WINTER IS COMING – A GAME OF REDUCING ELECTRICITY CONSUMPTION

A QUANTITATIVE STUDY OF ATTITUDES TOWARDS POLICY TOOLS WITH THE GOAL OF REDUCING ELECTRICITY CONSUMPTION

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Winter is Coming – A Game of Reducing Electricity Consumption - A quantitative study of attitudes towards policy tools with the goal of reducing electricity consumption.

Abstract:

To make decisions, policy makers need to be informed about the consequences their decisions might implicate. This thesis takes a closer look at the Swedish electricity market and investigates attitudes that electricity consumers have towards different policy tools aiming to reduce electricity consumption. The data was collected through a questionnaire distributed in Swedish Facebook-groups for people living in bidding area SE1 and SE4. The results indicate that individuals are the most positive towards information and subsidies as policy tools to decrease electricity consumption, and the least positive towards mandates and taxes. There were no big differences in attitudes between bidding areas.

Keywords:

Attitudes, policy tools, electricity consumption

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Yours sincerely,

Adam and Viktor

Definitions

Attitude: Attitude is referred to what degree an individual has a favorable or unfavorable assessment of certain event (Ajzen, I., 1991).

Bidding areas: A geographical area in which energy is traded at the same price (Nord Pool, 2020).

Nudging: A psychologically informed technique intended to alter individual's behaviors but keeping their freedom of choice (Thaler & Sunstein, 2009).

Policy Tool: Technique used by the government to achieve a certain set of goals (Bali, Howlett, Lewis, & Ramesh, 2021).

Spot price: The current market price of an asset with immediate delivery (The Economic Times, 2022).

Table of Contents

1 Introduction 5

1.1 Background 5
1.1.1 Background on the Electricity Market in Sweden 5
1.1.2 The Surge in Electricity Prices During 2022 6
1.2 Purpose and Research Questions 7
1.3 Delimitations 7
1.4 Expected Contribution 8

2 Previous Literature & Theoretical Framework 9

2.1 Previous Literature on Policy Tools 9
2.1.1 Support for Traditional Policy Tools Among the General Public 9
2.1.2 Support for Nudging Among the General Public 9
2.1.3 Nudging Compared to Traditional Policy Tools 10
2.2 Attitude as a Concept 10
2.3 Price elasticity and demand response 11
2.4 Individualism vs. Collectivism 12
2.5 Stimulus-Response 13
2.6 Explorative Questions 13

3 Method 14

3.1 Scientific Approach and Method 14
3.1.1 Scientific Approach 14
3.1.2 Choice of method 14
3.1.3 Pilot Testing 15
3.2 Main Study 15
3.2.1 Questionnaire 15
3.2.2 Survey Flow 16
3.2.3 Variables 17
3.3 Data Collection and Statistical Methods 18
3.3.1 Data Collection 18
3.3.2 Data Quality 19
3.3.3 Data Analysis 19
3.4 Research Reliability and Validity 20
3.4.1 Reliability 20
3.4.2 Validity 21
3.4.3 Survey Judgment 21

4 Results and Analysis 23

4.1 Descriptive Statistics **23**
4.2 Comparison Between Consumer Groups **24**
4.2.1 Comparison in Attitude and Realism Between Bidding Areas SE1 and SE4 24
4.2.2 Factors Causing Increased Electricity Prices 25
4.2.3 Comparison Between Bidding Areas on Factors That Could Cause Increased Electricity Prices 26
4.2.4 Comparison in Attitude Between Genders 26
4.2.5 Differences Between Attitude Towards Policy Tools 26
4.3 Regression Analysis **26**
4.4 Summary of the Test of the Hypothesis **29**
4.4.1 Subjective Norms and Attitude Towards Policy Tools 29
4.4.2 Consumers With High Electricity Prices and Attitude Towards Policy Tools 29
4.4.3 Individualist and Collectivist Affecting Attitude 29
4.4.4 Relationship Between Attitude and Realism 29
4.5 Other Observations **30**

5 Discussion **31**

5.1 Conclusions and Implications **31**
5.1.1 Descriptive 31
5.1.2 Individualist vs. Collectivist and Attitude Towards Policy Tools 31
5.1.3 Subjective Norms and Attitude Towards Policy Tools 31
5.1.4 Attitude and Realism Towards Different Policy Tools 32
5.1.5 Differences in Attitude Between Bidding Areas 32
5.1.6 Differences in Attitude Between Gender 33
5.2 Limitations **33**
5.3 Suggestions for Future Research **34**
5.4 Findings and Conclusion **34**

6 References **35**

7 Appendices **42**

1 Introduction

The electricity prices in Sweden skyrocketed during the spring and summer of 2022. The average price per megawatt-hour in July 2022 was €74.80 compared to €11.38 in July 2020 (Statista, 2022). This was a result of the Russian invasion of Ukraine, and subsequently, the ongoing war in Ukraine. Prices of gas, oil, and coal increased because of the invasion and tightening of the global supply of these resources (Swedish Energy Agency, 2022b). The war in Ukraine revealed EU's dependency on the import of Russian fossil fuels. With sanctions from the EU against Russia, the supply of natural gas to the EU has shrunken, driving the prices of electricity up to very high levels (Prisecaru, 2022). Due to this, it is relevant to examine how the consumption of electricity can be affected and decreased by different governmental policy tools. There are different policy tools that governments can use to affect consumer behavior, such tools are subsidies, information, taxes, mandates, and nudging (Tummers, 2019).

As a contribution to the research field of electricity consumption and electricity prices, this thesis will examine how authorities in the most effective way can communicate to consumers to impact and reduce electricity consumption.

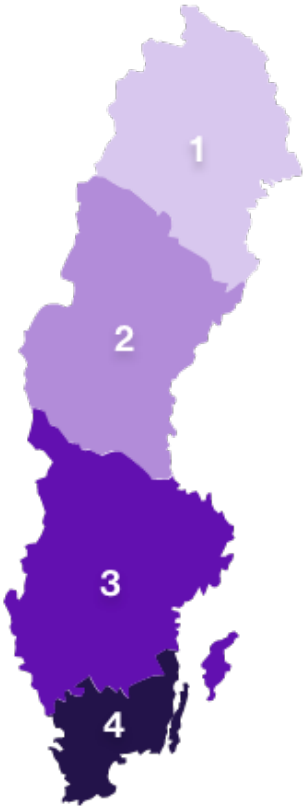
Attitudes towards different policy tools aiming to reduce energy consumption are interesting from a marketing perspective since insights regarding consumers' attitudes towards market interventions form the basis of market communication. It's important from a legislator's perspective to have knowledge about consumers' attitudes when regulating markets in order to get legitimacy and societal support for their actions. This study aims to contribute to how value can be communicated and delivered to consumers in the electricity market by looking at their attitudes towards different policy tools. A deeper understanding of how electricity consumption can be affected through different kinds of policy tools and marketing strategies is highly relevant in times of uncertainty when the supply of electricity is not meeting the demand and the volatility of the price is high.

1.1 Background

1.1.1 Background on the Electricity Market in Sweden

The responsible actor and the system operator for electricity in Sweden is the authority called *Svenska Kraftnät*. The Swedish transmission network is divided into so-called bidding areas, ranging from SE1 in the north to SE4 in the south, see Figure 1. The prices of electricity in these bidding differ and are determined by the supply and demand of electricity between bidding areas. Since more electricity is produced than there is demand for in the northern part of Sweden, electricity is transported from north to south and subsequently more expensive in the south (Svenska Kraftnät, 2021). The authority *Svenska Kraftnät* declares that bidding areas are a way to handle physical limitations (or bottlenecks) in the transmission network. The bidding areas were implemented in 2011 as a response to the European Union's (EU) competition regulations, as the EU expressed that Swedish consumers were prioritized at the expense of trade with neighboring countries (Svenska Kraftnät, 2022).

Figure 1: Picture showing a map of Sweden's four bidding areas (Kundkraft, 2022)



The 2021 annual report on the energy situation in Sweden, issued by the Swedish Energy Agency, hydroelectric power accounts for about 38% of the total electricity production capacity, followed by wind and nuclear power. During 2020, Sweden had excess electricity production and thus net exported 25 TWh of electricity (relating to the total energy consumption in Sweden during 2019 of around 540 TWh) (Swedish Energy Agency, 2022a).

1.1.2 The Surge in Electricity Prices During 2022

The electricity market in Europe is divided into different markets and prices are affected by supply and demand (Florence School of Regulation, 2020). Since the COVID-19 restrictions were removed, energy prices in the EU have steadily increased over time. These price increases reached new heights in the spring of 2022 as a consequence of Russia's offensive war in Ukraine (Besson, 2022). Since then, energy prices soared as supply squeezed, sanctions have been implemented and weather fluctuations stressed Europe's energy prices and exposed Europe's dependency on foreign energy suppliers. Approximately 40% of gas imports, 27% of oil imports, and 46% of coal imports to Europe come from Russia, making them the single most dominant supplier of gas (Zin et al., 2022). The dependency on the Russian energy supply varies a lot between countries. Germany imports 65% of its gas supply from Russia (Majid, 2022) due to its systematic phase-out of nuclear power plants during the last couple of decades. As Russia officially stopped the gas supply to Europe in August 2022 (Connolly, 2022), prices have increased substantially compared to the same period in previous years and are experiencing higher volatility than normal. The uncertainty of how the coming winter will play out increases the volatility in the market as well (Rystad Energy, 2022).

To mitigate the skyrocketing prices, the EU proposed a council regulation to reduce energy consumption. One of the areas they targeted is to reduce energy consumption during the peak hours by 5% and a goal to reduce the overall consumption by 10% until spring 2023 in an act of bringing the demand to "the level of the non-selected hours" (European Commission, 2022b). Reducing consumption is crucial to avoid potential energy shortages in the coming winter of 2022 and several European countries (Germany, France, Italy, etc.) have implemented different initiatives to reduce consumption (Jack & Zimmermann, 2022). Increasing energy efficiency is one of three keystones of the European Green Deal that the EU committed itself to deliver on, which includes "improving the energy performance of our buildings and developing a power sector based largely on renewable sources" (European Commission, 2022a). Reducing energy prices is also a key factor in breaking the negative spiral of rising inflation since it is crucial to the citizens' purchasing power (Barrett, 2022).

Given the council regulation proposed by the EU, the Swedish Energy Agency launched a nationwide campaign at the beginning of October 2022 in order to reduce electricity consumption. The campaign aims to inform consumers of the impact of small lifestyle changes that can create long-term effects on overall energy consumption. One of the key areas of focus will be to reduce electricity consumption during peak hours as well as emphasize shared responsibility to minimize the risk of power outages (Swedish Energy Agency, 2022c).

1.2 Purpose and Research Questions

The purpose of this thesis is to empirically investigate Swedish electricity consumers' attitudes towards different policy tools designed to reduce electricity consumption. The thesis will also aim at investigating the determinants of the factors affecting attitudes. Specifically, the thesis will investigate the following policy tools: subsidies, information, taxes, mandates, and nudging.

As previously mentioned, the topic of electricity consumption is an area of research that, during the creation of this thesis, is going through changes. This study will thus focus on the aspect of attitudes towards several different policy tools, aimed to decrease electricity consumption, and how they can impact the receiver and consequently help in gaining an understanding of how these methods can be applied in real-life situations.

To fulfill the purpose of the research, the primary research questions to be examined are:

- *How do consumer attitudes differ depending on what policy tools are used to reduce electricity consumption?*
- *What do consumers in different bidding areas think about different policy tools?*
- *How are attitudes towards policy tools differing and how can they be explained?*

1.3 Delimitations

For practical reasons and due to limitations in resources, delimitations had to be made. The study has been geographically limited to bidding areas SE1 and SE4, in Sweden. These are the areas with the largest differences in electricity prices in Sweden, where the least

expensive prices are found in area SE1 (northern part of Sweden) and the most expensive in SE4 (southern part of Sweden). Furthermore, since the study is aimed at capturing electricity consumers paying for their electricity in one way or another, the study was delimited to individuals from age 18 and above.

1.4 Expected Contribution

By studying consumers' attitudes towards different policy tools (both traditional and behavioral) when it comes to reducing energy consumption, the authors hope to provide clues for how political decisions can reduce energy consumption while retaining social support and understanding.

There could be a research gap in the current literature in regard to the current volatility and uncertainty in the electricity market and high electricity prices. Seemingly, there is no research on attitudes towards different governmental interventions on electricity prices, and certainly not in times when everyone is somewhat affected by the surge in electricity prices. Furthermore, there is no research in recent times where policy tools with the goal of reducing electricity consumption are studied. There are also few studies comparing different policy tools towards each other, with exceptions for Andersson and Almqvist's (2022) as well as Osman's (2020) studies. Therefore, the research in this thesis hopes to contribute to this field of research on attitudes towards policy tools (both traditional and behavioral) and thus gain a larger understanding of what is considered the most effective method of communication.

2 Previous Literature & Theoretical Framework

The purpose of this thesis is to examine what attitudes consumers have towards different governmental policy tools with the goal of decreasing electricity consumption. Since there is little to no research on specifically electricity prices in relation to attitude towards policy tools, previous literature on policy tools were considered to be of relevance and have thus been examined.

2.1 Previous Literature on Policy Tools

2.1.1 Support for Traditional Policy Tools Among the General Public

Previous research on how traditional policy tools are used suggests that tax expenditure programs are more effective than equivalent programs (Haselswerdt & Bartels, 2015). In another study that examines economic incentives, mandates, and information in contrast to nudges, by Almqvist and Andersson (2022), it was concluded that the policy tools that swedes were most supportive of were information and subsidies. This conclusion was drawn whether the respondent was agreeing or disagreeing with the policy goal. It was also concluded that agreement with the goal of the policy tool was a strong determinant of the respondent's attitude towards the policy tools (Andersson & Almqvist, 2022).

2.1.2 Support for Nudging Among the General Public

Nudging has become increasingly common to use as a policy tool as it has gained popularity among policymakers and academics around the world (Hagman et al., 2022; Osman et al., 2020). In prior research on nudging, nudging is either compared to more traditional policy tools or investigated how the support for nudging is looking among the general public.

When investigating how the support among the general public is appearing, the level of support can be categorized based on what country it is implemented in. According to Sunstein et al. (2017), there are three types of categories: (i) nations where strong majorities approve of nudges (e.g. China and South Korea), (ii) nations where overwhelming majorities approve of nudges (e.g. Australia, the US, and the UK) and (iii) nations that are cautiously approving of nudges (e.g. Germany, France, and Sweden). Differences such as the political situation and attitudes in the country are crucial factors that determine the support for nudging (Sunstein et al., 2017). Empirical studies have also investigated the individual circumstances which could determine the level of support for nudging. Hagman et al. (2015) found that individuals possessing an individualistic perspective are not inclined to believe nudging to be effective. Analytical individuals were less prone to recognize nudges as interfering with freedom of choice (Hagman et al., 2015). The findings of individual factors influencing attitudes towards nudging were that individuals tend to approve of nudging when the goal of the nudge and the individual politics the goal accord (Tannenbaum et al., 2017). In the recent article by Andersson and Almqvist (2022), it was found that nudging as a policy tool used by public administration has low support among Swedes. This is contradicting what was found by Sunstein et al. (2017). Since Sweden has high trust in public institutions, this

should imply nudging to be approved of, but Almqvist and Andersson's study complicated this relationship (Andersson & Almqvist, 2022).

2.1.3 Nudging Compared to Traditional Policy Tools

As previously mentioned, research on the behavioral policy tool of nudging is also compared to more traditional policy tools. Benartzi et al. (2017) argue that nudges are a more cost-effective way to impact individuals' choices (compared to traditional interventions) as it does not imply material costs. Instead, nudges alter the choice architecture, in order to exploit individuals' bias to accept default options passively (Benartzi et al., 2017). In another study, it is argued that significant challenges to our generation require insights from both traditional and behavioral policy tools. It is concluded that nudging should only be seen as a supplementing tool, "[...] rather than overturning, traditional economic analysis and policy methods." (Loewenstein & Chater, 2017).

A limitation of most of the previous studies on policy tools is that the policy tools are not compared to each other, but instead studied in isolation (e.g. the study by Sunstein et al. (2017)). When alternatives to nudging are not presented, it limits the credibility of the conclusions in those studies. A limitation of the study by Andersson and Almqvist (2022) is that the policy tools were only measured using one statement per policy tool, which could make the results less reliable. Another limitation of the previous research on policy tools is that results are sensitive to the specific examples used in the research, which makes it difficult to draw conclusions on how these policy tools would be perceived in other situations, such as when it comes to decreasing electricity consumption.

The previous research section found that there is a contradiction regarding which policy tools should be accepted in Sweden. Andersson and Almqvist (2022) and Sunstein et al. (2017) are disagreeing on what policy tools should be supported in Sweden. One side claims subsidies and information to be more favorable, while the other claims nudging to be more approved of. Because of this, hypotheses on how attitudes towards different policy tools differ will not be formulated. Instead, attitudes towards the different policy tools will be measured in this thesis and be a big part of the research, but no hypothesis to strengthen or reject based on previous literature will be formulated.

2.2 Attitude as a Concept

The Theory of Planned Behavior (TPB) has become acknowledged as it is rather appropriate in explaining and predicting human decisions and behaviors (Ajzen, 1991), derived from the Theory of Reasoned Action by Ajzen and Fishbein (1985). The TPB suggests that consumer behavior and behavioral intention are explained as a function of three distinct components:

- Attitudes
- Subjective norms
- Perceived behavioral control

Attitude

Attitude is referred to what degree an individual has a favorable or unfavorable assessment of certain behavior. Attitude is also affected by an individual's previous experiences; thus the assessment is based on various feelings regarding either the object, the behavior, or the situation (Ajzen, 1991). If an individual believes that the performance of a certain behavior will lead to outcomes that are perceived positively, the attitude of the individual toward that behavior will be positive (Ajzen, 2020). In this thesis, attitude will be implemented by measuring what electricity consumers think about different policy tools that all have the goal of reducing electricity consumption.

Subjective Norms

Subjective norms refer to social factors that pressure an individual in regard to social context, to perform or not perform a certain behavior. An influencing process takes place when an individual explores other individuals' attitudes and thoughts in order to find guidance on what behavior to perform (Ajzen, 1991). The individual wants to have guidance and achieves this through social proof of what behaviors are accepted (Ajzen, L. & Albarracin, 2012).

In relation to the electricity market, electricity consumers should therefore be affected by their social context to consume less electricity. Previous research on electricity consumption saving behavior indicates that personal moral norms are factors that play a role when choosing to reduce electricity consumption (Wang et al., 2018), even though it might be for other reasons than for expensive electricity prices. The following hypothesis regarding subjective norms is thus formulated as:

H1: Subjective norms will be positively correlated with attitudes towards all policy tools.

Perceived Behavioral Control

Perceived behavioral control refers to the perceived ease or difficulty of performing a certain behavior. The perceived behavioral control is thus influenced by and assumed to anticipate past experiences and obstacles (Ajzen, 1991). Based on previous research, there is a discrepancy in how the attitude towards the behavioral policy tool of nudging is in contrast to more traditional policy tools (Andersson & Almqvist, 2022; Sunstein, 2017). Based on the perceived behavioral control, it could be argued that "forcing" policy tools such as mandates will increase the perceived ease of performing the act of decreasing electricity consumption. It could also be argued that nudging is increasing the perceived ease as it alters the choice architecture (Benartzi et al., 2017). It will thus be investigated in this thesis whether nudging is more popular (higher attitude and realism) than other policy tools in Sweden to clarify this discrepancy.

2.3 Price elasticity and demand response

Price is a central factor when consumers decide how they consume. Individuals are more likely to consume if they are aware of the cost (Gourville & Soman, 2002) which should indicate that high volatility and increased prices of electricity should be leading to reduced consumption of electricity.

Price elasticity is a measure of the responsiveness of consumers' sensitivity to changes in the price of a product or goods (Albadi & El-Saadany, 2008a). Electricity prices are considered highly inelastic in the short run, meaning demand isn't considered responsive to changes in price and income. One of the reasons for the short-term inelasticity of energy consumption is that it takes time to adapt and that it's an extensive process to change into more energy-efficient alternatives (Csereklyei, 2020). The electricity market is highly volatile and can experience exponential price increases during peak hours. A 5% reduction in energy consumption during peak hours is considered to have up to 50% impact on the overall spot price (Albadi & El-Saadany, 2008b). Given the volatility and inelasticity hypothesis number two is therefore proposed as follows:

H2: Consumers exposed to high electricity prices will be more positive towards policy tools with the aim of decreasing electricity consumption in comparison to consumers exposed to lower electricity prices.

2.4 Individualism vs. Collectivism

A factor that could affect the attitude towards policy tools with the goal of decreasing electricity consumption is whether an individual possesses a collectivistic or individualistic value orientation. The extent to which an individual has a collectivist or individual value orientation affects their willingness to engage in environmental concerns. An egoistic value orientation, based on an individual ground, is less willing to engage in the same kind of common general problem. An altruistic and biospheric value orientation is in turn correlated to a higher degree of engagement (Judith I M de & Steg, 2008).

Schwartz (1992, 1994) formulated a general definition of 56 different values by collecting data from 44 different countries and 25 863 responders. The answers were categorized into different cluster analyses where 10 different motivational types of values emerged and those with a prosocial norm were shown to engage in environmental behaviors to a higher degree (Schwartz, 1994; Schwartz, 1992). Kahan argues that people with a collectivistic orientation of values that aim to act in environmentally friendly behaviors also strengthen themselves to the extent that they view the governmental purpose to create welfare for the common good (Kahan et al., 2011; Kahan, 2012).

Based on the value-based-norm (VBN) theory, Stern (2000) concludes that moral norms form the basis of how you encounter pro-environmental action. Norms were in turn a product of beliefs such as ecological view, adverse consequences for valued objects and perceived ability to reduce threats. The theory underlines how personal norms forms and in turn affect which behaviors are favored when it comes to environmental action (Stern, 2000). The authors will therefore formulate the following hypothesis:

H3: The individualist-collectivist scale will be positively correlated with the attitude towards policy tools.

2.5 Stimulus-Response

When looking at attitudes towards policy tools, the attitude should be coupled with how realistic the respondent believes the policy tool will be, as it becomes easier to identify the intention of the policy tool. Stimulus-response focuses on the learning process where a stimulus is paired with a specific kind of response. Depending on the strength of the relationship, the more likely it becomes that the response will be triggered if you get exposed to the stimulus (Corbetta & Shulman, 2002). The impact of policy tools has its foundation in stimulus-response which explores to what extent a specific stimulus causes a certain response.

Applying stimuli, in form of policy tools aiming to reduce energy consumption, is one way of achieving desirable responses from consumers in form of reduced energy consumption. Different policy tools are being used in society with the aim of maintaining order, providing public services, and preventing dangers either for citizens themselves or the people around them. Depending on the desired response, different stimuli have different efficiency (Lavallee et al., 2014). The following hypothesis regarding stimulus-response theory is formulated as:

H4: There will be a positive correlation between the attitude towards all policy tools and how realistic it is perceived.

2.6 Explorative Questions

Apart from the formulated hypothesis there will be other, more explorative research questions asked, in order to try to fully cover the research area which is not included in any theories. These questions regard central parts of the study which there are no established theories about, but that the authors still want to investigate. There is previous research on some of the explorative research questions formulated, but since the findings of the research are contradicting, there will be explorative research questions instead. The exploitative questions will be formulated as follows:

- Which policy tools will the respondents be the most in favor of?
- How do the electricity contract and the housing situation of the respondent affect their attitude towards policy tools?
- How does gender affect the attitude towards policy tools?
- How does the bidding area that the respondent lives in affect what it believes are the reasons for increased electricity prices?

3 Method

This part of the thesis describes the method chosen to enable an investigation of what attitudes consumers have towards different policy tools with the goal of reducing electricity consumption. This was studied through a survey[1] to explore the respondent's attitudes towards the various policy tools.

3.1 Scientific Approach and Method

3.1.1 Scientific Approach

In the “previous literature and theoretical framework” chapter of this thesis, existing research material was used to formulate the hypotheses. This means that a deductive approach was chosen for this thesis. Furthermore, the research follows a quantitative scientific approach in order to test current established theories and previous research (Bell et al., 2019). This approach stems from a positivist research tradition, which implies “an epistemological position which is informed by an objectivist ontological position”. The positivist position mimics the experimental research approach in physical sciences, meaning that after formulating the hypothesis and data gathering, the researcher seeks to falsify the hypothesis. If the hypothesis is not falsified it should be “[...] representing provisionally true statements about reality” (Bell et al., 2019). The research is also partly explorative, with some questions in the theoretical framework being explorative, since the area of research is going through changes at the time of conducting the research for this thesis. An explorative design provides the study with insight into a developing market (Bell et al., 2019). Additionally, this thesis is aiming to replicate the research method used by Andersson and Almqvist (2022) in their study on policy tools.

3.1.2 Choice of method

Choosing method, the decision was made between a quantitative and a qualitative research method. Since the epistemological position of the thesis is an ontology position it thereby implies that a deductive approach has been taken. The approach is based on already existing research and knowledge as a basis for formulating hypotheses that are later tested with appropriate ways of collecting data. The observations should aim for being as objective as possible when using a deductive approach to give as realistic a view of reality as possible. This implies that a common and frequently used method for collecting data is through surveys or other observational instruments. Being objective can be difficult since previous research and studies can influence the structure and aim of the thesis. Bell et al. (2019) highlights historical and evidential factors as two variables that can influence the choice of method. A qualitative approach has been considered but rejected since attitudes towards different policy tools with the goal of reducing energy consumption are favorably observed on a larger scale, which makes qualitative methods like interviews inefficient and unnecessarily time-consuming. The risk of letting the authors' own values and beliefs influence the respondents' answers would also have been higher if interviews were conducted.

[1] Also referred to as ”questionnaire” and will be used interchangeably with “survey”

The quantitative method used, with an online based survey, was chosen since it was considered the most effective way to reach out to the target groups the authors were interested in researching. Given the research questions, the design of the survey as well as the time constraints made the method the most relevant to get the most possible answers. At the end of the survey, there was an attention-check question in order to make sure all respondents paid attention to the questions asked. The question was answered on a 7-point scale and respondents choosing the two lowest alternatives were removed from the survey.

3.1.3 Pilot Testing

The survey questions were formulated according to relevant literature where the language used has been adjusted to match the target group the survey is focusing on. During the process, the authors received feedback from the supervisor when constructing the survey. To minimize the risk of a question being misinterpreted, the authors shared the survey with friends and family before publishing it. Electricity prices are a topic of discussion that a vast majority are affected by, and the authors assumed that the respondents had some knowledge about the topic. Therefore, it was a suitable way to let relatives come up with improvements to make sure all questions would be understood, interpreted correctly, and answered accordingly. However, due to time constraints, it was not possible to do a pilot test of respondents from our selected bidding areas for feedback. Since no pilot test was conducted, the risk of less accurate survey responses can´t be ruled out.

3.2 Main Study

3.2.1 Questionnaire

The survey consisted of 13 blocks containing a total of 26 questions for the respondent to answer (see Appendix 1 for the complete survey). Since the research was delimited to electricity consumers in Sweden, the survey was made in Swedish. The introduction of the survey described the purpose, estimated time, contact information, and information regarding charity donation was presented. In the next section, the respondents were informed about the GDPR terms and could choose to consent or not consent. For the respondent to be able to participate, they would have to consent to the GDPR terms. If no consent was given, the respondent would be sent directly to the end of the survey and not be able to participate.

All the data collected has been handled according to the General Data Protection Regulation (GDPR; European Union, 2016). To comply with the GDPR terms, only the most essential data were collected, but still sufficiently detailed to enable a thorough analysis of the answers from the questionnaire.

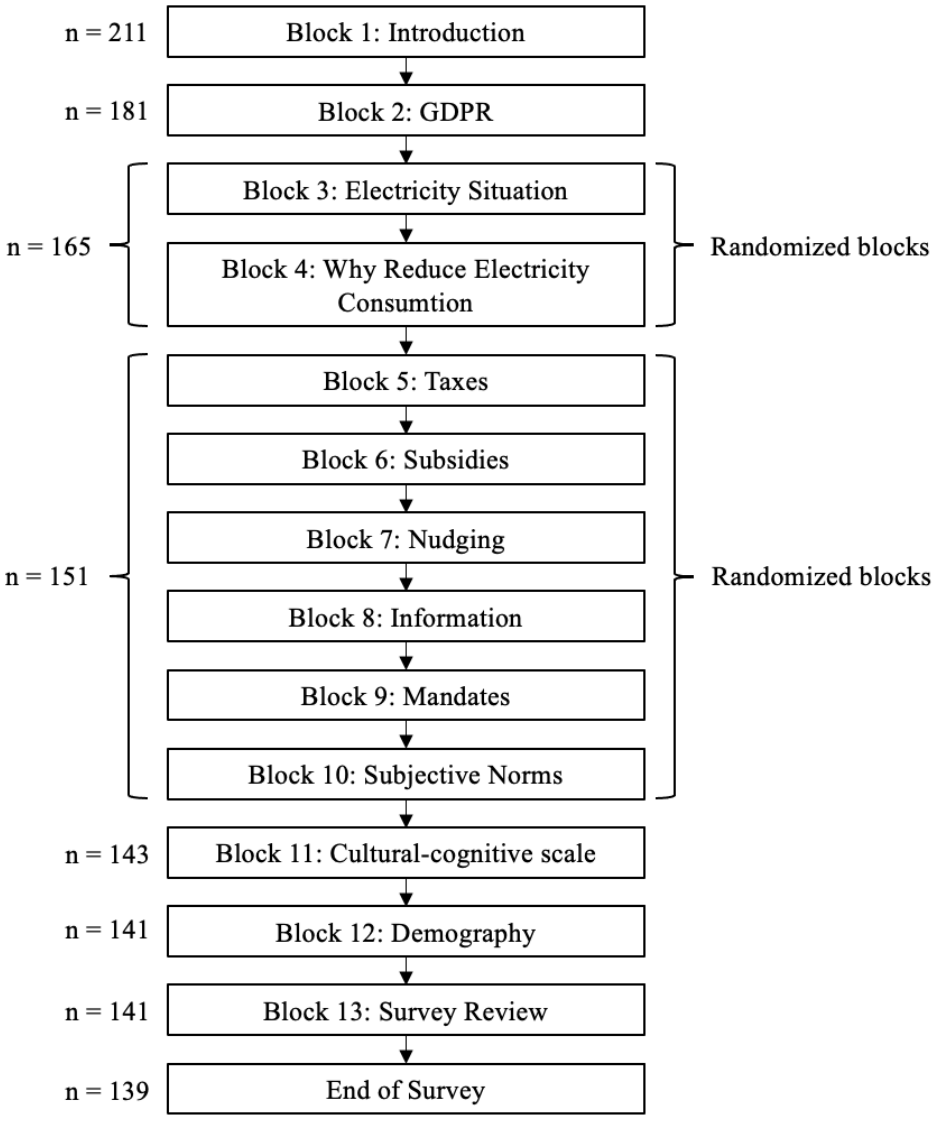
The 13 different blocks consisted of the following areas: 1) Introduction, 2) GDPR, 3) Electricity situation, 4) Reasons to reduce electricity consumption, 5) Taxes, 6) Subsidies, 7) Nudging, 8) Information, 9) Mandates, 10) Subjective norms, 11) Cultural cognitive scale, 12) Demography and 13) Review of the survey. See Figure 2 for a visual view of how the survey was constructed.

The questions related to policy tools were divided into five different blocks with one policy tool per block where all blocks appeared in a randomized order relative to each other. Each block contained three questions related to attitude, realism, and whether they preferred the policy tool being implemented or not. The survey also included an attention-check question in order to make sure all respondents were focused while answering the questions (Oppenheimer et al., 2009). Responses that failed to answer the control question correctly were discarded. The data was collected between October 14th 2022 and November 4th 2022. Most of the questions used a 7-point Likert-scale to enable the respondents to give as nuanced answers as possible, without giving too many alternatives.

Financial incentives can be helpful to increase the response rate of the survey (Bell et al., 2019). In order to increase the response rate of the survey, SEK 1 was donated to UNHCR to financially support their work relating to Russia's invasion of Ukraine for each completed survey. This was stated in both Facebook posts leading to the survey and in the introduction of the survey.

3.2.2 Survey Flow

Figure 2: Survey flow illustrated



3.2.3 Variables

Attitude, Realism, and Agreement
The dependent variable "attitude" was determined in blocks 5-9. The attitude was measured using questions with Likert-scales ranging from "Very bad" (1) to "Very Good" (7). Furthermore, the independent variable "realism" in the policy tools was evaluated using a 7-point Likert-scale ranging from "Very unrealistic" (1) to "Very realistic" (7). Lastly, the independent "agreement" with the policy tool was measured using "Yes", "No" and "Do not know". The agreement variable was inspired by the study conducted by Sunstein et al. (2017).

The survey had three different claims regarding each policy tool in order to increase reliability and the claims were displayed in a randomized order. The claims were formulated by the authors and aimed to capture the core message of what the impact of the specific policy tool.

The three claims about taxes concerned if taxes on electricity should be raised, if value-added taxes should be raised and whether a progressive tax on electricity should be introduced. The questions relating to subsidies were about if subsidies should be given to households that lower their energy consumption, if subsidies should be given to households that improve the energy efficiency of the household and if subsidies should be given for electricity meters in order to enable households to measure their electricity consumption on themselves. Regarding nudging, the authors were interested in the respondent's thoughts on getting a directive to lower their energy consumption if they consumed more than average (but could refuse to do so if they preferred) and getting a message regarding how much electricity they consume in relation to neighbors. The final question regarding nudging asked for their thoughts on receiving a message indicating how much electricity they consume during peak hours, as well as prompts to use appliances during other times. The key for all nudging-related claims was to state that they are all voluntary to follow. The claims about information were about governments sending out information flyers regarding how you can reduce your energy consumption, campaigns on social media and governmental funded courses that were free to attend teaching how to reduce energy consumption. The three claims related to mandates were about the respondent's thoughts on power failures during peak hours, the introduction of a rationing system, and an upper limit of electricity consumption per day.

Collectivist-Individualist
The variable measuring "collectivist-individualist" was measured in block 11. Here, a shorter version of Kahan's (2008) "Cultural Cognition Scale" were used, containing six statements: (1) "The government is intervening too much in our everyday life", (2) "The government needs to enact laws that prevent people from hurting themselves", (3) "It is not the government's role to save people from themselves", (4) "The government should stop telling people how to live their lives", (5) "The government should do more for the public good, even if it means limiting individuals' freedom and choice" and (6) "The government should limit individual choices to avoid these getting in the way of the good of society". Following these statements was a Likert-scale ranging from 1 (absolutely incorrect) to 7 (absolutely correct). The scales were then converted so that 1 represents an individualistic view and 7 represents a collectivistic view and a mean was calculated. Questions (1), (3), and (4) were reversed so that it would lead to 1 representing an individualistic answer and 7 a collectivistic answer.

Subjective Norms
As stated in the literature review, a key theory for attitude measure is the theory of planned behavior and an important ingredient of that theory is subjective norms. The independent variable "subjective norms" was explored in block 10 of the questionnaire. The subjective norms were created as a mean using three statements: (1) "My friends would care if I would reduce my electricity consumption", (2) "My friends would dislike if I would consume electricity in a wasteful manner" and (3) "Individuals in my surroundings are doing their best to reduce their electricity consumption". Following these statements was a Likert-scale ranging from 1 (totally disagree) to 7 (totally agree).

Demographics
The independent demographic variables in the study include gender, area of residence (bidding area), year of birth, type of electricity contract, and housing situation. This information was used to analyze the sample composition in attitudes, realism, and agreement with/towards certain policy tools in relation to what demographic the respondent had. The variables of gender, area of residence (bidding area), type of electricity contract and housing situation were translated into dummy variables to be able to do a regression analysis.

Electricity Situation
In block 3 of the survey, the respondents were asked to give their views on what is affecting the current electricity prices. This block functioned as an additional information block to gather the information that could potentially be interesting to correlate with certain answers in the other blocks. This variable was measured using a 7-point Likert-scale where 1 was "absolutely does not affect" and 7 was "absolutely affects".

3.3 Data Collection and Statistical Methods

3.3.1 Data Collection

The study was conducted through a survey distributed online to respondents living in bidding areas SE1 and SE4 in Sweden. To get respondents from the bidding areas the authors were interested in, as well as to get a somewhat representative selection, local Facebook groups (see Table 10 in Appendix 2) for specific cities located within the different bidding areas were utilized. Administrators of each specific group were approached to gain permission to publish a post about the survey, who the authors are, and encourage the members of the Facebook group to take part in the survey through an attached link. The script for the Facebook posts was standardized and indifferent for every group. Before posting, the administrators had to confirm that the authors were allowed to post in order not to break any community rules of the specific Facebook group. In total, eight cities were contacted in bidding area SE1 and nine in bidding area SE4. The cities were chosen based on population size and availability. Some cities of larger sizes were unfortunately left out since the authors did not receive an allowance to post from the administrators of the groups. See Table 10 in Appendix 2 for a list of the cities and Facebook groups contacted.

The sample population from the Facebook groups could be considered a convenience sample since it is relatively simple to join Facebook groups. One could also argue that the sample from the Facebook groups is not a convenience sample since the authors went outside their network of contacts and approached random individuals on social media (Bell et al., 2019)

Some of the respondents were reached through the author's own contacts in the two bidding areas (mainly from bidding area SE4), thus constituting a convenience sample (Bell et al., 2019).

A majority of the respondents completed the survey, in total 139 respondents were recorded to fully complete the survey and were therefore considered to be valid. However, 72 respondents had incomplete answers. Of those who chose not to complete the survey, 30 out of 72 left after the introduction page where the survey was introduced, the purpose of the thesis was described and an estimation of the number of minutes it would take to participate was shown. 14 respondents dropped off the survey during the five randomized blocks asking questions about policy tools. The reason for this could be that those questions were perceived as relatively time-consuming since all blocks with policy tools were structured in a similar way and generally more text-heavy in relation to the other blocks.

The survey was carried out in Swedish since it was intended to be answered by people living in Sweden in bidding areas SE1 and SE4 and it was thus assumed that most of these respondents were fluent in Swedish. Communicating through the respondents' (presumably) native language should limit misunderstandings caused by language barriers.

3.3.2 Data Quality

The total number of participants in the study was 212, which includes everyone who started the survey. Participants who did not complete the survey (completed less than 100% of the survey answers) were excluded. Among the 212 respondents, six did not agree to the GDPR terms and were excluded accordingly. 2 participants in the survey did not answer the attention question correctly and were as a result excluded. A total of 139 respondents progressed through 100% of the survey questions. The number of answers after the exclusion of uncompleted and inattention answers amounted to 139.

3.3.3 Data Analysis

The survey was created and administered using the online survey tool Qualtrics. The collected data was analyzed using RStudio Build 2022.07.2+576 and Excel. The data analysis was conducted with some different statistical methods, including extracting descriptive statistics, calculating Cronbach's alpha for multi-item questions, *t*-test (to check for potential differences between groups), Pearson correlation test (to in isolation view correlation between the dependent variable and independent variables) and regression analysis with all interesting variables. Cronbach's alpha was used to conduct a reliability analysis for the indexed variables that were measured using multiple questions. The accepted alpha coefficient was set to 0.7 (Bell et al., 2019; Peterson, 1994). The linear regressions were conducted to measure the relationship between attitude towards the policy tools (both attitude towards all policy tools combined and attitudes separately) as a dependent variable in relation to the independent variables of gender, electricity contract, housing situation, subjective norms and the individualist-collectivist scale. A maximum level for the *p*-value was set to 0.05 as a level of significance for all the statistical tests (Bell et al., 2019).

3.4 Research Reliability and Validity

3.4.1 Reliability

Reliability of the study regards whether the chosen method measures what is being studied is consistent or not, thus if several repeatedly performed measurements would point the results in the same direction if the same method was applied (Bell et al., 2019). The internal reliability of the indexed variables was measured by applying Cronbach's alpha to the multi-item questions. This was done to ensure that the multi-item questions were measuring the same factors or to anticipate if they were not doing so. The alpha has a value between 0 and 1. 0 indicates no internal reliability and 1 full internal reliability. Values equaling 0.7 and above were considered acceptable, while values below 0.7 were rejected (Bell et al., 2019; Peterson, 1994). These variables where Cronbach's alpha was applied included attitude and realism towards all the different policy tools, subjective norms, and the individualist-collectivist scale, which were all measured using multi-item questions.

The Cronbach's Alpha for the policy tool questions regarding attitude and realism (all consisting of three questions) all exceeded 0.7 except for the attitude and realism towards nudging[2]. The alpha for the collectivist-individualist score (consisting of six questions) as well as for subjective norms (consisting of three questions) also exceeded 0.7. Cronbach's alpha for all variables measured using multiple items, as well as mean and standard deviation for these variables, is seen in Table 2.

Table 1: Overview of Cronbach's Alpha for Attitude and Realism Variables

Variable		*M*	*SD*	Cronbach's Alpha	No. of Items
Taxes	Attitude [a]	3.34	1.44	0.75	3
	Realism [b]	3.63	1.60	0.73	3
Mandates	Attitude	2.39	1.44	0.80	3
	Realism	2.75	1.54	0.78	3
Nudging	Attitude	4.52	1.44	0.67*	3
	Realism	4.08	1.45	0.68*	3
Subsidies	Attitude	5.10	1.43	0.78	3
	Realism	4.79	1.52	0.80	3
Information	Attitude	5.31	1.43	0.87	3
	Realism	4.99	1.50	0.84	3
Individualist-Collectivist		3.92	1.34	0.78	6
Subjective Norms		3.55	1.45	0.77	3

*Does not reach the acceptable level set for this thesis.

Note : N = 139

[a] 1 being "very bad", 7 being "very good"

[b] 1 being "very unrealistic, 7 being "very realistic"

The scales for three of the six questions in the collectivist-individualist were reversed.

[2] The independent variable nudging did not meet the acceptable set alpha level. It will still be used in the analysis, but the results will be viewed with caution.

3.4.2 Validity

The validity of this study is divided into measurement validity, external validity, and ecological validity. Measurement validity refers to the accuracy of conclusions and measure of concept in the study, thus if a measure is really measuring what it is supposed to measure (Bell et al., 2019). In this thesis, the main variable measured is the attitude towards different policy tools with the goal of decreasing electricity consumption. This was clearly clarified in the beginning of the survey as well as in the questions to avoid any confusion among the respondents.

External validity refers to whether the study results are generalizable beyond the research context. There are several factors that could affect the strength of the experiments, such as the delimitations, sample size, and replicability in other settings among other factors (Bell et al., 2019). The research in this thesis is partly based on a convenience sample and the sample size of 139 respondents could have been larger, which could weaken the external validity. Additionally, the study is limited to attitudes towards policy tools within electricity consumption. Thus, it will have rather low generalizability and area of application towards other areas of policy tools. Another potential problem could be that the scales used in the questionnaire were translated into Swedish, as the research was conducted on Swedish respondents. It was necessary to do the translation to match the rest of the questionnaire, which was written in Swedish.

Ecological validity refers to how applicable the research findings are in real-world settings. Study findings derived from using questionnaires could be affected by the fact that answering a questionnaire is an unnatural situation, which may lead to conclusions having poor ecological validity (Bell et al., 2019). This study used conventional policy tools which have been used by governments and in public administration before to address societal issues, in order to make the situations seem as realistic as possible.

3.4.3 Survey Judgment

At the end of the survey, there were three different questions related to how the respondent perceived the survey. The purpose of the questions was to understand how the respondent had interpreted the survey if the structure and format were easy to understand as well as if they thought that the survey tried to influence their answers in any way.

As seen in Table 2, less than 5% thought that the survey wasn't meaningful and over 80% were of the opinion that the questions were clearly formulated. Clearly formulated questions do in turn minimize the risk that respondents couldn't answer the questions accurately. Almost all respondents (88.5%) were of the opinion that the survey didn't influence or were unsure it influenced their answers. The survey judgment part did also include an open question where the respondents got to give feedback and comments regarding the survey, see Table 13 in Appendix 3 for a selection of comments received. Additionally, the survey took more time for the respondents to complete than what the authors initially estimated. The estimated time was eight minutes, while the average completion time was around eleven minutes.

Table 2: Survey Judgement, Distribution of Answers

	No, absoltely not	No, mostly not	Unsure	Yes, mostly	Yes, definently
Did you find the survey meaningful?	2.2%	2.2%	20.9%	49.6%	25.2%
Were the questions clearly formulated?	1.4%	4.3%	12.2%	56.8%	25.2%
Do you think the questions tried to influence your answers in any way?	41,0%	32.4%	15.1%	7.9%	3.6%

Note: N = 139

4 Results and Analysis

The results and analysis part of the thesis will present the results from the study in three parts, divided into descriptive statistics, including gender, age, bidding area, housing situation, etc., differences between groups (including differences between bidding area and gender) and a regression analysis.

4.1 Descriptive Statistics

An overview of the respondent's age and gender distribution is available in Table 12 in Appendix 4. There was a rather even distribution of males (43%) and females (54%) responding to the survey. Since the survey was distributed mainly to the geographical areas of bidding areas 1 and 4 in Sweden, most of the respondents belonged to one of these areas. (40%) in bidding area SE1, none in SE2, (14%) in SE3 and a majority of the respondents in SE4 (46%).

Table 3: Overview of Electricity Situation Variables

Variable	N	n	% of Total Sample
	139		
Bidding Area			
SE1		55	39.6%
SE2		0	0.0%
SE3		20	14.4%
SE4		64	46.0%
Housing Situation			
Detached house		93	66.9%
Co-operative apartment		24	17.3%
Right of tenancy		18	12.9%
Co-operative right of tenency		0	0.0%
Student housing		2	1.4%
Other		2	1.4%
Contract Type			
Variable		68	48.9%
Fixed		43	30.9%
Hybrid		1	0.7%
Hourly		12	8.6%
Included in rent		8	5.8%
Do not know		7	5.0%

As seen in Table 3, a majority of the respondents (67%) lived in detached houses and 30.1% lived in either a cooperative apartment or a right of tenancy. The high share of respondents living in detached houses isn't representative of how the housing situation looks in Sweden in general, where detached housing stands for (40%) of all living (SCB, 2022). Since people living in detached houses have been affected by the higher electricity prices to a higher extent, this could have influenced people's willingness to participate in the survey since they may tend to have more opinions about the topic than the general public. No respondent lived in a co-operative right of tenancy and (1%) lived in either a student apartment or another alternative.

Almost half of the respondents (49%) had a contract type with variable electricity prices. (31%) had a fixed contract type, (1%) hybrid contract type, (9%) an hourly contract type, (6%) had their electricity bills included in their rent and (5%) didn't know what contract type they had.

To determine what policy tool respondents had the highest attitude towards, mean and standard deviation were calculated for attitude and realism for all policy tools. As seen in Table 1, information and subsidies were the policy tools that had the highest mean for both attitude and realism among the respondents. These were then followed by nudging, taxes, and mandates, where mandates were the least popular by quite some margin (both seen to mean attitude and mean realism).

In Table 4 are the results presented for the support for each policy tool. These results show similar tendencies as the results for attitude and realism in Table 1.

Table 4: Support for Each Policy Tool

	Yes	No	Do not know
Taxes	29.1%	55.4%	15.5%
Mandates	14.3%	72.2%	13.5%
Nudging	51.5%	36.5%	12.1%
Subsidies	60.5%	26.1%	13.4%
Information	66.4%	20.8%	12.7%

Note: N = 139

4.2 Comparison Between Consumer Groups

4.2.1 Comparison in Attitude and Realism Between Bidding Areas SE1 and SE4

The mean differences between the two bidding areas that were the main focus (SE1 and SE4) were then tested through a *t*-test for realism and attitude for all policy goals. As seen in Table 5, there was a significant difference in attitude towards mandates, with a *p*-value of 0.029 [3]. There were no other significant differences found between the two bidding areas SE1 and SE4 when it comes to attitude or realism towards the policy tools. The order in which the attitude for the policy tools was ranked in the two bidding areas did not differ from each other

[3] The acceptable *p*-value for this thesis was set to 0.05 or less.

or from the total sample population, meaning that the attitude towards information and subsidies was the highest, while the attitude towards mandates and taxes was the lowest.

Table 5: Mean Attitudes Between Bidding Areas SE1 and SE4

Respondent Group		SE1 n = 55		SE4 n = 64				
Variable		*M*	*SD*	*M*	*SD*	*df*	*p*	*t*
Taxes	Attitude [a]	3.26	1.91	3.45	1.57	104	0.55	-0.60
	Realism [b]	3.47	1.69	3.68	1.63	113	0.49	-0.69
Mandates	Attitude	2.10	1.44	2.69	1.43	114	*0.03*	-2.21
	Realism	2.68	1.69	2.94	1.45	107	0.38	-0.89
Nudging	Attitude	4.65	1.53	4.4	1.33	105	0.36	0.91
	Realism	4.22	1.53	3.97	1.33	108	0.35	0.94
Subsidies	Attitude	5.10	1.65	5.16	1.29	102	0.83	-0.22
	Realism	4.73	1.72	4.91	1.38	103	0.54	-0.62
Information	Attitude	5.28	1.59	5.39	1.35	107	0.71	-0.37
	Realism	5.05	1.61	5.02	1.48	111	0.89	0.14

[a] 1 being "very bad", 7 being "very good"

[b] 1 being "very unrealistic, 7 being "very realistic"

4.2.2 Factors Causing Increased Electricity Prices

As seen in Table 6, there are several significant differences in what the two bidding areas SE1 and SE4 believe is the cause of electricity price increases. There are significant differences in weather factors, neighboring countries' energy supplies, and limited transmission capacity. In all three cases bidding area SE4 believed that these factors are affecting to a higher degree (at a significant level) compared to bidding area SE1.

Table 6: Factors That Could Cause Increased Electricity Prices, Compared Between Bidding Areas

	Total n = 139		SE1 n = 55		SE4 n = 64				
	M	*SD*	M	SD	M	SD	*df*	*p*	*t*
Russian invasion of Ukraine[a]	5.63	1.47	5.40	1.61	5.83	1.48	111	0.14	-1.51
Weather factors	5.59	1.55	5.20	1.78	5.83	1.39	101	*0.04*	-2.12
Neigbouring countries' energy supplies	5.59	1.47	5.00	1.75	5.70	1.23	95	*0.01*	-2.49
Limited transmission capacity	5.45	1.65	4.86	1.93	5.86	1.33	94	*0.00*	-3.54
Electricity companies' profit interest	5.59	1.48	5.45	1.75	5.77	1.23	95	0.27	-1.10
Price on fossil fuels	5.30	1.42	5.31	1.60	5.27	1.36	107	0.87	0.16
Taxes and fees	5.95	1.37	6.18	1.17	5.81	1.55	115	0.14	1.48
Shutdown of nuclear power	5.86	1.53	5.49	1.69	6.05	1.44	107	0.06	-1.92

[a] 1 being "absolutely does not affect" and 7 being "absolutely affects"

4.2.3 Comparison Between Bidding Areas on Factors That Could Cause Increased Electricity Prices

In Table 6, means are shown for what the respondents think could be factors that affect the increase in electricity prices in Sweden. The factors "taxes and fees" and the "shutdown of nuclear power" were those with the highest mean (and thus affected prices the most), while the "prices on fossil fuels" were the factor that the respondents believed affected the lease. Significant differences were found between bidding areas SE1 and SE4 for "weather factors", "neighboring countries' energy supplies" and "limited transmission capacity (between bidding areas)". In all three cases, bidding area SE4 believed the factors to be affecting more.

4.2.4 Comparison in Attitude Between Genders

A *t*-test between genders was also conducted (as seen in Appendix 5). It was concluded by the *t*-test that there are significant differences in attitude and realism for information as well as significant differences in attitude towards mandates. Females were generally more positive in attitude towards the goals (information and mandates), while males thought information as a policy tool was more realistic.

4.2.5 Differences Between Attitude Towards Policy Tools

To evaluate differences between the different policy tools, a two-sided Bonferroni corrected *t*-test was conducted. The Bonferroni corrections means that the *p*-value was adjusted by dividing the set acceptable level for the *p*-value for this thesis (0.05) by the amount of policy goal comparisons made (10). This implied a *p*-value of 0.005 and a confidence interval of 99.5%. In Table 7 are the results from the paired sample *t*-tests, where there were significant differences between all policy tools except for subsidies vs. information.

Table 7: Two-sided Bonferroni Corrected T-test Between Attitude Towards Policy Tools

	Taxes	Mandates	Nudging	Subsidies
Mandates	0.92*			
Nudging	-1.24*	-2.17*		
Subsidies	-1.77*	-2.69*	-0.55*	
Information	-2.01*	-2.93*	-0.78*	-0.23

Note: Confidence intervals have been Bonferroni-corrected, see text for detailed description. Numbers are mean differences between the policy tools listed horizontal compared to the policy tools listed vertically.

* Bonferroni adjusted p-value for ten comparisons, $p<0.005$

4.3 Regression Analysis

Before conducting the regression analysis with all the relevant variables, a Pearson's correlation test was conducted to individually examine the correlation between the policy tools variables and the three scales of realism, subjective norms, and individualist-collectivist. The results from the Pearson correlation test between attitude towards policy

tools and the different scales are seen in Table 8. It shows significant correlations for all variables at the level of $p<0.05$. The strongest correlations are found between attitude towards policy tools and realism, while the weakest (yet significant) correlations are found between attitude towards policy tools and the subjective norms scale.

Table 8: Pearson Correlation Between Attitude Towards Policy Tools and Scales

	Taxes	Subsidies	Nudging	Information	Mandates
Realism	0.66**	0.74**	0.72**	0.79**	0.59**
Subjective Norms	0.24**	0.32**	0.18*	0.31**	0.19*
Individualist-collectivist	0.41**	0.36**	0.22**	0.47**	0.21*

Note: **Correlation significant on $p<0.01$ level, *Correlation significant on $p<0.05$ level

The regression analysis is reported in Table 9, showing unstandardized coefficients. As seen in Table 9, significant effects are reported in the regression between the dependent variables of all policy tools combined as well as for taxes, subsidies and information, with the individualist-collectivist scale as an independent variable. Generally, this means that if a respondent scored high on the individualist-collectivist scale (symbolizing a collectivist view), they had a more positive attitude towards policy tools. It was also found that males generally are less in favor of policy tools compared to women, with significant effects for taxes and subsidies as well as for all policy tools combined. No significant effects were found for age in the regression analysis, with very weak coefficients for all policy tools.

Furthermore, in Table 9, it is reported significant impacts if the respondent believes the policy tool to be realistic to be positively correlated with the attitude. This was significant for all policy tools with $p<0.01$. No significant impacts were found for the subjective norms, housing situation or contract type, although some of the unstandardized coefficients were quite strong for some of the results. A significant impact was found for respondents appurtenant to bidding area SE1 for the information policy tool. No other significant effects were reported in the regression analysis.

Nudging and mandates were the two policy tools with the fewest significant unstandardized coefficients.

Table 9: Regression Results for Explaining Attitude to Policy tools. Unstandardized Beta Coefficients

	Dependent Variable (Attitude Towards Policy Tools)					
	All Policy Tools	Taxes	Subsidies	Nudging	Information	Mandates
Scales						
Realism	0.75***	0.63***	0.65***	0.72***	0.69***	0.512***
Subjective Norms	-0.03	0.01	0.10	-0.10	-0.00	-0.03
Individualist-collectivist	0.14***	0.32***	0.147**	0.10	0.25***	0.01
Demographics						
Gender[a]	-0.40***	-0.64***	-0.54***	-0.27	-0.26	-0.33
Age	0.00	-0.00	0.54	0.00	0.01	0.01
Housing Situation						
Detached house	0.18	0.21	0.54	0.49	0.44	-1.47
Co-operative apartment	0.34	0.58	0.71	0.63	0.49	-1.25
Right of tenancy	0.43	0.25	0.81	0.83	0.38	-0.63
Student housing	0.33	0.38	1.01	0.23	0.49	-1.29
Contract Type						
Variable	-0.18	-0.03	-0.45	-0.24	-0.48	1.27
Fixed	-0.09	-0.69	-0.48	-0.34	0.04	1.71
Hourly	-0.28	-0.69	-0.28	-0.50	-0.49	1.41
Included in rent	-0.21	-0.81	-0.42	-0.50	-0.22	0.55
Bidding Area						
SE1	-0.32	0.15	-0.05	-0.22	-0.55**	-0.69
SE4	-0.14	0.02	-0.21	-0.12	-0.20	-0.16
Adj. R^2	0.71	0.51	0.59	0.52	0.66	0.38

Note: **p<0.05; ***p<0.01; N=139

[a]Gender coded as a dummy variable, where 1 is male and 0 is female.

4.4 Summary of the Test of the Hypothesis

4.4.1 Subjective Norms and Attitude Towards Policy Tools

The results from the regression analysis show that the mean attitude towards the policy tools was not significant for any policy tool (see Table 9). There were significant correlations between subjective norms and attitudes towards policy tools, but this was not significant in the complete regression model.

H1	Subjective norms will be positively correlated with attitudes towards all policy tools.	**Not supported**

4.4.2 Consumers With High Electricity Prices and Attitude Towards Policy Tools

The results from the *t*-test comparing bidding areas SE1 and SE4 show that attitudes towards the different policy tools did, for most of the time, not differ significantly (as seen in Table 5). An exception was for mandates, which showed a significant difference in attitude towards mandates between the two bidding areas ($p=0.03$).

H2	Consumers exposed to high electricity prices will be more positive towards policy tools with the aim of decreasing electricity consumption in comparison to consumers exposed to lower electricity prices.	**Not supported**

4.4.3 Individualist and Collectivist Affecting Attitude

The results from the regression analysis show in Table 9 that when the mean attitude towards all policy tools combined is calculated, the attitude towards these policy tools is higher when the respondent had a higher score on the individualist-collectivist scale (meaning that when the respondent is an individualist, it is more likely to be in favor of policy tools). This was significant with $p<0.01$ for all policy tools. A majority, 3/5, policy tools also had significant effects for this in the regression analysis. The correlation between attitude and the individualist-collectivist scale was also significant in the isolated Pearson correlation test.

H3	The individualist-collectivist scale will be positively correlated with the attitude towards policy tools.	**Supported**

4.4.4 Relationship Between Attitude and Realism

The results from the regression analysis with attitude as a dependent variable and realism as an independent variable showed that there was a significant ($p<0.01$) relationship between the two variables for all policy tools (as seen in Table 9). The correlation between attitude and realism was also significant in the isolated Pearson correlation test.

H4	There will be a positive correlation between the attitude towards all policy tools and how realistic it is perceived.	**Supported**

4.5 Other Observations

Other observations relate to the explorative questions in part 2.6 of the thesis. The explorative questions asked were the following:

1. Which policy tools will the respondents be the most in favor of?

The policy tool with the highest mean attitude was information, closely followed by subsidies, as seen in Table 2. The same findings were true for the results in Table 4, where it was shown that the support for information and subsidies were the largest.

2. How do the electricity contract and the housing situation of the respondent affect their attitude towards policy tools?

These variables did not affect the regression in Table 9 significantly and therefore they did not affect the attitude.

3. How does gender affect the attitude towards policy tools?

Differences in attitude between gender were only found for attitude towards mandates and information, as seen in Appendix 5.

4. How does the bidding area that the respondent lives in affect what it believes are the reasons for increased electricity prices?

There were significant differences for weather factors, neighboring countries' energy supplies and limited transmission capacity, where respondents living in bidding area SE4 believed these factors to be affecting to a higher degree than those living in bidding area SE1.

5 Discussion

The purpose of this thesis was to examine what attitudes consumers have towards different policy tools with the goal of decreasing electricity consumption. In the discussion, the results from the previous section will be debated further. The study aimed to answer the following research questions:

- *How do consumer attitudes differ depending on what policy tools are used to reduce electricity consumption?*
- *What do consumers in different bidding areas think about different policy tools?*
- *How are attitudes towards policy tools differing and how can they be explained?*

5.1 Conclusions and Implications

5.1.1 Descriptive

The distribution of males and females were quite even, with (54%) females, (43%) males and (3%) did not want to answer (see Appendix 4 for a more detailed description). Ages were normally distributed with a mean of 51 years. In Table 1, showing what the respondents believed were the causes of the increase in electricity prices, it was shown that taxes and fees had the highest mean followed by the shutdown of nuclear power. The policy tools with the strongest support were information followed by subsidies, while mandates and taxes had the least support, seen in Table 4. This is in line with previous research from Andersson and Almqvist (2022).

5.1.2 Individualist vs. Collectivist and Attitude Towards Policy Tools

It was found that there was a positive correlation between a respondent being collectivistic and having a higher attitude towards some of the policy tools. These policy tools included taxes, subsidies, and information. In previous literature, it has been argued that an individual possessing an individualistic viewpoint was not inclined to believe nudging to be an effective policy tool. There were no significant effects found in the regression analysis for this claim from Hagman et al. (2015). It was found that the largest effect was for taxes, where respondents with a more collectivistic view were more in favor of taxes and information than other policy tools. The implications of this are in line with previous literature implying that people with a more altruistic value orientation are correlated with a higher degree of engagement (Judith I M de & Steg, 2008).

5.1.3 Subjective Norms and Attitude Towards Policy Tools

Regarding subjective norms, there were no significant relationships found between attitude towards any of the policy tools and the level of subjective norms among the respondents, as presented in Table 0. Since the correlations were rather weak and non-significant, the hypothesis for subjective norms being positively correlated with attitude towards policy tools was rejected.

The implication that there are no significant effects for subjective norms could be that the effects for other variables (such as realism, individualist-collectivist scale and gender) in the regression had a strong relationship leading to interference in the correlation between attitude and subjective norms.

5.1.4 Attitude and Realism Towards Different Policy Tools

As shown in Table 2, the policy tool with the highest attitude score among the total sample population was information followed by subsidies. Mandates had the lowest attitude mean and second lowest were taxes. The same order of mean could be observed for the realism score, thus information being the most popular and mandates being the least popular. In both attitude and realism, nudging as a policy tool was ranked third. These results somewhat contradict previous research on nudging from, e.g. Sunstein et al. (2017), which suggested that nudging should be accepted in Sweden. These results are instead in line with the study from Andersson and Almqvist (2022), which have similar findings in their research. Worth noting is that the findings could be example-specific to the research of this thesis investigating attitudes towards policy tools in order to decrease electricity consumption.

Furthermore, it was found that attitude and realism were statistically significantly positively correlated for all policy tools, as seen in Table 9. This finding was in line with the results presented in the research from Anderson and Almqvist (2022).

5.1.5 Differences in Attitude Between Bidding Areas

Looking at differences in attitude between bidding areas, the biggest spread in mean and the only significant difference was the attitude towards mandates. As shown in table 5, bidding area SE4 had a more positive attitude towards mandates than bidding area SE1. Besides that, no significant differences regarding attitudes and realism were found between the two bidding areas. The finding is not in line with the hypothesis that consumers exposed to high electricity prices will be more positive towards policy tools with the aim of decreasing electricity consumption in comparison to consumers exposed to lower electricity prices. It contradicts previous research from Gourville (2002) that consumers are more likely to consume if they are aware of the cost, implying that increasing energy prices would lead to lower energy consumption.

Since prices in bidding area SE4 have increased at a faster pace compared to bidding area SE1 it would imply that bidding area SE4 would have a more positive attitude towards policy tools aiming to lower electricity consumption. A possible reason that there is no significant difference between the attitude towards policy tools could be since prices have increased in all bidding areas. Even though the increase has been bigger in bidding area SE4 compared to SE1, the increased prices have made people more conscious about saving energy.

Regarding factors that could cause increasing energy prices there were several factors that differed between the bidding areas. Weather factors, neighboring countries' energy supplies and limited transmission capacity all had a significant difference between the bidding areas where bidding area SE4 thought that they had a bigger impact on energy prices. This may be the case since the discussion of energy prices have been more present in bidding area SE4

since they have skyrocketed during 2022 and people are more affected by them. If people are more affected by them, they may have more opinions about what the causing factors for it may be.

5.1.6 Differences in Attitude Between Gender

Looking at gender, males had a lower mean of the attitude towards every policy tool compared to females even though all of them weren't significant. There were significant differences between genders when it comes to attitudes towards mandate, attitudes towards information and realism towards information as (presented in Table 13 in Appendix 5). Females have a significantly more positive attitude towards mandates and information and are significantly more negative towards the realism of information. The fact that males tend to have a more negative attitude towards policy tools, presented in Table 9 and Table 13 in Appendix 5, than females could be a consequence of feminine personalities being more caring. According to McDermott and Jones (2022) personalities with more caring are in turn more likely to trust the government which could be one exploitation to males scoring lower on attitude towards policy tools (McDermott & Jones, 2022).

5.2 Limitations

As with all other studies, this thesis has its strengths and weaknesses. The data was collected through a survey distributed online via Facebook, in specific groups targeting individuals living in the bidding areas primarily intended to be researched. Such surveys distributed online are often generating low response rates and uncompleted answers (Bell et al., 2019). This limitation was mitigated through a financial incentive, where SEK 1 was donated to UNICEF for every completed survey. It is worth mentioning that this financial incentive wasn't substantial (as SEK 1 per answer is not that much) and may only have had a modest effect on the response rate. Moreover, the open questions in an online survey could lead to respondents leaving (Bell et al, 2019), which were mitigated through making these questions optional.

Another potential weakness of the study was that the data were collected during a period where the electricity prices in Sweden were relatively low compared to the months prior to the collection of data (an average of SEK 2.41 in September versus an average of SEK 0.81 in October (Nord Pool, 2022)). The prices were still substantially higher in bidding area SE4 in comparison to SE1, and compared to how the electricity prices were in the past couple of years, they were still relatively high (Nord Pool, 2022).

Research conducted through a questionnaire implies that the scenario that the respondent is exposed to becomes hypothetical, which could be coupled with the ecological validity discussed in 3.4.2. The authors tried to mitigate this weakness by creating examples of policy tools that would seem as realistic as possible, propose them in different ways to make them seem more realistic and to resonate with more respondents.

Further, a potential weakness is that the theories used to describe attitude in the previous literature and theory section of the thesis were not utilized fully, as some parts of the theories were not relevant for this study. This could decrease the explanatory power for the EVT and TPB for the attitude measurement. The most relevant parts of the theories were selected in

order to not include parts of the theories that were then not used to explain the results. Additionally, the scales used to measure the different variables were modified to fit the topic of this thesis. The modification of the scales could affect the validity of the results that they are providing. Scales were also translated into Swedish, which was discussed in the validity section, see 3.4.2.

The situation when the respondent did the survey, were in times of change. In the period when the survey was conducted, there were a lot of talks around a high-cost protection for households in Sweden. It would be of interest to see what the respondent thought of these discussions and how these attitudes would affect the results.

5.3 Suggestions for Future Research

Suggestions for future research would be a study conducted with a broader scope, which could be focused not only on the two bidding areas with the largest differences, but include all bidding areas in Sweden. This would presumably lead to a more fair and representative distribution of housing situations and electricity contracts. It would also be interesting to conduct a research on attitudes towards policy tools and how they differ in other countries, as there are electricity consumers from other countries in Europe that also are affected by the increased price of electricity.

Another suggestion would be to include other independent variables in the research to see if they would affect the attitude. Such independent variables would be for example political views, job situation, salary level, etc. At the time of the completion of this thesis (December 2022), the Swedish government have been discussing introducing a high-cost protection for electricity costs for households (Regeringskansliet, 2022). It would be interesting in future research to conduct a similar study and compare if the attitudes towards policy tools would differ after the potential high-cost protection was paid out to households.

5.4 Findings and Conclusion

The purpose of this thesis was to empirically investigate Swedish electricity consumer's attitudes towards different policy tools designed to reduce electricity consumption and to investigate the determinants of the factors affecting attitude. The key findings of this study can be summarized as follows:

Individuals are the most positive towards information and subsidies as policy tools to reduce energy consumption. Mandates and taxes are the least popular among electricity consumers. Generally, there were no big differences between attitudes towards policy tools between bidding areas. Attitudes towards policy tools can be explained by how realistic electricity consumers find the policy tool to be. If an individual has a more collectivistic orientation, it will generally be more positive towards policy tools.

The findings in this thesis can be examined by governments and governmental institutions to better understand what policy tools could be effective for gaining legitimacy among the general public and would thus be an effective way to reduce electricity consumption. A more effective use of policy tools would help reduce electricity consumption and assist governments using their resources in a better way.

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7 Appendices

Appendix 1

Block 1 - Introduktion

Välkommen att delta i vår enkätundersökning!

Vi skriver just nu vår kandidatuppsats på Handelshögskolan i Stockholm som handlar om elförbrukning. Enkäten syftar till att samla in kunskap om vad människor tycker om olika åtgärder från staten, dvs riksdag, regering och myndigheter, för att påverka hushålls beteende som syftar till att minska elförbrukning.

Det tar cirka **8 minuter** att besvara webbenkäten. Fundera inte alltför länge över frågorna. Alla svar är anonyma och kommer att behandlas konfidentiellt.

Som tack för ditt deltagande donerar vi 1 kr för varje genomförd enkät till UNICEF:s viktiga arbete för barn och familjer i Ukraina vars liv och hälsa hotas av den våldsamma konflikten.

Stort tack på förhand för din medverkan.

Om du har frågor om undersökningen, vänligen kontakta oss på 24705@student.hhs.se (Viktor Marthinsson)

/ Viktor Marthinsson & Adam Solberg
Handelshögskolan i Stockholm

Block 2 - GDPR

Consent to participation in student's survey The student's project. As an integral part of the educational program at the Stockholm School of Economics, enrolled students complete an individual thesis. This work is sometimes based upon surveys and interviews connected to the subject. Participation is naturally entirely voluntary, and this text is intended to provide you with necessary information that may concern your participation in the study or interview. You can at any time withdraw your consent and

your data will thereafter be permanently erased.

Confidentiality. Anything you say or state in the survey or to the interviewers will be held strictly confidential and will only be made available to supervisors, tutors and the course management team.

Secured storage of data. All data will be stored and processed safely by the SSE and will be permanently deleted when the project is completed. No personal data will be published.

The thesis written by the students will not contain any information that may identify you as a participant to the survey or interview subject. Your rights under GDPR. You are welcome to visit https://www.hhs.se/en/about-us/data-protection/ in order to read more and obtain information on your rights related to personal data.

- ○ Ja, skriv dagens datum (ÅÅÅÅMMDD) samt dina initialer. Detta för att vi ska kunna samla information enligt GDPR.
  [ ]
- ○ Nej tack, jag samtycker inte till att delta i studien.

Block 3 - Överblick av frågor kring elsituation

Till vilken grad uppfattar du att följande faktorer påverkar elpriset i Sverige/ditt boende?

	Påverkar absolut inte	Påverkar i stort sett inte	Påverkar troligen inte	Tveksam	Påverkar troligen	Påverkar i stort sett	Påverkar absolut
Väderrelaterade faktorer	○	○	○	○	○	○	○
Grannländers energiutbud	○	○	○	○	○	○	○
Skatter och avgifter	○	○	○	○	○	○	○
Rysslands anfallskrig mot Ukraina	○	○	○	○	○	○	○
Elbolagens vinstintressen	○	○	○	○	○	○	○
Nedläggning av kärnkraft	○	○	○	○	○	○	○
Begränsad överföringskapacitet	○	○	○	○	○	○	○

	Påverkar absolut inte	Påverkar i stort sett inte	Påverkar troligen inte	Tveksam	Påverkar troligen	Påverkar i stort sett	Påverkar absolut
Priset på fossila bränslen	○	○	○	○	○	○	○

Plats för egen kommentar (frivilligt)

Block 4 - Skäl och åtgärder till att minska elförbrukning

Anta att det i samhällsdebatten framförts olika anledningar till att vi måste minska vår elförbrukning. I vilken grad håller du med om att respektive syfte vore önskvärt?

	Håller absolut inte med	Håller i stort sett inte med	Håller i viss grad inte med	Tveksam	Håller i viss grad med	Håller i stort sett med	Håller absolut med
För att spara pengar	○	○	○	○	○	○	○
För att minska risken för elavbrott pga effektbrist	○	○	○	○	○	○	○
För att mina vänner tycker det är viktigt att spara på el	○	○	○	○	○	○	○
För att hålla ned priset på el	○	○	○	○	○	○	○
På grund av klimatskäl	○	○	○	○	○	○	○

Block 5 - Taxes

Anta att det i samhällsdebatten har framförts olika förslag på åtgärder för att påverka hushåll att minska sin elförbrukning. Hur bra eller dåliga tycker du att följande åtgärder är, om de genomförs?

	Mycket dåligt	Ganska dåligt	Något dåligt	Varken bra eller dåligt	Något bra	Ganska bra	Mycket bra
Staten höjer skatten lika mycket för alla på el	○	○	○	○	○	○	○
Staten höjer momsen lika mycket för alla på el	○	○	○	○	○	○	○

	Mycket dåligt	Ganska dåligt	Något dåligt	Varken bra eller dåligt	Något bra	Ganska bra	Mycket bra
En lägre skatt för de som förbrukar lite el och en högre skatt för de som förbrukar mer el	○	○	○	○	○	○	○

Hur realistiska eller orealistiska tycker du att åtgärderna är för att minska elförbrukning?

	Mycket orealistiska	Ganska orealistiska	Något orealistiska	Varken realistiska eller orealistiska	Något realistiska	Ganska realistiska	Mycke realistis
Staten höjer skatten lika mycket för alla på el	○	○	○	○	○	○	○
Staten höjer momsen lika mycket för alla på el	○	○	○	○	○	○	○
En lägre skatt för de som förbrukar lite el och en högre skatt för de som förbrukar mer el	○	○	○	○	○	○	○

Stödjer du att respektive åtgärd genomförs?

	Ja	Nej	Vet ej
Staten höjer skatten lika mycket för alla på el	○	○	○
Staten höjer momsen lika mycket för alla på el	○	○	○
En lägre skatt för de som förbrukar lite el och en högre skatt för de som förbrukar mer el	○	○	○

Block 6 - Subsidies

Anta att det i samhällsdebatten har framförts olika förslag på åtgärder för att påverka hushåll att minska sin elförbrukning. Hur bra eller dåliga tycker du att följande åtgärder är, om de genomförs?

	Mycket dåligt	Ganska dåligt	Något dåligt	Varken bra eller dåligt	Något bra	Ganska bra	Mycket bra
Bidrag ges till hushåll som sänker sin elförbrukning	○	○	○	○	○	○	○
Bidrag ges för att energieffektivisera bostäder	○	○	○	○	○	○	○
Bidrag till elmätare införs för att hushåll ska kunna mäta sin elförbrukning	○	○	○	○	○	○	○

Hur realistiska eller orealistiska tycker du att åtgärderna är för att minska elförbrukning?

	Mycket orealistiska	Ganska orealistiska	Något orealistiska	Varken realistiska eller orealistiska	Något realistiska	Ganska realistiska	Myc realis
Bidrag ges till hushåll som sänker sin elförbrukning	○	○	○	○	○	○	(
Bidrag ges för att energieffektivisera bostäder	○	○	○	○	○	○	(
Bidrag till elmätare införs för att hushåll ska kunna mäta sin elförbrukning	○	○	○	○	○	○	(

Stödjer du att respektive åtgärd genomförs?

	Ja	Nej	Vet ej
Bidrag ges till hushåll som sänker sin elförbrukning	○	○	○
Bidrag ges för att energieffektivisera bostäder	○	○	○

	Ja	Nej	Vet ej
Bidrag till elmätare införs för att hushåll ska kunna mäta sin elförbrukning	○	○	○

Block 7 - Nudging

Anta att det i samhällsdebatten har framförts olika förslag på åtgärder för att påverka hushåll att minska sin elförbrukning. Hur bra eller dåliga tycker du att följande åtgärder är, om de genomförs?

	Mycket dåligt	Ganska dåligt	Något dåligt	Varken bra eller dåligt	Något bra	Ganska bra	Mycket bra
Elkunder som förbrukar mer el än genomsnittet beordras att omgående minska sin elförbrukning, men kan avstå om de så önskar	○	○	○	○	○	○	○
Elkunder får ett meddelande om hur mycket el de förbrukar jämfört med sina grannar	○	○	○	○	○	○	○
Elkunder får ett meddelande om hur mycket el de förbrukade under de timmar på dagen när belastningen på elnätet är som störst och får tips om att t.ex. använda tvätt– och diskmaskiner under andra tider	○	○	○	○	○	○	○

Hur realistiska eller orealistiska tycker du att åtgärderna är för att minska elförbrukningen?

	Mycket orealistiska	Ganska orealistiska	Något orealistiska	Varken realistiska eller orealistiska	Något realistiska	Ganska realistiska	Myck realisti

	Mycket orealistiska	Ganska orealistiska	Något orealistiska	Varken realistiska eller orealistiska	Något realistiska	Ganska realistiska	Mycke realistis
Elkunder som förbrukar mer el än genomsnittet beordras att omgående minska sin elförbrukning, men kan avstå om de så önskar	○	○	○	○	○	○	○
Elkunder får ett meddelande om hur mycket el de förbrukar jämfört med sina grannar	○	○	○	○	○	○	○
Elkunder får ett meddelande om hur mycket el de förbrukade under de timmar på dagen när belastningen på elnätet är som störst och får tips om att t.ex. använda tvätt– och diskmaskiner under andra tider	○	○	○	○	○	○	○

Stödjer du att respektive åtgärd genomförs?

	Ja	Nej	Vet ej
Elkunder som förbrukar mer el än genomsnittet beordras att omgående minska sin elförbrukning, men kan avstå om de så önskar	○	○	○
Elkunder får ett meddelande om hur mycket el de förbrukar jämfört med sina grannar	○	○	○

	Ja	Nej	Vet ej
Elkunder får ett meddelande om hur mycket el de förbrukade under de timmar på dagen när belastningen på elnätet är som störst och får tips om att t.ex. använda tvätt– och diskmaskiner under andra tider	○	○	○

Block 8 - Information

Anta att det i samhällsdebatten har framförts olika förslag på åtgärder för att påverka hushåll att minska sin elförbrukning. Hur bra eller dåliga tycker du att följande åtgärder är, om de genomförs?

	Mycket dåligt	Ganska dåligt	Något dåligt	Varken bra eller dåligt	Något bra	Ganska bra	Mycket bra
Myndigheter skickar ut informationsblad om hur hushåll kan minska sin elförbrukning	○	○	○	○	○	○	○
Kampanjer via t.ex. sociala medier, TV och radio som förklarar hur hushåll kan minska sin elförbrukning	○	○	○	○	○	○	○
Gratis kurser och föredrag för hur hushåll kan minska sin elförbrukning	○	○	○	○	○	○	○

Hur realistiska eller orealistiska tycker du att åtgärderna är för att minska elförbrukning?

	Mycket orealistiska	Ganska orealistiska	Något orealistiska	Varken realistiska eller orealistiska	Något realistiska	Ganska realistiska	r

	Mycket orealistiska	Ganska orealistiska	Något orealistiska	Varken realistiska eller orealistiska	Något realistiska	Ganska realistiska	r
Myndigheter skickar ut informationsblad om hur hushåll kan minska sin elförbrukning	○	○	○	○	○	○	
Kampanjer via t.ex. sociala medier, TV och radio som förklarar hur hushåll kan minska sin elförbrukning	○	○	○	○	○	○	
Gratis kurser och föredrag för hur hushåll kan minska sin elförbrukning	○	○	○	○	○	○	

Stödjer du att respektive åtgärd genomförs?

	Ja	Nej	Vet ej
Myndigheter skickar ut informationsblad om hur hushåll kan minska sin elförbrukning	○	○	○
Kampanjer via t.ex. sociala medier, TV och radio som förklarar hur hushåll kan minska sin elförbrukning	○	○	○
Gratis kurser och föredrag för hur hushåll kan minska sin elförbrukning	○	○	○

Block 9 - Mandate

Anta att det i samhällsdebatten har framförts olika förslag på åtgärder för att påverka hushåll att minska sin elförbrukning. Hur bra eller dåliga tycker du att följande åtgärder är, om de genomförs?

	Mycket dåligt	Ganska dåligt	Något dåligt	Varken bra eller dåligt	Något bra	Ganska bra	Mycket bra
Strömavbrott genomförs under vissa timmar på dygnet	○	○	○	○	○	○	○
En övre gräns för elförbrukning per dag införs	○	○	○	○	○	○	○

	Mycket dåligt	Ganska dåligt	Något dåligt	Varken bra eller dåligt	Något bra	Ganska bra	Mycket bra
Ett ransonerings-system för elförbrukning införs	○	○	○	○	○	○	○

Hur realistiska eller orealistiska tycker du att åtgärderna är för att minska elförbrukning?

	Mycket orealistiska	Ganska orealistiska	Något orealistiska	Varken realistiska eller orealistiska	Något realistiska	Ganska realistiska	Myck realisti
Strömavbrott genomförs under vissa timmar på dygnet	○	○	○	○	○	○	○
En övre gräns för elförbrukning per dag införs	○	○	○	○	○	○	○
Ett ransonerings-system för elförbrukning införs	○	○	○	○	○	○	○

Stödjer du att respektive åtgärd genomförs?

	Ja	Nej	Vet ej
Strömavbrott genomförs under vissa timmar på dygnet	○	○	○
En övre gräns för elförbrukning per dag införs	○	○	○
Ett ransonerings-system för elförbrukning införs	○	○	○

Snart klar!

Ett stort tack för att du kommit såhär långt, nu är det bara några frågor kvar! Dina svar uppskattas enormt!

Block 10 - Subjective Norms

Här kommer ett antal påståenden, i vilken grad håller du med?

	Håller absolut inte med	Håller i stort sett inte med	Håller i viss grad med	Tveksam	Håller i viss grad med	Håller i stort sett med	Håller absolut med
Mina vänner bryr sig om ifall jag minskar min elförbrukning	○	○	○	○	○	○	○
Mina vänner skulle ogilla om jag förbrukar el på ett slösaktigt sätt	○	○	○	○	○	○	○
Personer i min omgivning gör sitt bästa för att spara på el	○	○	○	○	○	○	○

Block 11 - Cultural Cognative Scale

Människor har olika uppfattningar hur mycket eller lite som staten ska påverka sina medborgare. Vänligen ange i vilken grad som du instämmer i följande påståenden?

	Stämmer absolut inte	Stämmer i stort sett inte	Stämmer troligen inte	Osäker / vet ej	Stämmer troligen	Stämmer i stort sett	Stämmer absolut
Det är inte statens sak att försöka skydda folk från sig själva	○	○	○	○	○	○	○
Staten behöver stifta lagar som förhindrar folk från att skada sig själva	○	○	○	○	○	○	○
Staten lägger sig i vårt vardagsliv mycket	○	○	○	○	○	○	○
Staten borde göra mer för samhällsnyttan, även om det innebär att begränsa individers frihet och val	○	○	○	○	○	○	○
Staten bör begränsa individuella val för att undvika att dessa kommer i vägen för samhällets bästa	○	○	○	○	○	○	○

	Stämmer absolut inte	Stämmer i stort sett inte	Stämmer troligen inte	Osäker / vet ej	Stämmer troligen	Stämmer i stort sett	Stämmer absolut
Staten borde sluta tala om för folk hur de ska leva sina liv	○	○	○	○	○	○	○

Block 12 - Demografi

Hur ser din boendesituation ut?

- Villa ○
- Bostadsrätt/Radhus ○
- Hyresrätt ○
- Kooperativ hyresrätt ○
- Studentboende ○
- Annat ○

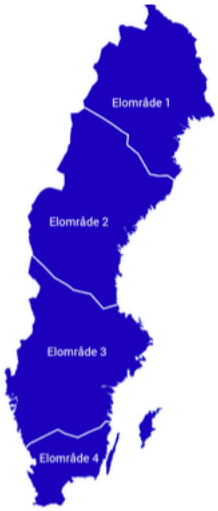
Vilken avtalstyp har ditt hushålls elavtal?

- Fast elavtal ○
- Rörligt elavtal ○
- Timprisavtal ○
- Hybridavtal ○

Ingår i hyra eller avgift

Vet ej

Vilket elområde tillhör ditt boende?



Se bilden för indelning av elområden.

Elområde 1

Elområde 2

Elområde 3

Elområde 4

Vilket kön har du? Med kön avses könsidentiet, alltså det kön du identifierar dig som.

Man Kvinna

Icke-binär

Vill ej svara

Vilket år är du född?

Hur många kWh per år förbrukar ditt hushåll? (ange frivilligt)

Block 13 - Respondentens omdöme

Avslutningsvis ber vi dig att besvara följande frågor om webbenkäten och undersökningen.

	Nej, absolut inte	Nej, i stort sett inte	Tveksamt	Ja, i stort sett	Ja, absolut
Var undersökningen meningsfull?					
Var webbenkätens frågor tydligt formulerade?					
Anser du att frågorna försökte påverka dina svar i någon mening?					
Undersöker webbenkäten uppfattningar om åtgärder från myndigheter att påverka människor?					

Plats för kommentar

Powered by Qualtrics

Appendix 2

Table 10: Overview Over Municipalities and Facebook Groups Where the Survey Was Sent to

Bidding Area SE1	Name of Facebook Group	No. of Members	Population*
Kiruna	"Kiruna"	21000	22555
Gällivare	"Händer i Gällivare kommun"	4900	17449
Luleå	"Vi som älskar Luleå"	5700	78867
Boden	"Boden aktuellt"	7400	28160
Arvidsjaur	"Vad händer i Arvidsjaur?"	4400	6143
Arjeplog	"Vad händer i Arjeplog?"	6200	2707
Kalix	"Kalix Anslagstavla"	5800	15768
Piteå	"Pite"	20700	42323
Bidding Area SE4			
Helsingborg	"Vad händer i Helsingborg?"	15100	150109
Falsterbo[1]	"Falserbonäsets Annonstavla"	5800	37452
Öland[2]	"Öland"	41900	15722
Hässleholm	"Hässleholm Info"	6700	52309
Falkenberg	"Mitt i Falkenberg"	4600	46773
Malmö	"Vi på Limhamn"	16400	351749
Värnamo	"Annonstavlan i Värnamo"	3700	34661
Österlen[3]	"Österlen Anslagstavlan"	42900	32979
Eslöv	"Vad händer i Eslöv?"	4600	34593
Lomma	"Lomma"	3400	24638

[1] Refers to Vellinge Municipality

[2] Refers to Mörbylånga Municipality

[3] Refers to Simrishamn Municipality

* Population from Ekonomifakta

The Facebook groups listed are only the ones where the authors got approval from an admin to post the survey. Groups where the post was not approved are not listed since the survey was not distributed in these groups.

Appendix 3

Table 11: A Selection of Comments From the Survey Judgement

I found the estimated time to complete the survey of 8 min as a bit of an understatement, should have been closer to 15 min in order to get proper answers.
Some questions can be interpreted differently depending on which perspective you have. Like forbidding people from killing each other for the good of society - that may not be the case for reducing energy consumption. Besides that, clearly formulated questions!
Questions regarding realism didn't specify if it was my thoughts on the realism to implement the policy tool that was asked for or how realistic I found the desired outcomes.
It would have been appreciated if the total number of survey pages were shown.
The questions regarding governmental influence could be seen as somewhat biased. Besides that, it was a really important survey about one of the most discussed topics right now!

Appendix 4

Table 12: Overview of Socio-demographic Variables

Variable	N	n	% of Total Sample
	139		
Gender			
Male		60	43.2%
Female		75	54.0%
No Answer		4	2.9%
Age			
18-29		8	5.8%
30-39		21	15.1%
40-49		25	17.0%
50-59		42	30.2%
60-69		23	16.5%
70-79		16	11.5%
80-		4	2.9%

Appendix 5

Table 13: Results of T-test Between Gender

Respondent Group		Male n = 60		Female n = 75				
Variable		*M*	*SD*	*M*	*SD*	*df*	*p*	*t*
Taxes	Attitude [a]	3.07	1.67	3.63	1.69	127	0.06	-1.93
	Realism [b]	3.75	1.65	3.62	1.52	122	0.65	0.46
Mandates	Attitude	2.11	1.34	2.63	1.50	131	*0.04*	-2.12
	Realism	2.56	1.58	2.96	1.49	123	0.13	-1.54
Nudging	Attitude	4.40	1.43	4.68	1.43	127	0.26	-1.13
	Realism	4.14	1.55	4.08	1.38	120	0.82	0.23
Subsidies	Attitude	4.99	1.34	5.32	1.38	128	0.16	-1.40
	Realism	5.00	1.26	4.75	1.62	133	0.32	1.01
Information	Attitude	4.99	1.33	5.67	1.38	128	*0.01*	-2.88
	Realism	4.75	1.45	4.28	1.46	127	*0.04*	-2.10

[a] 1 being "very bad", 7 being "very good"

[b] 1 being "very unrealistic, 7 being "very realistic"