Energy Efficiency in the Built Environment of Paris and Amsterdam

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This Master’s thesis examines how the cities of Paris and Amsterdam are currently dealing with energy transitions and how they are trying to improve energy efficiency throughout each city, especially in regard to urban renewal. My interest lies in the discovery and comparison aspects of this research. I chose this subject and conducted the research independently as I was unable to find an internship due to the fact that I do not speak Dutch. I chose the cities of Paris and Amsterdam as I wanted to include at least one Dutch city as this is the country in which I did my Masters. I also thought it would be more interesting to compare it with a city in a different country. For this I chose Paris because I had a grandmother who lived there who was able to accommodate me while doing my research. I then found Amsterdam to be the most comparable Dutch city to use for a number of reasons explained in the thesis.

With this thesis, I hope to contribute knowledge on the many ways different cities approach energy efficiency in urban renewal, as well as the many layers of understanding necessary for this comparison, including the comparison of planning systems, energy systems and social norms.

I would like to thank my supervisor Professor Linda Carton for her guidance, support and patience throughout this process. I would also like to thank all those who responded to my emails requesting interviews and who allowed me to interview them. Their input was crucial in making this research possible. I would also like to thank all my friends and family who helped get through this. Finally, I would like to dedicate this work to my French grandmother, Geneviève Boutroy, who died this past summer while I was writing.

Katya Boutroy

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ABSTRACT

There are multiple different ways to approach energy efficiency and energy transitions; there is also no known certain right or best way. However, cities and countries all around the world are having to find ways to increase energy efficiency, while trying to transition away from the use of traditional fossil fuel based energy systems. Additionally, most cities already have an established built environment and cannot just start over and build everything back up from scratch. This is where urban renewal comes in. It is crucial that cities be able to transition their existing built environments simultaneously and in-tune with the energy transition. This research will look exactly at this challenge, using the cities of Amsterdam and Paris as case studies and limiting the comparison to the European Union. Amsterdam and Paris are two cities that have a number of similarities that make them interesting subjects for comparison. Both cities have a number of older buildings and limited space to grow outwards. It is important for the cities to be able to make the most of the existing space within the cities, and here lies the importance of urban renewal. As the climate is changing and the need to stop using fossil fuels grows, the importance of energy efficiency also increases. Therefore, looking at and comparing how different European capitals approach energy efficiency in urban renewal can provide insight on what works and what can be improved upon. It also highlights how different planning and governmental systems can affect different approaches in this field.

Keywords: Energy Efficiency, Urban Renewal, Built Environment, Energy Transition
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LIST OF ABBREVIATIONS

BREEAM Building Research Establishment Environmental Assessment Method

EU European Union

GHG Greenhouse Gases

GPRU Grand Projet de Renouvellement Urbain (Great Urban Renewal Project)

PLU Plan Local d’Urbanisme (Local Urbanism Plan)

PADD Projet d’Aménagement et de Développement Durable (Sustainable Development and Planning Project)

WGBC World Green Building Committee
CHAPTER 1. Introduction

The cities of Paris and Amsterdam are both important European capitals with rich cultural backgrounds. Both cities, although quite different in population size, face many similar issues in planning for future growth. Among these challenges is the need to create more living spaces to accommodate ever their growing populations. Amsterdam’s port city status and proximity to water is one contributor to this limitation, while Paris is already surrounded by numerous suburbs and cannot efficiently keep expanding outwards. The cities also face issues in air quality, water, mobility, and a desire to increase green spaces. As these cities work towards finding ways to grow in our increasingly climate-change-aware world, it is becoming more and more important to find ways to decrease the amount of greenhouse gases (GHG) being released into the atmosphere as well as our carbon footprint as whole. Amsterdam and Paris are both taking an active role in increasing their respective sustainability, notably in the field of increasing each city’s energy efficiency.

Increasing energy efficiency is a huge task and encompasses a number of sectors, therefore, this thesis will focus on how the cities of Amsterdam and Paris are working to increase energy efficiency in the built environment. More specifically, the focus will be on how their efforts to increase energy efficiency affect urban renewal projects.

1.1 Research problem statement

This research will take two major world cities as “case studies” to explore how each city is addressing energy efficiency, especially in urban renewal projects. First, the research will focus on how each city operationalizes planning for sustainability/energy efficiency (here I include the term sustainability to encompass all efforts not directly relating to energy efficiency that are, however, linked and are relevant to the cities’ efforts to increase energy efficiency). This will look at the scale of the planning (which aspects are coming from the municipal, provincial, and national levels). The research will then look at the city vision documents and identify the cities’ goals that relate to energy efficiency in the built environment. It will also look at what each city is doing in terms of energy efficiency and urban renewal. Following that it will try to identify if the cities seem to be following their vision documents and seem on track to attain their goals and how they are proceeding. It will explore what kind of policies and legal means the cities might be using in planning for energy efficiency in the built environment. Finally, it will compare the ways the two cities deal with planning for energy efficiency in the built environment. Conclusions on the similarities and differences between the planning strategies and implementation techniques of the two cities will then be drawn. These will keep in mind the initial research on operationalization of planning for energy efficiency as well as existing differences between policies, planning systems and approaches in the two cities/countries and how these may affect operationalization and implementation.

1.2 Research aims and research questions

The aim of this thesis is to look at how different cities are addressing the issue of sustainability while lessening the impact they are having on the environment. It will introduce, in a general sense, the methods cities use in increasing their energy efficiency and then it will provide a more detailed look at the way these cities deal with planning for energy efficiency. It will aim to explore and highlight differences and similarities in policies between the countries/cities and how they are dealt with. This thesis will be a comparative study between two capital cities: Amsterdam and Paris. It will look at each city’s plans for increasing sustainability and energy efficiency, as well as how these plans can affect urban renewal projects within each city.
**The main research question:**
In comparison, are Paris’s and Amsterdam’s urban renewal plans and projects in sync with each respective city’s energy efficiency policies and objectives as stated in their vision documents?

**Research questions:**
1. What municipal/national policies/regulations regarding planning systems and energy efficiency exist in each country/for both countries?
2. What energy efficiency goals (according to the stated visions) does each city have? What aspects of these goals affect urban renewal projects?
3. To what extent is urban renewal a major component in planning for energy efficiency in these cities?
4. Is the urban renewal process of the city in sync with its goals?

In asking this question, it is also necessary to define the meaning of “being in sync”. In this paper being in sync will be defined as the building sector actively working towards achieving the goals set by the municipality while still having the opportunity to bring new innovation to an open and welcoming municipality. This process is also open to adjusting policy when necessary to accommodate the stated energy efficiency goals. For this to be successful, a good rapport and bi-directional process will be indicators of urban renewal project being in sync with energy efficiency goals. To help operationalize “being in sync”, the following four sub-questions have been developed:

- Does the city have and enforce strict regulations?
- Does the city monitor progress based on its goals?
- What are the ramifications for failing to comply?
- Does the municipality/private sector companies look for energy efficiency when choosing between projects and approving proposals?

These questions will be used in the case study chapters, to help clarify and separate concepts and thoughts, as operationalized sub-questions of what it means to be ‘in sync’ with policy goals. In the final conclusion chapter, the overall concept of “being in sync” will be used, as this concept is stated in the main question.

### 1.3 Scientific and societal relevance

**Scientific Relevance**
Although there has been a fair amount of research on what sort of measure could be taken to help increase energy efficiency, little research exists looking specifically at the cities of Amsterdam and Paris and how they are addressing energy efficiency, especially in the context or urban renewal. Sunnika (2006) does address policy instruments in order to try and overcome numerous obstacles. Although some aspects are still valid, this paper is somewhat outdated as it dates from 11 years ago and energy efficiency policy, at least in the Netherlands, has come a long way since 2006.

Andersen and Skrede (2016) noted that in Oslo, municipal plans do not line up well with real estate developers as developers are able to diverge from the vision principles with no fear of sanctions. From this, we can note how important sanctions can be, however, this work focuses more on issues
of social sustainability than on energy efficiency. Therefore, although there is some overlaps, many areas remain open.

Woolthuis et al. (2013) look at what they describe as the wicked problem of institutional entrepreneurs playing an important role in sustainable urban development by using certificates and standards to try and help alter the formal institutions (specifically in the Netherlands as this paper uses Dutch case studies). However, it addresses the issue of sustainability and not specifically of energy efficiency. Although there are important notes to be made from the results of this work, it does not address the specifics of energy efficiency in urban renewal. The paper does, however, suggest tools which may be helpful in implementing further energy efficiency measures.

Androutsopoulos and Spanou (2017), examine actions taken to stimulate investment in retrofitting buildings with the aim of increasing their energy efficiency. It uses recommendations from Energy Performance Certificates (EPCS). It also describes the use of online applications to access and attract more users, while presenting available energy efficiency technologies to the wider public. It also supports the EPC recommendations with the final goal of helping the EU meet its 2020 and 2030 energy efficiency goals.

Societal relevance
As the climate around the globe is currently changing at an increasing rate due to the high levels of greenhouse gases being detected in the atmosphere, it is becoming increasingly important to address this issue. It is equally important to slow the changes happening due to the increase in greenhouse gases. One way to help address this is through the numerous climate agreements and climate related goals being set. These goals and agreements, however, can only be effective if they are indeed followed. It is also important for society as a whole to be able to see that progress towards achieving these goals is being made and that there are areas in which they might be able to feel as though they are participating. Energy efficiency is a good example of this as it helps to bridge the gap between the “crazy goals” filled with number and percentages than can seem overwhelming. Energy efficiency can become something which ordinary people, even those uninterested in climate change, can see an appeal for and understand the importance of. The importance of ensuring energy efficiency goals are being met is also important as people can see and feel the effects. If someone has an inefficient house that is renovated to be more energy efficient, they will see an improvement on their energy bills. Renovations can be expensive, therefore, it can be helpful to include the use of policies and incentives to help renovations include energy-saving measures. Of course, the public will need to be made aware of the incentives and cost savings. Finally, as a part of a society that has first of all caused an unnaturally fast change to be occurring in the climate, and as a part of the society that will have to live on the earth as this climate change occurs, it is incredibly relevant to look into energy efficiency in urban renewal as a small part of what may help mitigate the impact humans are having on the climate.

As a whole, it is important to look at energy efficiency in the built environment of major world cities, especially in light of the growing number of climate change agreements, goals and conferences. Looking specifically at energy efficiency within urban renewal projects is raising the issue in a more serious way as the numerous cities in the world that cannot be built up from scratch for a multitude of reasons. This means that in a practical sense, it is necessary to actively and successfully include energy efficiency in urban renewal projects when looking at ways to retrofit buildings. Therefore, in order to be able to evaluate the effects of having and setting goals at, for example, the recent Paris agreement, it is necessary to ask whether plans and projects are truly in sync with the energy efficiency policies and objectives (as stated in the vision documents) of each city.
CHAPTER 2. Theory

Introduction
In order to be able to conduct the empirical research necessary with direction and purpose, a theoretical point of departure is necessary. This is both to first compare planning systems and then be able to compare how these two different and unique cities deal with energy systems, energy transitions and, of course, energy efficiency. This theoretical framework will help in analyzing, comparing, and understanding how the cities deal with their respective challenges in these areas and how to develop policies to help bring about change. In order to build this explorative framework, three main themes have been selected to help understand and describe the case studies. These three themes will have a core author and a number of further supporting authors.

The first theme selected is the comparison of planning systems. Since the two cities used as case studies are found in different countries, this means they likely function within different planning systems. It is crucial to be able to understand how the planning systems differ as this may affect the approaches the cities may take in dealing with different matters. The core author for this section is Panagiotis Getimis who has developed a framework specifically for comparing planning systems. His theory has been chosen over others because his work focused on comparing planning cultures in Europe and because he highlights the aspects of scale of government and policy styles, two aspects that seem to be particularly important when it comes to relating back to energy efficiency.

The second theme selected is the theory of change and transition as described in the 2017 World Green Building Council (WGBC) report and is supported by the works on transition by Rotmans (2001). This theme has been selected due to the fact that both cities are currently in transition from a high consumption, carbon-based system to a sustainable and energy efficient world. This is important to understand and keep in mind when comparing because although this may be the long-term end goal, cities do not generally function on such long-term plans and must function by smaller incremental steps. Therefore, an understanding of change and transition is necessary to be able to better understand what stage current developments may be at, as well as where they may lead. This author and report were chosen as the core of this theme because Rotmans provides detailed specific descriptions of transition and transition management on the long scale, while the WGBC report looks specifically at change and transition in the built environment with a focus on working towards net zero carbon. Therefore, these two together provide a deeper and more topic-specific understanding than each could on their own.

The third theme selected is probably the most important and really address the core issues the most. This theme is the implications of change and the link between society and energy systems. The connection between energy systems and society is especially important as this work is dealing with two different societies and energy systems. The core authors here are Elizabeth Shove and Gordon Walker (2014). This work also addresses energy transitions but on a smaller scale than in the previous theme. This theme is, in a way, the basis, culmination, or underlying theme of this whole work because, if one is not able to understand how societies and the energy systems they use function and differ, then it would be very difficult to see, perhaps even impossible to apply, the most appropriate and efficient changes. This is also a crucial step in comparing the two cities and understanding why different approaches may exist or be more or less successful. This core author was chosen as their work is rather unique in the joining of energy systems and society. These are two very important aspects to the final understanding and comparison of two cities within different countries.
2.1 Comparing planning systems

Theory of Panagiotis Getimis
Comparing how two cities in different countries address a certain planning issue, namely energy efficiency in urban renewal, is quite a challenge. To be able to compare how two cities address and deal with the issue of energy efficiency in urban renewal, it is necessary to first compare the planning systems within which these cities function. However, comparing planning systems is in itself a challenge. Panagiotis Getimis (2012), describes the many challenges that come with comparing planning systems in “Comparing Spatial Planning Systems and Planning Cultures in Europe. The Need for a Multi-Scalar Approach”. It is important to understand the differences between the French and Dutch planning systems as the way the two cities approach the issue of energy efficiency in urban renewal may differ due to differences in planning systems. Therefore, a good understanding of the differences between the planning systems allows those differences that may be due to differences in said systems to be easily identified. The identification of the reason for differences can also be helpful when looking to understand how, if one city is doing something particularly well, this could (or could not) be applied to the other city.

Getimis (2012) brings up a number of important issues to take into account when comparing planning systems among which the article aims to highlight “those neglected aspects, i.e., scale, actor constellation, knowledge and policy styles”. Three arguments referring to the contributions and limitations of comparative planning studies are laid out in the paper, these are as follows:

First, comparative planning studies tend to overemphasize the governmental, institutional and legal structures at the national level neglecting cultural aspects and lacking a multi-scalar approach.

Second, existing typologies or the ideal types of comparative studies could not explain the ways in which globalization, Europeanization, deregulation, and rescaling of the state, intensify competition between regions, cities and localities and increase the heterogeneity of the European territory.

Third, institutional context, legal traditions and rationalities do matter and should be further elaborated and complemented with the inclusion of other cultural aspects of planning at different scales (Getimis, 2012).

This third point is especially interesting in the case of Paris and Amsterdam as institutional contexts, legal traditions, and rationalities as well as further cultural aspects such as the history and evolution of planning cultures within the two countries do differ. This will be discussed further in chapters 4, 5, and 6.

The defining of certain terms is also important as is highlighted by Getimis (2012): “The term ‘planning culture’ is not a scientifically defined term, and there are different definitions of planning cultures to be found in the relevant literature (Fuerst, 2007, 2009). Planning culture is used synonymously with the term ‘planning style’”. This is especially relevant to this research as it will be important to compare the planning culture or style of France and the Netherlands.

Another point Getimis brings up is “policy styles”, the term introduced in the 1980’s by Richardson et al. (1982). Policy styles is defined as “policy making and implementation style, reflecting deep-rooted values in every society” Getimis (2012). This again is an important factor to consider when comparing the French and Dutch planning systems. The term “steering style”, introduced by Fuerst (1997) is similar to the policy style idea and tried to sort different approaches to problem solving. The differences in steering style express different “human potentials” which include “not only ‘human capital’, but also the values, perceptions, and mentalities (e.g., labor ethos, flexibility,
performance orientation, etc.) of actors in collective actions in each region” (Getimis, 2012). As with planning style, steering styles are also divided into four different types: “Democratic-cooperative, Democratic-competitive, Corporatist and Paternalistic”.

Fuerst proposes a typology of ‘Steering styles’ based on the dichotomies control vs. consensus (command and control/hierarchical orientation vs. networking/arguing/bargaining orientation) and polycentric vs. polarized (relations between subsystems, actors, networks) (Getimis, 2012).

Although ‘steering style’ is mostly used in reference to regional governance, it essentially aims to sort and classify different approaches which governing agencies take to help control the direction and approaches they take, and is applicable to all levels of government, Getimis (2012).

Johannes Suitner (2014) looks at why the same planning approaches can result in completely different outcomes around the world. This clearly links back to the idea of planning cultures referenced by Getimis. In fact, Suitner uses the paper by Getimis to build an analytical framework delineating local planning cultures (Figure 2.1).

Heidrich et al. (2016) also support the idea that cultural, historical and planning traditions should be considered in assessing climate change efforts in their paper “National climate policies across
Europe and their impact on cities strategies”. This paper which coincidentally looks at (among many others) both the Netherlands and France, offers an interesting basis for comparison.

Tulumello (2015) also agrees with Getimis on the importance of planning cultures and uses his description to define the meaning of the term: “planning culture refers to the role perceptions, values, interpretations, beliefs, attitudes and collective ethos of the actors involved in planning processes” (Getimis, 2012). She further emphasizes that, “The approach of planning cultures, applied through in-depth case-study research, can help understanding how global processes are (or not) able to (re)shape national planning systems and local practices” (Tulumello, 2015). She finishes by quoting Getimis (2012) on the need to avoid the dominance of “Paradigms”.

Through these few examples it seems fairly clear that of those who have read and cited Getimis (2012), most seem to be in agreement. However, as there are not enormous amounts of texts referring back to Getimis (2012), it is possible that his work was a first of its (specific) kind and does not have much to go up against. In this way, it would seem that Getimis has in fact created a sort of “standard” in comparative planning with his emphasis on planning culture.

**Applying these findings to compare the planning systems of Amsterdam and Paris**

In his 2012 paper, Getimis provides an outline or framework that will be used as a base to compare the French and Dutch planning systems. As mentioned by Getimis (2012), there is a need for a multi-scalar approach in order to be able to best understand and compare the two systems.

It is necessary for this research to compare the planning systems in order to best understand the contexts in which Amsterdam and Paris are working. It is possible that significant differences in how the two cities deal with energy efficiency exist, but that these differences are mainly due to differences in the context and planning systems that the two cities are working in.

It is important to be able to identify differences. However, it is even more valuable to analyze these differences and understand why they exist so that it could then be possible to understand whether these can be applied to different contexts or how they might need to be adapted to be applied elsewhere. It is even possible that although something may be extremely efficient in one city or one planning system, that it would be completely useless in another. If this is the case, although it might be disappointing to find out what one might have hoped to be an easy quick fix will not work, it can also help save time and money on the rolling out of the project. Therefore, to help with this comparison, we will mainly use Getimis (2012).

It would also be naive to assume that even if the planning systems are perfectly compatible, that the different cultural practices of the two countries/cities would not also affect efficiency and effectiveness of different measures which could be seen as potential solutions. Shove (2014) makes a point to emphasize the fact that these differences are important and even more so in ways other than just how different cultures may react. But also in that different cultures may have different ways of using energy and therefore, may need different approaches in order to become more energy efficient.

As mentioned above, Getimis (2012) advises using a multi-scalar approach. He suggests that for this comparison to be most effective it should focus on three interrelated aspects: “(a) the actors’ constellation and power, (b) the knowledge forms/ ‘knowledge orders’, and (c) the policy styles”.
2.1.1 Actor constellation

Under (a), Getimis (2012) states that the interdependence between institutions and actors means the institutional context does influence but does not have sole control over the “action arena”, defined as “action situations, actors” by Ostrom (2007). Ostrom (2007) emphasizes the importance of the link between actors and institutions, through the words of Scharpf (1997) and Ostrom et al. (1994):

Actors have the ability to mobilize resources for action, to develop discourses and practices, in ways that can change institutional conditions” (Scharpf, 1997). Whereas, “On the other hand, the institutional context influences and affects actors, in that it constitutes the initial conditions, the framework for the actors to interact (Ostrom et al., 1994).

Getimis (2012) also specifies that non-institutional frames such as identity or resource, which would be based on social constructs such as beliefs, expectations, values and attitudes of the actors will affect actor constellations (Getimis, 2012). This point in particular is also supported by Johannes Suitner (2014). This remark becomes especially important in this comparison between the planning systems and practices in Paris and Amsterdam as the two cities are situated in different countries. Due to this it is clear that they function under different bureaucratic and legal systems. However, it is also important to take into account these non-institutional frames and how they might cause actors to interact differently under similar situations due to cultural differences between the two countries. The composition of the actor constellation across the two cities may also vary due to potential differences in governance mixture or regimes which Getimis refers to as state, markets, and Networks. However, actor constellations may also differ due to differences in scales (Getimis, 2012). This intrusion of scale being a notable player in actor constellations is one of the reasons why a stakeholder analysis did not end up being worth doing for this research, this will be elaborated on in Section 3.2.1.

This being said, the importance of analyzing and comparing governance structures remains. First, in comparing the two planning systems. Second, as an essential tool in understanding and describing how the two cities deal with trying to increase energy efficiency as well as how they deal with urban renewal projects. The issue of governance structures is addressed in greater details in Section 2.2 on the theory of change.

2.1.2 Knowledge forms and knowledge orders

The following aspect Getimis recommends focusing on in a multi-scalar approach is (b) “Knowledge Forms/‘Knowledge Orders’” (Getimis, 2012). This links first to the previously mentioned governance structures, or “modes”, as these might “mobilize and disseminate knowledge in different ways” (Getimis, 2012). Getimis (2012) emphasizes the fact that these “knowledge orders” can change as new knowledge is generated as well as through the loose coupling of different knowledge forms in different situations. Understanding this is crucial in understanding “why different localities cope with similar planning problems in different ways” (Getimis, 2012).

An “ongoing debate over how knowledge is constituted, mobilized, used, exchanged and disseminated in spatial action situations” (Getimis, 2012) among various experts exists, however, there is also a useful typology which distinguishes between different forms of knowledge. This typology was developed by Matthiesen (2008) and has been empirically tested. It separated knowledge into three forms: “(a) Scientific/Professional\Expert knowledge, (b) Steering/Institutional knowledge, and (c) Local/Everyday/Milieu knowledge” (Getimis, 2012). These differentiations could
be helpful in comparing planning systems in that one can compare how each form of knowledge is being used in each system and could help provide an explanation as to “why different localities develop different strategies concerning planning problems” (Getimis, 2012).

2.1.3 Policy styles

The third aspect Getimis recommends focusing on is (c) “Policy Styles”. Policy style which has been defined by Richardson et al. (1982) as:

policy making and implementation style, reflecting deep-rooted values in every society (country-national level) (Richardson et al., 1982).

Richardson et al. (1982) developed a sufficiently simple and flexible typology that has since been used in numerous cross-national European comparison studies (Getimis, 2012). This typology proposes:

four culturally defined Policy Styles, concerning approaches to problem solving (anticipation/active vs. adaptation/reactive) and to government relations to other actors (imposition vs. consensus) (Getimis, 2012).

Fuerst (1997, 2003) developed a similar concept adapted more towards differences on the regional scale. He uses the term “steering style” to describe it and takes into account differences in “values, perceptions and mentalities (e.g. labor ethos, flexibility, performance orientation, etc.) of actors in collective actions in each region” (Getimis, 2012). This typology is based on “control vs. consensus and polycentric vs. polarized” and also has four types. It tries to explain why some regions under the same “general conditions (institutional and legal framework)” tackle problems differently or more efficiently than others (Getimis, 2012).

While both of these ways to classify and describe policy styles have value in trying to compare Paris and Amsterdam, it is likely that the former, developed by Richardson et al. (1982), would be of greater use as it is unlikely that the two countries will be functioning under the same institutional and legal frameworks. However, if these do resemble each other sufficiently, it is possible that Fuerst’s (1997,2003) typology may also be helpful in an attempt to further understand why the two cities may tackle similar problems differently.

Therefore, this research will use actor constellations, knowledge forms and orders, policy styles along with the comparison of institutional aspects. In order to add further depth to the comparison, a closer look at the way the two cities or societies use energy will also be considered. In staying with Elizabeth Shove and Gordon Walker’s (2014) (Section 2.3) ideas of the strong link between the way society and energy interact and the social changes that may come with energy transitions.

2.2 Theory of change transition


This research will also look at the theory of change proposed and well described in the 2017 World Green Building Council Report. In this report, the authors aim for all new buildings to operate at a net zero carbon level from 2030 onwards, and want all buildings new and old to operate at a net zero carbon level by 2050. This is a very ambitious goal or vision. However, the authors of this
document do approach it in a way that makes this goal seem achievable. They also analyze the current (2017) state of the market. In this section, they identify three main barriers to the adoption of net zero building:

Perceptual: “Since high-performing net zero buildings have not been embraced as business-as-usual, assumptions spread that these buildings must be technically difficult and not solid financial investments. Ambiguity and uncertainty – as to whether the goal of such projects should be focused on carbon or energy, zero or nearly zero, what technologies should be deployed, the requirements and parameters for energy efficiency and renewable energy – persist in the market. These valid points of discussion result in market confusion that has stalled momentum.”

Technical: “Net zero carbon buildings are high-performing buildings and, therefore, require expertise, client demand and technical know-how to deliver a building that actually achieves net zero carbon emissions in operation. The technical skills needed throughout the building design and operation process are not necessarily widespread, even in more established markets.”

Financial: “there is evidence that net zero buildings currently have a higher upfront cost than other green buildings and non-green buildings, most of the research and evidence has focused on net zero energy buildings – which is much harder and likely more expensive to achieve than net zero carbon buildings” (WGBC report, 2017).

The authors of this report also lay out how these can be overcome through a market transformation which would need input from the business sector, the government and NGOs. This transformation would work slowly at first but then pick up the pace in a sort of snowball effect which resembles the commonly seen ‘S curve’. Rotmans et al. (2001) describe transition management in a similar way:

A transition can be seen as a spiral that reinforces itself; there is multiple causality and co-evolution caused by independent developments (Rotmans et al., 2001).

Efficient transition management is essentially what is happening/what will need to happen as the world moves to more energy efficient practices. This means major changes will occur in multiple different arenas and levels, “transitions are multi-dimensional with different dynamic layers, several developments must come together in several domains for a transition to occur” (Rotmans et al., 2001). The need for developments from several domains to come together participates in the typical slow start up seen in the “S curve” (see Figure 2.2). It is not until this all finally comes together that there is a real take off. Rotmans et al. (2001) describe this at the conceptual level with four distinct phases:

· A **pre-development** phase of dynamic equilibrium where the status quo does not visibly change.
· A **take-off** phase where the process of change gets under way because the state of the system begins to shift.
· A **breakthrough** phase where visible structural changes take place through an accumulation of socio-cultural, economic, ecological and institutional changes that react to each other. During the acceleration phase, there are collective learning processes, diffusion and embedding processes.
· A **stabilization** phase where the speed of social change decreases and a new dynamic equilibrium is reached (Rotmans et al., 2001).
Figure 2.2 The four phases of transition (Rotmans et al., 2001)

It is also important to note that transitions are not usually very quick processes and in general would span around a minimum of 25 years (Rotmans et al., 2001). As transitions require introductions of new rules, policies and practices as well as a “fundamental change of assumptions” (Rotmans et al., 2001), there are necessarily bumps along the way and not all changes will happen with the same speed or accelerations along the way.

Looking at Energy transitions in specific, it is first of all clear that not all countries will transition the same way, at the same time, or with the same speed. This principle affects cities, and buildings as well, since the transition to, for example, net zero carbon buildings is essentially just a small part of a much larger energy transition happening worldwide. This just begins to highlight how many layers exist, managing these transitions is, therefore, clearly a challenge. Rotmans et al. (2001) describe the aim of transition management as being about “working towards a transition that offers collective benefits in an open, exploratory manner” (Rotmans et al., 2001).

Rotmans et al. (2001) give government more of a leading role in transition management “not by acting as the great commander, enforcing change, but by inspiring a collective learning process and encouraging other actors to think along and participate” (Rotmans et al., 2001). They also specify that all levels of government have a role to play, while national governments can quite effectively participate in creating visions, mobilizing other actors and inspiring change, local governments have to deal with the more practical side as they are closer to the citizens (Rotmans et al., 2001). This leads to them having “tasks” in areas closely linked to social transformations:

such as environmental planning, house-building and waste. Local conditions can permit radical experiments (such as car-free town centres or city heating) for which there is no wider political mandate (Rotmans et al., 2001).

This however, in a way, gives them a greater freedom to innovate and a possibility to move faster in some domains. Either way, the role of government evolves through the different phases of transition. Rotmans et al. (2001) charge government with providing guidance and promoting variation in the pre-development phase, they also attribute this as the most effective role of the government. The government, however, also has the potential to help create a greater demand for
change, which can then help reinforce changes the government may be trying to institute. In a sense, the government has the most powerful role in the pre-development phase as it can really help instigate developments and support changes while also participating in creating visions and guiding the market. This is one of the reasons why in this research I have found it necessary to focus so strongly on government.

The theory of change focuses on the market as the central element and government, business and NGOs as the additional players. Therefore, the setting and tracking of the world GBC’s goals will be critical in assessing progress and evaluating how the theory of change can be applicable.

![Figure 2.3 Theory of change from world GBC report](image)

Figure 2.3 Theory of change from world GBC report

However, unlike in the report, in this research there is a stronger focus on government, more specifically on a smaller, local scale as this research focuses on comparing the approaches two cities are taking. This being said, it is necessary to include higher levels of government such as the European Union and national governments as well. Therefore, it is useful to look at some authors who have also used government as a focus. This being said, the idea presented in the WGBC report of changing the market in order to push change in all sectors does seem very practical.
The notion that action from multiple levels of government is necessary and useful can be seen in a paper by Westley et al. (2011). In this paper, they look at the need for the world to transition to more sustainable forms of energy; they also look at how innovation could, if it were more focused on this goal, help make this happen much more quickly. However, a problem the authors point out is that innovation has in our current system “served as the principal means of economic value creation, rather than as a means to reduce our impact on the biosphere” (Westley et al., 2011). This ties in with the idea behind the WGBC’s focus on changing the market because a change in the market could cause a redirection of innovation. If this were the fact it would be profitable to create new sustainable technologies as proposed by the idea of a changing market, then this could help create much faster and more efficient change. However, Westley et al. (2011) do recognize that although there is a need ecologically for “sustainability transitions” they “recognize that these may require radical, systemic shifts in deeply held values and beliefs, patterns of social behavior, and multi-level governance and management regimes” (Westley et al., 2011). Here, the importance of looking at multiple levels of government (and governance) is reiterated.

The authors of the World GBC report attribute different roles to the different groups in order to help the global embracing of net zero carbon built environments along with the stimulating of the market as demand and supply increases. The theory is that as each sector takes action, they build on the momentum which has been created by the other sectors and help create even greater momentum, which will help encourage and inspire further adaptation and innovation. This will then, through increases in skills and capacities, decarbonising of grid systems, job creation and boosting of economies, create conditions under which the zero-carbon market can start to thrive. Of course, for this to actually happen as desired, governments, businesses and NGOs need to coordinate and support the drive for net zero carbon buildings.

To help with this likely rather difficult aspect, the report has a section on calls to action for all three sectors. The authors suggest some moves the sector should make as well as how the sector will benefit; they also provide some case study examples of successful projects. It is clear that as this is a major undertaking, there is a need for leadership examples to help convince the masses.

Essentially, the calls to action for businesses revolve around investing in net zero assets rather than fossil fuel emitting assets. This practice is not necessarily the current norm as these types of investments often have much higher up-front costs. However, the benefits are quite interesting when it comes to asset value:

As the real estate investment market responds to the call to combat climate change, net zero carbon assets will have the lowest operating costs and be the most derisked and, therefore, highest-quality assets (WGBC report, 2017).

There are also major benefits when it comes to resilience as “Low or zero carbon investments are increasingly seen as the leadership path for many businesses, which signals prioritisation of long-term resiliency and is attractive to investors” (WGBC report, 2017). Finally, it is also a good way for large companies to show their corporate social responsibility. The benefits do not only affect large businesses, developers also benefit from creating net zero carbon buildings as these are becoming increasingly attractive to tenants and investors who could benefit from lower operating costs. For owners and managers, net zero carbon buildings offer an opportunity to increase rents and attract “higher quality tenants”, both of which will then increase the asset value.

Tenants will also find benefits from renting out space in a net zero carbon building as energy costs will be lower which can be especially beneficial for smaller businesses and “energy-intensive businesses” (WGBC 2017). This change can also be good for the company's reputation.
The calls to action for national governments revolve around committing to developing national regulations in order to reduce emissions from buildings in both the public and the private sector. The calls to action for “sub-national” governments such as cities, or regions are essentially the same but on a smaller scale (WGBC, 2017). Governments have a great potential to quickly increase the amount of net zero carbon buildings as they have the power to regulate. This being said, it does not mean it is a simple and easy job as governments do have to interact with the market and governments (some more than others) also have very close ties to the business sector. Either way, benefits do exist:

Taking action to reduce GHG emissions from public and private-sector buildings of all types provides a cost-effective and economically beneficial means to mitigate the impacts of climate change and achieve Paris Agreement commitments (WGBC, 2017).

There is also the potential that this may help create jobs in the energy sector, something which a government can definitely benefit from. For sub-national governments achieving the Paris agreement commitments is not quite so relevant. However, they might have regional or city level commitments as well as commitments to constituents to improve quality of life through, for example, improved air quality. There are a number of examples of cities and regions that have implemented or that plan to implement various strategies to move towards a more net zero carbon goal. One example is the province of Ontario, Canada, which offers rebates to individuals purchasing or building net zero homes. Another example, is the city of Vancouver, BC, Canada which will require “all buildings constructed from 2020 onwards to be carbon neutral in operations” (WGBC, 2017).

An example more relevant to this research can be found in Paris where a 5000m$^2$ student residence was constructed to be run solely on solar energy and is fully naturally ventilated, therefore, requiring no cooling units (the use of which Paris is working on decreasing, see Section 5).

Third, is the NGO sector, where the calls to action revolve around helping to develop building certification programs, engaging and educating governments, businesses and the public. The rationale for NGOs is somewhat more straightforward than for businesses and governments as NGOs are often created on a core value with a straightforward goal. For example, there are those whose sole focus is on helping to create a more sustainable planet. Within these are the Green Building Councils, which are closely connected with the creation of this report. These organizations are well positioned to help lead the transformation towards a net zero carbon built environment as they “have succeeded in catalyzing the early adoption of high performance buildings while driving a broader and long-term transformation of the marketplace” (WGBC, 2017). Green Building councils have created voluntary rating systems. Both the Netherlands and France are participating in the “Advancing Net Zero Project (as of May 2017)” and are both creating a “net zero certification/verification program” (WGBC, 2017).

The layout proposed in the theory of change with the market as the central player supported by and interacting with the government, businesses and NGOs somewhat echoes the state, markets and networks mentioned by Getimis in his section on actor constellations. With state relating to government, and networks including both NGOs and businesses, therefore in a way the theory of change described in the WGBC report is a more detailed version of that section of work Getimis did. It is also important to note that Getimis focuses on comparing planning systems while the authors of the WGBC report look more closely at the actual aspect of energy efficiency as they aim for the building sector to become much more energy efficient in their net zero carbon vision. Therefore, this research will take a closer look at what is proposed in the theory of change and how or if it seems like something that could easily be applied or is already being done in Paris and Amsterdam.
This separation of actors into players such as government (or state), markets, businesses, and NGOs is commonly seen in literature on planning. A second example would be in the theory of collaborative governance (Emerson et al., 2011) where the concept of governance is addressed and separated into government, business, and civil society (which would here translate to NGOs from the WGBC report). The theory of collaborative governance stresses that government-to-government collaboration can be a crucial link in planning for adapting to climate risks, or in this case, planning for increased energy efficiency in two European cities. Government-to-government may refer to links between a single country’s national, provincial, and municipal governments; this can be notably important when aiming to take advantage of funding from all levels or ensuring compliance from and at all levels. However, government-to-government collaboration can also fit on a larger scale such as the EU or even more globally such as in the “Global Cities Covenant on Climate, 2013” or the world GBC report. In these cases, governments from various countries must collaborate. Therefore, it is clear that governments play an important role in governance, however, the roles of businesses and civil society groups (such as NGOs) are equally important, in fact when looking at collaborative governance the interaction between the three is the key to successful governance. The theory of collaborative governance and the interaction between governments, businesses and NGOs is clearly seen in the world GBC report and can be smoothly applied in coherence with each other. However, as the theory of change is directly dedicated to energy transition, in this thesis a choice has been made to use the theory of change in the conceptual framework.

2.3 Implications of change

Theory of society and energy systems developed by Elizabeth Shove and Gordon Walker

In their paper, Elizabeth Shove and Gordon Walker (2014) emphasize the importance of society in understanding the reasons for changes and developments of energy systems. They present a number of authors with different views on the development of energy systems where some authors such as Fouquet and Pearson (1998) explain the development of energy systems through the evolution of economic systems. However, Shove and Walker also bring up Bartoletto and Del Mar Rubio Varas (2008) who refer to energy transitions in Spain and Italy over the past 150 years as something that both affects and is affected by economic activities. Among others by changes in “fuel mix” of society, they argue that; “The use of new energy sources stimulated and, at the same time, came about as a result of, the employing of new technologies, which in their turn had an impact on productivity, the prices of commodities, and their consumption” (Shove and Walker, 2014). This offers a much less linear point of view, than that presented by Fouquet and Pearson, which although perhaps is a bit less simple, is probably more realistic.

Shove and Walker do however point out that throughout these different ways of looking at the development of energy systems, the “common contention is that societies are in part defined by the ways in which resources are organized and managed” (Shove and Walker, 2014). This then leads them to point out the interesting conclusions that, “interaction between energy and economic systems is at heart a matter of politics. This is evidently so for those who focus on the distribution of resources (oil, gas, etc.) and the vested interests which surround them”. In this manner, Shove and Walker draw attention the complicated nature of energy systems and how something which on the surface may seem relatively simple is actually a carefully interwoven network which involves the market, government and civil society, three important concepts that have also been discussed in the theory of change (Section 2.2). Therefore, the fact that Shove and Walker also bring up the need for considering these multiple facets in this way supports the theory of change. This also supports the need for the comparison of planning systems (Section 2.1) as the planning systems of each country also deal with important differences in energy systems between France and the Netherlands. It is
also necessary to understand these energy systems that exist in each country as they can have major effects on how each society deals with issues of energy efficiency.

Shove and Walker (2014) also refer to the “Implications of Change” where they point out that basically as long as societies depend on energy and therefore energy management, large or radical changes to energy sources and related forms of technology have the potential to result in correspondingly important responses from society (Shove and Walker, 2014). Some have more apocalyptic views of possible repercussions while others are less dramatic. Either way, this highlights once again the close link between our modern society and the ways in which we use energy as well as how essential it has become to our daily lives. Shove and Walker (2014) then look to theories of practice where energy is conceptualized as an ingredient of social practices, a simple change that has quite the effect on the understanding, analyzing, and influencing of energy demand (Shove and Walker, 2014). It is noted that it is first important to recognize “that energy is used not for its own sake but as part of, and in the course of, accomplishing social practices” (Shove and Walker, 2014). Social practices being normal everyday activities such as cooking or commuting to work (Shove and Walker, 2014). Essentially this understanding of energy starts with understanding a society’s sets of practices and also includes “understanding how material arrangements, including forms of energy, constitute dimensions of practice” (Shove and Walker, 2014). Practices being an intertwining of social phenomena with material infrastructures and devices (Shove and Walker, 2014), this conceptualization of energy as part of “material arrangements within which certain practices go on” (Shove and Walker, 2014) does somewhat decrease the value of trying to characterize energy systems.

In the end, this paper draws attention to how reliant societies have become on dependable supplies of energy and how a better understanding of this can help develop new policies. Shove and Walker (2014) bring up two key questions for those who might want to develop practice oriented policy:

first, how is it that such interconnected bundles and constellations of practices and material arrangements, including technologies of energy provision, distribution and consumption, have taken hold and, second, how might they change (Shove and Walker, 2014)?

They theorize that it would be much more beneficial to start by examining how society uses energy to then work backwards to the material arrangements that exist and within which the social practices occur:

This is, in essence, a matter of positioning the practices on which energy demand depends as central topics of policy intervention and of analysis and debate (Shove and Walker, 2014).

This would then clearly have political implications as the cities and social practices we know and are accustomed to are essentially built on the “energy choices of the past” and therefore logically were the fuel supply or energy sources to change drastically social infrastructure would also be transformed. Shove and Walker (2014) also emphasize the point that:

‘social dimensions of energy transitions’ only exist, and only have meaning through and as part of the reproduction of specific social practices, hence our persistent emphasis on the need to consider the changing forms of ‘work’ that material arrangements, including flows of matter and energy, enable us to do (Shove and Walker, 2014).
Finally, the main point of interest here is their conclusion that “insofar as policy has an impact on energy use, it does so in, through, and by means of modifying or transforming material arrangements, practices and social orders” (Shove and Walker, 2014).

In a 2014 paper, John Urry refers back to Shove and Walker (2014) and even elaborates further on certain ideas especially those relating to energy such as energy being a somewhat vague commodity. One that people use through other various goods and services and that “energy demand is the outcome of what people are doing, of the interlinking of practices and energy-intensive material arrangements” (Urry, 2014). And, that essentially:

The form and scale that this energizing takes will be mostly unknown to those participating within such practices, such as taking a humble shower each day (Urry, 2014).

In this paper, Urry looks at how societies are “energized” or “powered”. It follows a number of similar paths and ideas as that of Shove and Walker, while focusing more precisely on the problem of energy. He equally agrees with Shove and Walker on the fact that a new energy regime would involve/lead to a reorganizing of society over time and that difficulties are reinforced by habits which are centrally involved in enduring social practices and socio-technical systems (Urry, 2014).

He also brings up Shove and Walker’s (2014) idea that transforming energy demand rather than supply “must be key to envisaging and realizing various futures” (Urry, 2014). Altogether Urry (2014) brings up these interesting points which complement the paper by Shove and Walker (2014) quite well. Urry (2014) also aims to further explore social theory and the systems that energize societies. He brings up circulation (of people, objects, and energy) and its history (especially over the 20th century). He also raises the human/nature divide and the interdependencies between decreasing stores of fossil fuels and the need to leave them in the ground, increases in anthropogenic climate change and a growing demand for more food. Urry (2014) focuses on more tangible, physical issues of energy and energy demand:

Rather, energy demand should be adapted to the feasible amount of power that renewable sources could provide, although there is less agreement now on what counts as ‘renewable energy’ (Urry, 2014).

In this way, the points he makes nicely complement those of Shove and Walker and help put the problem of energy and society into perspective with more objective and detailed information on energy systems and the current state of affairs (as of 2014 when the paper was written).

Buchanan et al. (2015), draw on some theoretical insights from Shove and Walker (2014) but focus on more practical aspects and use the insights to help identify practical implications (Buchanan et al., 2015). They examine energy reduction and feedbacks, they also bring up the difficulty that arise due to the fact that people do not use energy as is but “as a by-product of everyday activities” (Buchanan et al., 2015) which is very much intertwined into modern life.

From these examples, it seems clear that this issue of energy being used as a by-product is of notable importance but that perhaps has not received too much previous attention and that it stands out in the work of Shove and Walker (2014).

Elinor Ostrom (2010) looks at common pool resources and different ways people deal with the overuse of the resource. An interesting idea here would be to look at energy as a common pool resource as this may provide insight on helping to guide different societies in figuring out new and sustainable ways to manage energy. Ostrom (2010), especially brings to light the interdependence
that exists between the policy makers and those affected by said policies. Ostrom (2010), in addition to conducting studies in a laboratory setting, conducted field research on the subject of common-pool resource management. This research brought her to highlight the need to “develop a better theoretical understanding of human behaviour as well as of the impact of the diverse contexts that humans face” (Ostrom, 2010). Her conclusions support the points made by Shove and Walker (2014) in that they highlight the importance of understanding society and the contexts in which the said society exists. Therefore, there is importance in understanding how both French and Dutch societies view energy, how the two societies use energy, and what tools and systems are available to each society. In doing so, it can then help in developing improved resource management, within which Ostrom’s (2010) findings on common-pool resource management can help in developing strategies to manage energy in more sustainable ways. Based on her extensive work on the subject Ostrom developed eight principles for managing a commons:

1. Define clear group boundaries.

2. Match rules governing use of common goods to local needs and conditions.

3. Ensure that those affected by the rules can participate in modifying the rules.

4. Make sure the rule-making rights of community members are respected by outside authorities.

5. Develop a system, carried out by community members, for monitoring members’ behavior.

6. Use graduated sanctions for rule violators.

7. Provide accessible, low-cost means for dispute resolution.

8. Build responsibility for governing the common resource in nested tiers from the lowest level up to the entire interconnected system (Ostrom, 2018).

Therefore, if energy was treated as a common resource pool, these principles may be applied to it. Of course, as this is on a theoretical level, there are no guarantees of successful implementation. Ostrom’s work on the subject does however show promise and these eight principles are fairly simple and not ridiculously extensive, meaning that hopefully it would be possible to attempt to apply them.

These theories will be used to help describe and understand why certain initiatives are more successful than others, while also helping to understand the links between society and energy transitions.
2.4 Conceptual framework

The three main theories used are arranged within a triangle that starts on a larger scale by comparing the planning systems, then moves down to a medium scale to the theory of change which works mainly on the governmental level. And then, once that is clear, moves to the smallest scale on the person-to-person level where looking at society and energy systems comes in. So, the triangle shows the scale on which the theory relates to the national level – understanding the whole country – to understanding the system within the country and where it comes from. Next, at the city level, it is important to understand how the national government plays a role, as well as the municipality and different smaller organizations within the city. Finally, the theories lend themselves to understanding the residents and society of the city.

This then leads to looking at the specific details in visions, goals, and policies and determining how these may compare. At the same time, it will necessary to apply the three theories to finally answer the research question of whether the goals and vision documents are in sync with actual practices and how the two cities compare.
CHAPTER 3. Research methods

3.1 Research strategy

Inductive versus deductive
The approach taken will be inductive as the research has data collection as a starting point and aims to search for a pattern or generalization rather than starting with a theory and testing it.

3.1.1 Using case studies

This research will use two case studies in order to try and identify what main issues exist when it comes to including sustainability (energy efficiency) in urban renewal projects. As the two case studies are in different countries (but both within the EU), it will also aim to look at and identify whether the same issues exist in both countries. If the issues seem to be the same, it will be interesting to see if they are dealt with and perceived in similar ways or not. It will be important to keep in mind what sort of policies and backgrounds exist in both countries as well as what the similarities and differences between the two are. It will also be important to clearly indicate when differences in how problems are treated may be caused by differences in policies/regulations.

Robert Yin (2014), lays out three conditions on when to use each strategy. These are “(a) the type of research question posed, (b) the extent of control an investigator has over actual behavioral events, and (c) the degree of focus on contemporary as opposed to historical events” (Yin, 2014). Using these conditions based on the goal of this research, it is evident that a case study is the best choice. Using Yin’s framework (see Figure 3.0), the first step is to look at the form of research question.

Although the main research question may not be formulated word for word to start by how or why, the how and why is precisely what this research focuses on. How two cities are becoming more energy efficient and how this is being applied to urban renewal projects in these cities and why differences may exist between how the two cities are addressing this issue. This diagnostic narrows down the research strategy options to either experiment, history, or case study (see Figure 3.0). Next, as this research does NOT require control over behavioral events, the experiment is eliminated. Finally as this research does focus on contemporary events, the case study becomes the only remaining option.

As the focus of this research is more explanatory rather than exploratory, it also fits that the case study be the selected strategy. Yin (2014) states that this is “because such questions deal with operational links needing to be traced over time, rather than mere frequencies or incidence”. Therefore, looking at this research there is very little need to look at frequencies and incidence, while looking at operational links over time could be much more beneficial in understanding why two cities may take different approaches to solving a similar issue or how they are dealing with it. One shortcoming of the survey is that it requires questions with a predefined set of answers; the predefining of these answers, however, requires the author to know of all possible combination of options. This is not practical for this research as, for the survey to be an effective tool for comparison, the same survey would need to be presented in both cities. The language barriers aside, this is not possible as policy and legal details, as well as the planning systems of the two countries/cities, are not the same. Therefore, although a more basic survey would be possible for both cities, it would not provide the desired precision in multiple areas.

A document analysis may also seem a simpler choice, however, if the research was limited to document analysis, it would also lack a significant amount of depth. Both interviews and observation
will help provide an additional level of insight and help to better understand the motivations behind different practices. There is also the added difficulty of language; although I am fully competent in French, I do not have the necessary capacities in Dutch. This would then create an unfair disadvantage for all documents existing solely in Dutch.

3.2 Research methods, data collection and data analysis

3.2.1 Methods

**Step 1.** Look at the vision documents for each city, identify the main aims in regard to sustainability/energy efficiency and those that may affect urban renewal projects and describe these as background on the city and the vision documents used. Research theories and outline how they play in (theoretical framework).

**Step 2.** Research on what policies and regulations exist in relation to sustainability/energy efficiency in urban renewal projects and in general in each country. This will be done mainly through the internet but results from the interviews may also add insight.

**Step 3.** Conduct interviews.

**Step 4.** Will look at analyzing the existing policies on sustainability and energy efficiency, the aims from the vision documents and analyzing progress the cities have made in relation to the theories. Completed post interviews will use data/information collected in step 2 and step 3.

**Step 5.** Comparison between the two case studies using empirical data and interpretation according to conceptual framework.

**Step 6.** Will be to attempt to draw conclusions from the results and comparisons of the case studies. This will also be a discussion on differences and include suggestions to help improve the situation for each case study.

**Case Selection**

Case selection is an important step in all case study research. The cases for this study were selected due to the existing opportunities; as this Masters was conducted in the Netherlands, it was desirable and practical to include a Dutch city (Amsterdam). As the researcher speaks French and has connections in France, it became quite interesting to consider also using a French city. This created the opportunity to compare practices in two countries and help better understand energy efficiency in urban renewal on a global scale. The cities of Amsterdam and Paris were then selected as both are capital cities, both may face similar issues relating to heritage and old buildings, both have large amounts of tourists to accommodate, both play important roles on a world scale, and both are the largest cities of their respective countries. This being said, there do exist significant differences in city size and age, however, it is still possible to work around these differences when fully aware of them.

In the case selection for this study, a replication logic as is recommended by Yin (2014) was used in the sense that it predicts similar results (a literal replication); it is expected that the actions of both Paris and Amsterdam will be “in sync” with their goals/visions. As this research only contains two case studies, it would not produce as meaningful results to undergo a theoretical replication as with only two cases to compare no matter the results, further cases would be necessary to justify results (Yin, 2014).
3.2.2 Data collection and analysis

Type of research, exploratory vs descriptive vs explanatory
Due to the focus in this research being on “How” and “Why” questions, the research is explanatory (Yin, 2014). “How” and “Why” questions are usually used in cases where the question(s) being asked refer to a “contemporary set of events over which the investigator has little or no control” (Yin, 2014). In these conditions, the case study strategy has distinct advantages (Yin, 2014). The type of data used in this study will be qualitative as it will help provide explanations and further understanding.

Type of data, primary or secondary
Data will be collected by doing research into the background of the two cases, using both primary (policy documents) and secondary (articles referring to and/or analyzing issues relating to the subject) sources. This thesis will also make use of further primary sources through the conduction of interviews to provide further insight. Interviews in Amsterdam will be conducted in English while interviews in Paris will be conducted in French and only the sections which will be directly included in the final thesis will be translated into English.

Data analysis
First there will be descriptive accounts and essentially long summaries of each interview, then responses will be compared in order to find any existing similarities and noted differences both between Interviewees of the same country and from both countries. In noting similarities and differences, it will also be important to first note the similarities between policies and energy goals in the two countries/cities as this may be the cause of differences found in the interviews.

3.3 Validity and reliability

Validity
Validity of the research will be affected by the interviews. It will be important to watch for truthfulness in the answers of the respondents, for example if they give an idealized version rather than an objective description. This is hard to avoid completely in data obtained through interviews but can also come into play in the document analysis as cities may try to highlight their successes while talking down their failings. To limit the possibility of this being an issue in the interviews, the questions will be carefully worded and the researcher will be careful in trying to keep the interviews on track. In the data obtained through desk research and the studying of policy documents, the researcher will try to find more than one source corroborating issues that may seem overly optimistic and keep in mind that documents may not always provide an objective point of view.

Reliability
In order to ensure reliability, questions asked during interviews will be the same or as similar as possible and worded in the same manner. As for reliability of the desk research, all documents used will be included in the references in order for the paper trail to be as complete as possible.
CHAPTER 4. Amsterdam

4.1 Introduction

Amsterdam is an important and impressive port city that has known periods of very rapid growth and prosperity. It has been an epicentre for trade and is home to numerous famous works of art. Amsterdam was also named the 2016 European Capital of Innovation, which shows the importance and continued existence of innovation in this city. It is also home to numerous old buildings and a complicated network of canals. Amsterdam does have the Dutch advantage of being a very bike-centered and bike-friendly city, a factor which contributes to decreased emissions. Numerous old and even more recent buildings in the Netherlands are connected to the national gas network. This can lead to issues in renovations as systems may need to be switched from gas to electric to lower emissions and, therefore, electricity usage may increase. The number of old buildings can also be a challenge when it comes to increasing energy efficiency in urban renewal as old buildings can be in need of intensive preservation work or hold unexpected surprises.

In this research, the question of how Amsterdam is dealing with energy transition, especially in urban renewal, will be investigated.

4.2 The Dutch planning system

The Netherlands, as a small, densely populated and highly urbanised country, has a long-standing tradition of urban planning and growth management (van der Valk, 2002). The country is also known as being a forerunner in water management, likely due to its long coastline and extensive lowlands resulting in a need to gain control over the many water bodies and water-related issues that the country is vulnerable to (Alpkokkin, 2012). This has resulted in the Netherlands having a sophisticated planning system that goes “virtually undisputed” (van der Valk, 2002) and “is a matter of fact in spite of obvious flaws in the efficiency and the effectiveness of the planning system” (ibid). Therefore, although there are flaws in the system, urban planning is perceived as something desirable and/or necessary. Urban planning can definitely have a positive effect for urban planners as they need not justify their importance.

The Dutch planning system has as a primary goal to enhance quality of life, which is linked, in this context, to sustainability, liveability, and the “quality of the spatial environment” (ibid). Van der Valk (2002) describes these factors:

Sustainability and liveability refers to the quality of the physical and social environment in a territory. Sustainability, liveability and spatial quality are linked to a well-maintained physical environment (townscape, landscape, neighbourhood, public space), a clean and healthy environment, a safe environment, an environment that allows residents freedom of choice (mobility, living conditions, amenities) and finally variation and opportunities for identification.

This focus on quality of life is reflected in the city of Amsterdam’s vision documents, where under the sustainability aspects one can find goals relating to sustainable energy, clean air, circular economy, and creating a “climate proof city”. There is also a focus on the “smart city” in the vision documents. These goals and explanations of said goals focus on the benefits and welfare of the citizens and how they can help to enhance quality of life. The importance of enhancing quality of life for the Dutch government was also noted by Interviewee 3, an architect, and urban designer, working in Amsterdam.
“I think when we talk about sustainability and we think about Amsterdam we think more about social sustainability, there are all these programs, a kind of push to building communities and creating healthy cities, creating environments where people can be outside, safe environments for people, for kids to play outside.”

The high population density of the country is perhaps one of the reasons why there is a noted effort to take quality of life into account to such a degree. Van der Valk (2002) notes that:

Apart from city states, such as Hong Kong, The Netherlands is one of the most densely populated and urbanised countries in the world and therefore land is a scarce commodity and that it is therefore, especially important to make the most efficient use of it as possible.

It is also relevant to note that the Dutch government is aiming to have a fully circular economy in the Netherlands by 2050 (Waterstraat, 2017). This is perhaps a further representation of the strong focus on social sustainability that exists in Amsterdam, but is likely also a reflection of the national attitude. Either way, although this may not directly affect energy efficiency in Amsterdam, it is part of the background information that helps to better understand the city. Through a better understanding of the country in general, one can better understand the direction in which its national policies may be going.

The Dutch planning system is closely tied to its government system, which is three tiered (i.e., central (national), provincial and municipal). It is also notable that legally all municipalities, no matter their size, have the same statutory powers (van der Valk, 2002). Due to a large portion of the municipalities income coming from the central government, the municipalities tend to easily implement policies that may not be very profitable to them in terms of public investment, however, they are covered in case of catastrophes (van der Valk, 2002).

All three tiers of government do have planning power, however, central and provincial governments manage broad land use plans and policy guidelines (van der Valk, 2002). The municipalities can make framework plans and binding land allocation plans. These are, however, required to be consistent with the regional and national plans (van der Valk, 2002). Finally, the plans with direct legal consequences are the local land allocation plans (van der Valk, 2002). See Table 4.1 for an overview. The land use plans are meant to fulfil a steering and a safeguarding function; this means they encourage the desired uses of the land and provide legal bases regarding possibilities in the area (Buitelaar & Sorel, 2010).

<table>
<thead>
<tr>
<th>Tiers of government</th>
<th>Legal spatial plan</th>
<th>Area</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central government</td>
<td>Planning core decision</td>
<td>All of the country</td>
<td>Broad national policy guidelines</td>
</tr>
<tr>
<td>Provinces (12)</td>
<td>Regional structure plan</td>
<td>Province or part of a province</td>
<td>An overview of provincial planning policy</td>
</tr>
<tr>
<td>Municipalities (500)</td>
<td>Local structure plan</td>
<td>Municipality or combination of municipalities</td>
<td>Municipal policy guidelines</td>
</tr>
<tr>
<td></td>
<td>Land allocation plan</td>
<td>Part of a municipality</td>
<td>Binding maps and regulations</td>
</tr>
</tbody>
</table>

Due to the numerous layers of government involved, this may not be the quickest or most efficient planning system, however, as stated by van der Valk (2002), “Dutch planning scholars emphasise a
reputation for delayed and complex procedures in planning. Foreign observers tend to agree nevertheless, that Dutch spatial planning has been successful overall”.

The Dutch planning system has managed to prevent the country from becoming a solid urbanised mass and effectively prevented “an invasion of open space” (van der Valk, 2002). The central government has also put notable emphasis on the compact cities concept, which promotes the intensification of land use in settled areas and the redevelopment of urban wastelands (van der Valk, 2002). This also affects agricultural land, in that, due to the lack of space, it is necessary for all (or almost all) open land to be cultivated (van der Valk, 2002). This practice leaves little space for nature and may affect biodiversity.

Therefore, it is important to note that in the Netherlands, “Spatial planning is firmly rooted in the administrative system at all three-tiers of government and in the political circuits. The legitimacy of spatial planning is undisputed” (van der Valk, 2002). This consequently has the potential to help with implementation of different policies and projects. It does not mean that the planning system in the Netherlands is perfect, that it will always remain the same or that it can simply be successfully applied everywhere else. As van der Valk (2002) is careful to note, “A gradual change from a consensual system into a more coercive system is under preparation”. The system is changing and this can be seen as a proof of its adaptability, or at least attempt at adaptability.

In 2008, a new spatial planning act came into effect in the Netherlands, which replaced the somewhat outdated version from 1965. An important change with this new act is an increase in the importance of the land use plan. This new act aims to make land use plans more legally binding and to reduce the amount of building permits granted on exceptions (Buitelaar & Sorel, 2010).

4.3 Vision document analysis

On the City of Amsterdam’s website, it is possible to find any number of documents relating to the city’s vision and goals. The documents containing the most specific and detailed information can only be found in Dutch, while more general overviews can also be found in English. From these documents, especially the structural agenda 2040, it is possible to identify the main aims or goals of the city. Those most relevant to this research are as follows: Amsterdam wants to accelerate the preservation of the city; it aims to use 20% more renewable energy (than in 2013) per capita by 2020; it also aims to use 20% less energy (than in 2013) per person by 2020. In the longer term (by 2040), it has specific goals for the amount of energy from different sources, such as 1000 MW of solar current (630 000 solar panels, 160 MW by 2020). Further goals relating to energy in various ways can also be found in these many documents. Some, for example, will require all new buildings to be zero carbon by 2030. Other examples are with circular economies, that are less relevant to this research as they have a less direct relation to energy efficiency in urban renewal.

4.3.1 What are considered energy efficiency policy objectives in Amsterdam?

In order to be able to compare Amsterdam to Paris (further on in this research), it is necessary to understand and identify what is considered energy efficiency policy objectives in Amsterdam. The city of Amsterdam has a Sustainability Agenda that is composed of four main pillars: sustainable energy; clean air; circular economy; and climate adaptability. In the sustainable energy section, the city has set a number of goals. As with the other three sections, these goals relate to using energy more efficiently and using renewable energy instead of fossil fuels. In this document, there is also a section on coherence that explains how the four pillars mentioned above work together and how it
is important for them to work in coherence for best results. This is followed by a section stating the city’s approach and how it will realize the goals stated in this vision document.

Amsterdam plans to use the Environmental Management Act as a policy tool to help monitor how well the energy conservation obligation is met (Municipality of Amsterdam, 2015), (Zaken, 2008).

Amsterdam also has a number of policies addressing various sustainability issues, in terms of energy efficiency the “implementing sun”, “Amsterdam gas charge”, “Smart use rules”, “wind energy”, “Data centres save energy” and the “Energy Atlas Amsterdam” are the most relevant (Municipality of Amsterdam, 2015).

### 4.3.2 How will Amsterdam stimulate energy efficiency?

Amsterdam wants to make agreements with housing corporations based on the energy agreement on sustainability, where the sector would agree to bring their housing stock to the average of “label B” by 2020 (Label B is an energy label for houses that indicates how energy efficient the house is). Having an energy label has been compulsory for all residential property sales in the Netherlands since January 2008. The existence of this energy label helps create a greater understanding of energy usage and what kind of benefits can come from using less energy. It also allows potential buyers to evaluate the energy efficiency of a property and from there, its future energy bills. This leads to buyers often preferring to invest in properties with a higher (label A or B) energy rating. In this way, the Dutch government is educating its population on energy efficiency and slowly creating an increased social awareness, while also improving the energy efficiency of properties throughout the country.

The city also wants to expand connections to the urban heating network to 102 000 (from a current 62 000) by 2020. To do this, they will set up a plan of “approach heat” that emphasizes network openness, affordability, and sustainable sources (Gemeente Amsterdam, 2017).

The city is also working on incentives for corporations that own buildings that are rented out to encourage them to improve energy efficiency through improving insulation, replacing old windows, keeping heating networks up to date, etc. (Interviewees 2, 3, and 4). Here, incentives are useful as in these cases the building owners will not benefit directly from renovations. It is the tenants who will benefit from a lower energy bill, therefore, these incentives can include agreements to allow the building owners to raise the rents somewhat as the energy bills will be lower (Interviewees 3 and 4).

Amsterdam wants to stimulate/increase the use of solar energy by supporting projects from the energy fund, easing some rules, and making agreements with corporations/companies about using their roofs (Gemeente Amsterdam, 2017).

Similarly the city wants to increase the use of wind power (from 67 MW to 85 MW by 2020) by searching/creating new locations for wind turbines (Gemeente Amsterdam, 2017).

The municipality is also actively supporting projects and investments by residents, companies and civil society organization as it depends on them to help reach its goals. Therefore it invests in helping to create projects by activating and facilitating target groups to help ensure more sustainable energy in Amsterdam (Gemeente Amsterdam, 2017). As all homes in the Netherlands have the right to be connected to the natural gas network, the realization of natural gas-free homes and companies has the potential to make a large difference on fossil fuel consumption. Natural gas is present in a sizable number of buildings that will need heating alternatives. However, in accordance with the “to
a city without natural gas” strategy, this is yet another aspect that will play into urban renewal projects. Funding/co-financing may also be available for various projects through the Energy Fund.

The city will also contribute to energy neutral innovation by sustaining at least 30% in the selection criteria for development plans. Finally, the city will designate further areas similar to the buiksloterham and houthavens areas where sustainable energy production and use is most important (Gemeente Amsterdam, 2017).

4.3.3 How will Amsterdam monitor progress

The city wants to heighten the priority of monitoring and maintaining the energy conservation obligation from the Environmental Act. It also wants to ensure that 111 schools in the city get a “fresh indoor climate” and are able to either take energy saving measures or generate renewable energy (samenvatting agenda Amsterdam, 2017).

In Buiksloterham, certain forms have to be filled out, on which it is compulsory to indicate the extent to which sustainability and circularity is included in their plans. It can therefore be assumed that this approach would be applied in the the new similarly designated areas (Gladek et al., 2015).

Amsterdam has a whole document detailing its plans for monitoring implementation. This document details the 2015-2018 focus, progress as per 1-6-2016 as well as the role of the municipality, the progress and the action plan to continue in order to meet the goals. A document detailing the “state of sustainability” in Amsterdam as of June 2017 has also been published in which a fairly detailed summary of progress in each of Amsterdams four pillars of focus (sustainable energy, clean air, circular economy, and climate resistance) can be found.

This most recent overview of progress is in general positive but does state that the city has encountered some difficulties. The city has found that staying on track is much harder than expected due to population growth. They have also encountered issues with the wind target as it is unclear if this target can be realized through the restrictive provincial policy. However, the city feels that despite the difficulties in keeping up with population growth and the wind target, objectives do stay in range (Gemeente Amsterdam, 2017). By looking at energy consumption per inhabitant over the past six years, it is possible to see a trend in decreased energy consumption. If this trend is extrapolated, a 2020 forecast might land around the desired 20% decrease (Gemeente Amsterdam, 2017). To help energy consumption decrease further, the city has adjusted its objective of 102,000 natural gas-free housing equivalents by 2020 to 125,000 by 2020 (Gemeente Amsterdam, 2017). In both 2015 and 2016, the amount of natural gas-free housing increased significantly more than expected. In this area, the municipality is somewhat dependant on the national government who is fully aware of the issue. To further decrease the use of natural gas, important changes in legal and financial frameworks will have to take place (Gemeente Amsterdam, 2017).

The city also believes it is on track to reach its solar power goals as numerous projects are in preparation as well as agreements with housing cooperatives and corporations. The municipality is holding the corporations to their agreements but does ask for obstacles and opportunities to be identified (Gemeente Amsterdam, 2017). However, as mentioned earlier, the city does not believe it will reach its wind energy goals due to the provincial policies. Wind energy issues aside, if results from the monitoring conducted so far continue, the city seems well on track to achieving its goals in terms of sustainable energy (Gemeente Amsterdam, Monitor, 2017).
4.3.4 Amsterdam policies

- EU energy efficiency directive
- Environmental Act (energy conservation obligation), national level
- Various sustainability issues (agenda duurzaamheid), municipal level

4.4 Answering research questions

4.4.1 What are the main policies and regulations in Amsterdam?

The Netherlands have a long history of using policy to solve problems (Musterd, 2008). Therefore, this can be seen in a way as a tried and tested tool that seems to work pretty well for this city. An example of policy being used as a tool by the government in urban planning can be seen in its urban renewal with big city policies since WWII. In this case, the problem was with housing costs and social issues that arose mainly in poor neighbourhoods and the challenge was how to best deal with these issues (Musterd, 2008). Although the city went through a number of different policies over the years, policy was seen as a useful method in trying to solve the existing problems. This does not mean that all these policies were overwhelmingly successful, but it does show that the city has a long history of applying policies and using policies as a tool (with varying levels of success). This example also highlights how as the issues existing in a city change and evolve the policies dealing with these issues also need to evolve in order to stay relevant.

In his 2002 paper, Arnold van der Valk explains the Dutch planning system. In this he mentions the importance that policy has had in this system and it becomes clear that policy has been an important tool in maximizing efficiency. It also becomes clear that there are numerous examples of the Dutch successfully using policy to help achieve their goals (van der Valk, 2002).

Therefore, due to this long history of using policy as well as the widely accepted use of policy, it should prove to be an important tool for the Dutch government when it comes to enforcing the national Environmental Act as well as the EU energy efficiency directive. Finally, if well done, using policy can also be an important tool in enforcing the various sustainability goals on the municipal level.

The provincial government also has a notable role in a significant number of the projects the city of Amsterdam has planned. It can at the same time either provide support or hinder progress. For example, in the attempt to achieve wind related goals, the province seems to be creating extra obstacles and slowing progress. The monitor document states that the municipality is dependent on the province for license applications and, although the municipality used legal means to obtain the applications, only two out of seven have been granted since May 2016. These added legal barriers on the provincial level result in there being no increase in wind energy since 2010 (at the time of the monitor document’s first publication).

4.4.2 What energy efficiency goals (according to the stated visions) does Amsterdam have? What aspects of these goals affect urban renewal projects?

Amsterdam has a number of goals related to creating a more sustainable city. The ones which are most relevant to energy efficiency in urban renewal are stated above in Section 4.3
4.4.3 To what extent is urban renewal a major component in planning for energy efficiency in these cities?

On the surface, it does not seem that Amsterdam is overly focused on urban renewal in its plans for increasing energy efficiency. However, although it may not be expressly stated in the vision documents, it remains an important factor as the city is lacking in space to expand and, therefore, must learn to make the most of the existing built environment. This can in fact already be seen in recent developments, current projects, and future plans. Numerous examples of old buildings being reused and put to new uses exist, from old schools turning into student accommodations, to shipping containers being used to create housing.

Due to Amsterdam’s history and placement, it is likely that the importance of urban renewal is in a sense intrinsic and not something the locals creating the vision documents would actually feel to be necessary to mention in great depth and detail. This is also supported by the fact that the Amsterdam vision documents do include a fairly strong focus on circular economy, so clearly the idea of renewal is not a new concept. One way to look at urban renewal is that it is in a sense the use of a circular economy in that it is the reuse of existing materials and these existing materials can be the existing buildings and infrastructures themselves. This is however, only a thought; as it stands, urban renewal in itself does not figure as a major stand out component in the vision documents of the city. Either way, it remains an important notion as represented by the multiple mentions of incentives for homeowners and corporations to help improve energy ratings of their homes/buildings as well as the existence of and compulsory nature of energy ratings for homes and associated increases in selling prices.

This being said, it is noted in the Monitor document that “The municipality continues to make efforts to preserve the existing housing stock”. This is a further indication that although not explicitly stated as such, urban renewal is an important aspect for the city of Amsterdam.

Interviewees 3 and 4, both architects and urban designers working at UNstudio in Amsterdam, agreed that from their perspective planning for energy efficiency in urban renewal is a priority for the city of Amsterdam, but that the greater focus is on “social sustainability”. They also noted that in general, the city focuses more or less equally on improving existing buildings and building new, more efficient buildings. They noted again that regulations come from the national level. Interviewee 3 also explained that in her view, the city is putting enough focus on energy efficiency in urban renewal as through regulations it is in fact built into every project initiated within the city.

Interviewee 1, a junior consultant at Arcadis, found that plans for energy efficiency in Amsterdam were aimed more towards new buildings and new developments rather than existing ones. Not necessarily because that is what they would want ideally but due to regulations, it becomes more difficult to impose new regulations on property owners. This is a great example of why there is a need for incentives to create an extra push to convince property owners to take that extra step. Interviewee 1 sees it as more of a legislative issue; he explained that even if the municipality wanted to impose stronger regulations on renewal projects, it would be very difficult as they do not own these buildings. He also notes that existing regulations come from the national government, not from the municipality. He also finds the city is in fact doing everything that is within its power to increase energy efficiency in urban renewal throughout the city and that they cannot really put any more focus on it.
4.4.4 Is the urban renewal process of the city in sync with its goals?

4.4.4.1 Does the city have and enforce strict regulations?

Interviewees 3 and 4 noted that while they found regulations could be more strict and better enforced, they also emphasized that most regulations originate from the national government and are not specific to Amsterdam itself.

Interviewee 2, a Residence Consultant for “WOON thuis in de stad”, noted that the enforcing of regulations relating to specific renovations (splitzing permits in particular) is perhaps not as good as it could be as there have been noted instances of bribery in this area.

Interviewee 3, however, pointed out that although building regulations regarding energy efficiency for new buildings are fairly strict, they are nearly non existent when it comes to renovating existing buildings. This is not necessarily a bad thing as existing buildings can date from numerous, different eras and can be in various states of repair with varied energy possibilities. Having very strict and specific regulations could greatly impede and complicate renovation as costs would be greatly increased. Therefore, as an architect, Interviewee 3 is glad the regulations are not as strict. On the flip side however, there is no push from the regulators for people to go out and renovate their buildings in the most sustainable and energy efficient way. This being said, the use of energy labels does help push people to aim for better energy efficiency. Interviewee 3 noted this was especially true in a project she completed in Rotterdam. In this example, the client, a landlord, was very keen to ensure the renovations elevated the building from a label C to a label A as this would increase the value of apartments in the building, and would allow him to raise the rent.

4.4.4.2 Does the city monitor progress based on its goals

Amsterdam does seem to indeed be monitoring progress based on its goals. For example, in the Monitor Staat van Duurzaam Amsterdam document, which essentially details the monitoring and progress of the city, there are sections detailing the progress of a number of goals. This document states that they believe they “are on track to reach the goal. Various solar projects are in preparation” (Monitor Staat van Duurzaam Amsterdam, 2017). This section also shines some light on the potential ramifications: “These projects must be started within one year according to the grant terms and conditions within three years. On the basis of the committed grants and signals from the city” (Monitor Staat van Duurzaam Amsterdam, 2017).

This document also mentions progress on other goals, for example, with wind energy: “Due to the restrictive policy of the province, it is unlikely that the target 18 megawatt wind energy will be achieved by 2020” (Monitor Staat van Duurzaam Amsterdam, 2017). It is also important to note that this document also mentions a control cycle that will run in the 2017-2018 period during which 10% of the total number of average users will be checked. This information is important as it shows that the city is monitoring progress and that it is monitoring progress based on the goals in the vision document. This does not mean that all the goals are being achieved, but they are at least being monitored.

4.4.4.3 What are the ramifications for failing to comply?

The Monitor document mentioned above briefly brings up potential ramifications for not complying. In this example, in reference to the various solar energy projects, it states: “These projects must be started within one year according to the grant terms and conditions within three years. On the basis
of the committed grants and signals from the city” (Monitor Staat van Duurzaam Amsterdam, 2017). This means that a ramification for not complying with the designated time frame would lead to losing the grant.

This being said, there is little indication of any further or more widely applicable, severe or legal ramifications to refusing to comply with the policies and goals. This likelihood is also noted by Interviewee 1, who when asked if he found there were any ramifications for not complying to rules and regulations, responded that as far as he knows there are “none really”.

Interviewee 3 pointed out that in her experience, although buildings are routinely checked after construction to ensure safety and structural regulations are met, she has never seen a building be checked for compliance to energy efficiency or sustainability issues. From this, one can deduce that if a building was planned to be built to a certain energy label and produced the necessary plans but then did not end up following the plans and, for example, used cheaper materials, it is likely they would get away with it without recourse. This sentiment was also echoed by Interviewee 2 who felt that this type of fraud could likely easily pass under the radar.

4.4.4.4 Does the municipality or private firms who may approve projects look for energy efficiency when choosing between developers and approving proposals?

Based on Interview 1, it would seem that, yes, energy efficiency is an important factor in choosing a developer and in approving a proposal.

Interviewee 3 also noted that when working with a Dutch municipality, energy efficiency and sustainability are important factors when competing for a project. She noted that although energy efficiency is a factor that can help a project be chosen, there are still many other factors. And, that in the private sector (especially), costs tend to be a much more important factor. She also finds that currently as an architect, energy efficiency is more of a requirement to be met or a box to be ticked and because of this, there may be less of a push to innovate in this area.

4.5 Amsterdam conclusion

Finally, from both the interviews and the city documents, it becomes clear that Amsterdam does have, as Interviewee 3 so attentively put it, a strong focus on “Social Sustainability”. It also becomes clear that within this focus, it also has a fairly strong network of programs, policies, and incentives aimed at improving energy efficiency. The focus of the city is clearly not directly on urban renewal. While energy efficiency in urban renewal is not a subject that has been ignored, it also is not the main focus. It is however, integrated into numerous plans and policies in many different and varied ways. This multi-faceted approach will help provide the city with a greater variety of options and increased resilience.

Amsterdam also has a number of mechanisms that are set up to help in this regard. The energy label systems to grade housing on its energy efficiency is probably the most relevant to this research. It is also the mechanism that has come up the most often in interviews as a fairly simple, positive way to help improve energy efficiency. It is still important to remember that most of the interview respondents found that more could be done in terms of monitoring if the energy labels are being met after initial implementation. This also goes for the energy efficiency goals and policies in general. Essentially it would seem that if there was an area which needed improvement in Amsterdam, it would be the implementation and monitoring sector.
CHAPTER 5. Paris

5.1 Introduction

Paris is one of the largest, most historically significant European cities. It is an epicentre for the arts and the city in which the French national assembly meets. It is home to numerous old buildings, one of the oldest metro systems in the world, and has been home to a variety of innovations. It is also a city trying to move towards a more energy efficient and renewable future, or so its mayor would like the world to believe. The current mayor of Paris, Anne Hidalgo, elected in 2014, has been working towards helping the city transition towards a zero-emission future (Barroux, 2017). The municipal government is however only one level of the government that affects the energy transition in the city of Paris. There is also the different level of the national government, too, which has a number of laws regulating building codes and energy usage. France is known to have one of the most centralized governments of Europe, which affects urban renewal within and across the country. It is also a country that relies in part on nuclear power plants for electricity. Some see the country as a forerunner in terms of the environment and energy issues; others such as Interviewee 6, find the country has been lagging behind in these areas. In this research, the question of how Paris is dealing with energy transition, especially in urban renewal, is investigated.

5.2 The French planning system

The French planning system relies strongly on laws to enforce and dictate proceedings. The first notable law relating to city planning emerged in 1919 with the Loi Cornudet that appeared in a post-war reconstruction context. Most of the plans relating to this law did not end up being implemented (Prévost et al., 2012). However, before the introduction of this law, French cities did not have notable legal instruments in urban planning, leaving various issues being dealt with separately (ibid). It was not until 1958 that land use plans, including zoning, made an appearance. These “urban master plans” and “detailed plans” received a lot of criticism, notably the detailed plan for being too rigid, and as a whole, for lacking a “global” project, which lead to land speculation and clustering (ibid). Placing regulatory city planning into the context of a larger project with the notion of territorial management, came with the adoption of the 1967 Loi d’Orientation Foncière, which remained until 2000. This law included the development of a ground occupation plan (plan d’occupation des sol, POS) and a master plan for urban development (schéma directeur d’aménagement et d’urbanisme SDAU). Within these documents, one finds development guidelines at the “supra local” level and in the POS document; territorial diagnosis and statutory documents (ibid). These documents show a willingness to improve upon previously criticised plans; these plans, however, were still lacking in certain areas, which resulted in the redrafting of these documents in 2000 in to those currently in use (ibid).

The French Spatial planning system now works under the Solidarity and Urban Renewal (Solidarité et Renouvellement Urbains, SRU) laws and the redrafted planning documents: the Territorial Coherence scheme (Schémas de Cohérence Territoriaux, SCOT) and now the current Local Urbanism Plans (Plans Locaux d’Urbanisme, PLU). Prévost et al. (2012) highlight the year 2000 as a “milestone in the history of French law” and state that if the changes made at this time have brought a new dimension to town planning in France, it also does so “in terms of sustainable development and environment”. Most recent of all is the Grenelle 1 and 2 laws of 2009 and 2010, which have been redrafted with small amendments, with the most recent version of Grenelle 2 dating from March 2017 (Loi Grenelle, 2017). They have played a significant role in turning environmental objectives into laws and therefore supporting national objectives to become more sustainable (Loi Grenelle,
These laws cover issues around buildings and urbanism, transport, energy, biodiversity, health risks and garbage, and governance in relation to the national commitment towards the environment (Loi Grenelle, 2017). This law, among other things, has articles addressing energy efficiency in existing building and renovation projects. This being a legal document, it is quite long and complicated and is constantly referring back to other articles and laws and, therefore, is difficult to understand out of a legal context (in part because not all laws to which it refers are part of the Grenelle laws).

It is therefore, through the changing, adding to, and redrafting of these various laws in response to various changes in politics, industry, or the economy that has lead to the current state of the system. Figure 5.1 highlights a number of important dates and the laws associated with them.

Prévost et al. (2012) state that “As in the past, the current French planning system is built on two levels: the supra local and the local (of a town or of its agglomeration) levels”. This division is reflected by the two levels of a legal tool that governs the planning system. At the supra local level the SCOT, is a document which sets broad guidelines for urban development and allows towns or groups of municipalities to develop coherent and coordinated policies in urban planning, housing, economic development and more (Prévost et al., 2012). On the local level, therefore, below the SCOT plans are the local plans such as the PLU, mentioned above, the Urban Movement Plans (Plans de Déplacements Urbains, PDU) and the Local Housing Programs (Programme Local de l’Habitat, PLH). These local plans must be compatible with the supra local level plans as they enforce the guidelines stated in the SCOTs (ibid). The various local level plans address a variety of issues with the PDUs aiming to define and organise transport within cities of over 100 000 people and the PLHs focusing on housing while favouring urban renewal and social diversity (ibid). Finally when it comes to the actual PLU, since 2000, an additional dimension has been added in the form of the Sustainable Development and Planning Project (Projet d’Aménagement et de Développement Durables, PADD):

which sets out territorial management priorities with a cross cutting approach (town planning, functions, commuting, environment, equipment, etc.). In order to be consistent with identified dynamics, strengths and weaknesses, the PADD is based on a territorial diagnosis. The development guidelines set out in the PADD are then translated into the PLU regulations, which condition future construction in terms of land occupation, volume and layout” (Prévost et al., 2012).

Therefore, as these objectives and regulations apply to urban renewal, they gain an additional level of importance in this research.

Additionally, the French government is known to be one of the most centralized of Europe. Metropolitan France, or the parts of the country found within Europe, is comprised of:

about 36,000 communes, headed by a municipal council and a mayor, grouped in 96 départements, headed by a conseil général (general council) and its president, grouped in 13 régions (recently reduced from 22), headed by a regional council and its president” (Darlington, 2017).

In France, the national government is also separated into a number of ministries, issues relating to urban planning would therefore fall under the ministry of territorial cohesion (Ministère de la cohésion des territoires). It is notable that one of the six themes found on this ministry’s website is “Greater Paris” (Grand Paris), this highlights the importance and amount of work generated by the capital. However, the information found in the other themes available will also still be applicable within Paris.
5.3 Vision document analysis

Paris has a number of useful (to this research) documents readily available on the city’s website. One that is especially relevant is the “Climate Energy Plan of Paris” (Plan climat énergie de Paris). The first version of this document was developed in 2005 in response to increasing climate change awareness. This first version was adopted in 2007; the current version of the document dates from 2012 and details a number of goals for 2020. The increase in the cost of fossil fuels in 2012 was an important factor in adding more to the “energy” aspect of the document. The notable energy goals detailed in the document are to: reduce greenhouse gases by 25% from 2004 levels, reduce energy consumption by 25% from 2004 levels and use 25% renewable energy. There is also one longer term (for 2050) goal which is to: reduce GHG emissions by 75% from 2004 levels.

This document then goes on to detail how the city plans to achieve these goals and what steps it will take in order to make them possible. This document is divided into six sections being: Land use planning for energy efficiency; Housing which is energy efficient and accessible for all; The new challenge of the tertiary sector; Mobility for better air quality which is also more respectful of the climate; Responsible consumption that generates less waste; and finally an Adaptation strategy. This document is well organized and within each section explains more specifically where the city is at, what it wants to achieve, and how it plans to achieve each specific goal. In the first section, Land use planning for energy efficiency, it does address the politics of urban planning in Paris and how these politics will be used.

Another useful document is the Sustainable Development Report from 2016 which elaborates on more recent goals and commitments. It also gives some information on how the implementation process of the Climate Energy Plan of Paris is going. The 2016 Sustainable Development Report also mentions that the goals and objectives in the current 2012 version of the Climate Energy Plan will be redefined in 2017 with the goal of becoming carbon neutral by 2050. However, as this new revised version is not yet published or readily available, this research will use the 2012 version.

This 2016 Sustainable Development Report also mentions a major relevant program in Paris called the “Great Urban Renewal Project of Paris” (Grands Projets de Renouvellement Urbain, GPRU). These are a number of projects happening within the city. These projects aim to make buildings more energy efficient. Finally, the sustainable development report also mentions a number of further programs and plans that will help the city become more sustainable. One of these projects, “operation Clichy Batignolles” in the 17th arrondissement renovations will permit heating and hot water to be provided mainly through geothermal energy (Sustainable Development Report, 2016). In this sense, Paris is lucky that the option of using geothermal energy for heating does exist at least for certain parts of the city. Between 2008 and 2016, 33 000 units of social housing have been renovated, which has made it possible to save the equivalent energy consumption of 17 600 units. The city is also working on a 2017-2020 plan to transition toward more of a circular economy. Individually, these can still seem like relatively small steps, but the importance is that they are all occurring at the same time and are helping to build momentum to continue to add an increasing number of small incentives until the city is full of them (Sustainable Development Report, 2016). It is important to note that the city’s sustainable development plan includes five subsections: Climate, Environmental quality, Biodiversity, Citizens, and Social cohesion. It is mainly within the Climate and Environmental quality sections that issues affecting energy efficiency in the built environment come up. It is still important to be aware of the other sections which may indirectly influence energy efficiency goals and objectives and, as their existence shows, that the city does understand the importance of the society side in sustainable development. This relates back to the theory of Shove
and Walker as they look at the connections between society and energy systems; here plans exist both for adjustments to society and more directly to energy systems and usage.

In July of this year (2017), a “green fund” was created in Paris to help fund the city’s energy transition. As this fund is so new, it is hard to say what effect it will have but its creation does show that the city does care about energy efficiency and therefore it is an important factor in project approval for the municipality (mairie de Paris, 2017).

5.3.1 What is considered energy efficiency policy objectives in Paris?

In 2007, Paris developed a sort of guide “référentiel- Aménagement durable pour Paris” (toolkit-Sustainable planning for Paris) for renewable building in the city. This document serves as a guide and evaluation criteria for all development sectors. It outlines a limit for energy usage per new buildings (max 50 kWh/m²/yr) as well as criteria for renovating existing buildings so that they consume less energy (max 80 kWh/m²/yr). It also aims to encourage compact development, increased green spaces, and more. It is important to note that for certain specific types of buildings (for example, seniors’ homes), the aim is to get as close as possible to these goals as these buildings may have much higher energy consumption needs.

5.3.2 How will Paris stimulate energy efficiency?

In order to stimulate energy efficiency, the PLU (Local Urbanism Plan) includes regulations authorizing developers to exceed the height restrictions on buildings in order to install either energy saving devices or devices producing renewable energy. The plan also authorizes existing buildings to be extended 20 cm into public property in order to improve the isolation of the building (which then decreases energy usage).

Paris is investing in the GPRU (Great Urban Renewal Project) which includes numerous urban renewal projects with various time frames and which focus on including energy efficiency and renewable energies within the projects. In coordination with the GPRU, the city is investing in special planning areas (ZAC) where the city studies energy choices, prioritizing local renewable energies, and connection to the heating (CPCU) or cooling (Climespace) networks.

Since 2008, people looking for a building permit or pre-work authorizations are provided with a counselor in energy efficiency. Since 2012, environmental analysis of all building permits accepted since 2008 has been undergone in hopes of developing a reliable method in implementing increased urban greening, solar panel installation, and renovation of exterior walls with better heat isolation, etc. This shows a willingness to search for better solutions and an acknowledgement of areas in which the city could improve, be it in the methods used or in the implementation of existing measures. Interviewee 6, a coordinator and animator for the zero garbage zero waste (French) national action plan, commented that she finds that the existing tools in terms of laws and policies are quite thorough, yet there has been a level of disconnect with implementation. She also noted that as a country, France is not the most progressive in terms of environmental measures as past national governments did not put much focus on such things. Unfortunately, this attitude is also represented in a significant portion of the population. On a brighter note, she has noted a positive change under the new national government. She hopes that this change will help publicise and bring attention to the importance of environmental issues in France and that it will also help the public come to realise how important these issues truly are.
Paris (like Amsterdam) also uses energy labels in homes, and as in Amsterdam, people are likely to choose the better energy label dwelling for the same price. However, due to the high cost of rent in Paris, it does not stop people from renting a place that is less energy efficient and has a lower energy label. Interviewee 6 has noted that as these energy labels are relatively new, they do seem to have been fairly effective in bringing energy consumption issues into the public’s awareness.

Finally, the city is also looking into air conditioning with the goal of decreasing the use of individual air conditioners as they consume large amounts of energy and can harm the architecture of old buildings (Plan climat énergie, 2012).

5.3.3 How will Paris monitor progress?

The city has already begun monitoring the progress of these goals (since 2011) to ensure the realization of its sustainable development goals. In order to do this, they are first analysed during their conceptual phase and then during the work phase (phase de travaux). Conclusions drawn from these first evaluations can then be applied to the monitoring of future developments (Plan climat énergie, 2012).

The 2016 Sustainable Development Report provides some indications on the progress that has been made since the publication of the Climate Energy Plan of Paris (2012). Therefore, the creation of this report is in itself a way that progress is monitored as it provides an in-depth look into how Paris is doing in relation to the goals set in 2012. This document also states that Paris is a candidate city to host the 2024 Olympic games and would therefore aim to ensure the event is as “eco-responsive” as possible. This added goal of hosting the 2024 Olympics helps add urgency in creating a more sustainable city, therefore creates another level of checks and balances.

Finally, Paris will use its numerous regulations found within either the national Urbanism Code, the “Local Urbanism Plan” (Plan Local d’Urbanisme PLU) and the sustainable development (PADD) section of the PLU to help first enforce and then monitor that regulations are followed and requirements met. This is an interesting issue however, as Interviewee 6 noted she believes the existing regulations and policies regarding energy efficiency are quite good but that, as she put it, “there is a monitoring organ missing but at least the norms and laws exist and that’s already a good starting point”. Therefore, this raises the question of whether the country/city is really doing enough in terms of monitoring. It is also possible that an improvement in monitoring could be seen soon as Interviewee 6 noted that new French government does seem to be taking issues of sustainable energy much more seriously. This trend is something worth monitoring.

5.3.4 Paris, policies

- EU energy efficiency directive
- Code d’urbanisme, National level.
- Plan Local d’Urbanisme, Municipal level.
  - PADD section du PLU
5.4 Answering research question

5.4.1 What are the main policies and regulations in Paris?

France has a fairly centralized national government which carries a large portion of responsibilities in governing. This means that most laws come from the national level. France does have a tiered planning system which strongly relies on laws which require the creation of a number of different documents relating to various different planning issues (see Section 5.2). One of these documents is a “Local Urbanism Plan” (Plan Local d’Urbanisme PLU) which provides regulations in multiple planning sectors, which has been modified multiple times and is currently valid in its 37th version (Mairie de Paris, 2016).

This document includes a section on sustainable development (PADD) within which there are numerous objectives: increase sustainability in the lifestyle of all Parisians; promote and stimulate jobs; reduce inequalities; implicate all stakeholders in the operationalization of projects (Mairie de Paris, 2016).

The PLU includes a section on rules and regulations which determines, in coherence with the PADD, the general rules and zoning regulations which enable the objectives set by the Urbanism Code (article L.121-1) to be met. The said objectives aim to create a balance between urban renewal, nature, and landscape preservation and the inclusion of mixed use areas (Mairie de Paris, 2016).

Above the Local Urbanism Plan, there is the national Urbanism Code which determines legal legislations and regulations. This Urbanism Code sets the laws that the Local Urbanism Plans must follow however, the Local Urbanism Plans do in a sense have a larger significance than the code as they define the specifics and will affect the working of the city a lot more than the national regulations will. Another strong point of the Local Urbanism Plans is that they are freely available on the city of Paris’s website for all who may want to consult it in a way that makes the authors of the PLUs answerable to the general public as well as to the higher levels of government creating an added level of checks and balances.

5.4.2 What energy efficiency goals (according to the stated visions) does Paris have? What aspects of these goals affect urban renewal projects?

Paris has some very specific goals relating to energy efficiency; they have set clear goals on how much energy will be used. The city is also undergoing the Great Urban Renewal Project which will definitely affect urban renewal projects. Details on these have been laid out in Section 5.3.

5.4.3 To what extent is urban renewal a major component in planning for energy efficiency in these cities?

Urban renewal does seem to be a fairly major component in plans to make Paris more energy efficient. This can be seen, first of all, in the existence of the GPRU and also in the existing initiatives to decrease the use of high energy consumers such as personal air conditioning units. Urban renewal also stands out in the PLU as additional exceptions are made for renovations to existing buildings when these may help improve energy efficiency.
5.4.4 Is the urban renewal process of the city in sync with its goals?

5.4.4.1 Does the city have and enforce strict regulations?

It seems that Paris does have fairly strict regulations but more importantly, it seems that Paris is well equipped to enforce the existing regulations and intends to carefully monitor these. One could argue that regulations could always be stricter, however, it is equally, if not more, important that the system be able to enforce first existing and then new regulations. If regulations exist yet are not enforced, it somewhat defeats the purpose. This sentiment is equally echoed by Interviewee 6 who believes that France does have sufficiently strict norms and regulations but that it could enforce them more effectively. She also states that before thinking of increasing requirements of regulations, a system for enforcing existing norms effectively should be in place, something she finds is not quite happening yet.

5.4.4.2 Does the city monitor progress based on its goals?

The city of Paris has been monitoring progress based on the stated goals since 2011 as mentioned in Section 5.3.3. The creation of the 2016 Sustainable Development Report provides some indications on the progress that has been made since the publication of the Climate Energy Plan of Paris (2012).

5.4.4.3 What are the ramifications for failing to comply?

As the policies that govern the regulations are tied to the legal system, it would be logical that if the ramifications would be legal, these would most likely be in the form of fines. Non-compliance in earlier stages of development would most likely result in the developer not receiving a building permit. Interviewee 6 agreed that this was likely what would happen although she was not completely certain and mentioned it may vary depending on the case. She also emphasised that monitoring is not a strong point of the French planning system and that it is likely that the ramifications may not come up very often as sites are not necessarily inspected. This is repeated in articles on the planning system in France where it is mentioned that there is also the possibility of increased taxes after changes have been made to a building (Introduction to System of Land Planning in France, n.d.).

5.4.4.4 Does the municipality look for energy efficiency when choosing between developers and approving proposals?

The municipality is currently trying to improve the energy efficiency and overall environmental impact of Paris. The current mayor Anne Hidalgo (elected in 2014) is a big supporter of turning Paris into a carbon neutral city. The newly created green fund is also an indication of the importance of increasing energy efficiency and environmental awareness, indicating that it does have at least some importance for public property buildings. Again however, as with Amsterdam, the private sector is likely less focused on energy efficiency unless the company in question has something to gain from being seen as more sustainable. This tendency was confirmed by Interviewee 6 who stated that private companies are usually more worried about saving money than saving energy.
5.5 Paris conclusions

Paris is taking an active and straightforward attitude to improving the city’s sustainability and energy efficiency. This can be seen through the planning documents such as the PLU and PADD as well as through the existence of the new green fund to help with energy transition. As far as putting energy efficiency in the context of urban renewal, it is not the city’s top priority, but it is definitely important enough; as the city does have so many older buildings, it is really impossible to ignore. Paris does have some mechanisms set up to help further energy efficiency in the built environment. Among these are regulations regarding new building, of course, but also the introduction of mandatory energy labels for buildings being sold as well as the creation of the green fund to help finance energy transition (Barroux, 2017). There are also the exceptions that exist in the building codes for renovation projects that improve energy efficiency. For example, there is the possibility to expand a building by 20 cm into public property if renovations increase energy efficiency of the building (as mentioned above). Finally, a great advantage Paris has is its current mayor, known for supporting and pushing for increased sustainability and the new national government, more favourable than some previous ones to increasing sustainability of the country (Interviewee 6).
CHAPTER 6. Analysis and Comparison

The 2015 paper by Heidrich et al. (see Chapter 2), offers an insightful look into national climate policies across Europe and how these impact cities. This paper is especially pertinent as it covers both the Netherlands and France. Here, we find some interesting information on the past performances of these countries when it comes to national climate policies, although past experiences do not always determine how well future or current efforts will go. The goals mentioned here begin with the Kyoto protocol of 1997 and are then translated to country-specific targets to lower emissions. In this instance, both France and the Netherlands managed to reduce their emissions (something which was not achieved by all countries).

Of course, in this thesis, the research is much more focused on individual cities. However, to properly examine the research, it is necessary to start with a much wider perspective to understand the context within which these cities function. This first so-called layer is therefore that of Europe.

6.1 EU energy efficiency directive

The European Commission is taking some action on trying to improve energy efficiency:

- Energy efficiency has to be increased at all stages of the energy chain, from generation to final consumption. At the same time, the benefits of energy efficiency must outweigh the costs, for instance those that result from carrying out renovations. EU measures therefore focus on sectors where the potential for savings is greatest, such as buildings (EU commission, 2017).

As one sector they are aiming to focus on is buildings, the relevance of this energy efficiency directive immediately increases. This also creates the very first layer of governance, a number of “binding measures” have also been set in order to help Europe achieve its targets: 20% energy savings by 2020 (as compared to projected use) and as of November 2016, 30% by 2030. All EU countries are equally required to “use energy more efficiently at all stages of the energy chain (production to consumption)” (EU commission, 2017). The 2016 update contains a number of new measures to ensure the goals can be met, among others:

- In relation to energy efficiency in urban renewal; every year governments are required to renovate at least 3% (by floor area) of their buildings (these renovations are required to increase energy efficiency of said building) (EU commission, 2017).

The existence of this specific goal shows that the EU is aware of the need for urban renewal within Europe and that it is actively working to help encourage and stimulate it. Of course, numerous other policies have also been developed and adopted by the EU to help as well as fairly thorough “guidelines on good practice” (EU commission, 2017).

The EU has the difficult task of balancing being strict and controlling enough in their targets and guidelines so that they may actually be worth achieving, with being lax enough to leave countries some independence and provide them with achievable goals. In order to try and do this, the EU has a number of documents providing information on energy efficiency as well as schemes providing financial support. They also allow countries the choice on “whether they want to base their target of 20% by 2020 on primary or final energy consumption, primary or final energy savings or energy intensity” (EU commission, 2017).
As the Netherlands and France are both European countries, they both have goals within this scheme. However, as the population of France is almost four times larger than that of the Netherlands, it is logical that at first glance the Dutch goals may seem more ambitious. When the goals are divided by population, however, it becomes clear that France has much more ambitious goals, especially in terms of final consumption (see Table 6.1).

<table>
<thead>
<tr>
<th></th>
<th>Netherlands</th>
<th>France</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary consumption</td>
<td>60.7</td>
<td>219.9</td>
</tr>
<tr>
<td>Final consumption</td>
<td>52.2</td>
<td>131.4</td>
</tr>
<tr>
<td>2016 Population</td>
<td>17.02</td>
<td>66.9</td>
</tr>
<tr>
<td>Area (km²)</td>
<td>42508</td>
<td>643801</td>
</tr>
<tr>
<td>Pc/population</td>
<td>3.566392479</td>
<td>3.286995516</td>
</tr>
<tr>
<td>Fc/population</td>
<td>3.066980024</td>
<td>1.964125561</td>
</tr>
</tbody>
</table>

Table 6.1 Own production

The findings of this table do highlight the importance of scale in comparisons. The 2017 world GBC report proposed, in light of the Paris climate agreement, a number of steps to be taken in order to achieve the goal of all buildings having “net zero carbon standards” (defined within the document) by 2050. A notable point made within the document is the fact that as buildings are constantly being built, it is important to try and adopt as many energy efficiency measures as early as possible in order to decrease the need for additional extensive retrofitting further down the line. As the aim in this document is that all buildings have a net zero carbon standard by 2050, it means that major renovation and retrofitting is already necessary to achieve the 2050 goal. Therefore, it will be important to monitor the rates at which renovations occur and ensure renovations meet the necessary standards.

The World GBC does have a plan on how to achieve this with input from the government, business sector, and NGOs as described in Section 2.2 (Theory of change).

6.2 Planning systems

Returning now to the comparison, it is necessary to first compare the planning systems of the two countries to be able to better understand further differences that may exist or arise due to differences in the systems. Buitlaar & Sorel (2010) highlight a first similarity between France and the Netherlands: “The Netherlands is part of the same Napoleonic legal family as France” (Buitlaar &
Sorel (2010). This can have a notable impact on the legal aspects of the two countries. As the planning systems of both countries are quite closely intertwined with their legal systems (see Chapters 4 and 5), this brings up even more potential similarities between the two countries.

The Dutch national government has a climate agenda that aims to create resilient physical environments and a society that is aware and prepared for the consequences of climate change. France follows a more regulated route that relies more heavily on laws and policies and less on an overall idea. This being said, the goals, specific laws, incentives and a desire to increase public awareness do also exist. In analysing these differences, it is important to remember that France does have a much larger territory and population than the Netherlands and one may theorize that it is in part due to this that differences in approaches do exist. It is also notable that the Netherlands have a much greater history battling nature (especially water) than France does, which could explain why they see a need to place their plans within a greater context in a way that France does not.

6.2.1 Comparing planning systems

Here, a more structured sort of comparison of the two planning systems will be carried out using the framework developed by Getimis (2012). This approach will help in better analyzing and understanding differences. Based on this framework, it is important to compare the planning systems on three aspects first actor constellations, then knowledge forms/orders, and finally policy styles. The reasons behind the choice of aspects is described in Section 2.1 (Comparing planning systems). Therefore, here, these aspects of the Dutch and French planning systems will be compared in order to help gain a better understanding of the differences, and similarities, that exist.

6.2.2 Actor Constellations

To best understand expectations, beliefs, values, and attitudes, it is useful to look to the past. In this case, it has been mentioned numerous times that the Netherlands has a long history and tradition of urban planning. Here the question of what is meant by “long” arises. This question however opens too many avenues and would require a much more thorough history and will not be addressed in much detail. What can be noted is that:

Dutch urban history is marked by changes on the international scene, the prevailing political ideals, the development of modern planning as a distinct discipline and the continuous changes of the main countries that inspired Dutch planning – France until the 1830s, Germany from the 1830s to the 1930s, and since the 1930s increasingly the United States (Wagennar, 2015).

Here it is interesting to note that at one point, the Dutch took inspiration in terms of planning from the French, yet it is the Netherlands that is known for having a long history with planning. Perhaps this reputation dates from more recent events.

Looking instead at the first laws relating to urban planning introduced in both countries, the Netherlands lead the way, introducing the health law in conjunction with the public housing law in 1901:

The first secured the involvement of architects and urban planners in committees staffed with medical doctors; one of the principal tasks of these health committees was to assess the health effects of the urban expansion plans. The public housing law, apart from
regulating the construction of new housing, also forced rapidly growing communities to make general expansion plans (Wagenaar, 2015).

France did not introduce a law relating to urban planning until after the First World War in 1919 with the Loi Cornudet, this law developed for the post-war rebuilding context stipulated:

“extension and improvement plans” in cities of over 10,000 inhabitants, was grounded in the values and goals of the time: health awareness and aesthetics (Prévost et al., 2012).

These early laws were not the most successful in either case, but they do help create a time frame. Both countries continued to evolve in planning with France adopting some quite specific laws over time while the Netherlands seemed to function with evolving policies.

While taking a close look at both cities, some specifics stand out. In Amsterdam, all levels of government are involved, whereas in Paris, the national government still has a strong guiding function (see Sections 4 and 5). In Amsterdam, although the municipality develops mitigation policy, there is less focus on adaptation likely due to the existence of the national delta program. Paris also does not focus much on adaptation due to adaptation strategies being more detailed on the regional level but has set higher and different targets in mitigation than the national government.

Looking at expectations, beliefs, values, and attitudes, it is clear that the Dutch have a strong belief in their planning system and see the value in working to improve quality of life. This does not mean that France has disregarded urban planning, quite the contrary, urban planning is important in France especially when it comes to dealing with large metropolitan areas such as Paris. The recent introduction of the Grenelle laws 1 and 2, aimed at increasing awareness of the environment and addressing some issues such as preservation of green belts within cities, show that the country does care about the environment and is working towards preserving it. This being said, the French planning system is much more rooted in bureaucracy and does not hold quite the same renown with its citizens as in the Netherlands.

6.2.3 Knowledge forms and knowledge orders

These differentiations could be helpful in comparing planning systems in that one can compare how each form of knowledge is being used in each system and could help provide an explanation as to “why different localities develop different strategies concerning planning problems” (Getimis, 2012). In the layout developed by Getimis (2012), there are three types of knowledge forms, therefore it is helpful to look at and compare all three separately first and then take an overview of the ways and extent to which both cities use each knowledge form.

(i) Scientific/Professional/Expert knowledge,

Refers to knowledge, which derives from a disciplinary background or certified education and training, including scientific and codified expertise targeted to professional practices. This form of knowledge is not necessarily bound in a concrete place, it can transcend over space and time (Getimis, 2012).

Looking first at Amsterdam, it would seem that there is a good amount of expert knowledge as it would be necessary in analysing the state of the city as far as sustainability goes. But also, in the designing of new buildings and developments such as the Ijburg development in the east of Amsterdam, building up neighbourhoods on this type of land would require expert opinions simply
to determine feasibility and then to identify the best approaches. The same goes for water management and transport coordination. Therefore, although it is not explicitly spelled out, the importance of expert knowledge for Amsterdam can be deduced by scouring the city’s website and examining the types of projects currently occurring and the type of data available. This type of analysis would also bring forward what the city wants to advertise and show off about itself, therefore, also what is especially important to the municipality.

It would seem that this type of expertise is also quite important in Paris, as it is such a large city. Because of its size, the coordination of the many different issues would require thorough analysis and careful planning. The city would also require experts in mobility, environment and innovation as well to participate in the city’s Great Urban Renewal Project. Again, as with Amsterdam, this is deduced from general knowledge on the city, mixed with an in depth look at the city’s website and current projects.

(ii) Steering/Institutional knowledge,

Covers knowledge forms related, on the one hand to the systemic and functional logic (formal or informal) of organizations and institutions and on the other hand to managerial and steering capacities empowering or disempowering cooperation, interaction and communication. Steering knowledge gained either in institutional contexts or through experience, is decisive in influencing the policy-making processes, the power relations and the inclusion or exclusion of the other two forms of knowledge in actor constellations (Getimis, 2012).

The importance of this type of knowledge although still important, seems to play a less important role in Amsterdam. The incorporation of bottom-up planning, need for continuous innovation to help the city grow, and the less hierarchical system is a reflection of this.

Steering/Institutional knowledge holds a much stronger role in France than in the Netherlands. This can be clearly seen in the concept of having “du piston”, essentially knowing someone who is in a position to help, for example, knowing someone important in a company would greatly increase your chances of being chosen for a job. Power relations are greatly influenced by this type of knowledge. A strong sense of respect for experience also exists whether one has done formidable things or not; more experience does tend to give one a certain superiority. This practice has undergone criticism in recent years and been called outdated. There have been improvements in this area, but the practice has far from disappeared. The hierarchical systems often found in the professional environments of France also demonstrate the importance of this form of knowledge. The importance of this type of knowledge and the issues described above are well known in France although many, especially those of the younger generations, are not particularly favourable towards it.

(iii) Local/Everyday/Milieu knowledge.

Local or Everyday knowledge, spatially bound, encompasses explicit or implicit knowledge of common-sense relevant situations and structures and enables the individuals to act and cope in everyday life. Furthermore, Milieu knowledge refers either to specific identity related to a spatial environment (nature, culture, language, etc.) or more generally to social conceptions within a social network. The other two forms of knowledge usually underestimate this form of knowledge, while it is recognized as important (e.g., by experts and politicians), only when open and inclusive participatory governance arrangements emerge (Getimis, 2012).
This form of knowledge, although unobtrusive, plays an important part in Amsterdam as milieu knowledge of the culture and identity of both the Dutch in general and Amsterdammers, in particular, and is very important due to the strong sense of national identity. Implicit knowledge of common-sense relevant situations is also an important feature in planning for mobility networks within the city as it is important to understand what people want and how they will react to changes. This type of knowledge has a special importance in the Netherlands and in Amsterdam due to the strong sense of national identity that exists in this country and also due to the strong and rather unique cycling culture. The cycling culture would be a crucial form of knowledge to understand when working on developments within Amsterdam as to be able to ensure necessary infrastructure – be it bike paths, or sufficient bike parking. Someone who is not used to this culture may have much lower standards than the Dutch would themselves.

In France, this type of knowledge plays more of a supporting role, in that with a good grasp of this type of knowledge, one can better navigate the steering and institutional knowledge which is much more visible. However, a strong sense of national identity also exists in France, and as in the Netherlands, language is an important aspect of this identity. One notable difference being that although language is probably equally important to the national identity of both countries, the average level of English is much better in the Netherlands.

Overview of knowledge form uses
From these comparisons, some interesting differences do stand out, essentially that in the Dutch planning system Scientific/Professional/Expert knowledge and Local/Everyday/Milieu knowledge play a stronger role while Steering/Institutional knowledge lags behind in terms of importance. Whereas in the French planning system, all three seem to play much more equal roles with perhaps the Steering/Institutional knowledge taking a very slight lead.

6.2.4 Policy styles

The 2015 paper by Heidrich et al. (see Chapter 2), offers an insightful look into national climate policies across Europe and how these impact cities and is especially pertinent as this paper covers both the Netherlands and France. Here, we find some interesting information on the past performances of these countries when it comes to national climate policies. Of course, past experiences do not determine how well future or current efforts will go. The goals mentioned here begin with the Kyoto protocol of 1997 and are then translated to country-specific targets to lower emissions. In this instance, both France and the Netherlands managed to reduce their emissions (something which was not achieved by all).

Of course, this research is much more focused on individual cities, however, to properly dive into this, it is necessary to start with a much wider view to understand the context within which these cities function. This first so-called layer is therefore that of Europe which has been described in Section 6.1. Following this, it is important to look at national policies as in both countries the municipal policies are very much linked to the national, especially when it comes to regulating energy and building codes. Specifics issues relating to locations within the city may vary from national policies; or, conversely, additional policies may exist, but in both countries the bulk of policies relating to urban planning come from the national level as seen in Sections 4 and 5. In France, it is notable that national policies make the development of local climate change action plans mandatory whereas in the Netherlands, municipalities are the main players in climate change policy development. Therefore, the specifics vary but in the end, in both countries, the municipality has an important role in developing climate change action plans or policies.
6.3 Comparing on the city level

As mentioned in previous sections, Amsterdam and Paris do have a number of similarities, such as both being the capital city of their respective countries. They also have unique histories, multitudes of different neighbourhoods, dating from various times in the history of the city, and both have to deal with overwhelming hordes of tourists, especially in the summer months. This being said, the population of Paris is significantly larger while the area of Amsterdam proper is about twice that of Paris (see Figure 6.2). Therefore, the population density is on average lower in Amsterdam:

The density of residential areas varies from more than 25 dwellings pro [sic] hectare in the Randstad to less than 15 in the least urbanised areas in the north. The built up area of the Delta Metropolis (2000 inhabitants/km2) shows much lower densities than Paris (Van der Valk, 2002).

The significant differences in population and density necessarily will play some role whether conscious or unconscious in the working of the planning systems and policies existing within the cities. I believe the importance of these differences however is less significant than one may expect, as in both countries so many of the regulations and policies are derived from the national government. The difference in population and density will most likely only affect smaller practical details such as having to deal with more large apartment buildings in Paris and more row houses in Amsterdam.

<table>
<thead>
<tr>
<th>CITY COMPARISON DATA</th>
<th>AMSTERDAM</th>
<th>PARIS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2016</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Population</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within city limits</td>
<td>813562</td>
<td>2241346</td>
</tr>
<tr>
<td>Metropolitan area</td>
<td>1575263</td>
<td>6968051</td>
</tr>
<tr>
<td>Area</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within city limits (km2)</td>
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<td>105</td>
</tr>
<tr>
<td>Metropolitan area (km2)</td>
<td>825</td>
<td>762</td>
</tr>
<tr>
<td>Density</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within city limits (people/km2)</td>
<td>3714.894977</td>
<td>21346.15238</td>
</tr>
<tr>
<td>Metropolitan area (people/km2)</td>
<td>1909.409697</td>
<td>9144.423885</td>
</tr>
</tbody>
</table>

Figure 6.2 city comparison data (own production)

Looking back to the theory of change discussed in chapter 2, it is interesting to try and place both Amsterdam and Paris within this framework. To begin with, one would try to determine which phase of transition described on the ‘S curve’ the cities are currently on. Although this is always more easily done in retrospect, I would judge both cities to be currently sitting in the pre-development phase of
a transition to a state of having only net zero carbon buildings. I judge them to be sitting in the pre-development phase but towards the end of that phase, perhaps soon to be almost nudgeing into a take-off phase. Both cities have important energy and carbon reduction goals as well as having various incentives to help encourage energy saving or alternative energy sources. However, the market for this type of building is still only developing and the framework to support a complete transition is not yet in place and is, in fact, still developing. On the other hand, both cities seem to be further along in terms of energy efficiency in areas other than urban renewal, for example, new buildings have much stricter regulations and public transport is moving towards renewable energy. This being said, I would judge that neither city has quite reached a take-off point but that they are trying to get there. One important obstacle for both cities is the market. As seen in the WGBC report, the market can play an important role here because if the market for net zero buildings went up, this would then drive innovation and activate or unlock the necessary channels to launch the takeoff phase. Westley et al. (2011) explained that innovation can in itself drive further innovation but that for innovation to increase, there must be a push or a need for it and that:

When innovative ideas are connected to strategic priorities this produces the cascade of resources required to bring innovation to markets and scale it up (Westley et al., 2011).

In this case, a spike in the markets could, as the authors of the WGBC report explain, be the necessary push to, eventually, a world full of net zero carbon buildings. There is also a link to the theory of implications of change presented by Shove and Walker (2014) in which they emphasise the importance of society and the link to energy systems. This theory links to the theory of change through the idea that as mentioned above, a change in the market could be a catalyst to change. Here it can be argued instead that a change in society and its uses of energy systems would be an even greater catalyst to change as this would affect even more aspects and most of all would lead with a change in mindset. If society changed the ways in which they saw and used energy systems, a change to markets would logically follow as demand would increase due to a change in how energy systems were used.

This being said, it is not that easy to simply completely change the way the energy systems of two cities work. The changes will unlikely not happen simultaneously nor in the same ways in both cities, largely due to different ways society uses energy systems in Amsterdam and in Paris. Shove and Walker (2014) bring up energy transitions and links to economic activities, which resembles, on a larger scale, the ideas mentioned above relating to the role the market can play in transitions. However, Shove and Walker add to this that the organization and management of resources plays an important part in how societies are defined or define themselves. This can be seen for example in countries that produce large amounts of oil. They also help explain why large energy transitions are so difficult and why they will necessarily happen in slightly different ways in every country and city.

Shove and Walker (2014) also note that energy is not used as is, but as a part of normal social practices. Due to this practice, a drastic change in energy systems would likely also result in changes in social practices and society. For example, the way energy is used in cook could change depending on how the energy systems change and this could lead to a change in how people cook. This understanding of how society interacts with energy systems can therefore be of great use to those who are trying to drive a transition in energy systems. In this way, as new policies are developed they could be structured to receive the most positive response possible and therefore be more quickly and easily adopted.

The idea of focusing on transforming energy demand rather than focusing solely on supply is also raised by Shove and Walker. This idea could, if successfully implemented, greatly simplify the number of changes and types of changes needing to be made as far as energy supply goes. Looking
for examples of differences in how Paris and Amsterdam use energy could help define the most efficient strategies for each city. One example would be that in Paris, much more energy is used on cooling in the summer than in Amsterdam due to the debilitating heat waves that tend to hit the city and are made worse by the urban heat island effect created by the city. Another would be that Amsterdam would be much better prepared for a drastic reduction in car use than Paris because the cycling culture in Amsterdam is much stronger, and also because cycling is much safer in Amsterdam than in Paris. The energy systems in each city are also different; in Amsterdam, there is a much higher use of gas and the general attitude that being connected to gas networks is a right. This is due to large reserves of natural gas in the North Sea and that most buildings are connected to the gas network due to its accessibility and legal right to be. This is an example where a change in the legal framework could be an important step in changing societies’ use of this form energy.

In Paris, the situation is quite different (as explained in Section 5). Most buildings are heated using electricity, although many systems are quite old and not particularly efficient, as when the switch to electricity was promoted, one of the main sources was nuclear power plants that were, in fact, producing so much energy that they were exceeding the need. This means that at the time, nuclear power was a relatively cheap source of energy, as was gas in the Netherlands. Therefore it was not a priority to ensure any aspect of the systems were particularly energy efficient. It is notable that in Paris, although most buildings use electric heating, they do not use this energy very efficiently and often the buildings are not as well insulated as they could be.

It is small societal and environmental differences like these that Shove and Walker (2014) see as especially important. These differences in heating systems explained above mean that the approach to making older buildings more energy efficient could be very different in both countries. In Amsterdam, it would be necessary to move away from using natural gas, which would mean either switching to biofuel or needing to retrofit numerous buildings so that their heating and cooking systems would use electricity from a renewable source. Whereas, in Paris many more buildings are set up to use electricity for heating and cooking, but may need significant adjustments to insulation and updates to the actual heating systems. This does mean that it could be easier to simply change the source of the energy, while also working towards using less of it.

Both cities also use energy labels and require buildings being sold or rented to have one. It is hard to tell whether the two cities are using the same types of energy labels or if the two systems are just similar to each other. Both cities use energy label systems where dwellings are rated on a letter scale with an A or B label being most desirable. Interviewees 2 and 5 both found the energy labels to be a move in the right direction in helping people understand how much energy they use and how improving energy efficiency could be positive. They both also found that the labels of their respective countries were not perfect. This indicates that in both cities, energy labels could be an increasingly useful tool. Interviewee 6 also pointed out that in France, energy efficiency certificates are required for all buildings when being sold or rented. These are more important than the actual energy labels as they have been in use longer and people are familiar with them. These certificates exist to help inform the public and the amount of information they are required to provide is set to increase in the near future. The use of these energy labels and certificates shows that society is interested in understanding how much energy they are using, whether it be for financial or other reasons. This is a sign that energy efficiency is becoming increasingly important to the general public and that the demand for more energy efficient homes and buildings may see an increase in the coming years.
CHAPTER 7. Conclusion

This final chapter aims to answer the proposed research questions. To do this, it will start with the specific sub-questions, then address the main research question. Following this, it will offer some critical reflection on the present research and it will end with a few recommendations for further research.

7.1 Answering research questions

The four sub-research questions will be answered first to best put the main research question into context.

7.1.1 What are the main policies and regulations in Amsterdam and Paris?

The EU has had some form of environmental policy in place since the 1972 summit. This policy has of course evolved over the decades, but its existence does highlight the fact that the environment has had a prominent position in European treaties for some time now. Environmental impact assessments are therefore required through the European policies.

The EU energy directive (as described in Section 6.1) also affects both countries through national policies and regulations. The Urbanism Code and Grenelle laws in France are quite important, while the Environmental Act in the Netherlands is most relevant. On the municipal level, urbanism plans, specifically the section on sustainable development planning, is the main regulator in Paris, whereas, the Sustainability Agenda, dealing with numerous issues, is the main regulator in Amsterdam (Figure 7.1).

Figure 7.1 Policies affecting Paris and Amsterdam. (Own production)
7.1.2 What energy efficiency goals (according to their stated visions) do Amsterdam and Paris have? What aspects of these goals affect urban renewal projects?

Amsterdam has a number of goals related to creating a more sustainable city. The ones which are most relevant to energy efficiency in urban renewal are stated above in Section 4.3. Mainly, the city wants to accelerate its preservation plans, and by 2020 aims to use 20% more (than in 2013) renewable energy per capita while aiming to use 20% less (than in 2013) energy per capita. Amsterdam also has more specific goals on how much energy from different sources it wants to use by 2040.

Paris has some very specific goals relating to energy efficiency, including set goals on how much energy will be used. The city is also undergoing the Great Urban Renewal Project, which will definitely affect urban renewal projects (see Section 5.3). The city also wants to reduce the area’s greenhouse gases by 25% from 2004 levels, reduce the area’s energy consumption by 25% from 2004 levels, and ensure that 25% of its entire energy used is from renewable sources. There is also one longer-term (for 2050) goal, which is to reduce GHG emissions by 75% from 2004 levels.

It is difficult to compare these goals for a number of reasons. First, they have very different base years—2013 for Amsterdam and 2004 for Paris. Second, although both cities are addressing the same sort of issues, their plans are mostly worded in different ways. However, both cities have a goal of reducing energy consumption in 2020 by 20% for Amsterdam and by 25% for Paris. Taking into account that the base years are so far apart, Amsterdam seems to have more ambitious goals as it aims for 20% reduction in seven years. Whereas, Paris aims for 5% more, but over the span of 16 years. The issues of city growth then come into play as both cities have been growing so, if one takes into account that as the cities grow, energy consumption may increase as a whole even though it may decrease on a per capita basis. This distinction is important to make as the goals set by Paris refer to an overall decrease in energy consumption over the city’s area. This means that no matter how much the population has increased, the city aims to use 25% less energy in 2020 than in 2004. This means that the “per capita decrease” from the 2013 levels may be of 20% as with Amsterdam, or it could be even greater depending on the population and energy consumption in both cities. Therefore, it is very difficult to tell which city has the most ambitious goals.

It is likely that for both cities urban renewal projects would be most affected by the goals that aim to decrease energy consumption as this will entail a need for good insulation and updated technologies that do not use as much energy.

7.1.3 To what extent is urban renewal a major component in planning for energy efficiency in these cities?

In Paris, urban renewal does seem to have an important role in planning for energy efficiency with the existence of the Great Urban Renewal Project as well as the section on sustainable development planning within the Local Urbanism Plan.

In Amsterdam, urban renewal also seems to play a fairly important role in planning for energy efficiency, however, it is somewhat more understated than in Paris. Amsterdam’s urban renewal is more integrated into other types of plans and does not have its own discernible place such as the Great Urban Renewal Project in Paris.
7.1.4 Are the urban renewal processes of the cities in sync with their goals?

In this research, the idea of being “in sync” has many facets. First, is the issue of regulating; from the research it would seem that Paris does have fairly strict regulations and is able to enforce these. On the other hand, Amsterdam does not seem to be quite as successful in the enforcing of its regulations. This being said, Amsterdam has strict regulations especially when it comes to renovating existing buildings. This then leads into the issue of monitoring, a crucial factor in enforcing. As can been seen in the “monitor staat van duurzaam Amsterdam” documents, Amsterdam has been monitoring progress based on its goals. However, the extent to which it monitors progress is unclear. Therefore, although the documents indicate that when monitoring does occur, it is based on its goals, it does not indicate how effective this monitoring is, nor how often it occurs.

In Paris, the 2016 sustainable development report provides some indications on the progress that has been made since the publication of the Climate Energy Plan of Paris. The 2016 document is also an indication that Paris has been monitoring progress based on the stated goals. In line with monitoring and enforcement is the issue of how these are enforced or what sort of ramifications may come from failing to comply with set regulations. This is difficult to answer as there are numerous different cases and levels to which one may be failing to comply. However, in Paris, due to the planning systems’ strong ties to the legal system, a logical ramification would be along the lines of a fine or the loss of a building permit. In Amsterdam, there is little indication of what sort of ramifications may exist for a lack of compliance. However, for certain initiatives, it could be the loss of a grant or tax incentive if projects are not completed on time. Finally, as it is the city who is setting these goals, it would be logical that the municipalities would help emphasise and encourage projects which are more energy efficient by prioritizing them when they must decide between different proposals. It would seem that in both cities when the project is commissioned by the public sector, there is more effort put into trying to select the most energy efficient option. However, when it comes to projects wanting to go above and beyond and surpass the norms in France, Interviewee 6 explained that it is not overly common. She mentioned that the first priority has been meeting the energy norms as required by law. She then explained that when it comes to going above and beyond existing norms, it is really dependant on who the project was for, private or public, and whether there were added costs. She also pointed out that it is quite rare for projects to go above or beyond the norms without subsidies due to the high cost of labour and materials. Finally, she mentioned that in French culture, some may find it kind of odd to try and go beyond the norms when it is not required or when there is no added incentives or subsidies.

In Amsterdam, Interviewee 5, an architect, explained that the issue of choosing projects which are more energy efficient is important for the municipality and that it is clear that the municipality does take energy efficiency into consideration, but that within the private sector, it varied much more. She explained that if the company aims to be seen as innovative or wants to promote its sustainability, it would be much more likely to commission a more energy efficient building. She did also state that unfortunately that was not the case for most of her clients as cost issues often came up. Therefore, it would seem that although in both cities the private sector is less bothered by energy efficiency, at least the municipalities do seem to be taking it into account in selecting projects. This being said, it is difficult to evaluate; and more extensive interviews in both cities could have helped answer this question with more certainty.

7.1.5 Main research question

In comparison, are Paris and Amsterdam’s urban renewal plans and projects in sync with each respective city’s energy efficiency policies and objectives as stated in their vision documents?
From the findings stated above, it becomes clear that in short, yes it would seem that both Paris’ and Amsterdam’s urban renewal plans/projects are in sync with each city’s respective energy efficiency policies as well as with each city’s respective objectives (as stated in their vision documents). However, the long answer is more nuanced and complex because the cities are different.

Amsterdam has a much more integrated approach to increasing the energy efficiency of the city than Paris does, however, Paris has clearer policies and laws relating directly to energy issues. Due to Amsterdam’s approach being much more integrated, it can seem that the city is doing less. On the other hand, Amsterdam seems to be more open and innovative in its approach to dealing with energy efficiency. Other issues include the significant difference in population size and density. Here, it would seem that Paris is facing a greater number of challenges, in areas other than energy efficiency, making it seem less important in comparison. Amsterdam’s social sustainability approach makes it seem like it continually monitors its progress and can give the impression that it is a leading city in matters of environmental issues. Paris, on the other hand, although it does have plans which include social sustainability issues, does not market itself in the same ways as Amsterdam does and therefore is much less associated with these issues. However, Paris is known for so many different things that are not related to environmental or energy-use issues one can wonder if these pre-existing images of the city outshine and, in a way, hide the efforts that have been made in the environmental sector. Finally, it is also crucially important to look at the differences in society in Paris and Amsterdam as this is where differences in attitudes and use of energy could be found.

Discussion
In the interview about Amsterdam with Interviewee 5, she mentioned that, as an architect, she would be thrilled to try and deliver innovative energy efficient designs. She finds that, unfortunately, this type of design is not in very high demand as often this approach does come with some added costs. Due to the lack of demand, she is not able to push design innovations as much as she would like to. Therefore, perhaps it is the market that is in part to blame for this lack of innovation. This, in a way, gives an example of innovation that has not been harnessed, which is something that is necessary in managing a sustainability transition as Westley (2011) explains, “We will need to harness humans’ creativity and innovation potential to tip the interlinked social and ecological systems in the direction of greater resilience and sustainability” (Westley, 2011).

This statement also shows how significant the market is in influencing the trend towards sustainability. In this example, the market for innovative, energy efficient designs is not developed enough to push for this innovation, nor to push for the norm to become the innovative, energy efficient design.

7.2 Reflection

7.2.1 Theoretical

Planning systems comparison
The theoretical framework for comparing planning systems described by Getimis (2012) provided a basis on which to organize a comparison of the two planning systems included in this study. It also encouraged research into some aspects that perhaps may not have initially seen worth including. In so doing, it created lines of thought that may not have been obvious before, leading to consideration of why this may be important enough to be included in the framework, and from there, why one should pay more attention to certain aspects. There were also some difficulties in following the
framework to compare the systems due to uneven information sources as some types of
information existed in greater evidence in one city/country but did not have an equivalent source in
the other country/city. Actor constellations were, in particular, one area that was more difficult to
compare due to these issues. To properly compare policy styles, a much deeper analysis of policies
in each city and country would have been necessary for a more thorough result. However, as a
whole, the use of the framework provided some new insights into the differences existing between
the two cities as well as bringing up areas in which the systems may resemble each other more than
initially expected. Finally, I believe that the use of this theory was helpful, but that comparing
planning systems is a complicated undertaking and could have been done in much greater depth; in
fact, a whole thesis could easily be devoted to this approach.

Theory of Change
The theory of change section included a great number of ideas, which were in most cases useful in
explaining and understanding what exactly is happening in Amsterdam and Paris, while placing them
in a larger context. The ideas on transition management were especially helpful as they gave some
sort of framework or timeline in which to situate the cities. This helped further understanding of
how the cities are evolving in their aims to decrease their carbon footprints, become more energy
efficient and more sustainable all around. Using the idea of the “S curve”, it was possible to try and
place the two cities on the curve and then see if they appeared to be sitting at the same spot on the
curve. This task helps place them in the same context, thereby facilitating comparison. That being
said, it is not an exact science to place the current state of the city on the curve and would likely be
much easier to do so in retrospect in perhaps another 50 years.

The WGBC report, which contained both explanation of theory and specific recommendations,
helped put the current activities into context as it was possible to see in this documentation how
they suggested specific recommendations to fit into the theory. From there, it was possible to see
what was recommended and what cities were active focussing on. Although this focus was not
necessarily explored in much detail, it added context and helped organize thoughts. The ideas of
how the market can have such a large influence were also very interesting and fit into the
explanations of a take-off phase, in that if the market were to take off as explained, it could provide
that extra push that is needed to launch the take-off phase of a transition.

Implications of change and the link between society and energy systems
The implications of change and the link between society and energy systems brought up very
interesting but idealistic ideas of a driver for bottom-up change. Although this theory has a number
of very good points and if it were possible to follow it exactly, would likely have great results and
could solve numerous issues in resistance to change. However, on the practical level it can be hard
to imagine how this theory could be completely put into practice. For example, it does not help
address a number of practical issues as basic as the availability of apartments in desired areas that
offer a reasonable cost and provide a good energy label. Such dwellings are very difficult to find in
both Paris and Amsterdam, as it is already hard enough to find available, affordable apartments in
desirable areas. Even so, this theory is arguably the most important theory included in this thesis, as
it provides the groundwork and base-level understanding necessary for the depth of analysis
conducted. Without this theory, there would be a layer of understanding missing which would affect
the overall analysis and understanding of all of the other theories presented. This theory explains
and demonstrates the implications small differences in daily life can have and although it may not be
explicitly brought up the most often, it is the foundational building block that holds up and makes
the rest of the research conducted possible. This theory made an understanding and analysis of
society and the impact simple societal differences can have when it comes to comparing energy
efficiency in buildings possible. The idea of energy systems being so closely linked to society is also
not necessarily the first place the mind goes when thinking of energy systems and this theory,
therefore, helped expose this and emphasise its importance. The links between energy systems and society are also crucial in energy transitions as well as in the understanding of a planning system and the types of policies it uses. Although it is possible to understand these concepts without the link between energy systems and society, this link offers a building block for the other theories to build on and in the end, provide a richer analysis. The theory on common pool resources by Ostrom (2010) mentioned in this section provides a suggestion for the types of monitoring that could in the future be installed to help improve monitoring of progress.

7.2.2 Methodological

The choice of using case studies for this research was a good decision as it allowed for further exploration of the topic; it also allowed for different lines of questioning and research to arise. As this is a very wide topic, it would have been even more difficult, if not impossible, to answer as thoroughly using only a survey or experiment. As these require first, predefined questions that do not leave space for open answers and secondly, access to sources that are hard to get a hold of (from the municipalities in question). This being said, although the choice of using case studies worked well, there were some unexpected difficulties in the process. First in Data collection, it was much more difficult to get interviews than expect so the number of interviews conducted was much lower than intended especially in Paris where only one interview was conducted, luckily it was a very clear and helpful interview. The lack of more numerous interviews, in Paris especially, is the main area in which this research failed. However, the Paris section did have a very thorough selection of documents available on the city’s website which made collecting information much easier. Another issue was with language, as although a good portion of the city of Amsterdam’s website is in English, many of the more detailed documents are only available in Dutch. For this online translation, platforms were very helpful but did not always deliver the same quality of writing as if the text were originally written in English. There were also probably instances where I may have missed out on some link or side note during the document research process simply because it was not something that stood out without being translated and therefore was not noticed and deemed worth translating. The document research for Paris was a lot easier as French is one of my first languages. However, it did still take up extra time as once I found information which was useful I still had to translate it or the ideas presented within the document to English to be able to properly include it. The translation aspect also added some extra work when it came to ensuring things were translated properly so that they could be properly compared as words can often have multiple different meanings, especially in English. Words and expressions can also be translated a number of different ways, depending on slight nuances in the use of a word. Additionally, as some words do not have direct translations, this is often a delicate task. The comparison process was also made more difficult due to nuances in how the two countries work on a legal level but also on a societal level. Although in the end, despite these differences, the result is really not that different as the issues are being approached in different ways in a large part due to differences in the approach the governments have taken both currently and in the past.

Finally, although I did consider and initially had planned to include a stakeholder analysis once I started working I realized two things; first that I could no longer see the use in continuing as I did look at an actor constellation which was less detailed than a stakeholder analysis would have been yet it did not provide as much insight as hoped. Second it very difficult to find the necessary information to complete a proper stakeholder analysis as this would have required a much more detailed analysis of numerous unavailable people. Therefore, I could not see what I might gain from completing the stakeholder analysis with the time and data available. I thus decided it was not a good use of my time and that my time would be better spent doing research on other more useful sections of this project such as analysing the city vision documents, theoretical documents,
conducting interviews and in general studying papers relating to different sections and ideas presented throughout this research. Altogether this was a difficult research to complete but I feel I have still been able to draw interesting and worthwhile conclusions from it.

7.3 Recommendations

For Practice
Although it seems that both Paris’ and Amsterdam’s renewal plans are more or less in sync with their visions and goals, both cities could always be doing more to improve energy efficiency in renewal projects in particular. It is clear that there are numerous obstacles in doing this whether on the legal/policy side, or simply due to a lack of enthusiasm or demand within the market. Either way, it would help if the respective national governments as well as the municipalities took on a stronger role in promoting and supporting projects that would improve energy efficiency in urban renewal. More importantly however, would be to work to change society’s view of energy efficient buildings to make them more desirable. Pushing for a change in the way society views existing energy systems could lead to a much smoother transition to increased energy efficiency and eventually establishing zero carbon cities. The benefit of having the push for this change come from society would be that it would help increase the demand for zero carbon buildings (or at least increased energy efficiency), which would then push further innovation. This would then definitely take the two cities out of the pre-development zone to the takeoff and acceleration portions of the ‘S curve’ of a transition. This, understandably, is not so easily achieved on the practical level as there are numerous difficulties to overcome. For example, although residents of Paris may care about the environment and/or want to help lower their energy bills by improving their insulation or installing double-glazed windows in their homes/apartments, they may not have the ability to do so from a financial point of view especially as so many buildings in Paris are rather old, thus making renovations more complicated. The same or similar issues would be expected in Amsterdam as both cities are known to have rather high rents. Therefore, here it would seem that short of paying for renovations completely, it could be difficult to convince the inhabitants to undergo these renovations. Also, although some may be very keen to only choose apartments with higher energy labels, people do need places to live. If apartments with higher ratings are not available in the desired locations and price range, then chances are people will choose the less energy efficient options. Finally, it was noted that neither one of the cities seemed to have very clear and functioning monitoring systems. This lack made it more difficult to evaluate progress in research, but also would affect people’s awareness of the current situation. Elinor Ostrom’s (2009) theory on common pool resources provides an interesting framework which could be used to help develop a monitoring system.

For Further Research
It would be interesting to continue research on how both of these cities are dealing with the energy transition and approaches towards urban renewal, especially with the help of statistics. The addition of statistics to this research would make comparison much simpler as specific details on how much energy each city uses as a whole and per capita would create a more even comparison field. Data on energy consumption over the past two decades (for example), as well as before and after different laws or policies came into effect, would help evaluate their performance. The possibility of interviewing a greater number of specialists as well as representatives of different levels of government could also help create a clearer picture of what goals the municipalities really have as well as what their priorities really are. Data on the energy sources the two cities use and what percentage of energy comes from each source would help evaluate their uses of renewable energy and would help in the comparison process. Finally, further research into the efficiency of the approaches the two cities are taking would be very interesting to see. Also of interest, would be the timeframe over which the changes occur and the attitude of society towards these changes as this
could then help improve both approaches and better compare them. Finally, further research on monitoring using, for example, Elinor Ostrom's (2009) theory on common pool resources could be used and studied. This theory, although not mentioned often in the thesis, was included for this reason.
REFERENCES


Municipality of Amsterdam (2015) Amsterdam Sustainable, Agenda for sustainable energy, clean air, a circular economy and a climate-proof city. Retrieved from amsterdam.nl/duurzaam


Prévost, A., Molines, N., Dehan, P., Bandet, J. (2012). The urban planning of French cities and the challenge of sustainable town planning: improvement and limits. AESOP 26th Annual Congress, from https://hal.archives-ouvertes.fr/hal-01179362


ANNEX I. Interview questions

Visions and goals
What energy efficiency goals are you aware of the city having in Paris/Amsterdam?
-What aspect of these goals do you think/find affect urban renewal projects in the city?
-Do you find any one aspect of energy efficiency goals affect urban renewal more than others?
-Are you aware of the energy efficiency goals set out in the city’s vision?
-Have you heard of the world GBC report?
  -If so do you think the commitments made will be undertaken as (more?) actively than the city goals?
  -Do you think building certification schemes help in achieving visions and goals?
  -Do you think building certification schemes are strict enough?

Energy efficiency in urban renewal projects
In planning for energy efficiency do you think urban renewal is a major component in Paris/Amsterdam?
-Do you find the plans are aimed more towards new buildings/developments rather than existing ones?
-Does the city take into account urban renewal to an important degree when planning for increased energy efficiency?
-Do you think the city should put more emphasis/focus more on energy efficiency in urban renewal than it currently is?

Policy implementation and monitoring
-Does the city have and enforce strict energy efficiency regulations?
-Does the city monitor progress based off vision goals, if yes or no then how?
-Are there/ what are the ramifications for not complying to rules and regulations?

Project approval
-Is energy efficiency an important factor when choosing between developers/approving proposals?
-Is having better energy efficiency measures likely to lead to a much higher chance of being chosen?
-Is it seen as a sort of requirement that must be met but nothing more?
-Is it an area where once the requirement is met it is still encouraged to go further and innovate more?
-Is the additional (unwanted) work for developers if the project they present is more energy efficient?
ANNEX II. Interviews

Please note only the first interview was transcribed it was an unnecessarily lengthy process therefore was not repeated audio recording of all interviews are available and included in submission.

Interview 1
Thomas de Groot (Interviewee 1)
Junior Consultant
Arcadis

Katya: What, is your role in the company?
Thomas de Groot: Junior Consultant, most of the employees at Arcadis are consultants (70%) as they are an engineering/consultancy firm, 85% of working time is on projects, 15% on internal discussions or interviews.

Katya: What project are you currently working on in Amsterdam?
Thomas de Groot: Establishing a local energy development firm, simply, due to the increasingly complicated nature of increasing energy efficiency Governments and asset owners do not even know anymore what they really want, they only know that there are certain standards they need to meet for new buildings for example but they don’t know what the question they need to ask a company like Arcadis is anymore. Secondly the energy transition is so complex because the energy chain is so divided, between innovation strategic advice applied advice then energy companies who makes what’s advised then to the user. Because it is so fragmented the different parts aren’t working together properly which results in suboptimal solutions and projects that aren’t even started because of the complexity. It’s very difficult to apply energy efficiency to the built environment that is already constructed. Replacement rate of a city is about 1-3% /yr so just waiting for the city to replace itself with new energy efficient buildings isn’t a quick enough option. So we decided we should do more before the question comes to us, that we should go into the market, into the city, to help them develop the question they don’t even know to ask so we’re presenting them a solution to a problem they don’t even see. So, since Arcadis is just an advisory firm we can’t do it alone, we together with the municipality of Amsterdam with the owner of all electricity and gas distributor of all of Amsterdam, so the owner of all assets related to distribution of energy, the municipality, TNO, TNVGL (like arcadis but more strategic) engy, made a PPP to tackle problem of decarbonizing the city. We are not working on the whole city of Amsterdam, just in a district of around 80 000 inhabitants (Zuid-Oost) one of the 7 districts of Amsterdam. From February to September we are working on a business plan how can this organisation fund itself by working on these projects and stakeholder analysis and working to generate new projects. Ex they think of doing a project/want to build but the score that new building need with the energy presentation coefficient is so low (lower it is more sustainable it is) that they don’t really know to do it, how to make it low enough, this is for new building. For renewal projects it’s more difficult, there’s a gap in the legislation, you cannot apply completely new standards on an existing building renewal is a very good incentive for the company (ZOE, working title/name) as there are opportunities to enter discussion with the owner who wants to have a renewal project to help them find more solutions, work with the environment more. We find that often with asset owners if they want to renew or become more sustainable they only look at solutions within the building but they do not know other methods that could be used, for example they want to lower their energy usage on heat they do what they know; make it more efficient and cope with it that way but what they don’t know is that nearby there is a data centre producing large amounts of waste heat, so we would suggest connecting with this data centre to recycle heat creating a local solution to problems that would be, otherwise overlooked. We are a developing company. It will also help generate projects for the companies like arcadis and help the asset owner as these projects can help them save money as well as having a local aspect but that is backed by large companies.
Thomas de Groot: If you want to have some more knowledge on certificates of the building, it goes to DMV. If you want to have something completely innovative it goes to TNO.

Katya: Okay.

Thomas de Groot: So it also depends on the state of the project and it’s also possible that so energy developed the project itself and in the end, sells the project. For example, we’re working on a firm right now which converts waste from ORCA has a restaurants, green waste from restaurants into green gas and then redistribute it back to the restaurants. So, they have energy from their own waste which is a project, so Engie's working on it and it's an idea if the project is finished, we can sell it to Engie. Because Engie's an energy company and they can then, sell energy to their clients. So that’s why these companies are not randomly picked and they’re all a part of the chain of energy.

Katya: Okay, is this a sort of I mean assuming it works out well in Amsterdam.

Thomas de Groot: We don’t know yet, it’s not existing yet, that’s why we’re working it.

Katya: Assuming it works, would it be something that you would want to apply to other cities?

Thomas de Groot: Of course, I guess the idea originated from [unclear 21:14], from the business area, now, we're testing it into the urban area. We’re also doing the same kind of project in Rotterdam, that's why I'm here today because this morning, I had a discussion about the Rotterdam project. That's a bit other quite scoping because there, we are working on sustainability as a whole; so not only energy, but also on ecosystems, on mobility, waste, water, all those teams. Whereas, with energy really focuses on energy it’s more like an energy is a leading team. But Arcadia sees this as one of the yeah, that's why we call it energy solutions to sell a purse. It's like a bullshit bingo game for a corporate, all we want to place the foot around the world. If this works, of course, we want to do it in multiple cities.

Katya: Alright, that's really cool.

Thomas de Groot: Yeah, so this is a very long answer about what I’m doing in Amsterdam. But then, I think there are already quite some questions I could have answered with it?

Katya: Yeah, I think it...

Thomas de Groot: That's in short, no, no [unclear 22:19], that’s what I’m doing in Amsterdam, we are doing.

Katya: Alright, that’s really interesting. Yeah, maybe I'll get back to my questions. So as far as energy efficiency in urban renewal projects in Amsterdam, do you find that plans are aimed more towards you building and developments, rather than existing ones?

Thomas de Groot: Yeah, definitely. And it’s not only because they want to, but it’s also because there are the rules because about the EPC you just can’t apply EPC to ORAC. If we have this office...

Katya: So, it makes more difficult?

Thomas de Groot: It’s more difficult.

Katya: When it’s apply to urban renewal?

Thomas de Groot: Yeah and that’s why, one of the biggest reason the municipality of Amsterdam has invested like half of all the money into Zowi because they’re really see Zowi as the way to also address the existing buildings.

Katya: Okay.

Thomas de Groot: Because they cannot really do much about renewable projects.

Katya: Yes.

Thomas de Groot: Because, if this was my office and I want to renew it, it’s my property.

Katya: Yes.

Thomas de Groot: So who is at the municipality to say no, no, you have to do...of course, they have some legal way to do. Because for example, all the offices in the Netherlands, but as Netherland is not the only Amsterdam has to be energy label B in 2023. So that’s like an incentive, that's how we do it. Yeah, you deal with it.

Katya: Yeah and then...

Thomas de Groot: For houses, is even more difficult. It’s more, the municipality has more opportunity to we call it related to charm people into doing it and to demand it.
Katya: So then, would you say that the city tends to ignore urban renewal when it comes to planning for increased energy efficiency?
Thomas de Groot: Yeah, it’s not ignoring but it’s more that, they cannot do that much.
Katya: Okay.
Thomas de Groot: It’s more like a legislative problem and it’s also because I suspect that local governments have less to say about the norms for these kinds of projects than the main government like the Dutch government.
Katya: Okay, so it’s more... you think it’s more national than municipal?
Thomas de Groot: Is more national and Amsterdam tries to do it because actually, the norm emitted for a new constructive buildings, the norm of 0.5 team actually, is more strict than the national norm of 0.4.
Katya: Okay.
Thomas de Groot: But they still insist on doing it, but if you look at it from a juristic point of view, they actually cannot say it. So if an S donor really dives into, gets a lawyer and finds out that actually, the municipality cannot even imply it and it’s for new constructed buildings. For existing buildings, they just can’t do that much. Except from promoting and stimulating and funding in Zowi and trying with through other ways, of course, there is for example and then, you look at inhabitants; a fund at municipality fund to them, if you want to do something in your house. So if I want to install solar panels on my roof, I can get a cheap loan.
Katya: Yeah.
Thomas de Groot: So, there are certain ways in which the municipality tries to influence people. But they cannot demand it, discipline.
Katya: Okay, well then, do you think that the city should put more focus on energy efficiency and urban renewal than it currently is doing or do you think that with this project that you’re working on can stop?
Thomas de Groot: So, I think they cannot put more focus on it.
Katya: Okay.
Thomas de Groot: I think they do everything that's within their power to increase it and of course, you can say for example, in [unclear 26:45] which is very specific part of Amsterdam, I know that the targets on energy and sustainability are lower than in other parts, because is that those they are more sufficient for bigger problems than energy for somebody who’s very poor.
Katya: Yeah.
Thomas de Groot: There are people, I thought like 20% of all the inhabitants have energy, they are energy poor. Which means that they cannot pay the bills for their electricity and some people even do not have electricity because the energy company just like to flip them out decision because they can never pay their bills. So there are more stressing problems inside out than energy but that said, I do think they do quite a lot.
Katya: Okay.
Thomas de Groot: At least they try.
Katya: They try!
Thomas de Groot: Yeah.
Katya: That’s good already, good start. Alright, so do you know much about kind of the policies that the city has and how they monitor?
Thomas de Groot: Yeah, the policies about renewal, you mean?
Katya: More about energy.
Thomas de Groot: Energy in general?
Katya: Yeah.
Thomas de Groot: Yeah, well there [crosstalk] [unclear 28:00] at least, there’s for example, policy that in 20... I have to say it correct 30, they have their targets to become a 40% less carbon emissions than 1990. So they have like very strict targets on that and of course, they try to meet these targets as good
as they can, by implying those standards for new buildings, by charming the housing or inhabitants and companies into energy efficiency. But more than that, they cannot really do.

**Katya:** Okay, so well I know that the city has some goals and their vision. For example, it wants to use 20% less more of renewable energy.

**Thomas de Groot:** And 20% less energy, right?

**Katya:** Yeah, 20% less and then, other goals related to solar and other types of renewable energy. And do you find that these kind of goals, does the city kind of enforce through policy or are these just goals more idealistic kind of things that the city was like to enforce but it doesn’t have the tools to enforce or that they may be tried to enforce but...?

**Thomas de Groot:** Yeah, that’s really a policy. That’s a question, that’s like in every municipality in the Netherlands, this is a real tough question. There’s also like the question of the Paris agreement because we signed it. So it means that we want to keep below two degrees which means that we as a country, have to do a lot and I’ve like targets of about for the Netherlands, is as always like 40% renewable energy in 2020, so the city defines them as slightly more. But you can set the targets and aim for it, but how to... you’re setting targets on something that you’re not really can influence always.

**Katya:** Yeah.

**Thomas de Groot:** So for example, I know in the city of Amsterdam, one of the targets is 4% less carbon emissions. There are now discussions at play about a large coal-fired power plant in the north of Amsterdam and then which they want to close like ten years before it should be closed.

**Katya:** Okay.

**Thomas de Groot:** Because it’s coal-fired as a lots of emissions and but even there, which like a very big plant in the city of Amsterdam, they have not really anything to say about it because they already gave out the permits for four years. They sold the ground to Energy Company called Nuon, who owns the plant and now, they are really pushing Nuon, please close it. But if the Nuon says, no...

**Katya:** They don’t have...

**Thomas de Groot:** ...it’s no. They had no mandate to force it, they cannot force it. And that’s the same for a lot of the assets in a city. If I buy my house in Amsterdam, the city cannot enforce me to do everything on my own my house. They can say, okay if you want to sell your house, before you can sell it, you have to have an energy label or something; but still then it’s the label people want to buy it and it have a bad label, I don’t care.

**Katya:** They don’t have... Facilities.

**Thomas de Groot:** All they can do, if I buy my house in Amsterdam, the city cannot enforce me to do everything on my own my house. They can say, okay if you want to sell your house, before you can sell it, you have to have an energy label or something; but still then it’s the label people want to buy it and it have a bad label, I don’t care.

**Katya:** They don’t have...

**Thomas de Groot:** And it’s the same for asset owners as well. You have to look at what are the things that the municipality actually owns, which is for in some instances its ground. So, if construction site if you want to hand out to a party, okay I have a plot of land, you can build something on it. Then they can say okay and I want the most energy-efficient party can have the land. So then, you can really and that’s why the below EPC score is implemented. So then, they can say something, of course, there are also a lot of assets that the municipality for some schools or sports, how yeah, I would say it.

**Katya:** Sporting facilities or the municipality house itself rose partially. So on these kind of assets of course, they can implement solar as much as they want and they make them as a renewables possible. So now and then, they still have to do it on tight budgets because even a municipality has low funds and if they want to invest a lot in all their assets, it takes its coal up.

**Katya:** Yeah.

**Thomas de Groot:** All their other important areas like poverty get at least, less attention. So there’s always a very...

**Katya:** So is like the city only has so much that they can do to like maybe, they would want to monitor and kind of enforce these regulations a bit more, but because maybe they don’t own everything they can’t.

**Thomas de Groot:** Yeah.

**Katya:** That sounds good.
Thomas de Groot: And other an example of this, is the solar coalition; which is like public/private initiative that the [unclear 33:32] started, initiated which is like a platform; everybody, they want to have solar on their roofs. They can just go through the solar coalition, okay I have a roof, I have money or I don't have money, deal with it. This is my roof you can do something with it, implement. So, I have zero to none difficulties, if I want to have solar I can do it.

Katya: Okay.

Thomas de Groot: That's something the municipality started, but still if I do not go to the solar coalition or I do not want to have solar, they cannot force me into it.

Katya: Okay.

Thomas de Groot: So that's also the problem of the municipality that they really see, okay we want a lot and we have those high targets, but how are we going to do it?

Katya: Okay.

Thomas de Groot: And that's also a reason, I think that they are very keen on investing in an initiative like Zowi energy, with companies like Arcadia.

Katya: Yeah.

Thomas de Groot: Because in that way, they can influence, also charm people into doing more than they should or more than that's required.

Katya: Yeah.

Thomas de Groot: So, if you are going to renovate your building, no, do the standard renovation but do it like 10% better and that's because so we, just as for you knows the local opportunities or has more knowledge about energy in general.

Katya: Okay.

Thomas de Groot: Because a lot of asset owners, they also do not have any clue about energy. Because it's like 2% of their costs.

Katya: So do you think that energy efficiency is then an important factor, when the people are competing for different projects or trying to get approvals for projects from the municipality?

Thomas de Groot: Yeah, if that's the situation, then it's very important. Because then, it's one of the indicators that the municipality can decide. I choose this project developer above this one because this first developer is more efficient.

Katya: So that's something the municipality does actively look for?

Thomas de Groot: Yeah.

Thomas de Groot: For developers?

Katya: Yeah.

Thomas de Groot: Yes sure, because they just see like a developer and it really depends on the kind of asset. But for example, if you want to build an office like we also do not own this office but the owner of this office, did build it there because think, okay it's next to a freeway and it's in Rotterdam, so large. It's good, reachability is fine and a large company can put in their logo and everyone can see it from the highway, its good spot. So we just want to build it, as at least as cheap as possible and rent it for as high as possible.
Katya: Yeah.
Thomas de Groot: So if there is clearly a [unclear 38:02] wait you have to do 0.5 EPC to think. Okay yes, so I don't like this, do the bare minimum as possible here. Hire a consultant designers for me, so I don't have to think about it.
Katya: Okay.
Thomas de Groot: Because in the basis, an office like this the energy costs are so low compared to the other costs or the income like the rent for example, it's yeah why bother?
Katya: Yeah.
Thomas de Groot: And that's for example different compared to a data center which are also in [unclear 38:32] because a data center, their core profit is processing data and the main cost of processing data is the energy cost. Because they used a lot of electricity, because they have to cool all the data centers. So for data center, energy is very important. So they do everything in their means but there's more like and it's this basic economics so and I'm some like, oh, there's a very big body of cold water which has already a cold pipe from, into the business area. So for data center, that's like and they use benefits of trying to build the data Center in Amsterdam compared to somewhere else.
Katya: Out of just curiosity, how do you get the heat the data center generate, how would you transfer it to other buildings?
Thomas de Groot: Yeah, there's a technique that's called the Heat Exchanger, so it's like a pipe with water in it and if there's a hot or cold, that doesn't even really matter.
Katya: Yeah.
Thomas de Groot: Hot exhaust pipe or for example, of a data center but it's not an energy power plant or something, it's like a bit like the radiator at your house works as well.
Katya: Okay.
Thomas de Groot: You burn gas, it's a lot of heat, steam as well and then the water that goes through your radiator, I don't know if this is the correct word, it pulses next to the heat coming from the burnt gas that warms the water and the water goes into your radiator and then that's...
Katya: Okay, so just kind of the thing...
Thomas de Groot: It's actually the same kind of [crosstalk] [unclear 40:20] it's a very large radiator actually. And if you have a working flow, liquid flow like water which conducts the thermal energy quite good, you can just transfer cold or heat energy to a yeah 400 metres or something. And of course, the longer your pipe is, the more heat you will lose, so less economics play out. So we already just for example, made a calculation if you have a data center up to 400 metres, it's economically profitable to do. If it's more than 400 metres, it's too expensive.
Katya: Alright, I know there's a pool [unclear 41:06] that he did at least in part by data center there.
Thomas de Groot: Now, he did the pool by data center, yeah.
Katya: Yeah it's also partly geothermal thing.
Thomas de Groot: But also a fun thing is that a lot of the district's [unclear 41:18] is heating network. So because there's a large gas fired power plant, just outside of the perimeter of the city which burns gas for electricity generation but burning gas a lot of heat and that heat comes from a pipe and heats the homes.
Katya: Okay.
Thomas de Groot: Not all homes but a lot of the larger apartments [crosstalk] [unclear 41:41]
Katya: I heard that heating network, I was kind of wondered where it came from.
Thomas de Groot: Yeah, that's mostly comes from the gas-fired power plant [unclear 41:50].
Katya: Alright. So then, I guess you are just a few more questions to listen.
Thomas de Groot: Yeah.
Katya: I'm guessing you are then aware of a lot of the energy efficiency goals that Amsterdam would have and there's that common. Do you think throughout the company or is that maybe you specifically are more aware?
Thomas de Groot: Are you meaning, the company okay?
Katya: Yeah.
Thomas de Groot: Well, yeah we do a lot for the municipality of Amsterdam and a lot of our offices evolve committing to those calls. So I have a lot of colleagues working at harbour of Amsterdam, working with industrial plants and of course, they know because they're clients wants them to design things as energy efficient as possible.

Katya: So, they be aware of the divisions and goals for energy efficiency that the city would have?

Thomas de Groot: Yeah, it depends on who you ask.

Katya: Yeah.

Thomas de Groot: Because I'm an energy consultant so I know it and I think industry or consultants know it. There are also colleagues that are doing permitting or there are landscape architect's or working on water and then, why should we know the goals of the city, if we’re not working directly linked to those goals?

Katya: Yes.

Thomas de Groot: Because there are also a lot of goals, the municipality of Amsterdam that I also, I'm not aware of.

Katya: Yeah, of course.

Thomas de Groot: I don’t know about the policy about poverty alleviation or ICT network rollout or something.

Katya: Yeah. So then as far as just you yourself, what do you think is or what aspect of the goals that you’re aware of, do you think affects urban renewal projects in the city of Amsterdam the most?

Thomas de Groot: I think everything is mandatory. If it is mandatory right word, that's like you have to comply to.

Katya: Yeah.

Thomas de Groot: So like an EPC, it works, because people have to do something. If you want to charm people into it by addressing additional funds, you’ll still see that a lot of people, because energy or energy fish is not really their top mindset.

Katya: Yeah.

Thomas de Groot: I think a lot of people do not even know about the possibilities of energy fish to think oh, I already have double glazing and LED lightning, I'm done. So they’re not really aware that there's more possible.

Katya: Okay.

Thomas de Groot: So, if you do not demand those kind of things, those opportunities will not be taken by most people.

Katya: Alright.

Thomas de Groot: Of course, but there are taken by data centers because their core business is having cheap energy because it's their large costs. But for a hotel or an inhabitant or an office owner...

Katya: They have other priorities.

Thomas de Groot: They have just other priorities, so you really have to make stuff mandatory.

Katya: Okay and then have you heard of the World Green Building Council report?

Thomas de Groot: Yeah, I heard from it. I haven’t read it.

Katya: Yeah, I think was, it came out really recently and they have set out also some goals and visions in there and they're looking to achieve Net Zero Carbon standards and I guess as many cities and places possible, do you think that this concept of Net Zero Carbon standards is something that is actively sought after in Amsterdam?

Thomas de Groot: But is it a standard on the building level or in a district level or?

Katya: I kind of well, it’s a building level.

Thomas de Groot: Okay, because on the building level, there are quite a lot of standards one can apply to. I know for example [unclear 46:03], I don't know if you know those standards?

Katya: Yeah.

Thomas de Groot: And there are also other standards as well. And well, I see with standards that they are useful too because actually wait for something. I don't know this standard by heart but if you take [crosstalk] [unclear 46:19] for example, this is like a checklist where your building is to apply to or
comply to check them off and if you have a lot of checks, then you have a good standard. So that's helpful for people to know whether their building is sustainable or not; if they are have a good building or not. But everything that's the same with the EPC norm, if you already check the box, why should you go any further than that? Because you already check the box, it's notes that you can get a better score or something.

Katya: Yeah.

Thomas de Groot: So you see that people go, do the bare minimum to check all the boxes and then, they have a very sustainable building, but perhaps it could be could have been more sustainable if there was another certificate or another list of the medicine. Of course, you have certificates on renewable energy, on health, do we have a healthy building, do [crosstalk] [unclear 47:15]. So well, of course, it can help. But I think still in the end, companies or asset owners have to apply to those standards by themselves, so they can also take the standard at their office, just as so nice quorum.

Katya: Yeah.

Thomas de Groot: So it's more like a mean than a goal, if you know what I mean?

Katya: Yeah.

Thomas de Groot: The goal shouldn't be to have a good standard, if a good standard helps to get more energy efficient, that's fine, but it depends a bit on how the standard is designed.

Katya: [unclear 47:58] and do you know of any nonprofit organizations that are trying to actively promote energy efficiency in Amsterdam?

Thomas de Groot: Yeah.

Katya: This is more just I'm looking for other people to interview.

Thomas de Groot: Okay, if you ask the question in another way, I know some names. Did you already have an interview with somebody from the municipality?

Katya: I have scheduled one for later this week.

Thomas de Groot: I think it's good to have an interview with Amsterdam Smart City which is a nonprofit, also initiated by the municipality of Amsterdam. It's not really nonprofits like a municipal organization we're also Arcadia's is member and they are for example, doing my project with large social housing corporations to actively renew their and make their houses more sustainable.

Katya: Okay.

Thomas de Groot: You can look up on their website, Amsterdam Smart City: It's a good one. I know the AMS, the Amsterdam Institute for Advanced metropolitan solutions. It's more like a study organization like they are not really promoting energy efficiency, but they're studying it

Katya: Okay.

Thomas de Groot: So they are also part of MIT and the Delft University and the City [unclear 49:33] like it the think tank to imply.

Katya: Yeah.

Thomas de Groot: More energy efficiency.

Katya: Okay.

Thomas de Groot: These as one of their attainment teams so I can link you to Sasuke Timur from the AMS, which is the sector leader energy.

Katya: Okay.

Thomas de Groot: She knows a thing or two about it. So you have to AMS, you have to own some Smart city.
Remco works for an organization that works with tenants when they have issues with landlords/agents... about rental agreements, service costs, maintenance problems. Remco was aware of the city having energy efficiency goals as the organization he works for is subsidized by the city council and one of their jobs is to isolate apartments/buildings while making people aware of how to use energy more efficiently, to avoid higher costs. Within their team they have “energy coaches” that help take care of this. They also do mediation between the tenant and landlord when necessary. When it comes to isolating specific goals the city might have Remco was more aware of the very specific aspects related to city goals such as having double glazing on windows and good insulation as well as keeping heating systems up to date.

In terms of energy efficiency policies and enforcement Remco noted that the city council is only involved when there is a splitting permit is involved (this is when a building is being split into separate apartments), when this is the case the city must check that everything is being done properly. If this is not the case then the city council are not involved as it is just an issue between the tenant and the landlord, often these involve one party wanting to change something while the other does not agree. For example the landlord might want a lower energy bill and therefore a better isolated apartment and windows with double glazing, however the landlord may not want to pay for the improvements. Usually however this is not the case and the landlords are the ones that want to make improvements so that they can sell/rent? The apartments out for higher prices and have a better chance at actually filling all apartments.

So essentially the landlords tend to want to improve their energy ratings to be able to rent or sell for higher prices for example by tripling the rent.

Remco did however mention a European building regulation goal relating to insulation to help reduce CO2.

monitoring

When the city is involved in one of these projects they might monitor by making a list of what needs to happen which the landlord would need to follow and then the city council should come check that everything is done properly, once this has happened the landlord would get the splitting permit, therefore they check at the end. However as far as ramifications go, in theory if the renovations were not done properly the landlord would not get the permit, in practice Remco did not believe this happens properly every time as there are not enough people working for the municipality to come and properly inspect the work once it is done. Remco also suggested that sometimes in order to get their permits there may be some instances of bribery as this has already happened in Amsterdam. This is the reason why the officers must change areas every 2 years.

Proposals

When landlords want to renovate they must present proposals to the municipality to get their building permits (concerning the outside of the building), when it comes to the inside of the building it is not necessary. If they want a splitting permit then what happens is also very important especially around fire prevention. When doing renovations are done Remco is not aware of whether or not certain energy labels must be met, but he thinks not.

His organization is trying to promote energy efficiency in these older buildings, an interested tenant can ask an energy coach to come to his/her apartment to find out what can be done to make the apartment more energy efficient. If the tenant wants double glazing for example their organization
can write a letter to the landlords and help with mediation. Remco was not aware of any other organizations that might provide any other similar kinds of help relating to energy efficiency. Then there are also laws to help the tenants get the desired work done as well as how much the rent increase should be.

Interview 3
Dana Behrman (Interviewee 3) & Lars van Hoften (Interviewee 4)
Both architects and urban designers
UnStudio in Amsterdam

Lars and Dana are both Architects and urban planners designers. They are currently working on multiple projects in Amsterdam one of which is their A10 ring road & Leeylan area project which focuses on creating a system with the A10 ring road which facilitates energy storing for electric cars and works on the concept of using one vehicle or mode of transport to get into the city then switching it out for something smaller to use within the city. This project is not currently in development but they hope it will be and the process of developing it provided a lot of valuable information. Transfer points at each exit, leave electric car take smaller mode of transport, charge electric car. They found that during peak hours Amsterdam has trouble providing enough energy from sustainable sources which means that the need for energy from fossil fuels still exists in order to provide energy during those peak hours. What UNstudio found is that if they used the stored energy from these electric cars parked at the highway exits (only 20% of the car’s energy) they could fill the gap during peak hours and there would not be a need for the the coal plant that currently fills this energy gap in sustainable sources. In this sense they would be using the the parked electric cars as batteries to provide energy during these peak hours. The idea is to move towards overlapping uses of infrastructures; car park that also provide energy through the stored energy in the car batteries. Lars states that one of our strengths as urban planners is that although we may not have the best knowledge on everything we can bring together the stakeholder who do.

Project proposal/approval
Dana points out that when it comes to whether energy efficiency is an important factor when choosing between developers/projects there is an important difference between the private and public sector, UNstudio mainly works in the private sector. Dana points out that there are regulations and policies that come from the government that is then implemented by cities that every project being implemented needs to follow, there are however different levels of fulfilling these requirements for example with the different building certification schemes such as Leed, but that there is definitely a basic level of requirements that every new building has to follow and that further than that it is whether the developer has the “appetite” to get the highest or second highest etc.. rating and how much they want to invest in the building itself. Lars then notes that in public projects they are often keener to have higher levels of sustainability, he used the example of a swimming pool project he had worked on where the city was very keen to have it be the most sustainable swimming pool in the Netherlands. In this case they were not so interested in LEED or BREAM certifications but rather had a more “just show me the energy bill after and if it’s below this point you’ve done well” kind of attitude, in this case they wanted to cut energy cost by around 80% (or something). They noted that in the private sector there is a large range of how much energy efficiency matters, that if the clients care about their assets they might invest more in certifications and higher ratings, but if the clients maybe have many assets and maybe don’t care so much about this specific one they will not invest as much. Dana also notes that most of UNstudios clients do care and this is why they come to UNstudio as they have experience in building these kinds of sustainable buildings with high energy ratings that meet the building certifications.
As far as monitoring goes Lars noted that his only experience was with the swimming pool project and for that all that was checked was really the energy bill as it was a project where saving energy was particularly important. Both agreed that in Amsterdam planning for energy efficiency in urban renewal (just in general) is a priority, that it definitely is a box to tick in projects but also that it can go further. They also mentioned however, that the city focuses more on social sustainability; push to building communities and creating healthy cities, creating environments where people can be outside and safe. Lars also noted that this attitude from what he has observed also comes from the national government and that although the city may be able to steer a bit more in one direction than another the main focus really comes from the national government. This means the city has less space to maneuver and that a lot of what may affect private homeowners and big developers are national directives and not municipal initiatives and goals. Dana also noted that the Dutch government is transitioning towards more of a circular economy for 2030 which also affects energy production. Therefore many initiatives would come from the national government and they have 4 main pillars on which they are focusing. Some existing difficulties for corporations which rent out houses as if the corporation puts in the money and effort to better insulate the houses they are renting it is the people living in the houses who benefit and not the corporations as it will only help lower individual energy bills, this is something they are working on improving with a scheme where the energy bill costs could be spread out differently.

In general they find the focus is more or less equally spread between improving existing buildings and building new more efficient buildings but it was noted that most rules again are from the national government. Dana did think the city is putting enough focus on energy efficiency in urban renewal projects as it is effectively built into every project initiated in the city as they have the requirements it's known that they are interested in sustainability on its many levels and layers so that when architects approach these projects they try to answer. She also agreed that energy efficiency would be something that one would have to consider for every project happening in Amsterdam. She followed by noting that as Architects it is also important to them to create these kinds of projects and to try and innovate in this field. Also to take an active design approach and collaborate with the ones who have the knowledge they may be lacking in order to design more energy efficient and sustainable buildings. As there are always innovations such as more visibly appealing solar panels that can be used on roofs.

Goals and visions:
Just follow the national agenda Oengy by 2050
Dutch approach to try and harness nature to live with water etc...
France sells energy but uses nuclear energy “empire”
29:09 Dana: I think it also comes from the Dutch approach to nature in a sense trying to harness nature and water, water management and the opportunity to live with water which also relates to energy.
16:22 Dana: I think when we talk about sustainability and we think about Amsterdam we think more about social sustainability, there are all these programs, all these kind of push to building communities and creating healthy cities, creating environments where people can be outside and safety environment for people, for kids to play outside, all that

Interview 4
Laura Alvarez (Interviewee 5)
architect
Laura Alvarez Architecture in Amsterdam

Laura Alvarez is a Spanish born Architect working out of Amsterdam she has worked on projects within Amsterdam and the Netherlands as well as a number of other countries mainly Spain,
Portugal and Mexico. She is not currently working on projects in Amsterdam and the ones she has previously worked on were mainly focused around the renovation of individual homes, she is currently working on an apartment building renovation project in Rotterdam, therefore together this experience provides her with an insight into the way building and renovations are occurring in Amsterdam as well as in the Netherlands as whole. The experience in the two cities means she can tell how the Rotterdam project may relate to a similar project in Amsterdam and where the differences between the two cities may be important. Her knowledge and experience working in a number of EU countries also provides insight into similarities and differences within the EU as well as being able to note that most regulations come from a National level in the EU countries she is familiar with.

In this interview Laura noted that as an Architect, building certification schemes or labels such as the Dutch “label A, B, ..” can be restricting as clients may want to achieve a certain label but for the minimum price and this can make designing energy saving features into the building in a visually appealing way more difficult. Laura also noted that there are many older methods of building around the world that can effectively decrease the amount of energy a house or building may need to use but that were a building to be built using these methods it would not meet most energy label/certification standards. She believes this to be an area where building certification schemes and labels fall short. She also noted that these days as new buildings are built they are not necessarily built to last, which although this does not directly relate to energy efficiency on the spot related to energy efficiency in the long term as when buildings are not built to last they end up having to be destroyed sooner which uses energy and creates waste materials that often are not even in good enough condition to be reused. A second problem she noted with buildings that are not built to last is that sometimes people are not as willing to invest in ensuring existing buildings are renovated to the highest energy efficiency standard possible as they know the building will not last and it is more cost efficient in the present to do the minimum.

An important point Laura made is that in Amsterdam, although building regulations regarding energy efficiency for new buildings are fairly strict they are nearly non existent when it comes to renovating existing buildings. She did say that as an architect she is glad the regulations are not the same as this would make renovations even more expensive and complicated but that it does mean that from what she has seen people are less likely to go out of their way to renovate buildings in the most sustainable and energy efficient way possible. She has noticed especially with her Rotterdam project however that obtaining a good energy label (e.g. Label A) is sought after as this increases the value of the apartments in the building to potential lodgers and allows the landlord to charge higher rent from tenants. Her client, the landlord, was therefore very keen to ensure the renovations elevated the building from a label C to a label A level.

Visions and goals
Laura is most aware of the zero carbon by 2020 goal She thinks building certification schemes could help in creating more sustainable and energy efficient buildings but would make a larger difference if they were mandatory as they currently are not. She also mentioned that the certification schemes and labels become more desirable to her clients when there are attached subsides or added benefits such as for a large building the publicity and marketing aspects of having these labels can be very attractive. This does show that the public is aware of the need for increased sustainability and energy efficiency in buildings and does pay attention to at least some aspects for example the fact that a building with better energy efficiency will have lower energy bills.

Energy efficiency in urban renewal projects
Laura does not think that urban renewal is a major component in planning for energy efficiency in Amsterdam and finds plans are much more aimed towards new buildings. She did think that it would be good for the city to put more focus on energy efficiency in urban renewal and renovation projects (but not by forcing buildings to meet existing label A as this can be very complicated).
Policy implementation and monitoring
Laura found that the main way the city regulates energy is through the building code and as long as that is met the construction can go ahead. She did say that although buildings are regularly checked after construction to ensure they are following safety and structural regulations she has never experienced a building being checked for the energy efficiency or sustainability issues. From this it can be deduced that if one were to say they were going to build to a certain energy label and produced plans for this but then did not end up following these plans and used, for example, cheaper materials, it’s likely that they would get away with it.

Project approval
Laura noted that she has found that when it comes to working with a municipality in the Netherlands energy efficiency and sustainability as whole is an important factor when competing for a project and a more energy efficient proposal could have a higher chance of being chosen. She also noted that the private sector does not react the same and are much more cost driven. She also finds that currently, as an architect energy efficiency is much more simply a requirement to be met in most cases but is an area where she would be interested in trying to innovate further if her clients were willing to pay more for a more innovative energy efficient design. Therefore, the issue is perhaps not with the architects and urban planners designing projects but with the market.

Interview 5
Magalie Boutroy (Interviewee 6)
Coordinator and animator
Zero garbage zero waste, national action plan, in France

The zero garbage, zero waste national action plan is financed by the agency for environment and control of energy and development. It is not a mandatory project however and although numerous cities and regions of France are participating Magalie pointed out that Paris declined to participate. She suggested that the capital’s lack of participation may be due to participation in the project resulting in the necessity of reaching specific goals within a specific time frame, something she suggested Paris was not ready and/or willing to agree to. Magalie also pointed out that in general Paris does not have the best record when it comes to reaching mandatory objectives but did also note that there may be other factors to the city’s decision not to participate in the program.

Therefore, as Magalie works on a National project that Paris not involved in she does not have much insider knowledge on the city’s specific visions and objectives. However, as she works on the National scale she has valuable knowledge on energy questions relating to the national scale. As the national laws and government have such a large influence and importance in France this is not a large issue.

In terms of energy efficiency and urban renewal projects in France Magalie mentioned that in France there are big action plans every year, that all new buildings must follow the environmental norms and that whenever a building is sold it must first undergo a carbon assessment, the resulting report can help potential buyers have a better idea what they may be acquiring as well as what work may need to be done on the building to bring it up to the current norms. All public buildings are also affected by the 2020 thermal regulations which come from the Grenelle 1 accord which then had to be translated into French laws. These relatively new laws have higher objectives that have not yet been reached. She also mentioned the energy label system within which an A or B is most desirable, she explained that it is required for all homes to have one when being sold or rented out.
Magalie also pointed out that France is late to the renewable energy game, she blames this on previous national governments that did not put enough focus on the issue. Due to this so far, the most efficient way to affect and support the introduction of more renewable energy had to be done mainly through financial arguments. She does however point out that the new government seems to be taking the introduction and implementation of renewable energy much more seriously. She also points out that as the renewable energy systems have not been a focus of previous governments there is a lack in monitoring the application of existing laws, that being said she says that at least the laws do exist and if applied properly are not insubstantial. Therefore, the problems do not seem to lie in the lack of laws or insufficient policies it is more of an issue of ensuring the norms are applied and met.

Magalie also pointed out that energy efficiency certificates which act as labels as to how energy efficient a building may be exist to help provide the public with a greater understanding of the energy efficiency of the home, building or apartment they may be buying or renting. The amount information contained within the energy efficiency certificate is also set to increase in the near future.

When it comes to whether increased energy efficiency (above the existing norms) may help a potential project be chosen Magalie said it really depended on who the project is for (public vs private) and what the current market is like/looking for. She did however say that as costs for materials, labour, etc are quite high it is rare for projects to go beyond the norms without added subsidies.

Magalie finished by pointing out that to help increase energy efficiency and sustainability in France it would be important to put additional focus on renewable energies and for the government to take action against the oil lobbies and industries, which in the past have even received help from the French government. This occurred in cases with the automobile industries where the French government wanted to keep jobs in France and so helped bail out or at least provide some support to these oil heavy industries. All in all Magalie stated that in France it is really just a large political game.

Magalie also explained that after the second world war France needed to become independent in terms of energy production, this led to the construction of numerous nuclear power plants. Following this the country actually had a surplus of energy so the government started pushing people to switch from gas heating and stoves to electrical. However, she also pointed out that this switch in many cases could actually increase the carbon footprint (the switch to electrical heating vs gas) especially in older buildings. She explained that currently there are less and less nuclear power plants as the country is slowly working towards switching energy production to renewable methods.