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Local government influence on energy conservation in the existing Dutch social housing stock

- MSc Thesis -

Master program: Sustainable Development – Energy & Resources

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Preface

For you, the reader, these are the first words of my thesis. For me, the writer, they finalise months of research and writing, which have been pleasant. In the first place because I found the topic profoundly interesting. Secondly, because I enjoyed the support of the following people, whom I want to thank for their contribution:

First and foremost:

Robert Harmsen, my supervisor at Utrecht University, for introducing me to this subject and readily providing useful feedback.

Coralie Zwarenstein, for being the driving force behind my countless hours in the university library and even making me enjoy them.

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The interviewees, Spencer Schols, Gert van den Elsen, Theo van Es and Paul Parea for their willingness to provide me with valuable input for this research.

My parents, who were there in times of need.

I hope you enjoy reading this thesis as much as I enjoyed writing it, *I'm excited about it, and I hope you are too.*

Roel van der Veen

Utrecht, February 2012

Abstract

This study aims to determine how local governments can improve the energy quality of the existing social housing stock. A stakeholder analysis is performed to identify the main drivers and barriers for each stakeholder. Closer analysis of these drivers and barriers reveals that the financial side of the problem is complicated but manageable and that the crucial factor is communication. Effective communication should be tailored to the reference framework of the target group. These reference frameworks are identified by means of a discourse analysis. Municipalities consequently frame the issue as a climate problem, although energy conservation in housing also has profound poverty, employment and health effects. The climate story does not resonate with the money and comfort discourses of the housing associations and the tenants.

The main conclusion from this research is that municipalities should frame and treat energy conservation in housing as a poverty issue, with positive effects on employment, health and climate as well. Reframing the issue and embedding it in the corresponding policy programmes will significantly increase the support base and subsequently unlock budgets on a scale that far exceeds typical funding of climate policy.

The main conclusion is embedded in a policy design that also contains an enabling framework based on creating partnerships and closing performance agreements (figure 16-17, p.76-77). These two components form the basis of a comprehensive, governance based, policy advice for local governments to bring about energy conservation in the existing social housing stock.

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1. Introduction

I'm excited about it, and I hope you are too. See, I told you, insulation's sexy.

Barack Obama, speech at Home Depot, 15 December 2009

In the same speech, Barack Obama mentioned retrofitting buildings to make them more energy-efficient as one of the fastest, easiest and cheapest things to do to save families money, reduce harmful emissions and create jobs. And to crown it all, “most of this stuff is going to pay for itself” (Barack Obama, 15 December 2009).

One would thus expect this to be high on the priority list of governments. One would also expect a huge market uptake of energy efficiency investments in buildings. Neither is the case. The question is: why?

A general explanation for all segments of the built environment will be hard to find. Privately owned office buildings cannot be lumped together with rented apartments. Each segment has its own dynamics.

This study focuses on the rental sector, and more specifically the social housing sector which represents a large share of the rental sector. The researcher takes a local government perspective. Many local governments seek to stimulate energy conservation, yet fail to bring about a serious improvement in the energy quality of the social housing stock. The aim of this research is to find out what local governments in The Netherlands can do to improve the energy performance of the existing social housing stock, in order to formulate a policy advice according to these findings.

1.1 Nicis Institute

This research is combined with an internship at Nicis Institute. Nicis Institute is a joint venture of the larger cities in The Netherlands, established to generate knowledge on national and international urban issues. The following statement from the Nicis website summarises their business:

“Nicis Institute generates innovative knowledge to address national and international urban issues. The institute operates as a centre of excellence for cities. It is the premier knowledge institute for urban issues, with a focus on reinforcing the economic and social strength of cities. Nicis Institute responds to the demand that exists among those who operate in the urban landscape. Cities, organisations and the media can take advantage of the institute’s expertise. For cities the institute doubles as a cooperation partner that looks ahead, conducts research, evaluates, trains, advises, supports and unites.”

1.2 Project background

In March 2007, the EU presented the “20-20-20” targets. These targets are at the heart of a policy package designed by the EU to combat climate change and increase energy security. The 20-20-20 targets refer to three climate and energy targets that are set for 2020, being:

1. Cutting greenhouse gases by at least 20% of 1990 levels
2. Increasing use of renewables to 20% of total energy production
3. Cutting energy consumption by 20% of projected 2020 levels

This project aims to contribute to the combined effort to meet the third target. Research finds that the EU has sufficient cost-effective energy end-use savings potential to realise its overall 20% energy savings target by 2020 (Ecofys and Fraunhofer ISI, 2010). Yet, the EU is on course to achieve only half of the 20% objective (EU, 2011) (Figure 1), which may very well be related to the fact that the energy savings target is the only target in the package that is non-binding.

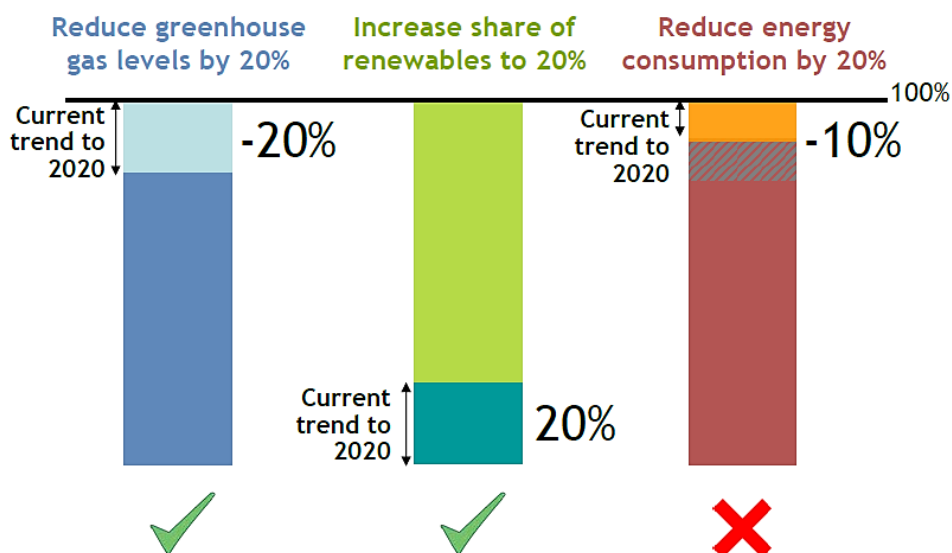


Figure 1 Achieving the EU 2020 targets, Source: Presentation of J.M. Barroso to the European Council, 4 February 2011

In its Energy Efficiency Plan (2011), the EU identifies that the greatest energy savings potential lies in buildings. In 2007, the residential sector accounted for 17% of the total final energy consumption in The Netherlands (Figure 2).

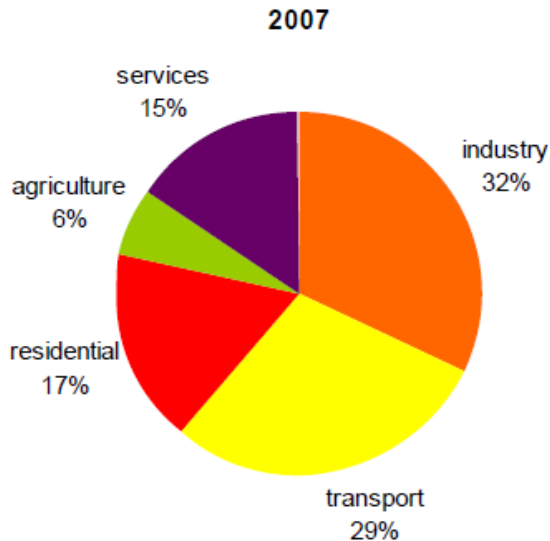


Figure 2 Final energy consumption by sector in 2007, Source: ODYSSEE, 2009

Around 70% of this energy is used for space heating (Eurostat, 2010). Better insulation would significantly reduce this energy consumption. A study by Ecofys (2005b) estimates that improved insulation of the existing housing stock in The Netherlands could save up to 115 PJ in 2020, 17% of the total estimated national savings potential. National and local governments recognise this and come up with numerous strategies and policies to stimulate housing insulation, but so far the potential remains largely untapped. In the covenant 'Meer Met Minder' (more with less), the Dutch national government, energy companies, the building sector and housing associations agreed to strive for 100 PJ energy savings in the built environment by 2020 (see section 1.4). A recent study suggests that by 2020, a mere 12-44 PJ of savings will be realised (ECN and PBL, 2010). Up to 2011, the energy performance of 500,000 houses should have improved, but in 2008 only 10.000 were counted (Hanschke, 2009).

The government responds to these findings by declaring that a substantial policy effort is needed to meet the targets, yet, in the same document explicitly states the ambition to restrict new regulations in this respect to a bare minimum in order to reduce the administrative burden for civilians and corporations (Rijksoverheid, 2011). In absence of an effective national programme and without any significant policy improvement to be expected any time soon, it is up to local governments to take their responsibility to stimulate the desired energy saving efforts. With European, national and sometimes local deadlines approaching, local policy makers are struggling to come up with effective measures, including stimulus packages for energy conservation in the housing sector. Thus far, local governments have mostly answered the call by formulating ambitious targets, not always backed by concrete strategies. These targets have proven to be no guarantee for success. There is no evident connection between formulated ambitions and realised savings. The realised savings are often well

below the targets, but there are also cases where targets were exceeded (Hoppe, 2010). This raises the question what may explain these differences in realised savings and to what extent local governments can influence these outcomes. It is the objective of this research to evaluate the policy around renovation projects in order to identify those factors that either hamper or stimulate the implementation of energy saving measures. Within the residential sector, large scale renovation projects occur almost exclusively in social housing. The government recently introduced a plan to renovate privately owned real estate collectively in the so called “blok-voor-blok” approach, but this has not yielded any results yet. This research will therefore focus on improving the energy performance of the existing social housing sector. A policy advice for local governments will be formulated according to the findings.

1.3 Research question

The objective of the project as mentioned above can be summarised in the central research question:

How can local governments improve the energy performance of the existing social housing stock?

Answering this question requires insight in the policy operations around renovation projects in the social housing sector. Four sub-questions are formulated in order to make the issue more comprehensible and allow for a structured approach of the problem.

The analysis starts with an overview of the actors involved. Who plays which role, and what reasons does this stakeholder have to pursue energy conservation or to refrain from it?

- 1. Which actors are involved in the issue, what is their role, and what are their drivers and barriers?*

Answering this question should return a detailed analysis of the position of each stakeholder. Their role and influence on the problem should be clear by now. The next step is to find out what the possibilities are for local governments to act upon this knowledge.

- 2. What options do local governments have to trigger the drivers and remove the barriers?*

The second research question should yield straightforward and practical solutions. Yet, there are some less tangible factors involved in policy design and implementation. Policy is generally more successful with a broad support base among the target group. The framing of the problem should match the perception of the stakeholders. The question to be answered is:

- 3. How can local policy makers connect to their stakeholders and engage them in their policy?*

The result should give the researcher a more comprehensive view on stakeholders' perspectives of the problem under study. In order to formulate the final policy advice, and thus answer the main research question, the researcher needs to incorporate the findings in the municipal policy process.

4. *How should energy conservation in the existing social housing sector be embedded in the policy process?*

Answering all these questions ensures an analysis on a practical and an emotional level, and a translation of the findings into a policy advice for local governments.

This chapter has described the background and objective of this research. The next chapter will explain the methods that have been deployed to answer the subquestions and thus the main research question. In the following chapters, the results of the study will be presented and analysed. The researcher will then reflect upon the research in the discussion and present the outcomes in the conclusion.

Before proceeding to the methods, section 1.4 will present an overview of relevant existing regulations and agreements to provide the reader with the necessary background information.

1.4 Regulatory framework

Housing benefit

Most social housing tenants are from the lower income classes and receive a rent supplement from the government, called a housing- or rent benefit. Entitlement to, and height of the housing benefit depends on income, age and monthly rent. The monthly rent above which a housing benefit is no longer granted is called the liberalisation threshold.

National covenants

Covenants drawn up by the government and the relevant stakeholders. Covenants are by definition unbinding.

1. More with less (*Meer Met Minder - MMM*)

Target: 100 PJ additional energy savings in the existing stock compared to BAU scenario by ECN

Focus group: existing stock (houses and utility)

Participants: building sector and energy companies

Signed: 23 January 2008

Duration: 2008 - 2020

Signers: Bouwend Nederland, UNETO-VNI, EnergieNed, Vereniging voor Marktwerving in Energie (VME) and the ministries WWI, VROM and EZ

2. Spring agreement (*Lenteakkoord*)

Target: reduce the energy consumption of newly build houses from 25% in 2011 to 50% in 2015

Focus group: newly constructed housing

Participants: building sector and project developers

Signed: 22 April 2008

Duration: 2008 - 2015

Signers: Bouwend Nederland, NEPROM, NVB and the ministries WWI, VROM and EZ

3. Energy covenant housing associations (*Energieconvenant corporatiesector*)

Target: 24 PJ additional energy savings in the existing stock and in conformity with the Lenteakkoord reduce the energy consumption of newly built houses from 25% in 2011 to 50% in 2015

Focus group: existing and new social housing

Participants: social housing associations

Signed: 10 October 2008

Duration: 2008 - 2020

Signers: Aedes, de Woonbond (Dutch union of tenants) and the ministries WWI and VROM

4. Climate agreement municipalities and national government

Target: New housing developments energy neutral in 2020, 50% decrease of energy use in residences and buildings

Focus group: all sectors

Participants: municipalities

Signed: 12 November 2007

Duration: 2007-2011

Signers: The association of Dutch municipalities and the ministries V&W, EZ and WWI

EPBD (Energy Performance of Buildings Directive)

The EC Directive (2002/91/EC) on Energy Performance of Buildings (EPBD) is the directive of the European Parliament and Council on energy efficiency of buildings (EC, 2002). It is in force since 2003 and updated in 2010 (Directive 2010/31/EU). The directive requires member states to set minimum

energy performance requirements for new buildings. As of 2013, all existing buildings undergoing a major renovation (25% of building surface or value) are also required to meet minimum energy performance standards “with a view to achieving cost-optimal levels” (EC, 2010). This cost-optimal level is the energy performance level which leads to the lowest cost during the life cycle of the building. This level is unique for each member state, and shall be calculated according to a standard EU method.

The EPBD orders energy performance certificates (EPC) to provide information on the buildings energy performance and include recommendations for cost-effective energy efficiency improvement measures. These performance certificates have to be issued for buildings which are constructed, sold or rented out to a new tenant.

Building decree (bouwbesluit)

The Dutch building decree, or building code, sets several standards for newly constructed buildings in The Netherlands (Table 1 Required Energy Performance Coefficient (EPC) for new residential houses. Table 1). These standards include energy efficiency requirements, expressed in an Energy Performance Coefficient (EPC). A low value of the EPC corresponds to a house with a high energy performance.

| Date | Maximum EPC |
|-------------------------|-------------|
| 15 December 1995 | 1.4 |
| 1 January 1998 | 1.2 |
| 1 January 2000 | 1.0 |
| 1 January 2006 | 0.8 |
| 1 January 2011 | 0.6 |
| 1 January 2015 | 0.4 |

Table 1 Required Energy Performance Coefficient (EPC) for new residential houses.

Energy label (energielabel)

The Dutch variant of the energy performance certificate as required under the EPDB is the energy label (energielabel). Based on the Energy Index (EI) of a building, an energy label is assigned on an A-G scale (Figure 3). This EI score is similar but not equal to the EPC. The EPC is used for new buildings and the EI for existing property.

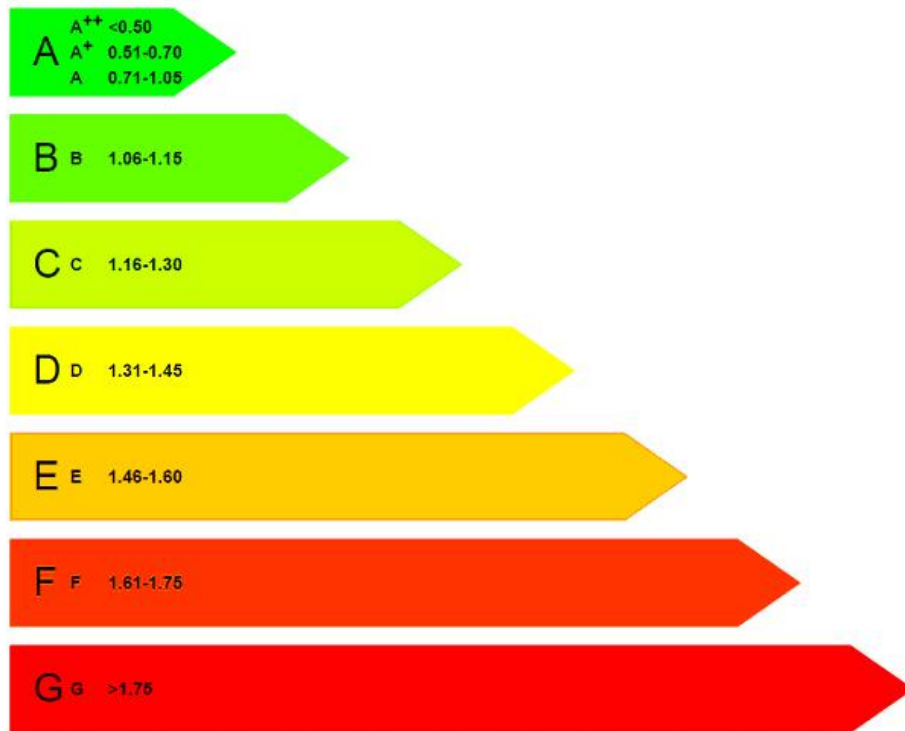


Figure 3 Energy labels for buildings with the corresponding Energy Index (EI)

The energy label is compulsory for buildings in the Netherlands since January 2008. Housing associations have received an exemption until 1 January 2009.

SLOK

Promotion Local Climate Initiatives (SLOK) is a financial support programme of the national government that runs from 2008-2012. It succeeds the similar BANS programme. Local governments can apply by submitting their projects and ambitions. More than 75% of all municipalities and provinces did so. The height of the resulting grant depends on ambition level and size. The subsidy can be used for human resources, research, communication and education.

SLOK has made an amount of 47 million euro for municipalities and provinces available.

2. Methods

This chapter will explain which methods are used to answer the research questions, why these methods are chosen and how they are employed.

2.1 Method rationale

The initial research design of this study was an evaluation of best practices; a case study approach. The motivation for this approach and the reason why it was abandoned are included in this research. The experience with the initial approach is included because it explains partially why this research is carried out the way it is and because it provides insight in the research subject.

Initial research design - Case study approach

In the initial research design, the research questions were thought to be answered by analysing best practices; renovation projects which achieved a significant improvement in energy performance. Significant is defined as more than 30% annual energy savings. In line with the EC directive 2006/32/EC on energy end-use efficiency and energy services, this research defines domestic renewable energy sources such as solar panels as an energy saving measure, because it reduces the amount of purchased energy (EC, 2006).

Analysing successful projects will enable the researcher to gain insight in the policy operations around renovation projects in the social housing sector. The aim is to recognise pitfalls and identify success factors, and the options for local governments to influence these factors. According to these findings, the researcher will formulate a policy advice for local governments seeking to stimulate energy conservation.

Selecting cases is an elaborate process. The cases have to match several criteria. Eligible renovation projects are recent, resulted in significant energy savings (>30%) and are not too small (>50 dwellings). Finding cases that match these criteria proved to be very difficult. There are various small databases, but no central information point or database. The Dutch government agency for issues regarding energy, climate and environment has the best database, but the agency changed names twice in the past 7 years. It used to be called Novem, then became SenterNovem and is now known as, or rather called, AgentschapNL. This is not only confusing, but also reduces the accessibility of information since many links still refer to the no longer existing SenterNovem website. Even though many projects are funded or subsidised by national or local governments, a lack of accessibility and lack of a central database or portal hampers the spread of the knowledge generated in these projects.

Despite these problems, the research yielded more than 70 renovation projects which were regarded as potential best practices. The list of case studies is enclosed as appendix A. These case studies were then studied in more detail to determine which cases were the most suitable for analysis. The closer analysis of the renovation projects revealed that the realised energy savings

are rarely part of a comprehensive strategy of the housing association. Projects that were thought to be a best practice, often turned out to be an opportunistic response to a variety of government programmes and policy. They made use of incidental subsidies and programmes, either national or European. Many projects were initiated to be used as a showcase project, to improve the housing associations public image, to experiment with techniques and processes or for a combination of these reasons. Other renovation projects had such a poor initial energy performance that a leap in energy quality was easily made. Significant improvements of energy performance in renovation projects are thus mostly the result of a concurrence of circumstances and an opportunistic approach.

Often, the rent was not raised because the project was considered as a unique case, where the housing associations could afford to take some losses. There was no need for a close business case because housing associations do not aim at up scaling the project approach.

The idea behind the case study approach was to evaluate the policy framework and identify some viable strategies for achieving significant energy savings in social housing renovation projects. Although some projects were very successful from an energy savings perspective, these successes were not the result of a viable and sustainable strategy and there was hardly any policy framework to be evaluated. In the words of Nieboer et al. (2011):

“It is hard to find extremely successful management strategies in a sense of practices that have led to comprehensive and feasible approaches towards increasing the energy efficiency of social landlords’ portfolios. Measures implemented are rarely part of strategic approaches to asset management of social housing, but present an opportunistic response to a variety of government programmes and policy measures” (Nieboer et al., 2011)

Further analysis of these case studies was therefore not expected to enable the researcher to design a sustainable policy approach towards energy savings in the social housing sector.

It was then decided to abandon the case study approach and look at the policy from an aggregate perspective. The stakeholder and discourse analyses are still performed, but instead of analysing separate projects, the whole policy field became the case under study. This implied a larger theoretical and a smaller empirical basis for the research. A lot of effort was therefore dedicated to backing up the theories and conceptions in this research with experiences and examples from practice.

The experiences with the case study approach reveal that local government policy aimed at energy conservation in the (social) housing sector is in its infancy. As a consequence, very little background information is available that would allow for a focus on a specific (crucial) aspect of the problem. The researcher thus decided to perform a broad analysis to identify those crucial aspects.

A qualitative analysis is more suited for such analysis than a quantitative approach. Qualitative methods of policy analysis reveal rich, descriptive detail on policy operations as well as the

experiences and perceptions of people involved in the policy (Dunn, 2008). A quantitative method requires parameters to be quantified. Defining these parameters limits the factors under study and may lead to the neglect of important issues (Varvasovsky and Brugha, 2000). This danger is especially eminent where a broader, less focused analysis is needed, as in charting future policy directions and developments (ibid.).

The study relies on two methods to enable an analysis on a practical and an emotional level: a stakeholder analysis and a discourse analysis.

The first subquestion of this research - *Which actors are involved in the issue, what is their role, and what are their drivers and barriers?* - will be answered by means of a stakeholder analysis. Subsequently this analysis will help the researcher to answer the second subquestion: *What options do local governments have to trigger the drivers and remove the barriers?*

To answer the third research question, *-How can local policy makers connect to their stakeholders and engage them in their policy?-,* the researcher must find out how stakeholders perceive the issue on an emotional level. A discourse analysis will be carried out to gain insight in the reference framework of the stakeholders.

The final policy advice will have to be incorporated in the municipal policy process to answer the last subquestion: *How can local policy makers connect to their stakeholders and engage them in their policy?*

2.1.1 Stakeholder analysis

The stakeholder analysis will enable the researcher to answer the first, and subsequently the second subquestion of this research:

1. *Which actors are involved in the issue, what is their role, and what are their drivers and barriers?*
2. *What options do local governments have to trigger the drivers and remove the barriers?*

Stakeholders can be individuals, groups and organisations that may influence the policy process in one way or the other depending on their interests and available resources. A stakeholder approach reflects the realisation that the interests and influence of these individuals or groups, both within and outside the organisation, need to be taken into consideration in evaluating threats and

opportunities for change (Brugha and Varvasovsky 2000). The desired change in this case is increasing the energy efficiency of the existing social housing stock.

In policy research, stakeholder analysis is seen as a way of generating information on the relevant actors to understand their behaviour, interests, agendas, and influence on the decision-making processes. This allows policy makers to work more effectively with stakeholders, understand the policy context, assess potential alliances with other stakeholders, and assess the feasibility of future policy options (Schmeer, 1999; Brugha and Varvasovsky, 2000; Jönsson, 2008).

Reed et al (2009) distinguish two main approaches to stakeholder analysis: normative- and instrumental stakeholder analysis. They note that since normative and instrumental analyses require an understanding of the current state of affairs, both variants are necessarily preceded by a descriptive analysis (Reed et al., 2009). Normative stakeholder analysis is used to legitimise decisions that are made, or identify to which stakeholders decision makers are morally responsible (Donaldson and Preston, 1995; Friedman and Miles, 2006). Instrumental stakeholder research is more pragmatic, and largely devoted to understanding how organisations, projects and policy-makers can identify, explain, and manage the behaviour of stakeholders to achieve desired outcomes (Reed et al., 2009). This approach is the most suitable for this research, since the aim of this research is to identify the role that the municipality can play to achieve the desired outcome; energy savings in the existing social housing sector. A stakeholder analysis which is conducted with the aim to contribute to the development of effective policy is also referred to as an 'analysis for policy development' (Brugha and Varvasovsky, 2000).

2.1.2 Discourse Analysis

The stakeholders' various backgrounds with corresponding stakes and interests cause them to embed the issue in a different framework. This framework determines their perception of the problem. Understanding the reference framework of other actors enables policy makers to improve their communication, because different audiences need to be addressed in specific ways that match their reference framework (Moser, 2009). Viewing problems from a different angle, through a different framework, may also inspire other approaches to tackle them. These reference frameworks are also referred to as discourses, and can be laid bare by means of a discourse analysis.

There is no common definition of discourse or discourse analysis in scientific literature. The terms are used by a variety of disciplines in extremely different ways and even within those disciplines the term 'discourse' has no stable meaning. 'Discourse' and 'discourse analysis' can therefore not be used as generic terms but must instead be positioned within a theoretical framework (Garrity, 2010). Traditionally, the term discourse refers to a either written or spoken text, and discourse analysis then means the analysis of a text.

In this research, it is used in a different sense. The understanding of discourse in this research is based on the work of Foucault (1970) and defines discourses as frameworks for making sense of things (Van Leeuwen, 2008), or frames of reference through which meaning is given to social and physical realities or phenomena (Runhaar, 2010). Following this definition, discourses reflect how actors perceive and understand aspects of the world (Healey, 1997; Hajer and Versteeg, 2005) and act as built-in filters that distinguish relevant from irrelevant data (Runhaar, 2010).

An understanding of these filters or discourses is in many ways valuable for policy makers. In the first place, awareness of their own reference framework can be refreshing and provide new insights. By framing an issue, policy actors tend to foreground (aspects of) policy problems, simultaneously narrowing the space for alternative views (Saarinen, 2008). These frames, or discourses, construct certain possibilities for thought, thereby excluding other lines of reasoning (Ball, 1990; Lakoff 2004). Consequently, some forms of action become natural whereas others become unthinkable (Runhaar et al., 2008). It is important for policy makers to recognize how problems get framed within policy proposals, how these frames will affect what can be thought about and how this affects possibilities for action (Bacchi, 2000). In a paper on policy analysis, Marie Danziger (1995) illustrates this with an example by Postman (1992) about two priests, asking the pope for his opinion on a certain matter:

One priest asks, 'Is it permissible to smoke while praying', and was told that it is not, since prayer should be the focus of one's whole attention. The other priest asks, 'Is it permissible to pray while smoking', and was told that it is, since it is always appropriate to pray. (Postman, 1992, p. 126)

Postman's point, as Danziger says, is that the form of a question may block us from seeing solutions to problems that become visible through a different question (Danziger 1995; Postman, 1992). In a similar way, the filtering feature of a reference framework may obscure certain aspects and solutions of a problem. A discourse analysis of policy texts can tell us which aspects are brought to the fore, and which are left aside (Saarinen, 2008) and can inspire policy makers to think critically about their own practice (Sharp and Richardson 2001).

Analysing the context setters' discourses tells policy makers how they perceive the issue and what may drive them to pursue energy savings in social housing. According to Chess and Johnson (2007), successful communication requires policy makers to tailor the information they provide to the reference framework of their stakeholders. Part of the reference frameworks of the actors will also emerge after performing the stakeholder analysis, which helps the researcher to identify interests, drivers and barriers. However, it is known that people or even firms do not always act in accordance with their rational self-interest (Newey, 2011). Energy consumption appears to be particularly prone to this economically irrational behaviour (Davis, 2011). Apparently, cognitive and rational factors do not offer sufficient explanation of consumer behaviour (Kos Koklič and Vida, 2009). A stakeholder

analysis therefore does not deliver a complete picture. It returns a list of drivers and barriers for the actors, but does not provide insight in how their built-in filters assign relevance to them. The discourse analysis helps the researcher to understand how the drivers and barriers are perceived and framed by the stakeholders, and in this sense complements the stakeholder analysis.

2.2 Method approach

The method rationale explains how the need for a discourse analysis naturally follows from the stakeholder analysis. In this research, these two analyses are closely related. The discourse analysis complements the stakeholders analysis. The two analyses are performed by analysing the same data at different levels, to assess how stakeholders respond on a rational (stakeholder analysis) and an emotional level (discourse analysis). Analysing both levels is important as they do not necessarily correspond (Kos Koklič and Vida, 2009; Davis, 2011; Newey, 2011).

2.2.1 Data sources

This research draws from a variety of data sources to piece together a comprehensive, reliable picture of the stakeholders involved. In principle, any data source can be useful for stakeholder and discourse analyses (Schmeer, 1999; Wodak and Meyer, 2009). There is abundant information on housing associations, municipal policy, and energy conservation in the built environment. Yet, few research is done on the area where the three meet. Thus, information on all three topics is needed to get a complete picture of the field under study; local government influence on energy conservation in the existing social housing stock.

Yet, the researcher needs to find a balance between the types of data sources used to increase the validity and prevent biases. Three main types of data sources are distinguished for this research:

1. Scientific and expert literature

Peer-reviewed papers, scientific articles, books, studies from consultancy firms and research institutes.

2. Policy documents

The most important policy documents are municipal climate, energy and housing policy documents, reports and policy documents from the Dutch and European governments, and housing associations policy plans and annual reports.

3. Semi-structured interviews

Interviews with stakeholders.

Valuable information about and from experts and stakeholders was also found in (newspaper) articles, columns, position papers, brochures, interviews, presentations and on websites.

The researcher also had an extensive database of renovation projects in the social housing sector where significant energy savings were realised, which provided valuable insights in the operations around these projects (Appendix A).

As explained, both analyses draw from all this data. Emphasis for the two methods is on different data sources. The stakeholder analysis focuses mainly on the scientific and expert literature, and the interviews, as these sources provide the most information about drivers, barriers and solutions.

Discourse analysis relies where possible on data that originates from the stakeholders under study. Municipalities and housing associations regularly publish reports and policy plans. Tenants do not publish much, so the analysis of their discourse relies on secondary sources, such as polls and scientific literature. Another option would be to interview tenants, but this would be too time consuming for this research.

The interviews are conducted for this research with the aim to fill the knowledge gaps, provide new angles, and verify and complement acquired knowledge and insights. The interviews will thus be conducted in a later phase of the research, which also allows the researcher to ask more specific questions. Stakeholders will be mainly selected on basis of the knowledge gaps. There is no pre-defined number of interviews. Interviews are time consuming and will only be held when the expected results are proportionate to the invested time.

2.2.2 Data collection

The scientific literature has mainly been collected through the University library's 'Omega' portal. Direct searches usually returned few results as there is not much scientific literature that directly concerns this topic. It proved more effective to scan relevant articles for references to other relevant papers, effectively following a 'snowball sampling' strategy (Handcock and Gile, 2011).

The policy documents that are collected for this research were publicly available as both governments and housing associations are non-commercial and have a public function. The documents were mostly downloaded from their websites.

The interviews were conducted as semi-structured, exploratory interviews, which allows for openness, while maintaining a focus on the key issues to be addressed (Kern, 2010). The researcher

can follow up on the interviewees' answers, giving the interviewee the opportunity to mention hidden themes and provide new angles to the topic (Kvale 1996; Varvasovsky and Brugha, 2000).

The available data contained very few information about the role of the local government in the issue under study. It was therefore decided to approach local policy makers responsible for energy saving in the built environment. A representative of a housing association was also interviewed to get an idea of their view on the role of local governments.

Because very few municipalities appeared to be active in this field, a list of frontrunners was put together. From the policy documents and other data sources could be derived which cities were most active in the field of energy conservation in the built environment. Contact details of relevant policy officers in those cities were obtained from the contact database of Nicis Institute.

The following stakeholders have been interviewed for this research, and are quoted and referenced throughout the paper.

- Spencer Schols: Project manager and energy expert at housing association 'Stichting BoEx '91, Utrecht
- Gert van den Elsen: Policymaker Sustainability at the municipality of Tilburg
- Theo van Es: Senior consultant programme 'Energienutraal' at the municipality of Apeldoorn
- Paul Parea: Senior consultant environment at the municipality of Breda

The interviews took place face to face and have been recorded and transcribed.

The additional information not belonging to one of the three main data sources is mostly collected through the world wide web, but is also obtained from newspapers and private correspondence.

2.2.3 Data analysis

The analysis triangulates between the sources; conclusions that are drawn on basis of any of the data sources are systematically checked with the information from the other sources.

Stakeholder analysis:

The first step in the stakeholder analysis is to identify those parties with a stake in the research subject; the stakeholders. This requires a certain level of understanding of the issue, which is obtained in a preliminary literature study. The issue under study affects many people. It can be argued that, through climate change, the energy consumption in social housing affects the entire world population. The researcher thus has to draw a line at some point. This is done by classifying stakeholders according to their interest and influence. This research follows the classification of Eden and Ackermann, 1998. They distinguish 'Key players', 'Context setters', 'Subjects' and 'Crowd'. The

latter two have little influence and will be omitted for this research. This research focuses on the key players, who have both a high interest in and influence over an issue. Context setters are also included. They too are highly influential, but have less interest in the subject than the key players.

The next analytical step is to identify for each of the stakeholders what their role in the issue is and what their interests, drivers and barriers are. This information is mainly found in and deduced from the scientific and expert literature. Another important data source are the stakeholder interviews. The transcribed text from the interviews is summarised and arranged according to recurring issues in the interviews.

The drivers and barriers are then ordered in themes, a method that is known as ‘thematic coding’ (Fedorowicz et al., 2010). The distinguished themes are technical, financial and communicational. This thematic ordering allows the researcher to identify linkages across and between those themes. Such insight in the relation between the various drivers and barriers is essential as they are often different facets of one fundamental problem. At this point, the researcher is able to assess which drivers and barriers are crucial. This knowledge is then used to identify those solutions that address the essential drivers and barriers.

Potential solutions to the drivers and barriers can be found in all data sources. The background of the data is always taken into account in the evaluation of the solutions, as many stakeholders have an interest in promoting particular solutions. Many commercial parties for instance, favour solutions which involve additional public funding whereas governments may be inclined to paint a too optimistic picture of non-financial options such as covenants. This once more stresses the importance to include data from different sources, to minimise biases in the evaluation.

Discourse analysis:

In a 2009 paper, Wodak and Meyer explored the history, theory and methodology of discourse analysis. They conclude that there is no well-defined empirical method for discourse analysis and no common way of gathering data, either. The method constitutes of a bulk of approaches with theoretical similarities.

The researchers do conclude that discourse analysis is an on-going process. There is no fixed order or sequence of research phases. It is a matter of carrying out the first analyses, finding indicators for particular concepts, expanding concepts into categories and, on the basis of these results, collecting further data (Wodak and Meyer, 2009). Discourse analysis thus allows for a pragmatic approach; researchers have great liberty to adapt it according to their own insights.

The discourse of municipalities and housing associations is mainly, but not exclusively, derived from their own publications, such as policy documents and position papers. The texts are analysed with a focus on the motivation of the stakeholders. Sections that give an indication of the reasons why the stakeholder would desire a more energy efficient housing stock are highlighted. These sections are often found in the introduction of the documents, as this is the place where the background of a document is explained. This background is seen through the lens of the stakeholder and often gives insight in the reference framework of that stakeholder. An elaborate literature study was also part of the discourse analysis, as every study that is related to this (broad) subject may contain information that indicates a certain discourse. By analysing many texts from various sources and conducting interviews, the researcher progressively gains insight in the reference framework of the stakeholders. Subsequent data is collected according to the findings (theoretical sampling) while the emerging frames start to become increasingly lucid.

The background of the documents is also part of the analysis. What is the nature of the policy document? Which department is responsible for the publication? Is energy conservation in the built environment part of housing policy, energy policy or climate policy? This background is a powerful indicator of the reference framework in which the subject is embedded. If a subject is consequently embedded in the same framework, it is said that the discourse has been institutionalised (Hajer, 2005).

As noted before, the discourse analysis of tenants mostly relies on secondary data. This data is scanned for information that could indicate what motivates people to pursue a more energy efficient house. The data is not restricted to tenants alone because the reference framework of home owners and tenants is not expected to differ substantially.

The last analytical step in the discourse analysis is to assess the implications of the identified discourse for the policy process. These implications will be incorporated in the final policy advice.

The design of the policy process, and thus the answer to the fourth and last research question -How should energy conservation in the existing social housing sector be embedded in the policy process?- is based on the image that emerged from the stakeholder interviews and the literature.

3. Stakeholder analysis

Stakeholders are mostly defined as those who affect or are affected by a decision or action (Freeman, 1984). Many parties are involved in social housing and the question whether or not energy saving measures will be implemented. The most important stakeholders are listed below. A common approach to prioritise stakeholders is to assess the urgency, legitimacy, and power of potential stakeholders in relation to the issues under question (Mitchell et al. 1997). For the issue of energy conservation in social housing, three stakeholders emerge as being most important by far since they directly influence and shape the decision making process. The three key players and four context setters are listed below:

Key players

- Housing associations
- Tenants
- Municipalities

Context setters

- National government
- Building sector
- Financial sector
- Energy sector

This chapter will introduce these stakeholders and explain their role in reducing the energy consumption of the existing social housing stock, referred to as a descriptive stakeholder analysis. This general description will be followed by an overview of the main drivers and barriers for this stakeholder with respect to energy saving measures in social housing renovation projects. Each stakeholder has his own reasons to pursue energy conservation or to refrain from it. Identifying these drivers and barriers is the first step to come up with effective policy. Energy saving policy can then be tailored to trigger the drivers or take away the barriers.

3.1 Stakeholders role, drivers and barriers

3.1.1 Housing associations

In the second half of the 19th century, public and private initiatives arose to improve the housing conditions of workers. In 1901, the government picked up this task in the Housing Act, which made it possible for private organisations, with government support, to build for the general good. This form of housing tenure is most commonly referred to as social housing, and the private organizations are known as housing associations. Modern housing associations are private non-profit organizations with the task to provide affordable rental housing for that part of the population that cannot afford housing on the free market. Dutch social housing associations are no longer financially supported by

the government since their privatisation in 1995, but the government still plays an important role as regulator and supervisor.

The social housing stock in The Netherlands is relatively large, accounting for about 34% of the total stock (Figure 4).

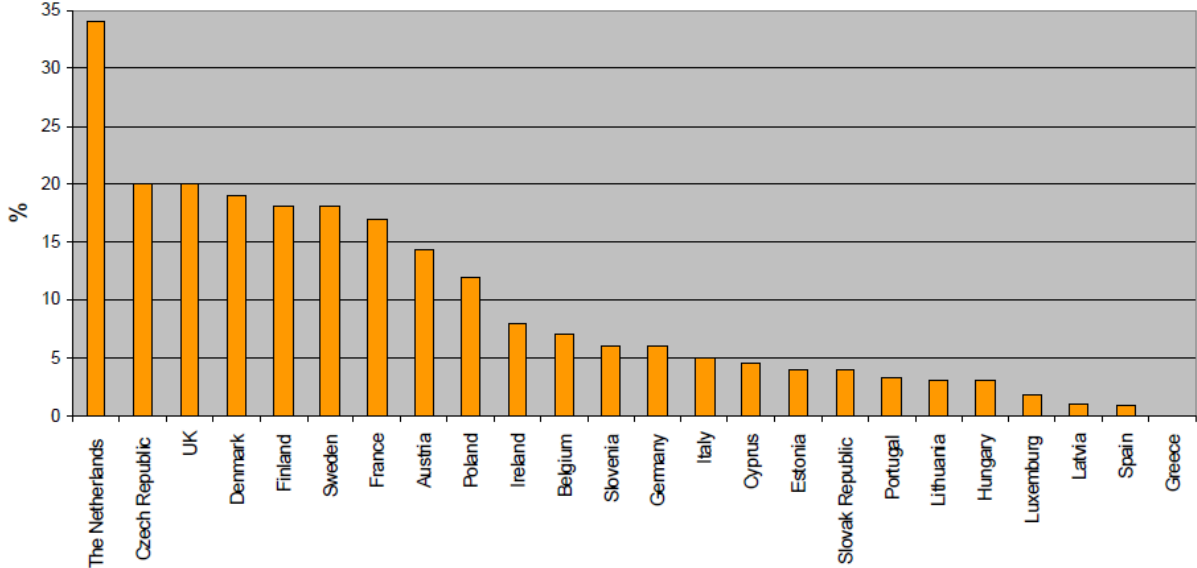


Figure 4 Social rented dwellings as % of total stock in EU-countries, Source: Eurostat and Housing Statistics in the European Union, 2005/2006

Practically all housing associations in The Netherlands are united in Aedes, the Dutch federation of social housing associations. Aedes closed an agreement about energy conservation with the Dutch union of tenants and the national government (section 1.4).

Drivers

The primary task for housing associations is to provide affordable housing for the lower income classes. Many local governments have signed agreements with their local housing associations to ensure that they fulfil this task and maintain a certain minimum share of affordable housing within their stock. This part of the total housing stock of a housing association is referred to as the ‘core housing stock’ (Dutch: kernvoorraad). The core housing stock is meant to provide ‘affordable housing’, which is defined as housing with a low monthly rent. These low rent houses are often in poor condition with a corresponding energetic performance. Due to rising energy prices, this energetic performance will increasingly determine the monthly living expenses of families that occupy such dwellings. Figure 5 depicts the part of the income that a family with average income would have to pay for rent plus energy costs. The green line shows the development of these costs for an energy efficient label A house, and the red line for an inefficient label F house. The A house has a higher rent and is initially more expensive to live in. Because the rent of the F house is lower, it is

occupied by tenants from the lowest income groups. But as the graph shows, the houses that were initially cheap may actually become the most expensive ones over time due to rising energy prices. This conflicts with the task of the housing associations to provide affordable housing.

The affordability of housing is therefore by far the most important driver for housing associations to invest in energy conservation.

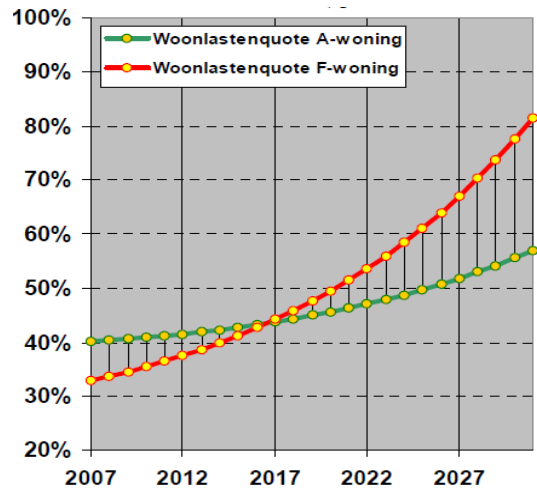
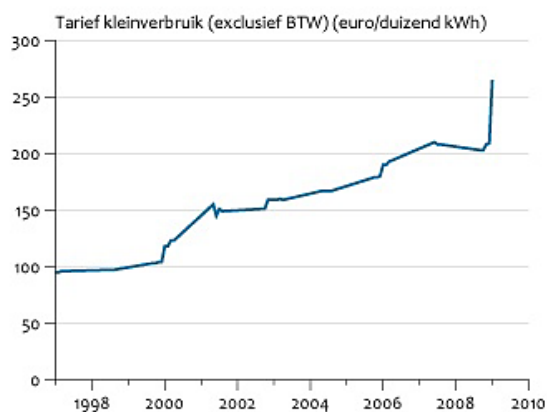


Figure 5 Development of housing expenses for an average income family; A-label (green) F-label (red), Source: BuildDesk, 2009

Energy prices have increased dramatically in the past years (Figure 6), and are expected to rise further in both the near future and on the long term (Rijksoverheid 2011).

Elektriciteitsprijs



Aardgasprijs

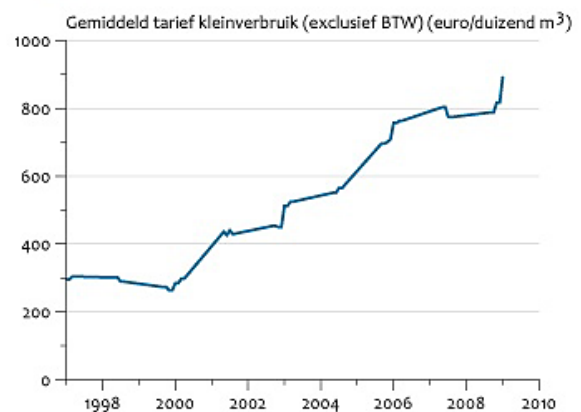


Figure 6 Consumers' electricity price (left) and natural gas price (right), Source: CBS, 2009

Maintaining an affordable housing stock with rising energy prices is the primary driver for housing associations to invest in the energy quality of their housing stock. It will also make their houses more attractive for tenants and thus more easily rented. This is especially interesting for housing associations in regions with declining populations, such as the north and southeast of The Netherlands.

Another financial driver for housing associations are additional revenues from the rent. A recent amendment of the housing point assessment system that determines the maximum allowable rent for social housing allocates points to energy efficiency measures in the point system (Rijksoverheid, 2010). This means that housing associations are now allowed to increase the rent for energy

efficiency improvements. A thorough refurbishment of old housing significantly extends its lifetime. A major renovation could consequently lead to 30-40 years of additional revenues from the rent.

Housing associations do not consider climate change and energy supply security their responsibility and therefore do not regard it as an important driver. Some, however, see the sustainability issue as an opportunity to profile themselves and improve their public image.

The mandatory labelling of the housing stock provides a good overview of the energy quality of the housing stock and enables housing associations to compute various scenarios, which can spur their efforts.

Lastly, successful projects can function as an example and may persuade housing associations to follow. Such projects also generate valuable new knowledge which spreads among stakeholders and can be used in the future.

Barriers

Energy conservation is usually not very high on the priority list of housing associations. The focus is more often on living comfort and security in a residential area, mainly because these are the most important issues for their tenants (ECN, 2006).

Improving the energy performance of buildings is capital intensive. Investment costs range from around €3.000 per house for basic insulation (renda, 2009a) up to €30.000 for the highest level of energy performance, a so called passive house renovation (renda, 2009b; DEPW, 2009). The current financial and economic crisis also affects housing associations. Financing is increasingly difficult; loans become expensive, the housing market is grinding to a halt, and European and national regulations hinder their traditional financing constructions (Ecorys, 2010).

Perhaps the biggest barrier for investments in energy efficiency in the social housing sector is the 'split incentives' problem. Costs and benefits of investments are borne by different stakeholders. The housing associations pay for the investment, the tenant profits through lower energy bills. Landlords thus lack direct incentives to invest in energy efficiency if their tenants will be paying building energy costs (Ecofys, 2005a; Chu et al., 2007; PBL, 2010; Nicis, 2011). To recover the energy efficiency investment costs and make it financially interesting, housing associations must raise the rent. This higher rent is compensated for the tenant by lower energy bills resulting in lower total living expenses than before the refurbishment. Despite this financial benefit, many tenants oppose the implementation of energy saving measures in their house. Their motivation will be further explained in the 'tenants' section of this chapter. This opposition of tenants presents an important barrier for housing associations. Law prescribes that 70% of the tenants have to agree with a renovation plan before it can take place, unless the intervention is essential for the structural integrity of the

property. With the prospect of a higher rent, many tenants are not inclined to agree with a proposal. This limits the ability of housing association to discount the investment in the rents and leaves them with a financial gap.

The split incentive and rent increase, or '70% threshold', barriers are in fact two sides of the same coin. The split incentives barrier ultimately comes down to the absence of an investment incentive for housing associations, due to the inability to increase the rent. An undisputed rent increase to recover energy efficiency investments and potentially make profit would create an investment incentive for the housing association and thus remove the split incentives barrier.

National and local governments have often tried to make energy efficiency investments more attractive by launching a subsidy scheme. Yet, many stakeholders mention a lack of continuity in those subsidy schemes over the past years. Grant schemes, as operated during the eighties and nineties always had a temporary duration (ECN, 2006). Many economic instruments were introduced, and then abolished prematurely, usually because the funds were depleted. This creates uncertainty and frustrates investments in energy conservation in many ways. First of all, the measures which were to be subsidized will no longer be implemented when the subsidy is revoked, because they were accounted for based on the subsidy. It also negatively influences confidence in the commitment of the policy makers, and thus the trust relation. The lack of continuity may also cause housing associations to postpone investments in absence of a subsidy scheme, anticipating that another one will be announced soon.

Another reason for housing associations to refrain from energy saving investments is a lack of knowledge and experience in this field, not only in the technical department, but also in the financial, estate policy or renting departments (ECN, 2006). Knowledge about energy conservation and its implications is limited because it has not been very important in the past. A lack of knowledge about things like consequences, techniques, communication and financial implications creates uncertainty and restrains investments. Despite the introduction of mandatory energy labels, some housing associations still have not labelled their stock and have little insight in its energy quality. The lack of knowledge and experience may also be the reason that energy performance is not properly incorporated into financial models which housing associations use for their long term policy (SEV, 2011). This causes them to underestimate the benefits of energy efficiency investments and perceive them as uneconomic.

As mentioned before in '*drivers*', housing associations are supposed to maintain an affordable core housing stock. The core housing stock is defined as the share of the stock with low monthly rents.

Increasing the rent thus conflicts with their primary task. With rising energy prices though, the definition of the core housing stock is clearly outdated because in a vastly growing number of households energy costs already surpass the rent expenses (Aedes, 2010). Affordability is thus no longer determined by monthly rent alone. This rent-based definition of the core stock presents a major barrier for housing associations to raise the rent after investments in energy saving measures, because the agreed number of low-rent houses may be at risk (Weevers and Go, 2010). Without raising the rent though, energy saving investments are not a viable business case and total living expenses will rise further. It thus seems that a rent-based definition of an affordable housing stock is counterproductive, since it prevents that very housing stock from staying affordable. Maintaining this definition will result in the paradoxical situation where the 'affordable' core housing stock is actually most expensive due to the high heating costs.

Another institutional barrier is that significant investments in energy conservation mostly occur at so called 'natural moments', when large scale renovation is scheduled. An average house needs major refurbishment every 30-40 years. This limits the opportunities for housing associations to invest in energy conservation and stresses the importance to fully utilize these natural investment moments. Launching a large scale renovation programme separate from these natural investment moments would require a significant temporary increase of the maintenance departments. The work force of housing associations is not sufficient for such a large scale operation.

3.1.2 Tenants

Tenants play a peculiar role in the problem and are the most complex group to manage. They are the main beneficiaries of energy efficiency investments, yet at the same time form one of the biggest barriers to implement the measures.

Drivers

The most obvious advantage of energy savings for tenants is financial. A decrease of energy consumption means a lower energy bill. With the expected rise of energy prices in the future, this advantage will only increase. Energy saving measures also improve the indoor living conditions of houses. This is reflected in an increased living comfort and positive health effects (Von Guericke and Schweizer-Ries, 2009; Hasselaar, 2009; Hoppe et al., 2011). Bonnefoy (2007) reports an extensive evidence base for the effects of housing conditions on health, referring to 15 studies on the subject. For some tenants, climate change is also a reason to reduce their energy consumption (TNS, 2011).

Barriers

For several reasons however, their interest in energy efficiency measures is not always recognised by the tenants. An important reason for tenants to oppose the implementation of energy efficiency

measures is a rent increase. Even though their total living expenses will decrease due to a lower energy bill, many tenants are not convinced of their benefits.

In general, the energy quality of a house is a minor factor in its valuation, both financial and non-financial. Tenants will have more attention for factors as affordability, location, orientation, size, aesthetics and a garden.

Another obstacle for tenants is the nuisance during the renovation. Many renovation projects take several months to complete. Unfinished work and the presence of builders, installers, equipment and materials can seriously reduce the living comfort during this period. Large scale renovation projects may even require people to move out temporarily. Clinch and Healy (2000) refer to this barrier as transactions' costs, and argue that "the amplitude of these transactions' costs may overwhelm the potential pay-off of such an effort, acting as a performance-inhibiting 'wedge' which prevents the implementation of cost-effective energy-conservation measures in the home". This potential pay-off is another uncertainty for tenants. Increased rent due to improved quality of their home immediately shows on the monthly bill whereas potential savings on the energy bill are settled on a yearly basis.

Moreover, the average tenant is not inclined to immediately trust their housing association (Hasselaar, 2009). They are often suspicious towards energy saving measures or think that implementing energy saving measures is actually a cheap trick to raise the rent. Reasons can be that they are not familiar with the proposed techniques or have heard negative stories about it. Some tenants recall problems with insulation programmes in the seventies (ECN, 2006). Farsi (2010) identified risk-aversion as a major barrier for adopting energy saving systems in apartment buildings. This risk-aversion is caused by the uncertainty about the benefits of new technologies, both in comfort and financial savings, as well as the irreversibility of decisions (Farsi, 2010). The IEA also finds that public awareness of the need for greater insulation and of its potential for reducing energy costs is low (IEA, 2006).

In many cases, tenants choose to stay in their temporary replacement houses when the renovation is finished. This creates the strange situation where the former tenant makes important decisions about the energy quality of a house that someone else is going to rent.

3.1.3 Municipalities

There is no clear definition of the total scope of government responsibilities. Ideas about the tasks of governments differ among ideologies and political convictions. The description of municipality tasks on the national government website lists only a few main responsibilities. One of which is to maintain the housing stock by providing for the construction of new residential areas and controlling development in existing urban areas. Article 22-2 of the constitution of The Netherlands reads: "It shall be the concern of the authorities to provide sufficient living accommodation".

The range of municipal tasks is now expanding to include activities in health care, social work, culture, sport and recreation. It is generally accepted that local governments are to a certain extent responsible for keeping their city liveable and maintaining a certain quality of life. Although this task is not defined anywhere, local governments feel a 'social responsibility'; they are expected to act to benefit society at large. In this respect, most municipalities also feel a responsibility to combat climate change, and therefore save energy.

In recent years, many central government's powers and responsibilities have also devolved to the municipalities. The idea is for municipalities to have more freedom and shoulder more responsibility. Government ministries in The Hague used to allocate grants to local institutions. Now it is up to the municipalities to do so (www.overheid.nl). The increasing range of duties for local governments includes climate change policy. The idea behind this decentralisation is that municipalities are closer to the market parties, have more detailed knowledge of the local situation and are thus better equipped to shape effective policies (VNG & Het Rijk, 2007). This viewpoint is broadly shared, also within the scientific community; Gupta et al. (2007) conclude that "transferring authority and resources to the local level may make it easier to develop and effectively implement climate change policy". Municipalities agree with this statement, but point out that the transfer of authority is not coupled with a transfer of resources. The association of Dutch municipalities (VNG) declares that they are enthusiastic about their new tasks but concerned about the financial and judicial means to carry them out (VNG, 2010). This viewpoint is shared by the local government officials that were interviewed for this research.

Energy conservation is an increasingly important theme in local government policy. Although municipalities are not obliged to elaborate municipal energy plans, most of them have adopted an energy saving policy. A 2010 analysis of 307 recent local policy agreements found that 95% of these agreements cover the sustainability issue. It is mentioned more often than for instance 'safety' (93%), or 'government cuts' (89%) (DHV, 2010). The existing building stock is widely recognised as an important, if not the most important, sector to realise significant energy savings.

The nature of the local energy or climate policy, and what is perceived as a driver or barrier, depends on the political colour of the municipal council.

Drivers

Whether climate change and other sustainability issues are part of the social responsibility of a municipality is subject to debate. For left wing politicians this is an important driver to focus on energy savings.

Another important driver for some municipalities is combating poverty, since energy savings lead to lower energy bills. A more elaborate description of this connection can be found in section 3.1.1 'housing associations'.

Some government officials see a great potential market in energy savings in the existing housing stock. This has been an important reason for the German government to focus investments on the construction sector (Kuckshinrichs et al., 2010a). A nationwide CO₂ refurbishment programme in Germany has created or safeguarded between 140.000 and 345.000 jobs (WI & CLI, 2008, Kuckshinrichs et al., 2010b). This can form a significant driver, especially for right wing politicians. Renovation of the existing stock is a growth market and already larger than the market for newly constructed dwellings. For the right wing coalition in Breda, this was an important driver to stimulate energy saving investments in the existing building stock.

Improving the energy performance of a house has a positive effect on the living comfort and health of the tenant (section 3.1.2 tenants). This can form an additional driver for municipality since they are concerned with the health of their inhabitants.

Security of energy supply can be a minor driver for cities to reduce their energy demand.

The Dutch government has set energy savings target on a national level and urges market parties and local governments to pick up the task. As a result, many municipalities have set local climate targets which have become drivers in itself.

Barriers

Right wing politicians seek to limit the scope of government tasks and tend to exclude energy efficient homes from the municipal responsibility. Some politicians deny that there is a problem in the first place.

The policy instruments that local governments have at their disposal are very limited. Their only juridical means are to enforce that new building projects fulfil the national legal requirements as described in the so called 'Bouwbesluit' (see section 1.4), which include energy performance standards. There are no such standards for the existing housing stock, and local policy makers are not allowed to draft them for their municipality.

This leaves local governments without any hard instruments to enforce energy savings in the existing social housing stock. Their policy options are therefore limited to instruments such as covenants, performance agreements, information campaigns and small-scale subsidy schemes, which makes them highly dependent on the cooperation of the other stakeholders.

The economic crisis and government cuts force municipalities to reduce expenses as well. This also affects the budget for energy and climate policy.

A lack of knowledge also presents a formidable barrier for an effective energy policy. Drafting a policy plan starts with the recognition of a problem. This requires some knowledge about the present situation and the potential future developments. If this knowledge is absent, there is no sense of urgency and no incentive to act.

If there is an incentive, drafting effective policy can also be hampered by a lack of knowledge about policy options, the real estate market, financial constructions, stakeholders' interests and so forth.

3.1.4 National government

Just like local governments, the national government has the constitutional task to provide sufficient living accommodation.

The national government is bound to European targets, and committed itself to several national energy savings and emission reduction targets. These are translated to specific targets for the built environment. Four covenants were drawn up by the government and the relevant stakeholders that are relevant for energy conservation in the built environment. A detailed description of these covenants can be found in section 1.4. Covenants are by definition unbinding.

Drivers

National government drivers are similar to local government drivers (section 3.1.3), and include the positive effects on poverty, health and employment.

Levy et al. (2003) modelled the public health benefits of insulation retrofits in existing housing in the United States. Their outcomes suggest that it would result in 240 fewer deaths and 110,000 fewer restricted activity days per year, which represents a net present value of approximately \$80 billion. These figures would be much smaller for The Netherlands, but they will still make an important driver.

Security of energy supply is more important for the national government than for municipalities. Reducing the energy demand means less dependency on (foreign) energy suppliers.

The national government also wants to comply with agreements on a European level, or at least that is what they claim, which forms another driver to save energy.

Barriers

In a period of vast expenditure cuts, the national government has little budget for energy and climate policy. Currently, the Dutch government consists of a right wing coalition. Energy savings are usually low on the priority list of parties with this political signature (Hoffman, 2011, Weart, 2011). Moreover, many politicians claim that energy conservation targets hamper economic growth (McCright and Dunlap, 2010).

3.1.5 Financial sector

Since housing associations are increasingly restricted by national and European laws to finance their activities, the role of the financial sector becomes more important.

Drivers

The main driver for financial institutions to invest in anything is making money. Sustainable projects however, may also attract financiers and investors because it improves their public image. Related to this is the trend in the private sector to take up social responsibility. There is a growing belief that social responsibility is not restricted to the public sector; there is also such a thing as 'corporate social responsibility' (CSR). This CSR may include 'green' projects. The weight of these social drivers in the decision making process varies greatly among corporations. There are a few financial institutions that have incorporated such drivers in their core values, such as the Dutch ASN and Triodos banks. They are thus more likely to invest in sustainable projects. The ASN bank has actually proposed to set up a green fund specifically targeted at insulating the existing housing stock (P+, 2011). They call on provinces and municipalities to provide the financial backing for this fund.

Barriers

For several reasons, financial institutions are hesitant to invest in energy saving projects. They are confronted with the same uncertainty as tenants; the investment is certain and the revenue through saved energy depends on assumptions, tenant behaviour and energy prices. Moreover, their expertise in both the field of social housing and energy conservation is very limited. An IEA report on financing energy efficient homes concludes that "energy expertise is almost non-existent within financial institutions. Even when they exist, bankers tend to barely know of the existence of tools and special provisions for energy efficiency projects" (IEA, 2007). This lack of expertise may relate to the fact that most renovation projects are too small in terms of financial investment to be interesting. Although banks are not exactly eager to finance energy savings in renovation projects, there are some promising initiatives. A Dutch sustainable bank recently launched a proposal for a financial construction for the insulation of existing housing.

3.1.6 Building sector

Drivers

As with all commercial parties, making money is the main driver for the building sector to focus on energy saving techniques. Some believe that this is a growth market and decide to specialise in this field. Their driver is being ahead of the curve. Another driver is learning by doing. Although this yields no immediate financial returns, it is an investment for the long term as it may help them to acquire contracts in the future. Experience also improves efficiency and thus increases the profit.

Barriers

The step to incorporate energy saving measures as an essential part of the building process proves to be a difficult one for the building sector. Suppliers and contractors have little experience with innovative sustainable techniques. This lack of experience means a lack of skills and thus a slower and more expensive building process. It also causes builders to prefer conventional techniques. The traditionally conservative building sector is not focused on innovation. Sustainable initiatives are more often seen in construction than in renovation projects.

Contractors and builders find themselves in a vicious circle, blaming each other for the slow progress in energy efficiency. Builders blame the contractors for not demanding energy efficient housing, whereas contractors state that energy saving techniques are either not provided by the building sector or are too expensive.

3.1.7 Energy sector

The core business of an energy company is the generation, transmission, trading, and supply of electricity, gas and heat. This traditional role is expanding, and some front runners see new business opportunities. An example is energy company Eneco, which claims that its role shifts from a traditional supplier to an 'energy director', who shares its knowledge and stimulates the development of sustainable energy.

Drivers

Some of the energy companies see opportunities in the energy conservation business and find new ways to make money. They sell their expertise and techniques to housing associations and project developers who wish to reduce the energy consumption of their property. Energy company Eneco for instance, is a partner in many of the renovation projects with significant energy savings.

As with financial institutions, CSR may also be a driver to participate in sustainable projects. From the Eneco website: "we always choose for maximum sustainability. That means that we take social responsibility".

A potential driver in the future is the savings target for energy companies as proposed in the EU's draft energy efficiency directive (EC, 2011). They would have to achieve annual energy savings equivalent to 1.5% of their annual sales volumes. The proposal is under consideration, but it is opposed by Germany and The Netherlands.

Barriers

Energy suppliers earn money through selling energy and are therefore not the most obvious ally in the effort to save energy. This barrier may be reduced if the aforementioned EU proposal is approved by the member states.

| Stakeholder | Drivers | Barriers |
|-----------------------------|--|--|
| Housing associations | <p>Affordability of housing More attractive housing for regions in decline Longer rent revenues through lifetime extension Increasing value of stock Knowledge building CSR/image building Positive effects for tenants (financial, health, comfort)</p> | <p>Tenant opposition (70% demand) Lack of knowledge and therefore limited sense of urgency Difficulties to raise rent and thus to discount investment Lack of expertise No insight in energy quality of stock Focus on living comfort and security as they are tenant priorities Energy performance is not properly incorporated in strategic financial models Limited opportunities, major renovation only occurs every 30-40 years Capital intensive Split incentives problem Not enough staff for such a large scale operation Lack of continuity in subsidy schemes</p> |
| Municipalities | <p>Climate change Combating poverty Employment opportunities Security of energy supply National and local targets Improving neighbourhoods</p> | <p>Internal support base (right wing politicians not bothered by climate change) Need to rely on soft instruments and therefore stakeholder cooperation Economic crisis; limited budgets Lack of knowledge and therefore limited sense of urgency</p> |
| Tenants | <p>Lower energy bills Increased living comfort Positive health effects Climate change</p> | <p>Rent increase EE has low priority, location, size, affordability etc deemed more important Nuisance during renovation Distrust towards housing association Perceived threat to comfort Lack of knowledge</p> |
| National government | <p>Climate change Job creation Poverty alleviation Positive health effects Security of energy supply European and international targets</p> | <p>Economic crisis Right wing coalition</p> |
| Financial sector | <p>Making money CSR, CSR/image building</p> | <p>Lack of expertise</p> |
| Building sector | <p>Making money Gaining expertise</p> | <p>Conservative sector Lack of experience, resulting in slow and expensive building process Chicken and egg problem, vicious circle of low demand and supply</p> |
| Energy sector | <p>New business opportunities CSR, public image</p> | <p>Want to sell more, not less energy</p> |

3.2 Analysis of drivers and barriers

To allow for a structured analysis and overview, three types of barriers are distinguished in this analysis: a technical, a financial, and a knowledge barrier, the latter two being the most prominent barriers. This section will analyse the drivers and barriers that were identified, and elaborate on potential ways to trigger drivers and remove barriers.

3.2.1 Technical

Technical barriers do exist but are generally low (Hoppe, 2010). An exploration of the technical feasibility of achieving CO₂ emission reductions in the existing UK housing stock suggests that a CO₂ emission reduction in excess of 80% by 2050 is technically possible (Johnston et al., 2005). The best Dutch example of the technical possibilities of an energetically high standard renovation is 'Groot Kroeven' in Roosendaal. The local housing associations renovated the location according to the 'passive house' standards. This building standard originates in Germany (Passivhaus) and refers to a very high energetic standard, achieved with thorough insulation, passive solar heating and heat recovering ventilation (IEE, 2007). This enabled the housing association in Roosendaal to achieve almost 70% of energy savings (Hoppe, 2010). Passive house renovation is a new concept for the Dutch building sector. There is very little expertise at this level and the sector appeared to be hesitant to invest in the applied innovative measures. German experts had to be hired to compensate for the lack of quality in the Dutch building sector (Hoppe, 2010).

This lack of quality and expertise in the field of energy efficiency is also observed in less ambitious projects. Two housing associations in Apeldoorn lost hundreds of thousands of euros subsidy due to poor quality refurbishment.

The insulation values were too low. There is a total lack of quality consciousness in the building sector. They are messing about, and the housing associations fail to check them. I am convinced that this is a structural problem in the sector. (Theo van Es, 07-09-2011)

In this case the expertise is available, but not used. Monitoring the renovation process can take away this barrier. The lacking availability of high quality expertise and appliances is closely connected to a demand problem, as noted in section 3.1.6 'Building sector'. An increase in demand is expected to take away this barrier. Generally, the technical problems are not considered to be a critical factor in the uptake of energy efficiency measures in the social housing stock, and are therefore not studied in detail for this research.

3.2.2 Financial

“It's unwise to pay too much, but it's worse to pay too little. When you pay too much, you lose a little money — that is all. When you pay too little, you sometimes lose everything. The common law of business balance prohibits paying a little and getting a lot — it can't be done.”

John Ruskin (1819 - 1900), English critic, essayist and reformer

This section will address the financial drivers and barriers, potential solutions and the role local governments can play in them.

As explained in section 3.1.1 ‘Housing associations’, local governments are no longer involved in the financial business of housing associations, and their financial instruments to influence the decisions of housing associations are limited. Still, it is important for local governments to be aware of the financial considerations of housing associations and the tools that they do have at their disposal.

Many of the barriers for energy conservation in social housing have a financial nature. The financial barriers revolve around one central problem. Energy efficiency investments are capital intensive, and it is difficult for housing associations to recoup these investments. Removing the financial barrier thus involves access to sufficient capital, and a proper distribution of costs and benefits.

Almost all housing associations have very solid financial positions (CFV, 2010), so one might expect that access to capital is not a problem. However, this capital is mostly locked in their housing stock and therefore not easily accessible. The economic crisis and recent national and European regulations further hamper the access to capital. It has been noted in section 3.1.5 ‘Financial sector’ that financial institutions are hesitant to invest in energy efficiency projects due to uncertainty and a lack of experience, combined with the fact that most projects are too small to be interesting for banks (IEA, 2007). Municipalities can play an important role by involving the financial sector in renovation projects. By bringing parties together and acting as a director, municipalities can assemble expertise and upscale projects to create a momentum for investments.

The role for the municipality is in my opinion the ability to mobilise, next to housing associations, also other parties within the municipal borders: Eneco, consultancy, we have got the Rabobank in our city [Utrecht]. I notice that there are many initiatives, with the same objective, but they don't manage to connect. The municipality should be the catalyst in the process. In Kanaleneiland for instance, we sit with various parties round the table, including the municipality. This was a small joint venture between two housing associations but we upscaled it. Then it became interesting for energy company Eneco to explore the possibilities of district heating, and the Rabobank became interested because a 5 million euro project was not interesting, but a 50 million euro project is. This is an important role for the municipality. (Spencer Schols, 15-06-2011)

Such initiatives create expertise in the financial institutions and build partnerships for the future.

The most straightforward way for governments to address the financial barrier is to provide capital for the desired actions in the form of a subsidy. But subsidies are not popular in times of government cuts and the effectiveness of subsidising energy efficiency measures is much debated. In his analysis of social housing renovation projects, Hoppe (2010) found no significant correlation between the amount of subsidies and the achieved energy performance improvements. This is not surprising because housing associations set out their strategy and renovation plans many years in advance. Subsidy schemes cannot be incorporated in this long term strategy due to their temporary nature. Housing associations are even advised to ignore subsidy schemes in their energy savings policy by consultancy firm Atriensis, a company that guides more than 60 housing associations in setting up and executing their energy and environment policy (EPG, 2011). Some even argue that subsidies are counterproductive on the long term.

I am not a big fan of the way subsidies have functioned in The Netherlands over the past years. It has been on-off-on-off. Once you have a subsidy scheme and you get parties enthusiastic and they are ready to apply, then it is revoked. And when a subsidy scheme is very successful, the budget is depleted and it is also revoked. And when you do NOT have a subsidy scheme, but there has been one in the past, then people will wait. They will postpone their decision, thinking that a new subsidy scheme will be announced shortly. So I think it is an impediment, rather than a stimulus. It is much clearer to say: there is no subsidy scheme and there will not be one for the next 10 years. A lot of measures are profitable anyway. (Theo van Es, 07-09-2011)

Consultancy firm BuildDesk advises many housing associations on these matters and shares the objections to the recent grant schemes. Director Frans Driessen: “we believe that the effect of the current grant schemes is so incidental and random that it hampers rather than stimulates the desired transition” (Frans Driessen, 09-2011). Subsidising energy efficiency measures is thus not advisable as a long term strategy to stimulate energy conservation in the social housing sector. It has to be noted that subsidies can be a useful tool to spur the market uptake of innovative measures. It gets the technique on the agenda and enables housing associations to gain some experience with them. Instead of financing physical measures, some municipalities choose to financially support external expertise, which does not have the aforementioned drawbacks. A more innovative way to provide financial support for energy saving measures is to set up a revolving fund. Revolving funds are usually established by governments to ease the access to capital for desirable projects, such as energy efficiency investments, by offering profitable loans. The revolving nature of such funds enables governments to recycle their financial resources and provide long term support for energy efficiency projects (Figure 7).

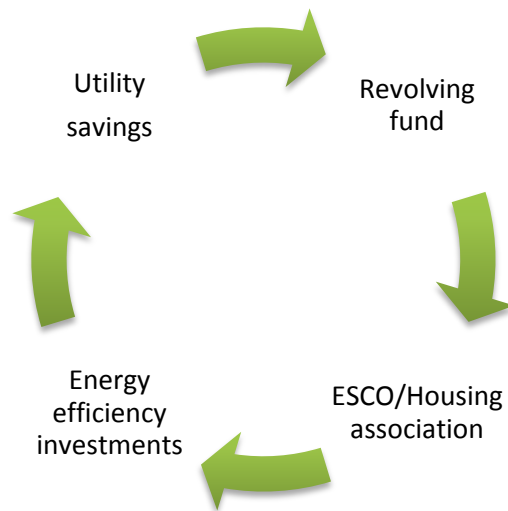


Figure 7 The principle of a revolving fund

The ESCO in Figure 7 will be introduced later on as an option to overcome the principal agent barrier, or split incentives problem, which is the main barrier for energy efficiency investments in social housing. As explained before, housing associations are rather wealthy, so the main problem cannot be to find capital. The main problem is to make a closed business case; the challenge is to come up with a financial structure that enables the investing party to recoup their investment. The most obvious solution is to raise the rent. This rent increase should be completely covered by the decrease in energy costs, even leaving some room for profit. However, as explained before, tenants are not easily convinced of their interests and the goodwill of the housing association. The required 70% approval of tenants makes housing associations hesitant to propose a rent increase. Some choose therefore to refrain from raising the rent, to maintain a good relation with the tenants and avoid difficult communication programmes and legal procedures. This is no sustainable solution since it leaves the association with a financial gap. Another option is to only implement energy saving measures in the homes of willing tenants. The other houses will then be refurbished when the present tenant leaves. However, due to economies of scale, this option appears even more expensive than refurbishment without a rent increase (Atriensis, 2011). The only viable option for housing associations is therefore to increase the rent, and do their utmost to convince at least 70% of the tenants of the benefits of energy efficiency investments. Section 3.2.3 'Communication' will elaborate more on the importance of and options for good communication. An important part of the communication is to convince tenants of the financial benefits of energy efficiency investments. Although they will pay a higher rent, their total living expenses will decrease because of a significantly lower energy bill. Yet, the rent increase is fixed and certain, whereas a decrease in energy costs remains to be seen. As noted before, the average tenant is not inclined to immediately believe their housing association. To convince tenants that the calculations are solid, housing

associations can issue a housing cost guarantee. In some cases this is financially backed by the municipality. Tenants are guaranteed that, with similar behaviour, their total living expenses will decrease. If not, they will be financially compensated. Aedes and De Woonbond developed a tool to calculate savings on the energy cost for building-related energy consumption, based on a standardised energy consumption. The housing cost guarantee was developed as part of the Aedes covenant on energy conservation in the social housing sector. Municipalities can point this out to Aedes' members, the housing associations, to ensure that the tool is being used. It has to be noted that a housing guarantee does not necessarily have to take the form of the Aedes tool. Housing association QuaWonen for instance developed its own tool on a household level. Individual cases where housing costs have not decreased, will be assessed by an independent commission that can force QuaWonen to adapt the rent increase. The housing cost guarantee can enable the housing associations to impose a rent increase, and ensures tenants of a decrease in living costs. This way, the split incentives barrier can be overcome since both parties benefit from the energy saving measures.

However, the concept suffered some teething troubles, and housing associations and municipalities are hesitant to take the financial risks of issuing such a guarantee (Paul Paree, 15-09-2011; Spencer Schols, 15-06-2011).

Tenant opposition is not the only barrier for a rent increase. The rent-based definition of the core housing stock can also prohibit large scale investments in energy efficiency (section 3.1.1). Weevers and Go investigated in several municipalities and housing associations how many of their houses would no longer fit the current definition of the core stock when the total housing stock would be upgraded to energy label B with cost-covering rent increase. This would cause 47% of the houses in that research to drop out of the core housing stock. All parties involved declared that redefining the core housing stock would be desirable (Weevers and Go, 2010).

The definition of the core housing stock thus needs revision. According to Weevers and Go (2010), redefining the core stock would take away the most important barrier for realising ambitious energy savings targets. Local governments and municipalities are free to change the definition of the core stock in mutual agreement (Dol & Kleinhans, 2011). Some Dutch municipalities already define their core stock based on total housing expenses, including rent as well as energy costs. Examples are Tilburg, Nijmegen and Apeldoorn. The Dutch union of tenants encourages this, arguing that a house with a relatively high monthly rent can be more affordable than a low-rent house due to the lower energy bill (Woonbond, 2011).

Basing the core housing stock definition on total living expenses ensures that it remains what it means to define: proper and affordable housing for the lowest income groups.

Another option to ensure lower housing expenses and tackle the split incentives problem is energy performance contracting. This option shifts the costs and part of the benefits of energy efficiency investments to an external contractor. This external contractor is called an Energy Service Company, or ESCO. The ESCO pays for the energy efficiency investments and guarantees a decreased energy bill. A pre negotiated percentage of the savings on the energy bill shall go to the ESCO for a fixed contract period to cover the investment and potential ESCO profit. Until then, the savings for the client will be modest, but after the contract period the client, in this case the tenant, will profit from a significantly lower energy bill. Figure 8 depicts the principle of energy performance contracting. The 'project payment' component is the ESCO's share of the savings.

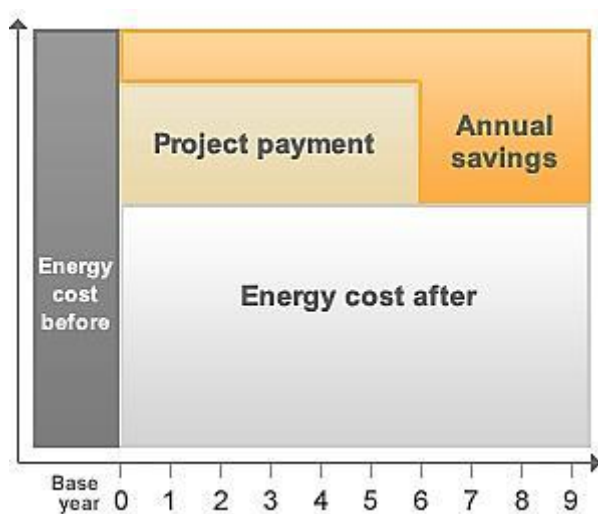


Figure 8 The principle of energy performance contracting, Source: <http://www.futurepolicy.org/2723.html>

The advantage of this model is that:

- The proposed energy savings are likely to be achieved, due to the ESCOs expertise and financial interest.
- The housing association does not have to invest.
- The housing association or municipality does not have to take the risk of issuing a housing cost guarantee; the ESCO does this.
- There is no need for the municipality to monitor the results; the nature of an energy performance contract ensures that the client will make sure that the ESCO delivers the agreed savings.

It is important to bear in mind that in order to decrease risk and maximise profits, ESCOs will be inclined to focus on the 'low hanging fruit'; the simplest measures with the shortest payback periods. Comprehensive renovation works should thus be thoroughly negotiated with the energy performance contractor to achieve more energy savings. The municipality can improve the

negotiating position of the housing association by setting up a revolving fund to function as the financing institution as depicted in Figure 9.

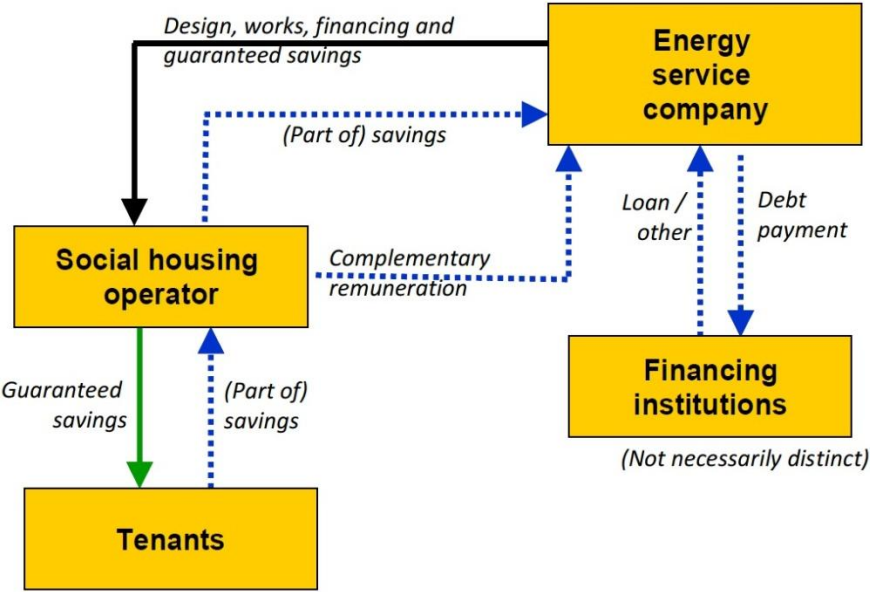


Figure 9 Organisation of an Energy Performance Contract for social housing, Source: Milin and Bullier, 2011

The housing association can then persuade the ESCO to take more risks and accept longer payback periods in exchange for cheaper capital. Access to capital is known to be difficult for energy service companies (ECN, 2010).

Energy performance contracting is thus far mainly used in utility buildings but there is thought to be a huge potential for energy performance contracting in the social housing sector as well (Milin and Bullier, 2011). Some housing associations are already in contact with consultancy firm BuildDesk to implement this concept (Frans Driessen, 2011). Consulting experts, such as this consultancy firm, is recommended for the implementation of this concept as energy performance contracting is rather complex and new.

Another reason why housing associations have difficulty discounting energy efficiency investments are flaws in their financial models. Consultancy firm CE Delft (2009) calculated that the existing social housing stock can generally be upgraded to a label B level in a profitable manner. Still, using insufficient financial models, housing associations claim that they cannot make a closed business case. These models have a decisive influence on the investment strategy of housing associations, but do not adequately address the benefits of energy efficiency investments. It is not properly incorporated in the value of the housing stock and the lifespan of housing in the models is much shorter than the actual lifespan. This has profound implications for the financial perspective of energy efficiency investments. A longer economic life of a house means a longer period of rent revenues and a longer period to recoup (energy efficiency) investments.

“There is an obstacle in the way housing associations work. A housing association keeps a house for 50 years in the accounting books. After 50 years, the accounting value is zero. So for a 30 year old house, any measures to be taken have to repay itself in 20 years accounting-wise. The reality is of course that houses last much longer than the 50 years. So when they are willing to look beyond the accounting boundaries, it opens new horizons”. (Theo van Es, 07-09-2011)

Three experts from the Dutch consultancy and architecture firm BouwhulpGroep also argue in a 2010 manifest that extending the traditional 50 year lifespan of a house will put the measures to be taken in a completely different perspective. They state that at the basis of energy conservation in the existing housing stock, there should be a mind-set which is centred around lifetime extension of the property (Liebregts et al., 2010). This idea is supported by recent empirical evidence. Hoppe (2010) analysed renovation projects in the Dutch social housing sector, and found a positive correlation between the extension of the economic life of the houses and the realised annual energy savings. The Dutch Housing Experiments Steering Group SEV launched a programme on behalf of the Dutch government to develop a new financial model for housing associations that addresses the shortcomings of the current models. The new model will adequately incorporate energy saving measures and is based on a longer economic life of the houses, and will thus ensure a proper representation of the actual value of energy efficiency measures in housing renovations (SEV, 2010; SEV, 2011). The municipality can set up contacts between SEV and the housing associations to bring this to the attention.

The stakeholder analysis identified affordability of housing as the most important driver for housing associations to invest in energy efficiency and showed that this driver is connected to poverty reduction, a potentially powerful municipal driver. This section will further underpin this connection and explain the potentially powerful implications of this connection for budget allocation and a more effective municipal policy regarding energy efficiency in the social housing stock.

In most municipalities, there is very little integration of the policy fields of spatial planning, energy, the built environment and climate, and conflicting policy between these fields is not exceptional (Van den Akker, 2010). Climate policy has become one of many policy fields, fighting for prominence on the policy agenda. There is a narrow focus on greenhouse gas reduction without sufficient attention for the complex field of actors (Van den Akker, 2010). Yet, policy fields are often interwoven and may reinforce each other. From the issue of energy savings in the social housing sector emerges an obvious synergy that is nonetheless rarely recognised in The Netherlands. The most important driver for housing associations and tenants to pursue energy conservation is to maintain affordability. In other words, to minimise the impact of the energy bill on purchasing power. The poorest tenants tend to occupy the houses with the lowest monthly rent. This low rent is usually reflected in a poor

build quality with corresponding energy performance. However, due to rising energy prices, monthly housing expenses for these tenants are increasingly determined by the energy bill. The cities of Tilburg and Breda had a research carried out that investigated the housing cost burden of their inhabitants. This research showed that for instance in Tilburg, 45% of the poorest tenants have a higher housing cost burden than what is generally considered acceptable. The researchers expect similar figures for other large cities in The Netherlands (RIGO, 2010). Moreover, this percentage is expected to increase significantly in the nearby future in absence of an energy policy (ibid.).

These outcomes illustrate the relevance of energy savings for poverty policy. The research puts the energy savings policy of both Tilburg and Breda in a new perspective. Both the cities of Tilburg and Breda used this research to gain a broader support base for their ambitions, both politically in the city council and in the negotiations with the housing associations:

The low income group is hit relatively hard. They often live in energetically poor quality dwellings. They will be very severely affected in the coming years. This shows very clearly in our housing cost investigation, leading to a broader policy support base. [...] The housing cost report has also been a basic document for the choices we made in the performance agreements. (Paul Patee, 15-09-2011)

Environment and energy can no longer be the only reason to save energy, combating poverty is equally important. And because it cuts both ways, we are glad that we can also spend money in that regard, to advance the cause. Spending money on poverty alleviation is also politically more negotiable nowadays. (Gert van den Elsen, 06-09-2011)

This combination of energy- and poverty policy is not common in The Netherlands. Affordability of housing is often mentioned as one of the reasons to invest in energy savings, but an explicit coupling with poverty policy is exceptional.

In The Netherlands, two policy advisors from leading consultancy firm BuildDesk called for urgent action to combat poverty by insulating the poorest social housing. According to them, energy and poverty form a strong, unifying theme for municipalities and housing associations to pick up. They argue that rising energy bills for the poorest tenants are often compensated by the municipality in the form of municipal allowances from the poverty funds. Instead, these millions should be spent on improving the energy efficiency of the houses. They claim that no other measure would have a more structural stabilising effect on purchasing power. "This way, a sole investment in a substantial improvement of the poorest houses becomes a structural form of poverty alleviation. This can solve and prohibit an important part of the imminent poverty and debt problems of many thousands of families, now and in the nearby future". "If the ministry of social affairs or municipalities would fund these activities out of their poverty budgets, housing associations can invest in proper insulation, ventilation and sustainable installation techniques" (Kroese and Go, 2009).

The explicit coupling of energy and poverty policy is seen in a few countries outside The Netherlands, but is far from mainstream. It is mainly observed in the UK, Ireland and New Zealand, but also in Eastern Europe, the US and Belgium. A 2009 report by the British New Economics Foundation (NEF) concluded that “poor quality housing, poverty and climate change are interwoven problems. Social and environmental groups can and must find common ground on these issues” (NEF, 2009). “Poverty, poor quality housing and unaffordable energy bills too often coincide”, says Belgian minister of energy and housing Freya van den Bossche. “It is an essential right to have a proper and efficient house. In respect of people’s health, the environment and in combatting poverty”. Several poverty combatting groups in Belgium plea for government intervention to reduce families’ energy bills for heating, especially for the poorest families (Devlies, 2006; Van der Wilt, 2005). At the moment, the average social housing tenant in Belgium spends more money on energy than on rent. The Belgian public social welfare centre OCMW argues that, assuming that energy prices remain high, this legitimises an accelerated energy investment programme for social housing (OCMW, 2008). The poverty research group of Antwerp University concludes in a 2006 report that an ambitious plan regarding energy and housing could reduce the heating costs and thereby the impoverishment of the Belgian people (Goossens et al., 2006).

In the English speaking countries, the relation between poor energy performance of housing and poverty is known as fuel- or energy poverty. Bell et al. (1996) already observed the relation between fuel poverty and CO₂-reduction policies in 1996. A household is said to be in fuel poverty if it would need to spend more than 10% of the total household income to maintain an adequate heating regime (Lloyd, 2006; DECC, 2011). The UK Department of Energy and Climate Change distinguishes three main causes of fuel poverty (Figure 10):

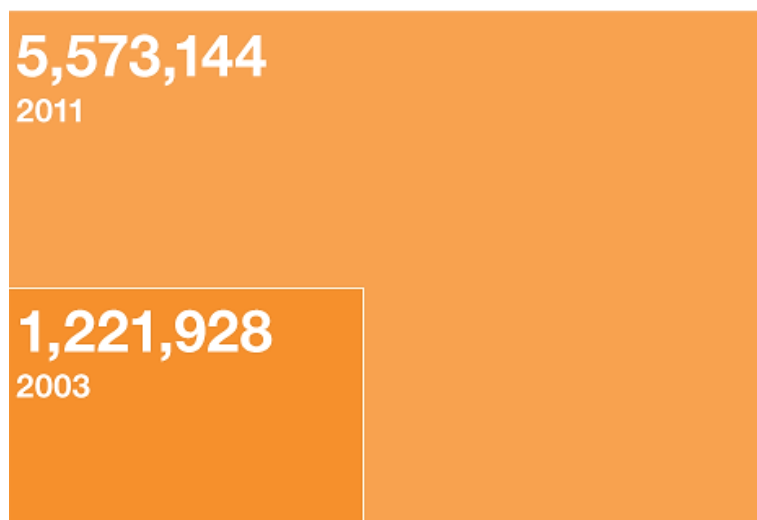


Figure 10 Causes of fuel poverty, Source: <http://www.publichealth.ie/healthinequalities/Fuelpovertyandhow>

A significant rise in income or decrease of fuel prices is not expected in the near future, so improving the energy efficiency of the house is the obvious way to reduce fuel poverty. Fuel poverty is

widespread in the UK and a growing problem in England (Figure 11, Table 2).

Households in fuel poverty in England



Source: DECC/CSE

Figure 11 Households in fuel poverty in England, Source: <http://www.bbc.co.uk/news/business-15352599>

Table 2 shows that the situation is worst in Northern Ireland, where in 2008 43.7% of the households spend an unacceptably high proportion of their income on heating their homes (DECC, 2011). Proper insulation of their houses would reduce their energy bill and increase their purchasing power.

| Country | Proportion of households that are fuel poor | Year of estimate |
|------------------|---|------------------|
| England | 18.4% | 2009 |
| Scotland | 32.7% | 2009 |
| Wales | 26.2% | 2008 |
| Northern Ireland | 43.7% | 2008 |
| UK | 21.0% | 2009 |

Table 2 Fuel poverty in the UK. Source: DECC, 2011

Because fuel poverty is not a familiar concept in The Netherlands, very few statistics are available. The housing cost research in Tilburg and Breda includes a similar concept, called energy quota, which is defined as the share of the total income that is spent on energy. For the city of Breda, around 14% of the poor households had energy quota of more than 10% in 2010. For F and G label houses, this was almost 20% (RIGO, 2010). The share of households in Tilburg with energy quota above 10% was not computed as such but is assumed to be higher, based on the available statistics.

It has been argued that stakeholder analysis can enable information and perspectives to be sought from a far wider range of sources (Reed et al., 2009). The stakeholder analysis demonstrated that poverty is not the only policy field that has a strong connection with energy conservation. Section 3.1.2 mentioned the health benefits of a refurbished house and section 3.1.3 pointed at the employment effects of renovation programmes. This justifies coupling of these policy fields as well.

An example of successful coupling of policy is the use of ERDF funds for energy refurbishment of housing. ERDF funds are structural funds of the European Union, provided to member states with the aim to support the development and structural adjustment of regional economies. In a 2009 amendment (Regulation (EC) No 397/2009) of regulation EC 1080/2006, the European Commission allowed member states to allocate 4% of its ERDF budget to energy efficiency and renewable energy investments in housing. The amendment is part of the European Economic Recovery Plan because the European Commission recognised the employment potential and the effect on poverty of such investments. This way, huge sums of money are disclosed to be spent on the energy refurbishment of housing.

The French government decided to allocate 320 million euros of its ERDF funds to energy efficiency investments in the social housing sector, which generated over a billion euros in investment in energy performance in social housing in France and created thousands of jobs (USH, 2011).

This example and the German programme described in section 3.1.3 demonstrate that the employment potential of energy efficiency investments can inspire programmes on a scale that is rarely seen in climate policy.

3.2.3 Communicational

The available literature has a strong focus on economic issues. The financial barrier is often considered to be the crucial one. Yet, it was noted in the previous chapter that significant energy efficiency investments are an economic necessity, and what is more, they are profitable. The reluctance to invest in cost-effective energy-efficient technologies is commonly referred to as the 'energy-efficiency gap' (Jaffe and Stavins, 1994). Farsi (2010) argues that for the case of energy renovations this gap is caused by uncertainty about the benefits of new technologies, both in comfort and financial savings. His analysis of a choice experiment conducted among 264 apartment tenants in Switzerland supports this hypothesis. "The results point to a significant relative risk premium, [...] these results provide a rationale for promotion policies based on dissemination of the benefits of new technologies as opposed to financial subsidies" (Farsi, 2010). Egmond concludes in his dissertation that "economic instruments are hardly relevant for housing associations" (Egmond, 2006:125). The key factor is therefore not financial, but a lack of knowledge with a related lacking sense of urgency.

I believe that a sense of urgency is crucial, for both housing associations and tenants. Urgency will get all sorts of things going. Financing is a problem, especially now. But that's more easily arranged when there is a sense of urgency. (Theo van Es, 07-09-2011)

Neither tenants nor housing associations acknowledge the necessity and the benefits of energy efficiency investments. Both comfort and affordability of housing have been listed as both a driver and a barrier for energy conservation. Increased comfort is a driver, the perceived threat of energy

savings to comfort is a barrier. Affordability is a driver, the perceived threat of energy savings to affordability (rent increase) is a barrier. Both barriers can thus be turned into drivers, when the actors receive the correct information and learn that energy conservation improves instead of threatens comfort and affordability of dwellings.

This stresses the importance of effective communication towards tenants and housing associations to create the required sense of urgency and the knowledge base to act accordingly. Housing associations are professional organisations and supposed to act rationally in the interest of their tenants and themselves. It can therefore reasonably be expected that they will be the first to pick up this problem. Local governments can play an important role in explaining the need for energy conservation to housing associations.

It is not too hard to motivate housing associations, because they understand that they will encounter problems with renting their property. It is the social responsibility of the municipality to notice these problems and act accordingly. (Gert van den Elsen, 06-09-2011)

Noticing the problems in this case refers to the housing cost research that the municipalities of Tilburg and Breda issued. This research provided an overview of the energetic quality of the housing stock in their municipality and the future implications for the energy costs of its inhabitants. This document was then used to convince both the municipal council and the housing associations. Tilburg's government official emphasised the importance of a good working relation with the housing associations: "we have put in a lot of effort to achieve and maintain that" (Gert van den Elsen, 06-09-2011).

Setting targets and closing agreements with housing associations proves to be a good starting point for communication and information exchange:

What's definitely good about the performance agreements is that it started up a dialogue between housing associations about energy conservation, which was not there before. It presented a reason, a necessity, to cooperate. I noticed that the frontrunners pulled the laggards along with their knowledge. As a municipality, we try to stimulate that, that is very much our role. (Paul Paree, 15-09-2011)

An important role of the municipality in the communication is thus to initiate and enable dialogue and knowledge exchange. This knowledge can come from other housing associations, but also from consultancy firms, builders, energy companies or government programmes:

The SEV wants to approach 100 CEOs of housing associations to start up a dialogue about the interests of the housing association in this subject. We want the housing associations in Apeldoorn to be one of them. (Theo van Es, 07-09-2011)

Initiating dialogue with other parties also enable the municipality to keep some distance, and act as a director rather than becoming too involved. Municipalities should be careful not to interfere with the business conduct of housing associations. Housing associations have legally speaking become regular

corporations since the grossing up operation in 1995. Keeping some distance “may deliver results somewhat later than we would like to, that is the compromise, but we maintain a good relation with the housing associations for future cooperation” (Gert van den Elsen, 06-09-2011). This also means that there is no complete insight in their financial situation.

Once the communication strategy pays off, and housing associations start to realise that energy efficiency investments are in their own interest, they often find themselves confronted with unwilling tenants, far from convinced of the need to increase the energy quality of their homes. A broad support base among tenants is imperative because Dutch law prescribes that a renovation can only take place when 70% of the tenants agree with a proposal. Again, financing energy efficiency measures is tough, but the crucial factor in the end is to convince tenants of their interests.

Technically, it's no problem. Financially, times are tough but surmountable, you can work that out one way or another. These are not the biggest barriers. But the communication with the tenants, that is the critical factor, most difficult to handle. (Spencer Schols, 15-06-2011)

This opinion is shared by several researchers and experts in the field. The research programme Housing Quality 2020 (WK 2020) by the Technical University of Delft and research institute OTB evaluates energy conservation in the housing stock, and cooperates with several housing associations. One of their main conclusions is that enthusiasm and participation of tenants is the bottleneck for energy conservation in the existing social housing stock (Visscher, 2009). Paul Kengen, sustainable renovation advisor for housing associations, concludes that excellent communication towards residents is imperative. “Technically and economically there are many possibilities, but if the residents are not involved, it will still fail” (Paul Kengen, 05/09/2011). The Dutch builders association ‘Bouwend Nederland’, calls successful resident communication the key factor for every renovation project (Bouwend Nederland, 2011). Assisting in this resident communication is pre-eminently a task for the local authorities. Municipalities have a lot of expertise in communicating policy to their residents. They can use this expertise to assist their struggling housing associations.

You want to have a broad support. We exist to serve the tenants, not vice versa, they have to see the benefits. To communicate that is an important task for the local government. (Spencer Schols, 15-06-2011)

Formally, the communication is a task for the housing associations, as Apeldoorn's government official pointed out. Apeldoorn therefore decided not to interfere with the communication programmes. The municipalities of Breda and Tilburg are more involved and have a coordinating role and a bridging function in the communication programmes.

We are trying to combine the private and housing association operations, for instance to use private sector houses as showcases to convince tenants. (Paul Patee, 15-09-2011)

There is a lot of distrust from tenants towards their housing associations. A lot of time and effort is spent to mend that. It is a very elaborate process. Frontrunners are picked from the enthusiasts, who will join the housing association in the effort to persuade the other tenants. Their houses may be used as showcase examples. Every tenant is personally visited for individual talks. (Gert van den Elsen, 06-09-2011)

Many housing associations are hesitant to start such an elaborate process. Especially in difficult neighbourhoods with many different languages (Theo van Es, 07-09-2011; Spencer Schols, 15-06-2011). They are often inclined to opt for the easy way out and refrain from a rent increase. The financial chapter 3.2.2 showed that this is not a viable option on the long term, as it leaves the housing associations with a financial gap. This once more stresses the importance of an intensive communication trajectory.

An essential part of the communication programme is to gain the trust of the tenants. Face-to-face interaction is mentioned by interviewees and in literature as an important part of this strategy (Von Guericke and Schweizer-Ries, 2009; Gert van den Elsen, 06-09-2011). Because of the general distrust of tenants towards their housing associations, picking enthusiastic tenants as ambassadors is advisable. These frontrunners cooperate with the housing association to convince tenants and their houses can be used as showcase examples.

The stakeholder analysis provides valuable information for tenant communication. The overview of the tenant interests lists several factors that may drive tenants to agree with energy efficiency measures, including a lower energy bill, improved comfort and positive health effects. Housing associations and municipalities can communicate and emphasise these drivers to increase awareness, understanding and thus motivation for energy conservation. However, the stakeholder analysis provides only a rough overview of drivers and barriers. There is no way of telling which driver or barrier is most important for the tenant. The discourse analysis will provide more insight in this aspect. It will help communicators to understand which driver they should emphasise and which perceived barrier they have to refute.

There are cases where tenants, despite a sound communication programme and even a housing cost guarantee, persist in their resistance. Dutch law offers a last resort in such cases by allowing landlords to force tenants to accept a reasonable and necessary proposal for housing renovation (art. 7:274 1d BW). Many energy saving measures are evidently reasonable and necessary, and some housing associations have successfully used this legal opportunity (Weevers and Go, 2010; Gert van den Elsen, 06-09-2011). Housing associations do not like this option because they value a good relation with their tenants, since they 'exist to serve the tenants, not vice versa' (Spencer Schols, 15-06-2011). To serve the tenants wishes, the housing association needs to be aware of them in the first place. This is where the municipality can have a bridging function. They can bring tenants and the

housing associations together to enable tenants to communicate their wishes to the housing association.

Our citizen survey showed that many tenants cannot get through to their housing associations to get things done. By bringing tenants and housing associations together, you can make things open for discussion. I notice that housing associations want that too. A few years ago, we suggested to take the tenant wishes as a basis for a renovation project in the 'De Hoge Vucht' area. The housing associations were happy to agree, if we would take the lead. So we made an inventory of the tenant wishes regarding insulation and comfort and the housing association made good use of that. It quite an effort due to the many tenants involved, but bringing that together creates a force. Than housing associations have to pick it up. (Paul Paree, 15-09-2011)

This turns the communication around, and shows that tenants can have the same interest as the housing association but both find it difficult to communicate it to the other. Due to the bridging role of the municipality, the interests were aligned. The municipality can also use this bridging role to bring parties together as in the example by Spencer Schols in section 3.2.2. Triggering the drivers and removing the barriers for the implementation of energy saving measures requires knowledge and innovative solutions. This knowledge is available in various organisations, but fragmented. A lot of this knowledge is not available on paper, but in the form of human capital. The only way to disclose this information is through interaction between stakeholders (Klijn, 2003). Assembling stakeholders can initiate a process of knowledge exchange and help to create alliances. The housing associations are the most important stakeholders to involve. Other interesting parties to include are financial institutions, constructions companies, specialised consultants, ESCOs and tenant organisations. Meetings with other municipalities can of course also be very valuable as they will have encountered the same problems.

The typical role for local governments in this process is to initiate the roundtables and act as director. It also presents them with an opportunity to communicate their own message. The stakeholder analysis showed that each stakeholder has an interest in energy conservation in the existing social housing stock. Merely pointing out these drivers is not enough though. For a proper communication, all stakeholders have to be on the same wavelength. As Chess and Johnson (2007) put it, successful communication requires policy makers to tailor the information they provide to the reference framework of their stakeholders. A discourse analysis has been carried out to identify these reference frameworks.

3.3 Conclusion

This research has divided the drivers and barriers in three categories: technical, financial and knowledge. The technical barrier appears to be low, so the emphasis is on the financial and knowledge issues.

Financial

Housing associations are generally wealthy but their capital cannot easily be accessed since it is locked in their housing stock. National and local governments have often tried to close financial gaps by launching subsidy schemes, but this does not have the desired effect on the long term, and may even work counterproductive. More efficient ways to improve the access to capital are setting up a revolving fund or involving local financial institutions.

The crucial financial barrier, however, is the split incentives problem (section 3.1.1). Housing associations must raise the rent after renovation to overcome this barrier and recoup their investment, but this threatens the required 70% tenant participation. A housing cost guarantee can ensure the tenant that their overall housing costs will decrease due to lower utility bills. A financial back up for this guarantee by the municipality can persuade reluctant housing associations to issue such a guarantee.

Even with a rent increase, energy efficiency investments often seem unprofitable due to insufficient financial models. One of the reasons that they do not adequately reflect the financial benefits is the unrealistic lifespan of renovated houses in the models. Local governments can address this issue, for instance by establishing contacts between the housing association and relevant experts or government programmes.

An option to overcome the split incentives barrier and bypass a rent increase is the ESCO concept. In this concept, the ESCO finances and implements the energy saving measures, and recoups their investment with a fixed percentage of the savings on the tenants' energy bills. The ESCO guarantees savings on the tenant's energy costs. Setting up a revolving fund can provide ESCOs and housing associations with access to cheaper capital.

An institutional barrier of a financial nature, is the rent based definition of affordability of the housing stock in agreements between housing associations and municipalities. Basing the core housing stock definition on total living expenses will enable housing associations to raise their rent without violating the agreements with the municipality. Local governments are free to negotiate a new definition of the core housing stock with the housing associations to take away this important (long term) barrier for implementing energy saving measures.

In order to play a more active role and gear up the action in this field, local governments need to allocate sufficient budgets to this problem. This requires a broad support base within the city council. There is an evident link between energy costs and poverty. In some countries this concept is called fuel poverty. This link justifies an integration of energy and poverty policy. Other important benefits that justify issue bundling are job creation and positive health effects. Usually, energy efficiency is part of local climate policy, which is not among the immediate policy priorities of local governments. Connecting policy fields, or issue bundling, will increase the support base for energy efficiency

investments and thus ensure larger budgets to implement effective policy. The success of the German and French renovation programmes support this theory.

The available literature in the field of energy conservation in the existing (social) housing stock is mainly focused on the financial barriers. Yet, the financial chapter shows that there are realistic solutions to the perceived financial barriers. With a due sense of urgency and sufficient expertise, the financial side of things is quite manageable.

Communication

The biggest challenge is to communicate the benefits and possibilities and create a sense of urgency among all stakeholders. This crucial step is the bottleneck for a leap in energy quality of the social housing stock, and should thus be the focus of attention of an ambitious municipality.

The main target groups of the municipal communication strategy are the tenants and the housing associations.

Despite the evident need for energy efficiency improvement, many housing associations are reluctant to invest. They are not aware of the need and benefits, or believe that investments are not financially viable. An effective way of communicating the need for energy efficiency improvement is a housing cost research, as has been done in Tilburg and Breda. This provides a clear and precise picture of the need to improve the energy quality of the social housing stock. In these cities, the research proved to be a powerful item to convince the council and housing associations.

A municipality cannot match the expertise of housing associations. An important communication tool is therefore to facilitate the exchange of knowledge with other actors from the field, such as consultancy firms, knowledge institutes, builders, energy companies, and government programmes that address this issue. Setting energy saving targets within the municipality proves to be a good starting point for interaction and knowledge exchange between housing associations.

A support base among tenants is a prerequisite for each renovation, since 70% of the tenants has to agree with the plans. Intensive communication is thus imperative to persuade tenants to accept the necessary rent increase. It is often mentioned by stakeholders as the key factor for success. Municipalities have extensive experience with communicating their policy to their inhabitants. Some already have communication programmes for the private sector. This experience can be used to set up communication programmes with the housing associations. Important tenant drivers that should be addressed are a lower energy bill, improved comfort and positive health effects. Face-to-face interaction, tenant ambassadors, showcase houses and a housing guarantee are valuable ingredients of an effective communication. But above all, policy makers should tailor the information they provide to the reference framework of their stakeholders (Chess and Johnson, 2007).

4. Discourse analysis

Discourses are frames of reference through which meaning is given to social and physical realities or phenomena (Runhaar, 2010). Discourses reflect more than plain interests; they reflect more generally how actors perceive and understand aspects of the world. (Healey, 1997; Hajer and Versteeg, 2005).

When this description is applied to the issue of energy use in public housing, it translates into the question: how do tenants, housing associations and municipalities perceive and understand aspects of energy use in public housing. In what respect does the issue affect their daily life or business?

Mutual understanding of these frames of reference improves communication between actors. Good insight in the interests of all the stakeholders is essential for policy makers, especially if they depend on the cooperation of those stakeholders. The discourse analysis is focused on the key players, i.e. tenants, municipalities and housing associations.

4.1 Tenants

Heating accounts for most of the energy use in households. Heat is needed to warm the house, to take a shower and to cook a meal. As noted before, space heating accounts for about 70% of the energy use in European homes. Energy is thus strongly related to comfort. A recent study commissioned by the EU finds that personal comfort is the dominant factor preventing households from saving energy when it comes to heating their home, even if much of their own reasoning is centred on potential financial savings (BarEnergy, 2010).

In relatively cold countries, such as The Netherlands or Norway, a warm house has become more than just a comfortable place to live. A study by Wilhite (1996) concluded that Norwegians make intensive use of incandescent lighting and energy-intensive space heating to maintain “cosiness” in their home. Space heating has become a cultural energy service, and integral part of the presentation of the home (Goldblatt, 2005). This cultural aspect of energy use at home is much the same in The Netherlands. The value that tenants attach to a warm and comfortable house is deeply rooted in the culture (which in The Netherlands, as in Norway, may very well be caused by historically low energy/gas prices) and is therefore not to be underestimated. As Goater (2011) noticed, “social conventions in relation to thermal and acoustic comfort, light, air quality can impede the progress of the energy efficiency refurbishment market”.

The BarEnergy study (2010) concludes that “comfort seems to take priority over personal finances when it comes to heating behaviour, even though the cost-benefit perspective tends to dominate the



debate for individual consumers". In other words, comfort is the dominant discourse for tenants in the sense that is described above, although the discourse in the traditional meaning of the word (i.e. written or spoken communication) is dominated by money.

This discrepancy may be explained by the fact that comfort is hard to define and value. Money is much more suited for debate and comparison since it is very concrete and conceived to determine value.

This focus on comfort may explain the seemingly irrational behaviour of many tenants. The idea of consuming less energy is often associated with a decrease of comfort (ECN, 2006; Von Guericke and Schweizer-Ries, 2009; Farsi, 2010). Abundant examples exist of tenants who opposed interventions, despite obvious financial benefits. Even a guarantee from the housing associations that total expenses will decrease does not convince every tenant (Theo van Es, 07-09-2011).

4.2 Municipality

An analysis of municipal energy and climate policy documents reveals that almost every municipality mentions climate change as the most important driver to reduce energy demand. Combating climate change is seen as a social responsibility, and local governments acknowledge their task in the joined effort to meet the national and European energy reduction targets. Sub



targets that are derived from these general targets are always seen in relation to and as part of the comprehensive climate problem. This is reflected in the dominant discourse of municipalities when it comes to energy conservation. Some examples will be given to illustrate this statement.

Local policy regarding energy conservation is co-funded by the national government through the Promotion Local Climate Initiatives (SLOK) support programme. Projects and ambitions for energy savings have to be submitted to apply for the subsidy. Since the programme supports 'climate policy', submitted municipal energy policy is automatically embedded in a climate policy plan. Since 75% of all municipalities participate in the subsidy scheme, many energy conservation plans have become part of the climate policy. Subsequently, many ambitious municipalities seek to become climate- or CO₂-neutral, rather than energy-neutral. Agreements between the municipalities and the national government about energy savings and sustainability are laid down in a document called 'climate agreements municipalities and the state'. All provinces and 148 municipalities are united in a so called 'climate alliance' for governments that are ambitious on themes like energy conservation and buying sustainable products. Municipalities with an active policy to reduce energy demand receive either an A, AA or AAA 'climate status'.

The three largest cities in The Netherlands have called their energy vision 'climate program', 'climate agenda' and 'climate plan'. The fourth largest city does not mention climate in its title; 'Utrecht's Energy', but the first sentence reads: "(inter)nationally there is grave concern about the climate change issue". The municipalities of Breda and Tilburg founded groups that join forces to reduce energy demand. These groups are called 'climate union', 'climate alliances' and 'climate tables'. There are many more such examples. Although all this action is focused on reducing the energy demand, they are referred to as climate initiatives. As Mert (2009) phrases it: "Climate change has become the symbol and signifier of various political demands. So much so that [these] issues have increasingly been discussed in their relation to climate change. Arguably the most imminent examples of this shift are the energy policies and discourses" (Mert, 2009: 336).

Clearly, the subject is consequently embedded in the same framework, which means, following the definition of Hajer (2005), that the climate discourse is institutionalised. An institutionalised discourse has a large influence on the policy direction, as it "can block new storylines advocating policy change" (Kern, 2010:188).

4.3 Housing associations

Providing affordable housing for the lower income classes is the *raison d'être* for housing associations. They have to maintain steady cash flows to carry out this task. Before 1995, housing associations had essentially been arms of national government (Boelens et al., 2011). The so-called grossing up operation in 1995 made the housing associations financially independent and responsible for their financial continuity. The operation often referred to as a privatisation, this is technically incorrect since the government still decides for which purposes the housing associations may use their capital (Smit & Boelhouwer, 2009). The grossing-up operation is seen as a turning point in the position of housing associations. Some are pushing the boundaries of the limitations imposed by the government and despite government supervision, housing associations are taking increasing financial risks with their investments (Intraval, 2010). According to the financial supervisor for housing associations, these risks are cause for concern (CFV, 2010). An element in the task description of housing associations is that they have to maintain a sober and efficient business conduct. Koolma (2008) notices that this objective receives little attention in management circles.

These examples illustrate that housing associations are increasingly profiling themselves as regular market parties although they are essentially non-profit organisations (Intraval, 2010). Although this is an interesting phenomenon in itself, it is beyond the scope of this research. This notion that housing



associations increasingly behave and think as market parties is relevant for this research because it shows a commercial mind-set of housing associations, with an obvious corresponding discourse: money.

Energy saving investments for housing associations are evaluated on economic effects. The reason to invest in energy savings is to maintain an affordable housing stock. Not only because it is their main task, but also to ensure cash flow for the future. When tenants can no longer afford the rent, housing associations lose their income. The Dutch federation of social housing associations writes in a position paper: “Housing associations are willing to give an extra impulse to energy savings, because the energy bill forms a substantial part of living expenses for our tenants. We reduce their living expenses by investing in energy savings. Positive environmental effects can also be realised in this manner. Yet another way in which we contribute to affordability!” (Aedes, 2007). The environment is mentioned as a positive side effect, and clearly has no priority for the housing associations.

For a recent study, Roders et al. (2011) wanted to find out if the awareness of climate change adaptation has already reached the operational level of policy making in The Netherlands. Their approach was to carry out a case study among housing associations by analysing their policy documents. The policy plans and the most recent annual reports of the 25 largest Dutch housing associations were scanned for terms related to climate change. The researchers conclude that many housing associations show awareness of the ‘energy’ topic but climate and climate change are hardly mentioned in any of the documents. Energy is more often related to living costs. Figure 12 shows the frequency with which some climate related terms occurred in the housing associations’ (energy) policy plans.

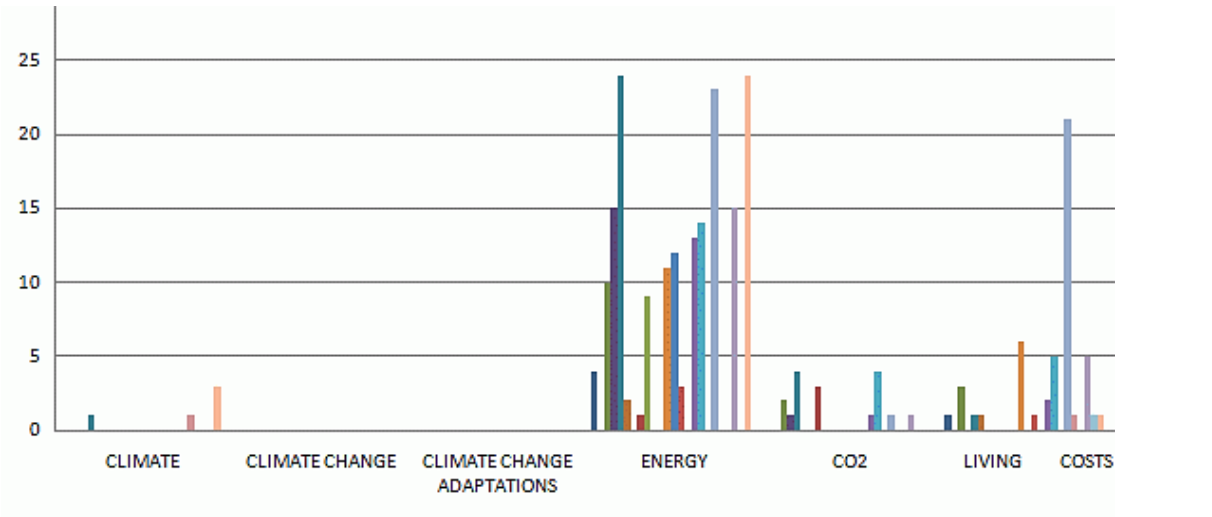


Figure 12 Content analysis results for the policy plans, Source: Roders et al. (2011)

The figure clearly depicts that climate and climate change are of minor importance to the housing associations.

4.4 Context setters

The discourse analysis of municipalities showed that their discourse is closely related to the climate discourse of the national government.

The discourse of the three remaining stakeholders needs little explanation. The building-, financial-, and energy sector are market parties, and as such focused on making profit; their discourse is also 'money'.

4.5 Analysis and conclusion

This analysis shows that the three key players have different perceptions of the problem. Tenants see energy savings as a threat to their living comfort, municipalities as a way to combat climate change and housing associations as either a threat or an assurance for their cash flows. These three discourses can be linked to the three pillars, people-planet-profit, of the triple bottom line (TBL) (Figure 13).



Figure 13 Three key players' discourses, linked to TBL

This TBL is ratified by the UN in 2007 as the standard for urban and community accounting. A healthy balance between these three pillars is required to ensure long term sustainability.

The municipalities' climate discourse is not effective to create a broad support base among the other stakeholders. Although combating climate change is in the interest of everyone, it is low on the priority list of both tenants and housing associations. Housing associations do not consider it their primary responsibility to reduce our impact on the climate either. They do often mention that climate change is also a driver for their energy strategy, but it is clearly of secondary importance. This impression is confirmed by the text analysis of housing associations documents by Roders et al. (2011) (Figure 12). Tenants claim to feel a certain responsibility to combat climate change but do not act accordingly. People see climate change as the second most serious problem facing the world (TNS, 2011), yet, 78% of the home-owners would rather invest in a luxurious kitchen or bathroom than in an energy efficient house (Bouwfonds, 2010). This inconsistency between awareness of

climate change and lack of corresponding action is referred to as the 'value-action' gap (Blake, 1999). Public awareness levels are high, and the sustainable development discourse has been widely adopted in society, but it has failed to result in significant behavioural change (Macnaghten, 2003; Whitmarsh et al., 2011). There is a psychological explanation for the value-action gap. It is difficult for people to comprehend causal relations when cause and effect are spatially or temporally distant, decentralized, non-obvious and non-linear (Grotzer and Lincoln, 2007). Climate change meets all of these conditions, and is thus particularly difficult to grasp and relate to at an individual level (Leiserowitz, 2005; Rathzel and Uzzell, 2009; Whitmarsh et al., 2011). The idioms and issue-framings of the environmental debate therefore fail to connect with people's concerns to get them emotionally engaged (Macnaghten, 2003). On top of this, people are already showing signs of so-called climate fatigue (Kerr, 2009). Global warming and climate change are much debated and show many characteristics of a hype; it is a hot issue. Nearly half of the respondents in a Dutch research said about climate change, that they are 'a bit tired of the subject' (TNS-NIPO, 2007). This threatens the support base for energy saving measures if they are consequently mentioned as part of climate policy. Van den Akker (2010) argues that the hype-sensitivity of the climate terminology hampers the impact of the ambition on the long-term, even though continuity is essential in this respect. This is unnecessary because, as noted before in this research, there are many more very good reasons to invest in energy saving and efficiency than climate change alone. The climate discourse prevents many people from seeing and considering those other benefits (Figure 14).



Figure 14 Climate summit cartoon, Source: Joel Pett's Editorial Cartoons, USA Today, 07 December 2009

It is thus imperative that policy makers adopt a new discourse that resonates with the beliefs and values of the target groups. As Bas van de Griendt, the environment manager of the largest Dutch housing project developer Bouwfonds states it: “It is about time that we translate the benefits of energy saving measures to the consumers. Consumers may be influenced by the climate debate but it has not really landed. The message has to be: it is in your own interest, it is good for your comfort and wallet. And by the way, it is also good for the environment” (NAW.nl, 12 January 2010). Anke van Hal, professor sustainable housing transformation, said in an interview: “I am convinced that sustainable building can only become successful when there is a link between the interests of people and the interests of the environment. It is easily thought that the interests of people are economic interests, but reality is not that simple. Money is important, but not the only driver” (Anke van Hal, 2011). These views are supported by the Nyenrode Center for Sustainability: “For most tenants, a comfortable environment is far more important than climate change issues. Climate ambitions should therefore preferably be translated in measures that respond to their wishes” (CfS Nyenrode, 2008). Energy saving measures should thus be promoted as a comfort enhancing intervention, especially since some people still perceive energy conservation as a threat to their living comfort.

From an analysis of personal motivation for adaptation and mitigation, Semenza et al. (2011) also conclude that the climate change issue should be reframed to motivate behaviour change.

Empirical evidence supports the idea that connecting the energy saving issue to reference frameworks other than climate change can help to move the action forward. Bulkeley et al. (2011) analysed 10 cases of urban climate change policy in cities all over the world. They conclude that “issue framing is a critical driver for climate policy and action”. Energy security, energy efficiency, and fuel poverty proved to be the impetus for action in the built environment in almost all the case studies. The researchers stress the importance of what they call issue bundling, to make energy efficiency an important issue on local agendas that cuts across other sectors (Bulkeley et al., 2011). Van der Waals et al. (2000) similarly conclude from an analysis of 4 renovation projects in The Netherlands that energy saving measures are only implemented when it serves other goals than CO₂-reduction. This conclusion is congruent with the conclusion from the stakeholder analysis that energy efficiency policy should be increasingly integrated with other policy fields.

5. Policy process

The stakeholder and discourse analyses returned potential solutions and recommendations for local governments to deal with energy conservation in the existing social housing sector. These recommendations have to be incorporated in a policy framework or process. This chapter provides a description of how local governments can set up a policy framework to improve the energy performance of the social housing stock in their municipality. This will answer the last subquestion:

How should energy conservation in the existing social housing sector be embedded in the policy process?

The policy process has to be tailored to the role and position of the municipality. Section 4.1.2 explained that local governments do not have any legal instruments to enforce energy savings in the existing social housing stock, which makes them highly dependent on the cooperation of the other stakeholders. Egmond et al. (2005) conclude therefore that policy instruments best suited for an intervention strategy to encourage housing associations to invest in energy conservation have a facilitating and encouraging character. Information and promotion, combined with covenants and agreements are mentioned as the policy ingredients that are most likely to be effective (Egmond et al., 2005).

The Association of Dutch Municipalities (VNG) notices that top-down governing with force and pressure, literally as a government, is obsolete (VNG, 2007). Instead of imposing regulations and enforcing laws, the municipality now has to play the role of initiator, facilitator, mediator, director and stimulator (Haskoning 2004; CE Delft, 2007). They have to become an enabler rather than a provider. This is in line with the current paradigm shift from 'governing' to 'governance', as observed by many authors (Weber et al., 2011). Osborne and Gaebler (1992) describe this new government role as being more about steering and less about rowing. According to Stoker (1998), the image of 'modern' urban government is as an enabler, catalytic agent facilitating provision and action by and through others. This new way of governing is also referred to as 'governing through enabling'. "Governing through enabling refers to the role of local government in coordinating and facilitating partnerships with private actors and encouraging community engagement. Tools such as persuasion and (positive) incentives are most important for this mode of governing" (Alber and Kern, 2008).

This general description will be made more explicit by translating this municipal role into the energy conservation policy for the existing social housing stock. The scheme below (Figure 15) depicts the steps in the policy process that should lead to a significant energy quality improvement.

The depicted policy process typically covers a 4 year period. Towards the end of this period, the results of this process are used to shape a new vision and close new agreements. It could therefore also be represented as a loop.



Figure 15 Policy process for energy conservation in the existing social housing stock

5.1 Shaping a vision

Writing a policy plan starts with a policy objective. The objective in this case is to reduce energy consumption in the existing social housing sector. The desire to reduce energy consumption in the built environment is often derived from the broader climate or energy policy of a municipality. The stakeholder and discourse analyses in this research showed that this narrow framing of the issue is both restrictive and ineffective. Abandoning the climate discourse and connecting the issue to other policy fields is expected to create a broader support base for the policy. Saving energy in the social housing stock should thus become part of other policy plans, most notably poverty, health and employment. The policy plan for energy conservation in the social housing stock is then based on, and part of, all the aforementioned policy fields, potentially including climate policy, and no longer framed as a climate issue. Embedding the policy in this new framework is expected to increase budgets and commitment.

The following chapter will reflect on current municipal climate or energy targets since they form the basis for energy conservation policy in the built environment. This provides some valuable lessons for negotiating targets.

5.1.1 Targets

This research and most other literature is confined to the frontrunners among the Dutch municipalities. It is important to bear in mind that the analysed policy plans are best practices in The Netherlands.

Many municipalities formulated an ambition to become either climate- CO₂- or energy neutral at a certain point in time. Target years are typically between 2020 and 2050. A list of ambitious municipalities with corresponding target years is provided in Appendix B. Van den Akker (2010) analysed the policy documents behind 27 of these ambitions and concludes that almost all plans lack a clear vision on the climate neutral city and a coherent approach to realise it. He expected that cities with a high level of ambition would have formulated corresponding policy plans to steer their city in the desired direction. This connection was not found in the 27 analysed policy plans. Most municipalities formulated their ambition before paying attention to its implications. Not one of the 27 analysed policy plans contained a comprehensive future perspective (Van den Akker, 2010), which is in line with the general lack of comprehensive economic policy that the union of Dutch municipalities identified among its members (VNG, n.d.). A similar situation is found for energy saving policy in the built environment, which is often part of the climate policy. A good example is the climate policy of the city of Apeldoorn:

Apeldoorn has a long history in climate policy. The ambition to become energy neutral in 2020 was formulated in 1999. This has been the official target until the new roadmap was issued in 2010. The target is now to achieve an energy neutral built environment in 2020 and an energy neutral city in 2035. The roadmap is the policy plan to realise this. In 2009, 2.3% of the built environment in Apeldoorn was energy neutral. With current policy and running projects, this becomes 8% in 2020 (Apeldoorn, 2010). The roadmap provides 2 suggestions to speed up the process for the social housing sector: closing new performance agreements with the housing associations and expanding an energy conservation project from the private sector to the social housing sector. Closing new performance agreements proves difficult because the municipality asks for A label for the housing stock in 2020, and the housing associations offer C label. At the time of writing, negotiations are on-going. The policy path in Apeldoorn consists mainly of a list of projects, which is a pattern that Van den Akker (2010) notices in municipal climate policy in general. The roadmap does not include a schedule for the realisation of the ambitions. According to Apeldoorn's senior policy advisor, the plans contain no such thing as milestones at certain points in time to keep track of the progress. The ambition was formulated 20 years ago, but as Theo van Es mildly put it "we are not halfway yet" (Theo van Es, 07-09-2011).

Although not explicitly stated, Theo van Es indicated that Apeldoorn is fully aware of the feasibility of its ambitions. Yet, the target is maintained, because it "indicates urgency and a direction", "it is not

as if we really must switch the lever at 12 o'clock on the first of July, 2020, so to speak" (Theo van Es, 07-09-2011).

So even though some targets may not be realistic, it can serve to indicate urgency and direction to the stakeholders. This example is not given to disqualify the energy policy of Apeldoorn. Apeldoorn is a frontrunner and one of the most active Dutch municipalities in this field. The example is provided to illustrate the findings of Van den Akker (2010) and put the energy conservation ambitions of cities in the right perspective.

Another explanation for unrealistic ambitions is found in Hoppe (2011), who notices that setting high energy efficiency ambitions is especially in the interest of local authorities, because they can benefit if high ambitions are set, while they do not have to bear the burden of the investments (Hoppe et al., 2011).

Setting high ambitions is not without risks. Obviously unrealistic ambitions may not be taken serious by stakeholders. It may also force local authorities to lower their ambitions, which can threaten their credibility.

The energy conservation targets for the entire city have to be translated to specific targets for the various sectors in the city, such as the built environment, transport and mobility and the industry. Energy conservation targets for housing usually become part of the so called housing vision. Since the grossing-up operation in 1995, local governments started to lay down their ideas about housing in their municipality in a housing vision. A comprehensive vision requires an elaborate analysis of the housing sector. Once again, ambitions have to be realistic and make sense to gain a proper support base. For the specific topic of energy conservation in the social housing sector, municipalities could consult their housing associations and external experts, such as consultants and government agencies. Engaging stakeholders in the process also increases the authority and support base of the resulting vision (VNG, 2007). A realistic, sound and well-considered housing vision will encourage stakeholder support. As the municipality of Krimpen a/d IJssel puts it: "a government without a policy has little grounds to criticise the performance of a housing association" (BMC, 2010).

5.2 Engaging stakeholders

The first step in carrying out the housing vision and achieving targets is to engage the relevant stakeholders. Local governments cannot carry out the task; it is up to the market parties to pick it up. A good example is the approach of the city of Utrecht:

"as a local government they need partners and co-travellers to reach the ambitious energy goals. The city alone has not enough possibilities. The role as facilitator, mediator and initiator is strongly developed. Others will have to do the concrete actions, and thus they have to be

convinced and motivated to follow the same goals as the city has. This culture of action in partnership is firmly grounded in the Dutch culture and has a long tradition. The Action Plan 'Utrecht makes New Energy' includes actions to get a shared vision of a set of objectives between the municipality, partners and citizens. The main action the city does is bringing other actors around the table. Utrecht takes the role of coordinator in these roundtables" (CASH, 2010)

As shown in Chapter 3 'Stakeholder Analysis', there are many stakeholders involved, which all have an interest in saving energy in the social housing sector. It is thus up to the municipality to assemble and engage these stakeholders and if necessary explain their interest to start up a process that leads to the desired energy savings (Bulkeley et al., 2011; Nicis, 2011). "To organise processes with the right partners, to identify which parties should cooperate, we initiate those contacts. That's very much our role" (Paul Paree, 15-09-2011). The most important stakeholders for this research are of course the housing associations. Due to a lack of hard instruments, municipalities depend on the cooperation of the housing associations to get things done. This requires a good working relationship. Municipalities that recognise the importance invest heavily in this relation and see the benefits (SEV, 2009; Gert van den Elsen, 06-09-2011). Other important actors to involve in the process are the context setters: the building sector, the financial sector and the energy sector.

In 2009, the municipality of Tilburg founded the "Climate Partnership Tilburg Region". Within this partnership they founded several subgroups, called climate alliances. Although the name is unfortunate (chapter 4), it is a good example of building partnerships. There are climate alliances for the built environment, education, mobility etcetera. Members are local organisations, such as housing corporations, civilians, educational institutions, financial institutions and businesses. The municipality initiated and established all these alliances but henceforth they are managed and presided over by one of their members. For the climate alliance built environment, the housing associations have taken the lead. As a city, Tilburg has the ambition to be energy neutral in 2045. The same target has been set for each of the sectors and thus alliances separately. The municipality is a member of the alliance, and keeps track of the progress, but does not run it. The climate partnership becomes responsible for the joint climate programme (Interview Gert van den Elsen, 06-09-2011; AgenschapNL, 2010).

At the moment, there is hardly any cooperation on this issue amongst housing associations and between housing associations and insulation companies, energy companies and municipalities (Hasselaar, 2009). The national government concludes that the essential cooperation between the construction sector and the energy sector is currently absent (Rijksoverheid, 2009).

5.3 Closing agreements

When municipalities and external parties come to an agreement about the targets, it is advisable to record this formally in a covenant. A covenant is non-binding by nature; it has been explained before

that local governments cannot impose binding targets. Essential for the realisation of the housing vision is a covenant between the municipality and housing associations that are active within its borders. After all, an important part of the housing vision has to be realised by the housing associations. A covenant between housing associations and the municipality is usually called a performance agreement. Examples of topics to include in an agreement are the development of new housing, affordability, viability of neighbourhoods and improving the quality of the existing housing stock. The association of Dutch municipalities (VNG) calls performance agreements a very important tool to realise housing policy (VNG, 2007). The housing associations and the municipality both have an important task in housing policy and depend on each other for the implementation. The municipality depends on the cooperation of the housing association to carry out part of their housing vision and the housing association needs the municipality because it issues building permits and is often the owner of building plots. A policy advice for the ministry of VROM and Aedes by the De Boer commission in 2005 urges municipalities and housing associations to do their utmost to close an agreement on the housing policy (De Boer et al., 2005). In 2010, just 44% of the municipalities made such an agreement (Severijn, 2011), this is quite disturbing considering the importance.

Performance agreements are more than just a practical tool to enhance policy effectiveness. They also legitimise the business of housing associations, because with the approval of the municipality they have the indirect consent of the general public, and thus a democratic mandate (De Boer, et al., 2005).

An increasingly important topic in the agreements is the energy quality of housing. In 2008, 36% of the covenants included agreements about the energy quality of housing. Agreements on sustainable building and renovations increased to 64% in 2010. Saving energy through renovation is a topic in 48% of the performance agreements. Although energy conservation is clearly receiving more attention in the covenants, the nature of the agreements is cause for concern. They are mostly about processes and obligations of best intents, few actually deal with measurable results (Buitelaar & De Kam, 2011). Many performance agreements that do have measurable targets just refer to the Aedes covenant or include the Aedes targets without referring to the covenant.

It has to be noted that the Aedes targets are not overly ambitious. Apeldoorn's government official also concludes that the target is "nowhere close to our ambition" (Theo van Es, 07-09-2011). BoEx's energy expert states that "the energy covenant that Aedes and the national government agreed upon is not a big deal. Just maintaining the current pace of improvement will automatically deliver that. So it's essentially a masquerade" (Spencer Schols, 15-06-2011). Calculations by consultancy firm Atriensis support this position, and show that the Aedes target will be easily attained in a business as usual scenario. "It does not even require any additional effort from housing associations" (Atriensis, 2008). What's more, many housing associations do not feel committed to the covenant (Theo van Es,

07-09-2011; Hoppe, 2010). “If we ask, will you pick up this housing cost guarantee, since it is part of the Aedes covenant, they say: nah, we don’t feel like it”.

The weakness of the Aedes covenant makes the importance of energy performance agreements even more evident. Merely referring to the Aedes targets does not show any serious ambition. Yet, even in the absence of ambitious targets, performance agreements are very valuable. Its significance is not only in its contents. The process of shaping the agreement is often the kick-off for cooperation and knowledge sharing. It forces the parties to dig into the topic and agree upon various aspects of the policy.

The non-binding nature of the performance agreements does not mean that housing associations automatically do not feel committed. Next to the preferred intrinsic motivation, most housing associations wish to maintain a good working relation with the municipality. They are in the boat together, and probably will be for many years. That is why some argue that binding targets on a municipal level are not necessary (Spencer Schols, 15-06-2011) or would even be counterproductive (Theo van Es, 07-09-2011); it might cause an avoidance reaction and stakeholders may dig in their heels. On a national level there is a more distant working relation, resulting in far less ambivalence towards binding legislation. Many advocates of energy conservation consider binding legislation the only viable solution to this problem and have requested it for many years. This is up to the national government or the EU and therefore beyond the scope of this research, but cannot be completely ignored. Research and consultancy organisation CE Delft concluded in a 2009 research that the existing housing stock can be profitably upgraded to a label B level (CE Delft, 2009). As of 2013, all existing buildings undergoing a major renovation are required to achieve the energy performance level which leads to the lowest cost during the life cycle of the building (EC, 2010). This level depends on the calculation method and the definitions leave some room for discussion, but there is clearly a shift towards more legally enforceable standards.

Dijkgraaf et al. (2009) assessed the effectiveness of a large number of energy covenants and found little or no evidence that national covenants have any effect. They do mention the potentially positive effect of knowledge building and exchange. Covenants require close cooperation, monitoring and subsequent fine tuning of policy to be effective (Korver and Oeij, 2005). These requirements are typically not met on a national level. The close working relation and resulting commitment that is observed on a municipal level is also lacking on a national scale.

Municipalities can also close agreements with other external parties, next to the housing associations. Especially larger cities have a lot of expertise within their borders, which can all be mobilised to gain momentum. The aforementioned climate alliances in Tilburg are a good example.

5.3.1 Performance agreements

Once a realistic housing vision is determined, municipalities would like to have their ideas realised. They need housing associations to share and realise their vision on topics like the development of new housing, affordability, viability of neighbourhoods and improving the quality and energy efficiency of the existing housing stock. This takes a lot of negotiation since housing associations have their own ideas about the future of their housing stock, called the strategic stock policy.

Before entering the negotiations, the municipality needs to be well prepared. They will have a stronger negotiating position when they have a good overview of the interests and financial accounting methods of the housing associations. It is also advisable for the municipality to consider in advance what they might offer in return for their wishes.

Performance agreements can be made in various forms, with varying degrees of engagement. They can for instance include agreements about processes, intentions, guarantees and results.

In the case of energy conservation, results can be measured and defined in different ways. Agreements can be made about for example the total amount of saved energy, the height of energy efficiency investments, the amount of label steps, a minimum label after each renovation or a desired average label at a certain point in time. An important part of the agreement that has been mentioned before is the definition of the core housing stock (section 3.2.2). The definition of affordability for this core housing stock should be based on total living expenses, rather than rent alone. This gives housing associations the opportunity to raise the rent and recoup their investments. The nature of the agreement determines the degree of freedom for the housing associations to achieve the targets and use their creativity. A more stringent agreement is therefore not necessarily the best outcome for the municipality.

A possible pitfall is the sale of old property by housing associations, which is only shifting the problem. Housing associations may sell E-, F-, or G-label houses to improve the average label of their stock. This relieves them of their problem, but it does not contribute to the municipal targets since these houses remain within their borders. This can be prevented by agreeing upon a minimum label for sold property (DWA, 2010).

Even with a sound preparation, negotiating performance agreements can be, and often is, a difficult process. Hiring an external consultant to guide and mediate may ease the process.

5.4 Facilitating and monitoring

Ideally, the market parties have now picked up the task and are cooperating to meet the targets they agreed upon. Meanwhile the municipality starts working on its own part of the deal. The municipal task is to create ideal circumstances for the parties to carry out their task. This is the facilitating role.

Another important task for the government during and after the implementation process of the agreements is monitoring progress and results.

5.4.1 Facilitating

An important part of the facilitating or enabling task of the municipality is to act as coordinator, director and mediator in alliances and working groups, such as those in Utrecht, Breda and Tilburg. In the city of The Hague, the housing associations explicitly asked the municipality to play a directing role. They wanted the municipality to maintain an overview of the various sustainability initiatives of the housing associations in the city, to avoid parallel work (HMC, 2010).

Facilitating also means removing barriers. Many barriers for the energy conservation process were identified in the stakeholder analysis, such as helping with communication programmes, issuing a housing cost guarantee, combining the private and social housing sector approach, subsidising and setting up revolving funds. These options addressed the financial and communication barriers.

Not all of the barriers have financial and communication backgrounds. Housing associations also encounter institutional barriers. An example of an institutional barrier on a municipal level is the definition of the core housing stock (section 3.2.2). On a national level, municipalities can use their contacts in the national government to try and take away institutional barriers. A housing association in Apeldoorn noticed an institutional barrier on a national level. "As a municipality, we came up with a solution, which we promoted at members of the parliament. That is a role you can fulfil" (Theo van Es, 07-09-2011). The contacts that municipalities have with the national government can be very valuable. "We are involved in many committees and deliberations, also in The Hague. That really delivers. Influence, that is very important" (Gert van den Elsen, 06-09-2011).

Municipalities can also help housing associations to apply for national or European subsidies or knowledge programmes and projects.

5.4.2 Monitoring

Policy in general requires close monitoring to assess its effects and adapt it, if necessary. This is especially true for the policy under study. Municipalities generally have little experience with the policy domain and approach. Learning by doing is therefore an important aspect of the policy process. According to Korver and Oeij (2005), covenants prove effective where actors learn to advance policy-making by monitoring efforts, effects and possible risks, and by subsequently fine-tuning follow-up actions. The non-binding nature of covenants stresses the importance of monitoring efforts and effects. Covenants and performance agreements typically cover a 4-year period. During this period, commitment from the signatories can decrease and the agreement may fall into oblivion. Close monitoring and constant involvement of the municipality can prevent that. Measuring effects has always been difficult. Housing associations and municipalities used to have very little insight in

the energy performance of their housing stock (Van der Waals et al., 2000; ECN, 2006). The mandatory EPC (section 1.4) is rapidly changing this situation. The housing labels provide housing associations and policy makers with a tool to design and monitor their policy. Municipalities can also access energy consumption data at postcode level. Special software packages exist to provide an overview of the energy performance of areas.

Municipalities can agree on periodic reports and meetings with the housing associations to keep track of the process and progress. The results enable the policy makers to fine-tune the policy and can be used as input for follow-ups.

5.5 Conclusion

The municipality has no hard instruments at its disposal to enforce energy conservation in the existing social housing stock. The problem therefore asks for another approach than traditional top-down governing. Local governments have to motivate the actors and facilitate the process where possible. The government role as enabler is referred to as governance.

The policy process starts with shaping a vision. Energy saving is currently framed as a climate problem, but should become part of several other policy fields. This vision must then be translated into realistic targets and a realistic strategy to achieve them. Relevant stakeholders and experts should be involved in this process to increase validity and support. The municipality needs all stakeholders, but first and foremost the housing associations, to carry out their vision and achieve the targets. They can be assembled and motivated to exchange information and build partnerships. The municipality can act as initiator and director in those partnerships. Government officials and the stakeholders should then negotiate targets and a viable strategy and record the outcome formally in a covenant. A covenant with the housing associations is usually called a performance agreement and is an absolute sine qua non for an effective policy plan.

The stakeholder analysis provided various options for the municipality to enable the stakeholders to implement the policy and realise the energy performance improvement in the social housing sector. Finally, the process and progress have to be monitored. This prevents that the agreements fall into oblivion and enables the stakeholders to learn from the experiences.

It is important for the municipality to stay involved in every step of the process and show their commitment.

6. Discussion

As explained in the method rationale (section 2.1), answering the research question asked for a broad analysis. This means that not every aspect of the problem can receive equal attention. This section will reflect upon the research and on some choices that are made.

Some of these aspects and some findings of this study form interesting starting points for further research.

The two analyses are performed simultaneously and are based on the same data. This is the strength and at the same time the weakness of the research structure. The two analyses can reinforce each other, which increases the validity of the outcomes. Yet, performing two analyses simultaneously also threatens the transparency, rigour and structure of the methodology.

The analyses in this study had to cover a broad spectrum. The issue has been analysed at a practical, emotional, financial, communicational and policy level. Yet, throughout the process, the focus has been on the role of local governments. This kept the research from derailing and ending up as being neither fish nor fowl.

The stakeholders analysis showed that energy conservation in social housing is as much a poverty issue as it is a climate issue, and demonstrates that the coupling of energy conservation with poverty policy can disclose huge sums of money and spur the action.

The discourse analysis approached the problem on an emotional level and reached a very similar conclusion. Energy conservation should not be framed as a climate issue. Municipalities have to focus more on the other positive effects and communicate those to connect to the stakeholders that have to bring about the desired change.

The conclusion of both analyses is thus essentially the same: local governments must think outside the climate box.

It would be interesting to set up an experiment to verify the conclusions from the discourse analysis. This could be done by testing how stakeholders respond to various framings of the same problem.

The main conclusion of this research takes this idea one step further and recommends that energy conservation in the built environment should not only be framed, but also treated primarily as a poverty and health issue, and thus become part of the corresponding policies. This already happens to a certain extent in the UK (section 3.2.2; figure 10). An evaluation of the British fuel poverty policy can reveal how this works out in practice and whether this indeed delivers more results.

Another interesting question for further research is whether the main conclusion also applies to other sectors where the energy consumption needs to be reduced, such as the transport sector, the industry sector or other segments of the built environment?

Bulkeley et al. (2011), for instance, observed that framing energy conservation in the built environment as an energy security or fuel poverty issue is essential to achieve results. Similarly, they found that air quality and health issues were the drivers for energy saving efforts in the transport sector. It seems possible, or even likely, that energy conservation is dominantly framed as a climate issue in other sectors as well, and that reframing and integrating policy fields is a good idea for those sectors as well.

This study argues that the financial barrier is overestimated and that investments in energy efficiency retrofits will prove profitable in the long term. This study offers valid arguments for this statement but it cannot be supported by empirical data. Verification through modelling would provide a stronger basis for this claim. Yet, as noted in section 3.2.2, current models do not adequately incorporate energy saving measures in the valuation of the stock. The SEV model that is now being developed (FIMAREN) may enable a quantitative research when it is finished. This would be a nice follow up of this research.

This study did not elaborate further on this model because the emphasis is on the role of the local government. The financial side of the issue would have received more attention if the study would concern an advice for housing associations.

Many advocates of energy conservation see the absence of an enforceable standard for existing housing as the most important reason for the lack of action. Although this may be true, the absence of such standards is taken-for-granted in this research. This research tries to determine what the best strategy would be for local governments under the given circumstances. Legally enforceable standards are not in the hands of the municipality, and in the current political climate no such thing is to be expected soon.

The number of interviews (4) is smaller than expected beforehand. The interviews painted a coherent picture of the issue. Additional interviews would have increased the validity of the conclusions, but given the high level of coherency, the researcher did not expect many new insights. However, tenant interviews would be desirable to improve the support base for the analysis of the tenants' discourse. This would have required several more interviews, and as noted before (section 2.2.1), this would be too time consuming for this research.

This study focuses on the improvement of the energy quality of the existing social housing stock. Tenant behaviour does not influence the energy quality of a dwelling and is thus excluded from the research. Yet, it is important keep in mind that tenant behaviour determines the final energy consumption of a household to a large extent (ECN, 2011).

7. Conclusion

How can local governments improve the energy performance of the existing social housing stock?

The initial approach to answer this question was to analyse several successful cases and perform stakeholder and discourse analyses. However, the selected cases appeared to be successful from an energy savings perspective only. They were generally unprofitable showcase projects and did not present a response to a well-considered strategy or policy framework. Usually because there was no comprehensive policy strategy to respond to in the first place.

It was then decided to abandon the case study approach and look at the policy from an aggregate perspective. The stakeholder and discourse analysis approach was maintained, but instead of analysing separate projects, the whole policy field became the case under study.

Many actors have a stake in energy conservation in the social housing stock. Municipalities, housing associations, tenants, the national government and the building-, energy- and financial sector are involved. By far the most important stakeholders are the owners of the stock; the housing associations, and its occupants; the tenants.

Increasing the energy performance of social housing has benefits and is even imperative for both. Business as usual will very likely lead to utility bills that many tenants can no longer afford, which in turn means that housing associations no longer provide an affordable housing stock. Additional benefits for tenants include positive effects on comfort and health.

For several reasons however, investments in energy efficiency in the social housing stock fall behind. The main problem is that benefits and necessity are underestimated and barriers are overestimated.

The necessity and benefits are poorly recognised and acknowledged by housing associations and tenants. Yet, their motivation is imperative because local governments cannot improve the energy performance themselves. It is thus important to convince the stakeholders. However, they appear to have a different perception of the necessity and benefits than the municipalities. Energy conservation targets in the (social) housing stock are usually part of the municipal climate policy. The municipalities' reason to pursue energy conservation is to achieve local and national climate targets and ultimately to mitigate global warming. This is, however, very low on the priority list of both housing associations and tenants. They are primarily concerned with money and comfort. The municipal climate story therefore does not resonate with the target groups, and may even backfire considering the hype-sensitivity of the terminology and increasing climate fatigue.

Energy conservation in the housing sector is consequently framed as a climate problem, although it can have profound effects on poverty, employment and health. Emphasising these effects rather than framing the issue as a climate problem will significantly increase the support base and subsequently unlock budgets on a scale that far exceeds typical funding of climate policy. Integrating these policy fields is referred to as issue bundling. It is used in some countries outside The Netherlands and has proven its value. The key message to policy makers is thus to think outside the climate box (Figure 16).

Another reason for stakeholders' reluctance is an overestimation of the barriers. It is technically feasible to achieve energy improvements of up to 70% in renovations, but this is capital intensive and housing associations find it difficult to discount these investments. Their financial models do not adequately incorporate energy efficiency investments which causes them to regard these investments as uneconomic. Yet, research suggests that the perceived financial gap is actually non-existent and that the financial side of the problem is manageable. A prerequisite for a viable business plan for housing associations is a rent increase. This rent increase is fully compensated for the tenant by the lower utility bill, but many tenants are not convinced of the benefits and are hesitant to take the risk. They often oppose such renovation plans, which forms a barrier for housing associations because law prescribes that 70% of the tenants have to agree with a renovation proposal. A housing cost guarantee or the concept of ESCOs are relatively new concepts that provide certainty for tenants and may thus solve this barrier, but the most straightforward solution is simply to increase the rent. This demands intensive communication programmes from the housing associations. Municipalities have several options to assist in these trajectories. This research showed that tenants are primarily concerned with comfort and money, so these factors should be at the centre of each communication programme. Personal and transparent communication, using other tenants or home owners as ambassadors, has proven to be successful.

More than any other factor, municipalities can influence institutional barriers. The definition of the core housing stock is the most notable institutional barrier that could easily be addressed by the municipality.

The government has no power to bring about change on its own and has to rely on an emerging type of governing, known as governance. Their strategy should be focused at creating a momentum and facilitating the process. This starts with shaping a vision, which involves all relevant policy fields and frames energy conservation in the social housing sector as a poverty, employment, health and potentially also a climate issue. This vision should be translated in realistic targets, with a corresponding strategy. The next step is to convince and engage relevant stakeholders, initiate

partnerships and close agreements, most importantly performance agreements, with the housing associations. The task of the municipality in the implementation phase is to facilitate the stakeholders in achieving the targets. Important elements of this facilitating role are assisting in communication trajectories, establishing and directing partnerships and removing institutional barriers. During the whole policy process, the municipality monitors the process progress and uses the results to fine-tune their policy and as input for follow-ups.

The required change of discourse and the closely related issue bundling (Figure 16) are at the heart of this policy advice.

This advice is embedded in a governance based policy package, forming a comprehensive strategy for local governments to boost the energy performance improvement of the existing social housing stock (Figure 17).

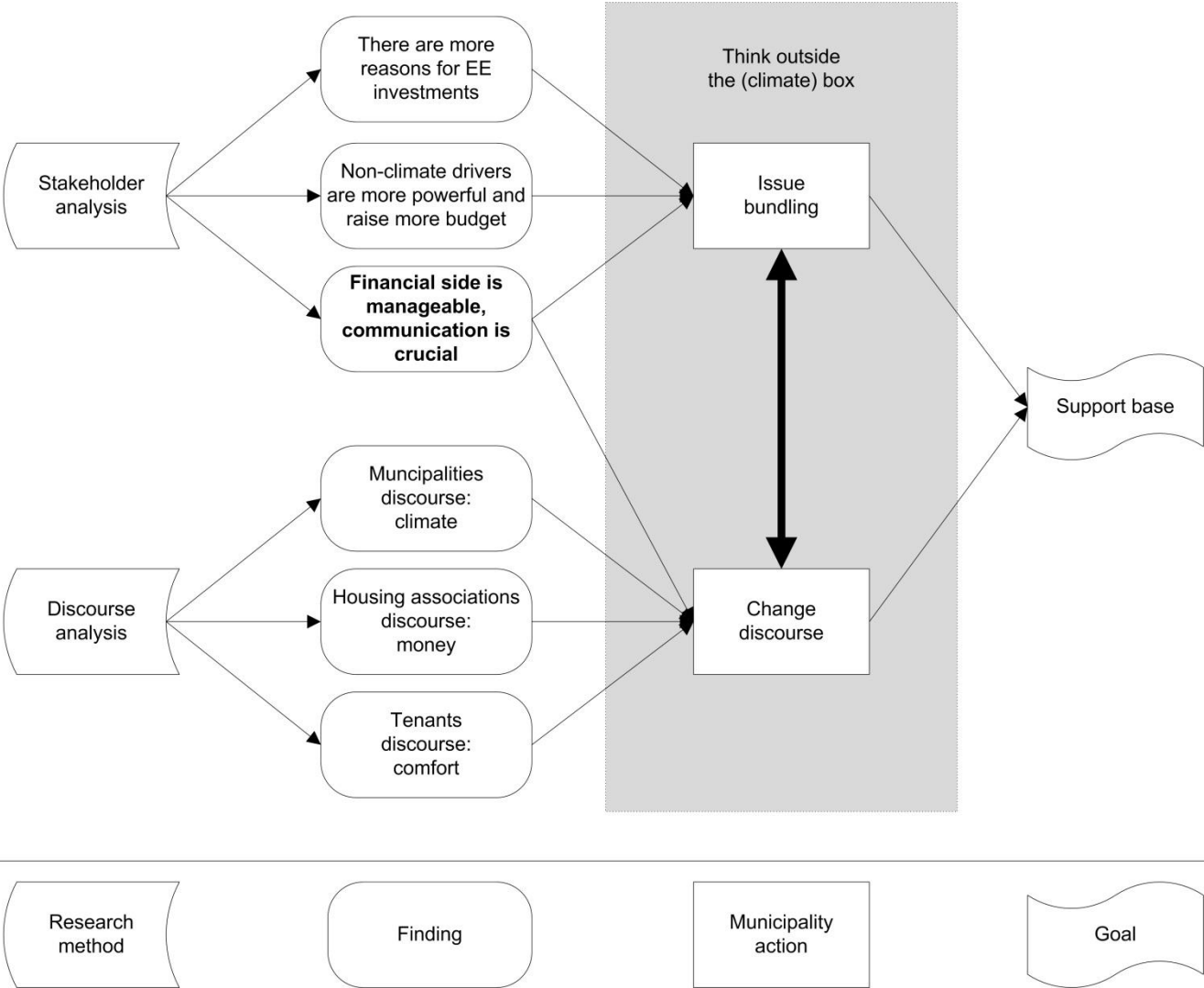


Figure 16 Think outside the 'climate box'

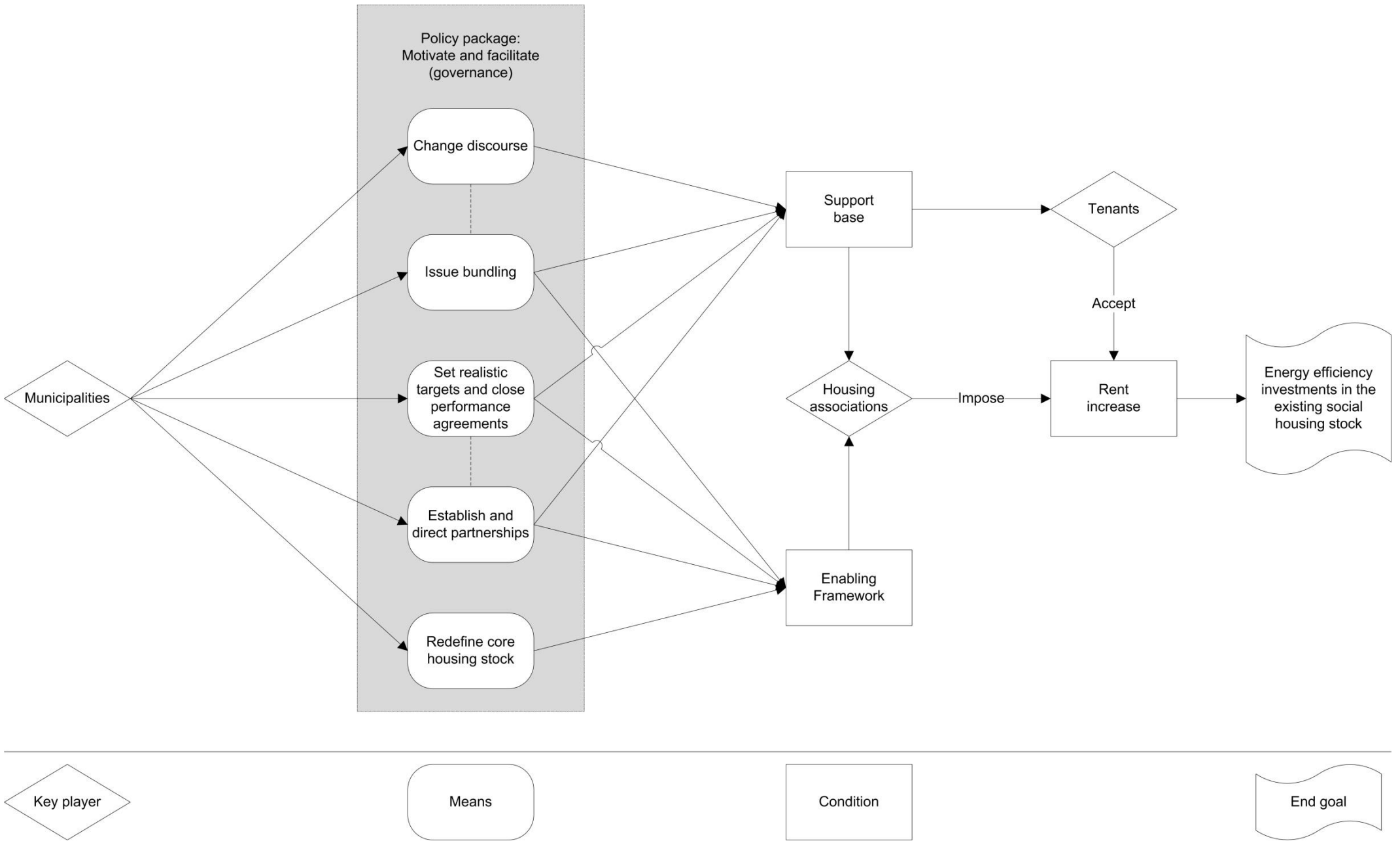


Figure 17 Schematic representation of policy design

References

- AgentschapNL, 2010, Dutch Climate Policy: Local challenge supported by the national government, AgentschapNL, Utrecht, May 2010, Publication-no. 2FLOK1009
- Akker, D. van den, 2010, Sturen naar de klimaatneutrale stad, Rotterdam: Erasmus University, 2010 - 103 p
- Alber, G. and Kern, K., 2008, Governing Climate Change in Cities: Modes of Urban Climate Governance in Multi-level Systems; in: OECD: Competitive Cities and Climate Change. OECD Conference Proceedings, Milan, Italy, 9-10 October 2008.
- Anke van Hal, Streven naar duurzaamheid wordt een overlevingsstrategie, 09-02-2011, accessed 29-02-2012 at <http://www.duurzaamgebouwd.nl/expertposts/20110209-streven-naar-duurzaamheid-wordt-een-overlevingsstrategie>
- Apeldoorn, 2010, Routekaart Apeldoorn Energieneutraal 2020, 6 October 2010, Gemeente Apeldoorn, Dienst Openbare Werken, programma Apeldoorn Energieneutraal
- Atrienis, 2008, Energiebesparing huursector, geen probleem?, Gebouwbeheer 2008, Nr 1, p. 24-25
- Atrienis, 2011, Deelname energiebesparing: keuze of plicht?, accessed online at: http://atrienis.nl/_userdata/files/Deelname%20energiebesparing;%20keuze%20of%20plicht.pdf
- Bacchi, C., 2000, Policy as discourse: What does it mean? Where does it get us? Discourse 21, no. 1: 45–57.
- Ball, S.J., 1990, Politics and Policy Making in Education: explorations in policy sociology, New York, Routledge
- Barack Obama, 2009, Speech on economic impact of energy saving home retrofits, Alexandria, Virginia, 15 december 2009, accessed 26-02-2012 at <http://www.whitehouse.gov/photos-and-video/video/retrofitting-energy-efficiency-and-new-jobs#transcript>
- BarEnergy, 2010, Barriers to changes in energy behaviour among end consumers and households, EU-project 7th framework programme, TNO (NL), University of Groningen (NL), EDF (F), Central European University (HU), Centre for Sustainable Energy (GB) SIFO - Norwegian Institute for Consumer Research (N), University of Surrey (GB)
- Bell, M., Lowe, R. J. and Roberts, P., 1996, Energy Efficiency in Housing. Aldershot, Avebury, ISBN 185972-348-9
- Blake, J., 1999, Overcoming the 'Value-Action Gap' in environmental policy: tensions between national policy and local experience. Local Environment 4, 257–278.
- BMC, 2010, Samenwerkingsovereenkomst Wonen Krimpen aan den IJssel 2010-2013, ing. W. Vos, Projectnummer: 223043, February 2010.

- Boelens et al., 2011, Compacte Stad Extended / Compact City Extended: Agenda voor toekomstig beleid, onderzoek en ontwerp / Outline for future policy, research and design. Design and Politics #4, ISBN 978-90-6450-747-2 | 010 Publishers, March 2011
- Boer, H. de et al., 2005, Lokaal wat kan, centraal wat moet. Nieuw bestel voor woningcorporaties. Den Haag: ministerie van VROM
- Bonnefoy, X., 2007, Inadequate housing and health: an overview, Int. J. Environment and Pollution, Vol. 30, Nos. 3/4, pp.411–429
- Bouwend Nederland, 2011, Effectieve bewonerscommunicatie bij energiebesparende woningrenovatie,
http://www.bouwendnederland.nl/artikelen/Pages/Effectieve_bewonerscommunicatie_bij_energiebesparende_woningrenovatie_5057.aspx?source=%252fregionoord%252fpages%252fdefault.aspx, accessed 30-12-11
- Bouwfonds, 2010, NAW dossier Consument en duurzaamheid, April 2010, Bouwfonds Ontwikkeling; Authors: Bas van de Griendt, Gijsbert van Estrik, accessed online at http://ontwikkeling.bouwfonds.nl/media/53771/naw_dossier_baat_lr_2.pdf
- Brugha, R., Varvasovsky, Z., 2000, Stakeholder analysis: a review. Health Policy and Planning 15, 239–246
- BuildDesk, 2009, Komen tot prestatieafspraken over energie tussen gemeenten en corporaties, Productblad voor gemeenten, Sonja Hardenbol (BuildDesk), oktober 2009
- Buitelaar, E. & Kam, G.R.W. de, 2011, Resultaatgerichtheid van prestatieafspraken met corporaties: een Catch 22 voor gemeenten?, Bank Nederlandse Gemeenten, march/(april), 19-21
- Bulkeley, H., Schroeder, H., Janda, K., Zhao, J., Armstrong, A., Chu, S.Y. and Ghosh, S., 2011. The Role of Institutions, Governance and Planning for Mitigation and Adaptation by Cities. In Cities and Climate Change: Responding to an Urgent Agenda, edited by D. Hoornweg, M. Frere, M. Lee, P. Bhada and B. Yuen. Washington DC: World Bank. pp. 68-88.
- CASH, 2010, Energy efficiency for social housing - Baseline Study, an URBACT II Project, Published: May 2010
- CE Delft, 2009, Energieprestatie-eisen bestaande woningen - Verkenning van economische en juridische haalbaarheid, Delft, August 2009 - 80 p., Publication number: 09 3957 41
- CfS Nyenrode, 2008, Innovation Lab Duurzame Renovatiebouw, Nyenrode Center for Sustainability, Februari 2008
- CFV, 2010, Verslag financieel toezicht woningcorporaties 2010, Centraal Fonds Volkshuisvesting (CFV), Naarden

- Chess, C., Johnson, B., 2007, Information is not enough. In S. Moser, & L. Dilling (Eds.), *Creating a climate for change: Communicating climate change and facilitating social change* (223-237). New York and Oxford, UK: Oxford University Press
- Chu, S., Goldemberg, J., Arungu-Olende, S., El-Ashry, M., Davis, G., Nakicenovic, N. et al.: 2007, *Lighting the way: Toward a sustainable energy future*, InterAcademy Council Report, pp.174., ISBN 978-90-6984-531-9
- Clinch, P.J. and Healy, J.D., 2000, Domestic energy efficiency in Ireland: correcting market failure, *Energy Policy*, 28, 1-8.
- Danziger, M., 1995, Policy analysis postmodernized: some political and pedagogical ramifications, *Policy Studies Journal*, 23(3), pp. 435–450.
- Davis, M., 2011, Behavior and Energy Savings: Evidence From A Series of Experimental Interventions. *Environmental Defense Fund*. Available at http://www.edf.org/documents/11769_BehaviorAndEnergySavings.pdf
- DECC, 2011, *Annual Report on Fuel Poverty Statistics 2011*, London: Department of Energy and Climate Change
- DEPW, 2009, *Passiefhuis renovatie grondgebonden rijwoning uit periode 1958-1966*, DEPW, 8 June 2009, accessed at <http://www.depw.nl/pages/publicaties/pdf/Do-it%202009/Add%20on,%20Passiefhuis%20renovatie,%20Eindrapport%20.pdf>
- Devlies, C., 2006, *Sociaal stookolie fonds, niet voor alleenstaande die werkt*, Press release, Brussels: CD&V, 16-03-2006
- DHV, 2010, *Gemeenteakkoorden: Duurzaamheid vaker aan bod dan bezuinigingen*. Den Haag: DHV
- Dijkgraaf, E., J.M. de Jong, M. Spijkerman, O. Tanis, 2009, *Effectiviteit convenanten energiebeleid*, Rotterdam: SEOR, Erasmus University
- Dol, K. and Kleinhans, R., 2011, *Op zoek naar de kernvoorraad, ontwikkelingen in de sociale huurvoorraad in Breda, Den Haag en Rotterdam*, Platform Corpovenista, Universiteit Utrecht, TU Delft (OTB), Nicis Institute
- Donaldson, T., Preston, L., 1995. The stakeholder theory of the modern corporation: concepts, evidence and implications. *Academy of Management Review* 20, 65–91.
- Dunn, William N., 2008, *Public Policy Analysis: An Introduction*. 4th ed., Upper Saddle River, N.J.: Pearson/Prentice Hall
- DWA, 2010, *Corporatiewoningen naar label B - Prestatie afspraken energiebesparing tussen gemeenten en corporaties, Meer Met Minder*, commissioned by Agentschap NL, Report by DWA installatie en energieadvies, March 2010

- EC, 2002, Directive 2002/91/EC of the European Parliament and of the Council of 16 December 2002 on the energy performance of buildings, European Commission (EC): Brussels, Official Journal of the European Communities, 4 January 2003, L1/65-71
- EC, 2006, Directive 2006/32/EC of the European Parliament and of the Council of 5 April 2006 and repealing Council Directive 93/76/EEC, European Commission (EC): Brussels, Official Journal of the European Union, 27 April 2006, L 114/65-85
- EC, 2010, Directive 2010/31/EU of the European Parliament and of the Council of 19 May 2010 on the energy performance of buildings (recast), European Commission (EC): Brussels, Official Journal of the European Union, L 153/13–35
- EC, 2011, Proposal for a Directive of the European Parliament and of the Council on energy efficiency and repealing Directives 2004/8/EC and 2006/32/EC, European Commission (EC): Brussels, 22-06-2011 COM(2011) 370 final 2011/0172 (COD)
- ECN and PBL, 2010, Referentieraming energie en emissies 2010-2020, Energieonderzoek Centrum Nederland (ECN) and Planbureau voor de Leefomgeving (PBL), Petten/Bilthoven, ECN-E-10-004
- ECN, 2006, Financing energy saving measures in the Dutch social housing sector, WP2 report to the InoFin project, Author(s): Donkelaar, M. ten; Boerakker, Y.H.A.; Jablonska, B.; Tigchelaar, C. Published by: ECN Policy Studies, 15-1-2007, 57p., ECN-E--06-049
- ECN, 2010, Lokaal energie- en klimaatbeleid. Aandachtspunten, valkuilen en oplossingsrichtingen uit lokale projecten in binnen- en buitenland, Vethman, P., Kroon, P., ECN-E--10-097, December 2010, 84 p.
- ECN, 2011, Obligations in the existing housing stock: who pays the bill?, Tigchelaar, C., Daniëls, B.W., Menkveld, M., ECN-L--11-073, June 2011; 15 p., Presented at: eceee 2011 Summer Study, Belambra Presqu'île de Giens, France, 6-11 June 2011
- Ecofys and Fraunhofer ISI, 2010, Energy Savings 2020: How to triple the impact of energy saving policies in Europe, Wesselink, B., Harmsen R., and Eichhammer, W., 116 p.
- Ecofys, 2005a, Mogelijkheden voor versnelling van energiebesparing in Nederland. Utrecht, Ecofys, Rapport ECS05021, Utrecht, 2005
- Ecofys, 2005b, K. Blok, E. de Visser. Energiebesparing: de onbegrensde mogelijkheden, Ecofys, Utrecht, October 2005, ECS05066 05
- Ecorys, 2010, Inventarisatie financieringsconstructies - anders denken en doen, commissioned by AgentschapNL, Author: Janbart van Ginkel, Ecorys, Rotterdam, December 2010, 48 p
- Egmond, C.C., 2006, Focus on change; Influencing segments of housing associations to adopt energy conservation measures and innovations (Ph.D. thesis), Maastricht University, ISBN-13:978-90-9020418-0

- Egmond, C.C., Jonkers, R. and Kok, G., 2005, A strategy to encourage housing associations to invest in energy conservation, *Energy Policy*, 33, 2374-2385
- EPG, 2011, 'Overheid werkt verstorend', EPG Netwerk business magazine, March 2011
- EU, 2011, Energy Efficiency Plan, Brussels, 08-03-2011 COM(2011) 109 final
- Eurostat, 2010, Energy, transport and environment indicators , Luxembourg Publications Office of the European Union, 2010, ISBN: 978-92-79-13438-8 ISSN: 1725-4566 DOI: 10.2785/33652
- Farsi, M., 2010, Risk aversion and willingness to pay for energy efficient systems in rental apartments, *Energy Policy*, 38: 3078-3088
- Fedorowicz, J., Gogan, J.L., Culnan, M.J., 2010, Barriers to Interorganizational Information Sharing in e-Government: A Stakeholder Analysis, *The Information Society*, 26(5), 315-329
- Foucault, M., 1970, 'The order of discourse', in R. Young (ed.) (1981), *Untying the Text: A Post-Structuralist Reader*. Boston/London/Henley: Routledge and Kegan Paul, pp. 48-79.
- Frans Driessen, 2011, Interview Builddesk director Frans Driessen, accessed at: <http://www.energievastgoed.nl/2011/09/builddesk-%E2%80%99Cesco%E2%80%99s-kunnen-verduurzaming-bestaande-vastgoedvoorraad-versnellen%E2%80%9D/>
- Freeman, R.E., 1984, *Strategic Management: a Stakeholder Approach*. Basic Books, New York.
- Friedman, A.L., Miles, S., 2002. Developing stakeholder theory. *Journal of Management Studies* 39, 1–21.
- Garrity, Z., 2010, Discourse Analysis, Foucault and Social Work Research : Identifying Some Methodological Complexities, *Journal of Social Work* 10: 193, DOI: 10.1177/1468017310363641
- Goater, A., 2011, *RenovEnergie : la rénovation énergétique des logements du secteur privé. Analyse des facteurs qui participent au déploiement et à la réussite des opérations de rénovation énergétique, observation des pratiques en Allemagne, Espagne, France, Italie et Suisse. Rapport pour l'Ademe, interne au projet, nov. 2009*
- Goldblatt, David L., 2005, *Sustainable Energy Consumption and Society - Personal, Technological, or Social Change?*, Series: Alliance for Global Sustainability Bookseries, Vol. 7. XXVIII, 205 p. ISBN 978-1-4020-3086-4
- Goossens L., Laureys J. & Raemdonck, I., 2006, *Wonen en Energie - Een win-win-situatie, ook lokaal in de Provincie Antwerpen*, Onderzoeksgroep Armoede, Sociale Uitsluiting en de Stad, Universiteit Antwerpen, Eerste druk : 2006, Acco Leuven/Voorburg
- Grotzer, T.A., Lincoln, R., 2007, Educating for "intelligent environmental action" in an age of global warming, in S. Moser & L. Dilling (Eds.) *Creating a Climate for Change: Communicating Climate Change and Facilitating Social Change*. The National Centre for Atmospheric Research (NCAR), Cambridge, UK: Cambridge University Press.

- Gupta, J, Lasagne, R., Stam, T., 2007, National efforts to enhance local climate policy in the Netherlands, *Environmental Sciences* 4 (3): 171-182
- Hajer M., Versteeg W., 2005, A decade of discourse analysis of environmental politics: achievements, challenges, perspectives. *Journal of Environmental Policy and Planning* 7(3):175–84.
- Hajer, M.A., 2005, Coalitions, practices and meaning in environmental politics: from acid rain to. BSE, in Howarth, D.R. and Torfing, J. (Ed.), *Discourse Theory in European Politics*,. Palgrave, London, pp. 297-315
- Handcock, M.S. and Gile, K.J., 2011, On the Concept of Snowball Sampling, *Sociological Methodology*, 41: 367–371
- Hanschke, C.B., 2009, Monitor Schoon en Zuinig – Actuele stand van zaken 2008. Reportnumber ECN-E--09-030, ECN/ SenterNovem/Ordina/PBL, Petten/Utrecht/ Nieuwegein/ Den Haag/Bilthoven
- Haskoning, 2004, Energiebesparing in de bestaande bouw in Noord-Nederland, commissioned by Milieufederatie Drenthe, Milieufederatie Groningen, Friese milieufederatie, authors: dr. A.J.M. Bos drs. B.N. Pents, 30 june 2004, 9P3577/R0003/SBO/Gron
- Hasselaar, E., 2009, Draagvlak voor energiebesparende maatregelen. Principes en processen om huurders bij energiebesparing te betrekken, OTB TU Delft, 8 October 2009
- Healey P., 1997, An institutionalist approach to spatial planning. In: Healey P, Khakee A, Motte A, Needham B, editors. *Making strategic plans. Innovation in Europe*, London: UCL Press. p. 21–36.
- HMC, 2010, Naar een duurzame aanpak van de Haagse krachtwijken, Haags Milieucentrum, http://www.haagsmilieucentrum.nl/z_files//krachtwijkenrapportwebmail.pdf
- Hoffman, A. J., 2011, The culture and discourse of climate scepticism, *Strategic Organization* 9: 77-84, February 2011, doi:10.1177/1476127010395065
- Hoppe, T., 2010, CO₂-reductie in de bestaande woningbouw; een beleidswetenschappelijk onderzoek naar ambitie en realisatie. *Bestuurskunde* 19 (4), 107-108
- Hoppe, T., Bressers, J.Th.A. and Lulofs, K.R.D., 2011, Local government influence on energy conservation ambitions in existing housing sites—Plucking the low-hanging fruit? *Energy Policy*, 39 (2). pp. 916-925. ISSN 0301-4215
- IEA, 2006, *Energy Technology Perspectives 2006: Scenarios and Strategies to 2050*, OECD Publishing. International Energy Agency, doi: 10.1787/9789264109834-en
- IEA, 2007, *Financing energy efficient homes: Existing policy responses to financial barriers*, Paris: IEA
- IEE, 2007, *Retrofitting of Social Housing: 12 Innovative Projects supported by the IEE Programme*, Intelligent Energy Europe, accessible at: http://ec.europa.eu/energy/intelligent/library/publications_en.htm

- Information Paper Aedes, 2010, De Energie BV - Corporaties aan de slag met duurzaamheid, Compact 46, October 2010, ISSN 1389-2983, ISBN 978-90-5009-306-4
- Intraval, 2010, Preventieve doorlichting woningcorporatiesector, Stichting Intraval, december 2010, authors: drs. B. Bieleman, drs. J. Snippe and mr. N. Tromp; m.m.v. drs. M. Boendermaker and C. Zimmerman MSc, ISBN 978 90 8874 108 1
- Jaffe, A.B., Stavins, R.N., 1994, The energy-efficiency gap What does it mean? *Energy Policy* 22(10), 804–810
- Johnston, D., R. Lowe, M. Bell, 2005, An exploration of the technical feasibility of achieving CO₂ emission reductions in excess of 60% within the UK housing stock by the year 2050. *Energy Policy* 33(13), 1643–1659.
- Jönsson, K., 2008, Policymaking in Transitional Economies: Poverty reduction and Health care in Cambodia and Laos, *Studies in HSO&P*, 23, 2008
- Kern, F., 2010, The politics of governing ‘system innovations’ towards sustainable electricity systems, Doctoral thesis, University of Sussex
- Kerr, R. A., 2009, Amid worrisome signs of warming, “climate fatigue” sets in. *Science* 2009, 326:926-928
- Klijn, E., 2003, Leven met onzekerheid; besluitvorming over duurzame stedelijke vernieuwing. Cahierreeks DSV: nummer 5, jaargang 2, NIDO and KEI, march 2003
- Koolma, R., 2008, Verhalen en Prestaties: een onderzoek naar het gedrag van woningcorporaties. Doctoraal Thesis. Vrije Universiteit Amsterdam, Amsterdam.
- Korver, T., and Oeij, P. R. A., 2005, The Soft Law of the Covenant: Making Governance Instrumental, *European Journal of Industrial Relations* : 11 (3), 367-384, doi:10.1177/0959680105057216 SAGE Publications
- Kos Koklič, M., Vida, I., 2009, A Strategic Household Purchase: Consumer House Buying Behavior, in: *Managing Global Transitions*, Year: 2009 Vol: 7 Issue: 1 Pages/record No.: 75-96
- Kroese, M., Go, S.T.K., (BuildDesk), 2009, Pleidooi voor isolatie bij 400 000 arme gezinnen, in cooperation with Jo Bothmer – EAPN, Energieraad, december 2009
- Kuckshinrichs, W., Kronenberg, T., and Hansen, P., 2010a, The social return on investment in the energy efficiency of buildings in Germany, *Energy Policy*, Vol. 38, pp. 4317-. 432
- Kuckshinrichs, W., Kronenberg, T., and Hansen, P., 2010b, Das CO₂-Gebäudesanierungsprogramm der KfW: Klimaschutz, Konjunktur- und Budgeteffekt, *Wirtschaftsdienst*, Vol. 90, No. 9. (1 September 2010), pp. 616-623-623. doi:10.1007/s10273-010-1125-2
- Kvale, S., 1996, *Interviews: An Introduction to Qualitative Research Interviewing*, Thousand Oaks, CA: Sage, ISBN 080395820X, 326 p.

- Lakoff, G., 2004, *Don't Think of an Elephant! Know Your Values and Frame the Debate*. White River Junction, VT: Chelsea Green Publishing.
- Leeuwen, van, T., 2008, *Discourse as the Recontextualization of Social Practice*, *Discourse and Practice*, April 2008 , pp. 3-23(21), Oxford Scholarship Online Monographs
- Leiserowitz, A.A., 2005, *American risk perceptions: is climate change dangerous?* *Risk Analysis* 25, 1433–1442.
- Levy, J.I., Nishioka, Y., Spengler, J.D., 2003, *The public health benefits of insulation retrofits in existing housing in the United States*, *Environmental Health: A Global Access Science Source* 2003, 2:4, DOI: 10.1186/1476-069X-2-4
- Liebrechts, M., Nunen, H. van, Persoon, J., 2010, *Manifest: levensduurdenken over de bestaande woningvoorraad*, 11 november 2010, <http://www.bestaandewoningbouw.nl/manifest-levensduurdenken-over-de-bestaande-woningvoorraad/>
- Lloyd, B., 2006, *Fuel Poverty in New Zealand*, *Social Policy Journal of New Zealand*, Issue 27, March 2006
- Macnaghten, P., 2003, *Embodying the Environment in Everyday Life Practices*, *The Sociological Review* 77 (1).
- McCright, A. M., Dunlap, R. E., 2010, *Anti-reflexivity : The American Conservative Movement's Success in Undermining Climate Science and Policy*, *Theory Culture Society* 2010 27: 100, DOI: 10.1177/0263276409356001
- Mert, A, 2009, *Partnerships for sustainable development as discursive practice: shifts in discourses of environment and democracy*, In: *Forest Policy and Economics* 11 (5-6): 326-339
- Milin, C., and Bullier, A., 2011, *Energy Retrofitting of Social Housing through Energy Performance Contracts, A feedback from the FRESH project : France , Italy , United Kingdom and Bulgaria*, in *Energy* (2011)
- Mitchell, R. K., B. R. Agle, and D. J. Wood. 1997, *Toward a theory of stakeholder identification and salience: Defining the principle of who and what really counts*. *Acad. Manage. Rev.* 22:853–886.
- Moser, S. C., 2009, *Communicating climate change and motivating civic action: Renewing, activating, and building democracies.* In: *Changing Climates in North American Politics: Institutions, Policymaking and Multilevel Governance*, eds. H. Selin and S. VanDeveer, 283-302, Cambridge, MA: The MIT Press
- NEF, 2009, *Tackling Climate Change, Reducing Poverty, Roundtable on Climate Change and Poverty in the UK*, authors: Victoria Johnson, Andrew Simms and Clare Cochrane, c/o New Economics Foundation (020 7820 6300) jan 2009

- Newey, G., 2011, Less, S (ed.) Boosting Energy IQ - UK energy efficiency policy for the workplace, Policy Exchange 2011, ISBN: 978-1-907689-06-2
- Nicis, 2011, Energiebesparing bestaande woningen: maak er echt werk van!, Nicis Adviescollege Duurzame stedelijke ontwikkeling, Nicis Insitute, Den Haag, april 2011, ISBN/EAN: 978-90-77389-91-1
- Nieboer, N., Van Hal., A., Gruis, V., Tsenkova, S., 2011, Energy efficiency in housing management – conclusions from an international study, paper presented at ENHR Conference 2011 "Mixité": an urban and housing issue?, 5-8 July, Toulouse, France
- OCMW, 2008, Energie en armoede: hoe goedbedoelde beleidsdaden elkaar kunnen tegenwerken. Goed geregeld: wanneer komt er een basisrecht op energie? / OCMW-Visies nr. 1, april 2008
- ODYSSEE, 2009 – the Netherlands, Energy Efficiency Policies and Measures in The Netherlands, Monitoring of Energy Efficiency in EU 27, Norway and Croatia (ODYSSEE-MURE), ECN, Petten, 2007 contribution to the ODYSSEE project
- Osborne, D., and Gaebler, T., 1992, Reinventing Government: How the Entrepreneurial Spirit Is Transforming the Public Sector, Reading, MA: Addison-Wesley, ISBN 0452269423
- P+, 2011, Voor iedereen winst, P+ People Planet Profit magazine, 4 september 2011, September + Oktober 2011, p. 35-38
- Paul Kengen, 2011, Column: Voordeel halen uit duurzame renovatie van woningen. Het kan!, by Paul Kengen on 05/09/2011, <http://www.energievastgoed.nl/2011/09/column-voordeel-halen-uit-duurzame-renovatie-van-woningen-het-kan/>
- PBL, 2010, Balans voor de Leefomgeving 2010, Planbureau voor de leefomgeving publicatienummer: 500206001, ISBN: 978-90-78645-46-7, Den Haag/Bilthoven
- Postman, N., 1992, Technopoly: the surrender of culture to technology, New York, Vintage
- Rathzel, N., Uzzell, D., 2009, Changing relations in global environmental change. Global Environmental Change 19, 326–335.
- Reed, M.S., Graves, A., Dandy, N., Posthumus, H., Hubacek, K., Morris, J., Prell, C., Quinn, C.H., Stringer, L., 2009, Who's in and why? A typology of stakeholder analysis methods for natural resource management, Journal of Environmental Management 90: 1933-1949.
- renda, 2009a, Proces - Energiebesparing huursector: speelkwartier voorbij, renda Kennisplatform bestaande bouw - Vakblad Renovatie - 2009 - Renovatie 2009/1, p. 2-4
- renda, 2009b, Project - Rotterdam: pilot van passiefhuisrenovatie, renda Kennisplatform bestaande bouw - Vakblad Renovatie - 2009 - Renovatie 2009/3, p. 14-17
- RIGO, 2010, Woonlastenonderzoek Breda, Commissioned by Woonloket Breda, Authors: Roy Kramer and Kees Leidelmeijer, June 2010

- Rijksoverheid, 2009, Innovatieagenda Energie - Gebouwde Omgeving, Interdepartementale Programmadirectie Energietransitie, VROM 9103 / maart 2009
- Rijksoverheid, 2010, MG-circulaire 2010-02 over aanpassing woningwaarderingstelsel per 1 juli 2010 | 11 pages | Circulaire | 12-04-2010 | BZK
- Rijksoverheid, 2011, Plan van Aanpak Energiebesparing Gebouwde Omgeving, Rapport | 25-02-2011 | BZK
- Roders, M.J., Gruis, V.H., Straub, A., 2011, Climate change effects on living quality; awareness of housing associations. In JFW Wamelink, RP Geraerds & L Volker (Eds.), MISBE2011 - Proceedings of the international Conference on Management and Innovation for a Sustainable Built Environment (pp. 1-13). Delft: Delft University of Technology
- Runhaar, H., Runhaar, P., & Oegema, T., 2010, Food for thought: Conditions for discourse reflection in the light of environmental assessment, *Environmental Impact Assessment Review* 30, 339-346
- Runhaar, H.A.C., C. Dieperink and P.P.J. Driessen, 2008, Chapter 11: Policy analysis for sustainable development: complexities and methodological responses, in: L. Dennard, K.A. Richardson and G. Morçöl (eds.), *Complexity and policy analysis: tools and methods for designing robust policies in a complex world*,
- Saarinen, T., 2008, Position of text and discourse analysis in higher education policy research, *Studies in Higher Education* Vol. 33 No. 6, December 2008, 719–728
- Schmeer, K., 1999, Guidelines for Conducting a Stakeholder Analysis, November 1999, in Bethesda, MD: Partnerships for Health Reform, Abt Associates Inc
- Semenza, J.C.; Ploubidis, G.B.; George, L.A. 2011 Climate change and climate variability: personal motivation for adaptation and mitigation, *Environmental Health*, Vol. 10, 21 May 2011, doi:10.1186/1476-069X-10-46
- SEV, 2009, Naar een werkbare verhouding tussen gemeenten en corporaties - Lessen uit het SEV-experiment Bod op de woonvisie, SEV Rotterdam, report, 06-05-09
- SEV, 2010, FIMAREN - Financieel en maatschappelijk rendement van energie-investeringen, Author: Bert Weevers, Rotterdam, December 2010, 23 p., Available at: http://www.sev.nl/publicaties/publicatie.asp?code_pblc=1026
- SEV, 2011, Meerjarenplan Energiesprong, Update 2011, SEV: 6 mei 2011, <http://energiesprong.nl/wp-content/uploads/2011/05/EnergiesprongMeerjarenplanUpdate2011.pdf>
- Severijn, 2011, Onderzoek prestatieovereenkomsten tussen gemeenten en woningcorporaties 2010, Issued by the ministry of WWI, 2011-03-07

- Sharp, L. and Richardson, T., 2001, Reflections on Foucauldian discourse analysis in planning and environmental policy research, *Journal of Environmental Policy & Planning* 3 (3): 193 – 209
- Smit, V. and Boelhouwer, P.J., 2009, Toezicht vergt afstand. Woningcorporaties hebben recht op vreemde ogen, *B&G*, 36(3), 5-9
- Stoker, G., 1998, Public-private partnerships and urban governance. In, Pierre, Jon (ed.) *Partnerships in Urban Governance: European and American Experience*. London, UK, Macmillan, 34-51.
- TNS, 2011, Climate Change - Special Eurobarometer 372 TNS opinion & social, Wave EB75.4 – October 2011
- TNS-NIPO, 2007, *Klimaatverandering? Mensenwerk*, author: Ageeth Ettema, Report E8810 | 12 september 2007
- Urgenda, 2009, *Klimaatneutrale Steden in Nederland, Een Urgenda inventarisatie*, accessed at <http://www.urgenda.nl/documents/Uitdraaiinventarisatie.pdf>
- USH, 2011, COM(2008) 800 Final - 2009-2011 Mid-term assessment France, Report for the EC, Carine Puyol (USH), Louise de Verneuil (FNAR) and Laurent Ghékiere (USH), Union Sociale pour l'Habitat – EU office – May 2011
- Varvasovsky, Z. and Brugha, R., 2000, How to do a stakeholder analysis, *Health Policy and Planning*, 15(3): 338–45
- Visscher, H.J., 2009, *Onderzoeksresultaten Woningkwaliteit 2020 - Overzicht voor Energietransitie bij renovatie*, Presentation Prof.dr.ir. H.J. Visscher, Symposium Energietransitie bij renovatie van woningen, TU Delft, 8 Oktober 2009
- VNG & Het Rijk, 2007, *Klimaatakkoord Gemeenten en Rijk 2007-2011*,
- VNG, 2007, *Van woonvisie tot prestatieafspraken: handreiking*, Reith, S. en Wilhelm, H. (Companen), Den Haag : Vereniging van Nederlandse Gemeenten (VNG), jan 2007
- VNG, 2010, *VNG-reactie op het regeerakkoord, bijzondere ledenbrief, 08-10-2010*
- VNG, n.d., *Raadgever lokaal economisch beleid*, Brochure Vereniging Nederlandse Gemeenten, <http://www.vng.nl/Documenten/Extranet/Vereniging/Raadgevers/Raadgever%20lokaal%20economisch%20beleid.pdf>
- Von Guericke, O. and Schweizer-Ries, P., 2009, Recommendations for the involvement of tenants in energy efficiency processes, Project report within the scope of FinSH 'Financial and Support Instruments for Fuel Poverty in Social Housing', December 2007 – May 2010, Project no. EIE / 07 / 146 / SI2.466277
- Waals, J.F.M. van der, Vermeulen, S.M.J., Vermeulen, W.J.V., Glasbergen, P., Hooimeijer, P., 2000, *Energiebesparing en stedelijke herstructurering*. Utrecht, the Netherlands: Ministerie VROM, DGHV/Nethur partnership

- Weart, S., 2011, Global warming: how skepticism became denial, *Bulletin of the Atomic Scientists*, 67, 41-50. doi: 10.1177/0096340210392966
- Weber, M., Driessen, P.P.J., Runhaar, H.A.C., 2011, *Journal of Environmental Policy & Planning*, John Wiley and Sons, Volume: 13, Issue: 2 (2011), pp. 119-137, ISSN 1523908x
- Weevers, L., Go, S.T.K., 2010, *Energiebesparing en huurverhoging: de barrières voorbij*. Arnhem: BuildDesk Benelux, 3rd ed. July 2010, isbn 978-90-814344-3-0
- Whitmarsh, L., Seyfang, G. & O'Neill, S., 2011, *Public Engagement with Carbon and Climate Change: To what extent is the public 'carbon capable'?* *Global Environmental Change*
- WI & CLI, 2008, *Green Jobs: Towards Sustainable Work in a Low-Carbon World*, Worldwatch Institute (Michael Renner) and Cornell Labour Institute (Sean Sweeney, Jill Kubit), 350 pages, ISBN No: 978-92-807-2940-5
- Wilhite, H., H. Nakagami, T. Masuda, Y. Yamaga and Haneda, H., 1996, A cross-cultural analysis of household energy-use behavior in Japan and Norway, *Energy Policy* 24(9):795-803
- Wilt, A. van der, 2005, *Huishouden vraagt energie. Achtergrondossier 2005*, Brussel: Welzijnszorg. Armoede Uitsluiten, 162.
- Wodak, R., and Meyer, M., 2009, *Critical discourse analysis: History, agenda, theory and methodology*. R. Wodak and M. Meyer (eds.), *Methods of Critical Discourse Analysis*, 2nd edn. London: Sage. pp. 1-33.
- Woonbond, 2011, *Prestatieafspraken energiebesparing voor huurdersorganisaties*, 20/05/2011

Interviewees

- 15-06-2011 Spencer Schols – Project manager and energy expert at housing association 'Stichting BoEx '91, Utrecht
- 06-09-2011 Gert van den Elsen – Policymaker Sustainability at the municipality of Tilburg
- 07-09-2011 Theo van Es - Senior consultant programme 'Energineutral' at the municipality of Apeldoorn
- 15-09-2011 Paul Paree – Senior consultant environment at the municipality of Breda
Barbet Hendriks – consultant housing and environment at the municipality of Breda

Visited Expert meeting

Expert meeting 'economy of sustainable renovation for housing associations', 27 April 2011, Drijvend Paviljoen, Rotterdam

Appendix A

Renovation projects with significant energy savings (>30%). The energy refurbishment package is in Dutch and typically includes high quality insulation and measures such as heat pumps, solar energy and micro CHP.

| City | Project | Housing association | Units | Year | Ext parties | Measures (Dutch) | Savings |
|------------------|-----------------------------|------------------------------|---------|-----------|---------------|---|-------------|
| 1 Alkmaar | De Hoef | Kennemer Wonen, Van Alckmaer | 320 | 2011? | HVC Alkmaar | Isolatie, zon, stadsverwarming | 45-60-80% |
| 2 Alkmaar | Renovatie met PVT | Stichting Woonwaard Noord-Ke | 154 | 2008 | | Geïntegreerde installatie voor de productie | 7,3 GJ |
| 3 Alkmaar | Waalstraat | Kennemer Wonen | 88 | 2010 | | Woningrenovatie, vacuümbuiszonnecollector | 30% |
| 4 Almere | Stedenwijk | Ymere | 149 | 2010 | | Isolatie, zon | E naar A |
| 5 Amersfoort | Schuilenburg | De Alliantie | 162 | 2006 | | Isolatie, Zonneboiler | 35% |
| 6 Amstelveen | Operabuurt | Eigen Haard | 95 | 2011 | | Standaard isolatiemaatregelen: hoogwaardig | F naar B/C. |
| 7 Amsterdam | Het Breed | Ymere, Eigen Haard | 1172 | 2008-2011 | Eneco | Isolatie, zonnecollectoren | nb |
| 8 Amsterdam | Kruitberg | Rochdale | 328 | 2003-2004 | W/E adviseurs | Isolatie, zonneenergie, warmtepomp | 40% |
| 9 Amsterdam | Blaauwklakenblok | De Key | 65-97 | 2002-2006 | | nb | nb |
| 10 Amsterdam | Koningsvrouwen van Landlust | Eigen Haard | 243-188 | 2011-2012 | Horst Advies | Isolatie, mini wkk, warmtepomp, optie zon | 49% |
| 11 Amsterdam | Leeuw van Vlaanderen | Far West (samenwerking) | 96 | 2002-2006 | | Isolatie en hr ketel | nb |
| 12 Amsterdam | Remijden | De Key/De Principaal | 180 | 2010 | W/E adviseurs | HR++ glas, vloer-, berging- en gevelisolatie, I | G naar B |
| 13 Amsterdam | Complex 40 | Far West (samenwerking) | 328 | 2010 | | Isolatie, PV | 40% |
| 14 Apeldoorn | Sluisoord/De Mheen | De Woonmensen | 364 | 2002-2003 | | dakisolatie, HR-ketel, warmtepompboiler, z | F naar B |
| 15 Apeldoorn | De Valk | Ons Huis | 100 | 2008 | | Isolatie en hr ketel | E naar B |
| 16 Biddinghuizen | Klaversingel/Uitloper | OFW | 72 | 2009-2010 | | nb | naar A |
| 17 Biddinghuizen | Kopakker Zuid | OFW | 54 | 2006-2007 | | Isolatie en hr ketel | E naar B |

| | | | | | | | | |
|----|---------------------|----------------------------|----------------------------------|------|-----------|----------------|--|----------------|
| 18 | Biddinghuizen | Centrum | OFW | 85 | 2008-2009 | | Lokale gebalanceerde ventilatie, WTW en de | 45% |
| 19 | Breda | Heusdenhout | WonenBreda | 224 | 2002 | | Isolatie, ventilatie | tot 75% |
| 20 | Breda | Heuvel | Wonenbreburg | 650 | 2005-2015 | | nb | nb |
| 21 | Bunschoten | Harderwijker Bank | Het Gooi en Omstreken | 34 | | | Nieuwe buitenschil | 40% |
| 22 | Capelle a/d IJssel | De Bergen | Stichting Woningpartners | 878 | | | nb | 30-70% |
| 23 | Delft | Poptahof | Woonbron | 83 | 2007-2009 | | nb | nb |
| 24 | Den Haag | Hof Loevesteijn | Vestia | 124 | 1997-2003 | | Isolatie en hr ketel | EPC 4.0-->1.37 |
| 25 | Den Haag | Stieltjesstraat | Vestia | 256 | 2010 | | Isolatie | 40% CO2 |
| 26 | Eindhoven | Lievendaal | SWS.Hhvl | 248 | 2000-2004 | | Isolatie, zon, hr | F naar B |
| 27 | Enschede | Patmos | De Woonplaats | 1000 | 2003-2008 | Subvention | Isolatie en hr ketel optioneel PV | nb |
| 28 | Enschede | Plein West-Indië | De Woonplaats | 154 | 2007-2008 | | Isolatie en hr ketel | F naar A |
| 29 | Enschede | Het Lang Noord | Domijn | 154 | 2010 | | Isolatie, zon, hr | E/F naar A |
| 30 | Enschede | Het Lang Bijvank | Domijn | 854 | 2008 | SenterNovem | Isolatie | 31% |
| 31 | Geleen | Lienaertsstaete | Woonpunt | 48 | 2000-2004 | Cauberg Huijge | Isolatie, zon, hr, mini wkk, warmtepomp | 70% |
| 32 | Groningen | Bankastraat, Sumatralaan | Lefier | 53 | 2012- | VDM Woning | passiefhuisrenovatie | nb |
| 33 | Groningen | Lewenborg | Lefier | 387 | 2009 | | Isolatie, WTW, groen dak | E naar B |
| 34 | Groningen | Tuinwijk | De Huismeesters | 284 | 2009 | | Isolatie, climarad | E/F naar B/C |
| 35 | Haarlem | Schalkwijk | Elan, de Woonmaatschappij en | 382 | 2004 | Eneco | Decentrale techniekruimte per woonblok, c | 50% |
| 36 | Haarlem | Charivarius | Pre Wonen | 144 | 2005-2006 | Eneco | zon, warmtepompen | nb |
| 37 | Heemstede | Provincienwijk | Elan Wonen | 121 | 2010 | | Renovatie, isolatie, procesbegeleiding, duur | F/G naar B/C |
| 38 | Hendrik Ido Ambacht | Complex 113 | Rhiant | 50 | | Zwaluwenergie | Isolatie | F naar A |
| 39 | Hoogeveen | De Kroon | Woonconcept | 126 | 2001-2003 | Novem, energie | Isolatie, zonneenergie, warmtepomp | 60% gas |
| 40 | Huizen | Zeeheldenbuurt | Alliantie regio Gooi- en Vechtst | 128 | 2010-2011 | | Isolatie en hr ketel | nb |
| 41 | Kerkrade | Eygelshoven | Wonen Zuid en Wonen Heuvels | 300 | 2006 | KEMA | Isolatie en hr ketel | 51% |
| 42 | Kerkrade | De Hoop en Erensteinerveld | Wonen Zuid | 246 | 2004 | | Isolatie en hr ketel | 50% gas |
| 43 | Kerkrade | Elbereveldstraat | Hestia | 180 | 1998-2008 | | nb | nb |

| | | | | | | | | |
|----|---------------------|-----------------------------|-----------------------|--------|-----------|-------------------------------|--|--------------|
| 44 | Leeuwarden | Wielenpolle | Nieuw Wonen Friesland | 132 | 2006 | | Douche-WTW, waterbesparende doucheke... | 40% |
| 45 | Leiden | Oranjegracht / Waardgracht | Portaal Leiden | 254 | 2004-2008 | | Isolatie en hr ketel | nb |
| 46 | Leidschendam/Voorbu | Beatrixlaan | Wooninvest | 104 | 2005-2007 | Eneco | Isolatie, zon, hr | nb |
| 47 | Leidschendam/Voorbu | De Dillenburgh - Prinsenhof | Vidomes | 140 | 2010 | Eneco | WKO | 27% |
| 48 | Leidschendam/Voorbu | Prinsenhof | Wooninvest en Vidomes | 1628 | 2003-2008 | NUON | Isolatie | 40% |
| 49 | Leidschendam/Voorbu | Paradijsstraat | Wooninvest | 81 | 2010-2011 | | Isolatie en hr ketel | F/G naar A/B |
| 50 | Maastricht | Boostenwijk | Servatius | 57 | 2009 | | Warmtepomp, WKO | naar A+ |
| 51 | Nieuwkuijk | Passieffhuisrenovatie | Woonveste | 16 | 2011 | | Passieffhuisrenovatie volgens Duitse PHPP n | nb |
| 52 | Rotterdam | Ommoord | Com.Wonen (!) | 352 | 2011 | Deerns raadgevende ingenieurs | | Ambitie 45% |
| 53 | Rotterdam | Sleephellingstraat | Woonstad Rotterdam | 14 | 2008-2009 | DHV | passieffhuis | nb |
| 54 | Sliedrecht | Sperwerflat | Tablis | 240 | 2003-2004 | Eneco, Novem | Zonneboiler | 30-40% gas |
| 55 | Sneek | Furmerusflat | Accolade | 96 | | ZON energie, Er | Isolatie, zon, warmtepomp | 55% |
| 56 | Soest | De Eng | Portaal Eemland | 240 | 2006 | | Zonnecollectoren | nb |
| 57 | Swifterbant | Schelpenbuurt/Bazaltstraat | OFW | 114 | 2009-2010 | | nb | naar B |
| 58 | Tiel | Enspijkstraat | SCW Tiel | | 2010 | | Isolatie | nb |
| 59 | Tilburg | Textielstraat | Tiwos | 58 | 1998-2000 | | Isolatie, Zonneboiler | nb |
| 60 | Tilburg | Groenewoud | Wonenbreburg | 50 | 2001 | | nb | nb |
| 61 | Tilburg | Salesianenflat | Wonenbreburg | | 2009 | | Zonnecollectoren | nb |
| 62 | Tilburg | Mozartflat | Wonenbreburg | 256 | 2007 | | HR-ventilatie, hoogrendement-ventilatie op | nb |
| 63 | Utrecht | Ondiep | Mitros | 22/800 | 2005-2015 | Eneco | ambitieuus na-isoleren en aansluiten op stad | nb |
| 64 | Utrecht | Overvecht | Mitros | 640 | 2011-2013 | | Isolatie, zon | nb |
| 65 | Utrecht | Vernieuwing Vechtzoom | Mitros | 640 | 2013 | | Isolatie, PV | nb |
| 66 | Veenendaal | Schrijverspark | Patrimonium | 222 | 2006 | | Isolatie en hr ketel | F naar C |
| 67 | Veenendaal | Tarwelveld Gersteveld | Patrimonium | 150 | 2000-2002 | Eneco | hr ketel en zonneboiler | 25% gas |
| 68 | Wateringen | Wonen Wateringen | Wonen Wateringen | 125 | 2011 | | Isolatie | F/G naar B |
| 69 | Wierden | Complex 101 | SWWE | 67 | 2000-2005 | Cogas | HR-combiketel en zonnecollector en boiler | 15% |
| 70 | Wolvega | Martiniwijk | Weststellingswerf | 230 | 2010 | | Verfraaiing, isolatie, bewonersprotest, bewo | 30-40 % gas |
| 71 | Zwolle | Rembrandtflat | Openbaar Belang | 100 | 2011 | | Zonnecollectoren, warmtepompen, centrale E | naar A |

Appendix B

Dutch municipalities, listed chronologically, based on the year in which they plan to become either energy-, CO₂-, or climate neutral.

Periode nu t/m 2020

| Jaar | Gemeente | SLOK | Uitgesproken ambitie | % |
|------|-------------------|------|----------------------|----|
| 2009 | Zeewolde | | Energieleverend | |
| 2010 | Oss | ja | Energieneutraal | 25 |
| 2020 | Assen | ja | CO2-neutraal | |
| 2020 | Leeuwarden | ja | CO2-neutraal | |
| 2020 | Hengelo | ja | CO2-reductie | 30 |
| 2020 | Ameland | | Energieneutraal | |
| 2020 | Apeldoorn | ja | Energieneutraal | |
| 2020 | Kollumerland c.a. | ja | Energieneutraal | |
| 2020 | Schiermonnikoog | | Energieneutraal | |
| 2020 | Terschelling | ja | Energieneutraal | |
| 2020 | Texel | | Energieneutraal | |
| 2020 | Vlieland | ja | Energieneutraal | |
| 2020 | Zutphen | ja | Energieneutraal | |
| 2020 | Emmen | | Klimaatneutraal | |
| 2020 | Zaanstad | ja | Klimaatneutraal | |
| 2020 | Enschede | ja | Klimaatneutraal | |

Rond 2025

| Jaar | Gemeente | SLOK | Uitgesproken ambitie | % |
|------|-------------------|------|----------------------|----|
| 2025 | Dalfsen | ja | CO2-neutraal | |
| 2025 | Amsterdam totaal | ja | CO2-reductie | 40 |
| 2025 | Rotterdam | ja | CO2-reductie | 50 |
| 2025 | Bergeijk | ja | Energieneutraal | |
| 2025 | Bladel | ja | Energieneutraal | |
| 2025 | Eersel | ja | Energieneutraal | |
| 2025 | Groningen | ja | Energieneutraal | |
| 2025 | Oirschot | ja | Energieneutraal | |
| 2025 | Reusel-De Mierden | ja | Energieneutraal | |

Rond 2030

| Jaar | Gemeente | SLOK | Uitgesproken ambitie | % |
|------|---------------|------|----------------------|----|
| 2030 | Amersfoort | ja | CO2-neutraal | |
| 2030 | Delft | ja | CO2-neutraal | 50 |
| 2030 | Utrecht | ja | CO2-neutraal | |
| 2030 | Voorschoten | ja | CO2-neutraal | 50 |
| 2030 | Zoetermeer | ja | CO2-neutraal | |
| 2030 | Heerhugowaard | ja | Energieneutraal | |
| 2030 | Lochem | ja | Energieneutraal | |
| 2030 | Deventer | ja | klimaatneutraal | |
| 2030 | Dronten | ja | Klimaatneutraal | |
| 2030 | Maastricht | ja | klimaatneutraal | |
| 2030 | Soest | ja | Klimaatneutraal | |
| 2030 | Venlo | ja | Klimaatneutraal | |
| 2030 | Wageningen | ja | Klimaatneutraal | |
| 2030 | Haarlem | ja | Klimaatneutraal | |
| 2032 | Nijmegen | ja | Klimaatneutraal | |

Periode 2035-2045

| Jaar | Gemeente | SLOK | Uitgesproken ambitie | % |
|------|------------|------|----------------------|----|
| 2036 | Goirle | ja | Klimaatneutraal | |
| 2040 | Amstelveen | ja | Energieneutraal | |
| 2040 | Diemen | ja | Energieneutraal | |
| 2040 | Eindhoven | ja | Energieneutraal | |
| 2040 | Schiedam | ja | Klimaatneutraal | 80 |
| 2042 | Waalwijk | ja | CO2-neutraal | |
| 2044 | Breda | ja | CO2-neutraal | |
| 2045 | Tilburg | ja | Klimaatneutraal | |

Rond 2050

| Jaar | Gemeente | SLOK | Uitgesproken ambitie | % |
|------|------------------------|------|----------------------|----|
| 2050 | Arnhem | ja | CO2-neutraal | |
| 2050 | Woerden | ja | CO2-neutraal | |
| 2050 | Capelle aan den IJssel | ja | CO2-reductie | 40 |
| 2050 | Dordrecht | ja | CO2-reductie | |
| 2050 | Aalsmeer | ja | Energieneutraal | |
| 2050 | Gravenhage | ja | Klimaatneutraal | |
| 2050 | Hertogenbosch | ja | Klimaatneutraal | |

Source: Urgenda, 2009