of the five scenarios. The costs provided represent only one example. As explained earlier, each option of each scenario had a randomized amount within the bands of 0/2/10/25/50/100 Euro for the Austrian, German and Italian respondents and within a range of 0/2/10/25/55/110 CHF for the Swiss respondents.

Example for a scenario Description (scenario 3) in the questionnaire

In the third scenario, for Option 1, there is a **wind park with 3 turbines and a power-to-gas facility** with connection to the electricity and gas infrastructure is planned. If you prefer this option, you will be charged **10 EUR** per month.

The second option contains the realization of **photovoltaic panels** in combination with additional **high voltage power lines**. In case of choosing this option, you will have to pay **25 EUR** per month.



The third option is about the **current energy production** that is also available as alternative to option 1 and 2 which will result in monthly costs of **25 EUR** for your household.

Please also consider in your decision that you became aware from media reports that **the mayor of your hometown strongly supports Option 2**.

Which one of the following three options do you prefer first and which do you prefer last?

Scenario 3		Option 1	Option 2	Option 3
a	1st choice			
b	Last choice			

4.2 Econometric methodology

In terms of econometric models to analyse results of discrete choice experiments, the most frequent suggestion in the literature is the multinomial logit model developed by Mcfadden1974. However, this model assumes that all respondents have the same preferences and also assumes independence from irrelevant alternatives. The assumption of similar preference is likely to be violated in the STORE&GO survey since we have a broad range of respondents across space and demographic characteristics. Based on the design of the choice experiment where respondents were asked to order the suggested options in terms of their preference (most preferred and least preferred option), we use an alternative-specific rank-ordered probit model by using maximum simulated likelihood (MSL). The model allows to relax the independence of irrelevant alternatives (IIA) property that is characteristic of the rank-ordered logistic model by estimating the variance–covariance parameters of the latent-variable errors.

The mathematical description and numerical computations of the rank-ordered probit model are similar to that of the multinomial probit model. The only difference is that the dependent variable of the rank-ordered probit model is ordinal, showing preferences among alternatives, as opposed to the binary dependent variable of the multinomial probit model, indicating a chosen alternative. Further on, alternative-specific rank-ordered probit regression allows two types of independent variables: alternative-specific variables, in which the values of each variable vary with each alternative in our case each suggest option (3 option per scenario), and case-specific variables, which vary with each case, in our case it's an interviewed respondent or household.

Formally the model we estimated is defined as follows: consider the latent-variable parameterization of a J alternative rank-ordered probit model, we have variables η_{ij}, j=1,...,J, such that

$$\eta_{ij}=x_{ij}\beta+z_i\alpha_j+\xi_{ij} \qquad (1)$$

where x_{ij} are the alternative-specific independent variables which include specific characteristics of each option in the suggested scenarios including technology used, price and treatment, the z_i are the case-specific independent variables which include information about respondent like age, gender, education etc. We assume that individual i ranks the alternatives in order of the alternative indices j=1,2...,J, so the alternative J is the preferred alternative and alternative 1 is the least preferred alternative.

4.3 Main results

This section presents the econometric results of the estimation of equation (1) using statistical software. Although we already provided a descriptive analysis of the survey results in the previous section, in order to continue with the results of the main analysis, the summary of descriptive statistics of the variables that were included in the model is briefly discussed and presented in Table 6.

The total number of households interviewed in STORE&GO survey is 2.000, each of the households was offered 5 scenarios with 3 options, which is why the total number of observations for the choice experiment analysis is 30.000 – as each option is considered as a separate decision with respect to each alternative and is further included into our analysis. Further on, we describe some of the main variables presented in Table 6. For instance, price is the monthly fee or costs of respective alternative in euros for each household. Pv, ptg, gas[7], wind, and power are variables that reflect whether an offered option included a respective technology PV, power-to-gas, gas lines, wind power, power lines. Mayor, chancellor and Eu are binary variables indicating the treatment which the respondent received. As discussed above this treatment was included in a form of a policy recommendation on

[7] As gas power plants currently dominantly run on natural gas, meaning fossil based gas, we assume in our context natural gas power plant, although no explicit definition of the gas power plant was provided.

a different level either local, or national or European. Age1-4 represent the age group of the respondent with age1 being the youngest group of 20 to 34 years old and age4 the oldest of the respondents of 65 years old and older. Occ1-5 reflect different employment status (see details in Table 6). Rural is a binary variable, which is equal to one if the household is residing in a rural area. Edu1-4 represents the highest level of education of respondents, starting from elementary or secondary school to university or college degree. Hhsize reflects the size of the households in number of residing persons. Kids is a variable capturing the presence of children under 14 years old in the household. High_inc, mid_inc, low_inc represent respectively high, middle or low income groups as described above in the survey. Further variables such as knowledge of power-to-gas or negative experience with the electricity supplier are also included in the model and are described in Table 6. All these variables are included in the econometric analysis to test if there is a significant difference in acceptance of PtG based on these characteristics of the households.

Table 6. Summary statistics

Variable	Mean	Observations	Unit/Explanation
Price	30.5677	30000	Cost for household in €
Pv	0.2666667	30000	Technology/Binary
Ptg	0.3333333	30000	Technology/Binary
Gas	0.3333333	30000	Technology/Binary
Wind	0.2666667	30000	Technology/Binary
Power	0.2	30000	Technology/Binary
Mayor	0.083	30000	Recommendation Treatment/Binary
Chancellor	0.083	30000	Recommendation Treatment/Binary
Eu	0.0836667	30000	Recommendation Treatment/Binary
country_de	0.25	30000	Germany
country_at	0.25	30000	Austria
country_ch	0.25	30000	Switzerland
country_it	0.25	30000	Italy
age1	0.2125	30000	20-34 years
age2	0.2025	30000	34-44 years
age3	0.347	30000	45-65 years
age4	0.238	30000	>65 years
occ1	0.4745	30000	Working full time
occ2	0.111	30000	Working part time
occ3	0.0405	30000	University or college student
occ4	0.1485	30000	Unemployed/House-wife/Husband
occ5	0.2255	30000	Retired
rural	0.3995	30000	Binary
female	0.4805	30000	Binary
edu1	0.1015	30000	Elementary or secondary school

edu2	0.344	30000	Professional training
edu3	0.3395	30000	A-levels
edu4	0.21	30000	University or college degree
Hhsize	2.3505	30000	Number of persons
Kids	0.2759949	30000	Binary
Protest	0.0245	30000	Protest against renewable energy projects
Ptgknow	0.252	30000	Knowledge of PtG technology
Yearsinhome	12.697	30000	Duration of residence
Owner	0.459	30000	Ownership of the dwelling
Nearplants	0.4235	30000	Residing near power plants
negative_provider	0.1445	30000	Negative experience with provider
Poweroutage	0.118	30000	Experienced power outage
delay_bill	0.149	30000	Delay in electricity bill payment
high_inc	0.359	30000	High income
mid_inc	0.3485	30000	Middle income
low_inc	0.2925	30000	Low income

In order to estimate the alternative specific ranked probit model a base alternative that specifies the alternative used to normalize the latent-variable location (also referred to as the level of utility) has to be defined. The base alternative in our case is the current energy status (Option 3 in each of the suggested scenarios). The results of the regressions should be interpreted with respect to/or compared to the base alternative. Also the coefficients in the applied model should be interpreted ceteris paribus – holding other factors fixed.

Table 7 shows the results of two regression models in two respectively titled columns. The first model includes the data for all the four countries combined. Although based on descriptive results presented in the previous section, we see that the four surveyed countries are often similar in the distribution of answers, especially Austria, Germany and Switzerland, while there are still some differences observed in the case of Italy and sometimes Switzerland. Thus, the second column of Table 7 includes an interaction term of each country and each treatment variable, which allows controlling for each country-specific effect separately, for each of the described above treatment variables. Looking at the results of the first model, we see the effects of infrastructure specific parameters: for instance, higher price in form of a higher monthly fee in the suggested option decreases the preference for a suggested option, meaning the higher the costs of alternative decreases the chances of that alternative being ranked as the most preferred option holding other factors fixed. A similar negative effect is observed if alternatives included high voltage power lines or gas power plants. Positive effect – meaning higher acceptance and increase in the rank of alternative as the most preferred option – is observed if the alternative included PV or power-to-gas technology. No statistically sig-

nificant effect for wind power plants is found in our sample, which can be interpreted as an ambiguous opinion among the population about this technology. Looking at the three treatment variables (mayor, chancellor, EU) we find that they all tend to be statistically significant: in the case of EU and chancellor, which have a positive effect on the rank of the alternative at 5% level and also if mayor support for technology was used as a treatment at 10% level. When including country-specific interaction terms (in the second model) we observe that the positive effect in the EU and chancellor treatment variables is actually driven by Italy. The effect of mayor is only determined in Switzerland. All the other variables have almost exactly the same effects in both models.

Further on, we continue our analysis by investigating the coefficients for case-specific variables for 1 alternative (Option 1 in the scenarios). The coefficients here should be interpreted with respect to the base alternative. The four parameters that have an impact on household decision in our study are age, gender, education and children. Compared to younger people (age1 group of 20–34 years old which has to be omitted from the regression to avoid multicollinearity) older groups of people (35 to 44 and 45 to 65) have ranked alternative 1 lower than the base case. Same negative effect is observed for women. Which can be interpreted as following: holding other factors fixed women have lower chances to choose option 1 as the most preferred one compared to current status than men. In other words, we find lower preference for option 1 for women in our study. Same conservative trend is observed for older population who apparently prefer to stick to the current status in the energy mix than to accept a change. Compared to respondents with university or college degree the respondents with elementary or secondary school as their highest level of education also have lower acceptance for option 1 compared to the current status. This effect stresses out the importance of education and communication for acceptance of the energy transition. Interestingly, the households with children represent the only group with a positive effect. Meaning compared to households without children they have higher preferences for option 1 compared to the current state. None of the other variables like income, previous knowledge about PtG, ownership status, protest to renewable energy projects and others turn out to be significant.

Looking at the case-specific variables interpretation for 2 alternative (Option 2 in the scenarios), we observe a slightly different pattern. First of all the variable protest is negative and statistically significant. This means households that have objected against renewable energy projects have a lower acceptance of Option 2 compared to current state. Gender has the same negative effect as in the 1 Option. However the effect of age is smaller, it is still negative and only present for the group of 45 to 65 years old. In the 2 Option we also see an effect of employment: namely part- time employed respondents have lower acceptance for alternative 2 compared to current state than the full-time employed. Both country specific and aggregated models are similar in terms of coefficients for both options 1 and 2.

As the interpretation of the coefficients in the alternative-specific ranked probit is not straightforward due to normalization for location and scale, and allows basically only to assess the direction of the effect (Stata n.d.), we also obtained marginal effects which can be interpreted in a more quantifiable way.

The marginal effects from the model with country specific interaction terms are shown in Table 8. The interpretation of the effects is the following. The probability that a household chooses the current status (option 3) as the most preferred one and option one as the least preferred one is 0.09. If price for option 1 or 2 increases by 1 euro this probability increases by .0013 and .00006 respectively. If price for option 3 increases the probability decreases by 0.0014. The strongest effect of technologies is found for PV and PtG, for instance if PV was included in option 1 the probability of the mentioned above preference for current state decreased by 0.025749 and in case of PtG by 0.012861. Another example of the marginal effects of the PtG variables can be interpreted as follows: if option 1 has PtG technology then the probability that a person will have the highest preference for option 3 (and lowest for 1), which does not have a PtG, will decrease from 0.09 to 0.08.

Summing up the results of our analysis, we can conclude that alternatives with PV or PtG technology in have higher acceptance in our sample irrespective of the model used. There are no effects found for wind power plants. The treatment used in our experiment in form of recommendation of the respective technology by mayor, chancellor or EU shows significant positive effect, meaning a recommendation on local, country or EU level increases the acceptance for a suggested alternative holding other factors fixed. Switching to the country-specific model, we find that the effect for chancellor and EU is found only in Italy, and the mayor effect in Switzerland. Further on with regards to other parameters which are suggested by previous research like place attachment, residing near power plant or income – none of these turns out to have an impact on acceptance of renewable energy infrastructures in our sample. However, the socio-demographic characteristics like gender, education and employment revealed strong and persistent impact on households' acceptance of a certain option. We find that women, elder groups, part-time employed as well as respondents with secondary or elementary education compared to university prefer to stick to current status to suggested changes in terms of the renewable energy infrastructure. The same effect is observed for households that claimed to have protested to renewable energy projects in any form. However, the households with kids compared to those without tend to have higher preference for suggested renewable energy infrastructure to current state.

Table 7 Factors determining the social acceptance of PtG and alternatives in Germany, Austria, Switzerland, and Italy

	Model 1		Model 2	
alt				
price	-0.0146***	(0.000471)	-0.0146***	(0.000470)
pv	0.280***	(0.0382)	0.281***	(0.0382)
ptg	0.137***	(0.0285)	0.137***	(0.0285)
gas	-0.112***	(0.0429)	-0.112***	(0.0429)
wind	0.0647	(0.0440)	0.0650	(0.0440)
power	-0.116***	(0.0315)	-0.116***	(0.0315)
mayor	0.0815*	(0.0468)		
chancellor	0.105**	(0.0462)		
eu	0.0920**	(0.0461)		
mayorde			0.0486	(0.0727)
chancde			-0.0147	(0.0682)
eude			-0.0495	(0.0698)
mayorat			-0.0503	(0.0803)
chancat			0.0939	(0.0783)
euat			-0.0161	(0.0769)
mayorch			0.216***	(0.0781)
chancch			0.0882	(0.0803)
euch			0.108	(0.0747)
mayorit			0.112	(0.0816)
chancit			0.256***	(0.0810)
euit			0.328***	(0.0861)
1				
de	-0.00154	(0.0793)	-0.00358	(0.0793)
at	-0.0525	(0.0756)	-0.0534	(0.0756)
it	0.131	(0.0920)	0.134	(0.0922)
age2	-0.188**	(0.0884)	-0.188**	(0.0884)
age3	-0.162**	(0.0812)	-0.161**	(0.0812)
age4	-0.131	(0.119)	-0.130	(0.119)
occ2	-0.139	(0.0920)	-0.141	(0.0920)
occ3	-0.0170	(0.151)	-0.0178	(0.151)
occ4	0.103	(0.0849)	0.103	(0.0850)
occ5	-0.0848	(0.101)	-0.0851	(0.101)
rural	-0.0924	(0.0580)	-0.0930	(0.0580)
female	-0.127**	(0.0559)	-0.127**	(0.0559)
edu1	-0.215**	(0.107)	-0.217**	(0.107)
edu2	-0.0208	(0.0789)	-0.0215	(0.0789)
edu3	-0.0117	(0.0764)	-0.0118	(0.0765)
hhsize	-0.0427	(0.0326)	-0.0425	(0.0326)
kids	0.208**	(0.0860)	0.208**	(0.0861)
protest	-0.102	(0.152)	-0.100	(0.153)
ptgknow	0.00242	(0.0636)	0.00343	(0.0635)
yearsinhome	-0.00352	(0.00445)	-0.00350	(0.00445)
owner	0.0396	(0.0627)	0.0384	(0.0627)
nearplants	-0.00112	(0.0567)	-0.00114	(0.0568)
negative_p~r	-0.0651	(0.0805)	-0.0648	(0.0805)
poweroutage	0.0199	(0.0854)	0.0207	(0.0855)
delay_bill	-0.0857	(0.0801)	-0.0859	(0.0801)
high_inc	0.00394	(0.0731)	0.00316	(0.0731)
mid_inc	-0.0559	(0.0765)	-0.0564	(0.0765)
_cons	0.820***	(0.146)	0.821***	(0.147)

2				
de	0.0426	(0.0813)	0.0844	(0.0809)
at	0.0119	(0.0805)	0.0500	(0.0808)
it	0.168*	(0.0955)	0.140	(0.0957)
age2	-0.144	(0.0921)	-0.142	(0.0922)
age3	-0.154*	(0.0855)	-0.154*	(0.0856)
age4	-0.0898	(0.125)	-0.0873	(0.125)
occ2	-0.190*	(0.0968)	-0.193**	(0.0968)
occ3	0.0522	(0.154)	0.0553	(0.154)
occ4	0.0612	(0.0885)	0.0617	(0.0885)
occ5	-0.127	(0.105)	-0.124	(0.105)
rural	-0.0353	(0.0605)	-0.0361	(0.0605)
female	-0.187***	(0.0585)	-0.187***	(0.0585)
edu1	-0.114	(0.113)	-0.116	(0.113)
edu2	0.00124	(0.0829)	-0.00110	(0.0829)
edu3	0.0883	(0.0795)	0.0879	(0.0796)
hhsize	-0.0149	(0.0343)	-0.0141	(0.0344)
kids	0.0830	(0.0895)	0.0814	(0.0896)
protest	-0.360**	(0.159)	-0.362**	(0.160)
ptgknow	0.0737	(0.0671)	0.0765	(0.0671)
yearsinhome	-0.00238	(0.00478)	-0.00251	(0.00479)
owner	0.0374	(0.0664)	0.0370	(0.0665)
nearplants	0.0382	(0.0591)	0.0391	(0.0591)
negative_p~r	-0.0172	(0.0821)	-0.0137	(0.0822)
poweroutage	-0.102	(0.0871)	-0.106	(0.0873)
delay_bill	-0.119	(0.0829)	-0.119	(0.0831)
high_inc	0.0907	(0.0748)	0.0911	(0.0749)
mid_inc	-0.00897	(0.0786)	-0.00862	(0.0785)
_cons	0.566***	(0.149)	0.552***	(0.150)
lnl2_2				
_cons	0.286***	(0.0203)	0.284***	(0.0203)
l2_1				
_cons	0.788***	(0.0290)	0.791***	(0.0289)
N	30000		30000	
adj. R-sq				

Standard errors in parentheses
* p<0.1, ** p<0.05, *** p<0.01

Table 8 Marginal effects

Pr(1=3 2=2 3=1) = .09361574

variable	dp/dx	Std. Err.	z	P>|z|	[95% C.I.]		X
price							
1	.001361	.000051	26.64	0.000	.00126	.001461	31.151
2	.000066	.000028	2.33	0.020	.000011	.000121	31.428
3	-.001426	.000052	-27.37	0.000	-.001528	-.001324	29.124
pv*							
1	-.025749	.003427	-7.51	0.000	-.032466	-.019032	.4
2	-.001617	.000607	-2.67	0.008	-.002806	-.000428	.4
3	.02976	.004345	6.85	0.000	.021244	.038275	0
ptg*							
1	-.012861	.002686	-4.79	0.000	-.018124	-.007597	.6
2	-.000702	.000315	-2.23	0.026	-.00132	-.000084	.4
3	.013957	.003021	4.62	0.000	.008036	.019877	0
gas*							
1	.010411	.003949	2.64	0.008	.002671	.01815	.6
2	.000447	.000265	1.69	0.092	-.000073	.000966	.4
3	-.01059	.003896	-2.72	0.007	-.018227	-.002953	0
wind*							
1	-.00604	.004071	-1.48	0.138	-.01402	.001939	.4
2	-.000312	.000259	-1.20	0.228	-.000819	.000196	.4
3	.006483	.004474	1.45	0.147	-.002286	.015251	0
power*							
1	.011047	.003049	3.62	0.000	.005072	.017023	.2
2	.000461	.000251	1.84	0.066	-.000031	.000952	.4
3	-.01096	.002864	-3.83	0.000	-.016573	-.005347	0
casevars							
de*	-.000132	.007705	-0.02	0.986	-.015233	.014969	.25
at*	.004714	.007505	0.63	0.530	-.009996	.019424	.25
it*	-.012808	.008543	-1.50	0.134	-.029553	.003937	.25
age2*	.018829	.009246	2.04	0.042	.000706	.036951	.2025
age3*	.015991	.008148	1.96	0.050	.000021	.031961	.347
age4*	.012828	.012173	1.05	0.292	-.01103	.036687	.238
occ2*	.014273	.00951	1.50	0.133	-.004367	.032913	.111
occ3*	.001322	.014927	0.09	0.929	-.027934	.030579	.0405
occ4*	-.009623	.007824	-1.23	0.219	-.024958	.005712	.1485
occ5*	.008559	.010051	0.85	0.394	-.011141	.028259	.2255
rural*	.00889	.005706	1.56	0.119	-.002295	.020074	.3995
female*	.01266	.005442	2.33	0.020	.001994	.023325	.4805
edu1*	.021991	.011651	1.89	0.059	-.000845	.044827	.1015
edu2*	.002017	.007692	0.26	0.793	-.013058	.017093	.344
edu3*	.000634	.007452	0.09	0.932	-.013972	.01524	.3395
hhsize	.004023	.003165	1.27	0.204	-.00218	.010226	2.3505
kids*	-.018936	.007686	-2.46	0.014	-.034	-.003871	.215
protest*	.009129	.015232	0.60	0.549	-.020725	.038983	.0245
ptgknow*	-.000727	.006179	-0.12	0.906	-.012837	.011383	.252
yearsinhome	.000338	.000432	0.78	0.434	-.000509	.001185	12.697
owner*	-.003743	.006066	-0.62	0.537	-.015632	.008145	.459
nearplants*	-.000075	.005504	-0.01	0.989	-.010863	.010713	.4235
negative_p~*	.006194	.008055	0.77	0.442	-.009594	.021981	.1445
poweroutage*	-.001691	.00812	-0.21	0.835	-.017606	.014223	.118
delay_bill*	.008649	.008048	1.07	0.283	-.007125	.024422	.149
high_inc*	-.000756	.007096	-0.11	0.915	-.014664	.013152	.359
mid_inc*	.005326	.007497	0.71	0.477	-.009369	.020021	.3485

Conclusions

The main goal of this Deliverable is to investigate factors that determine the social acceptance of the power-to-gas (PtG) technology and alternatives in four countries involved in the STORE&GO project, namely Germany, Austria, Italy and Switzerland. In order to reach this goal, a survey of 500 households in each of the four countries was conducted. This survey included a choice experiment examining the preferences of European households with respect to PtG and alternative energy infrastructures. Further on, the survey also collected information on household knowledge and attitude with respect to renewable energy, as well as their current socio-demographic characteristics and their experiences with respect to their electricity provider and consumption issues (power outages, delays in bill payment, etc). These factors were included in our analysis to test for difference in acceptance and preferences with respect to PtG among different social groups.

To our knowledge no previous study has quantitatively assessed the social acceptance of power-to-gas technology, especially in the context of four different countries. (König et al. 2018) stressed out in their recent publication based on 36 persons' interviews that participation, involvement, and communication of clear everyday life socio-economic impacts of PtG are required to increase the social acceptance of the technology. Although their input in clarifying social acceptance of PtG is highly valuable, the authors suggest that further research including socio-economic factors is required. Further on compared to studies, investigating acceptance of renewable energy (Bertsch et al. 2016; Schumacher et al. 2019), which find that higher level of acceptance for solar and wind technologies, as well as higher acceptance on national than on local level, and an impact of age and education of acceptance, we observe rather similar effects in our research with regards to socio-demographic factors.

The results of our analysis demonstrate that options with PV and PtG technology have higher acceptance in our sample irrespective of the model used in all the four countries compared to options without such technologies. Meaning if a certain change in the current energy mix is planned and this change will include construction of PV and PtG there will be a higher acceptance and support of the population compared to changes without such technologies. At the same time including gas power plants or power lines in the suggested option decreases households' acceptance in our sample. We find no effects on households' infrastructure preference or acceptance for wind power plants. The additional treatment used in our experiment in form of a recommendation of the respective technology by mayor, chancellor or EU shows a significant positive effect on household acceptance. Switching to a country-specific model, we find that the effect for chancellor and EU is found only in Italy, and the mayor effect in Switzerland. With regards to other investigated parameters, which are also suggested by previous research like place attachment, residing near power plants or income level – none of these turn out to have an impact on the acceptance of renewable energy infrastructures in our sample.

Looking at the socio-demographic characteristics like gender, education and employment, we observe a persistent impact on households' acceptance of PtG and alternatives. We find that women, elder group, part-time employed as well as respondents with secondary or elementary education compared to university prefer to stick to current status and are more resistant to suggested changes in terms of the renewable energy infrastructures. Same effect is observed for households that claimed to have protested to renewable energy projects in any form. However, the households with kids compared to those without tend to have a higher preference for the suggested renewable energy infrastructure to current state.

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Annex - Questionnaire

Interviewer-Nr._____

STORE&GO

Screener for the questionnaire

Social acceptance of renewable energy infrastructures & mobility

Yellow remarks: for the Interviewer

Blue Remarks: Online

Green remarks: for the Programmer

<CATI>
INTERVIEWER: ASK TO SPEAK TO THE HEAD OF THE HOUSEHOLD (ASSURE THAT THE CALL IS NOT A SALES CALL).

Hello, this is <INTERVIEWER NAME>, calling from XXXX. We are involved in an important study on behalf of the European Commission, which is being conducted in Austria, Germany, Switzerland and Italy, concerning the attitudes of households towards **renewable energies.**

INTERVIEWER: IF NECESSARY

The EU funded research project STORE&GO develops and demonstrates innovative solutions for energy storage in three European countries. A major challenge for the large scale deployment of these new technologies might be rooted in peoples' concerns with regards to siting decisions and the security of the systems.

The aim of this survey is to collect data in order to understand your perceptions and opinions to renewable energies and the relating new technologies as well as energy infrastructures. Your opinion is essential to get a better insight on these topics.

We would ask you to support by taking part in a telephone interview/online, which should take approximately 20-25 minutes – not now but at a time that suits you. I need you to answer a few questions now, to make sure that the study is relevant to you. These are aimed at ensuring that we collect the views of a good cross-section of society in each country.

Please be assured that all responses will be treated in strict confidence in respecting our respondents' right to take part in research on an anonymous basis.

IF RESPONDENT IS WILLING IN PRINCIPLE TO TAKE PART IN 25 MINUTE INTERVIEW, PROCEED TO SCREENING QUESTIONS.

<CATI only>

Recording INTERVIEWER, ADVISE RESPONDENT: All our calls are recorded, for purposes of quality control and training:

1 Yes, I confirm the respondent is aware of recording

<Online (landing page)>

PLEASE READ THE FOLLOWING BEFORE CLICKING 'NEXT':

Welcome to our important study on behalf of the European Commission, which is being conducted in Austria, Germany, Switzerland and Italy, concerning the attitudes of householders towards **renewable energies and the relating new technologies as well as energy infrastructures including mobility.**

The EU funded research project STORE&GO develops and demonstrates innovative solutions for energy storage in three European countries. A major challenge for the large scale deployment of these new technologies might be rooted in peoples' concerns with regards to siting decisions and the security of the systems.

The aim of this survey is to collect data in order to understand your perceptions and opinions to renewable energies. Your opinion is essential to get a better insight on these topics.

We would like you to help by taking part in an online survey, which should take approximately **20-25 minutes** - at a time to suit you. We need you to answer a few questions now, make sure that the study is relevant to you.

After this, we will send you some materials to look at and consider **before** you complete the main survey. Please answer a few very brief questions now. These are aimed at ensuring that we collect the views of a good cross-section of society in each country.

Please be assured that all responses will be treated in strict confidence in respecting our respondents' right to take part in research on an anonymous basis.

Insert LOGO STORE & GO

Questions

1. **Q1: How old are you? <CATI: READ OUT, SINGLE RESPONSE / ONLINE: SELECT ONE RESPONSE ONLY>**

1	<19		<CATI: [Seek more senior respondet in household or thank and close]
2	20-34		
3	35-45		
4	46-65		
5	>65		
6	Prefer not to say		<CATI: [Do not offer] / Online: [Thank you and close]

Suggested QUOTA:

Maximum 35 % per age band, not less than 10 % per age band

2. **Q2: Which of the following best describes you? <CATI: READ OUT, SINGLE RESPONSE / ONLINE: SELECT ONE RESPONSE ONLY>**

a	Working full time	
b	Working part time	
c	Not working - Full time University or college student	
d	Not working – Unemployed, house-wife/house-husband or in training	
e	Not working - retired	
f	<CATI: [DO NOT OFFER] Prefer not to say / ONLINE: Prefer not to say [THANK & CLOSE]	

Suggested QUOTA:

Minimum of 70% to be working [CODES **a**) and **b**]

3. **Q3: Which of the following best describes where you live? <CATI: READ OUT, SINGLE RESPONSE / ONLINE: SELECT ONE RESPONSE ONLY>**

a	Town/city (with more than 10,000 inhabitants)	
b	A village or very small town (with less than 10,000 inhabitants)	

Suggested QUOTA:
Maximum 70 % per code

4. **Q4 Income**
   a. To ensure that we include the views of a good range of people from different social levels – **is your household's monthly net income less than >INSERT low-income threshold per country<**?

<CATI: IF NECESSARY / ONLINE: by **net income we mean income after tax has been deducted**. Social transfers for example family/children related allowances, care allowance are not included.

<CATI: IF NECESSARY / ONLINE: **Your best estimate will be fine**.

Yes, greater than that		<CATI /Online: Allocate to low income quota (at least 20 %) And skip to Q5)
No, greater than that		<CATI: Ask b)
Don't know		[THANK & CLOSE]
Prefer not to say		[THANK & CLOSE]

   b. And is **your household's monthly net income greater than >INSERT high-income threshold per country<?**

Yes, greater than that		<CATI/ Online: Allocate to high income quota (at least 20 %) And skip to Q5)
No, lower than that		<CATI / Online: Allocate to middle income quota (30 %) And skip to Q5)
Don't know		[THANK & CLOSE]
Prefer not to say		[THANK & CLOSE]

Suggested QUOTA:
30 % approx. high income – no less than 20 %
40 % approx. middle income – no less than 30 %
30 % lower income – no less than 20 %

5. **Q5_Zip Code**
   >CATI / Online: What is your zip code of your town or village where you live? >CATI Interviewer: Please fill in the number

_____

6. **Q6_Gender**>CATI Interviewer: Do not ask, RECORD RESPONDENT'S GENDER: **/ ONLINE: Please indicate your gender:**

male	female

Suggested QUOTA: Not less than 30 % each

7. Interviewer: ASK ALL QUALIFIERS:

That's great - we'd very much like to include you in this important piece of research for the European Commission. This takes the form of <CATI: a 20 minute telephone interview / ONLINE: a web survey of approximately 20 minutes>. **Can you confirm that you are willing to help with this?**

a) Yes, willing to do 20 minute survey	Go to Q 8)
b) No, not willing to do 20 minute survey	Interviewer: [THANK & CLOSE]

8. (CATI ONLY): Interviewer: Before arranging a time to call you back, I first need to send you some materials to look at and consider **before** the interview. Would you be happy to receive these materials by email - or do you need me to send them by post?

a) By email (CATI ONLY: I will send these to you now)	**If yes go to A)**
b) By post (CATI ONLY: I will arrange for them to be sent as soon as possible)	**If yes go to B)**

A. [**IF 8a**) EMAIL AT (CATI), OR IF ONLINE]: Please <CATI: give me / ONLINE: type your name and your email address, so that the materials can be sent to you. Be assured that your email address will not be passed on or used for any purpose other than this survey.

<CATI: Interviewer: READ OUT TO ALL / ONLINE: The materials will be in a document linked to the email, which you can print out easily. This email also gives you some further details about the study, please read it at your leisure.

Greeting and Salutation (Dear - Mr, Mrs, M. Mme, Herr, etc): _____

Name: _____

Email:_____ @ _____ . _____

<CATI ONLY: INTERVIEWER: ENSURE THAT SPELLINGS ARE CORRECT – CHECK CAREFULLY.>

<CATI ONLY: IF CONVENIENT, CHECK THAT RESPONDENT HAS RECEIVED EMAIL PRIOR TO ENDING THE CALL.

B. [**IF 8b**) (CATI ONLY) POST: Please give me your full name and postal address, so that I can mail the materials to you:

INTERVIEWER: ENSURE THAT SPELLINGS ARE CORRECT – CHECK CAREFULLY

Name: _____

Address 1: _____

Address 2: _____

Address 3: _____

Address 4: _____

Address 5: _____

Country: _____

9. <CATI: Interviewer READ TO ALL: I need you to have the booklet close to you when I call back to conduct the interview. <IF RECEIVING BY EMAIL: It may help if you print the materials and place them near the phone>. The covering letter will explain more about the booklet.

   ONLINE: Please look at the booklet you receive by email before you take part in the main survey, in a couple of days' time. The covering letter will explain more about the booklet. **We will send you another email to the same address in 2 days' time, with a link to complete the main survey**.

10. (CATI ONLY) Now – when is the best date and time for me to call back and complete the interview? INTERVIEWER: ARRANGE DATE AND TIME:

RESPONDENT IS RECEIVING MATERIALS <CODE **8A**) **BY EMAIL** / CODE **8B)**: **BY POST**>

IF RECEIVING MATERIALS BY EMAIL: ALLOW MINIMUM 1 DAY GAP, TO ALLOW RESPONDENT TO READ THE EMAIL TEXT AND LOOK AT THE MATERIALS, AND TO CONSIDER THE 'INFRASTRUCTURE Scenarios')

OR

IF RECEIVING MATERIALS BY POST: ALLOW 7-10 WORKING DAYS FOR RECEIPT AND CONSIDERATIONS OF MATERIALS

RECORD TIME USING LOCAL TIME SUGGESTED BY RESPONDENT:

Date: _____ Time: _____

11.<CATI: Great, I look forward to speaking to you in more detail on <DATE FROM 10> at <TIME FROM 10>.

<IF CODE 8A): Please look for the email with the booklet once we have finished talking. The email will have the title 'Energy Survey' in the 'From' column in your In-box. /

IF CODE 8 B): Please look out for the booklet arriving by post in the next week or so.

SUSPEND AND FIX APPOINTMENT (END OF SCREENER AND START OF MAIN INTERVIEW WILL BOTH BE TIME AND DATE STAMPED)

Interviewer-Nr._____

Survey on

Social acceptance of renewable energy infrastructures & mobility

Participant Identification

Participant's ID	**Serial number of participant**
Country Code	Austria (AT)

	Germany (DE) Switzerland (CH) Italy (I)

Yellow remarks: for the Interviewer

Blue Remarks: Online

Green remarks: for the Programmer

I. Information: Introduction Story >CATI: Interviewer read out / Online: Landing page

First of all I want to [<CATI] Thank you very much for your participation in this research project.

I remind you that the aim of this survey is to collect data in order to understand **your perceptions and opinions to renewable energies as well as energy infrastructures**. Your opinion is essential to get a better insight on these topics.

[CATI>] You recently received some stimulus material for this survey by post or by Email. This material consists of a letter giving you the background of this study and most importantly an A4 booklet of few pages.

II. Household characteristics & Sociodemographic questions

[CATI>] At the beginning, we have a few short questions to better understand your personal situation and environment – these will help us group your responses with those of similar participants. Please be assured that all responses are treated with strict confidence.

1. For approximately how many years have you been living at your **current address**? <CATI: Single Response / Online: Select one response only

< 1-5 years (1)	5-10 years (2)	11-20 years (3)	more than 20 years (4)

2. What is the **legal relationship** with your home? <CATI: READ OUT, / Online: Select one response only

a)	house property (1)	
b)	condominium (2)	
c)	main rental (3)	
d)	sub tenancy (4)	
e)	Other (5)	

3. How many **people** - including yourself - live in your household the majority of the year? <CATI: Single Response / Online: Select one response only

1 Person (1)	2 Persons (2)	3 Persons (3)	4 Persons (4)	5 or more Persons (5)

4. Are there any **children** under the age of 14 years living in your household?

Yes (1)	No (2)

5. Which of the following is your **highest level of education**? <CATI: READ OUT Single Response / Online: Select one response only

(a) Elementary or secondary school		(d) University or college degree	
(b) Professional training (Practical skills)		(e) other	
(c) A-Levels (qualification for university entrance)			

III. General questions on renewable energies

<CATI: READ OUT Introduction: In many European countries, fossil fuels like oil or natural gas are still the main resource for generating electricity. By 2030, the European Union has set itself the **target of reducing CO_2-emissions by at least 40% compared to 1990 levels**. This will require a transformation of our energy supply system over the next decade.

6. Experts point out a wide range of advantages and disadvantages regarding the **generation of energy from renewable energy sources**, such as wind power, solar energy and hydropower. Which of the following statements do you agree "strongly, agree, disagree or disagree strongly" with?

   >CATI: Interviewer: READ OUT SINGLE Response / Online: Select one response only

	(1) Strongly agree	(2) Agree	(3) Disagree	(4) Strongly disagree
a. Renewable energy sources are a safe alternative to fossil fuels.				
b. Renewable energy sources can reduce the dependence on foreign energy sources.				
c. It is necessary to increase the share of renewable energy sources in the energy supply in order to limit the human-induced effects on the climate.				
d. **>INSERT Percent RES per Country<** of the electricity in **>INSERT Country<** is generated from renewable energy sources. In my opinion, this share is high enough and does not have to be increased any further.				
e. The average share of renewable energy sources in the transport sector was 6 % in 2014 in the EU-28. The number of fossil fuel				

cars should be further decreased, the share of alternative fuel cars increased.				
f. In order to further increase the share of renewable energies in power generation, it is necessary to build more wind power plants and photovoltaics plants in my country.				
g. For me, it is important, that my electricity demand is covered by renewable energy sources.				
h. It is important to me that the electricity I consume was produced in my country.				
i. When buying new household devices or electric appliances, I pay attention to low energy consumption.				

7. Do you have **renewable energy technologies** which contribute to your household's electricity or heat supply?

a	Yes. (1)	
b	No, and I am not planning on changing that. (2)	
c	No, but I want to change that in the future. (3)	

>CATI: Interviewer/ >Online: / Programmer If Answer 7a) go ahead with Q 8)

>CATI: Interviewer/ >Online: / Programmer If Answer 7b): go ahead with Q 10)

>CATI: Interviewer/ >Online: / Programmer If Answer 7c): go ahead with Q 9)

CATI: Interviewer In case of queries / >Online: / Programmer: These include solar/photovoltaic panels / Wood stove / biomass boiler / Heat pump etc…

8. Which **renewable energy systems** do you have in your household? >CATI: Interviewer READ OUT – Multiple replies possible / Online: Multiple answers possible

solar/photovoltaic (1)	Wood stove / biomass boiler (2)	Heat pump (3)	Wind power (4)

>CATI: Interviewer/ >Online: / Programmer Go ahead with Q 10)

9. Which systems have you considered for the **future renewable energy supply in your household**? >CATI: Interviewer: READ OUT – Multiple replies possible / Online: Multiple answers possible

solar/photovoltaic (1)	Wood stove / biomass boiler (2)	Heat pump (3)	Wind power (4)

>CATI: Interviewer/ >Online: / Programmer Go ahead with Q 10)

10. In the future, the share of renewables in the electricity and heat supply should be increased. Thus, **realization of according measures in your neighborhood** will be necessary. Are there any larger plants for the production or storage of renewable energies located in your neighborhood?

>CATI: Interviewer In case of queries / >Online: / Programmer: These include wind power plants, solar plants, photovoltaic plants, biomass heating plants (local and district heating), hydro power plants, biogas plants

a	Yes (1)	
b	No (2)	
c	I don't know (3)	

>CATI: Interviewer/ >Online/Programmer: If Answer 10a) please go on to Q 11)

>CATI: Interviewer/ >Online/Programmer: If Answer 10b) and 10c) please go to Q 12)

11. Which one of the **plants** have been built in your **neighborhood**? >CATI: Interviewer: READ OUT,– Multiple replies possible / Online: Multiple answers possible

a	Wind power (1)	
b	Solar / photovoltaic (2)	
c	Biomass (3)	
d	Hydro power plants (4)	
e	Biogas (5)	
f	Others (6)	

12. Have there been **projects in your neighborhood** in the past, **concerning renewable energies**, which you actively objected? >CATI: Interviewer: READ OUT, SINGLE RESPONSE / Online: Select one response only

a	There have been such projects, and I actively try to prevent them. (1)	
b	There have been such projects, but I did not actively try to prevent them. (2)	
c	There have not been such projects or I am not aware of any (3)	

>CATI: Interviewer/ >Online/Programmer If Answer 12a) please go to Q 13)

>CATI: Interviewer/ >Online / Programmer If Answer 12b) or 12c) please go on to Q 14)

13. How was **your reaction** when actively preventing such **renewable energy projects**? More than one answer is possible. >CATI: Interviewer: READ OUT, Multiple RESPONSE / Online: Multiple answers possible

a	I participated in one or more demonstrations against the planned project. (1)	
b	I will not/ did not vote in the next/last election for any political party that supported the construction of the objected project. (2)	
c	I moved to a neighborhood without any renewable energy projects installed or planned nearby. (3)	
d	I signed a petition against the project. (4)	
e	I showed my protest on social media. (5)	
f	Other reaction. (6)	

14. In contrast to conventional fossil power plants, wind and solar energy systems do not produce electricity when the electricity is needed but when the sun shines or the wind blows. Thus, **appropriate storage systems are necessary to store the produced electricity**. There are many different ways to store electricity. Did you know that there is a **process that makes it possible to turn excess renewable electricity**, into burnable gases, such as **hydrogen or methane**?

Yes (1)	No (2)

15. This technology is called **„Power-to-Gas“**. One advantage is that the produced hydrogen or methane can be fed into the already existing gas grids. Have you already heard about the storage technology “Power-to-Gas”?

Yes (1)	No (2)

16. Imagine you hear from the media that there is an **underground gas storage system** planned in your neighborhood. A governmental agency has rated the project as **secure for humans and nature**. Would you have any **security concerns** about the project?

>CATI: Interviewer: READ out - Single Response / Online: Select one response only

Yes, I would have security concerns. (1)	
No, I would consider the project as safe. (2)	

17. I /You will now read some **statements related to renewable energy production and storage** to you. Please state to which extent you agree to the following statements, by choosing the options “I strongly agree”, “I agree”, “I disagree” or “I strongly disagree”. >CATI: Interviewer: READ out - Single Response / Online: Select one response only

		Strongly agree (1)	(2) Agree	(3) disagree	(4) strongly disagree

a.	It is important for me to be informed at an early stage when large electricity generation plants are planned in my village or near my home.				
b.	When planning large power plants, a binding referendum should be carried out in my home town.				
c.	Whether a large renewable energy plant should be built or not, should be only decided by local political decision-makers.				

18. The next statements are about **your experiences with your energy supplier** concerning electricity and heat. Which of the following statements do you agree or disagree with. Please consider only the experiences of the last 5 years. >CATI: Interviewer: READ out - Single Response possible / Online: Select one response only

		Yes (1)	No (2)
a	I have had negative experiences with my electricity or heat supplier in the past.		
b	I have had at least once a delay in paying the energy bill.		
c	My electricity or heating has been shut off at least once because I couldn't pay my bill.		
d	Within the last 12 months I have had at least one power outage which lasted longer than 60 minutes.		

19. Experts say that in the future an **increased number of cars driven by alternative fuels** will be seen on our roads. Which of the following fuel types do you know? Please evaluate the **fuel types** using the following scale "Heard of, but no experience as a driver", "Heard of, and have already been driving one" or "Never heard of". >CATI: Interviewer: READ OUT - Multiple replies possible / Online: Multiple answers possible

		Heard of but no experience as a driver (1)	Heard of, and have already been driving one (2)	Never heard of (3)
a	Natural Gas (CNG or LPG)			
b	Electricity			
c	Hydrogen			
d	Biofuels			

20. What **criteria** do you consider when **buying a car**? Please rate the reasons on a scale from "very important, fairly important, fairly unimportant and not important". >CATI: Interviewer: READ OUT: SINGLE Response possible / Online: Select one response only

		very important (1)	fairly important (2)	fairly unimportant (3)	not important (4)
a	The purchase price of the car				
b	The operating costs per year*				
c	The range of the fully fuelled car				
d	The availability of refilling stations in your country of residence				

e	The availability of refilling stations abroad				
f	The brands/models				
g	The security of the car				
h	The emissions of the car				

* In case of queries concerning the operating costs: CATI: Interviewer / >Online: / Programmer: These include maintenance-, repair- und fuel costs.

21. Did you know that natural gasvehicles (**CNG or LPG**) also can be fuelled with **gas produced of renewable energies**?

Yes (1)	No (2)

IV. Scenarios

Interviewer: Read out loud

In this part, you will be asked several questions dealing with the energy infrastructure in your neighborhood.

PART I: New Energy Infrastructures and technologies

The electricity and heat supply of the households in your area is currently done by a mix of renewable and fossil energies. To reduce the portion of fossil fuels, imagine various projects are planned in order to supply all households in your home town with electricity from renewable sources.

The following questions deal with different scenarios concerning the energy infrastructure in your neighborhood. In the following, you will see in every scenario 3 options how the electricity demand of your neighborhood can be supplied in the future, all representing the provision of the same amount of electricity at the same level of supply reliability as you experience it today. When a scenario contains the construction of new infrastructure, like a wind power plant, consider these to be approximately 500 m away from your home. One of the alternatives within the scenarios is the current energy production from a mix of different energy sources, both fossil and renewable. It is situated further away from your hometown.

Please keep in mind that each of the scenarios of energy provision, whether it involves the construction of new infrastructure in your community or not, comes at a different cost. These costs will be split between all households in your community and the respective share payable by your household will be given along with each of the following scenarios. This sum of money represents a monthly fee and you will be charged for it over the next 5 years. It will be collected by your community by putting them on top of your electricity bill.

>CATI: In the following, I will briefly describe the scenarios and the 3 options each scenario. For this purpose, please take a look into your booklet, where you can also see the pictures of the energy infrastructures in each scenario. In each case you are asked selecting one of the 3 options per scenario you prefer most and which one the least.

>ONLINE: In the following, there will be a brief description of the scenarios and the 3 options each scenario. For this purpose, you will see the pictures of the energy infrastructures in each scenario. In each case you are asked selecting one of the 3 options per scenario you prefer most and which one the least.

>CATI: Interviewer: Let's get started with the first scenario. Therefore please go to page 3 in your booklet.

Scenario 1

PROG : Insert picture Scenario 1 option 1

There you can see option 1 where **photovoltaic panels** and a **power-to-gas facility** with connection to the electricity and gas infrastructure are installed. If you prefer this option, you will be charged **>randomize & insert Euro or CHF <** per month.

PROG : Insert picture Scenario 1 option 2

In Option 2 a **small gas plant** for the production of energy is planned. In case of choosing this option you will have to pay **>randomize & insert Euro or CHF <** per month.

PROG : Insert picture Scenario 1 option 3

Option 3 shows the **current energy production** that is also available as alternative to option 1 and 2 whose choice will result in costs of **>randomize & insert Euro or CHF <** per month for your household.

Please also consider in your decision that you became aware from media reports that the **>INSERT politician per Version<** e.g.*" **mayor** of your home town"* strongly supports **Option 1.**

22. Which one of the following three options do you prefer first and which do you prefer last?

Scenario 1		**Option 1**	**Option 2**	**Option 3**
a	**1st choice**			
b	**Last choice**			

>CATI: Interviewer/ Let's go on to the second scenario. Therefore please go to page 4 in your booklet.

Scenario 2

PROG : Insert picture Scenario 2 option 1

In option 1 of scenario 2, a **small gas plant** is planned including additional high voltage **power lines** for the transportation of the power in your neighbourhood. In case of realization, costs of **>randomize & insert Euro or CHF <** per month for your household are incurred.

PROG : Insert picture Scenario 2 option 2

Option 2 of scenario 2 contains the installation of **photovoltaic panels** in combination with a **power-to-gas facility** with connection to the electricity and gas infrastructure. If you prefer this option, you will be charged **>randomize & insert Euro or CHF <** per month.

PROG : Insert picture Scenario 2 option 3

Option 3 is again the **current energy production** and supply with costs of **>randomize & insert Euro or CHF <** per month for your household.

Please also consider in your decision that you became aware from media reports that the **>INSERT politician per Version<** e.g." **mayor** of your home town" strongly supports **Option 2.**

23.Which one of the following three options do you prefer first and which do you prefer last?

Scenario 3		Option 1	Option 2	Option 3
a	1st choice			
b	Last choice			

Scenario 3

PROG : Insert picture Scenario 3 option 1

In the third scenario, for Option 1, there is a **wind park** with 3 turbines and a **power-to-gas facility** with connection to the electricity and gas infrastructure is planned If CATI which you can see on page 5 in the booklet. If you prefer this option, you will be charged **>randomize & insert Euro or CHF<** per month.

PROG : Insert picture Scenario 3 option 2

The second option contains the realization of **photovoltaic panels** in combination with additional high voltage **power lines**. In case of choosing this option you will have to pay **>randomize & insert Euro or CHF<** per month.

PROG : Insert picture Scenario 3 option 3

The third option is about the **current energy production** that is also available as alternative to option 1 and 2 which will result in monthly costs of **>randomize & insert Euro or CHF<** for your household.

Please also consider in your decision that you became aware from media reports that the **>INSERT political decision maker per version<** e.g." **mayor** of your home town" strongly supports **Option 2.**

24.Which one of the following three options do you prefer first and which do you prefer last?

Scenario 4		Option 1	Option 2	Option 3
a	1st choice			
b	Last choice			

>CATI: Interviewer: Let's go on to the next scenario. Therefore please go to page 6 in your booklet.

Scenario 4

PROG : Insert picture Scenario 4 option 1

In the first option of this scenario a **wind park** with 3 turbines and a **small gas plant** for the production of energy is planned. Please note for this option that there are costs of **>randomize & insert Euro or CHF<** for your household that have to be paid.

PROG : Insert picture Scenario 4 option 2

In option 2, also a **wind power park** with 3 turbines and additionally a **power-to-gas facility** is installed in the proximity to a **small gas plant**. If you prefer this option, you will be charged **>randomize & insert Euro or CHF<** per month.

PROG : Insert picture Scenario 4 option 3

The third option is about the **current energy production** that is also available as alternative to option 1 and 2 which will result in monthly costs of **>randomize & insert Euro or CHF<** for your household.

Please also consider in your decision that you became aware from media reports that the **>INSERT political decision maker per version<** e.g." **mayor** of your home town" strongly supports **Option 3.**

25.Which one of the following three options do you prefer first and which do you prefer last?

Scenario 2		Option 1	Option 2	Option 3
a	1st choice			
b	Last choice			

>CATI: Interviewer: Let's go on to the last scenario. Therefore please go to page 7 in your booklet.

Scenario 5

PROG : Insert picture Scenario 5 option 1

In Option 1 of scenario 5 you can see **photovoltaic panels** but this time your electricity supply is insured by a **power-to-gas facility** including **a gas plant**. If you prefer this option, you will be charged **>randomize & insert Euro or CHF<** per month.

PROG : Insert picture Scenario 5 option 2

In Option 2 you can see a**wind power park** with 3 turbines and **high voltage power lines** which are necessary for distribution of the generated power. Due to this installed energy production plant **>randomize & insert Euro or CHF<** of costs for your household have to be paid.

PROG : Insert picture Scenario 5 option 3

The third option is about the **current energy production** that is also available as alternative to option 1 and 2 whose choice will result in costs of **>randomize & insert Euro or CHF<** per month for your household.

Please also consider in your decision that you became aware from media reports that the **>INSERT political decision maker per version<** e.g.” **mayor** of your home town” strongly supports **Option 2.**

26.Which one of the following three options do you prefer first and which do you prefer last?

Scenario 5		**Option 1**	**Option 2**	**Option 3**
a	**1st choice**			
b	**Last choice**			

We will now move forward with the second part of the scenario

PART II - MOBILITY – ONLINE ONLY

Interviewer: Read out loud: Please start this part by answering two questions about car possession.

27. How many cars does your household possess? <CATI: READ OUT SINGLE Response possible / Online: Select one response only

No car (1)	1 Car (2)	2 Cars (3)	3 or more Cars (4)

28.Please give an indication of the expected price of your next car: <CATI: READ OUT SINGLE Response / Online: Select one response only

a	Between >insert EUR OR CHF< 0 - >insert EUR OR CHF< 20,000
b	Between >insert EUR OR CHF< 20,000 – >insert EUR OR CHF<40,000
c	Between >insert EUR OR CHF< 40,000 – >insert EUR OR CHF< 60,000
d	Over >insert EUR OR CHF< 60,000
e	I will probably never buy another car

Interviewer: Read out loud

This part of the scenarios deals with car purchasing behavior in order to investigate your preferences for different types of cars. The types of cars you encounter are currently being sold in your country but in some cases the availability is limited.

Cars differ in the extent to which they emit CO_2, which is a source of environmental pollution. This depends, among other things, on the fuel type. For example, you emit more CO_2 if you use one liter of diesel while driving compared to using one liter of gasoline. Another aspect that matters for the CO_2 emittance of a car is its fuel efficiency. A car that drives 10 kilometers with one liter of gasoline emits more CO_2 than a car that drives 10 kilometers with half a liter of gasoline.

In the following questions you are asked to choose between two cars that differ in four characteristics. The four characteristics are: fuel type, CO_2 emittance per kilometer (including emissions from fuel production), fuel cost per 100 kilometer and purchase price. We will now first discuss the details of these characteristics.

The first characteristic, which is fuel type, indicates the type of fuel used by the car. In this survey you encounter the following fuel types: gasoline, diesel, CNG, biofuel, full-electric, hybrid-electric and hydrogen. CATI only: Here follows a short description of each of the fuel types I just mentioned:

- Gasoline and diesel are liquid fuels based on oil.
- CNG refers to Compressed Natural Gas.
- Biofuel is a liquid fuel based on vegetal crops such as sugar cane and palm oil. Biofuels are regularly mixed with gasoline or diesel.
- Full-electric refers to a car with an electric motor which is powered by electricity.
- Hybrid-electric refers to a car with both an electric motor powered by electricity and a conventional internal combustion engine powered by gasoline or diesel.
- Hydrogen is a gas which is produced from natural gas or from electricity and water.

The second characteristic, which is CO_2 emittance per kilometer (including emissions from fuel production), indicates how many grams of CO_2 a car emits per kilometer. This includes CO_2 emissions from producing the fuel. In this survey, the CO_2 emittance varies between 0, 90, 130, 170 and 250 grams per kilometer.

The third characteristic, which is fuel cost per 100 kilometer, indicates the average fuel costs for driving 100 kilometer. In this survey, this varies between >insert EUR OR CHF< 5, >insert EUR OR CHF< 15 and >insert EUR OR CHF< 25 per 100 kilometer.

The fourth characteristic, which is purchase price, indicates how much the car costs to buy. This price includes all taxes and subsidies. You should not take into account any other financial advantages or disadvantages.

There are probably other characteristics than the four previously mentioned that are important to you when choosing a car. You can assume that the presented cars in this survey are, except for the described characteristics, identical to each other.

You / we will now proceed to the choice questions.

Imagine you are about to buy a car. Please, keep your own budget in mind. If you spend more money on a car you can spend less on other goods.

We will now present five choices to you for which you have to choose between two types of cars, Car A and Car B. Please indicate which of the two types of cars you would choose to buy in your situation.

Let's start with the first choice question.

> Imagine you are about to buy a car. You are offered two types of cars. Please, mind your own budget when choosing.
> The first car that is offered to you, Car A, uses >Randomize & insert fuel type car A< as fuel, has a CO_2 emittance (including emissions from fuel production) of >Randomize & insert CO2 emittance car A< per kilometre, its fuel costs are >insert EUR or CHF< >Randomize & insert fuel cost< per 100 kilometre and the purchase price is >insert EUR or CHF< >Randomize & insert purchase price<.

The second car that is offered to you, Car B, uses >Randomize & insert fuel type car B< as fuel, has a CO_2 emittance (including emissions from fuel production) of >Randomize & insert CO2 emittance car B< per kilometre, its fuel costs are >insert EUR or CHF< >Randomize & insert fuel cost< per 100 kilometre and the purchase price is >insert EUR or CHF< >Randomize & insert purchase price<.

This table Online only:	Car A	Car B
Fuel type	>Randomize & insert fuel type car A<	>Randomize & insert fuel type car B<
CO_2 emittance per kilometer (incuding emissions from fuel production)	>Randomize & insert CO2 emittance car A< grams per kilometer	>Randomize & insert CO2 emittance car B< grams per kilometer
Fuel cost per 100 kilometer	>insert EUR or CHF< >Randomize & insert fuel cost<	>insert EUR or CHF< >Randomize & insert fuel cost<
Purchase price	>insert EUR OR CHF< >Randomize & insert purchase price<	>insert EUR OR CHF< >Randomize & insert purchase price<

29.If you would have to choose a car, please let me know which you would choose >CATI: Interviewer: READ out - Single Response / Online: Select one response only:

WTP scenario 1:	
a	Car A
b	Car B
c	Neither car A nor car B

We now move to the second choice question.

Imagine again that you are about to buy a car. You are offered two types of cars. Please, mind your own budget when choosing.
The first car that is offered to you, Car A, uses >Randomize & insert fuel type car A< as fuel, has a CO_2 emittance (including emissions from fuel production) of >Randomize & insert CO2 emittance car A< per kilometre, its fuel costs are >insert EUR or CHF< >Randomize & insert fuel cost< per 100 kilometre and the purchase price is >insert EUR or CHF< >Randomize & insert purchase price<.
The second car that is offered to you, Car B, uses >Randomize & insert fuel type car B< as fuel, has a CO_2 emittance (including emissions from fuel production) of >Randomize & insert CO2 emittance car B< per kilometre, its fuel costs are >insert EUR or CHF< >Randomize & insert fuel cost< per 100 kilometre and the purchase price is >insert EUR or CHF< >Randomize & insert purchase price<.

This table Online only:	Car A	Car B
Fuel type	>Randomize & insert fuel type car A<	>Randomize & insert fuel type car B<
CO_2 emittance per kilometer (incuding emissions from fuel production)	>Randomize & insert CO2 emittance car A< grams per kilometer	>Randomize & insert CO2 emittance car B< grams per kilometer
Fuel cost per 100 kilometer	>insert EUR or CHF< >Randomize & insert fuel cost<	>insert EUR or CHF< >Randomize & insert fuel cost<
Purchase price	>insert EUR OR CHF< >Randomize & insert purchase price<	>insert EUR OR CHF< >Randomize & insert purchase price<

30.If you would have to choose a car, please let me know which you would choose >CATI: Interviewer: READ out - Single Response / Online: Select one response only:

WTP scenario 2:	
a	Car A
b	Car B
c	Neither car A nor car B

We now move to the third choice question.

Imagine again that you are about to buy a car. You are offered two types of cars. Please, mind your own budget when choosing.
The first car that is offered to you, Car A, uses >Randomize & insert fuel type car A< as fuel, has a CO_2 emittance (including emissions from fuel production) of >Randomize & insert CO2 emittance car A< per kilometre, its fuel costs are >insert EUR or CHF< >Randomize & insert fuel cost< per 100 kilometre and the purchase price is >insert EUR or CHF< >Randomize & insert purchase price<.
The second car that is offered to you, Car B, uses >Randomize & insert fuel type car B< as fuel, has a CO_2 emittance (including emissions from fuel production) of >Randomize & insert CO2 emittance car B< per kilometre, its fuel costs are >insert EUR or CHF< >Randomize & insert fuel cost< per 100 kilometre and the purchase price is >insert EUR or CHF< >Randomize & insert purchase price<.

This table Online only:	Car A	Car B
Fuel type	>Randomize & insert fuel type car A<	>Randomize & insert fuel type car B<

CO_2 emittance per kilometer (incuding emissions from fuel production)	>Randomize & insert CO2 emittance car A< grams per kilometer	>Randomize & insert CO2 emittance car B< grams per kilometer
Fuel cost per 100 kilometer	>insert EUR or CHF< >Randomize & insert fuel cost<	>insert EUR or CHF< >Randomize & insert fuel cost<
Purchase price	>insert EUR OR CHF< >Randomize & insert purchase price<	>insert EUR OR CHF< >Randomize & insert purchase price<

31.If you would have to choose a car, please let me know which you would choose >CATI: Interviewer: READ out - Single Response / Online: Select one response only:

WTP scenario 3:	
a	Car A
b	Car B
c	Neither car A nor car B

We now move to the fourth choice question.

Imagine again that you are about to buy a car. You are offered two types of cars. Please, mind your own budget when choosing.
The first car that is offered to you, Car A, uses >Randomize & insert fuel type car A< as fuel, has a CO_2 emittance (including emissions from fuel production) of >Randomize & insert CO2 emittance car A< per kilometre, its fuel costs are >insert EUR or CHF< >Randomize & insert fuel cost< per 100 kilometre and the purchase price is >insert EUR or CHF< >Randomize & insert purchase price<.
The second car that is offered to you, Car B, uses >Randomize & insert fuel type car B< as fuel, has a CO_2 emittance (including emissions from fuel production) of >Randomize & insert CO2 emittance car B< per kilometre, its fuel costs are >insert EUR or CHF< >Randomize & insert fuel cost< per 100 kilometre and the purchase price is >insert EUR or CHF< >Randomize & insert purchase price<.

This table Online only:	Car A	Car B
Fuel type	>Randomize & insert fuel type car A<	>Randomize & insert fuel type car B<
CO_2 emittance per kilometer (incuding emissions from fuel production)	>Randomize & insert CO2 emittance car A< grams per kilometer	>Randomize & insert CO2 emittance car B< grams per kilometer

Fuel cost per 100 kilometer	>insert EUR or CHF< >Randomize & insert fuel cost<	>insert EUR or CHF< >Randomize & insert fuel cost<
Purchase price	>insert EUR OR CHF< >Randomize & insert purchase price<	>insert EUR OR CHF< >Randomize & insert purchase price<

32.If you would have to choose a car, please let me know which you would choose >CATI: Interviewer: READ out - Single Response / Online: Select one response only:

WTP scenario 4:	
a	Car A
b	Car B
c	Neither car A nor car B

We now move to the fifth choice question.

Imagine again that you are about to buy a car. You are offered two types of cars. Please, mind your own budget when choosing.
The first car that is offered to you, Car A, uses >Randomize & insert fuel type car A< as fuel, has a CO_2 emittance (including emissions from fuel production) of >Randomize & insert CO2 emittance car A< per kilometre, its fuel costs are >insert EUR or CHF< >Randomize & insert fuel cost< per 100 kilometre and the purchase price is >insert EUR or CHF< >Randomize & insert purchase price<.
The second car that is offered to you, Car B, uses >Randomize & insert fuel type car B< as fuel, has a CO_2 emittance (including emissions from fuel production) of >Randomize & insert CO2 emittance car B< per kilometre, its fuel costs are >insert EUR or CHF< >Randomize & insert fuel cost< per 100 kilometre and the purchase price is >insert EUR or CHF< >Randomize & insert purchase price<.

This table online only:	Car A	Car B
Fuel type	>Randomize & insert fuel type car A<	>Randomize & insert fuel type car B<
CO_2 emittance per kilometer (incuding emissions from fuel production)	>Randomize & insert CO2 emittance car A< grams per kilometer	>Randomize & insert CO2 emittance car B< grams per kilometer
Fuel cost per 100 kilometer	>insert EUR or CHF< >Randomize & insert fuel cost<	>insert EUR or CHF< >Randomize & insert fuel cost<

Purchase price	>insert EUR OR CHF< >Randomize & insert purchase price<	>insert EUR OR CHF< >Randomize & insert purchase price<

33.If you would have to choose a car, please let me know which you would choose >CATI: Interviewer: READ out - Single Response / Online: Select one response only:

WTP scenario 5:	
a	Car A
b	Car B
c	Neither car A nor car B

>CATI: Interviewer Read out/ >Online: The interview is finished! THANK YOU VERY MUCH for your PARTICIPATION in this survey!

>CATI: Interviewer: Please note the duration of the interview: _____