2 A qualitative evaluation of policy instruments used to improve energy performance of existing private dwellings in the Netherlands

Abstract

Climate change policies in the Netherlands recognise the importance of existing dwellings. Efforts to gain these energy savings are led at national level by policy instruments such as the Energy Performance Certificate, covenants, economic and information tools. These instruments reflect a policy style described as consensus based and incentivising. However, this approach has been subject to criticism with suggestions that alternatives are required. As a first step towards conceptualising alternatives previous evaluations and stakeholder interviews are used to assess instruments. Elements from the theory based evaluation method combined with concepts from policy instrument and energy policy literature form an evaluation framework. Results demonstrate weak impact of some key instruments. Underlying theories associated with instruments are often lost during implementation or remain unsubstantiated. Policy instrument and energy policy concepts are evident but are far from pervasive. Results show that current instruments are poorly equipped to forge a long-term energy saving strategy for existing dwellings. It is further demonstrated that complexity with existing dwellings is not only limited to frequently cited barriers but to the intricacies of designing and operating a well-orchestrated instrument mix.

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§ 2.1 Introduction

The building sector and existing dwellings in particular are pivotal to meeting climate change policy targets in the Netherlands and elsewhere (BZK, 2011; McKinsey and Company, 2009; Ürge-Vorsatz et al., 2007). Nonetheless, existing dwellings are not

yet at the receiving end of the ambitious policy evident for new build, such as achieving 'nearly-zero' energy status by 2020. Instead incentivising and voluntarism appears to dominate policy for existing dwellings. The effectiveness of instruments based on this type of soft-law approach are often criticised or are not well publicised (Boardman, 2007; Hohne et al., 2009). Aggravating the situation are the barriers unique to this element of the stock. Barriers include the split incentive between landlords and tenants and difficulties with adequately informing householders about costs and benefits of energy saving measures. Overall, understanding of the type, scope and mix of policy instruments best suited to tackle demand side energy use in existing dwellings remains unsophisticated.

What is clear is that realising energy saving in existing dwellings that matches the estimated potential is complex. Hamilton et al. (2010) and McCormick and Neij (2009) are among those who note that ambitious targets fail to materialise into comprehensive strategies, effective instruments and transparent results. Secondary sources confirm the varying success of policy instruments in the Netherlands (Joosen et al., 2004; BZK, 2011; Noailly and Batrakova, 2010; Schneider and Jharap, 2010; Hoppe et al., 2011; Tambach et al., 2010; Beerepoot and Beerepoot, 2007). Meanwhile, recent quantitative analysis demonstrates that ambitious targets for the housing sector are not within reach (ECN, 2010).

Energy policy instruments for the Dutch housing sector have enjoyed some research attention. Attention has focused on energy transitions policy (Tambach et al., 2010; Kern and Smith, 2008), local government policies and policy requirements (Tambach et al., 2010; Hoppe et al., 2011) and the relationship between innovation diffusion and policy (Noailly and Batrakova, 2010; Beerepoot and Beerepoot, 2007). Attention to instruments steering action at national level and focussing solely on existing dwellings is under-researched. In response, research presented here aims to contribute to discussion on the characteristics of national energy performance instruments relevant to existing dwellings. A further aim is to create a baseline from which to conceptualise alternative instruments for the Netherlands.

To reach aims, national instruments operating during 2010 to improve energy performance of private dwellings in the Netherlands are analysed. The focus is instruments used to reduce energy consumed for space and water heating (approximately 70% of residential energy use in the Netherlands) (Itard and Meijer, 2008). Published evaluations and stakeholder interviews provide insight into three aspects adopted from the theory based evaluation method: instrument content, underlying theory and impact. In addition, results are discussed in terms of normative concepts taken from policy instrument and energy policy literature. The evaluation framework merges the theory of how instruments should operate with concepts that should guide instruments. This framework is considered to offer a deeper understanding of the actual functioning and ambition of instruments specifically

dealing with energy policy at dwelling level. In the next section the methodology is described in greater detail. The Dutch context in terms of features of the housing stock and policy is then provided. Next the results from the evaluation are presented followed by discussion and conclusions.

§ 2.2 Methodology

§ 2.2.1 Policy instruments and theory based evaluation

An approach to understand policy by taking the instrument as the 'unit of analysis' is supported by a number of authors (see Eliadis et al., 2007; Lascoumes and Le Gales, 2007; Howlett, 2004, 2011; Salamon, 2002). Salamon (2002, p. 602) describes the 'tools approach' as appreciating ''the characteristics of the available repertoire of tools and how they structure the play''. To evaluate instruments for this study a simplified version of the theory-based policy evaluation method was adopted. Firstly, instruments are characterised in terms of content as expressed in policy documentation or literature. Secondly, the policy theory associated with an instrument is described. Theories are understood as a set of coherent ideas that provide basis for an intervention (Weiss, 1997). Thirdly, the impacts of instruments are described, firstly based on secondary sources, followed by data from stakeholder interviews.

Theory based evaluation was adopted because of the insight it offers into how instruments operate. Harmelink et al. (2008) note how theory based evaluation establishes plausible theories on how instruments are expected to work and how they actually work in reality. The national instruments evaluated for this research were:

- Energy Performance Certificate
- Covenant: More with Less (Meer met Minder)
- Economic Tools
- Information Tools
- National Building Regulations

§ 2.2.2 Secondary sources and stakeholder interviews

Data on the impact of instruments was drawn from secondary sources including evaluations of the national climate change programme, ad hoc evaluations of individual instruments, cross country evaluations and European projects (in which the Netherlands participated). Secondary data originates from different time periods, utilises different methodologies, can sometimes be contradictory and never covers the complete range of instruments in operation. To complement secondary sources interviews were conducted with stakeholders involved in the lobbying, design, implementation, promotion and evaluation of instruments. Consensus based policy making in the Netherlands means that a wide range of stakeholder organisations are involved in the policy process. Their opinions were viewed as providing a window into whether instruments are having intended impact. In addition, given their influence on the decision-making process, stakeholders can illuminate what alternative or reformulated instruments could be placed on the agenda in the future.

Face to face semi-structured interviews were conducted over several months in 2010 and 2011 (see Appendix 1 for an outline of questions). Twenty-four stakeholder organisations were contacted, nineteen agreed to be interviewed[1] and several emailed data. Interviewees were selected to present an overall view of the topic while belonging to sufficiently different organisations (Rubin and Rubin, 2004).

Interview questions were designed to identify opinion on progress/problems with current instruments, areas for improvement, options for alternatives and the complete strategy for existing dwellings. To preserve anonymity reference is made to interviewees on the basis of their organisational affiliation (as highlighted in footnote 1). To avoid bias, results are only included if they converged across a number of interviewees from sufficiently different affiliations.

1 Government: Ministry of Interior and Kingdom Relations (BZK), Senate Office (Eerste Kamer der Staten-Generaal), Dutch Energy Agency (AgentschapNL), Municipality of Delft. Research: Energy Research Centre (ECN). Umbrella Organisations: Association for Home Owners (VEH), Association for Renters (Woonbond), Association for Housing Corporations (AEDES), Association for Estate Agents (NVM), Association for Installation Companies (Uneto VNI), Association for Construction Companies (Bouwend Nederland). Energy Companies: x2 (anon). NGO & Consumer Organisation: Stichting Natuur en Milieu, Milieu Centraal. Practitioners (organisations solely involved in design/implementation of instruments): the Housing Experiments Steering Group (de SEV), Meer met Minder (MmM), the Built Environment Energy Transition Platform (PeGO) and BuildDesk.

§ 2.2.3 Assessment concepts

Concepts from policy instrument and energy policy literature were used to further the evaluation. These concepts emerged frequently during a review of literature and are elaborated in the sections below. Concepts are:

- Policy instrument combinations
- Obligating/incentivising balance
- Long-term programme
- Non-generic
- Primacy to energy efficiency
- Whole house/deep retrofit
- Energy sufficiency

§ 2.2.3.1 Policy instrument combinations

Literature dealing with policy instruments emphasises that there is no 'silver bullet' or 'magic carpet' when it comes to instrument choice (Koeppel et al., 2007; Bressers and Huitema, 1999). Instead, it is widely accepted that combinations of instruments are required to deal with the complexities of many policy issues (Koeppel et al., 2007; Bressers and Huitema, 1999; Howlett, 2004, 2011; Gunningham and Sinclair, 1999).

§ 2.2.3.2 Obligating/incentivising balance

Combinations should favour a 'give-and-take-strategy' maximising the strengths and offsetting the weaknesses of individual instruments (Van der Doelen, 1998). This 'give-and-take-strategy' should combine restrictive and stimulative instruments to achieve effectiveness and legitimacy (Van der Doelen, 1998). The design of combinations to achieve an obligating/incentivising balance should consider the full range of instruments including regulations, voluntary agreements, information and economic tools (Bemelmans-Videc et al., 1998; Howlett, 2004).

§ 2.2.3.3 Long-term programme

Alongside notions of instrument combinations and a give-take balance is the longevity of instruments. Long-term policy programmes allow time for behaviours to shift and become embedded (EuroACE, 2010). A key factor in market transformation is that

long- term funding or supportive regulatory policies, but ideally both, are supported and sustained in effort over time until the market can sustain itself without public funding (Fuller et al., 2010).

§ 2.2.3.4 Non-generic instruments

Another strand of literature highlights the diversity reflected in the target group. Different housing types, construction periods, tenure, income levels and awareness characterise households. As well as physical aspects related to dwelling type and social and economic aspects, Guerra Santin et al. (2009), Caird et al. (2008) and Lockwood and Platt (2009) highlight how households can differ significantly in their perceptions of barriers, motivations for, and experiences with energy saving measures. Their research adds to criticism of generic instruments based on narrow conceptions of human behaviour.

§ 2.2.3.5 Primacy to energy efficiency

Another aspect is the approach to energy performance improvement promoted by an instrument. Instruments supporting micro-generation technologies irrespective of the energy efficiency of the thermal envelope can make further energy performance based renovation more expensive and less effective. Primacy to energy efficiency suggests a starting point of improving energy efficiency, followed by meeting energy needs from renewable sources and lastly obtaining, if necessary, energy from fossil fuels as efficiently as possible (Rovers, 2008).

§ 2.2.3.6 Whole house approach

As well as an order by which to approach energy saving there is discussion on the scope of current approaches. Some argue that ambitious climate change targets demand deep cuts in energy use requiring comprehensive whole house approaches, not single measures (Mlecnik et al., 2010). However, a whole house, or performance based approach, is novel for existing dwellings where promotion of single measures has traditionally dominated.

§ 2.2.3.7 Energy sufficiency

The goal and end point of instruments designed to improve energy efficiency is a reduction in energy use. However, sometimes implementation of the instrument becomes the end point. Wilhite and Norgard (2003) and Calwell (2010) coin the process where the end point remains true to final reduction in energy use as 'energy sufficiency'. This concept highlights the critical importance of adequate monitoring and evaluation programmes running alongside instruments.

§ 2.3 The Dutch housing stock

The Netherlands' 7.2 million dwellings are responsible for approximately 20% of final energy use and 17% of CO_2 emissions (Itard and Meijer, 2008, p. 15; Hamilton et al., 2010, p. 2). Approximately 20% of the housing stock predates 1945, 27% was constructed between 1945 and 1970, 32% between 1971 and 1990 and 21% since 1991[2]. Dwellings constructed before 1980 (and before 1970 in particular) are considered to hold significant potential for floor, wall and roof insulation (Itard and Meijer, 2008, p. 49). Double glazing and high efficiency boilers are displaying a successful diffusion rate with over 80% of dwellings containing double glazing in 2006 (BZK, 2010, p. 153; Joosen et al., 2004). Meanwhile, wall and floor insulation remain as considerable sources of saving potential (BZK, 2010). The Energy Performance Certificate (EPC), required under the European Energy Performance of Buildings Directive (EPBD), has become an indicator of the energy performance quality of the complete stock with a current average rating of D (BZK, 2010, p. 156).

Micro-generation technologies are diffusing slowly in Dutch dwellings with heat pumps forming approximately 0.5% of heating systems (Itard and Meijer, 2008, p. 53). Approximately 1% and 0.3% of the stock respectively use solar thermal technology and heat pumps to generate hot water (BZK, 2010, p. 154).

Housing tenure in the Netherlands is typically divided into private and social sector at approximately 70% and 30% respectively. The private sector is subdivided into 60% owner occupied and 10% private rented. The social housing sector is managed by private but non-for-profit housing associations. Owner-occupied stock is considered marginally more energy efficient than social housing and the private rented sector is

2 Database: Syswov 2009 ABF Research B.V.

considered the most inefficient. Over 30% of private renters reside in the worst rated dwellings (BZK, 2010, p. 154). A correlation between income and EPC rating has been found with the average rating for the highest income group a C and the average for the lowest income group an E (BZK, 2010, p. 161).

Between 1990 and 2008 total weather corrected household gas use decreased from 362 to 311 PJ (ECN, 2010, p. 42)[3]. Improved insulation and increased adoption of high efficiency boilers in existing dwellings are viewed as factors for this reduction (ECN, 2010, p. 42).

§ 2.4 Dutch energy policy for existing dwellings

2020 targets for the Netherlands are a 20% reduction in greenhouse gas emissions and a 14% increase in energy generation from renewable sources (MEZLI, 2011, p. 5). There is no target for energy efficiency (MEZLI, 2011, p. 5). These targets were issued by a government formed in 2010 and contrast with the previous government's more ambitious 2020 targets of 30% and 20% for greenhouse gas reduction and renewable energy generation respectively and a 2% reduction in energy consumption (VROM, 2007, p. 3). Despite a lowering of ambition, as reflected in targets, the current government supports a role for existing dwellings in reaching climate change goals (see BZK, 2011).

In terms of style the Dutch approach to energy policy has been classified as non-coercive and stimulative (Vedung and van der Doelen, 1998). Alongside this, existing dwellings in the Netherlands are considered immune to significant regulatory intervention (Hoppe et al., 2011). Legal questions surrounding property rights quickly quell policy discussions on the possibility of introducing obligations on householders to improve energy efficiency of their properties. Furthermore, successive Dutch governments have pursued a deregulation agenda and instruments entailing hints of undue bureaucracy and coerciveness are treated sceptically (see ENDS Europe, 2005 for the Dutch response to the EPC).

3 Gains from reduced gas use are offset by a continued increase in electricity consumption resulting in a steady overall increase in primary energy use in the household sector since 1990 (approximately 550 PJ) (ECN, 2010, p. 42).

§ 2.5 Policy instruments

In this section the main national instruments are described and evaluated in terms of content, underlying theory and impact. Impact is firstly described on the basis of secondary sources followed by results from stakeholder interviews. A summary is presented in Table 2.1.

§ 2.5.1 Energy Performance Certificate (EPC)

§ 2.5.1.1 Content of the EPC

Under the European Energy Performance of Buildings Directive an EPC is required at the sale and rental of a property. The EPC lists an energy rating for a building on an A–G scale. The EPC introduced in the Netherlands in 2008 was plagued with controversy ranging from presentation and methodological issues, an inadequate complaints procedure, issues surrounding accreditation of inspectors and the absence of an enforcement regime (VEH, 2007). The procedure was revised with a new EPC introduced in 2010. An official assessment concluded that the quality of the EPC has since improved (VROM Inspectie, 2010). Nonetheless, the EPC continues to operate as a quasi-voluntary instrument. The national ombudsman criticised the responsible authority for the way the EPC has been implemented (de Nationale Ombudsman, 2010). As a result of criticism, and requirements under the recast EPBD, there are plans to introduce an enforcement regime in 2012.

§ 2.5.1.2 Policy theory of the EPC

The main theory behind the EPC is drawn from EPBD text which states that lack of market demand for energy efficient dwellings perpetuates poor quality of the stock (EC, 2008). The use of a communication tool displaying energy efficiency and issuing recommendations for improvement is viewed as a market driver. The assumption is that consumers will act rationally in purchasing/renting a property if there is a perceived economic benefit (Gram-Hanssen et al., 2007). A second prong of the theory is that householders will act on the recommendations issued in EPCs.

Although not part of the original theory, manipulating the EPC to steer obligations, emerged as a discussion point in the Netherlands. In 2010, PeGO (a national platform of stakeholders formed under a previous government to find policy opportunities for existing dwellings) proposed policy packages which included a central position for the EPC. Different variations based on achieving an obligatory B rating over time were proposed with linkages to extant property taxes and supporting instruments such as low interest loans. The protracted formation of a new government in 2010 delayed further investigation of these proposals and PeGO was dismantled entirely in 2011.

INSTRUMENT	UNDERLYING THEORY	IMPACT
Energy Performance Certificate		
Displays the energy performance of a building. Required during sale & rental of properties.	Drives market demand for energy efficient dwellings	a)16% of sellers produced an EPC in 2010 (CBS 2011) b)2.7% premium for properties rated A, B or C (Brounen and Kok 2010) c)Majority of householders do not value EPC as a source of information (Adjei et al 2011)
More with Less Covenant		
Government & market parties work together to reach 2020 climate change policy goals in existing buildings. Short term goal: 20-30% 'additional' energy savings in 500,000 dwellings between 2008 & 2011	Shares responsibility among stakeholders towards achieving common policy goals. Anticipates, explores &/or supports regulation.	2008-2010 'additional' energy saving of 20% achieved in 314,000 dwellings (MmM 2011)
Economic Instruments		
Loans	Reduces financial barriers for households conducting energy saving measures	No formal monitoring & evaluation. Reportedly, low application rate with lower income applicants uncommon
Subsidies & VAT reduction	Incentivises 'additional' energy saving & diffusion of innovative technologies & renovation concepts	Contribution to More with Less covenant goals-no formal monitoring & evaluation
Energy tax	Enforces the polluter pays principle	Negligible influence on behaviour (BZK 2011)
Information tools		
Energy audit	Reduces barriers caused by lack of information	No information on adoption of energy saving measures following receipt of personalised information.
Web-based (interactive) Tools	Reduces barriers caused by lack of information	No information on adoption of energy saving measures following use of information tools.
Telephone & Email Advice - Consumer Organisation	Reduces barriers caused by lack of information	No information on adoption of energy saving measures following receipt of information.
Building Regulations		
Minimum standards during renovation/ extension. New building standards during complete renewal	Issues legal standards for energy performance in existing dwellings	Impact not evaluated but considered minor due to low ambition of standards & low replacement rate of stock

TABLE 2.1 Summary of national instruments, underlying theories and impacts

§ 2.5.1.3 Impact of the EPC

Published sources

The EPC is diffusing slowly in the Dutch housing market with 10% of sellers producing one in 2008 and 16% in 2010 (ECN, 2010, p. 42; CBS, 2011). There is as yet no official comprehensive evaluation; however, several research projects have explored aspects of the instrument theory. In terms of the theory of EPCs creating a market demand for energy efficient houses there are positive results. Brounen and Kok (2010, p. 7) found that EPCs demonstrate a ''moderately powerful market signal'' in the Netherlands with a 2.7% premium for properties with A, B or C ratings. A study casting light on the market demand theory from another angle shows weaker impact finding that 7% of Dutch respondents used the EPC as part of the property price negotiation (Adjei et al., 2011, p. A265).

The theory that EPCs impact on the decision making process of householders, motivating them to act on recommendations, enjoys less empirical testing. Following a trial of EPCs in the Netherlands, 3 out of a total of 62 householders stated their intention to carry out measures on the basis of the EPC (Hoogelander, 2006, p. 53). The small sample means that this result cannot be taken as representative. However, it highlights the lack of reliable information on this vital cause-effect aspect of the EPC. Another study found that only 28% of respondents found the EPC a useful source of information on improvements needed to reduce energy bills (Adjei et al., 2011, p. A277).

Interviewees

Interviewees generally lamented the 'false start' of the EPC in the Netherlands. A pervading view among these interviewees was that the revised EPC allows for the introduction of an enforcement regime. Interviewees, mainly from practitioner organisations, government and NGO organisations, see a role for the EPC beyond its original theory of creating market demand for energy efficient buildings to one, as suggested by PeGO, which could drive obligations by integrating EPC ratings to property taxation mechanisms. This is partly due to the considered ease of communicating EPC rating jumps to householders. An equal number of interviewees, mainly from umbrella organisations, support the EPC operating according to its original theory, believing that the instrument will increase in effectiveness over time as consumer confidence increases and an enforcement regime is introduced.

§ 2.5.2 Covenants

§ 2.5.2.1 Content of covenants

Covenants, or voluntary agreements, are a common instrument in the Netherlands embodying the cooperation and bargaining between government and stakeholder organisations that typifies Dutch environmental policy (Bressers and De Bruijn, 2005). In 2008, government ministries and umbrella organisations representing the housing and building sectors and energy companies formally agreed to share responsibility for climate change policy targets in existing dwellings by signing the More with Less (Meer met Minder) (MmM) covenant (MmM, 2009). Signatories to the covenant agreed to work together to create a permanent market for energy efficiency and to save 100 PJ of energy by 2020 (MmM, 2009). Targets include improving the energy efficiency of 2.4 million buildings by 20–30% by 2020 (500,000 between 2008 and 2011 and 300,000 dwellings annually from 2012 to 2020) (MmM, 2009).

An organisation has been formed to implement and manage MmM aims. The MmM organisation has, inter alia, developed an online 'one-stop-shop', an education programme and registration system for tradespeople (MmM Suppliers) and an MmM subsidy based on EPC rating jumps.

§ 2.5.2.2 Policy theory of covenants

The main theory behind covenants is that they share responsibility among key stakeholders dealing with policy issues (Bressers and De Bruijn, 2005). Published documentation assigns MmM a role of distributing national climate change targets to the main stakeholder groups (government, energy companies and umbrella organisations from the construction sector) and concomitantly stimulating a market for energy efficiency. A related aspect of the policy theory is that a covenant should not be considered as a substitute for regulation but should:

- Anticipate regulation.
- Explore the potential to change regulation.
- Support regulation.
- Prepare for the expected redundancy of regulation (Bressers and De Bruijn, 2005).

§ 2.5.2.3 Impact of covenant

Published sources

The MmM covenant is the only national policy instrument for energy efficiency subject to routine monitoring and evaluation. Monitoring reports note that private home owners are carrying out more energy saving measures in recent years. Between 2008 and 2010, energy savings of 20% additional to 'business as usual' were achieved in 314,000 dwellings (MmM, 2011). While it appears that on this basis, goals of achieving additional savings in 500,000 by 2011 will not be met it is considered positive in light of the economic crisis (MmM, 2011). The official evaluation of MmM highlights a mixed response from covenant signatories (Schneider and Jharap, 2010). Those from the construction industry appeared positive, pointing to a growing market interest in energy saving (Schneider and Jharap, 2010). Government signatories meanwhile reported a lack of confidence that goals would be reached (Schneider and Jharap, 2010). Reportedly, issues in terms of financing and a lack of clarity on responsibilities have overshadowed progress (Schneider and Jharap, 2010; Hamilton et al., 2010).

Interviewee sources

The majority of interviewees confirmed that MmM has suffered from a lack of commitment from signatories. A significant issue for many interviewees was the origin of the covenant as an alternative to a White Certificate Scheme, the result of a negotiation by energy companies. This is contrary to the policy theory that covenants should not be a substitute for regulation (Bressers and De Bruijn, 2005). Interviewees commonly discussed MmM as sharing a weakness with covenants in general; lack of sanction when commitment and action is lacking among signatories. On the other hand, interviewees were generally positive concerning the outputs of the MmM organisation such as MmM suppliers and the MmM subsidy which is issued on the condition that an energy audit (which includes an EPC) is obtained before energy saving measures are carried out.

§ 2.5.3 Economic tools

§ 2.5.3.1 Content of economic tools

Economic instruments active during interviews are listed below. Instruments are typical of what furnishes the portfolios of many countries such as subsidies, loans and fiscal instruments. Incentives listed below have a life of 1–2 years or earlier if budgets are exhausted. The energy tax forms the only long-term instrument.

- Energy saving credit: lower interest loans (approx.1%) for energy saving measures. Budget €35mln. Expected reach of 50,000 households.
- Green project loan: loans for micro-generation technologies and EPC rating jumps approximately 1.5% lower than market rates.
- Tailored advice certificate subsidy: a €200 subsidy (normal costs for a certificate ranging from €200-450). Budget €10mln . Expected reach 50,000 households.
- Micro-generation technology subsidy: covering solar water heating, heat pumps and micro CHP. Budget €40mln. Expected reach 15,300 households.
- Double glazing subsidy: €35 per m^2 of high performance glass. Budget €45mln. Expected reach 100,000 households.
- MmM subsidy: €300 for one EPC rating jump and €750 for two rating jumps. Budget €9.5mln. Expected reach 13,000 households.
- VAT reduction: 9-6% for labour and materials (with conditions).
- Energy tax: included in energy bill. VAT and energy tax comprise approximately 40% of bill.

§ 2.5.3.2 Policy theory of economic instruments

Theories behind economic incentives in use in the Netherlands include:

- Reducing financial barriers to carrying out energy performance improvements with subsidies and loans, with loans theorised as most helpful for low-income groups or starters on the property market (Blom, 2009).
- Supporting the diffusion of micro-generation technologies with subsidies.
- Incentivising householders to carry out 'additional' energy performance improvement during or outside normal renovation activity with subsidies and loans.
- Imposing the polluter pays principle/stimulating energy saving through the energy tax.

Alongside these theories, a number of instruments were introduced to assist the construction industry during economic crisis with concomitant gains for energy saving

expected namely, VAT reduction, energy saving credit and subsidies for double-glazing and tailored advice. Incentives were cost based with the exception of two performance based subsidies: the MmM subsidy based on achieving one or two EPC rating jumps and the Green Project Loan based on achieving four EPC rating jumps.

§ 2.5.3.3 Impact of economic instruments

Published sources

Hamilton et al. (2010) and Noailly and Batrakova (2010) conducted general evaluation studies on economic instruments in the Netherlands and discussed instruments as 'modest' and 'highly fragmented', critical of loans that offer only a 1% reduction on market rates and the 'stop–start' nature of incentives.

The energy tax was subject to assessment in 2004 when its impact was considered small at household level but high cumulatively (considering it is the only instrument applied to the complete stock) (Joosen et al., 2004). The government recently stated that the impact of the tax is viewed as minimal in terms of behavioural change (BZK, 2011).

Out of the four subsidies active in 2010 the MmM subsidy is the only one for which an evaluation could be found. Correspondence from the Dutch Energy Agency, which manages most of the subsidies listed in section 2.5.3.1, confirmed that subsidies are not evaluated besides at a user satisfaction level. The evaluation of the MmM subsidy highlighted findings in terms of cause and effect with approximately 33% of recipients surveyed (n=252) stating that they would have taken less energy saving measures, 20% would have postponed measures, 20% would not have taken any measures without the subsidy and 27% stated that it had no influence (MmM, 2010, p. 7). This shows that just under half of the recipients were free riders, householders who, at some stage, would have carried out the works without the subsidy.

Interviewee sources

Interviewees were unanimous in strong criticism towards the management of national subsidies, particularly, the stop start nature of subsidies. Interviewees from umbrella organisations and local government, involved in promoting subsidies to members and householders respectively, reported a lack of trust in national subsidies which can be unexpectedly withdrawn because budgets are reached.

Interestingly, few interviewees spontaneously mentioned the energy tax during questions on economic instruments. Interviewees almost unanimously viewed the energy tax as revenue rising and not a means of imposing the polluter pays principle.

Email correspondence was received from several financial institutions involved in Energy Saving Credit and Green Project Loan. One respondent from an institution holding a significant market share stated that lower income groups and property starters are not the typical applicants for energy saving credit loans. Others commented that use of loans is marginal with the main cause being a lack of awareness among the public. The organisation charged with administrating the Green Project Loan, the most ambitious instrument based of four EPC rating jumps, confirmed that in 2010 there was one applicant.

§ 2.5.4 Information tools

§ 2.5.4.1 Content of information tools

Information tools range from internet based tools, national TV broadcasts, the energy audit and dedicated inquiry services offered by the national environmental consumer organisation (Milieu Centraal). A large number of online tools offer information based on the input of data such as construction year, installations and energy usage. While the majority of information is generic, the energy audit scheme has been active in different forms for over a decade.

The MmM implementing organisation has sought to consolidate the range of information available from different sources. Alongside this consolidation exercise is the promotion of an online 'one stop shop' concept with information on energy performance measures, companies recognised as providing these measures (registered as MmM Suppliers) and economic incentives available to carry out measures.

§ 2.5.4.2 Policy theory of information tools

The asymmetry of information between householders and the energy efficiency possibilities in their dwellings (and resulting cost savings) is assumed to be the central policy theory behind information tools. That householders respond more positively to personalised information can be viewed as the basis behind tailored advice.

§ 2.5.4.3 Impact of information tools

Published sources

A number of reports have paid attention to the awareness of instruments and reaction to information but evaluation of actual activity following the receipt of information is lacking. Research shows that it takes time to embed awareness about the existence of instruments. In this regard, in 2009 18% of survey respondents knew about, or had used, an energy audit, a year later this increased to 23% (Schalkwijk and Mulder 2009, p. 9; Schalkwijk and Mulder, 2011, p. 14).

Relevant organisations report an increase in householders seeking information in the last number of years. Milieu Centraal witnessed a fourfold increase[4] in telephone and email enquiries between 2008 and 2010, questions on the double glazing and MmM subsidies were particularly frequent (Milieu Centraal, 2011). Less obvious is the number of recipients who go on to carry out energy performance improvement.

More is known about the impact of energy audits with an evaluation from 2001 to 2002 finding that householders with this instrument were more likely to carry out roof insulation, double glazing and install condensing boilers than householders without (cited in Joosen et al., 2004, p. 71). Results such as this show promise in the ability of this instrument in stimulating householders to carry out additional energy saving measures.

Interviewee sources

An interesting finding was that information tools were scarcely considered by interviewees in the overall strategy for existing dwellings. Interviewees commonly viewed information tools as representing a supportive role with a general opinion that this role is performed. Several interviewees noted that as most instruments rely on householders actively seeking information they may fail to reach a wider audience. Interviewees involved in MmM mentioned the intention of developing more active ways to engage householders in this regard.

Interviewees noted that their websites maintain a relatively constant number of hits which peak during campaign efforts. An interviewee from MmM noted that their website receives on average 3000 hits daily which increased to 4000 during a national

4 From 5400 in 2008 to 24,000 in 2010.

TV campaign. Similarly, interviewees from umbrella organisations noted that after special editions of member magazines or radio advertisements enquiries increased significantly. Interviewees confirmed that sustaining interest on a longer-term basis remains one of their greatest challenges.

§ 2.5.5 Building regulations

§ 2.5.5.1 Content of building regulations

The national building decree requires that during extension/renovation minimum requirements for thermal resistance are required for the new element while in cases of total renovation standards for new dwellings must be met. Local authorities implement building regulations in the Netherlands and do not have power to demand stricter or additional standards than those expressed at national level. The original EPBD requirement that minimum standards be applied during major renovation did not trigger an alteration to the regulation despite the absence of a formal definition of major renovation.

§ 2.5.5.2 Policy theory of building regulations

The policy theory of building regulations is interpreted as the setting of legal standards for design and construction relating to energy performance. In the case of existing dwellings, regulations can provide an opportunity to maximise energy efficiency improvement at the renovation trigger point.

§ 2.5.5.3 Impact of building regulations

Published sources

There is no official evaluation of the impact of building regulations on existing dwellings but considering the content of regulations impact can be considered minimal. Unlike some European forerunners, regulations in the Netherlands apply strictly to the part of the building undergoing alteration (see Engelund Thomsen et

al., 2009). The result is that innovative means of tackling existing buildings, such as consequential works (requiring energy performance to a whole building during renovation or extension) or requiring that a percentage of energy be obtained from renewable sources upon renovation/extension are absent. Influence from European level looks set to have the most significant impact on this instrument with the recast EPBD re-introducing attention to a definition of 'major renovation' and cost optimal minimum standards. The development of a standard in the next revision of the Dutch Building Decree, whereby new and existing dwellings can be compared, may facilitate discussion on a minimum standard for existing dwellings.

Interview sources

Interviewees typically considered the impact of regulations as negligible, yet few considered that this tool should have a greater role. A minority of interviewees, mostly from practitioner and government organisations, stated that regulations should be strengthened as a 'safety net' and at component level. Several interviewees considered legal barriers to forcing householders to carry out works in their property as a barrier. This is despite research finding that legal barriers are not insurmountable (see Groot et al., 2009). Instead interviewees largely remained dismissive of this traditional tool of government. Moreover, interviewees almost unanimously agreed that local authorities should not be permitted to set regulations. The main reason given by interviewees for this view is that national consistency is required for market actors.

§ 2.6 Discussion

§ 2.6.1 Content, theory and impact of instruments

Examining instruments in terms of underlying theory and impact illuminated that the objectives of many instruments are lost during implementation or are unsubstantiated. Examining the EPC in terms of underlying theories identified a paradox with higher rated dwellings obtaining a market advantage yet with the EPC performing poorly as a stimulus to improve energy performance. This confirms research from elsewhere that the impact of the EPC as a stand-alone tool in terms of driving energy efficiency is low (see Gram-Hanssen et al., 2007). It raises important questions about how the EPC can be made to play a more defining role in the actual energy performance improvement process.

Criticism about how the MmM covenant struggles to realise its fundamental theory of sharing responsibility among stakeholders overshadowed other theories associated with this instrument. Another theory is that covenants explore regulation. The MmM subsidy based on one or two EPC rating jumps provides the perfect evidence base for exploring the idea of rating jumps as a form of future obligation. In addition, the covenant plays a supportive role to the EPC with MmM subsidy recipients more positive about the EPC after the renovation process (MmM, 2010, p. 20). This shows that integrating the EPC with subsidies and/or directly with the energy performance improvement process through stimulating rating jumps could embed this instrument in a strategy for existing dwellings.

Examining economic incentives on the basis of underlying theories is severely hampered by the lack of evaluation conducted on these instruments. Correspondence from financial institutions reported that the theory that loans remove financial barriers for lower income households is not met because such applicants are uncommon. This raises questions on the equitability of current instruments and whether the divide already shown between the EPC ratings of dwellings and income is growing larger under the current policy instrument approach.

Moreover, incentives in use in 2010 were not designed to stimulate ambitious renovation levels neglecting the theory of incentives driving innovation. The most ambitious instrument was the Green Project Loan based on four EPC jumps; however, with only one applicant there are clear questions on whether it was adequately incentivising. The MmM subsidy represented the next most ambitious instrument with its performance based approach to one or two EPC rating jumps. Nevertheless, compared to a front-runner such as Germany, with performance based incentives aligned to bringing existing dwellings to, and beyond, new build standards, the MmM subsidy appears moderate in its ambition.

The energy tax, the only 'permanent' economic instrument, clearly falters in reaching its underlying theory of affecting behaviour, with acknowledgment from the government that it lacks effectiveness (BZK, 2011). Howlett (2011, p. 132) notes that taxes and incentives should be visible to order to ''promote virtues and discourage vice''. There is little evaluative evidence about whether the tax is visible for householders. Even if visible, householders have little ability to impact on it with renewable energy taxed and with little differentiation between user bands.

The most criticised aspect of economic incentives relate to the underlying theory of long-term market support. Interviewees were unanimous in their argument that instruments are too fragmented to create market stability and confidence. This corresponds with other research on the Dutch situation which found that the greatest need of (local) policy actors was stability of economic instruments (Tambach et al., 2010).

Information instruments stay true to their reputation as among the most difficult to evaluate (Vedung and van der Doelen, 1998). An increase in the search for information related to energy saving is reported. However, the role of available information instruments in decision making and whether action results from instruments remains poorly understood. Many information tools in the Netherlands are what Hood and Margetts (2007) term as 'packaged self-serve messages'. This form of instrument ''will only be effective if the prospective informees are sufficiently interested to want to help themselves to the packages on offer'' (Hood and Margetts, 2007, p. 37).

Lastly, building regulations make scant demand on the existing housing stock in the Netherlands and interestingly this was accepted by the majority of interviewees. This echoes the results of research by Tambach et al. (2010) that the incumbent renovation regime, with a lack of motivation to alter traditional renovation practices, forms a barrier to energy policy ambitions.

§ 2.6.2 Concepts

§ 2.6.2.1 Policy instrument combinations

As well as looking at the content, theory and impact of policy instruments, an aim of this evaluation was to establish if pertinent policy instrument and energy policy concepts are reflected in instruments. Elements of these concepts were identified but they do not permeate instruments or the approach.

While policy instrument combinations are in place this appears less to do with the development of an orchestrated strategy and more to do with different policy instruments being added to the mix. These additions are often the result of European legislation (the EPC) or overlapping policy aims (instruments introduced to assist the construction sector and concomitantly improve energy efficiency). While a coherent strategy of combined instruments does not characterise the approach there are examples of instrument interactions, for example, the MmM subsidy positively supports the EPC.

§ 2.6.2.2 Long-term programme

The majority of instruments operating in the Netherlands sit outside a formally connected long-term policy programme. This was a particular point of criticism for interviewees especially in terms of discontinuous and uncertain funding. Against the backdrop of strong criticism, the MmM covenant offers a long-term strategy, at least to 2020. Nonetheless, components such as the MmM subsidy remain temporary.

§ 2.6.2.3 Obligation/incentive balance

With a long tradition of incentivising in this sector it was hardly surprising that interviewees were deeply divided on the place of an obligation/incentivising balance in Dutch policy. Interviewees from government, practitioner and NGO organisations generally supported the introduction of a form of obligation typically revolving around the EPC and taxation mechanisms. The role of building regulations as a form of obligation received a general lack of support from interviewees, even during the critical renovation trigger. Similarly, there was a general lack of support for energy companies as a target group for obligations.

While half of the interviewees promoted the introduction of some form of obligation, an equal number, mostly from umbrella organisations, remain loyal to the incentivising approach. Interviewees promoting the incentivising approach again viewed the EPC at the helm but with improvements.

§ 2.6.2.4 Non-generic instruments

Several instruments recognise the need for a non-generic approach in terms of information provision, for example, the energy audit. However, beyond information provision, national instruments fail to integrate design elements to reach sub-groups like lower income householders and private landlords/renters. Moreover, given the lack of formal evaluation little is known about the characteristics of the householders that are reached by instruments.

§ 2.6.2.5 Primacy to energy efficiency

Primacy to energy efficiency is recognised in most instruments but is not fully integrated as subsidies for micro-generation technologies could be obtained regardless

of the energy efficiency of a dwelling. However, this concept is reflected in the energy audit, some loans and the MmM subsidy.

§ 2.6.2.6 Whole house approach

The concept of whole house retrofit receives some support from instruments like the MmM subsidy, which revolves around EPC rating jumps. With the exception of the Green Project Loan for four EPC rating jumps, no instrument specifically promotes the whole house concept at an ambitious level. Instead information instruments take the single measure approach to energy based renovation. While the whole house approach was widely supported by interviewees the associated complexity and resource requirement was considered a serious obstacle to promotion.

§ 2.6.2.7 Energy sufficiency

Based on literature and interviews the end point of instruments in the Netherlands appears to be their implementation. Whether the theoretical energy saving associated with instruments is realised and the types of householders who make use of instruments remain poorly understood.

§ 2.7 Conclusions

Elements from the theory based evaluation method combined with evaluations and stakeholder interviews were used to create baseline information on the policy instruments designed to improve the energy performance of existing private dwellings in the Netherlands. Objectives included gaining insight into the content, underlying theory and impact of the main national instruments and exploring how key concepts from literature are reflected in instruments. Research results provide a first step towards conceptualising improved instruments.

Possible improvements include a stronger EPC embedded in performance based incentivising programmes and in the renovation process. Experience with the MmM subsidy provides an evidence base from which to explore this further as may the experiences of how other European countries use the EPC. Reformulation of the energy tax to realign it to its theory forms an additional possible improvement.

The Dutch experience can form an important lesson for the development of instruments in this domain. On paper, a wide range of instruments have been used from covenants, incentives, taxes, information tools and regulation. However, examining instruments in terms of their characteristics, theories and impact and against concepts show that they fail to adequately 'structure the play'. Elements of concepts are clearly present but struggle to become fully integrated. Instead, most instruments appear and disappear over short periods, failing to form a combined and integrated strategy that consistently carries existing dwellings towards targets. What is more instruments typically dissolve with little contribution to empirical data about impact. The lack of monitoring and evaluation against the stated aims and goals of policy instruments is a serious weakness in the strategy for energy performance improvement in existing dwellings.

To further explore improvements to instruments alternatives and the link between instrument theories and impact, research into the precise influence of instruments on end-users is required. This could not only illustrate effectiveness but also aspects such as equity. Research into whether front-runners reconcile key concepts from policy instrument and energy policy literature could further assist with conceptualising the type, scope and mix of instruments suited to existing dwellings.

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