Waking a sleeping giant: Policy tools to improve the energy performance of the existing housing stock in the Netherlands

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Abstract

The Netherlands like many European countries has issued ambitious national targets to achieve climate change goals. It is recognised that to achieve these goals the energy saving potential idling in the existing housing stock must be exploited. To date the Dutch response is largely defined by the typical national repertoire of policy instruments including voluntary agreements, economic incentives and information campaigns. Alongside this, the Energy Performance Certificate (EPC) required under the Energy Performance of Buildings Directive has entered the fold. Despite a controversial arrival and a low impact on much of the intended target group this tool is entering a new phase in Dutch policy circles. By providing an overview of the Dutch situation, this paper offers a contribution to the much-needed debate on policy instruments utilised to improve the energy performance of existing housing. Using policy instruments as a lens and drawing on stakeholder interviews, the Dutch national response to harnessing the energy saving potential of the existing housing stock is evaluated. Stakeholder interviews demonstrate consensus that the usual suspects from the policy toolbox are inadequate. Consensus on what an adequate toolbox should consist of is less forthcoming. Within this debate the EPC is materialising as a core component. But can manipulations of the EPC wake the sleeping giant that is the energy guzzling existing housing stock?

Introduction

In response to the multipronged climate change and energy security agenda, countries have issued ambitious targets and objectives for CO_2 emission reduction, increased share of renewable energy and improved energy efficiency. Responsibility for reaching targets is enthusiastically assigned to all sectors with the building sector and existing housing in particular regarded as pivotal (Ecofys 2009; McKinsey & Company 2009; Ürge-Vorsatz et al 2007). Constructed before even modest energy standards, the cost efficient and effective energy savings idling in the existing housing stock is recognised in the Netherlands and elsewhere (ibid, BZK 2011). Nonetheless, existing housing is yet to be at the receiving end of the type of ambition evident for new build such as achieving nearly zero energy status by 2020. What is more, there is little academic debate on the type of policy instruments and instrument combinations best suited to tackle demand-side energy use in existing houses.

While the energy saving capacity of the existing stock is eagerly acclaimed, its exploitation is markedly less celebrated. Hamilton (2010), McCormick and Neij (2009) and Höhne et al (2010) report on how ambitious targets fail to materialise into comprehensive frameworks, effective instruments and transparent results even among countries heralded as fore-runners. The Netherlands is an example of where policy tools have been introduced to reach the energy saving potential of the existing housing stock with varying degrees of success (Energy Transition Task Force 2006; VROM 2007; BZK 2011).

This paper recounts research into national policy instruments deployed to win energy performance improvement of existing housing in the Netherlands. Energy performance in this context is understood as energy efficiency improvements

to the building envelop and/or the adoption of micro-generation technologies. In the next section the methodology used to examine the main national policy tools used in the Netherlands is described. Following this, the perspective of policy instruments that guides research is elaborated. The Dutch context in terms of features of the housing stock and policy is then provided. Next the evaluation results of the key national policy instruments operating to improve energy performance of existing houses in the Netherlands are presented. This is followed by discussion and conclusions.

Methodology

This paper provides an overview, based on a larger evaluation, of current national instruments that dominate the Dutch response to improving energy performance of existing houses. Policy instruments are taken as the central unit of analysis, an approach that is considered analytically useful (see Eliadis et al 2005). Given the scope of this paper a partial evaluation based on three steps is presented. These steps are adapted from the theory-based policy evaluation method (see Harmelink et al 2008). Firstly, policy instruments are characterised in terms of content. Secondly, the policy theory associated with an instrument is described including the associated assumptions. Harmelink et al (2008) note that the policy theory can be explicit or implicit. Where the policy theory is not made explicit for Dutch instruments it is assumed from general literature on instruments. Thirdly, the impacts of instruments are described firstly based on secondary sources and then on the basis of results from stakeholder interviews.

Stakeholder interviews were conducted to verify and elaborate findings from secondary sources and to fill gaps where documentary evidence on instruments is scarce. Face to face semi-structured interviews were conducted over several months in 2010 and 2011. Interviewees directly involved in the design and/or implementation of policy instruments from 19 key stakeholder organisations were selected. Interviewees were drawn from academia[1], research organisations[2], government[3], umbrella organisations[4], energy companies[5], an NGO[6] and organisations directly involved in the design and/or implementation of energy policies (practitioners)[7]. 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 houses. To preserve anonymity reference is made to interviewees on the basis of their organisation throughout this paper.

1. TU Delft

2. The Dutch Energy Research Centre (ECN)

3. Ministry of Interior and Kingdom Relations (BZK), Senate Office (Eerste Kamer der Staten-Generaal), Dutch Energy Agency (Agentschap NL). Municipality of Delft

4. Associations for: Home Owners (VEH), Renters (Woonbond), Housing Corporations (AEDES), Estate Agents (NVM), Installation Companies (Uneto VNI), Construction Companies (Bouwend Nederland)

5. Anon

6. Stichting Natuur en Milieu

7. BuildDesk, the Housing Experiments Steering Group (de SEV), Meer met Minder (MmM), the Built Environment Energy Transition Platform (PeGO)

Through the lens of policy instruments

A preoccupation of literature in the field of energy performance in the housing sector is the barriers preventing the swell of energy performance improvement expected given the cost effectiveness of mature technologies. Awareness issues, financial constraints, the hassle-factor and the split incentive between renters and landlords are frequently cited barriers (Itard & Meijer 2008). However, policy instruments applied to overcome these barriers receive much less attention. Taking policy instruments as a lens to view how energy performance is tackled in existing houses is supported by literatures on the policy instrument perspective. This perspective seeks to understand policy formulation and implementation by examining instruments instead of policies and programs (Eliadis et al 2005). Lascoumes and Le Galès (2007) and Sabatier (2000) note that policy instruments remain relatively unexplored by academics, often secondary to variables such as actors' interests.

Policy instruments are associated with a range of definitions. One describes instruments as "the art of finding solutions to policy problems that specify desirable relationships between manipulable means and obtainable objectives" (cited in Weimer 1992: 370). Others highlight how instruments are used to alter behaviour as "techniques of control that are by one means or another, overtly or subtly designed to cause people to do things, refrain from doing things or continue to do things they would otherwise not do" (cited in Birkland 2005: 170). Stone (1988) views instruments as "strategies for structuring relationships and coordinating behaviour to achieve collective purposes" (ibid: 208). The above definitions present instruments as encapsulating a means, a target group and a goal.

As a means of dealing with a policy issue, instruments can incentivise or regulate. Commonly, instruments are divided into regulations, information tools and economic incentives (Vedung 1998). Covenants are included in this analysis as a forth category given their prolific presence in Dutch policy. There is an acceptance that there is no 'silver bullet' or 'magic carpet' when it comes to choosing an instrument (Koeppel et al 2007; Bressers & Huitema 1999). Instead it is considered that combinations of instruments are required to deal with the complexities of many policy issues (Gunningham and Sinclair 1999). Combinations of instruments represent a "give-and-take-strategy" with instrument mixes maximising the strengths and offsetting the weaknesses of individual instruments (Bemelmans-Videc 1998:9). Van der Doelen (1998) states that this give-and-take-strategy should combine restrictive and stimulative instruments. This draws on the metaphor of the iron fist and silk glove combined in balance to achieve effectiveness and legitimacy (cited in ibid). Similarly, Gouldson et al (2008) discuss policy instruments as effective when they simultaneously *engage*, *enable*, *encourage* and *ensure*. This model introduces the target group element of policy instruments which in this case is typically householders.

As a target group, householders represent a diverse range from private landlords and renters, housing associations and owner-occupiers. Different housing types, construction periods and quality, income levels, investment priorities, and

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awareness further characterise households. Guerra Santin et al (2009), Caird et al (2007) and Lockwood and Platt (2009) bring attention to the diversity that characterises households such as their perception of barriers, their experiences with energy saving measures and their actual versus predicted energy use following the adoption of measures. Their research results support criticisms of generic instruments and those based on one-dimensional conceptions of human behaviour such as economic rationality (see Collins et al 2003).

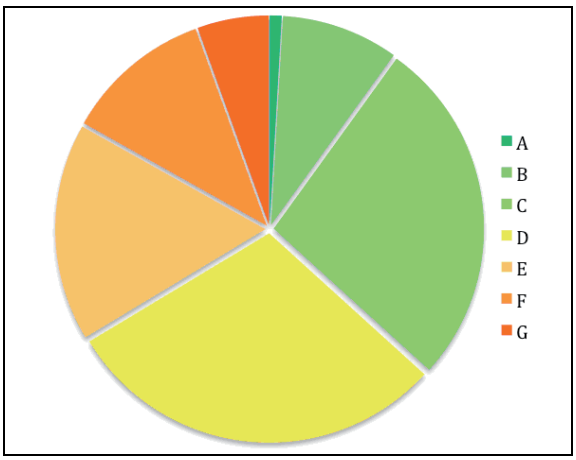
The fundamental goal of policy instruments in this domain is a reduction in energy consumption. The 'Trias Energetica' concept suggests an approach on which instruments could be based. This concept promotes an initial focus on energy efficiency, followed by meeting energy needs from renewable sources and lastly obtaining, if necessary, energy from fossil fuels as sustainably as possible (cited in Rovers 2008). Another way of exploring the goal comes from the whole house perspective. 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).

Whether energy performance improvements are translated into actual and persistent energy savings represents another uncertainty surrounding the achievement of the goal. Research projects have found differences between predicted and actual energy use after energy performance improvements (see Lockwood and Platt 2009). Meanwhile, Sorrell et al (2009) exposed the complexities of the rebound effect, the extent to which energy savings are translated into increased thermal comfort or other aspects other than the intended reduction in consumption. Policy instruments in their current configuration fail to account for feedback between adoption of energy performance measures and actual reduction in consumption. This could be viewed as a misaligned goal with energy efficiency taken as the end point and not part of a process of reducing consumption (Wilhite & Norgard 2003; Calwell 2010).

Context: the Dutch housing stock

There are approximately 7.2 million houses in the Netherlands and this figure is expected to increase to 7.9 million by 2020 (ECN 2010: 21). Approximately 20 % of final energy use and 17 %[8] of CO_2 emissions is attributed to the residential sector (Itard & Meijer 2008: 15; Hamilton 2010: 2). Gas is the main energy source in Dutch houses with the price doubling over the last decade[9] (BZK 2011).

20.5 % of the Dutch housing stock predates 1945, 26.6 % was constructed between 1945 and 1970, 32.1 % between 1971 and 1990 and 20.8 % since 1991[10]. Houses constructed before 1970 are considered to hold significant potential for floor, wall and roof insulation[11] (Itard & Meijer 2008: 49). 20 % of single-family dwellings and 15 % of multi-family dwellings could be improved with double glazing (ibid). Double-glazing is recorded as having the highest penetration rate while floor insulation has the lowest (BZK 2010). The average EPC rating of Dutch houses is currently D (see Figure 1).



(adapted from Meijer et al 2009)

Figure 1: Results of approximately 190,000 EPCs recorded between 2007 & 2009.

Micro-generation technologies have a low penetration rate in Dutch houses with heat pumps representing approximately 0.5 % of all central heating systems (Itard & Meijer 2008: 53). Meanwhile, approximately 1 % and 0.3 % of the housing stock utilise solar thermal technology and heat pumps for hot water generation respectively (BZK 2010: 154).

Associations between tenure and energy quality can be drawn for the Dutch housing stock. The owner-occupied stock (58.4 % of the total) [12] is considered the most energy efficient based on a higher concentration of A and B rated houses (BZK 2010). The social housing sector (31.3 % of total - managed by private but non-profit housing associations) is considered slightly less energy efficient than the owner occupied category (ibid). At 31.3 % of the total stock the Dutch share of social housing is significant and one of the highest in Europe (ibid). The private rented sector (10.3 % of total) reflects the poorest energy quality with more than one third of private renters living in the worst EPC rated houses (ibid).

Between 1990 and 2008 total climate corrected household gas use decreased from 362 to 311 PJ (ECN 2010: 42). The increased adoption of wall and roof insulation and high efficiency boilers and milder winters are viewed as the main factors in this reduction (ibid). However, these gains are offset by a continued increase in electricity consumption resulting in a steady overall primary energy use in the household sector since 1990 (approximately 550 PJ) (ibid).

Context: Dutch policy for energy performance in existing houses

Over the last decade the housing sector was earmarked for attention through a national climate change framework, the Dutch response to the Energy Services Directive (ESD) and a national stakeholder platform for existing houses. However, a recent change of government signifies the strong po-

8. Compared to Denmark at 22 % and Sweden at 2 % (Hamilton 2010: 2)

9. On 1 January 2007 consumers paid 0.65 euro for a cubic metre of gas (CBS 2007).

10. Database: Syswov 2009 ABF Research B.V

11. 77 %, 90 % and 60 % of these components are un-insulated respectively

12. Tenure data obtained from Syswov 2009 ABF Research B.V

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litical dimension to climate change policy. The 2020 targets issued in the 2007 national climate change plan were recently reduced by the new government in line with EU suggested targets for the Netherlands of 20 % reduction in greenhouse gas emissions and 14 % increase in the share of renewable energy. The previous Dutch government issued targets to go beyond EU guidance targets at 30 % and 20 % for greenhouse gas reduction and renewable energy generation respectively (VROM 2007:3). A previous 2020 target of a 2 % reduction in energy consumption has been dropped entirely by the current government given the absence of a binding target at EU level.

Despite a lowering of ambition, as reflected in the reduction and removal of targets, the current government supports a role for the housing sector in reaching climate change goals (see BZK 2011). The current government plans to maintain some aspects of policy from the previous government, including the covenants, and to introduce a new approach termed 'block for block'. Details of the 'block for block' approach are pending but appear to revolve around tackling energy performance at a neighbourhood level (ibid). Alongside national policy is the Dutch response to the European ESD in which nearly half of the 9 % target for energy efficiency by 2016 was assigned to new and existing houses (Hamilton 2010: 3).

A noteworthy aspect of Dutch policy over the last decade has been the adoption of a transitions approach to policy areas like energy. This approach recognised that 'solving the major environmental problems requires system innovation; long drawn-out transformation processes comprising technological, economic, socio-cultural and institutional changes' (VROM 2001:30). The transitions approach is represented by a number of structures including several government departments, a board of directors, a task force (composed of government and third party representatives) and seven platforms representing priority themes. One theme is dedicated to energy performance in existing houses and is represented by the Energy Transition in Existing Houses Platform known by the acronym PeGO (Energy Transition Task Force 2006). The ongoing development of the transitions approach and related structures such as PeGO is unclear with the current government.

In terms of style the Dutch approach to energy policy has been classified as non-coercive and stimulative (Vedung & van der Doelen 1998). This can be explained in part by the policy arena (Lemaire 1998) and in part by the national implementation style (Howlett 2004). In terms of the policy arena, the principal of acquired historical rights has protected existing houses from significant regulatory intervention affording precedence to the regulations in place at the time of construction. Added to this is the politically sensitive issue of intrusiveness into a domain considered as private. Furthermore, successive Dutch governments have pursued a deregulation agenda and instruments entailing hints of undue bureaucracy are treated sceptically. This could be viewed as a reflection of the wider governance shift in the Netherlands and a move towards market based instruments and voluntarism. This is against a backdrop of a national style based on negotiation, consensus and long term planning (Liefferink & van der Zouwen 2003). Current policy instruments operating on existing houses in the Netherlands are a reflection of this policy style with incentives and voluntary tools dominating and minimal regulation in force.

Policy instruments

ENERGY PERFORMANCE CERTIFICATE (EPC)

Content of the EPC

Under the European Energy Performance of Buildings Directive (EPBD) an EPC is required at the sale and rental of a property. The EPC provides an energy rating for a house on a scale ranging from A to G. Ratings are based on an energy index[13] calculated on the basis of total energy use under standard conditions, surface area and the sum of the exterior surface areas based on heat transmission losses (ISSO 2007: 35). Software is not specified but it must be accredited. The EPC introduced in the Netherlands in 2008 was plagued with problems and controversy ranging from presentation issues, an inadequate complaints procedure, issues surrounding accreditation of inspectors and methodological issues (VEH 2007). As a result the procedure was revised and a new EPC was introduced in 2010. A recent government assessment concluded that the quality of the revised EPC has led to improvement (VROM Inspectie 2010).

Some aspects of EPBD implementation in the Dutch case, particularly in the private housing sector, could be described as 'minimalist', for example, the absence of an official enforcement procedure for the EPC. Commonly a waiver is included in sale/rental contracts accepting the absence of an EPC. In a case of dispute the buyer/renter can appeal under the Dutch Civil Code. The ombudsman recently criticised the responsible authority for the absence of an enforcement procedure and the treatment of the EPC as a voluntary instrument (de Nationale Ombudsman 2010). Parliamentary debates are planned in early 2011 on possible enforcement options. The social housing sector illustrates a different level of compliance given the requirement that the stock be universally certified by 1 January 2009.

Policy theory of the EPC

The policy theory associated with the EPC is ascertained from the EPBD text and related documents (EC 2008; EC 2010). In these documents it is stated that the lack of a market demand for energy efficient houses perpetuates poor performance of the stock. The use of a communication tool displaying energy performance 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 related to the policy theory is that householders will act on the recommendations contained in EPCs. The EC suggests that linking the EPC to indigenous tools such as subsidies can have an enhancing effect (EC 2008).

13. The energy index procedure is specifically for existing buildings. New buildings must meet an energy performance co-efficient which is calculated according to a different methodology. New buildings in the Netherlands are not currently issued with EPCs.

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Impacts of the EPC

The EPC has had significantly different impacts in the social housing stock compared to the private stock which can be explained in part by compliance rates. In this regard, social housing landlords were required to issue their complete stock with EPCs in 2009 while in the private sector approximately 10 % of sellers produced an EPC in 2008 (ECN 2010: 42). In terms of the market impact, a study by Brounen and Kok (2010: 7) found that EPCs demonstrate a "moderately powerful market signal" in the Netherlands with a 2.7 % premium for properties with EPC ratings of A, B or C. Given the "non-mandatory" nature of the EPC some correlation was found between number of dwellings sold with EPCs and the competitiveness of the housing market. In this case EPCs were more common in areas of less competitive housing markets where they are considered to form a positive marketing tool. On the other hand, a limited number of empirical studies have focussed on the extent to which recommendations in EPCs are acted upon both in the Netherlands and elsewhere. Following a trail of 94 EPCs in the Netherlands, 27 % of respondents stated their intention to carry out measures on the basis of the EPC with 18 % not having this intention before receiving the EPC (Hoogelander 2006: 53). Bartiaux et al (2006: 103) found that in 40 households in Belgium, who volunteered for energy performance advice, 11 % of measures were implemented one year after the advice was offered. Such studies demonstrate a low impact and justification of the EC recommendation that EPCs be combined with indigenous measures such as subsidies.

Empirical data from interviews confirmed the differentiated impact of the EPC in the private and social housing sectors. Interviewees noted that the requirement that the social housing stock be universally issued with EPCs placed energy onto the agenda of social landlords and provided insight into the quality of the stock. A significant development, in part owing to the complete stock being in possession of an EPC, is that energy will be incorporated into the social rent valuation system in 2011[14]. This system dictates what social landlords can demand in rent with the EPC acting as the indicator for the energy factor. This mechanism will allow social landlords to recoup parts of the costs they invest in energy performance improvement through rent increases thereby overcoming the split incentive that has traditionally formed a barrier in the rental sector. To date interviewees noted that the EPC is typically not presented to or requested by tenants in the social housing sector, the market demand element of the theory is therefore undeveloped. Inclusion of the EPCs in the rent valuation system may alter this situation. Furthermore, the recast EPBD requires that the EPC will be included in property advertisements.

Interviewees confirmed that the private housing sector has proved more impenetrable to the influence of the EPC to date. Interviewees were generally supportive of an enforcement regime given that the quality of the EPC is considered to be improved. Furthermore, interviewees, mainly from practitioner organisations, government and NGO organisations, who support the introduction of obligations to the private housing sector, view the EPC as the ideal instrument to drive obligation. This is partly due to the considered ease of communicating EPC rating jumps to householders. This manipulation of the EPC to steer obligations was proposed by PeGO (the national platform of stakeholders in the transitions approach) at their first national conference in 2010. PeGO suggested three policy packages, two of which held a central position for the EPC[15]. The first package called 'Fast and Efficient' suggested that an EPC rating of B be required from 2012 for owner-occupiers within two years of a property transfer. Subsidies and low interest loans would be available with sanctions for non-compliance channelled through the current property tax system. The rental market would be subject to different requirements with all properties to reflect a B rating by 2030 with an investment scheme to support this. The second package termed 'Gradual and Clear' proposed a staggered phase out of different EPC ratings with an average EPC of B ultimately reached by 2026. In this package the property transfer tax would be dependent on the EPC with tax paid due to a poor rating returned to the owner upon rating improvement. Alongside this, a feed – in – tariff was proposed and financial support for the social sector. Sanctions would target each ownership category in terms of the relevant tax or valuation system. The protracted formation of a new government in 2010 delayed the further investigation planned for the proposed PeGO policy packages and they currently remain at a standstill.

COVENANTS

Content of covenants

In the Netherlands covenants translate national targets into digestible sector specific portions negotiated by relevant parties. In 2008 two covenants, one relevant to the existing private housing stock and one for the social housing stock were signed. The covenant for the private stock, Meer met Minder (More with Less) (MmM), involves several government ministries and umbrella organisations representing energy companies, the housing and building sectors. Aims of MmM include the development a permanent market for energy efficiency and energy saving of 100PJ by 2020 (MmM 2009). These aims are framed in terms of making 2.4 million existing buildings on average of 20 to 30 % more energy efficient by 2020 using a so called 'handholding'[16] approach (ibid). This involves taking complete care of householders along the energy saving trajectory from information to identification of service suppliers (registered MmM suppliers) and incentives.

The covenant for the social housing sector, Energy Saving Covenant Corporation Sector, brings government and umbrella organisations for housing associations and tenants together to achieve climate change goals. It builds on earlier policy from the social housing sector including an aim to reduce gas use by 20 % by 2020 and an approach based on two EPC rating jumps.

14. Woningwaarderingsstelsel

15. A third policy package was presented at the PeGO conference which reflects a form of White Certificate Scheme.

16. Handholding is translated from the Dutch 'ontzorgen' which does not have an official English translation

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Policy theory of covenants

Covenants are a common instrument in the Netherlands embodying the cooperation and bargaining between government and interest groups that typifies Dutch environmental policy (Bressers & de Bruijn 2005). According to a previous Dutch government, regulation should be preferred to covenants with their use restricted to:

- Anticipation of regulation
- Exploration of different forms of regulation
- Support to regulation
- An expectation that regulation will become redundant (cited in ibid).

Impacts of covenants

A published evaluation of the covenants states that reaching intermediate MmM goals appears likely in view of provisional findings that 150,000 houses adopted two or more energy saving measures averaging a 20 % energy saving in 2009 (Scheider & Jharap 2010: ii). However, these results were not considered definitive with further analysis on whether measures could be attributed to MmM deemed necessary. The evaluation of MmM highlights a mixed response from covenant signatories with those from industry appearing positive pointing to a growing market interest in energy saving (ibid). On the other hand the government reported a lack of confidence that the goals would be reached (ibid). Reportedly, issues in terms of financing and a lack of clarity on responsibilities have overshadowed progress (ibid, Hamilton 2010). The evaluation of the covenant for the social housing sector suggests a higher impact with monitoring results from the umbrella organisation for housing associations confirming progress towards goals (Scheider & Jharap 2010). Furthermore, the inclusion of energy in the rent valuation system is considered a significant impact (ibid).

During primary research interviewees confirmed a low impact of MmM to date. A significant issue for many interviewees was the origin of the MmM covenant as an alternative to a White Certificate Scheme. This is also contra to the policy theory that covenants should not be used as a substitute for regulation (see above Bressers & de Bruijn 2005). Interviewees commonly discussed the low impact of MmM as being a general weakness with covenants, which is the lack of action and obligation when commitment to shared goals is lacking. On the other hand, interviewees were generally supportive of the MmM 'handholding' approach and a subsidy designed by the MmM organisation which reflected the Trias Energetica concept (with the condition that tailored advice was obtained to indentify the most effective measures).

Interviewees generally viewed the impact of the covenant for the social housing sector in more positive terms especially the development of mechanisms to deal with the split incentive barrier. To tackle this, a voluntary tool, the Living Costs Guarantee[17], was developed by the covenant signatories representing housing associations and social renters. The tool outlines a process whereby housing associations and tenants in a multi-family dwelling agree on a rent increase that is lower than savings from energy bills following energy performance improvement. This tool will give way to the formal integration of energy in the valuation system this year. In addition, interviewees reported that awareness and action towards energy saving has increased among housing associations since the covenant's inception.

Several interviewees reported on the effect of the financial crisis in terms of the impact of covenants. Reportedly, this made achieving a B rating or two EPC jumps more difficult given lower renovation and investment rates. Several interviewees mentioned that an average EPC rating of B is a key discussion point in the housing sector and that this owes much to the covenants.

ECONOMIC TOOLS

Content of economic tools

Economic tools active during research interviews are presented in Figure 2. However, by the end of 2010 the budgets for tailored advice, high performance glass, corporation tax relief and the MmM subsidy were exhausted. The Sustainable Heat Subsidy has reached its budget for all microgeneration technologies except for microCHP (as of March 2011). The Sustainable Energy Production Subsidy[18] is opened on a lottery basis for a short period each year and supports production from a range of sources and scales. Householders make up a small percentage of applicants mostly in the category of PV installations; 40 % of applicants in 2009 (out of a recorded 20,000 applications between 2008 and 2009) (Agentschap NL 2009: 7). This subsidy will be revised in 2011 with the focus shifting to large scale production to assist with meeting 2020 targets. Therefore, the household target group will be effectively removed. The current government plans on launching fewer incentives in 2011 with the exception of €10mln, earmarked to re-instate the MmM subsidy (BZK 2011).

Policy theory of economic instruments

Economic instruments adopted in the Netherlands for existing houses focus on the following:

- increasing diffusion of micro-generation technologies
- incentivising householders to carry out energy performance improvement during or outside normal renovation activity
- imposing the polluter pays principle through an energy tax.

The policy theory that economic incentives should spur action beyond minimum standards is less obvious but relates in part to the absence of a defined 'minimum standard' for existing houses. The policy theory that economic incentives are used to overcome resistance to a policy instrument (Van der Doelen 1998) is not evident, although this also reflects the absence of regulation that could introduce such resistance. Notable of a number of instruments described in Figure 2 is their introduction to assist the construction industry during the economic crisis and not for climate change targets *per se* (specifically

17. Woonlastenwaarborg (Living Costs Guarantee) – this tool will be evaluated in 2011

18. Stimuleringsregeling Duurzame Energieproductie (SDE)

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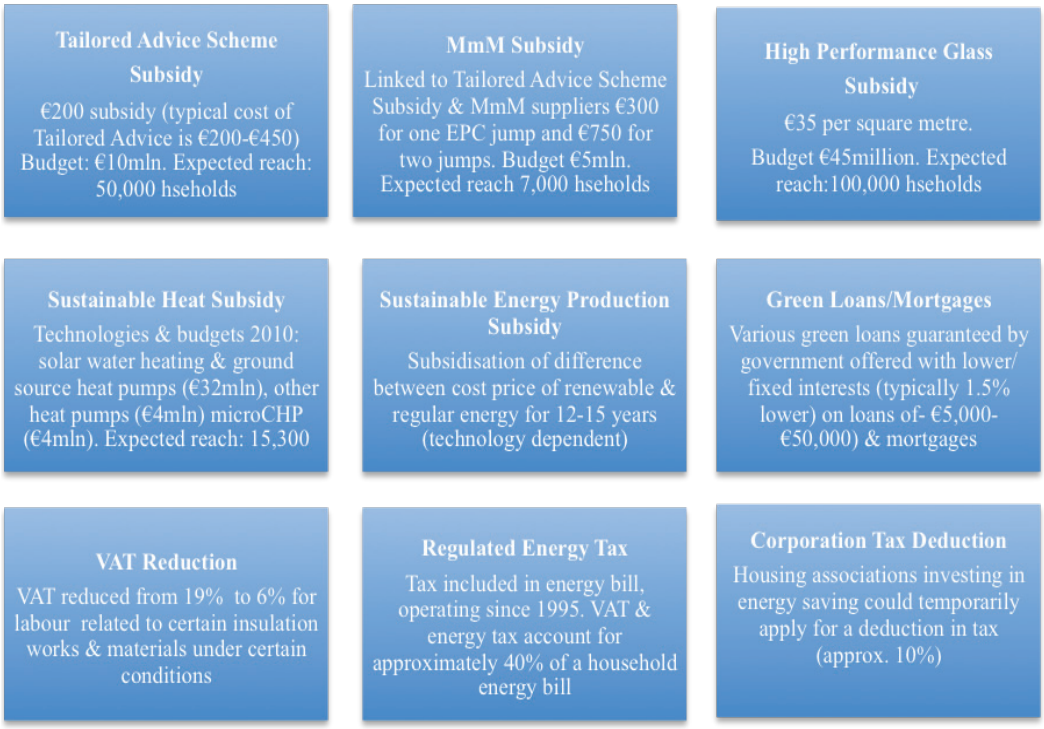

Figure 2: Overview of economic tools active during interviews.

tailored advice and isolation glass subsidies, the temporary extension of corporation tax to housing associations and VAT reduction).

Impact of economic instruments

Secondary sources describe a low impact of economic incentives aimed at energy performance in existing houses. Hamilton (2010) and Noailly et al (2010) discuss instruments as modest and highly fragmented. The government has recently stated that the impact of the energy tax is viewed as minimal in terms of achieving a reduction in energy use (BZK 2011). The current government intends to reduce economic incentives emphasising that reduced living costs for households adopting energy saving measures should form an incentive (ibid).

Interviewees were unanimous in a shared lack of confidence that a far-reaching, long-term strategy towards transforming the existing stock has been financially supported at a national level. Typically, interviewees discussed economic incentives as being overly complex, short-lived and often of little value in terms of application effort and economic return. Interviewees linked to housing associations mentioned the difficulty of developing policy in line with financial incentives given the temporary nature of such instruments. Several interviewees discussed the unreliability of subsidy schemes and a resulting lack of trust. In this regard, interviewees from umbrella organisations and local government mentioned efforts of persuading members and householders to promote or adopt energy saving measures based on subsidies only to find them unexpectedly withdrawn. A number of interviewees from government organisations commented on the number of free-riders linked to incentives though estimated figures were not known. One interviewee discussed an impact at another level stating that householders and companies have come to view energy saving and micro-generation technologies as synonymous with subsidies which could be damaging to achieving long term objectives. In terms of achieving the goal of energy consumption reduction the impact of subsidies was criticised by many interviewees. A number of subsidies focus on single measures or offer subsidies for micro-generation technologies without following the Trias Energetica concept of first improving energy efficiency.

INFORMATION TOOLS

Content of information tools

Energy companies, government agencies, consumer groups and umbrella organisations promote energy performance in existing houses through various channels. A number of online tools offer an approximate energy rating and generic advice on the basis of information on housing age, size and type and installations. National TV campaigns have been used to promote MmM while energy companies frequently launch TV campaigns. While the majority of information is generic in nature an accredited tailored advice scheme also operates. A feedback dimension to information is expected in the next few years with the roll out of smart meters although these will be voluntary.

MmM has sought to consolidate the range of information available from different sources under the MmM banner. 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.

Policy theory of information tools

The asymmetry of information between householders and the energy saving possibilities in their houses is taken as the central policy theory behind information tools. That householders respond more positively to personalised information and to feedback on energy use can be viewed as the basis behind the tailored advice scheme and smart meters respectively. In addition, the range of information from different media angles and sources can act to reinforce the energy saving message (Linden et al 2006).

Impact of information tools

The impacts of information instruments are among the most difficult to decipher according to policy instrument literature (Vedung and van der Doelen 1998). A number of information tools operate as self-standing tools which according to theory severely limit their impact (ibid). Additionally, many information tools in the Netherlands come in the form of 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" (ibid: 37).

Interviewees did not generally offer strong opinion on the functioning or role of information tools. Some interviewees noted that most instruments rely on householders actively seeking information and that they therefore 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 on average their website received 3000 hits per day which increased to 4000 during a national TV campaign. Similarly, interviewees from umbrella organisations noted that after special editions of their member magazines or radio advertisements enquiries increased significantly. Interviewees confirmed a difficulty noted in literature that sustaining interest on a longer-term basis remains one of their greatest challenges.

BUILDING REGULATIONS

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 complete renewal/total renovation standards for new houses must be met. 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. Local authorities implement building regulations in the Netherlands and they do not have power to demand stricter or additional standards than those expressed at national level. A revision planned for the national building decree in 2012 will introduce a new standard allowing the energy performance of new and existing buildings to be compared.

Policy theory of building regulations

Building regulations are used to control aspects that the market fails to account for but which are considered to be of sufficient societal importance that state intervention is justified. In the case of existing houses, regulations provide an opportunity to maximise energy efficiency improvement at the renovation trigger point (Bell 2004). Regulations typically set a minimum standard that is revised over time in line with technological development and innovation.

Impact of building regulations

Given the content of regulations for existing regulations in the Netherlands the impact can be considered minimal. The IEA (2009) in their country review of the Netherlands recommended that building regulations should be strengthened at the renovation trigger point. Unlike some forerunners in Europe, 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 not explored in the Netherlands. Influence from European level looks set to have the most significant impact for this instrument with the recast EPBD re-introducing attention to a definition of 'major renovation' and cost optimal minimum standards. Alongside European developments, the development of a standard whereby new and existing houses can be compared may facilitate discussion on a minimum performance standard for existing houses.

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. In the Netherlands the principle of acquired historical rights means that existing buildings are governed by the regulations in place at the time of original construction (Ang et al 2005). This was mentioned by several interviewees during research and considered 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 beyond those established at national level, even if this level could be a source of innovation.

Discussion

Results from secondary sources and primary data from interviews confirm that an incentivising approach dominates energy performance policy instruments for existing houses in the Netherlands. The 'give and take' between regulation and incentives and a package that simultaneously *engages*, *enables*, *encourages* and *ensures* fails to adequately *ensure* for the majority of the stock in the Netherlands. An exception is the social housing sector which has witnessed some recent development in terms of energy becoming a factor in rent valuation. Con-

sensus that much remains to be achieved in terms of energy performance in existing housing was strong among interviewees. However, interviewee opinion was divided on the type of policy instruments and instruments combinations that should be used and the role and form of regulation within such a combined strategy.

Interviewees from PeGO, government, practitioner and NGO organisations generally supported the introduction of a form of obligation typically revolving around the EPC and taxation mechanisms. According to interviewees from PeGO their 'obligatory' proposals presented in 2010 developed from agreement between members of the platform that obligations would be a better use of resources and would result in more consistent and effective action towards energy saving goals. A protracted change of government and uncertainty of PeGO's continuance under the current government has delayed the further assessment of these proposals.

The role of building regulations as a form of obligation received a general lack of support from interviewees. Currently, existing houses undergoing renovation (unless this is complete renovation) are subject to minor insulation and ventilation demands. Interviewees frequently described building regulations as non-effective and too resource intensive as a means to tackle existing houses. However, building regulations play an important role in some countries, e.g. Denmark during major renovation (Engelund Thomsen et al 2009). Following the policy theory for regulations, the integration of a standard for existing buildings in building regulations could result in the same periodic heightening of ambition driving innovation as occurs with new build. Moreover, the formal establishment of a 'minimum' standard for existing buildings could allow other policy instruments to incentivise beyond minimum standards, therefore adhering to one of the policy theories associated with economic incentives. This arrangement exists in Germany with the interplay between national building regulations and financial incentives offered by the federal bank (Hamilton 2010). The development of a comparable energy index for new and existing buildings in the next revision of the Dutch building decree may awaken a debate on a minimum standard for existing houses. However, as yet there is little evidence of such a discussion.

Instead attention on an average EPC rating of B represents the closest to a discussion on some form of standard for existing houses. Despite its rocky path to date, PeGO and the majority of interviewees invest the EPC with confidence as the keystone tool of the future either under current conditions but with some improved functioning (enforcement) or as one steering some form of obligatory action. This is despite research findings from the Netherlands and elsewhere that the expected impact of EPCs as a stand-alone tool in terms of driving energy performance improvements is low. The ambition of EPCs in the longer term, particularly the extent to which ratings would be recalibrated to strive towards continual improvement, was generally unknown by interviewees. Though a minority, some interviewees remained critical of the EPC as the steering tool for existing houses with quality concerns the most frequent source of apprehension.

While many interviewees remain faithful to the incentivising approach they are not uncritical of associated tools. The way in which economic incentives are managed formed the largest criticism. The 'stop-start' nature of incentives was a reoccurring complaint during interviews. Interviewees routinely availing of incentives commented on their unpredictability for planning purposes. A re-occurring theme during interviews was distrust in national economic incentives. Meanwhile, information tools were scarcely considered by interviewees in the overall strategy for existing houses. Interviewees commonly viewed information tools as representing a supportive role with a general opinion that this role is performed, although as with many instruments, little formal evaluation has occurred.

Many current and recent instruments in the Netherlands sit outside a formally connected policy framework. Though associated with many weaknesses, the covenants can offer a framework for the part of the sector they focus on. Furthermore, covenants demonstrate some synergetic connections to other instruments, most evident with the EPC and targets for two rating jumps and the planned introduction of the EPC as a factor dictating rental amounts in the valuation system for social housing. Nonetheless, covenants are ultimately dependent on non-binding commitment and shared understanding of objectives and responsibilities, the absence of which appears to be damaging progress to the MmM covenant.

The majority of interviewees considered that the focus is correctly placed on householders as the target group. Several interviewees discussed the important role of the social housing sector in developing renovation concepts and a market for energy efficiency. This view is a reflection of the size of the sector, at over 30 % of total stock, and the widely accepted notion that housing associations have societal responsibility in the Netherlands. Notable among interviewees was a general lack of support for energy companies as a target group for obligations.

In terms of the ultimate goal, instruments in the Netherlands are typically formulated with the end point as the adoption of energy performance measures and not a reduction in energy consumption. Interviewees largely considered that theoretical energy saving associated with instruments is adequate and already complex without delving into this aspect. While the whole house approach and the Trias Energetica concept was widely supported by interviewees the complexity and resources attached to these approaches were also widely lamented.

Conclusions

The aim of this paper was to provide an overview of instruments used to achieve energy savings in the existing housing stock in the Netherlands. Results show that the incentivising approach is embedded in Dutch instruments particularly in relation to the existing private housing stock. Policy instruments appearing and disappearing over the last number of years have failed to form an integrated framework that consistently carries the existing housing stock towards climate change targets. Many instruments remain modest in content, are poorly implemented or enforced in often weak or absent combinations and do not assure reduction in energy consumption.

The social housing stock in the Netherlands is witnessing movement towards integrating energy into the management of the stock with positive reports from the covenant, a stock

complete with EPCs and the inclusion of energy as a factor in valuating rent. The impact, in terms of renovation rates, actual energy use, the functioning of the EPC and management of the split incentive barrier require close attention in the coming years. Meanwhile, a 'voluntary' EPC, dwindling incentives and a problematic covenant mean that the private housing stock in the Netherlands slumbers on.

Thus far, discussions on strengthening the approach towards existing private houses in the Netherlands have focussed on the EPC aligned with taxation mechanisms. The ambition of achieving an average EPC of B has become the policy mantra. Placing the EPC in a steering role offers many advantages. It should appear regularly in the market at the property transaction trigger point, it can promote a whole house perspective based on rating jumps and it avoids technical jargon in communicating wider climate change policy goals. Nevertheless, considerations of whether it is sufficiently ambitious, whether manipulations of the EPC and fiscal mechanisms can introduce a legitimate obligatory element to the existing private stock and the relationship between actual energy use and the EPC require further investigation. Furthermore, research on alternative instruments and instrument combinations could add much to the discussion in the Dutch context. Alongside this, evaluations of traditional and established instruments such as building regulations, information tools and taxes, in terms of their role in reaching climate change goals, could provide a more balanced view of strategies for achieving energy savings in existing houses.

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