

Why do actors in the commercial property market not
adopt risk-free energy efficiency projects?



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Abstract

The world calls for climate mitigation, and energy efficiency presents a unique opportunity. Energy efficiency is the most resource-efficient and sustainable means to reach net zero by 2050. A magnitude of energy efficiency investments are even profitable, but they fail to be adopted. This is referred to as the efficiency gap. The gap is a result of barriers to energy efficiency. Two of the most commonly cited barriers creating this gap are the split incentive and lack of access to capital. Performance-based services allows adopters to take no risk when investing in energy efficiency and pay for the achieved savings instead. These instruments are still not closing the efficiency gap, despite answering to these prevalent barriers. This issue was studied as a case study, interviewing sales representatives from an energy advisor in the commercial property market. The sellers were interviewed about their interactions with potential customers to services with alternative financing. A major finding of the study is that such offers struggle to penetrate in cases of multiple parties because there are so many interests that have to align, failing to answer the split incentive. There were also reports of the offer said to be “too good to be true” where potential customers failed to recognize the true potential in the offer.

Foreword

First, I want to thank Entro AS, who was with me through this journey. Last fall, I had the pleasure of doing my work placement with them and the possibility of going deeper into the issues related to energy efficiency. Special thanks to Andreas Grimen, who was my supervisor and has supported me during this thesis. Without Entro I would not have become aware of what eventually became the foundation for this thesis, and I will also thank all my interviewees from Entro.

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Introduction

The starting point for this thesis is the need for climate change mitigation. The following quote describes what role our demand for energy plays concerning climate:

The energy sector is the source of around three-quarters of greenhouse gas emissions today and holds the key to averting the worst effects of climate change, perhaps the greatest challenge humankind has faced. Reducing global carbon dioxide (CO₂) emissions to net zero by 2050 is consistent with efforts to limit the long-term increase in average global temperatures to 1.5 °C. This calls for nothing less than a complete transformation of how we produce, transport and consume energy. (IEA, 2021b, p. 13)

Our need for energy is the major contributor to climate change and its disruptive effects, but energy also provides us with great value. The United Nations' sustainability goals outline the components of a sustainable future. Goal number seven states that sustainable energy for all is a part of this vision (United Nations, n.d.). This means that energy is needed to live good lives, but that we need to cover this need more sustainably than we have done so far.

So, how can we enjoy energy more sustainably? The quote above says that we need to change how energy is produced and used. If the energy demand can be reduced in the first place, the associated effects from production will also be reduced. The question then becomes, how can we reduce our energy consumption while taking care of the planet and its population? By implementing energy efficiency (EE). But what is EE?

Energy efficiency is the use of less energy to perform the same task or produce the same result. Energy-efficient homes and buildings use less energy to heat, cool, and run appliances and electronics, and energy-efficient manufacturing facilities use less energy to produce goods. (EERE, n.d.)

EE, thus, is a means to maintain quality of life and minimize the adverse effects of energy use. However, for our energy use to not contribute to climate change entirely, energy production must simultaneously transition to cleaner sources. If the remaining consumption still stems from emitting sources, reductions in use will not eliminate the emissions issue,

only alleviate it. Despite this, this thesis will make the case for prioritizing EE as the dominant climate mitigation strategy.

Why should EE be the dominant climate mitigation strategy?

There are many concerns related to addressing climate change. The most obvious one is that there is a lot to be done in a short time. As mentioned, the goal is to avoid an increase in average global temperatures higher than 1.5 °C. by 2050. As well as time, resources to undertake the energy transition are also limited. Maximizing the available funds to be able to transform the energy system in time is necessary. Additionally, this transition must also comply with other sustainability considerations along the way. Climate concerns cannot be addressed at the cost of overall sustainability. Compromising other concerns can also add to the time pressure, as not gaining public acceptance can hinder development. These considerations will be used to discuss EE's superiority as a climate mitigation strategy, thus backing the need to study it further.

Scale, time, and cost advantages of EE

First, EE's potential and effect must be presented. In IEA's "Sustainable Development Scenario", it contributes the largest share of the emissions savings, at 37% (IEA, 2019, p. 59). The ability to achieve this scale underpins the need to enable this technology. Generally, IEA says that prioritizing EE results in a more efficient resource allocation for the energy transition, compared to having a higher emphasis on power generation (IEA, 2014, pp. 18–19). The sustainable energy transition presents a cost, but also profitable opportunities. The following quote shows how lucrative capitalizing on EE is: "The pursuit of all economically viable opportunities for efficiency improvement can reduce global energy intensity by more than 3% each year." (IEA, 2019, p. 25). EE therefore have the potential to bring significant and economical emissions reductions.

When it comes to the time perspective, focusing on mature technologies with short construction time is important. The IEA's "Net Zero by 2050"-report highlights that many EE measures are ready and can be scaled up quickly. A side benefit of this is that it helps to curb energy demands and pollution in the early stages of this pathway (IEA, 2021b, p. 65), compensating for the longer implementation time of other technologies and improving health. These short-term benefits also represent another point as to why society should

address faster uptake of EE. A last cost and time advantage of EE is its impact on energy transmission requirements. Lower energy demands require less from the power grid. IEA's "Efficient World Scenario" shows that EE emphasis results in a 50% decrease in the needed transmission investments (IEA, 2014, p. 84). Increasing grid capacity is also a long process, one of Norway's regional grid operators says that this can take between 3-7 years (Lyse, 2021). As mentioned, an increase in cleaner power generation is necessary for the energy transition, but costs and time pressure suggest that EE should be the main solution.

Sustainability and public acceptance advantages of EE

The prior paragraph detailed how EE is the more technically and economically feasible option. In addition it is also considered the most *socially* feasible one (Coley, 2008, p. 445). For example, switching out the heating equipment in an office building leaves a much smaller footprint than building a new wind farm, as windmills gives both a visual and ecological impact (Coley, 2008, pp. 555–556). From a sustainability point of view, EE has little to none of these pain points. Excessive emphasis on power generation would therefore come at the expense of overall sustainability. These externalities also need to be accepted by the public if they are meant to be a part of the energy transition. The energy transition does not happen without public acceptance.

Another issue is that how potential risks and damages from alternative technologies are *perceived* will also influence public acceptance, despite how viable the solution is. As mentioned, wind farms are known for impacting the local environment, but the direct habitat loss is only 3% and the damage from construction is short term (Coley, 2008, p. 556). The visual impact is also highly subjective. This means that independent of a technology's ability to justify its downsides from its upsides, less conflict-ridden solutions should be favored in this urgent matter. In conclusion, EE should be the dominant climate mitigation strategy since it is the most cost-efficient, sustainable, and viable to implement in the given timeframe.

Literature review

What is the status of EE?

At this moment it is very reasonable to question why EE has not realized this enormous potential already, based on this solid value proposition. This conundrum has been coined as the efficiency gap. The gap is defined as the discrepancy between the actual and the optimal level of energy use. Optimal can be defined in multiple ways, also introducing different types of gaps. The private gap refers to the fact that there are plenty of profitable EE investments available for private actors that are not capitalized on. There are also definitions of gaps that recognize the lack of EE to achieve the optimal levels of energy use for society as a whole, called the social gap in efficiency (Gerarden et al., 2015, p. 1). As mentioned earlier, additional efficiency investments can save power grid investment which reduces public expenditure. This would be more optimal economically for the wider society, even though all the individual investments would not be profitable seen in isolation. The optimal level to ensure sustainability is also another example of such a gap, where efficiency levels that displace pollution and emissions are desirable.

To illustrate the presence and size of these gaps, the yearly rate of global improvement in energy intensity will be discussed. The last years the rate of improvement in energy intensity, or reduction in energy intensity, has been around 1-2% (IEA, 2021a, p. 8). But as mentioned earlier, it is economically viable to reduce energy intensity with more than 3% each year. That means there are many attractive opportunities missed by energy users. This gap between the current rate of improvement in energy intensity and the rate that is still economically viable, can therefore be considered the private gap. The net zero-scenario made by the IEA necessitates yearly improvements in energy intensity at 4% up until 2030 (IEA, 2021a). If all economically viable EE opportunities had been pursued, the remaining one percent in efficiency improvements sought after by the IEA's net zero-scenario could be considered the social gap in efficiency.

The illustrated private gap suggests that there is room to improve the economy's energy intensity with as much as 1% yearly, without sacrificing any economic considerations. It is this private gap the researcher is interested in investigating, and this will play a role in the selection of literature seen later. This space has been chosen as it could provide significant

emissions reductions, and its inherent economic incentive could make it a low-hanging fruit to resolve.

Why has EE not lived up to its potential?

The efficiency gap arose because of *barriers* to EE. “[B]arriers comprise all factors that hamper the adoption of cost-effective energy-efficient technologies or slow down their diffusion.” (Fleiter et al., 2011, p. 3100). As the definition alludes to, investing in EE is often profitable and there must be reasons why stakeholders do not invest despite receiving this benefit. The literature on EE barriers lacks a clear answer to what barrier(s) that has the most impact for all situations, and there is no definitive ranked list with what barriers hinder adoption of EE the most. It is also the fact that barriers coexist, reinforce one another and can be interdependent (Sudhakara Reddy, 2013, p. 407). There are, however, two barriers that stand out for the researcher.

The first one is access to capital. This is considered an important barrier in multiple sectors and in multiple countries (O’Malley et al., 2003, p. 120; Rohdin et al., 2007, p. 674; Sardianou, 2008, p. 1420). One of the reasons that this is a commonly cited barrier is that many energy consumers have access to capital only at rates that are well above the average return on capital in the economy. In addition, private sector firms also self-impose capital restrictions on themselves, even though capital is available, as a means to reduce risk from higher debt (O’Malley et al., 2003, pp. 15–16). Risk averseness in general is also an issue. Where not necessarily rational perceptions of risk hinder investment, including the use of disproportionately high discount rates to assess EE investments (O’Malley et al., 2003, p. 14). A related barrier is loss aversion. “(...) [P]eople value costs more highly than benefits (...) if the costs and benefits of an action are the same in absolute terms, they will fear the costs more than they will value the gains and therefore will choose not to act” (Cardoso et al., 2020, p. 9).

The second one is the split incentive. The split incentive tells a tale of principal-agent problems in the property industry and can be presented as follows: “The landlord of a building may be unwilling to retrofit an apartment to reduce energy use since the resulting savings would be realised by the tenant. But at the same time tenants will be unwilling to retrofit since they may move out before benefiting fully from the cost savings.” (O’Malley et

al., 2003, p. 9). The split incentive barrier is something the IEA presents as significant and has done a dedicated publication on. They estimate that more than 3 800 PJ per year of energy use is affected by principal-agent problems – equivalent to around 85% the total energy use of Spain in 2005 (IEA, 2007, p. 3).

Is there a way to overcome the major barriers to EE?

Becoming aware of this gap and the associated barriers does not make one optimistic for the future. The challenge with EE investments is that they require an upfront outlay, that will be recouped by the following energy savings later. It is therefore a mismatch in timing of the cost and benefit incurred by the investment. Having the available funds and not taking on any risk becomes a problem. This mismatch in cash flow and risk is also what fuels the split incentive dilemma. Still, there is a promising solution to these two notable barriers.

So how can this be overcome? With the help of *on-bill financing*. An on-bill program is a financing method for EE investments where there are no upfront costs. Instead of paying upfront, the investment is paid through the savings it produces. The customer is charged based on the difference between their prior consumption and the consumption after efficiency has been improved. This ensures that costs and benefits from the investment occur simultaneously. The client does not receive increased costs either, as the down-payments for the efficiency improvements equal the energy savings. The billings related to energy will therefore be the same as before, until the improvements are paid off. After completing the down-payment, the client enjoys the savings made in full. As the name suggests, the financial obligation of the investment is tied to the energy bill. This gives the opportunity to not frame the remaining payments as debt, but unpaid future energy bills. As mentioned, taking on debt is one of the barriers to EE. Regarding the split-incentive, it is also possible to design the deal to be tied to the rented space, and not the renter. If a tenant decides to move, the financial obligations are left to the next tenant instead. Tenants will thus not suffer from this arrangement if they decide to move. This payment model will therefore never leave the adopter worse off.

What is the response to on-bill financing?

However, on-bill financing has not achieved the necessary success yet. Multiple public programs to increase EE offering this model unfortunately show low participation rates

(Kloke, 2014, p. 70). I became aware of this challenge in talks with an energy advisor providing a similar financing model. The company acknowledges that this model has failed to live up to its potential. Their model also entails down-payment through their projects achieved savings, without an upfront cost or any additional fees. They define a project period for these customers, where they charge the customer for the savings they make during this period. After the project period, the customer enjoys the savings in full. If the company fails to achieve savings, they will not invoice the customer either. There is no debt burden, so the company can market the offer as risk-free. This offering will be referred to as *risk-free projects*. The company sells EE services to the commercial property market, and the researcher finds it difficult to understand how profit-seeking professional buyers ignore this opportunity. Especially considering corporate actors usually have an exaggerated cost focus (Kuczmariski, 2003, p. 538). Consequently, the efficiency gap still stands strong, despite the existence of an instrument that answers to two of the most significant barriers.

The case of failed adoption of EE in the commercial property sector with risk-free options available is what this study aims to address. The researcher finds this an interesting space for several reasons. The first one is the mentioned fact that businesses should have an incentive to cut costs, extending this study's focus on the private gap. Another one is buildings' role in the energy transition. "Existing buildings are responsible for more than 40% of the world's total primary energy consumption and account for 24% of global CO₂ emissions." (IEA, 2008). The final reason is that literature on why actors in the commercial property market fail to adopt EE when risk-free alternatives are available is scarce. These premises will influence the contents of this study, and the next step is to look at other potential barriers that can influence the adoption of EE in this circumstance.

What are the other barriers to EE?

The split incentive and access to capital are not the only inhibitors of EE adoption. Another substantial problem area is different information problems. One of them is the market failure of imperfect information, meaning that actors lack necessary information to make rational decisions (Cagno et al., 2013, p. 292). In a study of Dutch firms, 30% of the companies were found to not be aware of new existing technologies or practices for EE that were not used by other firms (de Groot et al., 2001, p. 724). A special form of imperfect information is asymmetric information, often manifesting itself through sellers having more information

than potential customers about the quality of their product (O'Malley et al., 2003, p. 7). On top of the issue of what information is available, is the capability to use this information. This is why *bounded rationality* also has been suggested as a barrier to EE. Limited attention, resources and ability to process information could hinder recognizing good EE investments (Bukarica & Tomšić, 2017, p. 973). It is hard to ignore that the technical and financial details about investing in EE with the help of on-bill financing can be difficult to comprehend. A client must understand the technological potential, and how the financing scheme can enable them to realize that potential. Independent of how good a company's value proposition is, this information has to be transferred properly to the buyers. Consequently, the form of information and its trustworthiness can also act as barriers (O'Malley et al., 2003, pp. 21–22).

This communicational issue is what this study is interested in looking at. Learning more about the interaction between the different information problems and communication could lead to very tangible ideas on how to tighten the efficiency gap, by better communication. To address this, the researcher has investigated literature on communication, and sales communication specifically. This forms the basis for the study's theoretical foundation. However, the mass of literature on this subject is vast and varied, and the selection of literature recognizes that there are many sides of this topic that the researcher does not have the resources and/or competence to study adequately. For example, non-verbal communication, or body language. The theoretical framework for this study has therefore been adapted to take this into consideration. The study is interested in other barriers to EE too but is mainly focused on investigating the issue by studying the communication associated with the offering. Theory and academic findings related to other barriers will therefore be presented during the interpretation of the results.

Information and communication

First and foremost, what is communication? Communication is the exchange of information. However, the exchange of pure information does not guarantee effective communication. The information that has been exchanged can mean different things for the parties involved, and the exchange of meaning will be an equally important part of the concept of communication (Kaufmann & Kaufmann, 2015, pp. 394–395). As the existence of asymmetric information suggests, one part having and trying to transfer information about their offering

is not enough. The communication must be meaningful to the recipient. An important concept related to communication is the communication process. At its simplest, the communication process shows the procedures of how a message is exchanged from one communicator to the other (Kaufmann & Kaufmann, 2015, p. 397).

Apparently, this is not a straightforward process. One of the reasons for this is the existence of communicative noise. Noise is anything that can interfere with the exchange or understanding of a message. Either physical noise, or other distracting elements which could reduce the quality of the communication (Kaufmann & Kaufmann, 2015, p. 400). Kaufmann and Kaufmann (2015, pp. 417–419) presents many sources to noise in communication. The language used is one of them. An example of this is the use of technical terms. If a seller claims that their offering saves energy, it is unavoidable that it is needed to justify this by explaining how. Describing how the technology works with unfamiliar technical terms could cloud the message and inhibit effective communication. Another source of noise is information overloads. If the recipient has to handle too many messages at once, this could lead to neglecting important parts of what has been communicated. If a sales pitch contains all the details about someone's offering, the few components that ultimately convince a prospect can be crowded out.

As important as being aware of what can interfere with communication, is to know the elements of effective communication. The information presented should be clear and simple (O'Malley et al., 2003, p. 21), where technical terms are translated into an understandable language. When communicating, receiving feedback is also key to lessen the effect of different sources to communicative noise (Kaufmann & Kaufmann, 2015, p. 422). A part of this is that the communicators create a mutual understanding of each other's goals. Efforts to familiarize oneself with the other party's motives may enable people to understand their interdependence to reach their goals (Rickheit & Strohner, 2010, p. 41). For sales communication specifically, key features of salespeople favored by customers is the ability to understand the customer's needs, asking appropriate questions and offer evidence and justifications to support claims (Koponen, 2021, p. 54). Arguably, these measures can be seen as effective ways to lessen the issue of imperfect and asymmetric information.

An important part of a seller's job is also to handle objections to the sales proposition. Kotler and Keller (2016, p. 870) says that customers usually hold reservations and are resistant.

Psychological resistance comprises resistance to disruptions, indifference, reluctance to let go of things, unpleasant associations caused by the seller, preconceived views, and decision refusal. The EE barrier literature can reveal that the gap is partly affected by preconceived views, in the form of *perceived* risks, where risk of production *disruptions* is one of the reasons stakeholders refrain from EE investments (Thollander & Ottosson, 2008, p. 27). As mentioned before, whether something holds true is not the deciding factor for hindering adoption, but whether the decision maker has a perception of it being true. Disruptions in production and other inconveniences associated with EE implementation are not always the case, and clarifying these concerns should therefore enable more EE adoption. This shows that sellers' ability to deal with objections can be crucial. A seller is best equipped to handle objections by continuing to be positive and asking the customer to elaborate upon the objection, and asking questions that makes the customer challenge their own objection, reject that it is valid or even turn it into a good reason to purchase (Kotler & Keller, 2016, p. 870).

How the message is framed can also be influential. Studies of business leaders show that they are consistently more oriented towards threats than opportunities in the perception of their business environment, where they are more concerned with avoiding losses than making gains. They are less sensitive to event descriptions that are incompatible with being considered a threat, and more inclined to make note of event descriptions that are incompatible with being an opportunity (Kaufmann & Kaufmann, 2015, pp. 210–211). How sellers of EE frame their message has therefore been investigated for this study. Assessing this could give thoughts on what to do, and more insight into how different actors respond to different message framings.

Trust is also adding to the information problems creating the efficiency gap. Ultimately, adopters have to trust the information they receive if they want to act on it. Interpersonal contacts strikes out as what is perceived as the most credible source when assessing EE investments (O'Malley et al., 2003, p. 22). One strategy used in business-to-business marketing to provide prospects with trustworthy and independent sources involves using customer references. This entails using existing customers as advocates for the company. They are identified based on being customers who are passionate about the company, and do not rely on economic incentives to be their spokesperson (Kotler & Keller, 2016, p. 288). It

should also be attractive to act as a spokesperson for an EE company, since they will be able to influence someone to make a significant contribution to sustainability. The room for such references will be addressed.

Methodology

Problem statement

The literature review has made the case for why we need and should pursue EE. It has also told us why society has failed to capitalize on its full potential. A promising solution to resolving this matter has been presented, but also its lack of success so far. The study, therefore, recognizes the need to investigate this further.

Research questions

The research identifies a knowledge gap in why actors in the commercial property market fail to adopt EE when risk-free options are available, as this in theory should solve the main issues. However, it recognizes the possible disruptive effect of other barriers. Mainly those related to cognitive, communicative, and perceptive issues, as discussed in the latter part of the literature review. Based on this, the following research questions have been made:

- Why do actors in the commercial property market not adopt risk-free energy efficiency projects?
 1. How are risk-free energy efficiency prospects identified?
 2. How are risk-free energy efficiency projects communicated?
 3. What concerns do prospects of risk-free energy efficiency projects have?

The first research question is this research's overarching question. The rest follows as sub-questions. They detail what this study wants to learn more about to understand the main one better. The first sub-question asks: Who has been targeted for risk-free EE projects and why? The second one refers to how prospects have been reached out to and informed about the service, and how sellers handle communication with prospects. This can give insight into how their perception of it was formed, and what sellers have done to understand and manage concerns. The third refers to prospects' reception of the service based on this communication. What do they think about it that prevents them from adopting it?

Why is this overarching research question chosen? The decision is based on finding a researchable and socially useful question that can potentially advance theory, predominantly regarding EE barriers. Leading researchers in the field of energy social science recommend using these three criteria when developing research questions (Sovacool et al., 2018, p. 14). They even use “(...) studies of determinants of adoption of energy efficient technologies” (Sovacool et al., 2018, p. 14) themselves as an example of such research. Or in their words, research that is “(...) advancing scientific or theoretical understanding and being immediately useful at addressing a pressing energy- or climate-related problem” (Sovacool et al., 2018, p. 14). Finding out why commercial property actors fail to adopt EE even with risk-free alternatives available could advance the barrier literature, and a better understanding of it can potentially introduce answers on how to increase adoption. Ultimately addressing the energy- and climate-related problems of our time. For this thesis, the student has found an opportunity to make it researchable by collaborating with an EE company. As a result, this research has had the privilege of directly integrating practitioners into the research process. Sovacool et al. (2018, p. 14) recommend this to further ensure the social impact of research. This has made it possible for the researcher to discuss the issue extensively with the practitioners when developing the research and share thoughts and insights from academia in the progress.

Research aim

The overall aim of the research is therefore to extend the literature on barriers to EE, but with consideration to actors with risk-free alternatives available. Specifically, the research aim is to:

- Explore barriers to the adoption of risk-free EE projects in the commercial property sector.

Research objectives

With reference to the research questions, there are three main areas the research will explore to try to understand the issue, resulting in the following research objectives:

- To assess the case company’s communication of risk risk-free EE projects for the commercial property sector.

- To retrieve the case company's response from prospects of risk risk-free EE projects in the commercial property sector.
- To assess the case company's targeting for risk risk-free EE projects in the commercial property sector.

How the research has tried to approach the research questions, research aim and research objectives is summarized in a table at the end of this chapter. The following chapter will attempt to justify and describe these research design decisions. To begin with, the research's paradigm, or philosophy, is discussed. This details the research's viewpoint on how data about the phenomenon should be acquired and understood. Secondly, the research strategy, or logics of inquiry, is described, clarifying the research's procedures for answering its research questions. Then concrete methodological choices for data collection, selection, and analysis based on these considerations are presented.

Research philosophy

The paradigm chosen for this research is interpretivism. Interpretivism deals with social reality and the meanings produced by its social actors (Blaikie & Priest, 2018, p. 107). The research questions clarify that social actors' roles are of interest here. The meanings produced between them are also essential as this influences their actions. Becoming more knowledgeable about their exchange of meanings will therefore be of value in understanding how they interact with the world.

The goal is to create social scientific knowledge. With the lens of interpretivism, this is defined as "(...) the outcome of social scientists mediating between everyday social language and technical social scientific language." (Blaikie & Priest, 2018, p. 288). The literature review has formed a basis for understanding what to investigate and be aware of. This research step is called *sensitizing* in an interpretive study (Blaikie & Priest, 2018, p. 289). That knowledge base will enable moving from lay descriptions of social life to technical reports of social life. According to Blaikie and Priest (2018, p. 99), this is the point where *abduction* is applied. Abduction is one of the selected logics of inquiry for this research, supporting the study of social reality. The chosen logics of inquiry will be outlined in the following section.

Research strategy

Abductive logic

The two logics of inquiry used for the research are abductive and retroductive. Abductive logic answers what and why questions, as used in this thesis. Its limitation is that it provides why-questions with "(...) understanding rather than an explanation, providing reasons rather than causes" (Blaikie & Priest, 2018, p. 99). Still, this is an excellent starting point to learn about the issue and, therefore, appropriate for this study. "Abductive logic incorporates what Inductive and Deductive logics ignore – the meanings and interpretations, the motives and intentions, that people use in their everyday lives, and which direct their behaviour" (Blaikie & Priest, 2018, p. 99). This fits well with the research aims as both the exchange of meanings and the resulting behavior is the area of interest. How sales representatives reach out and the feedback of potential clients is critical.

Retroductive logic

The first stage of retroductive logic requires either abductive or inductive work. The research's preceding abductive effort will describe what the study aims to understand. This is followed by examining the characteristics of the context explored and considering contending mechanisms that can explain the observed regularity, the regularity here being failed adoption of EE. Discovering such underlying structures or mechanisms appearing in specific contexts is the goal of retroductive logic (Blaikie & Priest, 2018, p. 96). The literature review has revealed that social structures and cognitive mechanisms affect EE adoption. This aligns with the structuralist and constructionist traditions associated with retroductive logic for locating explanatory mechanisms (Blaikie & Priest, 2018, p. 96). The split incentive is an apparent social structure that does not incentivize EE improvements, and risk aversion is a natural cognitive mechanism that also prevents action.

Case study methodology

The research has been carried out as a case study. The main reason for this is "(...) that case studies are suitable for singleperson research on a limited budget, and that the study of one case provides a manageable opportunity for a researcher to study one aspect of a problem in some depth within a limited time-scale" (Blaikie & Priest, 2018, p. 182). This was a logical solution as both time and budget have been limited. Blaikie and Priest (2018, p. 182) also

highlight that most researchers can perform a case study and that they are appropriate for student research, especially postgraduate theses. This being a postgraduate thesis and meant for a less experienced researcher, a more manageable design was preferred.

For this thesis, a case study is defined as the decision to focus on the study of one entity (Blaikie & Priest, 2018, p. 182; Hancké, 2009, p. 62; Sovacool et al., 2018, p. 18). To be more precise, it is an instrumental case study aiming to provide insight into the chosen issue, and not necessarily the case itself (Blaikie & Priest, 2018, p. 185). How the case operates is interesting for how this issue arises, but the mechanisms of what causes the issue are in focus. A case can be differentiated by other cases by containing a single value for the outcome the researcher is interested in (Hancké, 2009, p. 62). The interesting outcome here is companies' success in selling risk-free EE services.

Unlike many of the more comprehensive methods, for example statistics and experiments, case studies can offer detailed insights into motives of actors and mechanisms, and despite this, they can do so at a low cost (Hancké, 2009, p. 61). The study's abductive and retroductive perspective make these advantages preferable, because of the interest in revealing social actors' interpretations and underlying mechanisms. This is in contrast with the desire to use more complicated methods more appropriate for theory testing, as in the deductive research strategy (Blaikie & Priest, 2018, p. 95).

The major limitation a case study presents is its inability to obtain statistically generalizable results (Blaikie & Priest, 2018, p. 186; Hancké, 2009, p. 61). In addition, single-case studies are at the bottom of the hierarchy of evidence for qualitative research, and serve weak evidence (Sovacool et al., 2018, p. 31). Flyvbjerg (2004, p. 422) on the other hand argues how there is no general, predictive and context-independent theory in social science anyways, leading context-dependent knowledge to be what social science can offer. Context-dependent knowledge is exactly what case studies excel at producing and can therefore still provide value, even without the possibility to generate generalizable results. Considering this is not a deductive study, but an abductive, offering general and explaining theories is not the goal, but rather to increase the current understanding of the topic. Looking at an individual case, compared to large sample sizes, is not a means to prove anything, but to hopefully learn something (Flyvbjerg, 2004, p. 422).

Case selection

One of the case members was the one to reveal the issue of failed adoption of risk-free EE services to the researcher. Consequently, their experience of it is the basis for this study. Therefore, the sampling of both the case and participants was highly purposive. This contrasts with drawing a random sample, with the possibility to generalize results statistically (Blaikie & Priest, 2018, p. 26). However, as will be detailed below, this study is qualitative, and for qualitative data the objective usually is not to draw a random sample from a population, and the method tends to be purposive. By purposive sampling, this thesis refers to a sampling method where a case of a particular type was sought after, specifically one that was unsuccessful in what the research is interested in, and provided access to a variety of experiences that fit with the purpose of the study (Blaikie & Priest, 2018, p. 173; Sovacool et al., 2018, p. 29).

This case is considered typical. "Typical case studies investigate common, frequently observed, representative, and/or illustrative cases." (Sovacool et al., 2018, p. 30). Disproportionately lower market penetration of EE than what should be expected is, unfortunately, *representative* of the EE industry, as the EE gap portrays. Companies that do not convince prospects where there is a business case could be perceived as *typical*, when looking at this outcome alone. The researcher does, however, not necessarily consider this as beneficial for the study and something that can speak against the case choice. This is because using typical cases can be challenging in acquiring distinct insights. Flyvbjerg (2004, p. 425) notes that the typical or average case often lacks the richness in the information that can be found in an atypical or extreme case, since they activate more actors and basic mechanisms in their given context. Examples of alternative cases appropriate for this study would have been companies that only use the risk-free model, have failed every time they tried to sell the concept, or are highly successful in selling it. This could potentially have revealed more pronounced success factors and vice versa for using the model.

Practical limitations and familiarity, however, have also influenced the case selection. Antonsen and Haavik (2021, p. 80) points out how lack of access to cases can restrict the case design, and that one must be prepared to be pragmatic. Qualifying and gaining access to informants who are relevant and willing to spend time on a research project is demanding, and having already established a connection and acquired a deep understanding of a

relevant company's operations made them a natural choice. To emphasize this last point, it should be said that the researcher interned at the case company and has even gained access to confidential information about their risk-free projects during this collaboration. Immersion in the field is also said to "(...) allow the researcher to better understand the context and the peculiarities of the phenomenon, thus creating strategies of data collection and analysis that are more appropriate and fruitful." (Hayashi et al., 2019, p. 106). Capitalizing on this effect and practical considerations finalized the decision on which case to study.

Case: Entro AS

The following is a brief report on the case. Entro is a Norwegian energy and environment advisor. Their market is the commercial property sector. They focus primarily on optimizing the energy consumption of the equipment their clients currently have. This contrasts with being an equipment provider. They do make suggestions on equipment purchases for their clients, but this is after assessing their current facilities, and they do not sell these themselves. This could make them a more interesting case, as this should give them more credibility in sales situations. Risk-free projects are not the predominant part of their business. Most of their business is in Norway, but they also have international business. The case's international experience could give useful insights into country specific and more global phenomena.

The case's study objects

The case company was asked to list everyone involved in selling risk-free EE services. This list of sales representatives became the study's pool of informants. The list, as well as time and resources, were scarce. The decision, therefore, landed on achieving *intensive* study on the few available informants rather than making other sampling concerns, as recommended by Blaikie and Priest (2018, p. 181). Prioritizing depth over breadth is also considered more important by some researchers (Sovacool et al., 2018, p. 29). Regarding sample size, there are few guidelines on what constitutes a large enough sample for qualitative research (Sovacool et al., 2018, p. 29). A bigger sample is deemed favorable for large and diverse populations, for example a nation (Sovacool et al., 2018, p. 30). Compared to a nation, the mass and diversity of actors engaged in EE services for the commercial sector pales in

comparison. The sample, therefore, was limited to the short list of informants provided by the case, who were available at the time, which was *six* in total.

So why were these informants chosen? This group of people are shaping how the service is sold, how the message is portrayed, and has the front row seat to how the message is received. They are in the epicenter of the communication and exchange of meanings related to the service. Detailed information about the selected informants is attempted to be anonymized to protect their privacy.

Exploratory approach

As discussed previously, the failed adoption of EE with risk-free offerings available in the commercial sector is not well documented, which led the research to become exploratory. “Exploratory research is necessary when very little is known about the topic being investigated, or about the context in which the research is to be conducted.” (Blaikie & Priest, 2018, p. 81). Since also the case to be studied either is well studied, learning about the context is relevant as well. The usefulness of exploratory research for this thesis therefore is to become more aware of what the situation is (Blaikie & Priest, 2018, p. 81). As opposed to testing a specific hypothesis (Sovacool et al., 2018, p. 18). Single case studies, like this one, are not suited to test a hypothesis either, but are useful for exploration (Sovacool et al., 2018, p. 30).

Qualitative methods

Consequently, this led to the use of qualitative methods, which are the most suitable for exploratory research (Ringdal, 2018, p. 25; Sovacool et al., 2018, p. 18). Qualitative methods provide “(...) discursive descriptions and exploring social actors’ meanings and interpretations.” (Blaikie & Priest, 2018, p. 200). Accordingly, they suit interpretive approaches (Sovacool et al., 2018, p. 28), as outlined in the thesis’ research philosophy and logics of inquiry. “Interpretive approaches aim to interpret the experience of individuals and to identify the meanings that those experiences hold, rather than looking only to establish causal inference” (Sovacool et al., 2018, pp. 28–29). Being an exploratory study, establishing causal inference is outside of the scope, and learning about these meanings is more in line with the research aims.

The trade-off in choosing qualitative methods above quantitative methods can be summarized as follows: 1) Breadth and generalizability is sacrificed on behalf of achieving depth, 2) generating new insight is prioritized above testing hypotheses, assessing correlations, eliminating variables and making quantitative predictions and 3) that qualitative methods more easily can be influenced by researcher bias (Sovacool et al., 2018, p. 32). At this point, becoming more knowledgeable about this lesser-known issue has been prioritized above controlling for what isolated phenomena that could be the cause. Achieving depth for a single case can also be more important than striving for breadth, as describing symptoms of the problem and how often they occur in a random sample can be considered less interesting than finding out *why* they occur (Flyvbjerg, 2004, p. 425). Underlining the reasoning for the use of a qualitative method, despite its deficiencies.

Data collection methods: Cross-sectional semi-structured qualitative in-depth interviews

Primary data was collected from the case. In other words, new data tailored to answer the specific research questions given by the research. The advantages of primary data are the possibility to control data production to fit the research problem and evaluate its quality. The disadvantage is the needed time to collect primary data (Blaikie & Priest, 2018, pp. 156–157). Since it is a lesser-covered topic, obtaining original data was still considered a must.

The chosen tool to harvest these data were qualitative in-depth interviews. The interviews were conducted with informants inside the case company in a semi-natural setting. This was the most suitable since both descriptions of their processes *and* reports on external parties were of interest (Blaikie & Priest, 2018, p. 162), as opposed to observing them selling the concept in real time. The informants were interviewed on one occasion; thus, the study is cross-sectional. The data present their opinions and descriptions at the time of data collection. The study did not pursue to look at change, but rather understand the current situation. A longitudinal design studying social processes or change was therefore deemed unsuitable. However, this also adds to the study's limited ability to provide explanation (Blaikie & Priest, 2018, p. 198), with no possibility to observe cause and effect.

Qualitative interviews "(...) can get close to the social actors' accounts of the social interaction in which they have been involved, and to their meanings and interpretations."

(Blaikie & Priest, 2018, p. 202). With one of the research questions seeking answers to the feedback received from potential clients, being able to investigate their previous social interactions is invaluable. Interviews, however, suffer from being vulnerable to interviewer bias and social desirability bias. On the other hand, interviews often provide a deeper understanding than surveys (Sovacool et al., 2018, p. 29). Showing the advantages and disadvantages of introducing the human element.

The interviews followed a semi-structured style with open-ended questions. The rationale behind semi-structured interviews is ensuring that the same themes are covered during all interviews, but without the strictness of structured interviews to obtain more elaborate responses (Qu & Dumay, 2011, p. 246). This method was selected since it is, according to Sovacool et al. (2018, p. 18), exploratory by nature, like this study. Semi-structured interviews are also often considered the most effective and convenient means of gathering information for qualitative research. Moreover, its flexibility allows the researcher to obtain the fullest responses from interviewees (Qu & Dumay, 2011, p. 246).

In addition, it provides the possibility of doing follow-up questions. This is valuable when respondents touch upon surprising matters that is not covered by the initial set of questions, leading to more complete answers (Qu & Dumay, 2011, p. 246). The interview guide was also equipped with *prepared* follow-up-questions designed to *challenge* answers from the prior question, such as “why do you do it in that particular way?”. This type of questions was prepared and improvised to obtain more interesting insights from the informants, than what is attainable from stand-alone questions alone (Hancké, 2009, p. 105). More room to improvise also means a bigger risk of influencing the respondents, compared to structured interviews. To try to mitigate this, researchers has to do their best to be neutral and not leading during interviews (Ringdal, 2018, p. 245). That the questioning will differ across interviews also implies less opportunity to compare answers (Qu & Dumay, 2011, p. 244). The study does not, however, strive to compare experiences, but to learn as much as possible about them.

Replicability issues and further justification for qualitative methods
Qualitative methods and especially interviews struggle with replicability. The data from these methods does not emerge without the interviewer’s interpretation and own reports of the

data (Hancké, 2009, pp. 91–92). For this study, the interviews were not recorded, and notes were taken during the interviews. That means there is no objective reference to the data. The process of taking notes *during* an interview, as opposed to purely transcribing, necessitates interpretation to produce comprehensible data while following the pace of the interview. Such interviews are therefore not appropriate for sound data collection but can function as a means to try out ideas and getting new ones (Hancké, 2009, p. 92), suiting the study's inductive case study approach of generating hypotheses from empirical material.

This has been done by giving very specific questions to check out certain elements, for example how they communicate, and asking general and more open questions to give the interviewees a bigger opportunity to elaborate more on their experiences, for example on what they believe have been the biggest challenges so far. An option here is to provide other data sources to corroborate the results, since the conducted interviews on their own are not strong enough to stand alone as a data source (Hancké, 2009, p. 92). During the analysis it will be referenced to other sources when discussing the data to support statements. More original and novel data from the study on the other hand stands on their own, without this support.

Study instrument

The interviews were prepared with an interview guide. The interview guide included about 60 questions, including sub-questions. The interview guide can be found in the end of the thesis, as an appendix. It was fully possible to have a more flexible approach with less preparations to be guided by, to have a more dynamic interview adapting more to the informants. Novice researchers, however, are recommended to have their interviews more prepared than more experienced ones, as a safety net. Still, being a semi-structured qualitative in-depth-interview, there was always the intent of taking advantage of the opportunity to improvise (Ringdal, 2018, p. 244). Notes were taken during the interview process to be able to work with the data after the interviews were conducted. The downside of this is that the mental resources used on notetaking, come at the expense of the ability to fully absorb all the information received by the informants (Ringdal, 2018, p. 246).

Interview questions

The questions in the interview guide were meant to reflect the research questions and translate them into interview questions. They were divided into four themes. The themes were as follows: sales process, sales technique, customer feedback, and the future of EE services. The first group of questions in the guide refers mainly to the research question about prospect identification. The case's process of finding and filtering prospects for risk-free deals specifically was under the scope, and what relevant characteristics these candidates have had for this model. They were also asked about the overall sales process, giving the respondents an open outlet to talk about how they approach this kind of prospects.

The next category of questions went primarily deeper into their sales communication. This was to get insight into the research question about how the concept is communicated, and what the sales representatives do to understand and manage their prospects concerns. These questions were inspired by the literature provided earlier on communication and sales communication, for example whether they asked questions to prospects about their needs. This was followed up by asking about prospects' response to these questions, to better understand prospects' motives. The third set of questions aimed at retrieving the concerns the sales representatives have perceived their prospects having. The last theme covered future opportunities and threats for EE in general, not limited to risk-free models. Taking advantage of the opportunity to interview these practitioners on what could enable and hinder EE forwards.

Field notes

This section will present details about how the data collection went. As mentioned, the researcher was able to reach six informants, which resulted in six interviews. The interviews were done either physically or digitally while they were working at their office or from home, during office hours. The first interview was conducted at the end of March 2023, and the last at the beginning of May. The interviews lasted between 1 hour and 15 minutes to 2 hours, on average about 1 hour and 30 minutes. During that time, informants should be assessed on whether or not they seemed cooperative and sincere during the interviews (Ringdal, 2018, p. 245). The researcher experienced the informants of being both sincere and fully cooperative

in the interviews. They were honest about potential shortcomings, and one of the interviewees showed great enthusiasm in hoping that the researcher could find an answer to the issue. The informants usually understood what they were questioned about, and if not, the questions were repeated or rephrased until they did. If the respondents had anything to contribute to a question they answered, and there was no experience of conscious or unconscious attempts to withhold answers. There was therefore no big need to challenge the respondents and guide the conversation too heavily. Before the interviews, it was expected that there would be some challenges that was not prepared for. The researcher did not, however, recognize any major difficulties during the data collection process. At times, notetaking would come at the expense of being able to fully listen, but not to a large extent. A potential major problem occurred when two of the interviewees said that they could not allocate the full time that was set up for the interviews. Despite this, both the interviews were conducted in full in an acceptable time frame for the respondents, without the interviews being rushed or otherwise compromised.

Method of data analysis and the use of the inductive case study approach

This research lacks a formal and structured form of analysis. There are, however, many qualitative studies that do not use any formal method of data analysis (Sovacool et al., 2018, p. 30). In addition, "(...) in-depth analysis of a case study might be too detailed to permit extraction of practical, generalizable insights." (Sovacool et al., 2018, p. 32). Sovacool et al. (2018, p. 32) also remarks that rigor in effective research can be achieved without using the most advanced and complicated method, and that trade-offs when having limited resources are key.

When discussing the study's data analysis, it should be mentioned that the study is shaped as an *inductive case study* (Antonsen & Haavik, 2021, p. 74). This study on the other hand is abductive, and not inductive. These logics of inquiry is similar in that they aim to produce descriptions, and not to test theories (Blaikie & Priest, 2018, p. 92). Sharing these traits should enable this approach to be adapted to this study, even though it does not translate perfectly. Why was this design desired? "It has a high potential of developing new concepts that can illuminate immature research areas and spur further theoretical development and

empirical research.” (Antonsen & Haavik, 2021, p. 74). The general research on barriers to EE is not what is considered here to be immature, but rather the research on failed adoption of EE in the commercial sector where risk-free options are available.

Inductive case studies also follows the study’s exploratory approach (Antonsen & Haavik, 2021, p. 74), explained by the mentioned fact that it is used in research areas not fully explored. The approach entails having theoretical hypotheses to originate from the research’s empirical material, and not to test predetermined hypotheses on it (Antonsen & Haavik, 2021, p. 74). This is deemed necessary to become more knowledgeable about the issue first, instead of testing individual theories. Which is more suitable considering this is not a deductive study with the aim of theory testing. The abductive logic used in this study also implies the desire to provide understanding, prior to explanation (Blaikie & Priest, 2018, p. 99). However, pre-existing knowledge on barriers to EE will be considered when interpreting the results, and theorizing with a clean slate is not the primary purpose of this study. The data interpretation will follow the abductive logic’s goal of translating lay accounts to technical accounts (Blaikie & Priest, 2018, p. 100), in order to extract insights from the study’s informants. Recognizing these technical accounts in the data to make use of already well-studied concepts is important to benefit from the knowledge provided by existing literature. Ignoring this could lead to missing out on established information on how to deal with already identified issues. Embracing the data without any assumptions could therefore mean neglecting the opportunity to take advantage of known insights.

Grounded theory was considered to work out possible theories regarding the issue. This is interesting because of the research’s retroductive approach, with emphasis on trying to discover underlying structures and mechanisms related to the issue. Because of the prominent literature on EE barriers, there is a relatively solid awareness on causes for failed adoption of EE. Approaching the data with no theories on what could be the case, and having this research taking upon itself to theorize would therefore be inappropriate and redundant. The fact of not being wedded to a particular theory beforehand is a prerequisite to using grounded theory (Sovacool et al., 2018, p. 30), making it unsuitable for these circumstances. For established research areas, there is a risk that new studies reinvent old insights using new terms, only resulting in having multiple concepts simply referring to the same phenomenon (Antonsen & Haavik, 2021, p. 74). Pursuing grounded theory would therefore

add limited value and exacerbate this problem. However, it should be said that qualitative research can be considered theoretically informed, but not always theoretically *determined* (Antonsen & Haavik, 2021, p. 71). Leaving space for this study to develop and explore concepts. As described earlier, the inductive case approach will be used, and generating hypotheses from the data will still play a role.

In conclusion, this research seeks to analyze the results by providing independent reflections *and* seeing the data in relation to other academic findings. This is based on the presumed novelty by exploring a new case, requiring some creativity in how to interpret the results, but with high emphasis on utilizing previous work in the field to understand the case.

Methodology summary

The research design entailed interviewing industry experts about the problem at hand, and thus engaging in interpreting their social reality. The cost-effective case-study design was preferred to collect new insights, despite its lack of breadth and generalizability, reasoned with the study’s exploratory intentions. Qualitative methods and flexible data analysis were chosen to facilitate the study’s motive of applying rich data for this purpose, even though it presents major replicability issues. Most of the research’s specific design choices are listed in the table below. Alongside them the purpose of the choices, and/or their advantages are presented, as well as their limitations.

Research design decisions	Advantages/Purpose	Limitations
Interpretivism (research philosophy)	To study social reality	
Abductive and retroductive (research strategy)	Provide understanding and reasons for observed social reality, and discovering underlying structures or mechanisms	Does not provide explanation and causes for the issue

Case study methodology	Cost-effective design suitable for lesser experienced researchers able to offer detailed insights into social actors	Small sample unable to obtain statistically generalizable results
Case selection basis: 'typical', practical reasons, familiarity, and purposive sampling	Accessible and familiar case for the researcher, that contains the interesting outcome to be researched	Lacks the distinctness of extreme or atypical cases that can limit the data richness
Exploratory	Learn about new contexts	Inability to test hypotheses
Qualitative methods	Suited for interpretive and exploratory approaches, by providing descriptions of social reality giving new insight	Lack of breadth and ability to assess correlations, eliminate variables, and make quantitative predictions
Cross-sectional primary data	Collection of new data tailored to the research problem, on one occasion	Less ability to explain by showing cause and effect
Semi-structured interviews	Flexibility and consistency to provide the most elaborate responses	Bigger risk of influencing respondents and less opportunity to compare responses
Inductive case study without formal and structured analysis	Ability to explore and extract practical insights	Inability to test theories
Summary	In-depth study interviewing experts to explore interpretations of failed EE adoption	Breadth- and replicability-lacking study unable to generalize without formalized analysis to confirm findings

Results and discussion

This chapter seeks to present and discuss results from the study's interviews. The research's main research question asks, "Why do actors in the commercial property market not adopt risk-free energy efficiency projects?", and it is through this lens that the chapter will interpret the collected data. To organize this chapter, the presentation and discussion are sectioned by the research's sub-questions. These sections will review responses related to their designated research question. The study's conclusion will provide a summarizing review of the sub-questions, repeating the research's main question.

How are risk-free energy efficiency prospects identified?

This section will address what characteristics the case company, Entro, said that they look at when assessing who is attractive and eligible for risk-free EE services. These traits reveal different barriers or enablers that affect what possibility there is for the company to want to initiate projects with someone, and the chance that they are interested too. This is interesting to discuss, as the feasibility of working with and interest levels of prospects make up the foundation for the penetration of this model. The provider takes a big risk when offering the service risk-free, and finding how to support that could make such services accessible to more energy users.

Agency and stakeholder issues

The potentially most depressing fact from the interviews is risk-free EE projects' role regarding the split incentive. The overall experience from the study participants is that it is a major hurdle to work with multiple parties in a project. This has resulted in that when they are identifying customers, they avoid candidates that rent their property. They also avoid property owners where their tenants pay for energy consumption, and not the owner. If it were to be a renter-owner relationship they would like to approach, they would want it to be only *one* tenant involved. Ultimately, this means that on-bill financing does not automatically resolve the split incentive. One example given by a respondent is that it is incredibly difficult to get a shopping center on board with a project, simply because there are so many parties that would have to agree. This issue has been seen in similar circumstances, for example, challenges with achieving majority votes for retrofits of multi-apartment buildings (D'Oca et al., 2018, p. 10). This is very concerning considering the scope of the split incentive. If a

project design that should be beneficial for both parties still fails to materialize, it is a big worry for the mentioned 3 800 PJ of energy that is affected by the issue. An owner should be interested in supporting their renters to improve EE, as this will increase the property value or give more competitive rent prices, even though it is the renters that suffer the cost on a day-to-day basis. A tenant should also be interested in this, as they could use this to negotiate a better price in the future. This reveals that there is a need to find out how to gain acceptance in situations with multiple stakeholders. The next paragraphs will present some examples of challenges that the presence of multiple parties introduce.

The issue of multiple parties presents itself in many ways. One respondent highlighted the significance of a client having as many parameters as possible under their control. Other respondents also discussed this as a requirement for initiating a project. When a prospect does not have control of their technical facilities, or shares this with neighbors, this complicates the process. If the owner is not on board, Entro will not be able to control and adjust the technical facilities, and thus not be able to execute the service they provide. Other parties can also interfere, whereas adjustments made by others to the technical facilities at a later point can negate the previous effort to achieve savings. There was an example of a candidate who was in an in-between position, where they could control most of their technical facilities, but did not have access to all of them. This was not considered ideal but provided enough grounds to initiate a project.

When Entro are doing their energy saving projects in properties with multiple parties, they will control the share of energy from a building that their client is responsible for. This is a part of the process of achieving appropriate measuring of consumption for their client, so they know how to aid them. In some situations, it also can turn out that the client is paying a higher share of the energy bill from a building than what can be attributed to them, and that Entro will achieve additional savings for the customer through this investigation. Some clients apparently have reservations against this because they have uncertainties related to their share. They are afraid that they will come in a worse position if a new share is calculated, and that their share turns out to be *higher* than what originally was attributed to them, resulting in higher costs. Even though they are aware that the calculation will be a part of a comprehensive effort to reduce their costs. It is easy to recognize that *loss aversion* plays a role in this process as well. “[D]oing something new may carry a high personal risk of

being blamed if it goes wrong” (Cardoso et al., 2020, p. 9). The perception is that it is better to leave it as is, than taking the personal risk of being blamed afterwards for ending up with a less favorable calculation. This reservation is one of the challenges with working with multiple parties that was said to contribute to the failed adoption of projects. Continuing the case of the shopping center, if several parties are meant to be part of the same contract, they also would have to agree to do a new calculation. A joint deal therefore requires even more actors to take this “risk” at once. If one starts to reflect on this, it is very concerning from a societal perspective that these actors not only rob themselves and society of efficiency improvements, but are avoiding it based on being speculative and not taking responsibility of their own consumption. Because of the speculative background for this resistance and the issue at large, it is possible to start discussing whether it is a need for a policy that in certain cases, or on a periodical basis, can enforce updates of how the energy bill is shared in properties with multiple occupants.

Operators, the keys to widespread EE improvement

As mentioned, Entro primarily works with optimizing their customers’ existing technology, and is not a product provider or installer. That means maximizing the effect of clients’ current technical facilities is key, and that this performance is maintained. For Entro to be able to ensure this, they need someone to follow up on their adjustments after they have assisted them. An important criterion in their customer identification is therefore whether prospects have the necessary resources to implement and maintain the adjustments. If no one can follow up on Entro’s work, they cannot deliver the promised savings, and there is no business case. According to one of the respondents, it was more normal among their international customers to outsource operations to external companies, whereas in Norway buildings usually have their own operator. Consequently, less resources or a looser relationship with the operator is challenging because it becomes more difficult to coordinate the measures, and the client may have to increase their spending on operations to obtain the desired energy savings. This complicates the process and will affect the viability of the project. There was also a case where they had to switch out the available competence, because it was not good enough to take care of the project. For some buildings, the available technical staff only do the absolutely necessary maintenance work. Others have also reported that technical staff, for smaller firms especially, may not have the time, or competence, to focus on energy

use considering all the other priorities they have (Thollander et al., 2007, p. 5776). It was also said that it has happened that the right resource was available, but it still failed to come through because the operator was not willing to join the project. Enough available and competent personnel is therefore another factor that can influence adoption of risk-free EE services. Suggesting it could be room for a policy demanding or providing competent operational resources for the currently understaffed buildings, to allow for better energy performance.

Multiple actors and operators can also serve a challenge together. There are cases where a larger tenant has its own operator and integrating them into the project was perceived as increasing the complexity of a project. Again, showing the difficulty of dealing with multiple stakeholders, and operators' important role in buildings' EE. When asking the respondents about the future of EE, one of the respondents introduced some good news on this topic. Operations services for buildings are developing, and companies like Entro will more easily be able to package such services into their offering. Another encouraging development is the possibility to control facilities from afar, where the consultant can do adjustments remotely.

Time and commitment

The notion of barriers to EE has already been covered in this thesis. Something that has not been elaborated upon yet, is the existence of drivers to EE. When discussing with the informants what kind of customers they are interested in, several of them gave descriptions that fitted well with some of the drivers that are identified in the literature. What is more unique to the risk-free version of Entro's offering, compared to a regular non-performance based deal, is that it is bound to a longer timeframe. This means that prospects must be more prepared for a long-term commitment. When describing who the model suits for, one said that it must be for someone who has a long-term strategy and are willing to commit, another one was on the same track, and commented that the commitment should be rooted in the business' management. These are some of the same observations that has been documented in the literature on EE drivers. Specifically, commitment by top management and a long-term energy strategy has been found to stimulate adoption of EE (Trianni et al., 2016, p. 1540). Arguably, a driver not being present could also be classified as a barrier, and the lack of these elements also provides reasons to why it has been so difficult to sell this solution. Clearer guidelines and/or stricter regulations would be beneficial for many

sustainability aspects, and it is apparent that such demands would lessen the need for private actors to have their own drive to improve efficiency.

The fact that clients must have sufficient time to administer the project was also mentioned in the interviews, and they stress to prospects that these kinds of projects are a joint effort. Time and operation resources are clients' main input to execute such projects, and thus become the biggest opportunity cost for adopters to consider. O'Malley et al. (2003, p. 121) found hidden costs to be the most important barrier together with access to capital for the sectors and countries they studied. Hidden costs being the extra costs incurred by adopting, including the extra time spent on evaluating options and managing the implementation. This suggests that hidden costs and time constraints are also prevalent when an adopter has an energy advisor to help them, and that alleviating them from seeking information about EE is not enough to resolve this. They still do not perceive that they have enough time to run their business as normal if they implement this, or that they risk sacrificing time on other activities they deem as more worthwhile. Independent of whether they could make the time for it, it triggers their risk and loss aversion towards investing in EE.

There have also been reactions to the long project model. Such a comprehensive timescale has been deemed undesirable by some, where prospects do not want to commit for that amount of time. Time can also be a problem if the prospect is uncertain about how long a tenant intends to be at the current site. This uncertainty has hindered commitment for a long project, if it is possible that they might move in that timeframe. Ideally should on-bill financing not have this issue, but as discussed, agreeing on this with other parties is a challenge.

Energy prices

A recent development in Europe is the big rise in energy prices. This has deemed more projects profitable, and made smaller projects profitable too, which in turn has enabled them to lessen the project scope in some cases. As previously mentioned, the timeframe has been seen as an issue by some. This development indirectly alleviates this issue, in addition to making energy savings more attractive in general. Increasing energy prices is one of the identified drivers to EE (Bunse et al., 2011, p. 667), corresponding well with this observation.

Later it will be presented that high energy prices also have had a surprising effect on how adopters evaluate the cost or valuation of the service.

Changes in activity

Having changing activity levels complicates suppliers' execution of performance-based services. Factors not ensuring stable energy usage will affect what baseline the company should set, what savings that can be attributed to Entro's measures, and how much energy there is potential to save. Businesses that intermittently produce products requiring energy use, or otherwise have their energy usage significantly affected by activities that are not constant, will therefore be technically more challenging to provide a fair baseline for, in addition to assessing their potential. This can be handled to a certain extent, especially if changes are planned. Unfortunately, they say it will still increase a case's complexity, thus serving another factor for who providers consider less feasible to work with. This is also unfortunate because industrial actors can be more interesting to them, because they have more energy use to optimize, but are also the main victims of this issue. Prospects naturally also fear that they will wrongfully have to pay more during reductions in production. An issue is also if a company has started taking some actions to improve EE. This would in turn influence the provider's baseline calculation, and the prospects are concerned that they will not be able to take this into account and make a fair baseline.

Energy metering

A prerequisite that can ease the qualification of customers significantly is that the client has an appropriate metering structure in place already. Sufficient measurement of consumption makes it easier for the provider to evaluate the business case, decreases the scope of the assignment by not having to ensure this first and therefore also lowers the cost of the overall project. Knowledge of the current energy consumption is, as mentioned, also essential to form the baseline that decides what savings Entro can charge the client for, and therefore necessary for this model. Without it, invoices for the model cannot be produced since there is less knowledge of the performance of Entro's efforts. Better overview is even more important if several tenants are involved, to rightfully distribute project costs. Insufficient metering thus has led to lower interest in pursuing some cases. Rohdin and Thollander (2006, p. 1841) have also found established energy metering to be important in EE adoption. It is interesting how they comment that metering is more decisive for bigger companies with

strict investment criteria. Here, however, the provider takes the risk, and they are responsible for the strict investment criteria, independent of the client's characteristics. Smart meters are more widespread in Norway, and this has been a bigger challenge for Entro abroad. It is therefore promising to see that for example Norway has made an effort of ensuring a better metering infrastructure (NVE, 2023), and that such developments are much needed. Access to metering is also something that has been even more challenging when there are multiple parties present. To ensure a good project, Entro ideally needs access to all the meters. Otherwise, this can result in bad measurements.

How are risk-free energy efficiency projects communicated?

An interesting fact that was mentioned on multiple occasions when I interned at the case company, is that they do not have a dedicated sales force, besides having a sales and a marketing manager. This could affect having the right competence to sell these services. However, I never experienced them as bad communicators, and I got introduced to the company through an impressive pitch. This has mainly been chosen as a topic to study since it is researchable to a certain extent and possibly prove to be a low-hanging fruit to work with. On the other hand, the fact they do not have certified sellers has an appeal in having high face validity as a potential reason to why they have struggled with these sales. Going through the communication with prospects effectively also revealed what they are concerned with, maximizing the insight from the interviews. This section will present and discuss how the model has been communicated, and an assessment of the communication between prospects and sales representatives.

Reaching out to customers

The first thing to consider is that this model is not something the company prioritizes selling to their customers. They do not base their sales strategy on finding candidates for this model, and then make an approach based on this. The respondents also miss a dedicated strategy for it. The model is rather used as a unique fit for selected clients, and they prefer a perfect match for using it. The project design involves significant risk for the provider, so this consideration is not made without reason, even though they also recognize the potential the model presents. Since they prioritize this solution less, they have less resources for it. Less marketing materials, less people drilled in selling and handling it and overall, less experience

of doing it. The first complication this brings is that the people they meet are predominantly presented with other services, which is understandable. Additionally, it can lead to business meetings where someone more suited to the model does not get a proper introduction to it, because not all Entro-representatives are as used to and comfortable selling it. Ultimately influencing their business partners' ability to assess all their options, where this offer will be crowded out. This comment was also made by a respondent.

Communicative competence, sales technique and handling objections to the sales proposition

Generally, all the respondents are adhering to best practice on the communicative techniques this study has familiarized itself with, including usually asking prospects about their needs and goals. Consequently, this also results in everyone being aware of adapting what they communicate depending on who they are talking to. For example, they emphasize cost reductions to those that primarily have an economic motivation, and the sustainability benefits for those that seek to comply with such demands. This corresponds well with my experience interning at the company, with the impression that the usual Entro-employee is *other-oriented* when communicating, which has been found to be a trait among competent communicators (Rickheit & Strohner, 2010, p. 19). An employee even said that they approach other contact persons for their prospect after a business meeting, to hear the initial reaction that was shared inside that company about what they presented, and learn what they considered important to adapt the message based on that.

They are also competent in handling prospects objections to the sales proposition. When prospects address their concerns, the sellers are trying to talk about how to work around the issue they present, argue against it and ask why they think something is a problem, highlight strengths, are transparent, and assures them that the problems that they perceive are not as big as they think. This aligns well with the procedures described earlier for handling objections. Particularly one example, where a seller tried to introduce the customer to the idea that the cost of time spent on the project, will be outweighed by the savings the project produces. This suggests that the sales representatives are ready and capable of answering the objections they are aware of and that are presented to them. However, as mentioned when detailing how to deal with objections, customers have things they will not let go of and

preconceptions, that may not become explicit either. Which will make this a recurring problem regardless.

Information overload, technical terms and feedback

As said, the qualification of customers for risk-free projects are more comprehensive, and the increase in the scope of the process naturally increases the information load. The complexity of the offering also enriches the information load decision makers must handle. This led one of the respondents to make the comment that there might be too much information but maybe not in terms of *volume*. There is no hiding in that these meetings involve many technical terms. Still, the sellers stress that they are trying to translate this to an easier language as they go. Sometimes their audience are technicians themselves, and they will read the room to adjust the language correspondingly. They are also continuously trying to make sure that their counterpart is following along, even when customers do not express that they do not understand, in addition to facilitate feedback and encourage the customers to ask questions. The business model especially is the sales representatives concerned with explaining properly, and presents this patiently, independent of what audience they have. The experience is still that this message is difficult to get across. A respondent brought up an example of someone who felt that they have to pay a lot for the service, but also perceived them at this point to not have fully understood that their energy bills will decrease equal to what they are paying.

One concern from one of the sellers is that because of the energy statistics, financials and profit-sharing element in the deal, there are a lot of percentages and numbers, which complicates and clouds the message. Continuing, the respondent says that there are many big and heavy spreadsheets that can be confusing, and that the financial side cause confusion because of high complexity. Surprisingly, the same person is among those less concerned that the client is met with an information overload, as long as they make sure to spread out all the details across multiple encounters but acknowledge that this can be a reality. Consequently, joining the group of informants that are more worried about the *complexity* than amount of information. On the other hand, Entro have made a respectable effort of making a graphical representation that precisely illustrates how the business model works, and trying to visualize is something they actively strive to do to communicate their message better.

One of the informants says that if the customer is positive from the beginning, they give them as much information as possible as early as possible. In contrast, if someone is more hesitant there is a tendency to be more selective and find common ground with the customer first. This seems reasonable and wise, but unfortunately, it shows that the total mass of information is complicating the process. The sellers cannot make a brief pitch, clarify early with the customer that they are on board with the project's incentives and conditions, and then expect the project to go smoothly. There is a set of gateways customers need to pass for the supplier *and* themselves to be willing to commit to a project. Because of this precaution, one of those that are afraid that there is an information overload, says that there is a balance between telling the customer the important things they will need to know to not get surprised during the collaboration, and not bring too much information. A consequence of this was when a client did not have the needed operation resources available after all, possibly as the result of not understanding what was asked of them. The result is that it has been experimented with more and fewer messages for these interactions. Many meetings also happen digitally, and catching when attendants lose track of what has been communicated to them becomes harder. A complication of the needed qualification of customers for risk-free projects is also that it elongates the process, and the sellers notes that it requires a lot of communication to materialize. Leaving a bigger risk of it breaking down before potentially being initiated, because of all the needed correspondence.

Since risk-free projects is not the company's main strategy, this usually appears as an alternative during a customer interaction, and not as something they discuss from the beginning. The first encounter will therefore usually not be based on talking about this offer and be more of an introductory meeting. An unintended benefit of this procedure is that the sellers often will be able to open them to this idea in the first meeting, and then do a dedicated meeting on it later to go into the details, thus spreading the information load. Overall, they try to reduce the information load, and instead opt to schedule multiple meetings as it would not be possible to come through with all the details at once. Initially it is emphasis on the model and what Entro need to know to continue the process, where they rather take a new meeting later for those interested in hearing more details. Minimizing the project scope is also something they are inclined to do in some situations, if the prospect is resistant towards a bigger project, and helps them in reducing the information load.

Customer references

Prospects are interested in seeing references to cases that are like them. The sellers say that this is not needed to know whether they can deliver value to the client at hand, but that the market would prefer to see this. One of the mentioned success factors for positive customer interactions was when they were shown good results from prior customers, and having an internal representative that could clarify things for the other sites within the same business. Entro also acknowledges that they have few good references using this model, which limits their ability to assure different customers. Besides this internal representative, they do not have any customer reference that they actively bring to meetings or that communicate directly to prospects. With regards to its potential and their positive history with it, recruiting an active customer reference should therefore be an interesting opportunity to pursue for the case company. A seller is also saying that they should improve on referring to customer stories in their marketing, when asked about new possibilities to commercialize the service in the future.

Message framing

For the most part, the sales representative frame their offering as an opportunity. Only one of the informants is inclined to mostly frame their offer as a means to avoid a threat. Usually giving them the honest opinion that without the aid of their service, they will not be competitive anymore. A sort of “tough love”-approach. Someone else frames the risk-free version of their offering more as an opportunity, as it is more of a savings-oriented option, and not as wholistic in dealing with other threats, such as compliance to regulations. Another opportunity-oriented messaging was to emphasis not having to take the financial risk and make available the initial outlay, or upfront cost, and that this was an option that made them able to act. This person experienced a good response using this message and did not feel the need to make a narrative around all the demands that companies are facing, and felt the positive angle was working. One of them considered using a threat-based picture as riskier to convince the prospect, but also used this framing for what could happen if the customers do not act on it, such as regulations. Another one used the changing energy prices as a talking point, where the prospect’s untapped potential in saving energy was presented as an opportunity. Many companies have targets they have to meet, which can be what is fueling their interest. A seller used this to say that the offer is an opportunity to reach those goals,

but also that their lack of ability to allocate funds makes going for a risk-free project their only option. Usually, this person asks about what financial means the client has, and when a lack of access to capital is identified, a risk-free project is presented as an opportunity to circumvent the issue.

With respect to fact that business executives are more inclined to take note of event descriptions that align with being a threat, EE companies maybe should consider using a threat-based narrative in the *early* stages of a customer relationship. Instilling this way of thinking from the beginning might imprint the message better, potentially improving the chance they will act on it later. This should be reinforced by making a strong emphasis on how they are making losses now and will in the future by proceeding as is. For example, they can say that their excess energy usage is draining them for money each month and hurting their competitive edge, and that not meeting up to environmental requirements will eventually doom them. Effectively presenting the same problem as leaky pipes. The logic here is to trigger the prospects loss aversion to the maximum extent, as losses occupies business leaders more than gains.

What concerns do prospects of risk-free energy efficiency projects have?

This section will bring to light reasons different energy users are hesitant to adopt risk-free energy services. There is an overlap between the sought after insight in this and the first question, as the criteria the case company uses to identify customers includes considerations to who might be hesitant to adopt. What follows here will therefore be the remaining aspects that hinder prospects.

Performance indicators

Again, Entro is mostly concerned with optimizing the usage of the current technical facilities. There are, however, few incentives to gain recognition from lowering *actual* usage, as opposed to theoretical usage. Buildings usually have an energy grade, that describes the buildings energy performance. But this is based on how good the building *could* perform, not how it actually performs (Enova, 2011). This is unfortunate, as the climate does not care about theoretical consumption. There is generally not enough awareness about the difference between an energy grade and what constitutes efficient energy use. The result of

this is that businesses do not have the same pressure from their board or similar stakeholders to reduce their actual consumption, as they will predominantly be measured on gaining these theoretical classifications instead. The lack of goals they have to answer to regarding such actions also adds to the unwillingness to commit to *long* projects.

When asked about the future of EE, one of the comments repeats that many demands are revolving theoretical usage, and that for example banks should rather give demands on usage relative to the building mass, and not based on energy grades. On the other hand, Entro also meet many candidates that have been pushed by management, tenants, financial institutions, or other stakeholders to improve on sustainability metrics and/or reduce costs. A related observation in regard to what businesses are measured on, can be seen in the timing of when their performance of goals is reviewed. Some have goals that say they are meant to have regular emissions reductions. This model emphasizes reductions early in the project period, this is disadvantageous for such clients, since they cannot show that they are achieving steady emissions reductions to the same extent. From personal experience I have heard this type of target setting also can result in businesses discussing whether they should implement measures they are ready to implement now or wait in case they will not be able to reach next year's targets. Such targets are therefore disincentivizing taking as much action as possible as early as possible. This is unfortunate, because the proposed decarbonization scenarios emphasis that most of the emissions reductions need to come early in the suggested pathways (United Nations, 2022). Another organizational issue is that as a cost control initiative, some businesses will at times not allow spending on consultants, by budgeting these expenses to zero. Obviously, this can be very counter-intuitive in the long term, when considering cost-reducing options such as optimization of energy use done by competent consultants. The consequence is, again, failed adoption of EE.

Comprehensive offering

As mentioned, these projects are not a quick fix. Entro takes on significant risk for such projects, and the contracts the clients are meant to sign are comprehensive. One of the respondents therefore perceives this as intimidating for prospects. This has led the case company to minimize the project scope, when possible, if they see this as a source of hesitation. A related academic finding for this issue is that firms do not undertake all the recommendations they receive from energy audits, where they leave out some of the

beneficial investments and have a tendency to choose the smaller ones (Iskin, 2011, p. 4). Arguably, businesses prefer fewer risky variables, in accordance with the mentioned risk aversion. In general, there are multiple experiences of it being difficult to reach out to the prospects when explaining this offering. The model takes them more time to go through than regular projects, which puts more demands on the customers' attention. This is not promising when considering the suggested effect bounded rationality has on EE adoption, as described earlier. Limited attention can obstruct decision makers from taking optimal decisions, since they will lack the optimal knowledge to base the decision on. Entro has introduced a split sharing element to the contract, where the client receives a bigger portion of the savings when they save more. This is a positive incentive for the buyer, needed for them to follow up on the measures, but also adds more details to the offer. A part of the complexity this adds stems from the feasibility study prior to fully initiating a project. Here they assess the site they plan to work with, to evaluate the potential and possibilities to save energy. The issue is that the study fee must be covered first, before Entro allows the customer to take part in the profit sharing. This element adds to the comprehensiveness and complexity that can intimidate clients.

An interesting observation is that several prospects deem the deal to be "too good to be true". They insist that there must be something the provider is hiding, or concealing, that would make the offering less attractive than it appears to be. This is what one of the sellers deem to be one of the biggest challenges in selling the service so far, to serve a simple explanation that convinces them that this is not the case. Consequently, also being one of the things this person also recognizes as a need for the future, finding out why some in the market find it too good to be true and pinpointing what they should market to the customers. Effectively, these prospects think it is a case of asymmetric information in their disfavor. Their thinking is that it is likely that the deal must disproportionately favor the seller, and thus not result in a net benefit for the customer. Ironically, it is proof of what power on-bill financing has in answering the main barriers to EE, and that there is a case of asymmetric information. Trust's role as a barrier can therefore not be stressed enough. The sellers have recognized that the minute a performance-based contract is on the table, as opposed to regular deals, the buyers become very concerned with having the correct baseline to base their invoicing on. Even though finding out the customer's prior usage is part of non-

performance-based deals too. Setting the baseline is not an exact science, making it difficult to fully reassure the customer on this area. The use of this concept is therefore increasing the complexity of selling this model.

Another aspect is convincing the market about the nature of the service. The first reaction they receive after presenting the concept is often “But what are you actually doing?”. This is because Entro achieves the savings without the emphasis on installing new equipment, but predominantly optimizes the current equipment. If the service obtains the value they are claiming, it must be some kind of witchcraft. What is offered is perceived as very intangible, and hard to grasp for clients. It is also a limit to how much detail Entro can provide before familiarizing themselves with the specifics of the site, and the counterpart takes these measures upon themselves. It has happened that a client has tried to be opportunistic, and hijack recommendations as their own ideas before project initiation. One of the sellers also notes how for example industrial actors prefer to work with physical investments, as this is what they are used to assessing.

Technical staff

A seller have experienced it being tougher to sell to a client’s technicians, than business people. Business representatives are most interested in the monetary value of the project, while technicians wants to know more about the technical details. They are also the ones who can get more doubtful about the baseline calculation and become argumentative on this subject. As mentioned, some have hesitations about what Entro provides, and it is difficult for the case company to elaborate on all the minor adjustments that creates the savings. It is also the technicians, or operators, that will work with the supplier during the project, and it is natural that they seek reassurances. Ultimately, some have become defensive, because the changes will prove that their current facilities can be considered mismanaged so far. That the equipment has not been optimized to its full potential. There are, on the other hand, cases of technicians who want to go deeper into details as a learning opportunity. People who want to assure that they recognize a difference in it from what they are already doing.

Concerns related to operations

One of the concerns prospects have had is whether the measures influence operations, staff and/or products. In a study by Thollander and Ottoson (2008, p. 27) risk of production

disruptions rank as the largest barrier. The same study also mentions industry actors' fear of poor performance on new equipment purchased to improve EE. In Entro's case, they rarely require interruptions in production, and say to prospects that their projects in principle shall not change anything, except energy usage. So, if this is successfully communicated, this is not a hindrance when contact has been made. It still illustrates that this is a concern that can hinder taking the initiative oneself to improve efficiency, or have doubts, despite whether it is a real threat. Proper communication thus becomes important to accommodate for the current lack of information, or state of imperfect information.

Price concerns

Entro is trying to use real energy prices when they value savings using this performance-based model, which reflects the customers' opportunity cost. Still, there has been dissatisfaction with this because energy prices are so high at the moment. They perceive them to be taking advantage of the situation, even though this is the true valuation of the service. The feeling is that the supplier is doing very little compared to what the customer pays. This is despite the fact that customers receive a share of the profits after the feasibility study is funded.

The future of EE

The respondents were also asked a set of questions where they gave their opinions and insights on what they think about the future of EE. This falls somewhat outside the scope of this study, but also provides a proactive contribution to assessing the coming threats and opportunities to EE. The relevance of this is also proven by the fact that some of these insights were used during the discussion of the core research questions. Relevant and interesting contributions from this data material will be highlighted here.

They all consider risk-free projects to have a bigger role in the future, but never to be the preferred and most used model. Lack of capital and higher energy prices is thought to affect companies' ability to make the financial outlay for conventional projects, promoting these projects. In addition, the increasing demands to improve efficiency will rally more to act, forcing those who are not eligible for other projects to make use of this opportunity. Multiple respondents mention how Netherland is set to ban renting out properties that has a low energy label (Pascoe, 2022), and all of them recognize that more demands are necessary to

follow through on the green shift in time. According to one of the respondents, there is a trend that property companies are hiring sustainability advisors. This was recognized as a positive trend as it will increase these companies' competence in what they should adopt, including a better ability to recognize the potential in EE. More awareness in the industry should be beneficial to reduce the impact of imperfect information.

One of the respondents highlighted the possibility of using energy grading more actively as a sales strategy. By offering basic energy consultancy services first, they can make additional sales when they have identified the customer's needs. A program providing energy audits with a 50% discount showed high adoption rates on the proposed measures (Thollander et al., 2007, p. 5776), suggesting this can be a fruitful strategy to promote more EE. Another promising development for energy audits is the opportunity to scan buildings, which also gives the possibility of consulting on a building remotely. This can make the process of assessing buildings more efficient. Especially if the building is far away from the advisor, which reduces the needed physical visits, or even makes them obsolete, reducing costs. In addition to remote assessments, there are also developments enabling controlling buildings' energy use remotely. An additional factor that can open for reduced costs and the possibility to work with more types of cases.

Ideally, they also want an open access source for commercial buildings' energy consumption. This would suggest who they should target, and they can refer to this information when selling to businesses they have identified in this way. At this moment they have to go more blindly into the situation of their prospects in the beginning of a sales process. In relation to metering, there is also a request that there should be more requirements for the metering structure in buildings, for example having one meter for each tenant. As mentioned, the distribution of usage between tenants creates uncertainty as to who the energy use can be attributed to.

Generally, the respondents call for more awareness on EE. Not surprising considering the role of imperfect information in the market. One suggestion is to increase the reporting requirements of businesses, with the possibility of comparing oneself to others and see how one's building perform with similar buildings, so companies can become aware whether they perform well on energy usage compared to peers. Additionally, the buildings this database consider to performing below acceptable standards, should be informed of this by the

government with suggestions on what to do and who to contact. Where this could also be used by those who perform well for promotional purposes. On a related note, one of the sellers shared competitors' efforts in EE to trigger customers' competitive instincts during sales pitches. There are multiple observations on peer pressure's effect on adoption of sustainable technologies. In some U.S. Cities "Enough building owners have erected photovoltaic panels, replaced their lighting, and installed energy management systems so that their competitors have taken note and perceive that tenants may soon prefer such appurtenances in their buildings." (Yeatts et al., 2017, p. 83). This corresponds well with our need for *conformity*, which influence us to do like others (Kaufmann & Kaufmann, 2015, p. 429). Finding ways to facilitate this could therefore be worthwhile in triggering higher EE uptake.

This paragraph will summarize respondents' comments on what policies they want more of to enable more EE. In addition to monetary support for audits, they also want subsidies for execution of services and investments in equipment for their customers. One of the respondents' comments that it is not the most profitable measures that need subsidies, as they pay themselves, but rather the less financially viable ones. The example given being solar panels, taking longer to finance, but is a part of the measures needed for deep decarbonization. They also want the government to be clearer about what businesses shall report and how. For the risk-free model, they want help in developing the deal structure, promoting and legitimizing it – referring to the experienced mistrust and lack of awareness, financial support for those who want to partake in the model, that the government could take part of the risk, loan from the government instead of private investors, and financing the projects' feasibility study. Public initiatives to increase overall awareness of EE were also sought after. It was also deemed interesting if there could be research done on how to establish energy users baseline energy consumption, that would, among other things, legitimize this part of the process.

Conclusion

None of the observations or interpretations made here are meant as final conclusions, and this study has never claimed to produce any generalizable findings. It is, however, a body of research that has tried to explore the realm of barriers to EE adoption further, with emphasis on failed adoption when risk-free options are available. This is a contribution to the factors to consider when discussing this topic, and more insights for decision makers to work with. Some of these insights will now be highlighted before the study comes to an end.

On-bill financing or risk-free projects have a large potential in resolving the split-incentive and enable widespread EE adoption. The solution can ensure that the adopter is never left worse off, even if it decides to move away from its adopted EE initiatives. So, “Why do actors in the commercial property market not adopt risk-free energy efficiency projects?”. The mere presence of different stakeholders is unfortunately enough to inhibit adoption, where the inability to achieve agreement between different parties stops initiatives from materializing. The recurring theme for the parties involved is a lack of information and trust in how the uptake of EE can benefit them, and a loss aversion denying interest in trying something new. Risk-free EE services have the promise to relieve the commercial property market from having to allocate funds to EE, the requirements to be able to offer these services risk-free are, however, not negligible. A comprehensive and complex offering distances the client from the very own value proposition it represents. The value in energy savings is clouded by technical tweaks, conditions, and incentive structures.

The need for EE and other climate mitigation efforts persists, and the need to ensure their diffusion is ever present. This study calls for further research in how to make efforts in EE understandable and relatable for decision makers. The complexity of climate concerns and the measures to mitigate them must be broken down to feel relevant and attainable for actors across industries. They must recognize the value of these measures if they are to adopt them.

References

- Antonsen, S., & Haavik, T. (2021). Case Studies in Safety Research. In K. P. Gould & C. Macrae (Eds.), *Inside hazardous technological systems: Methodological foundations, challenges and future directions* (First edition). CRC Press.
- Blaikie, N. W. H., & Priest, J. (2018). *Designing social research: The logic of anticipation*. Polity Press.
- Bukarica, V., & Tomšić, Ž. (2017). Energy efficiency policy evaluation by moving from techno-economic towards whole society perspective on energy efficiency market. *Renewable and Sustainable Energy Reviews, 70*, 968–975.
<https://doi.org/10.1016/j.rser.2016.12.002>
- Bunse, K., Vodicka, M., Schönsleben, P., Brühlhart, M., & Ernst, F. O. (2011). Integrating energy efficiency performance in production management – gap analysis between industrial needs and scientific literature. *Journal of Cleaner Production, 19*(6–7), 667–679. <https://doi.org/10.1016/j.jclepro.2010.11.011>
- Cagno, E., Worrell, E., Trianni, A., & Pugliese, G. (2013). A novel approach for barriers to industrial energy efficiency. *Renewable and Sustainable Energy Reviews, 19*, 290–308. <https://doi.org/10.1016/j.rser.2012.11.007>
- Cardoso, C. A., Torriti, J., & Lorincz, M. (2020). Making demand side response happen: A review of barriers in commercial and public organisations. *Energy Research & Social Science, 64*, 1–18. <https://doi.org/10.1016/j.erss.2020.101443>
- Coley, D. A. (2008). *Energy and climate change: Creating a sustainable future*. John Wiley.
- de Groot, H. L. F., Verhoef, E. T., & Nijkamp, P. (2001). Energy saving by firms: Decision-making, barriers and policies. *Energy Economics, 23*(2001), 717–740.
- D’Oca, S., Ferrante, A., Ferrer, C., Perneti, R., Gralka, A., Sebastian, R., & Op ‘T Veld, P. (2018). Technical, Financial, and Social Barriers and Challenges in Deep Building Renovation: Integration of Lessons Learned from the H2020 Cluster Projects. *Buildings, 8*(12), 1–25. <https://doi.org/10.3390/buildings8120174>
- EERE. (n.d.). *Energy Efficiency*. <https://www.energy.gov/eere/energy-efficiency>
- Enova. (2011, March 1). *Energimerking.no—Hva betyr energimerket for meg?*
<https://www.energimerking.no/no/Energimerking-Bygg/Kjopeleie-bolig1/Hva-betyr-energimerket-for-meg/>

- Fleiter, T., Worrell, E., & Eichhammer, W. (2011). Barriers to energy efficiency in industrial bottom-up energy demand models—A review. *Renewable and Sustainable Energy Reviews, 15*(6), 3099–3111. <https://doi.org/10.1016/j.rser.2011.03.025>
- Flyvbjerg, B. (2004). Five misunderstandings about case study research. In C. Seale, G. Gobo, J. Gubrium, & D. Silverman (Eds.), *Qualitative Research Practice*. Sage Publications.
- Gerarden, T. D., Newell, R. G., & Stavins, R. N. (2015, January). Assessing the Energy-Efficiency Gap. *Harvard Environmental Economics Program*.
- Hancké, B. (2009). *Intelligent research design: A guide for beginning researchers in the social sciences*. Oxford University Press.
- Hayashi, P., Abib, G., & Hoppen, N. (2019). Validity in Qualitative Research: A Processual Approach. *The Qualitative Report*. <https://doi.org/10.46743/2160-3715/2019.3443>
- IEA. (2007). *Mind the Gap—Quantifying Principal-Agent Problems in Energy Efficiency* (pp. 1–219). <https://www.iea.org/reports/mind-the-gap>
- IEA. (2014). *Capturing the multiple benefits of energy efficiency*.
- IEA. (2019). *World Energy Outlook 2019*. IEA Publications.
- IEA. (2021a). *Energy Efficiency 2021*. <https://www.iea.org/reports/energy-efficiency-2021>
- IEA. (2021b). *Net Zero by 2050* (pp. 1–222). <https://www.iea.org/reports/net-zero-by-2050>
- IEA. (2008, March 20). *IEA urges overcoming market barriers to increased energy efficiency in buildings*. IEA. <https://www.iea.org/news/iea-urges-overcoming-market-barriers-to-increased-energy-efficiency-in-buildings>
- Iskin, I. (2011). Literature review on adoption of energy efficient technologies from a demand side management perspective: Taxonomy of adoption drivers, barriers and policy tools. *Proceedings of PICMET '11*, 1–16.
- Kaufmann, G., & Kaufmann, A. (2015). *Psykologi i organisasjon og ledelse* (5th ed.). Fagbokforlaget.
- Kloke, S. (2014). *Pay as You Save or Save As You Pay? An evaluation of on-bill financing models for energy efficiency improvements* [Master's thesis, Lund University]. IIIIEE.
- Koponen, J. (2021). *Sales communication competence in modern B2B relationship selling* [Doctoral dissertation]. University of Eastern Finland.
- Kotler, P., & Keller, K. L. (2016). *Markedsføringsledelse* (4th ed.). GYLDENDAL AKADEMISK.

- Kuczmariski, T. D. (2003). What is innovation? And why aren't companies doing more of it? *Journal of Consumer Marketing*, 20(6), 536–541.
<https://doi.org/10.1108/07363760310499110>
- Lyse. (2021, February 24). *Oppgradering av strømnettet*.
<https://www.lysekonsern.no/virksomhet/stromnett/oppgradering-av-stromnettet>
- NVE. (2023, June 8). *Smarte strømmålere (AMS)*.
<https://www.nve.no/reguleringsmyndigheten/kunde/stroem/stroemkunde/smarte-stroemmaalere-ams/>
- O'Malley, E., Scott, S., & Sorrell, S. (2003). *Barriers to energy efficiency: Evidence from selected sectors*. Economic and Social Research Institute.
- Pascoe, R. (2022, June 2). *All landlords to face new energy efficiency requirements*. Dutch News. <https://www.dutchnews.nl/2022/06/all-landlords-to-face-new-energy-efficiency-requirements/>
- Qu, S. Q., & Dumay, J. (2011). The qualitative research interview. *Qualitative Research in Accounting & Management*, 8(3), 238–264.
<https://doi.org/10.1108/11766091111162070>
- Rickheit, G., & Strohner, H. (Eds.). (2010). *Handbook of communication competence*. Mouton de Gruyter.
- Ringdal, K. (2018). *Enhet og mangfold samfunnsvitenskapelig forskning og kvantitativ metode* (4. utg). Fagbokforl.
- Rohdin, P., & Thollander, P. (2006). Barriers to and driving forces for energy efficiency in the non-energy intensive manufacturing industry in Sweden. *Energy*, 31(12), 1836–1844.
<https://doi.org/10.1016/j.energy.2005.10.010>
- Rohdin, P., Thollander, P., & Solding, P. (2007). Barriers to and drivers for energy efficiency in the Swedish foundry industry. *Energy Policy*, 35(1), 672–677.
<https://doi.org/10.1016/j.enpol.2006.01.010>
- Sardianou, E. (2008). Barriers to industrial energy efficiency investments in Greece. *Journal of Cleaner Production*, 16(13), 1416–1423.
<https://doi.org/10.1016/j.jclepro.2007.08.002>
- Sovacool, B. K., Axsen, J., & Sorrell, S. (2018). Promoting novelty, rigor, and style in energy social science: Towards codes of practice for appropriate methods and research

- design. *Energy Research & Social Science*, 45, 12–42.
<https://doi.org/10.1016/j.erss.2018.07.007>
- Sudhakara Reddy, B. (2013). Barriers and drivers to energy efficiency – A new taxonomical approach. *Energy Conversion and Management*, 74, 403–416.
<https://doi.org/10.1016/j.enconman.2013.06.040>
- Thollander, P., Danestig, M., & Rohdin, P. (2007). Energy policies for increased industrial energy efficiency: Evaluation of a local energy programme for manufacturing SMEs. *Energy Policy*, 35(11), 5774–5783. <https://doi.org/10.1016/j.enpol.2007.06.013>
- Thollander, P., & Ottosson, M. (2008). An energy efficient Swedish pulp and paper industry – exploring barriers to and driving forces for cost-effective energy efficiency investments. *Energy Efficiency*, 1(1), 21–34. <https://doi.org/10.1007/s12053-007-9001-7>
- Trianni, A., Cagno, E., & Farné, S. (2016). Barriers, drivers and decision-making process for industrial energy efficiency: A broad study among manufacturing small and medium-sized enterprises. *Applied Energy*, 162, 1537–1551.
<https://doi.org/10.1016/j.apenergy.2015.02.078>
- United Nations. (n.d.). *Sustainable Development Goals*. Retrieved May 28, 2023, from <https://sdgs.un.org/goals>
- United Nations. (2022, April 4). *The Evidence Is Clear: The Time for Action Is Now. We Can Halve Emissions by 2030*. <https://unfccc.int/news/the-evidence-is-clear-the-time-for-action-is-now-we-can-halve-emissions-by-2030>
- Yeatts, D. E., Auden, D., Cooksey, C., & Chen, C.-F. (2017). A systematic review of strategies for overcoming the barriers to energy-efficient technologies in buildings. *Energy Research & Social Science*, 32, 76–85. <https://doi.org/10.1016/j.erss.2017.03.010>

Appendix: Interview guide

Sales process

What is your overall sales process for risk free energy efficiency projects?

How do you identify targets for risk free energy efficiency projects?

Are there any particular characteristics in potential buyers you have tried to avoid during the search?

What characteristics have the potential buyers you have approached had that you considered important for their suitability towards risk free energy efficiency projects?

Did they have any characteristics you deemed less favorable to be interested in risk free energy efficiency projects?

Have there been any parties trying to contact you first interested in these services?

If yes, can you describe them and give relevant characteristics about them regarding their suitability for the service?

Sales technique

Do you ask potential customers about their goals at the beginning of the process?

If yes, what are their goals?

Do you ask for other thoughts they have about the process at this stage, for example fears, assumptions, intentions, needs, wants or similar?

If yes, what are they?

What value propositions are you emphasizing in sales situations?

Why are you emphasizing those in particular?

How do you portray the need for your service, is it presented overall as an opportunity or more as a way to avoid a threat?

Why are you portraying it in that manner?

What terms are needed to explain the service?

How do you translate these in simpler terms for the potential buyers?

Are you asking the customer questions to assess their needs?

If yes, what questions are you asking the customer to assess their needs?

How do they answer these questions?

Do you ask questions to check whether or not they understand your message?

If yes, do potential buyers say that there is anything confusing about risk-free energy efficiency projects?

If yes, what?

Why do the potential buyers' find these aspects confusing?

Are you afraid that potential buyers are affected by an information overload when presented with the service?

Are you taking measures to reduce the information load?

If yes, do you try to spread your message across several encounters?

If yes, do you try to reduce the number of messages you communicate about the service?

To which extent do you use customer references?

Have you considered running any pilot or small scale projects on a lead so they can “try before they buy”?

If not, is it feasible?

If yes, have you been able to do so?

If yes, how did it work out?

Are your marketing efforts and capabilities scaled and developed to fully support the business, or could that be changed in order to strengthen it?

Is there anything in particular you perceive as lacking?

Customer feedback

Do potential buyers say that there are elements about risk free energy efficiency projects that are in conflict with their interests?

If so, what interests do they say that are threatened in their opinion?

How do they describe that it conflicts with their interests?

How do you deal with these objections to the sales proposition?

Do potential buyers have any issues regarding the fairness of the calculation of their reference consumption?

If yes, does that lead to price concerns?

Do potential buyers have any issues regarding the price rate on energy savings?

If yes, what are their concerns?

Do potential buyers have any issues regarding the profit sharing system?

If yes, what are they?

What do you recognize as the biggest problems encountered so far to selling risk free energy efficiency projects?

What have been key success factors for positive encounters with risk free energy efficiency projects so far? (positive: requested a new meeting, accepted offer...)

The future of EE services

How do you perceive the future of energy efficiency services in a commercial sense for your company?

What role do you see risk free projects play in the future?

Do you see other opportunities for how to commercialize the service in the future?

Are there other developments, for example technology, coming related to the service itself that would influence adoption in the future?

Do some of this have a special impact on risk free EE projects?

What new technology, knowledge or other resource could enable more diffusion of EE?

Is there anything in particular that would enable risk free EE projects?

Based on your experience selling it, how is it necessary that the public change their view of EE to close the EE gap?

What could the government do to assist your deliverance of EE services?

Is there something they could aid in specifically to enable risk free energy efficiency projects?

What opportunities and threats do you recognize for the future of EE services?

Do you see any particular opportunities or threats to risk free EE projects?