



UNIVERSITY OF GOTHENBURG  
SCHOOL OF BUSINESS, ECONOMICS AND LAW

# To purchase, or not to purchase, renewable electricity

A study of decisive factors for increased use of renewable electricity  
among Swedish SMEs

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Tutor: Gabriela Schaad

Authors:	Date of birth:
Niklas Löfgren	970115
Edwin Grehorn Hall	970513

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## Abstract

A major challenge of future electricity consumption is the need for it to be renewable to avoid depletion of natural resources. Swedish small- and medium-sized enterprises (SMEs) are vital for increasing demand for renewable electricity (RE) in Sweden, which is desired since Sweden has set the goal to be completely free from non-renewable electricity by 2040. The aim of this thesis has therefore been to increase knowledge about the factors related to the purchasing of RE that Swedish SMEs regard as decisive.

To do this, a qualitative study with an abductive approach was undertaken. A literature review of earlier studies was carried out and in-depth interviews with eight Swedish RE-purchasing, and non-purchasing, SMEs from two lines of businesses were conducted.

This study concluded that the most decisive factors for SMEs are the perceived price of RE and altruistic motives of decision-maker(s). Institutional isomorphic change proved to exert some influence on the probability of RE-purchasing. Additionally, scepticism towards RE-suppliers in delivering actual RE seemed to affect the decision and signs were given that firm size affects *the reasoning* behind the decision. Interestingly, a general fear of showcasing sustainability undertakings was present due to a perceived risk of increased scrutiny.

The major challenges lying ahead therefore seems to be in increasing the demand through industry-wide efforts as RE is not made a business case, to convince decision-makers not driven by altruism and to wider communicate differences as well as lessen the perceived ambiguity of RE.

Further research is warranted for the effect of the Swedish legal framework, earlier sustainability undertakings and energy intensity on RE-purchasing.

**Keywords:** purchasing, SMEs, renewable electricity, renewable energy, green electricity, adoption factors, decisive factors

## Explanations of key concepts

**The authors/The authors of this essay:** Through this study, when “the authors” are referred to it will *always* relate to the authors of the literature or source that is discussed. Otherwise, when the authors of this essay are referred to, “the authors of this essay” will be explicitly written.

**Energy and electricity:** Energy encompasses several parts and as a result, energy is often used synonymously with electricity. The definition of energy is “the power from something such as electricity or oil that can do work, such as providing light and heat” (Cambridge Dictionary, n.d., a). In contrast, the definition of electricity reads “a form of energy that can be produced in several ways and that provides power to devices that create light, heat etc.” (Cambridge Dictionary, n.d., b). The division between the two is not always straightforward. However, what can be established is that energy is a broader concept than electricity; energy comprises all electricity, but electricity does not comprise all energy.

**Renewable electricity (RE):** Much of the literature on the subject uses the term “green energy” or “green electricity”. It is however not defined and give rise to confusion and ambiguity. Therefore, it will be replaced in this thesis with the term “renewable electricity” or its abbreviation “RE”, regardless of what is originally written in the sources used. It is a result of that this thesis examines renewable electricity and therefore also distinguishes it by its definition. Also, because the research is carried out exclusively concerning electricity purchasing. Renewable electricity is, according to the European Environment Agency (2018), *“Electricity produced from renewable energy sources comprises the electricity generation from hydro plants (excluding that produced as a result of pumping storage systems), wind, solar, geothermal and electricity from biomass/wastes.”*

**SMEs:** Small- and medium-sized enterprises are a defined class of companies where the classification is determined by staff headcount combined with either turnover or the balance sheet total (European Commission, n.d., a). The staff headcount needs to be less than 250 employees, combined with turnover that is less than 50 million euros *or* a balance sheet total of less than, or equal to, 43 million euros (ibid)

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# 1. Introduction

According to the United Nations, climate change is “*the defining issue of our time, and we are at a defining moment*” (UN, n.d., a). Of the Sustainable Development Goals created by the organisation in 2015, one is specifically aimed at better and more sustainable energy consumption, since it stands for *the* largest contribution to climate change (UN, n.d., b). In order to reach that goal, more renewable energy must be used, that is, energy derived from sources such as solar-, wind-, hydropower and biomass that are rapidly reconstituted (Naturskyddsföreningen, 2018). Although renewable alternatives carry some shortcomings (Bloomberg Green, 2020; De Felice et al., 2019; Tilt et al., 2009), the emissions from fossil-based alternatives contribute to the increased amount of greenhouse gas emissions, which in turn is a major cause of global warming (European Commission, n.d., b). Renewable sources are therefore seen as the way forward (UN, n.d. b), yet as of 2018, nearly 80 per cent of the world's energy supply still came from fossil sources (Naturskyddsföreningen, 2018).

In Sweden's case, the picture looks a bit different. Half of the *energy consumed* (Naturskyddsföreningen, 2018), and nearly half of the *electricity produced* comes from renewable sources (Statistics Sweden, 2019a). However, as the country aims to be completely free of non-renewable electricity sources by 2040 (Swedish Institute, 2019), further efforts are required. The country's largest energy consumers are those within the industry- and service sector, including businesses, which together constitute 68 per cent of the total use (ibid). Additionally, 99,9 per cent of those businesses are categorised as small- and medium-sized enterprises (SMEs) (Tillväxtverket, 2020). The European Commission estimated European SMEs overall to contribute to 60-70 per cent of the total environmental impact within the EU (Fresner et al., 2017) where they, close to Sweden, constitute 99 per cent of total businesses (European commission, n.d. a) Therefore, it allows for the reasoning that the electricity purchasing behaviour of such a large group of businesses could have a noticeable impact on electricity demand, and arguably some effects on the renewable electricity (RE) generating infrastructure in the longer run. As a result, SMEs are interesting from a research perspective concerning the purchasing of RE, as enablers of increased RE-consumption and, as they constitute such a large part of total businesses, drivers of change. Therefore, the aim of this thesis is to create a better understanding of what factors Swedish SMEs view as decisive regarding RE-purchasing.

## 1.1 Background

To begin with, electricity differs from many other goods as it is intangible and requires complex market- and financial management (Vasilica, 2014). Also, electricity cannot be substituted in the short term (e.g. for better insulation or energy saving technologies) and it is therefore also not possible to circumvent price increases in the short term (ibid). Furthermore, it is homogeneous, meaning that there is no difference in the end product irrespective of production method (ibid). Price has before been the decisive factor in the choice of energy supplier (Hast et al., 2015), arguably due to the above-mentioned characteristics. However, since energy markets have been liberalised, renewable options have emerged and become a way of product differentiation (ibid). The same can also be considered true for the Swedish market when examining the service offerings of Swedish electricity suppliers. Price is, consequently, no longer the only factor (ibid).

Increased demand for RE is, however, not necessarily equal to an increase in supplying infrastructure. It can be linked to the “additionality criterion”, that according to Menges (2003) is used when evaluating green electricity markets. Its idea is that such markets should create increased environmental effects, for example, through increased capacity of RE production (Salmela & Varho, 2006). Salmela and Varho (2006) argue, citing Bird et al. (2002), that it is dependent on the development of countries individual electricity production structures which, according to the authors, differs widely between European countries. Salmela and Varho (2006), therefore argues that the effect of demand on production infrastructure is country specific and depends on the composition of that infrastructure and demand.

In addition, there are some aspects of the RE-market that increases its complexity, namely guarantees of origin and electricity certificates. As earlier mentioned, there is no difference in the end-product regarding electricity, which can create reliability issues as to how the electricity purchased is produced. To address this problem, electricity producers can issue guarantees of origin, which ensure that one’s estimated electricity use is reflected in the production of RE (Energiföretagen, 2017). It enables consumers to communicate preferences, which in turn increases the likelihood of investments in RE-projects (ibid). Guarantees of origin, however, cannot guarantee that the exact electricity one is using is renewable (ibid). Instead, it ensures that one’s use of electricity is covered by an equal amount of produced RE (ibid). In contrast, a customer without a guarantee of origin-contract will receive electricity



from the remaining electricity mix, constituted by both renewable- and non-renewable electricity (ibid). Electricity certificates, on the other hand, are aimed at increasing the production of RE (Energimyndigheten, n.d.). The certificates are issued by the Swedish government by a rate of every produced MWh (ibid). They are possible to resell, which generates additional profits for the RE-producer, hence functioning as financial support (ibid).

In Sweden's case, the electricity market has been deregulated since 1996 (Swedish Energy Markets Inspectorate, 2016a). It now belongs to the wider European electricity market, which means that the electricity consumed is occasionally produced elsewhere with less or non-environmentally friendly methods (ibid). Apart from that the electricity distribution is carried out in a monopoly, Swedish consumers have 120 different suppliers to choose from (ibid). Since markets have been deregulated and liberalised, price has ceased to be the sole source of competition (Hast et al., 2015). Instead, the liberalisation of the electricity market has led to consumers being able to purchase RE-options, offering further product differentiation (e.g. Wiser et al., 2001; Hast et al., 2015; Salmela & Varho, 2006). This is deemed true also in Sweden's case.

Sweden is today one of the most digitalised and technologically developed countries in the world (OECD, 2018). Therefore, its inhabitants consume, and electricity suppliers produce, high levels of electricity (Swedish Institute, 2019). In 2018, Sweden produced 159 700 GWh (Statistics Sweden, 2019a), and consumed 141 000 GWh. (Energimyndigheten, 2019). Of the amount consumed, 66 per cent was derived from renewable sources (Sveriges Miljömål, n.d.). Although Sweden has a high share of RE-production compared to other countries (Ekonomifakta, 2020a), Sweden has set the goal to be completely free of non-renewable electricity sources by 2040 (Swedish Institute, 2019). In spite of that, a report from the IPCC concluded that the conversion to fossil-free sourcing needs to be implemented more rapidly to be able to reach the goal of a 1,5-degree Celsius average temperature increase (IPCC, 2015). Hence, the need of increased demand for renewable electricity in Sweden remains.

## 1.2 Problem statement and analysis

As mentioned before, Sweden is heavy in electricity use, especially within the industrial and service sector. The fact that 99,9 per cent of companies in Sweden are defined as SMEs makes them attractive in terms of targeting as possible enablers of more sustainable electricity consumption and as drivers of change. Since data suggests that many of the industries that

operate in Sweden are energy-intensive, finding decisive factors of RE purchasing of, in this case SMEs, is arguably a way to increase demand of such electricity, following the reasoning of Salmela and Varho (2006).

The category SMEs include a wide variety of businesses and can be divided into three sub-categories. Micro enterprises, that have a staff headcount of less than 10, small enterprises that have a staff headcount of less than 50 and medium sized enterprises that have a headcount of less than 250 (European commission, n.d., a). In addition, the categories are also separated by the size of their balance sheets and annual turnovers (ibid). This means that the category “SMEs” consist of a large group with considerable variations among them, also addressed in Rahbauer et al. (2016a). Arguably, the circumstances that one SME operate under, can therefore differ substantially from another.

Believing that large companies, not defined as SMEs, are those that are the most energy-intensive is an eligible thought. However, the SMEs at an aggregated perspective represent a large heterogeneous group, often with limited funds, knowledge and people to handle issues such as sustainability (Rahbauer et al., 2016a) In contrast, large companies are often more heavily focused on such issues as they, in general, have staff specifically appointed to work with such questions (ibid). Therefore, the relation between the proportion of the total amount of companies SMEs make up as a group, their associated emissions estimated on the EU level and the lack of corresponding sustainability-related work is rightly problematised and identified as the main reasons for the group being an interesting research object.

Plenty of research has been carried out regarding RE-purchasing by consumers, (e.g. Salmela & Varho, 2006; Arkesteijn & Oerlemans, 2005; Hast et al., 2015). However, equivalent research of businesses in general, and SMEs in particular, is slim. Luukkanen (2003) studied the opinions of Nordic pulp- and paper industries and Finnish power producers regarding eco-labelling and the potential effects of such labels on the industry. Wiser et al. (2001) investigated factors behind the adoption of green electricity by businesses, non-profits and public sector organisations in the US. However, the most significant contribution to the area, specifically regarding SMEs RE-purchasing, is that of an extensive review of literature from related research areas and the creation of a framework of possible adoption factors for SMEs from a German perspective, carried out by Rahbauer et al. (2016a). The study was followed by a qualitative analysis of the German market (Rahbauer et al., 2016b) and lastly an empirical examination of the same (Rahbauer et al., 2018).

The importance of increasing SMEs demand for RE arises due to the intensive electricity consumption of Swedish businesses (Swedish institute, 2019), SMEs included, and arguably, their associated contribution to environmental degradation. Consequently, changing their purchasing behaviour towards RE should equally contribute to the reduction of the amount of non-renewable electricity used and drive the change. Although Sweden has a relatively high share of RE (Swedish Institute, 2019), the need for further development and the potential signal value outwards cannot be overlooked. Also, Rahbauer et al. (2016a) stated that the liberalization of the German market, in combination with its inhabitants increased environmental consciousness, created favourable conditions for extended use of RE. One could therefore argue for a resemblance between the German and Swedish market, which indicates that the same favourable conditions for extended use apply on Sweden as well.

Additionally, within the wider sustainability concept where RE constitutes a part, businesses role has been widely discussed due to that they play a vital role in accomplishing sustainability (UN Global Compact, n.d.). Combined with recent market developments in terms of increased awareness concerning sustainability, arguably partly due to the UNs and different NGOs sustainability-related work, this results in that companies are increasingly forced to engage in more sustainable operations. If they do not, they risk being judged and penalized by the public or the government, as discussed in Kitzmueller and Shimshack (2012). Examples of research within corporate sustainability are Porter and van der Lindes (1995) article on environmental regulations and firm performance, Lovins (2010) paper regarding the monetization of ecosystem services and lastly Harts (1995) piece on the development of the Resource-based view showcasing the environment as a crucial factor in creating future competitive advantage. Their research demonstrates that measures are needed, there is a business case for sustainability in terms of financial payoffs and that giving companies a “push” might generate enhanced environmental performance. RE-purchasing, therefore, has a natural role in this development.

### 1.3 Contributions

The contributions of this thesis are aimed at giving Swedish energy suppliers a better insight in, and understanding of, what is required in order to increase demand for more sustainable electricity options within Swedish SMEs. Additionally, policymakers and other concerned actors that operate within the organizational field of electricity supply may find the results of this thesis useful. The contribution may become a perhaps small, but important, building

block in work towards reducing Sweden's carbon footprint. Furthermore, increased demand and use of RE would be favourable for the extensive sustainability effort carried out globally, hence being of interest to stakeholders that are in varying ways affected by businesses operations.

To the best of our knowledge, no studies of decisive factors concerning RE-purchasing in Swedish SMEs exist. The goal of this thesis is, therefore, to examine the decisive factors behind the purchasing of RE within Swedish SMEs. Hence, it is aimed at adding to the knowledge of what lies behind RE-purchasing of such businesses and what drives SMEs to contribute to the conversion.

#### 1.4 Purpose and research question

The objective of this thesis is to create a better understanding of what factors Swedish SMEs view as decisive regarding RE-purchasing. Hence, the goal is ultimately to determine factors underlying the decision of purchasing, or not purchasing, RE.

The problem discussion and the purpose has led us to formulate the following research question: *What factors do Swedish SMEs view as decisive regarding purchasing of renewable electricity?*

#### 1.5 Delimitations

This thesis will solely focus on the *electricity* purchasing of SMEs. It would undoubtedly be interesting to investigate the total energy consumption of SMEs beyond that of electricity. However, due to time constraints, this essay will only focus on the *electricity* purchasing of small- and medium-sized enterprises in Sweden. Finally, the legal framework will not be examined, although it has been identified as a possible factor in earlier research. It is excluded due to applicability-related issues and time constraints present.

## 2. Literature review and theoretical framework

Through this part, the studies of Rahbauer et al. (2016a), Rahbauer et al. (2016b) and Rahbauer et al. (2018) will be presented together with a recent Australian study and the concept of institutional isomorphic change. Mainly, the study of Rahbauer et al. (2016a) will be used as the main contribution to the framework of factors and the following paper of (Rahbauer et al., 2016b) to compare results as, it too, is a qualitative study. Rahbauer et al.'s (2018) quantitative study will not be presented to the same extent due to its quantitative nature deemed less fitting to compare with. However, as the results of their qualitative and quantitative studies were partly contradictory, those results are presented as they are expected to contribute to the analysis. Institutional isomorphic change is thought to enable a larger overarching sociological view that may offer an explanation in terms of an aggregated perspective. The three German studies (Rahbauer et al., 2016a; Rahbauer et al., 2016b; Rahbauer et al., 2018) and Paladino and Pandit's (2019) research is therefore thought to give an understanding of the specific field of RE-purchasing. Combined, it is hoped to give a broad, nuanced and up to date theoretical framework.

The existing literature about RE-purchasing amongst SMEs is limited. It has made authors within this slim research area base their theoretical underpinning partly on consumer-related RE-purchasing research and partly on research on energy efficiency measures within companies as well as other adjacent research areas. Consequently, some articles have gained popularity within this research, as they have been recurring in several of the articles studied by the authors of this essay. As a large part of the framework that will be used is based on earlier findings, the authors of this essay feel obliged to account for, what is understood as, three of the most foundational articles, before passing on to the framework created by Rahbauer et al. (2016a).

### 2.1 Earlier foundational studies

Wiser et al. (2001) conducted a large-scale mail study on demand for "green" power in general, and RE in particular, and underlying factors within the non-residential sector (i.e. businesses, non-profit organisations and public sector customers). Their most substantial finding was that altruism<sup>1</sup> and employee morale were significant drivers for purchasing RE, something that earlier studies had not included (ibid). Also, the study concluded that firm size

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<sup>1</sup> unselfish regard for, or devotion to, the welfare of others (Merriam-Webster, n.d.)

affects the decision, where smaller companies are more caring for the environment and therefore tend to purchase “green” energy to a greater extent (ibid). In contrast, in larger organisations, public image and green marketing were deemed more valuable but given less importance overall (ibid). Lastly, the study concluded that price as a factor had low relevance (ibid).

Salmela and Varho (2006) conducted a study by interviewing ten consumers and 25 energy sector actors concerning barriers to purchasing of RE by Finnish customers. In addition, they complemented it with the energy sector actors view on why that was the case. The authors concluded, about the energy sector actors, that they believed that consumers were not knowledgeable nor interested enough concerning the environment to motivate paying a higher price for RE. They therefore concluded it as a possible explanation for the observed passivity. Regarding the consumers, several barriers to purchasing were identified. Firstly, the cognitive barrier related to limited knowledge of electricity technicalities and trust of electricity suppliers in delivering actual RE. Secondly, orientational issues concerned time and effort but also the difficulty in breaking “old habits”. Thirdly and finally, economic factors related to the higher cost of green electricity acted as a barrier which was also connected to the concept of the public good and free riding.

Largely foundational for the framework created by Rahbauer et al. (2016), Arkesteijn and Oerlemans (2005) article discuss factors affecting the adoption of RE within Dutch households. The study was conducted through a telephone survey with 115 respondents of which were both purchasers and non-purchasers. The article concluded that perception of ease of switching and degree of trust in the supplier affected the likelihood of adoption. Also, a higher level of perceived responsibility for the environment, environmental behaviour and knowledge regarding RE showed to influence the decision. The results further support the conclusion made by Wisser et al. (2001). Lastly, other by the study supported factors were willingness to pay and price perception, as was also found as a decisive factor in the study conducted by Salmela and Varho (2006). Arkesteijn and Oerlemans (2005), however, did not find any proof for it to be influenced by the level of income.

## 2.2 Adoption of renewable electricity by small- and medium-sized enterprises in Germany

Rahbauer et al. (2016a) conducted an extensive literature review on the adoption of “green” electricity by German SMEs in 2016 from which they created a conceptual framework. Due to

the scarce literature on the subject, they reviewed a large number of articles in related subject areas. In sum, they looked at articles regarding renewable electricity adoption of consumers and firms, green practices, green supply chain management, corporate environmental responsibility and energy efficiency of industry and SMEs. They argue that they were able to form a basis for the adoption factors due to the resemblance of the decision-making process of SMEs and households considering the level of decision formalisation, the number of decision-makers and decision channels and stronger personal connections. In addition, they argue that there is a similarity of decision making in companies between RE and energy efficiency adoption as they both relate to improving the environmental performance of the company.

The framework is divided into purchase- and sales related factors. The factors are based on earlier frameworks that were adapted and partly supplemented by additional factors created from the conclusions of earlier studies.

### 2.2.1 Purchase related factors

The purchase related factors consist of entrepreneur's personality, technical systems, economic aspects and SMEs characteristics.

#### *2.2.1.1 Entrepreneurs personality*

Entrepreneurs personality consists of two sub-factors (Rahbauer et al., 2016a). "Perceived responsibility for the environment" relates to the fact that many decisions in SMEs are taken in more straightforward ways with fewer persons involved. Hence personal beliefs are thought to influence the decision to adopt green practices, and therefore altruism is believed to emerge as an important driver. Also, "perceived relative advantages for the environment" concerns the decision-makers perception of environmental benefit that a new measure performs.

#### *2.2.1.2 Adoption factors linked to technical systems*

These adoption factors relate to the decision-maker(s) understanding and knowledge of the technicalities of RE (Rahbauer et al., 2016a). More specifically, they relate to the production and distribution as well as the adoption process. The factor group consists of three factors:

1. "Perceived system complexity" which relates to the decision-makers understanding of RE and the process required to adopt it.

2. “Perceived system reliability” concerns two areas. Firstly, the perceived reliability of the supply - that adopting RE will not increase the risk of power failures and the like. Secondly, that the electricity delivered is RE and not conventional, which poses a risk, caused by the ambiguity of guarantees of origin and different certificates as mentioned before.
3. “Perceived availability of time” links to the time that decision-makers estimate they can or need to devote to the process of searching for information required to make a decision. It is argued that owners are restricted by this factor due to many other areas of business and tasks being prioritized. Hence, being able to devote time to obtaining information concerning RE is unlikely.

### *2.2.1.3 Adoption factors linked to economic aspects*

This factor group refers to pure economic matters as well as competition and legal frameworks (Rahbauer et al., 2016a).

Firstly, “perceived price of RE” is proposed as a barrier to adoption as earlier studies have found that there exist misconceptions of the price difference between non-renewable electricity and RE and that those misconceptions hinder purchasing of RE (Rahbauer et al., 2016a). In Sweden’s case, information retrieved from a local electricity supplier in Gothenburg stated that the difference for a company with an annual consumption of 10 000 kWh, if deciding to purchase RE, ranges from an additional 100 SEK to 200 SEK, depending on RE-source used (Personal communication, 20200528).

Secondly, the profit margins of the companies are expected to affect the adoption of RE, therefore “perceived level of competitive pressure” is included (Rahbauer et al., 2016a). It is argued that the combination of that SMEs often operates in highly competitive environments, that they do not have any economies of scale and that they operate with small market shares, hinders adoption of RE. It is believed that, as a result, the limited profit margins and high costs leave little room for further expenses. The authors further argue that the evidence is somewhat unclear as some studies have shown that only SMEs selling luxurious products, therefore having high margins, can invest in such measures.

Thirdly, “legal framework” is expected to have substantial effects on the adoption of RE in Germany and is therefore included as a possible factor (Rahbauer et al., 2016a).



#### *2.2.1.4 Factors linked to the SMEs characteristics*

Rahbauer et al. (2016a) have added factors related to the characteristics of SMEs, arguing that the defined group of SMEs are heterogeneous in terms of size, energy intensity and their behaviour concerning the environment. Thus, the subsequent factors affecting the adoption of RE are expected to vary accordingly. They mention earlier studies that have shown variations in sustainability-appointed staff in relation to total staff hired, different motivations for adopting in relation to firm size, and adoption in relation to energy intensity. Hence, as SMEs varies widely, the factors to adopt within the group are expected by the authors to do so as well. Lastly, in “actual displayed environmental behaviour”, the authors connect to previous commitments within energy-saving measures by the companies and propose that such measures may increase the likelihood of purchasing RE.

#### *2.2.2 Sales related factors*

As Rahbauer et al. (2016a) discusses sales-related factors, the reasoning is that SMEs can increase revenue through purchasing RE because of the possibility that it will lead to increased demand. It is argued in the article that it is due to the overall increased interest from the demand side of purchasing more sustainably produced goods.

##### *2.2.2.1 Factors linked to the SMEs sales market*

This factor relates to the market in which SMEs operate in a way to gain acceptance of their operations so that they can reach their goals (Rahbauer et al., 2016a). As sustainability has become increasingly important and more sought after, the choice of sourcing energy from renewable sources may, therefore, generate additional revenue (ibid). The authors state that such outcomes are heavily dependent on the demand from its customer base and to what extent customers value such measures by the company.

### *2.2.2.2 Factors linked to green marketing practices in an SME*

The last factor group is related to marketing, to be exact the factors “perceived environmental image” and “eco-labelling” (Rahbauer et al., 2016a). As they are connected to the earlier mentioned sales market factor, these two factors relate to the marketing and communication of products that are more environmentally friendly. It is thought to attract new customers and increase the loyalty of present ones. The two factors are interconnected as “perceived environmental image” relates to how the company is perceived by stakeholders in relation to their sustainability efforts and “eco-labelling” relates to how the company seeks to improve that perception. The authors write that studies have shown that the perceived image significantly affect the purchase decision of a customer and that eco-labelling constitutes a large part of improving that image.

From the literature review, Rahbauer et al. (2016a) stress a few key findings. The discovery by earlier research is that altruism plays a more significant role in the adoption factors than thought before. In smaller businesses, there was a balance between profit maximization and personal motives. In larger organisations, however, improving public image through purchasing RE and communicating it outwards were greater motivations.

Furthermore, the authors add that much of the studied literature shared similar views on two barriers. Firstly, there is a lack of knowledge about RE and system reliability. Secondly, many believe that RE is more expensive than it is. Hence, they believe that such barriers are to be supported in SMEs as well. Finally, it is recommended to make information more accessible for consumers, enabling better and easier information gathering.

## 2.3 The German qualitative study

The framework by Rahbauer et al. (2016a) was followed up by a qualitative analysis by the same authors (Rahbauer et al., 2016b). The analysis consisted of interviews with eight German RE-providers, ten interviews with purchasers of RE and ten interviews with non-purchasers. The chosen businesses were operating within the furniture- and metalworking industries as they are energy-intensive and because they have developed “green divisions”.

Of the factors linked to “entrepreneurs’ personality”, “perceived responsibility for the environment/altruistic motives” were supported, as many of those who purchased RE motivated their decisions through personal beliefs or for better conscience (Rahbauer et al.,

2016b). In contrast, non-purchasers did not seem to engage in any sustainability undertakings, except for recycling. “Perceived relative advantages for the environment” was not supported as all the studies interviewees agreed that RE was superior.

Regarding the factors related to “technical systems”, “perceived system complexity” was not supported as the information barrier was seen as insignificant as both purchasers and non-purchasers did not expect any difficulties (Rahbauer et al., 2016b). “Perceived system reliability” was partly supported, as none of the studies interviewees expected any power shortages, but did question the actual sustainable benefits of RE. “Perceived availability of time” was not supported, as none of the interviewees saw the switching process as time-consuming.

Out of the three factors of “economic aspects”, “perceived price of RE” and “perceived level of competitive pressure” was supported, as many of the interviewees estimated significantly higher prices for RE and stated that they could not afford RE due to intensive competition (Rahbauer et al., 2016b). Lastly, “perceived legal framework” was, however, not supported, as the studies interviewees expressed limited knowledge about it, and in general, did not incorporate political aspects in the decision.

Of the factor group “SMEs characteristics”, all sub-factors were supported (Rahbauer et al., 2016b). “Firm size”, as smaller SMEs bought RE for personal motives. In comparison, larger SMEs were shown to base their decision more strategically. “Energy intensity”, as the interviewees that were more energy-intensive stated that they did not afford RE. Lastly, “Actual displayed environmental behaviour” since many of the purchasers had engaged in earlier sustainability-related undertakings while the non-purchasers had not, to the same extent.

“SMEs customers” was supported for larger firms, as they make their decisions on more strategic grounds than do smaller firms, where support was not found (Rahbauer et al., 2016b).

In the factor group “green marketing practices”, “perceived environmental image” was partly supported, as it presupposed that SMEs operated within “green sectors” were the sustainability image mattered and where purchasing of RE could contribute to that image (Rahbauer et al., 2016b). Regarding “eco-labelling”, the study reported that RE-providers stated that more effective means of communication could increase the use of RE.

From the analysis, it was concluded that four factors were not supported (Rahbauer et al., 2016b). “Perceived relative advantage for the environment” was shown to be consistent through all interviews, the authors stress that both purchasers and non-purchasers agreed that RE has a positive effect on the environment. “Perceived availability of time” was not supported as several interviews explicitly showed the opposite. “Perceived system complexity” was not supported either as plenty of information concerning how to switch was supplied, and none of the interviewees said so. “Perceived legal framework” was not supported due to that the interviewees showed little knowledge about it and instead considered RE-purchasing on a personal level. The study was specifically focused on the German market, but the authors believe that the framework they produced can be applied in further studies and other countries.

Table 1  
Summary of decisive factors

Factor groups	Adoption factors	Description	Support	
Purchase related factors	Entrepreneur's personality	Perceived responsibility for the environment/altruistic motives	Entrepreneur's attitudes towards environmental responsibility/ environmental altruism	✓
		Perceived relative advantages for the environment	Entrepreneur's perception of environmental benefits of RE over CE	
Technical systems		Perceived system complexity	Perceived ease of procuring information on GE and switching from CE to RE	
		Perceived system reliability	Decision-makers' trust in the reliability and sustainability of the production system of the RE provider	✓
		Perceived availability of time	Entrepreneur's perceived time available for information procurement, evaluation and decision-making on RE	
Economic and legal restrictions		Perception of price of RE	Perceived price of RE in comparison to CE	✓
		Perceived level of competitive pressure	SME's perceived cost pressure and availability of financial resources	✓
		Perceived legal framework	Adopters' perceived advantageousness of the legal framework on RE	
SMEs characteristics		Firm size	SME's number of employees	✓
		SMEs energy intensity	The share of energy costs of the total costs in a SME	✓
		Actual displayed environmental behaviour	SME's dedication to energy management practices before the decision on RE purchasing	✓
Sales related factors				
Sales market	SMEs customers	SME's customers' willingness to pay a price premium for products manufactured with RE	✓	
Green marketing		Perceived environmental image	Perceived relative importance of a SME's environmental image	✓
		Eco-labelling	Availability of effective eco-labels for industrial RE usage	✓

Note: Own rendering of Rahbauer et al. (2016b)

## 2.4 The German empirical study

In 2018, an additional study was undertaken with a more extensive, survey-based examination (Rahbauer et al., 2018). In addition, the authors changed the last factor from earlier studies, where “green marketing” and “eco-labels” were discussed. Instead, it was replaced by “communicability”, referring to that “*the presence of effective ways to communicate renewable electricity adoption to customers increases the likelihood of renewable electricity adoption by an SME.*” (Rahbauer et al., 2018, p. 535). The study concluded that some results differed from the qualitative study. “Perceived level of competitive pressure” was not shown to be supported and therefore, it does not seem to affect the decision whether to purchase or not. The authors associate the results with the concept of that many firms, especially such in competitive markets, see such measures as possibilities of gaining a competitive advantage through product differentiation (Rahbauer et al., 2018).

The factor related to the purchase-area, “SMEs energy intensity”, showed to be irrelevant which according to the authors is surprising as the expected result was the opposite considering the effects of potential price increases result on the bottom line (Rahbauer et al., 2018). Their possible explanation for this is not that their expectation is simply wrong but due to two stronger counter-effects. Firstly, that energy-intensive SMEs are under more considerable stakeholder scrutiny to develop more sustainable practices and secondly, that such companies already pay more attention to energy-related matters and do not meet the same informational barriers.

The study concluded that there was a connection between the demand from consumers and their willingness to pay and the purchasing of RE by SMEs (Rahbauer et al., 2018). However, using RE as a means of attracting new customers was not supported, explained by the authors as a result of RE purchasing, not being enough to attract new customers. “Perceived environmental image” was not supported, nor was communicability which means that there was no support for that companies see the environmental image as an enabler in succeeding economically. Therefore, it does not motivate businesses to purchase RE. The authors believe that it could be explained by the fact that RE does not create enough impact on the total environmental image. This reason is also further elaborated on as a cause of that “communicability” also did not have any support as a relevant factor for the purchasing of RE: such a small part of the total image is probably not seen as worthwhile to communicate.

## 2.5 Recent findings in the Australian consumer market - the brand perspective

The most recent research that was found was an article written by Paladino and Pandit (2019) on RE-purchasing in the Australian market. The article sheds light on the absence of research conducted to provide a holistic understanding of consumer attitudes and perceptions towards environmentally friendly products and services. They conducted a survey where they received answers from 1,865 Australian households concerning both government policy and business operations. As is also true for earlier mentioned studies, the authors mention the abstractness and intangibility of electricity as one of the main challenges for providers of electricity, not least for those trying to motivate a higher price.

The study claims to highlight that organisational image is a decisive factor in RE-purchasing together with the perception of the price. From the business operations-based view, the study concluded that companies need to develop their brand image and their service offerings to better inform customers and create increased excitement around switching to RE. In addition, it is claimed that the consumers are missing brand knowledge, standout innovations, knowledge of options pervasive in consumer decision making, together with the low trust of organisations and low perceived value in the purchasing of RE.

## 2.6 Institutional isomorphic change - the overarching perspective

The interplay between companies are expected to have a substantial effect on sustainability undertakings and therefore DiMaggio and Powell's (1983) article is included in this framework. They wrote in their article "The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields" about the homogenization of organisational fields and institutional isomorphism. They define the organisational field as "*a recognized area of institutional life: key suppliers, resource and product consumers, regulatory agencies, and other organisations that produce similar services or products.*" (DiMaggio & Powell, 1983, p. 148). They further argue that when organisations are formed together into an organisational field, forces lead them to become more similar, which also limits the organisations to change freely in the long term. The process is deeply connected to the concept of legitimacy, which means that the organisation needs to be accepted in order to operate unimpededly (ibid). Eventually, this leads to homogenization, according to DiMaggio and Powell (1983) best described through institutional isomorphic change. Within this concept, they identify three sub-categories. *Coercive* isomorphism, which originates from

pressures from actors that the organisation is dependent upon, more closely related to legitimacy. *Mimetic* isomorphism, which concerns the copying of others under uncertainty, and *normative* isomorphism related to professionalization.

## 2.7 Analytical framework of decisive factors

To be able to analyse the gathered data, an analytical framework has been constructed. The framework is mainly based on a combination of factors from the studies of Rahbauer et al. (2016a), Rahbauer et al. (2016b) as well as Rahbauer et al. (2018) as it gives a solid foundation primarily due to their extensive literature review. Mainly, the original framework from Rahbauer et al. (2016a) is used except for the change to “communicability” from eco-labelling that was made prior to Rahbauer et al.’s (2018) study. The original framework is used in this thesis because of the possibility that other results will emerge. “Communicability” was, however, incorporated due to it being broader than “green marketing”. Besides, it is complemented by the parts of Paladino & Pandit’s (2019) study regarding a lack of brand image from the buyer-perspective, as well as DiMaggio & Powell’s (1983) article on institutional isomorphic change and the effect of that on the organisational field in terms of sustainability undertakings.

The earlier discussed factors are combined with a part of Paladino & Pandits (2019) study because the three German studies focus on how the SMEs perceive their environmental image. However, it is also of interest to examine how the electricity suppliers are perceived by (potential) SME-customers as that may be a decisive factor as well. Therefore, the authors of this essay have added Paladino and Pandit’s (2019) perspective of electricity buyers perceived image of the supplier as the purchasing side of the issue must be considered as a possible decisive factor as well. Finally, an absence of the perspective of market interactions, and the effect of those on the behaviour of firms, has been identified in earlier studies. It is suspected that such forces play a larger role than is given attention. To address that, the perspective of institutional isomorphic change by DiMaggio & Powell (1983) has been added to the framework of this study. This, since legitimacy and mimicry are expected to influence the behaviours of the observed SMEs to a greater extent than what earlier studies have shed light on. It has also been added to offer a general explanation to the results in total.

## Analytical framework of decisive factors

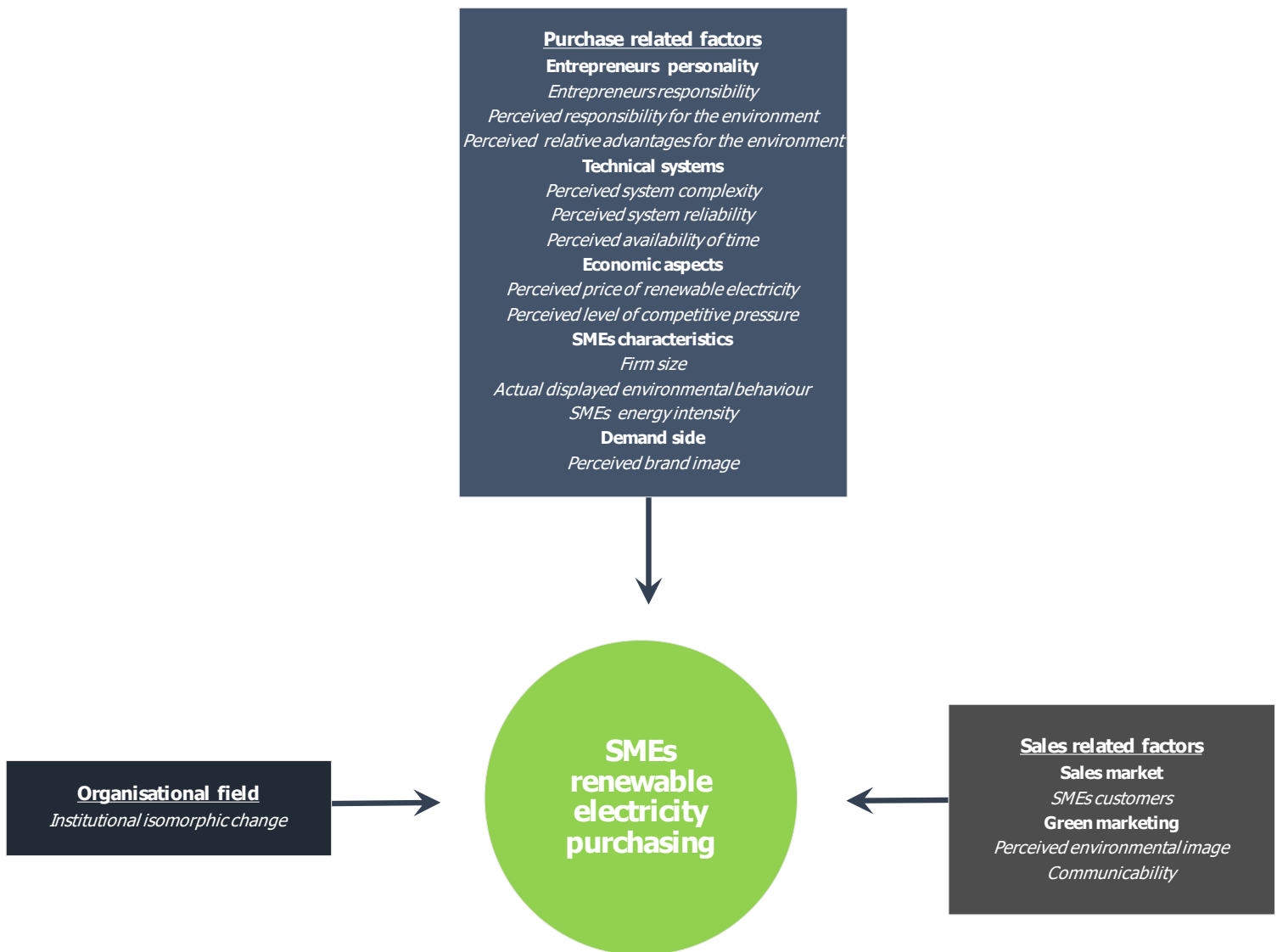


Figure 1. Rendering of possible decisive factors for SMEs derived from Rahbauer et al. (2016a), Paladino & Pandit (2019), DiMaggio & Powell (1983)



### 3. Method

*In this part, the method will be presented and the reasoning underlying the decisions will be explained.*

#### 3.1 Choice of method

To gain a deeper understanding of the factors underlying SMEs decision whether to purchase RE or not, a qualitative study with an abductive approach was undertaken. The method of choice was deemed the most appropriate due to the need of having fewer and more in-depth interviews in order to achieve a better understanding of the factors, incentives and drivers behind the purchasing of RE and because it requires in-depth analyses. It was also required that theory had a limited influence on the research path to be able to find new patterns. Also, the fact that the study was conducted under a narrow time frame required it to be based on a smaller set of interviews.

A qualitative approach is expected to generate better results as much of this topic needs to be explored on a deeper level. Hence there is a need to emphasize words instead of quantitative measures (Bryman & Bell, 2013). As Bryman and Bell (2013) writes: (translated: An important difference is that the objects of analysis within the natural science . . . do not attribute meaning to its environment and what occurs in it, which people do” (p.409). Due to the subjective perceptions often stated in previous research, the method was expected to better capture the interplay between decision-makers, their perceptions and facts. It, however, implied that the ability to generalise the results beyond theory was not possible (Bryman & Bell, 2013). The study aimed to understand the underlying factors of purchasing, which required a broader view and a deeper understanding. It became a matter of better understanding the context, which the qualitative research intends to do through understanding behaviours, values and opinions (Bryman & Bell, 2013)

Abduction enables a way of using existing theory without being completely bound to it, which allows for new findings that would not be made otherwise (Patel & Davidson, 2019). Only using earlier theory could hinder objectivism as earlier research lays the path which jeopardises the likelihood of discoveries (ibid). In contrast, this method is not a guarantee for objectivity as authors may be affected by earlier experiences and research, nor is it generalizable to the same extent as other research methods (ibid). However, it facilitates a more open approach (ibid). Furthermore, the choice of an abductive approach was made because of that the area is mostly unexplored, especially in Sweden, and that one must

therefore be open to what may arise during the process. Meanwhile that would suggest the use of an inductive approach where one follows the path laid by the discoveries made (ibid), this thesis also evaluated existing theory within the subject. Hence, the most appropriate way of carrying out this research was through a combination of the two - abduction.

## 3.2 Literature review

The result of the literature review carried out consists mainly of three works regarding purchasing of RE by German SMEs, conducted by Rahbauer et al. (2016a), Rahbauer et al. (2016b) and Rahbauer et al. (2018). The first article is a literature review based on earlier European studies of RE-purchasing, mainly within consumer sectors, and will, therefore, form the basis of the framework used in this thesis. A factor that was changed in Rahbauer et al. (2018) was directly changed in the original framework, adapted in this essay due to it being more comprehensive. The legal factor was removed, and other factors were created from conclusions from other studies. Therefore, the analytical framework was mainly based on one extensive literature study, but with some modifications due to more recent research and a perspective that was deemed lacking in previous research in terms of an overarching, general explanation.

## 3.3 Data collection

### 3.3.1 Secondary data

The secondary data used in this essay was mainly drawn from peer-reviewed academic articles. The articles were collected from Gothenburg University's library search tool "Supersök" that covers a broad range of databases. The terms used were "renewable electricity", "renewable electricity purchasing", "renewable electricity adoption", "green electricity", "SMEs", "energy adoption", "Swedish", "adoption factors", "green energy" and different combinations of the same. The articles were then sorted by reading abstracts followed by decisions of which were to be read further.

A wide variety of information in this thesis was also collected from the internet. Mainly the information was collected from different authorities and organisations that operate within the energy industry or sustainability-related issues. Caution is required as there is a high risk of attaining information that is not correct, biased or politically motivated. Therefore, official information from well-known organisations or official authorities has been used exclusively.

### 3.3.2 Selection of interviewees

The choice of interviewees for this thesis were chosen on the basis of diversity, attention given to the process of electricity purchasing and if they bought RE or not. The diversity criterion, mainly focused on the number of employees, was deemed fitting to better reflect the diversity of SMEs. In order to generate satisfactory answers in terms of analysability, SMEs that were expected to be either more electricity intense or give the electricity purchase more attention were chosen. Additionally, the aim was to divide the group in half between purchasers and non-purchasers as answers from two perspectives were expected to generate a more nuanced view. In terms of the two different sample groups, the aim was to gather one group of small businesses driven by a few people under simpler circumstances and one group of larger businesses that operate under higher competitive pressure. Hence, the general goal of this selection was to provide a fairly good reflection of the heterogeneous group that the SMEs are. Also, to provide a representation of both sides of purchasers and non-purchasers and at the same time to follow two lines of businesses to enhance comparability. There are many other possible combinations of sample selections that would be interesting to examine, and it is not in any way claimed to be the most optimal selection. However, it has been the most fitting for this thesis.

With the above reasoning in mind, the choice of industries resulted in bakeries and industries. Bakeries were supposed to represent the smaller SMEs driven by a few people under simpler circumstances and industries were thought to represent larger businesses operating under higher competitive pressure. Due to the ongoing pandemic and the hardships that it entailed, obtaining participants for the interviews was arduous, as the potential participants either were too busy or had their whole line of staff temporarily discharged. Therefore, to be able to complete the study, the few SMEs that did agree to participate automatically decided the selection. It, therefore, required a step away from the original selection. Despite the hardships, the sample collection was somewhat successful in combining two groups of different lines of businesses that were all giving electricity purchasing attention, and that differed in size. Regarding lines of businesses, the bakeries were collected successfully but the industries were more dispersed as they belonged to different areas of businesses. However, they all had in common of operating businesses of industrial nature.

The interviews were carried out with owners or managerial staff of three bakeries and five industries operating in different areas. The industries were operating within bed

manufacturing, coffee production, balcony production, glass production and welding and assembly. Of the SMEs, five were purchasing RE, and three were *not* purchasing RE. Additionally, one interviewee was an owner of four bakeries, but the interview was conducted with one specific RE-purchasing bakery in mind.

The companies that the interviews concerned were a variety of SMEs selling business to business and business to consumer, with a light skewness towards business to business. Furthermore, the number of employees ranged from four to 60. Regarding energy intensity, the SMEs contacted were such that was estimated to give their electricity purchase greater attention. However, the companies reported relatively low numbers, with the highest reporting 14 per cent of total fixed costs. Nonetheless, the vast majority indicated that they were giving their electricity purchasing and use close attention.

**Table 2**  
**List of participants**

Anonymous abbreviations	Profession	Length of interview	Date	Nr. of employees	Customers
<i>RE-purchasers</i>					
Coffee roaster	CEO	24 minutes	20200427	17	Predominantly B2B
Bakery P	Owner	27 minutes	20200504	4	B2C
Bakery B	Owner	33 minutes	20200429	5	Predominantly B2C
Glass manufacturer	Finance & Administration	20 minutes	20200429	22	Predominantly B2B
Bed manufacturer	CFO	32 minutes	20200505	50	Retailers
<i>Non RE-purchasers</i>					
Balcony manufacturer	CEO	37 minutes	20200428	60	Predominantly B2B
Bakery S	Owner	16 minutes	20200504	9	B2C
Welding and assembly business	Project Manager	19 minutes	20200504	14	Predominantly B2B

### 3.3.3 Interview methodology and analysis

A set of qualitative interviews is often characterized as being conducted more freely and without distinct boundaries (Patel & Davidson, 2019), which is the case for this study as well, as data was collected through semi-structured interviews. Further, the semi-structured, qualitative interview was fitting, considering the abductive approach applied (ibid).

The interviews were conducted to be in-depth in order to gain a better understanding of operations, business contexts, electricity use as well as attitudes and undertakings towards and within electricity purchasing and its relation to other sustainability practices overall. Due to the coronavirus, all interviews had to be performed via telephone. The interviews were structured according to the interview guide produced by the authors of this essay, with various themes to be treated. The questions were inspired by Rahbauer et al. (2016b), Salmela and

Varho (2006) and were complemented with additional questions to fit the aim of this thesis. The interview guide was constructed with the aim to cover the specified topics without limiting the freedom of the interviewed in formulating their answer, as would be the case with a more structured interview (Bryman & Bell, 2013). The interviewees were only heard once, but the interviews were recorded and later transcribed. Both interviewers were attending each interview noting the answers; however, only one actively guided the conversation. The interviews lasted approximately 20-30 minutes, which made it possible for the interviewees to participate even if they were pressured by busy schedules.

The interviews were carefully transcribed in order to receive the best possible reflection of the interview in terms of how the answers were given and to represent the general atmosphere. The interviews were conducted and transcribed in Swedish, and therefore, the answers quoted in this essay were translated. The interviews were then reviewed for answers, and particularly interesting answers were highlighted. The answers were summarized in a spreadsheet in order to enable an overview and to create conditions for discovering patterns as well as better comparing answers. When interesting answers or set of answers were discovered, a closer analysis was made. Similar answers were merged in the results section, and answers that stood out were explicitly presented. A difficulty with the analysis is that the parts that have been translated could be affected by how the answers are perceived by the researcher (Bryman & Bell, 2013). This results in a risk of that parts of the original meaning or wording may have suffered in the translation. However, the authors of this essay have discussed perceptions of the answers and translated them with caution.

### 3.4 Validity and reliability

It has been widely discussed how reliability and validity, most used in quantitative research, can be used in qualitative research (Bryman & Bell, 2013). Bryman and Bell (2013) state that some researchers have tried to adapt, the originally quantitative measures, to fit the qualitative approach. However, they further add that other researchers believe that it is merely impossible since it is required to create new methods and terms that are specifically aimed at assessing the quality of qualitative research (ibid). Otherwise, a direct application demands that one view of reality is needed, which is directly opposed to the qualitative method, which is argued to be able to describe realities from several different perspectives (ibid). As this thesis is aimed at exploring more deeply what SMEs view as crucial concerning RE purchasing, there is a need to use the most suitable methods and criteria to evaluate the process. Therefore, the

choice was made to focus on Lincoln and Guba (1985) and Guba and Lincoln (1994) referred to in Bryman and Bell (2013). Their framework consists of “trustworthiness” and “authenticity”, where the former is divided into the subfactors of “credibility”, “transferability”, “dependability” and “confirmability”, and the latter consists of “fair image”, “ontological authenticity”, “catalytic authenticity” and “tactical authenticity” (ibid). These will be shortly elaborated on in the continuing text.

Firstly, to be able to assess the credibility criterion, that is create reliable results, one is required to research and follow existing rules as well as report the result to the person's that is a part of the social reality studied (Bryman & Bell, 2013). Secondly, the authenticity criterion aims at, for qualitative studies, to provide “thick descriptions” in order to enable other researchers to conclude how transferable the results from the specific study are (ibid). Thirdly, dependability refers to the auditing of every step of the research (ibid). Finally, confirmability relates to the effort of reaching for high objectivity, although it, in general, is hard to accomplish within social research (ibid). Lastly, authenticity is constituted by several sub-factors that relate to producing a depiction that is fair in regard to opinions and perceptions and creates a result that the participants can gain from (ibid).

This research process has, to the best of the authors' ability, been conducted according to the rules mentioned above. The results have not been sent to the participants as the intent of this research has been to develop a better understanding from the electricity suppliers' point of view, as well as to be a possible guide for policymakers. The information will be open for the public, and the result will be presented for an electricity supplier in Gothenburg. Furthermore, a detailed description of answers and the context of this study has been given and is hoped to fulfil the authenticity criterion so that others may have an ability to determine if the result is applicable in other contexts.

Moreover, both authors have been carefully analysing the result from the interviews being aware of personal bias and the like. Hence, the requirements for confirmability of this study are believed to be reached. Lastly, the authenticity requirements are believed to have been met in terms of giving a fair depiction of the participants' opinions and creating results that are useful to the interested parties of this thesis.

### 3.5 Ethical responsibility

When research is conducted, consideration must be given to the participants and the information they give in regard to privacy and respect. Vetenskapsrådet (2002) has created

four demands for individual protection - the information requirement, the consent requirement, the confidentiality requirement and the requirement of use. They relate to that the respondents know the purpose of the study, how the research will be used and that they are in charge of their participation and can abort whenever they want (ibid). In addition, personal details are to be handled with great care and confidentiality and the information gathered is only used for research purposes (ibid). The participants in this study were given the required information, interviewee data was gathered and stored safely, and all respondents are, except for the line of business and position, kept anonymous.

## 4. Results

*The results gathered will be presented according to the different themes and related questions in the interview guide. It is done due to that it determined how the interviews were conducted and how the conversations progressed.*

### 4.1 General sustainability aspects

Regarding the collective knowledge about electricity, surrounding areas and the difference between renewable and non-renewable electricity, the impression from the interviews was that knowledge is relatively developed and that many have a basic understanding of the area. Four out of the eight interviewees showed high knowledge and understanding and even ability to elaborate further on the topics discussed. Also, three respondents showed relatively developed knowledge and only one of the eight interviewees, a bakery, showed poor knowledge about several of the areas regarding electricity that were discussed. From the interviews, there does not seem to be any signs of a difference in the relation between firm size and knowledgeability of the SMEs interviewed.

When looking at the overall view of sustainability, it became clear that seven out of eight SMEs reported it being of high importance. However, the reasons for believing so were widely different. Five of the interviewees said that it was important because it was simply the right thing to do and believed that it was vital for creating a better future and planet. In contrast, two of the largest SMEs believed in sustainability as a concept, however, they reported a larger economic and strategic reasoning behind the decision of working more sustainably where resource efficiency went hand in hand with lower costs. Additionally, one of those, the bed manufacturer, reported viewing sustainability as something positive. However, no measures were carried out as the bed manufacturer stated that they had to prioritize other daily business operations but that some parts nevertheless resulted in more sustainable operations. One of the bakeries owners had a background of studying law and environmental sciences and showed great concern for sustainability:

*...the way we are living today, the earth is not enough, it's as simple as that. (---) it goes without saying, you want to be able to hand this over to your children as well. (Owner, Bakery B, personal communication, 20200429)*

When viewing the importance of being perceived as a sustainable company externally, all interviewees but one reported it as being important, although for varying reasons. Amongst the industry companies, the main reason for this was due to pressure and demands from



buyers or contractors, as they had to meet specific standards to be able to partake in procurement:

*...I think that in the end, pressure will come from our clients and thereafter from the ones above them. Then it would have been something completely different. It is the same as with the certification I have now, had not the industry required it then no one would have it, but now everyone has it. Because it's supposed to be like that... (Project manager, welding and assembly business, personal communication, 20200504)*

The bakeries, however, said that they were more concerned about actually being sustainable than appearing sustainable outwards. They were, however, not able to give any specific incentive for that ambition. Interestingly, one bakery and two industries said that they did not focus as much on being perceived as sustainable as much as they were taking such measures. The reason for that, they said, is that they experienced a risk of being increasingly scrutinized if they claimed to be sustainable and wanted to avoid the time-consuming issues that followed. The bed manufacturer, which reported that they did not see any importance of being perceived as sustainable, opened up for it becoming more important if they saw a higher demand. Interestingly, they bought their electricity from an all-renewable energy supplier and had plans of installing solar panels on their roof.

In general, communication alternatives such as certifications or eco-labels were given little attention for various reasons. Only two of the interviewees, the coffee roaster and the balcony manufacturer, stated that they used such communication tools. However, shortcomings were discussed. The coffee maker believed that there was a limited utility due to lacking understanding by customers. The balcony manufacturer stated that there were too many and that he was careful in using them, as he perceived them as ambiguous, giving little to no value:

*If there is one thing that this country is good at, it's coming up with different environmental labels. People actually believe that Sunda Hus [an organisation for sustainable construction] is an authority, but it isn't! (...) Had one additional label been introduced, I think we would yawn, for sure. However, if one more would be introduced it would need to be integrated into Sunda Hus for example. (Owner, balcony manufacturer, personal communication, 20200428)*

Additionally, other companies saw little potential in the labels and instead mentioned their website as being used for such communication. However, even in that case, it was not perceived as crucial. Overall, the assessment made is that such communication measures are used sparingly or not at all.

In terms of customer demand for sustainability, two of the industrial interviewees reported that it was explicitly required in order for them to participate in procurement, and four others said that there was no explicit demand. However, it was clearly appreciated by the customers. Only two of the interviewed, the bed manufacturer and one bakery, claimed that there was no demand.

When asked about ongoing sustainability-related work, only one, the bed manufacturer, claimed to not work actively with any sustainability measures. However, they were purchasing RE, planning to install solar panels and worked with many local suppliers as well as streamlining their transports, but motivated it with economic reasoning behind it. All other companies had different sorts of environmental undertakings, mainly in terms of energy and resource efficiency. Examples as LED-lighting, efficient cars, less paper use, recycling and research and development were mentioned. Additionally, several of the interviewees stated that it was partly due to ISO-certifications and the like. What stood out the most was that one of the bakeries built their facilities as a passive house, meaning that the building is built to optimize heating and energy use. The bakery could, therefore, use the heat from their ovens as a sole source of heating. Additionally, it can be concluded that five out of eight SMEs had earlier worked with energy conservation measures. However, some of those had not bought RE while the others did.

On the subject of sustainability being a way for financial gain, six interviewees claimed that that was the case. The balcony manufacturer and the glass manufacturer both saw it as crucial for their success, and four saw some financial gains from it. The balcony manufacturer stated that it is vital to have a strategy to survive:

*...yes, you should show that you have a strategy and a policy and that you are able to act and you should be a bit of 'ahead of the game'. If you do nothing and continue to swim upstream, I think it is significantly worse - you have to show that you have a strategy.* (Owner, balcony manufacturer, personal communication, 20200428)

In contrast, two stated that it was not the case. Several interviewees however said that they were careful in communicating it outwards as they saw a risk in portraying themselves as sustainable.

Looking at the answers on generalities of RE and the trust of RE suppliers, none of the interviewees questioned the potential of RE and its part in reaching a more sustainable society. However, many of the interviewees questioned its sufficiency and ability to contribute to the process of reaching set goals. For example, the coffee roaster and the

balcony manufacturer said that they believed that nuclear energy is still needed in the future. One bakery thought that Sweden switching completely to RE would not make any noticeable difference, and the glass manufacturer believed that RE needed higher commitment to be able to make a difference. In sum, the perceived potential of RE is deemed high. Furthermore, when asked about any perceived risks in switching to and using RE, none of the respondents saw any risks at all.

When asked about the reliability of electricity providers delivering RE as promised, all but one trusted the providers to varying extents. The reasons for trusting the suppliers were that they believed that suppliers that are not truthful will eventually be revealed, reasoning that the electricity suppliers saw it as a risk that is too large. The other companies stated that they were suspicious due to the lack of insight and high perceived complexity. The balcony manufacturer commented on the reliability of the supplier:

*It's entirely out of control! (...) No, I don't know how one would be able to control it. (...) I believe, regarding electricity, how the renewable energy is transported, I believe that it's beginning to backlash because of this, wind power, is it really that good? There are a few negative aspects of it as well.*  
(Owner, balcony manufacturer, personal communication, 20200428)

Additionally, the glass manufacturer questioned its provider overall specifically, but wanted to stay with it due to it “being the largest”. The bed manufacturer mentioned certificates related to RE as an abstract part of the whole RE-discussion where the representative was noticeably confused.

The respondents were asked the question if they saw the energy supplier as a possible contributor to the company's sustainability image. In general, the companies believed that it was a small part of the whole business and therefore saw no use in it. However, some respondents, in contrast to what they earlier stated, said that helping them communicate that they are using RE from the supplier in question, and provide services that the company's staff did not have time to work on in terms of energy conservation/sustainability, would be a possible service.

#### 4.2 The difference between purchasers and non-purchasers

*Following the more general questions applied to all companies, the companies were then separated and asked a set of questions based on if they bought RE or not.*

#### 4.2.1 Renewable electricity purchasing companies

The companies that bought renewable electricity were the coffee roaster, two of the bakeries, the glass manufacturer and the bed manufacturer. They were first asked why they decided to purchase RE. The reasons for purchasing were heavily based on altruistic motives; the representatives answered that it was the right thing to do, that it was a natural choice and that it felt good as it reduced feelings of guilt. The coffee roaster added that it was also due to customer demand and pressure from the industry. The glass manufacturer mentioned that they had an environmental diploma which took them a step in that direction. Finally, the bed manufacturer added that they had good contact with the supplier, but that they chose their supplier because they offered consulting services concerning solar panels. In sum, altruistic motives were deemed the most significant factor among those who bought RE. When asked about what made it worth to purchase RE, the altruistic motive was further reinforced. Also, the coffee roaster saw a customer benefit in doing so:

*It's a combination of conscience and customer benefit, it's 50/50. Like, you have to contribute. Everybody that runs a business must be involved and improve and contribute to the environment. But of course, there is also a bonus, some customers like it but the customer benefit is smaller than one's conscience. The forward mindset, what the heck, the environment is something that we must keep in mind, that's the largest driving force! (Owner, coffee roaster, personal communication, 20200428)*

None of the participating purchasers of RE experienced any obstacles or problems associated with the process of searching for, nor switching to, RE, regardless if they switched to RE via a salesman or if they themselves searched for information. Additionally, none of the respondents had experienced any discrepancies since switching either. The passive house bakery, however, expressed a lack of time to work with certifications such as ISO, stressing that he *did* fulfil the requirements:

*We aren't ISO-certified, because that requires me to sit down and write these 52 points were we meet the requirements to be certified. (...) ...but there is reality and then there are the dreams. In reality you have to, for us at least where I work, this company I run, I have to bake, manage accounting, sell, be a good dad and participate in activities as well as being a good friend. So, that is quite difficult. (Owner, Bakery B, 20200429)*

All of the interviewees reported paying a slightly higher price for RE but also said that the price difference was so small that it did not make any difference for them. When asked if they were prepared to pay a higher price than they do, or if they saw any possibilities of added value that would justify a higher price, the initial answer was no. However, they later opened for additional services such as marketing as well as energy-related sustainability services as making them more susceptible to paying a higher price.

Surprisingly, few of the interviewees stated to have communicated their use of RE outwards, but for those who did, the feedback from customers was positive. However, it was not seen as a crucial aspect of the company's sustainability operations, and the communication of it was therefore limited.

#### 4.2.2 Non-renewable electricity purchasing companies

Companies not purchasing RE were the balcony manufacturer, one bakery and the welder and assembly businesses. When asked why they had not bought RE, the price was given exclusively as the reason:

*There was a company here and talked, and it would become much more expensive than what I have now. They claimed that it would be cheaper, but when we did the calculations on everything, we concluded that I had a good contract and I think that I have a very high cost in terms of electricity. So, I decided to stay with the contract that I have. (Owner, Bakery S, personal communication, 20200504)*

The balcony manufacturer added, in addition to price, that he did not believe in that purchasing RE made any difference:

*We don't see any use for it at all, and I don't know if that's true at all today but, because at least... Or a few years ago, it always used to cost a little more. Eh, so that eh... No, I have never been convinced of that concept. (Owner, balcony manufacturer, personal communication, 20200428)*

Different answers were given in regard to how significant the price difference was between non-renewable and RE. However, all the interviewees that did not purchase RE, except for the balcony manufacturer believed that it was noticeably more expensive, with the highest estimation of an additional 20 per cent.

Regarding the perceived sufficiency of information to be able to change to RE, none of the respondents felt that they had enough information, wishing for more information or to be convinced personally. In contrast, they did not see the process of purchasing RE as tedious. All the respondents had a clear plan of how to proceed if deciding to purchase RE, mentioning being contacted by a salesman, using price comparing services or contacting their current supplier of electricity to negotiate. In sum, all the interviewees except one bakery saw the process straightforward and smooth without any obstacles or time constraints. The balcony producer stated that it required little to no effort:

*...as with everything else, someone calls 300 times and tries to get hold of one, and then they chant holes in the head of one and then you agree on it in the end. That we would google ourselves and search, that is... Yes, possibly if you go into "Elskling" (a price comparison service) or something like that but, well... It usually handles itself. (Owner, balcony manufacturer, personal communication, 20200428)*

In terms of what would enable the interviewees to purchase RE, lower price was again given as the sole reason. They were then further asked what would enable them to purchase RE if they set aside price differences. The answers differed widely as some saw no other reason, and some gave examples of possible services. Such services were a registry over fixing periods, easier invoicing processes and services regarding getting tax refunds related to energy-taxes, which was mentioned by the two bakeries. Beyond these simpler propositions, the respondents saw little to no use in extra service from their electricity supplier.

*No absolutely not. I think that the electricity industry... A company contacted me and wanted to do a survey, which is an electricity supplier that I have in one of my companies. I said: 'you can put "don't know" on everything without even asking the questions to me'. It is completely uninteresting no matter what the quality of the delivery, because electricity is usually just what logo one has on the invoice - it comes out of the same outlet anyway, so in daily operations it is quite uninteresting. Maybe, if you choose to have a slightly different approach and tell people that you are a little better than everyone else - yes, then you might be able to show that you use renewable. But I would say that is probably a completely meaningless thing for us to do. So, it's neither an advantage nor a disadvantage. (Owner, balcony manufacturer, personal communication, 20200428)*

Finally, one SME wished for that the energy companies work more towards increasing awareness and making RE “a business case” so that other businesses also start to see the benefits, therefore increasing the awareness and use within the industry.

In terms of their beliefs of how customers would value more sustainable business operations, the respondents said that customers would value a more sustainable operation, but to varying degrees. The welding and assembly business claimed that for them to engage even more in sustainability, requirements would have to come from influential contractors. The balcony manufacturer, on the other hand, stated that customers *do* value sustainability initiatives, but that price will always be the decisive factor in the end. One of the bakeries gave an emphatic yes, while the other bakery said that there was some demand for sustainable operations.

Returning to the general perspective, some answers from both purchasers and non-purchasers overall revealed several areas of concern in addition to the topics discussed. Two respondents mentioned that there is more to be desired from the legal framework in terms of tax reliefs.

The glassmaker stated that they had hired a company in order to get their overpaid tax money back, and one of the bakeries stated that he felt discriminated because of firm size. He added that other larger companies had gotten tax reliefs but that the smaller ones did not, which he claimed would have made a noticeable difference for him. Furthermore, in general, even though the topic was not explicitly discussed, one could notice that several of the respondents

expressed confusion and scepticism towards the energy sector at large, including legal frameworks.

## 5. Analysis

*Following the results-section, this analysis combines the theoretical background with the results given. Finally, it is visually presented in the analytical framework.*

### 5.1 Institutional isomorphic change

Several companies stated that working with sustainability, if not demanded, is often crucial for their success. Earlier, *institutional isomorphic change* has been discussed as a factor to why companies are becoming increasingly similar, discussing legitimacy and being accepted (DiMaggio and Powell, 1983). Furthermore, this has also been an explanation of why companies are increasingly focused on sustainable operations. The interviews have shown that such an effect of the interplay within the organisational fields may constitute a factor for sustainability in general but not for RE in particular. Therefore, institutional isomorphic change does not seem to directly act as a decisive factor for RE-purchasing. However, it appears to affect undertakings of sustainable operations by companies in the same organisational field. Therefore, as RE is a part of that, there is a possibility that it increases the likelihood of purchasing RE.

### 5.2 Purchase related factors

It was found that there is a generally high level of *perceived responsibility for the environment*, especially in the smaller SMEs. As many answered that it was simply the right thing to do, it was also shown to be partly connected to purchasing of RE as some answered that it simply felt better or that it was their responsibility. In contrast, some of the interviewees gave the price and utility as the reasons for not purchasing RE, although they were working extensively with other sustainability-related measures. Hence, there is inevitably support for that *altruism* does play a decisive role in the purchasing of RE which is in line with both Rahbauer et al. (2016b) and Wiser et al. (2001). However, it cannot be concluded the only factor as some reported demand from customers and pressure from the industry as factors too. It was also one of the major findings from Rahbauer et al.'s (2016a) literature study. Furthermore, one can see a clear pattern that, despite the view on sustainability, no interviewee questioned that RE is superior to non-renewable electricity in terms of being better for the environment, irrespective of whether they bought RE or not. Therefore, this finding also supports Rahbauer et al.'s (2016b) that scepticism towards RE is not a decisive factor.



Regarding the factors linked to *technical systems*, the interviews showed that general knowledge is high, but it did not seem to have any connection to the purchasing of RE. In contrast, some of those who did not purchase RE stated that they did not experience to have enough information about RE. At the same time, none of the interviewees saw the process of switching to RE as tedious. It results in mixed support of Rahbauer et al. (2016b), who concluded that *perceived system complexity* did not have any support. It is unclear whether this is a factor that matters; however, the expressed information insufficiency cannot be overlooked. Nonetheless, as no one saw the information gathering process as tedious, the information insufficiency, at most, poses a small barrier. Finally, no challenges in switching to RE were reported, and in sum, perceived system complexity is not discarded but receives little support as a decisive factor for purchasing RE.

As none of the respondents saw any *risks of disruption in supply*, when or if using RE, the subfactor can be discarded. However, concern was given regarding the *reliability of the supplier delivering RE when promised*. Although almost all respondents answered that they had some trust in the supplier, all respondents had in common some degree of scepticism and uncertainty concerning RE-delivery. Hence, this is in line with Rahbauer et al. (2016b) conclusion on that fear of disruption in supply is not decisive, but that reliability of the supplier is. The interviewees did not give any support whatsoever toward *time constraints* being a decisive factor, also supported by Rahbauer et al. (2016b).

Based on earlier studies, *economic factors* were expected to be decisive in this study, namely the *price perception of RE* as well as the effect of the *competitive pressure* on purchasing. The results show that everyone perceived RE as more expensive to various degrees, and many of those who did not purchase RE mentioned it as a factor that prevented them from purchasing RE. Even respondents who bought RE saw the price as a loss but said that they were willing to take that loss. Therefore, *price perception* is believed to represent a decisive factor concerning RE-purchasing. It was also determined as a decisive factor by Rahbauer et al. (2016b), the most decisive factor in Rahbauer et al. (2018) and was supported by Salmela and Varho (2006). Wisser et al.'s (2001) conclusion that it played a minor role is therefore challenged. The results were the same regardless of that the companies were of different sizes and consumed different amounts of electricity.

Naturally, it is connected with the firm's profit margins and whether competitive pressure has any effect on the purchasing of RE, where those under high pressure does not purchase. The

answers are indicative of the opposite, displaying a trend of that sustainability, in general, is a source of product differentiation but that RE is an inferior part of the total sustainability image. Therefore, the perceived level of competitive pressure does not seem sufficiently supported to be viewed as a decisive factor. In Rahbauer et al.'s (2016b) qualitative study, the opposite was concluded; however, in Rahbauer et al.'s (2018) empirical study, it was found to be decisive. It is an interesting result in the context of sustainability and competitive advantage discussed by Hart (1995) and Porter and van der Linde (1995).

The *perceived legal framework* was excluded in the analytical framework in this thesis due to applicability issues and time constraints. However, as it was noted that the legal framework emerged in the interviews, it is worth mentioning. Rahbauer et al. (2016b) found no support for the legal framework in their study and instead concluded that the choices to purchase were often made on a personal level. Interestingly, the interviews show some signs that both personal convictions and aspects of the legal frameworks are relevant at least as contributors to the decision.

In regard to SMEs characteristics, the firm size was not determined to influence informational barriers such that it would affect the purchasing of RE. Since a small number of SMEs participated in this study, and only two had more than 50 employees, it is hard to draw conclusions. Despite this, both of the larger companies motivated their decisions more on rationally economic grounds than did the smaller who acted more on personal convictions. Rahbauer et al. (2016b) also found this true. Therefore, it is concluded that firm size does not act as a decisive barrier in terms of informational barriers, which was initially expected. However, firm size seems to act as a decisive barrier in relation to on what ground the decision is taken.

The studied companies were not per definition *energy-intensive*. However, all participants directed relatively close attention to their electricity purchases and could motivate and discuss their choices. Therefore, it is believed implausible to conclude that the SMEs energy intensity influences RE-purchasing. However, a pattern discerned showing that the higher the energy intensity, the more the decision was evaluated on and approached with caution. It can, therefore, be argued that it is interesting to consider in future research in the Swedish case.

Looking at the firm's *actual environmental behaviour* estimated by earlier energy conservation measures, as well as *ongoing sustainability-related work*, support cannot be given to a connection between those and RE-purchasing. Interestingly, both those who

purchased RE, and those who did not, had different backgrounds of using energy efficiency measures. In addition, all except one carried out ongoing sustainability undertakings. Rahbauer et al. (2016b) found that earlier energy conservation measures had support for being connected to RE-purchasing. The research in this thesis can, however, not support nor discard a connection.

Some *scepticism and uncertainties concerning the electricity suppliers* were showcased by the interviewees, which could be a sign of that it affects the decision. However, sufficient support was not given for that it could be determined as a decisive factor in the case of SMEs.

Looking at the *energy suppliers brand image*, which was an addition to the framework as a result of Paladino and Pandit's (2019) research in the Australian market, it can be concluded to have some support. Mainly this is believed proven as a decisive factor as one of the interviewees clearly stated that a more active role from the energy suppliers in promoting RE as a business case is needed. Also, possible proof of this is that several of the interviewees expressed scepticism and uncertainty towards renewable electricity and companies. It is seen a possible pattern for a lack of clarifications regarding the RE-concept that electricity suppliers and related actors might have to improve and communicate in their service offerings. Therefore, electricity suppliers brand images and service offerings are concluded as decisive factors.

### 5.3 Sales related factors

The demands of *SMEs customers*, consisting of both regular consumers as well as contractors and other businesses, were shown to have a significant effect on sustainability initiatives at large but did not seem to affect the purchasing of RE. Rahbauer et al. (2016b) found that larger SMEs base their decision on strategy and communication, and smaller SMEs base their decision on personal beliefs. Also, they found support for customer preferences being decisive for RE purchasing. In this study, support was found for these factors having a substantial effect on sustainability undertakings but having little to no effect on RE purchasing.

It is clear from the interviews that almost all companies believe that it is crucial for their businesses to be *perceived as sustainable*. Rahbauer et al.'s (2016b) study also found this as long as it is communicated and connected it to an increased probability of purchasing RE. This study, however, finds that it is of importance to be perceived as sustainable. However, the communication of sustainability is used sparingly. As RE-purchasing was viewed as such a small part of the sustainability image, the respondents showed no indication of it having any

impact on the perception of being sustainable, and therefore not being decisive for the decision of purchasing RE. The same reasoning was applied when answers were given concerning *communicability*. Since communicability related to sustainability was used sparingly or not at all, effective ways to communicate RE-purchasing was not given any support as a decisive factor.

Finally, Rahbauer et al. (2016a) declared some key findings from their literature study; the significant role of altruism, differences in motives between smaller and larger SMEs, the lack of knowledge regarding RE and faulty price perceptions. The authors of this essay can conclude that this is, to a large extent, also the case for this thesis.

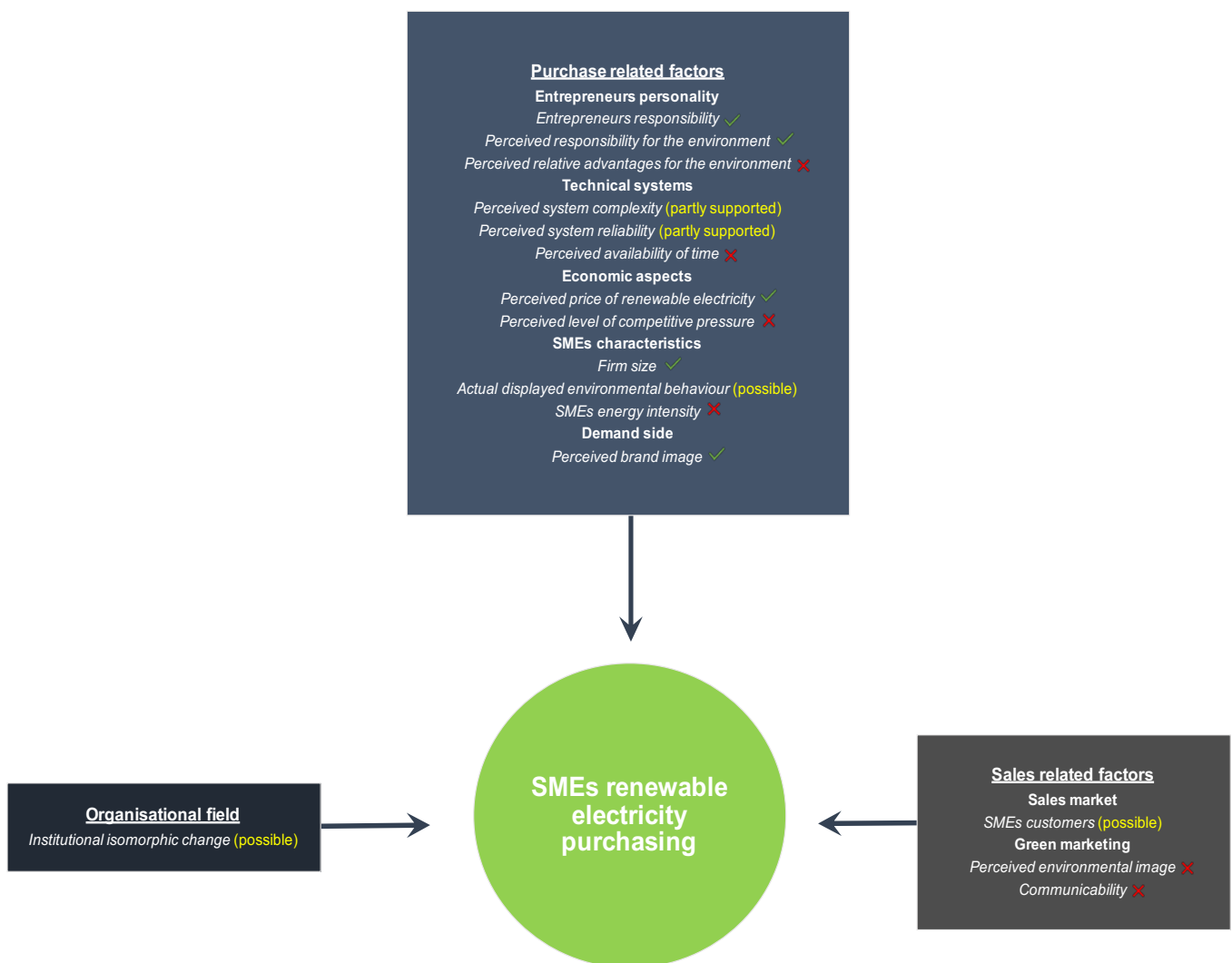


Figure 2. Results of possible decisive factors for SMEs derived from Rahbauer et al. (2016a), Paladino & Pandit (2019), DiMaggio & Powell (1983)

## 6. Discussion

The qualitative method has been of great value in examining this issue on a deeper level, enabling discussions and conversations of a detailed sort. Through this method, interesting results have been generated and a better understanding of what factors underlie the decision to purchase RE have emerged. Nonetheless, this approach has, in combination with the complications following the coronavirus, limited the choice of interviewees and therefore, the sample selection. As a result, it can be concluded that a less diverse sample selection or even a quantitative method could have generated higher reliability or enabled generalisation.

The results of this thesis are not generalizable other than to the development of theory. They, however, offer an insight into RE-purchasing of Swedish SMEs that might generate a better understanding of the reasoning behind the decision-making. Some things, such as price, legal framework, perception of electricity suppliers, et cetera, are deemed to give an insight due to that such factors are not industry specific. Other factors, such as requirements from contractors and customer demand for sustainability is with large probability industry- or business-specific.

Another aspect of this research is to remember that the framework used emanated from a German study and that the probability of it being influenced by the German context is therefore high. Keeping this in mind, one should also note that the framework used was created from a literature review mostly based on research from several different European countries. Therefore, the applicability of the framework in other European countries, like Sweden, is considered to be relatively high. Interestingly enough, this thesis had some differing results as support was given for factors that the German study did not support and vice versa.

One interesting possible finding of this thesis that does not seem to have been considered in earlier studies within this area is that institutional isomorphic change may affect the decision of whether to purchase RE. From the interviews, several companies have stated that working with sustainability, if not demanded, is often crucial for their success. It is not implied that demand for sustainability is directly a cause for purchasing RE. There are however signs from the interviews that such pressures may further increase the likelihood. Hence, institutional isomorphic change, the effect of the different processes in the organisational field on business operations, cannot reasonably be *determined as* a decisive factor by this study. However, it is arguably a factor that deserves more attention and research devoted to. If further proven true,

this has implications for that greater efforts are needed on an industry-level to be able to increase the demand drastically for RE. Isomorphism and its effect on the processes in the organisational field could, therefore, be seen as foundational for the actions taken in general, and for sustainability initiatives in particular. The authors of this essay believe that this process can constitute a driver for organisations sustainability-related work and, therefore, also be connected to RE-purchasing.

As it is found that altruism is a decisive factor in RE purchasing, like in many other studies, it carries interesting implications for the leeway of electricity selling companies, and to some extent the leeway of policymakers. It arises as a result of that altruism is highly connected to personality traits, which makes it the most challenging factor to affect. Furthermore, this strengthens Rahbauer et al.'s (2016b) explanation for smaller SMEs being more susceptible of purchasing; decision making structures are more straightforward, much like that of a household, and therefore as personal motives more effectively affect the decision to purchase, smaller SMEs do so to a greater extent. If this continues to be proven in future studies, then energy companies may have to make re-evaluations of their market communication. It is also true for the second factor of "entrepreneur's responsibility" as it shows that there is a broad consensus about the advantages of RE; despite agreeing about the benefits for the environment, SMEs still refrain from purchasing.

The results of the technical factors are interesting as it was expected that the technicalities formed some sort of barrier to purchasing. "Perceived availability of time" showed not to be any decisive factor at all and "perceived system complexity" could more or less be discarded. However, two out of three non-purchasers wished for more information. There is however limited concern for that it would be cumbersome to search for information or to change to RE. Regarding "perceived system reliability", there is a lack of faith concerning how RE works which creates uncertainties concerning the effect of switching as well as speculations. Confidence in electricity suppliers can, therefore, play a part in the decision whether to purchase RE, which is essential as the product is homogenous. Additionally, those who trusted the electricity supplier did so mostly because they perceived the risk for the supplier of being dishonest to large. Perhaps, a possible implication of this is that RE-suppliers would benefit from further transparency and to lessen the information asymmetry, as concluded by Rahbauer et al. (2016a).

Another problem that seems to be a result of information shortage is the “perceived price” differences. Not surprisingly, the price was deemed the most decisive factor. However, as there was a sizeable difference in perception between purchasers and non-purchasers, one could conclude that a lack of information is again present. Since many electricity providers are, understandably, unwilling to change pricing as it has a substantial effect on the bottom line, a possible remedy for this issue would, therefore, be to increase knowledge among SMEs about price differences and RE. To be able to equalize price differences, government subsidies and change in legal frameworks would reasonably be required.

As competitive pressure was not only not given any support, but the opposite was given full support, it clearly shows that sustainability, in general, is a source of product differentiation. A possible interpretation of this is that a way forward might be to raise the issue of RE as a larger part of being sustainable. It could possibly make environmentally conscious customers purchase RE to a greater extent.

Legal frameworks were initially excluded, but signs were given from the respondents showing dissatisfaction towards current tax legislation regarding electricity use. It might be a subject that is interesting in terms of future research, not only because of the aforementioned findings but also because the result was opposite to that of Rahbauer et al. (2016b).

The energy intensity factor is also interesting as a subject of further investigation as it seems to be more scrutinized in more energy-intensive companies. However, enough support was not given for that more energy-intensive SMEs were less likely to purchase RE. However, if this continues to be proven true, electricity providers may want to make a distinction between less energy-intensive and more energy-intensive SMEs in terms of marketing and communication. It is also true for firm size, where information barriers were discarded as being different. Instead, the decision seems to be motivated differently through economic rationality and altruism.

Another interesting aspect of this thesis is that earlier sustainability undertakings and energy conservation measures do not seem to affect the decision of whether to purchase RE or not. The institutional isomorphic change may play a significant role in this too; RE is not purchased to the same extent if that is not required to be perceived as legitimate. Again, this becomes a question of raising RE as a more crucial part of sustainable business operations.

Besides, as the factor was not supported, nor discarded, it might be a subject of further investigation.

The factors from the sales market perspective once again showed clear signs that RE is an inferior part of the whole sustainability image. Perhaps, one could see this as a reflection of the SMEs customers view of RE. One way of reasoning could be that before SMEs, at least partly, to a larger extent purchase RE and view it as a natural element of sustainable operations, their customers must themselves realize the potential of RE before being able to demand the same from SMEs. It is possible that in such a situation, the potential of communication possibilities would be altered as enablers of purchasing RE.

Brand image does seem to constitute a factor in the decision and seems to be connected to trust and information sufficiency. It is partly shown as a possible sign that further efforts are required for RE-providers to better *establish* the brand image that they perceive themselves to have. A distinction between perceived brand image by the company in question and the actual brand image must, therefore, be made.

Another insight in this thesis, supported by earlier research, is that the heterogeneity of SMEs and some decisive factors seem to differ quite extensively between a smaller SME and a larger one. This issue has however not been further elaborated on since it is not appropriate to draw such conclusions from this limited sample selection, except that such differences seem to exist and that they should be given more attention in future research.

Finally, as several of the interviewees expressed fear of communicating their sustainability initiatives as a result of being increasingly scrutinized, the subject should be shortly elaborated on. It might be that public scrutiny is too aggressive resulting in, not that companies entirely refrain from some sustainability-related measures, but that they do not want to communicate them outwards and hence do not communicate it for that purpose. It might be an important insight in work towards increased sustainability measures. When the companies state to work with sustainability in one way or another, they seem to be increasingly debated, which, by the interviews, were considered to have a deterrent effect.



## 7. Conclusion

It can be concluded that decisive factors for the participating SMEs concerning RE-purchasing are partly different from other studies. The most decisive factors for the SMEs were perceived price of RE and the responsibility that the entrepreneur felt for the environment - altruism. Additionally, institutional isomorphic change seems to have a noticeable influence on the sustainability undertakings of SMEs within the same organisational field. Although it is not deemed a decisive factor in purchasing RE, it is considered to increase the likelihood. Also, the scepticism towards electricity suppliers offering RE was shown to exert influence on the decision, and so was the firm size as the decision was taken with different aspects in mind. Brand image can be considered supported as one explicitly expressed an absence of suppliers promoting RE sufficiently, and several other respondents voiced some sort of concern. Perceived system reliability was partly supported in terms of scepticism of delivery of actual RE.

Other results that warrant further research as the evidence was unclear were also found. Firstly, the legal framework, although not raised as a question, emerged as a topic that was discussed and criticized by several interviewees. Secondly, although energy intensity could not be determined as a decisive factor, it was clear that the decision was more scrutinized as the SMEs became more energy intensive. Therefore, a more in-depth investigation may result in other findings. Thirdly, SMEs customers were concluded to affect sustainability in general but not on RE purchasing in particular. Finally, actual displayed environmental behaviour was not supported, nor discarded, which may warrant further research to find any pattern between that and the purchasing of RE.

Factors that did not have any support were perceived relative advantage for the environment, partly perceived system complexity and reliability in the form of delivery consistency and perceived availability of time. The sales market perspective, which consisted of perceived environmental image and communicability, were not supported as decisive factors for purchasing RE. Even so, perceived environmental image showed to exert some influence on sustainability undertakings.

Interestingly, competitive pressure as a barrier to purchasing due to low margins were discarded as a decisive factor. It was, however, seen as a decisive factor due to the possibility of using RE as product differentiation.

## 7.1 Further research

Some factors in this thesis need closer and more in-depth examination as it was not possible in this thesis due to time constraints and hardships of interviewee participation caused by the coronavirus. Additionally, a more in-depth investigation on the difference between size and energy intensity of SMEs, legal framework and actual displayed environmental behaviour is warranted for. Moreover, a quantitative study of this area in the Swedish case would be interesting in establishing a pattern, to compare against this qualitative study and to generalise the results. Finally, continued research on this topic in other countries would favour the understanding and development of purchasing of RE in SMEs.

## References

- Arkesteijn, K., & Oerlemans, L. (2005). The early adoption of green power by Dutch households: An empirical exploration of factors influencing the early adoption of green electricity for domestic purposes. *Energy Policy*, 33(2), 183-196.
- Bloomberg Green (2020). *Wind Turbine Blades Can't Be Recycled, So They're Piling Up in Landfills*. Retrieved 20200405 from <https://www.bloomberg.com/news/features/2020-02-05/wind-turbine-blades-can-t-be-recycled-so-they-re-piling-up-in-landfills>
- Bryman, A., & Bell, E. (2013). *Företagsekonomiska forskningsmetoder*. Stockholm: Liber.
- Cambridge Dictionary. (n.d., a). *Energy*. Retrieved 20200407 from <https://dictionary.cambridge.org/dictionary/english/energy>
- Cambridge Dictionary. (n.d., b). *Electricity*. Retrieved 20200407 from <https://dictionary.cambridge.org/dictionary/english/electricity>
- DiMaggio, P., & Powell, W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, 48(2), 147-160.
- Ekonomifakta (2020a). *Elproduktion med fossila bränslen*. Retrieved 20200404 from <https://www.ekonomifakta.se/Fakta/Energi/Energibalans-internationellt/Elproduktion-med-fossila-branslen/>
- Energiföretagen. (2017). *Så fungerar ursprungsmärkning av el*. Retrieved from Energiföretagen: <https://www.energiforetagen.se/energifakta/elsystemet/elhandel/ursprungsmarkning-av-el/>
- Energimyndigheten (2019). *Så påverkades elproduktionen av den varma sommaren 2018*. Retrieved 20200410 from <http://www.energimyndigheten.se/nyhetsarkiv/2019/sa-paverkades-elproduktionen-av-den-varma-sommaren-2018/>
- Energimyndigheten, (n.d.) *Elcertifikatsystemet- ett stödsystem för förnybar elproduktion*. Retrieved 20200531 from: <https://www.energimyndigheten.se/globalassets/fornybart/elcertifikat/om/faktablad-om-elcertifikatsystemet.pdf>
- European Commission. (n.d., a). *What is an SME?* Retrieved 20200406 from [https://ec.europa.eu/growth/smes/business-friendly-environment/sme-definition\\_en](https://ec.europa.eu/growth/smes/business-friendly-environment/sme-definition_en)

- European Commission. (n.d., b). *Causes of climate change*. Retrieved 20200413 from [https://ec.europa.eu/clima/change/causes\\_en](https://ec.europa.eu/clima/change/causes_en)
- European Environment Agency (2018). *Renewable electricity*. Retrieved 20200404 from <https://www.eea.europa.eu/data-and-maps/indicators/renewable-electricity-consumption-1>
- Felice, M. D., Soares, M. B., Alessandri, A., & Troccoli, A. (2019). Scoping the potential usefulness of seasonal climate forecasts for solar power management. *Renewable Energy*, *142*, 215–223. doi: 10.1016/j.renene.2019.03.134
- Fresner, J., Morea, F., Krenn, C., Uson, J. A., & Tomasi, F. (2017). Energy efficiency in small and medium enterprises: Lessons learned from 280 energy audits across Europe. *Journal of Cleaner Production*, *142*, 1650-1660. doi:10.1016/j.jclepro.2016.11.126
- Hart, S. (1995). A natural-resource-based view of the firm. *Academy Of Management Review*, *20*(4), 986-1014.
- Hast, A., et al. (2015). Review of green electricity products in the United Kingdom, Germany and Finland. *Energy policy 123 (December 2018)*. 533-543. doi: 10.1016/j.enpol.2018.09.033
- IPCC. (2015) *Mitigation Pathways Compatible with 1.5°C in the Context of Sustainable Development*. Retrieved 20200410 from <https://www.ipcc.ch/sr15/chapter/chapter-2/>
- Kitzmueller, M., & Shimshack, J. (2012). Economic Perspectives on Corporate Social Responsibility. *Journal of Economic Literature*, *50*(1), 51-84.
- L. Hunter Lovins. (2010). Climate Capitalism: The Business Case for Climate Protection. *Pace Environmental Law Review*, *27*, 735-971.
- Luukkanen, J. (2003). Green paper with green electricity? Greening strategies of Nordic pulp and paper industry. *Energy Policy*, *31*(7), 641–655. doi: 10.1016/s0301-4215(02)00149-0
- Menges, R. (2003). Supporting renewable energy on liberalised markets: green electricity between additionality and consumer sovereignty. *Energy Policy*, *31*(7), 583–596. doi: 10.1016/s0301-4215(02)00144-1
- Merriam-Webster. (n.d.) *Altruism*. Retrieved 20200513 from <https://www.merriam-webster.com/dictionary/altruism>
- Naturskyddsforeningen. (2018). *Faktablad: Energikällor*. Retrieved 20200413 from <https://www.naturskyddsforeningen.se/skola/energifallet/faktablad-energikallor>

- OECD. (2018). *OECD Reviews of Digital Transformation: Going Digital in Sweden*. Retrieved from OECD Publishing: [https://read.oecd-ilibrary.org/science-and-technology/oecd-reviews-of-digital-transformation-going-digital-in-sweden\\_9789264302259-en](https://read.oecd-ilibrary.org/science-and-technology/oecd-reviews-of-digital-transformation-going-digital-in-sweden_9789264302259-en)
- Paladino, A., & Pandit, A. (2019). Black or green? Exploring the drivers and roadblocks behind renewable electricity consumption. *Australasian Journal of Environmental Management*, 26(1), 43-62.
- Patel, R., & Davidson, B. (2019). *Forskningsmetodikens grunder: att planera, genomföra och rapportera en undersökning*. Lund: Studentlitteratur.
- Porter, M., & Van der Linde, C. (1995). Green and competitive: Ending the stalemate. *Harvard Business Review*, 73(5), 120.
- Rahbauer, S., Menapace, L., Menrad, K., & Decker, T. (2016a). Adoption of green electricity by small- and medium-sized enterprises in Germany. *Renewable and Sustainable Energy Reviews*, 59, 1185–1194. doi: 10.1016/j.rser.2016.01.079
- Rahbauer, S., Menapace, L., Menrad, K., & Decker, T. (2016b). Adoption of green electricity by German small and medium-sized enterprises (SMEs) – a qualitative analysis. *Journal of Cleaner Production*, 129, 102–112. doi: 10.1016/j.jclepro.2016.04.113
- Rahbauer, S., Menapace, L., Menrad, K., & Lang, H. (2018). Determinants for the adoption of green electricity by German SMEs – An empirical examination. *Energy Policy*, 123, 533–543. doi: 10.1016/j.enpol.2018.09.033
- Salmela, S., & Varho, V. (2006). Consumers in the green electricity market in Finland. *Energy Policy*, 34(18), 3669–3683. doi: 10.1016/j.enpol.2005.08.008
- Statistics Sweden (2019a). *Elektricitet i Sverige*. Retrieved 20200403 from <https://www.scb.se/hitta-statistik/sverige-i-siffror/miljo/elektricitet-i-sverige/>
- Sveriges Miljömål. (n.d.). *Andel energi från förnybara källor*. Retrieved 20200402 from <https://sverigesmiljomal.se/miljomalen/generationsmalet/fornybar-energi/>
- Swedish Energy Markets Inspectorate. (2016a). *The electricity market*. Retrieved 20200402 from <https://www.ei.se/en/In-English/electricity/the-electricity-market/>
- Swedish Institute (2019). *Energy use in Sweden*. Retrieved 20200402 from <https://sweden.se/nature/energy-use-in-sweden/#>

- Tillväxtverket. (2020) *Basfakta om företag*. Retrieved 20200528 from <https://tillvaxtverket.se/statistik/foretagande/basfakta-om-foretag.html>
- Tilt, B., Braun, Y., He, D. (2009). Social impacts of large dam projects: A comparison of international case studies and implications for best practice. *Journal of environmental management*, 90, 249-257, doi: 10.1016/j.jenvman.2008.07.030
- UN. (n.d., a). *Climate change*. Retrieved 20200405 from <https://www.un.org/en/sections/issues-depth/climate-change/index.html>
- UN. (n.d., b). *Ensure access to affordable, reliable, sustainable and modern energy*. Retrieved 20200405 from <https://www.un.org/sustainabledevelopment/energy/>
- UN. (n.d., c) *Sustainable Development Goal 7*. Retrieved 20200528 from <https://sustainabledevelopment.un.org/sdg7>
- United Nations Global Compact. (n.d.) *The SDGs Explained for Business*. Retrieved 20200526, from <https://www.unglobalcompact.org/sdgs/about>
- Vasilica, D. (2014). Specifics of the energy markets. *CES Working Papers*, 6(3). 76-84. JEL: L51; Q48
- Vetenskapsrådet. (2002). *Forskningsetiska principer inom humanistisk-samhällsvetenskaplig forskning*. Retrieved from Vetenskapsrådet: [http://www.gu.se/digitalAssets/1268/1268494\\_forskningsetiska\\_principer\\_2002.pdf](http://www.gu.se/digitalAssets/1268/1268494_forskningsetiska_principer_2002.pdf)
- Wiser, R. H., Fowlie, M., & Holt, E. A. (2001). Public goods and private interests: Understanding non-residential demand for green power. *Energy Policy*, (29), 1085–1097. doi: 10.2172/776644

# Appendix

## Appendix 1 Interview questions

### **General questions**

How many employees do you have?

Are you working B2B, B2C or both?

How much of your total fixed costs comprise the electricity cost?

From what sources do you think the electricity you are getting today comes from?

### **Sustainability**

How is your view / perception of sustainability?

How important do you think it is to appear as a sustainable company? Why?

How do you work with sustainability today and in what way is it visible in your business?

Describe your view on renewable electricity and non-renewable electricity, what do you think is the difference?

What effect do you feel that a switch to renewable electricity would have on the environment?

Have you worked with any energy savings before?

Do you see/did you see any risks in switching to renewable electricity?

How reliable do you think electricity suppliers are when it comes to supplying renewable electricity?

How large is the demand for your business to be sustainable?

Do you think that sustainability as part of your strategy can benefit you financially?

Are there any good ways for you to communicate your sustainability initiatives / that you buy green electricity?

Do you see any ways an energy company could help you with your sustainability profiling?

### **Questions for companies that did purchase RE**

Why did you choose to buy renewable electricity?

Did you experience any problems or obstacles in the process of buying renewable electricity?

How did you go about searching for information about electricity contracts? How did you experience that process?

Is renewable electricity more expensive than nonrenewable electricity? If yes, how much? If no, would you be prepared to pay a higher price for renewable electricity?

What positive and/or negative experiences of buying renewable electricity have you experienced so far?

Are there any changes that could make you pay more than you do today? An added value that can be provided by the electricity company.

Do you see any added value that would justify a higher price from your electricity provider?

Have you communicated that you switched to renewable electricity? If so, how have your customers reacted to using/switching to renewable electricity?

What do you feel makes it worth to buy renewable electricity? (considering all processes in the energy companies)

### **Questions for companies that did buy renewable electricity**

Why did you choose not to buy renewable electricity?

What price difference do you estimate there is between non-renewable electricity and renewable electricity?

Do you feel that you have enough information when it comes to purchasing renewable electricity?

How would you go about seeking information about electricity contracts? How do you perceive that process?

What could make you buy renewable electricity?

Assuming the desired changes happened, would you be prepared to pay a slightly higher price for renewable electricity? If no, are there any changes that could be made to make you pay more?

Do you feel that you had time to devote to a change of electricity?

Do you think your customers would value if you used renewable electricity?

Apart from price decreases, what would make you choose renewable? What would make it worthwhile? (all processes in the energy company)

### **Concluding remarks**

Is there anything more you want to add that we haven't asked and discussed or something you wonder?