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Energy behavioural changes

Changing Behaviour

Deliverable 7: Report - Conceptualizing and understanding intermediaries in context: Developing an enhanced understanding of context, actors and transferability.

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M.Hodson (SURF), S. Marvin (SURF) with contributions from E. Heiskanen (NCRC), D. Bauknecht (OEKO), S. Breukers (ECN), Y. Barabanova (CEU), B. Brohmann (OEKO), V. Bürger (OEKO), C.F.J. Feenstra (ECN), M. Jalas (Enespa Ltd.), L. Korhonen (NCRC), P. Maier (VZ NRW), H. Meinel (VZ NRW), R.M. Mourik, (ECN), J. Pariag (CEU), M. Rask (NCRC), S. Rinne (Enespa Ltd.), S. Robinson (M:KC), M. Saastamoinen (NCRC), J. Salminen (Enespa Ltd.), I. Valuntiené (Cowi Baltic), E. Vadovics (GreenDependent).

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Aim
There are many different 'types' of energy intermediary. It is the aim of this report to conceptualise the different roles and the strategic capabilities needed by energy intermediaries.

Understanding Current Energy Intermediary Practice
Through an analysis of 25 European case studies the report 'gets inside' of energy intermediary practice in Europe to improve our understanding of who intermediaries are and how they function. This it does through looking at the establishment and funding of energy intermediaries, the timeframes and purpose to which they work, how they function and with whom they build relationships. It also utilises workshop dialogue with over 150 energy practitioners across Europe to develop a comparative understanding of energy efficiency practice in relation to households, SMEs, municipalities and schools. It draws upon analysis of the views of intermediary practitioners about what the problematic issues are for intermediary practice and what, as a result, energy intermediaries need to do differently.

A Framework for Effective Energy Intermediary Practice
The report synthesises the critical issues that need to be taken seriously by intermediary practitioners into a framework to inform effective energy intermediary practice. We detail seven areas that need to be seriously addressed for effective, active and configurational intermediation - Financial issues; Staffing; Organisational structures and cultures; Knowledge base; Communications; Credibility and Influence – and the issues this raises for energy intermediary practitioners.

Key Recommendations
We outline four key recommendations for policymakers, practitioners and researchers in engaging and influencing more effectively energy intermediaries.

R1: Energy efficiency priorities should be framed and funded through long-term programmes. Projects should sit within these programmes rather than as standalone initiatives.

- Policymaking on energy efficiency takes places across many policy areas. Energy efficiency programmes should be developed that link together different policy domains.
- Researchers should develop academic programmes around energy efficiency rather than projects based largely on responding to a series of funding calls.

R2: Energy efficiency is not an end in itself – it is a means of achieving numerous other priorities. A clearer understanding of 'to what question is energy efficiency the answer' is required. As such, energy efficiency needs to be understood better and demonstrated more convincingly at local levels as there are many different ways of framing energy efficiency.

- A more sophisticated understanding of the wide variety of ways that energy efficiency programmes can and should operate at a local level needs to be developed. It is recommended that policymakers fund comparative action research on energy efficiency at a local level. Policymakers would benefit from being clearly aware that there are many alternative ways to organize action on energy efficiency.
- It is recommended that energy intermediaries should be both part of this action research and will be able to benefit from its findings in a practicable way.
- Researchers need to actively develop more 'insider' case studies of success and failure that focus on the rich processes of HOW energy intermediaries 'implement' demand-side programmes. These are desperately necessary.

R3: Better understanding is required of the ways that intermediaries do, can and should collaborate, compete and overlap with the competencies of each other.

- It is important that policymakers do not only understand how energy efficiency operate at a local level but also that they have an overarching understanding of the ways in which the range of different projects and interventions contribute to policy objectives.
- Energy intermediaries should benefit by learning from the practices and experiences of other energy intermediaries.
- Researchers should not only undertake more 'insider' case studies of HOW energy intermediaries 'implement' demand-side programmes but also need to develop a comparative and composite understanding of the different ways in which demand-side programmes are implemented.

R4: Many different people and organisations promote energy efficiency. The combinations of people and organisations working on energy efficiency may be different across national contexts. A better understanding is, therefore, required of different national policy and institutional contexts and the ways in which they constrain and enable intermediaries and the extent to which intermediaries can contribute to policy.

- European level policymakers in particular should actively encourage and fund comparative understanding of national policy and institutional contexts.
- National policymakers would benefit significantly from understanding the range of different institutions contributing to policy priorities and the extent they do so.
- Energy intermediaries should respond positively to researchers and policymakers seeking to engage with them on this agenda.
- Researchers should engage with this kind of research through building networks through European level funding (e.g. Framework programmes) and through national research funding mechanisms.

In this report we provide a means to both practically utilise the findings of this work package and to build upon them through further work that requires contributions from but also offers potential benefits for policymakers, practitioners and researchers.

1. Introduction

Purpose of Report
This report constitutes Deliverable 7 of the CHANGING BEHAVIOUR project. CHANGING BEHAVIOUR is a project that aims to support change in energy use and energy services by applying social research on technological change to practical use. CHANGING BEHAVIOUR is supported by the European Commission under its Seventh Framework Programme (Grant Agreement 213217). The project is coordinated by NCRC (Finland), and other members of the consortium include Energy research Centre of the Netherlands (ECN), Oeko Institute (Germany), SURF Centre (UK), Central European University (Hungary), Energy research Centre of the Netherlands (ECN), SEI-Tallinn (Estonia), Cowi Baltic (Lithuania), Enespa (Finland), Manchester Knowledge Capital (UK), Green Dependent Sustainable Solutions (Hungary), Ekodoma (Latvia), Verbraucherzentrale Nordrhein-Westafalen (Germany) and Centre for Renewable Energy Sources, CRES (Greece).

Work Package 3 is coordinated by the SURF Centre. The overall aim of Work Package 3 is to accelerate the exploitation of intermediaries in energy demand management through an enhanced understanding of context, actors and timing. WP3 addresses this aim by initiating intensified interaction and co-operation of the project with intermediary organisations.

The purpose of Deliverable 7 is the 'identification of intermediary practices across countries'. The identification of intermediary practices is important to pursue as it is 'energy intermediaries' that mediate between the priorities, purpose, targets and objectives of energy efficiency/conservation and demand-side management programmes and their 'implementation' in communities, organisations, buildings, households and so on. It is the practices of these energy intermediaries that contribute significantly to how it is that the relationship between programmes and their 'implementation' take place and the extent to which they are 'successful' or otherwise.

Energy Conservation in a European Context
The approach to promoting energy efficiency and conservation at the level of the European Union has been to encourage the development of an energy services market in Europe. Underpinning this is the view that market liberalisation has produced many good things but it has not led to 'significant competition in products and services which could have resulted in improved energy efficiency on the demand side' (Directive 2006/32/EC, para 9). In particular attempts have been made to address this through The Energy Efficiency and Energy Services Directive (Directive 2006/32/EC). The Directive aims to improve energy end-use efficiency in Member States through developing a framework and incentives to 'create the conditions' for a market for energy services. In doing this there is a series of expectations of Member States within the Directive. Not only is there an obligation for Member States to produce a national energy efficiency plan but also to work to a national indicative, but not legally binding, energy savings target of 9 per cent over the period of the Directive.

Critically, in terms of 'implementation', this is envisaged in the Directive as being through a series of financial instruments (e.g. energy efficient tariffs, funding mechanisms, metering), voluntary agreements and certificates. There are important roles envisaged here for the public sector - through exemplification - and energy distributors, retailers and utilities. This is addressed through the use of financial instruments for energy savings, such as third-party financing contracts and energy performance contracts; and also through procurement strategies that prioritise the purchase of energy-efficient equipment and low-energy products. The expectation is

that Member States should ensure that energy companies and utilities engage in the promotion of energy services, energy audits and funds and funding mechanisms for energy services.

Yet, when we talk of the creation of a market for energy services we need to recognise that the term 'market' has a polysemic quality (Sayer, 2000). There are numerous meanings of market and individuals frequently move between these different meanings in the course of the same conversation. The potential for variable understandings of how an energy services market might be constituted across Member States is significant. What is important to recognise is that a market 'includes not only commodity exchanges themselves and the associated transfer of money and property rights, but the practices and settings which enable such exchanges to be made in a regular and organised fashion. We might add that markets are also normally competitive to some degree' (Sayer, 2000, p.2). The key point here is to move the focus of markets away from a sole pre-occupation with exchange activity and to think about the institutional contexts and embedding of markets in terms of purchasing, production, distribution and so on, and the relationships, institutions, and technological artefacts which underpin this. The move is from seeing a market as merely an exchange to embedding such activities within different contexts (see Callon, 1998).

The Directive, in this respect poses significant challenges in that, at least implicitly, it envisages a new (additional) role for utilities or the creation of new organisational contexts in the development of new markets. Yet, we need to ask how that role should be conceived and how should we understand the types of organisation that are needed to 'sit between' these European-level priorities and attempts to create a market. The instruments that are conceived of in the Directive are 'aimed' at a variety of national and sub-national contexts. These instruments need to be interpreted and 'applied' within different national contexts. These national contexts may be very different in terms of their energy production and consumption patterns, their policy priorities and their institutional frameworks to 'deliver' energy savings. Within national 'fields' of energy conservation there are many organisations and actors who will, can or should be involved in doing this. It is with these energy 'intermediaries' that this report is concerned

Intermediary Work

A wide range of energy intermediaries work between different supranational, national, regional, local and community programmes and their 'implementation' in relation to different business, household, organisation, consumer and public interests. Yet, understanding energy intermediaries, and their work between particular programmes and specific 'recipients' of these programmes, also needs to acknowledge that the organisational contexts of these intermediaries may also differ. Such intermediaries operate within the opportunities and constraints afforded by the 'landscape' pressures, policy priorities and institutional frameworks within which they are located. Acknowledging the variable and multiple motivations embodied in energy efficiency programmes, the variety of actors and interests they seek to engage, the different organisational forms that have been constituted for such a purpose, and the possibilities and constraints afforded by wider political, policy and institutional contexts means that intermediary practices are potentially manifold and also display significant contextual conditioning.

Aims

There are, in short, many different 'types' of energy intermediary – many of which would not characterise themselves as intermediaries and some of which do not primarily work with a focus on energy issues - operating in different settings and conditions. It is the aim of this report to conceptualise the different roles and the strategic capabilities needed by energy intermediaries. In doing this it:

- Classifies different kinds of energy intermediaries
- Analyses the different roles of energy intermediaries in different conditions and settings
- Iț identifies the strategic capabilities needed by energy intermediaries

Research Design

To do this the report is informed by a research design that draws on multiple methods, that includes:

1. A conceptual development of the role of energy intermediaries through a review undertaken by SURF to situate energy intermediaries.

2. To understand current energy intermediary practice across the EU, SURF designed an Intermediary Case Study proforma (see Annex 1).

    - The proforma was designed to inform a common approach to undertaking case study research by all project partners with energy intermediaries across the EU. Original research produced 25 case studies of energy intermediary practices undertaken by 12 project partners (SURF, NCRC, ECN, OEKO, CEU, SEI-T, Cowi Baltic, Enespa, M:KC, Green Dependent, Ekodoma, VZ NRW).

    - Analysis of these 25 cases by SURF addressed the issues of who intermediaries are, how they are funded, how and why they are organised the way they are and their purpose in functioning. In short, it sought to understand their strategic capacity and capability. More generally the analysis looked at how energy intermediaries operate, the problems that confront them and what they need to do differently.

3. The report recognises that energy intermediaries work within wider sets of national 'landscape', policy and institutional constraints and possibilities. To address this, SURF designed a framework (see Annex 2) through which a review of these possibilities and constraints was undertaken in relation to Finland (by NCRC), Germany (OEKO), Hungary (CEU), The Netherlands (ECN) and the United Kingdom (SURF).

4. Additionally SURF undertook comparative analysis of these national constraints and possibilities to situate the context-specific and more 'transferable' aspects of intermediary practice. In doing this, dialogue between the research findings of Work Package 2 and over 150 practitioners from countries across Europe at four workshops was utilised to assess common and distinctive aspects of intermediary practice[1].

[1] See http://www.energychange.info/workshops for further details of the organization, programmes and reports of the four workshops.

5. Fundamentally, through building on its emerging findings, the report proposes a new conceptualisations of energy intermediaries and details key recommendations for policymakers, practitioners and researchers.

Structure of the Report

The report, following this Introduction, is in four further sections.

Section Two - Situating Energy Intermediaries – locates energy intermediaries within our wider argument which says that effectively understanding energy intermediaries needs to take seriously their current and potential role in reconfiguring energy systems. This is particularly so in the context of a series of contemporary pressures and priorities on these systems which create the conditions within which intermediary responses are constituted. The section finishes by proposing a conceptual understanding of these different energy intermediary responses.

Following this, Section Three - Transferable and Context-Specific Lessons of National Energy Demand-Side Programmes – draws upon a comparative understanding of different national contexts – addressing the landscape within which energy efficiency becomes an issue, the policy responses and institutional frameworks.

Section Four - Understanding Current Intermediary Practice in European Energy Demand Management Programmes – is an analysis of case studies that seek to 'get inside' of energy intermediary practice in Europe and to understand who intermediaries are and how they function. This it does through looking at the establishment and funding of energy intermediaries, the timeframes and purpose to which they work, how they function and with whom they build relationships. It also utilises workshop dialogue with over 150 energy practitioners across Europe to develop a comparative understanding of energy efficiency practice in relation to households, SMEs, municipalities and schools. It draws upon analysis of the views of intermediary practitioners about what the problematic issues are for intermediary practice and what, as a result, energy intermediaries need to do differently.

In Section Five we synthesise the critical issues that need to be taken seriously for effective intermediary practice into a framework to inform effective energy intermediary practice and outline a series of key recommendations for policymakers, practitioners and researchers in engaging and influencing more effectively energy intermediaries.

In doing so the report is informed by work with and examples from energy intermediaries from across Europe. The material contained within the report will be useful to policymakers in identifying and understanding the role of intermediaries, for intermediaries in understanding and adapting their own practices, and for researchers through developing understanding of the ways in which they can engage in a relevant and effective way in this area. This provides 'tools' for policymakers, practitioners and researchers to address the overall aim of D7 to accelerate the exploitation of intermediaries in energy demand management through an enhanced understanding of context, actors and timing.

2. Situating Energy Intermediaries

Reconfiguring Systems of Energy Production and Consumption - what role for intermediaries?

Contemporary energy systems are subject to interrelated pressures that undermine the very basis on which they are often constituted and which require the reconfiguration and re-organisation of these systems. The pressures facing energy systems can be viewed in respect of three interrelated issues: (1) in an era premised on attempts to promote economic growth in a context of economic globalisation, (2) to do so whilst established energy resources are ever more constrained, subject to securitisation and becoming increasingly politicised, and (3) also to address the challenges of reducing greenhouse gas emissions.

Pressures to reconfigure energy systems are becoming manifest at a point in history when the governance of these energy systems is increasingly polycentric, at multiple levels or scale of governance and control is dispersed and distributed. It is within this context that 'new' forms of governance are emerging, being designed and experimented with to intervene in and seeking to reconfigure energy systems. An increasingly central part of these new forms of governance are energy intermediary organisations which are set-up to intervene in a variety of ways in existing systems of producing and consuming energy (see Hodson and Marvin, 2009; 2008; May, 2008).

There are a number of ways in which the term 'intermediary' has been used, both within and across academic disciplines with a variability in terms of conceptual precision (see for example, Bourdieu, 1984 on 'cultural intermediaries'; van Lente et al, 2003 on 'systemic intermediaries'; Iles and Yolles 2002 on 'technology translators'; Piore, 2001 on 'social intermediaries'; and the work of Callon, 1986; Latour, 2005 and others on intermediaries in relation to actor-network theory). Numerous understandings of the role of intermediaries are articulated.

A basic definition (see Medd and Marvin, 2007) defines an intermediary as 'action between two parties - mediatory' or 'situated or occurring between two things - intermediate'. The latter form refers more to a position within a process or level of achievement. The former, by contrast, refers to an intermediary as an agent in some form, as 'one who acts between others - a do-between or mediator', or as 'something acting between things persons or things'. As actors then, what intermediaries do is mediate, they work in-between, make connections, enable a relationship between different persons or things. Indeed in common parlance the meaning implied by the concept intermediary tends to refer to a neutral player trying to mediate between different sets of interests. The assumption of neutrality is however, problematic. Rather than focus on everything as an intermediary, the interesting question is to ask in what ways, where, when and how particular things, people, organisations etc. become defined as 'intermediaries'. Further still, there is the question of the active role that intermediaries play in defining the relationship between other actors. In other words, intermediaries are not simply arbitrators; they play a role in ordering and defining relationships (see Medd and Marvin, 2007).

Different modes of intermediation can be seen looking across the literatures. In some cases intermediation is bilateral, taking place between two sets of defined actors. By contrast, it is often the case that intermediaries operate through multi-lateral sets of relationships, acting as network facilitators that bridge and facilitate multiple actors (van Lente et al, 2003). This distinction can be characterised as one between project-based and systemic intermediaries.

Project intermediaries seek to stimulate greater energy savings, accelerate the application of new technologies, advance the cost-efficiency and customer-orientation of energy services and generate new jobs in energy management. The liberalisation of energy markets across Europe is radically rearranging the relationship between the energy utility and the consumer. Cutting across traditional functional divisions between the generation, transmission, distribution and consumption of energy, new organisations are emerging in the production-consumption nexus to provide new services in the openings created by liberalised markets and in response to new energy policies. Examples of these 'intermediaries' range from consultants offering 'shared savings' energy conservation, facility managers operating heating/power appliances for industrial users and managers of grid and distribution networks, to energy trading associations of end-users and consumer associations informing private households on ways of cutting bills by using less energy. Intermediaries aim to reshape the intensity, timing and level of energy use. The challenge to energy researchers, policymakers and practitioners is to better understand how these intermediaries operate by creating new social and institutional contexts of energy management (For a review of water intermediaries see Medd and Marvin, 2007)

Systemic intermediaries manage transitions in energy systems in particular places (see Hodson and Marvin, 2008, Hodson et al, 2007), and actively seek to re-shape energy infrastructures. The possibilities for actively developing capacity to act in different contexts are constituted on the capability of intermediaries to build this capacity through multi-level networks of 'relevant' social interests including political support, economic leverage, technology suppliers, etc. and 'appropriate' resources such as forms of local knowledge, local political support, corporate investment, national political and financial support, etc.

Relating this more general set of issues to energy intermediaries means that although energy intermediaries bear the same generic title they encompass a wide variety of different organisational priorities and motivations, funding streams and organisational capabilities. These are predicated on the pursuit of different political priorities aligned with intervening in energy systems. When these differences in political priorities are set within a European multi-level governance context there is the likelihood that different intermediary organisations fulfil different roles in intervening and seeking to, in one way or another, reconfigure energy systems.

Here, for those reasons, we are motivated to address one question in particular: How do we understand the role(s) of energy intermediaries in reconfiguring production-consumption relationships? In answering this question there is also a need to ask three further questions: (1) Who are these intermediary organisations? (2) How do they function and for what purpose? (3) What implications are there for them in their attempts to reconfigure production-consumption relationships? As a prelude to this we need to understand what is the nature of the contemporary pressures to reconfigure energy systems?

Pressures to Reconfigure Energy Systems

The notion of pressures we understand as a complex and related set of issues including:

- Challenges of climate change and greenhouse gas emissions reduction
- Energy resources, resource scarcity and security
- Maintaining economic growth and 'competitiveness'
- Ageing infrastructures and energy systems of provision
- Multi-level governance

A series of 'new' and emerging socio-economic and political problems posed by, for example, climate change and questions around security are pushing issues of energy up the agenda of governments. The critical issue for national governments is the ability to ensure that they have secure and continued access to the resources needed to ensure their economic and social reproduction. Questions about the security of energy resources have become internalised and intertwined with national states' priorities and responsibilities for social welfare and economic competitiveness. To push this further would be to start to ask what a national state look would like with ecological protection as one of its foremost regulatory functions. (Meadowcroft, 2005; Barry and Eckersley, 2005). This provides the wider context within which we need to understand the contemporary landscape pressures facing energy intermediaries (Hodson and Marvin, 2009). These can be understood in respect of six interrelated issues:

1. Economic growth, technical innovation and employment

There are a new set of emerging pressures around the economic, innovation and employment dimensions of energy intermediary activities that have been accelerated by the global economic crisis. Traditionally there has been interest in the innovation and employment implications of energy efficiency and conservation activities when compared with supply side investments. Rising unemployment, the search for new growth sectors and the focus on innovation and low carbon technologies is likely to accelerate attention on the role of energy intermediaries as conduits for the piloting and deployment of new technologies, the development of particular local and national specialisms that may have wider applications and a potential source of jobs growth through neo-Keynesian stimulus packages. An era premised on attempts to maintain economic growth in a context of economic globalisation and economic crisis means that energy intermediaries may come into focus as potential routes for stimulus responses.

2. Energy security

Intensifying competitive pressures against a background of crisis is occurring whilst established energy, water, waste and food resources that underpin economic growth are increasingly constrained, may be 'peaking' in the longer term, are the basis of wider geo-political struggle and subject to securitization (see Pirages and Cousins, 2005). Against this background energy intermediaries can be viewed as providing a capacity to more effectively manage and reshape energy demands in wider attempts to reduce vulnerabilities to external energy resources. So for instance the ability of national states and territories to improve the efficiency with which energy is used and also to reduce energy consumption could be seen as a key response in national states' abilities to create more resilient energy systems. In this context the capacity and capability of energy intermediaries can become of more strategic significance in developing responses to energy security and resource scarcity.

3. Climate change and Carbon regulation

Energy intermediaries may also be subject to new pressures relating to climate change and carbon regulation (While, 2007). So for example statutory carbon reduction targets cascaded down from international agreements (Bulkeley and Betsill, 2003) and/or developed by national states place renewed emphasis on the abilities of intermediaries to accelerate energy efficiency and conservation activities as well as contributing to the development of low carbon transitions. Statutory and non-statutory carbon reduction targets at national level, cascaded down on to sub-national territorial units, will then place a premium on the ability of states and territories to better manage energy consumption and accelerate the development of low carbon energy transitions. This is likely to place energy intermediaries in a critical position with respect to the development of relevant knowledge, expertise, capacity and capability to affect managed transitions in order to meet targets and enable continued economic growth.

4. Territorial development and growth

The majority of the world's population, for the first time in human history, now lives in cities. This is a trend that is predicted to increase to over 60 per cent by 2030 (UN, 2006). Changing patterns of spatial development are likely to place intermediaries under new pressures in quite different territorial contexts. For example high levels of demand growth in large cities are likely to require new capacities and capabilities to develop retrofitting activities in existing infrastructure and built environments as well to develop more resource-efficient new developments that aspire to carbon neutrality or low carbon provision. Against a background of carbon regulation and resource security concerns the role of energy intermediaries is likely to become more critical to places' ability to continue to achieve wider territorial and spatial development priorities.

5. Privatisation and liberalisation

Privatisation, reregulation and the liberalisation of many infrastructures and the opening up to competition of infrastructure provision mean that a wide range of distributed stakeholders and social interests are now involved in the functioning of infrastructures. This places pressures on the development of energy intermediaries – in particular the pressures to accelerate and maintain liberalised systems of provision against background pressures that require greater levels of coordination and steerage to accelerate energy savings and low carbon transitions. Within this wider context there may be new pressures to develop more liberalised and market-based systems of intermediation. While there may be the development of particular market niches for competitive provision in many sectors and places non-market or public/private partnership models are likely to be required. Consequently the wider institutional context for energy intermediaries is likely to be messy, complex and unstable despite calls for accelerating their activities and roles in system change.

6. Governance, coordination and control

The functioning of infrastructures is often seen from very many different viewpoints and positions (including utilities, local authorities, regulators, consumers, citizens, businesses etc) in respect of different issues (economic growth, climate change, resource consumption) at different levels (supranational political institutions, national government, regions, local authorities, business, households and so on). The challenge for effective intermediation is thus predicated on multiple factors, multiple actors and multiple levels that require effective coordination to inform control of infrastructure systems. These pressures are likely to intensify.

Energy intermediaries are likely to come under increasing pressures to support national states in the active reconfiguration of energy systems in response to a series of landscape pressures that have technological, ecological and institutional dimensions. Critically there are likely to be intensified requirements for the development of effective capacity and capability to develop managed and purposive transitions in the social and technical organisation of energy systems in response to these landscape pressures. However demands for more coordination and integration will continue to take place against a background of continued fragmentation and splintering in the institutional organisation of energy and governance systems. Of course how these pressures touch down in different national and local contexts will vary significantly but the ability of intermediaries to develop effective and efficient practises may be critical aspects of place-based eco-competitive performance for national and local governments.

Contemporary pressures on energy systems are thus manifold and often seemingly paradoxical. It is helpful here to characterise these pressures in five ways. First, it is crucial to recognise that energy systems are not just technical systems but socio-technical systems, where social, political,

economic and institutional pressures influence the shape – and the re-shaping – of energy production and consumption. There have been numerous ways of understanding what we may call (although this may not necessarily be what those authors cited would call) socio-technical innovation (Geels, 2004; Freeman and Louca, 2002; Bijker et al, 1987; Fleck, 1999) which often move away from 'neat' processes to characterising innovation as 'an iterative, cumulative and co-operative phenomenon' (Deakins and Freel, 2003, p.168) drawing on a multiplicity of actors and institutions. Energy systems are complex configurations of not just technological artefacts but also social contexts, including governance arrangements, regulatory frameworks, institutions, practices, physical surroundings and so on.

Second, the ways in which energy systems are currently socio-technically configured in much of the developed world are facing general pressures from a complex and interrelated series of issues. These include the tensions, trade-offs and negotiations between addressing the challenges of climate change and greenhouse gas emissions reduction, attempts to secure the kinds of energy resources necessary to address these issues whilst also maintaining economic growth and competitiveness, and in many situations doing so from a position of ageing infrastructures and energy systems of provision. Additionally, and variably across Europe, increasing liberalisation and privatisation over recent decades have distributed the capacity, capability and therefore power and influence to effectively intervene in energy systems at a time when the nature of these pressures requires systemic responses.

Third, responses to these pressures are embodied in policy and targets at multiple levels of governance, including the European Union, national governments and sub-national scales including regional, city-regional, community and neighbourhood tiers of governance (see Table 1 for the example of energy efficiency).

Table 1: Examples, from the UK, of policies and targets on energy efficiency at different scales of action

Governance scale	Policy/plan	Target/claim
EU	Doing More with Less: Green Paper on Energy Efficiency	EU could save at least 20% of its present energy consumption in a cost-effective manner.
National	UK Energy Efficiency Action Plan 2007	Following the Energy End-Use Efficiency and Energy Services Directive, adopted in May 2006, aims to achieve an overall national indicative energy savings target of 9% over the period 2008 to the end of 2016.
Regional	Rising to the Challenge: A Climate Change Action Plan for England's Northwest 2007-09	Broad vision that by 2020: '…increased awareness and understanding of the cost & benefits of energy efficiency and sustainable consumption lifestyles. Domestic buildings are appropriately heated & insulated and fuel poverty has been eliminated. The uptake of resource efficient goods and services is encouraged through incentives. All public sector organisations have, and are acting upon, carbon reduction management plans. All public buildings have appropriate insulation and efficient heating systems. Publicly funded developments set new standards in energy efficient design, construction and use. All high energy business users have, and are acting upon, carbon reduction management plans…'.
City-regional	Action Today to Protect Tomorrow: The Mayor's Climate Change Action Plan	Package of energy efficiency measures to contribute to 60% Co2 reduction target by 2025
Community	Transition Town Totnes http://totnes.transitionnetwork.org/	'To explore and then follow pathways of practical actions that will reduce [the community's] carbon emissions and dependence on fossil fuels. To build the town's resilience, that is, its ability to withstand shocks from the outside, through being more self reliant in areas such as food, energy, health care, jobs and economics'.

Fourth, this highlights that these general pressures are interpreted variably at different scales of governance and by different social interests, which should not be surprising given the range of motivations of different governance actors. Spatially, different priorities view the 'energy system' in different ways. It also raises the difficulty of purposively shaping change in energy systems given the difficulties in answering: where's the system? Who is to re-configure it? On what basis?

Fifth, it is within this context that different governance priorities are 'translated' into energy programmes and projects. What are frequently referred to as demand-side management programmes – not withstanding that the relationship between production and consumption is a relational one rather than one of simple 'supply' and 'demand' – encompass priorities for intervening in energy systems. These programmes and projects are often initiated at different levels (EU, national, regional, city-regional, community) and can be targeted at different levels of 'application'.

Developing Intermediary Responses to these Pressures

The responses to these pressures and the interventions to reconfigure or re-shape energy systems that follow from this are increasingly being formulated by energy intermediary organisations. Energy intermediaries seek to in one way or another reconfigure energy systems, through, for example, building energy efficiency; promoting low energy buildings, via replacement product programmes (e.g. energy efficient appliances), by raising public awareness, and through achieving the visibility of alternative ways of producing and consuming energy through, for example, pilot projects.

By energy intermediary organisations we are encompassing a wide variety of organisations (see Annex 4 for a sample of 25 different European energy intermediaries) that includes government or semi-government energy agencies working at different scales of governance, Non Governmental Organisations, agencies sponsored by utilities, ESCOs and so on who perform functions such as the provision of energy advice and advice centres; consultancy activities; energy audits; project initiation, management, finance and coordination; demonstrations; technology procurement; installation; promotion; advocacy; lobbying, dissemination and awareness raising; organising campaigns; education; training and courses; and network-building. In doing this different intermediary organisations function over timescales that can vary from a short-term project or initiative (e.g. six months) to something that is much more long-term and programmatic (e.g. 10 years and upwards).

Though these organisations are frequently different in many respects, including the specificities of their function, they can be characterised in terms of three aspects of their mediating function.

1. Energy intermediaries mediate between production and consumption rather than focusing solely on production or consumption issues.

2. Energy intermediaries also mediate the different priorities (of different funders, 'stakeholders'), across different levels (between householders and municipalities or between regional government and SMEs).

3. They also mediate not only between different priorities but also between the embodiment of these priorities in plans or policies and their 'application'.

In doing this energy intermediaries form a locus for action on energy-related issues and a way of organising responses to policy priorities that encompasses different social interests, with associated forms of financial, human and cultural resources, in relation to time, place and space.

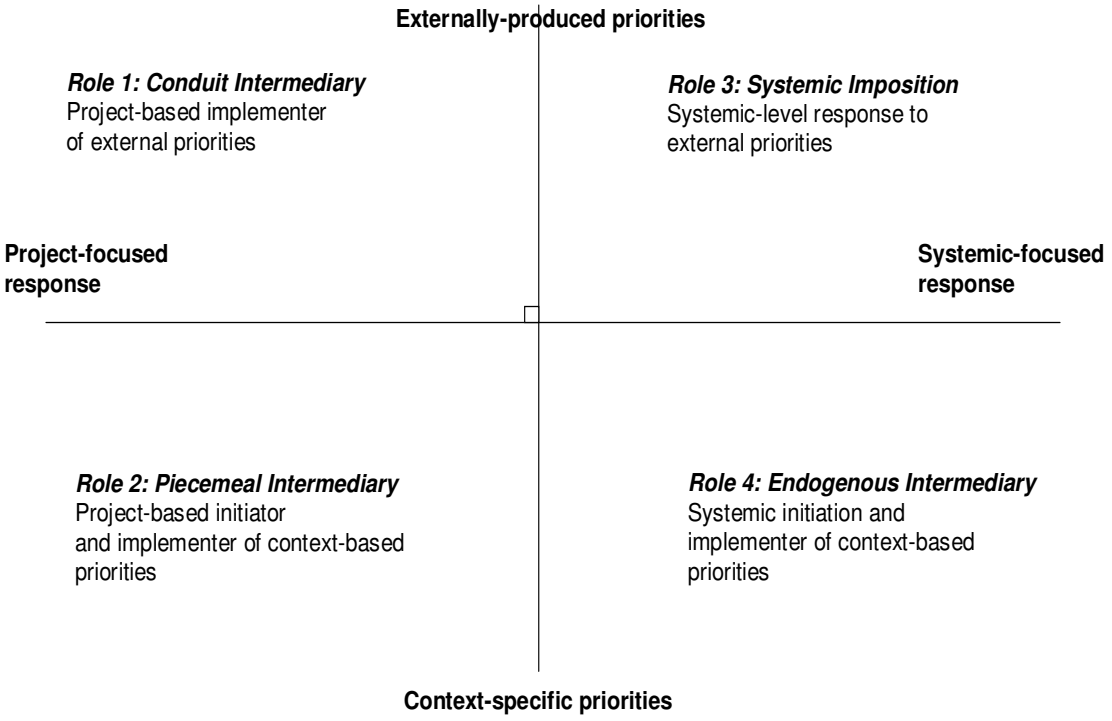
Conceptualising Energy Intermediaries

It is important to articulate conceptually what it is that we can understand about the mediating roles that energy intermediaries play in intervening in energy systems. It is particularly so in respect of the ways in which energy intermediaries' work at mediating different priorities and mediating between these priorities and their 'application'. In short, whose interests and priorities

shape intervention in energy systems and how? The issue we are concerned with in this report is the role of energy intermediaries in reconfiguring both energy systems and project-based or one-off interventions.

Conceptually, as a heuristic, it is useful to think of whether intermediary responses to the general pressures on energy systems take a systemic focus or whether, at the opposite end of the continuum they are more narrowly conceived, specifically as project-based responses (see Figure 1).

Figure 1: Conceptualising 4 Roles for Energy Intermediaries



Source: Following from Hodson and Marvin (2007).

Furthermore, whether intermediary responses are systemically or project-focused, it is crucial to understand whose priorities it is that shapes these responses. Is it social interests from 'outside' of a context whose priorities are being mediated (e.g. national policy priorities mediated to householders; EU priorities being mediated to SME owner-managers) or are the priorities proximate to the context where they are to be applied (for example the priorities of an elected political official at a municipal level who seeks to apply these priorities across the municipality)? (see Figure 1).

In thinking through these issues we have developed a four-fold typology of the ways in which energy intermediaries mediate between priorities, responses and scales of governance which can be characterised as follows:

Conduit Intermediary
Conduit intermediaries mediate externally-produced priorities, where priorities and responses are conceived and implemented at different scales. This frequently results in the 'cascading' of, for example, national or EU priorities downwards to regions, cities, communities, business and householders. These are then embodied in implementation as projects. This could take the form of EU funded initiatives, translated into national projects that address buildings as contributors to CO2 projects. In doing so this may be in support of both European and national energy policy priorities often especially through energy efficiency and renewables projects in relation to buildings and new employment creation at a local or organisational level. An example of the conduit intermediary is:

- The Baltic Energy Efficiency Network (BEEN) – which occurred within the framework of the European Union programme INTERREG IIIB and the aim was to reconstruct an exemplary apartment building using innovative schemes for energy efficiency. This was developed during the BEEN project in Estonia and was implemented by six Estonian partners which participated in the project. The duration of the project was two and a half years, from July 2005 until December 2007.

Piecemeal Intermediary
Piecemeal intermediaries mediate between context-specific priorities – between, for example, coalitions of local interests – and then embody these in application through a project or projects. Within this characterisation, priorities and responses are conceived and implemented at the same or similar scales, which are often at community, local and city-regional levels. These can take the example of a project, or a small number of disconnected or loosely connected projects, to assist municipal-level policy and priorities. This may be, for example, through local priorities on CO2 savings, particularly through addressing energy efficient buildings, including the municipalities' own as exemplars, CO2 savings and energy costs for consumers. This piecemeal, project function at a local and city-regional scale can also be seen in the example of intermediaries advocating the interests of consumers and householders within a locality to local decision-makers.

- Manchester is my Planet (MiMP) – was established in 2004 when an informal grouping of regional and local sustainable development and knowledge economy specialists identified the need for a 'revolutionary approach' to tackling climate change in Greater Manchester. MiMP was established in 2005 and was always conceived as a short term programme of three years duration, hosted by Manchester: Knowledge Capital.

Systemic Imposition
An energy intermediary can be characterised as engaged in systemic imposition when it mediates externally-produced priorities to re-shape energy systems 'onto' specific systemic contexts. This could take the form of EU or national priorities around climate change, energy security and economic competitiveness expecting a systemic level response at a sub-national level (e.g. a community, a locality or a city-region). This could include national priorities on energy efficiency or renewable energy encouraging responses at sub-national levels that are not project-based and episodic but long-term and systemic in their orientation to reconfigure sub-national systems. This is about programmatic sub-national responses in support of national or EU policy priorities, often especially energy efficiency and renewables in relation to buildings, renewables, new employment creation.

- UK Energy Savings Trust Advice Centre network - the UK-wide network of Energy Savings Trust Advice Centre (ESTACs) was initiated on behalf of national government by the Energy Savings Trust (EST), a non-profit organisation set-up in 1993. All ESTACs are managed nationally by the EST but operated 'locally' – where locally can mean a number of local authorities working in partnership.

Endogenous Intermediary
Endogenous intermediaries mediate priorities at the level of a particular context (a neighbourhood, a municipality, a city-region) and mediate the embodiment of these priorities in a long-term reconfiguration of the energy system. Endogenous intermediaries may 'hold together', for example, city-regional priorities on what is needed in responding to climate change at that scale and how that can be programmatically achieved. This would include priorities for climate protection at a city-regional level with long-term, systematic and interrelated programmes for CO2 reduction through for example retrofitting public buildings, decentralised energy schemes, energy advice, demonstration projects.

- The London Climate Change Agency (LCCA) - LCCA was set up to help reduce carbon dioxide emissions from London and to play a key role in the delivery of the London Climate Change Action Plan and its targets for reducing London's CO2 emissions by 60 per cent relative to 1990 levels by 2025. It is a commercial company wholly owned, controlled by and housed in the London Development Agency, the regional development agency for London.

This conceptualisation is helpful in orientating thinking as to whose priorities are being pursued by energy intermediaries and how this is translated into programmes or projects. Yet, what is known about the practices of energy intermediary in relation to different contexts is limited and necessitates an improved appreciation through empirical work.

3. Transferable and Context-specific Lessons for Energy Demand-Side Programmes

Introduction

In this section we examine different 'landscape' conditions, policy contexts and institutional frameworks for energy efficiency in Finland, Germany, Hungary, the Netherlands and the UK (see Annex 5 for a fuller overview). What we seek to do in this section is to comparatively assess these different national landscape, policy and institutional contexts and to assess what the similarities are between them and what about them is distinctive. We do this to improve understanding of the ways in which these national contexts may enable and constrain energy intermediary practices. We look comparatively at three issues: landscape pressures, policy priorities and institutional frameworks.

Common and Particular Pressures

Energy intermediaries across the five countries work in national contexts that encounter many similar pressures. In particular we identify six pressures where there is a significant degree of commonality across the different countries:

1. *The need to comply with EU priorities*

There are pressures on all countries to improve energy efficiency from the European level. This is particularly the case through the 2006 EU Directive on energy services and energy end-use efficiency, the associated requirement for a national action plan and its promotion of energy efficiency mechanisms such as financing and informative instruments, public procurement requirements and voluntary agreements (Directive 2006/32/EC; Boute and De Geeter, 2006). Though this impacts on all EU countries it does so differentially (for example, through the ways in which national plans and targets are constituted).

2. *Energy efficiency is a rising political priority from a low starting point*

Energy efficiency has historically been a low political priority but is an increasingly emerging political priority across the countries where there are emerging signs of political consensus. Within this wider context, there are relative differences however between countries, where for some energy efficiency practices appear to be more culturally embedded - for example, there has been significant penetration of efficient rated products in Germany and the Netherlands.

3. *The critical challenge is balancing economic growth, responses to climate change and energy security*

Each country is faced with addressing combinations of pressures for continued economic growth, responding to climate change and emissions reduction and energy security. Though these are key priorities in each country the emphasis is differential. Energy security, for example, is not a particularly significant pressure in Finland with its diversified energy base.

4. *Differential liberalisation of energy markets*

A shift towards the liberalisation of energy markets has predominated over the last 10 to 20 years. This, though, has been differential in its extent with some countries pursuing such strategies aggressively (e.g. UK) and others less so (e.g. Germany).

5. *Different national modes of governance*

Relationships between levels of governance in respect of energy efficiency are variable across different countries. German electricity supply, for example, is comparatively decentralised and lends itself to energy efficiency measures at a local level, whilst in Finland work is underway to develop a national architecture for energy advice, partly as an acknowledgement that governance of the energy efficiency field is patchy and project based on the local level. Likewise, in the UK governance of energy efficiency activities is splintered amongst a wide range of actors within a wider context of highly centralised decision-making.

In addition to generic pressures national contexts can also exhibit very particular characteristics. We detail key aspects of these characteristics here.

Characterising Finland in relation to energy sees it as a disproportionately high per capita consumer, largely due to its particular industrial base, from a diversified energy production base meaning energy security is not particularly a critical issue, where the dominance of the industrial base means that the role of smaller users has suffered a relative lack of visibility, yet where municipalities, with their relative proximity to users, have significant degrees of autonomy to act within the Finnish political system.

One aspect of the particular political geography of the Netherlands is that it is an important transit and trade hub for natural gas, oil and electricity in Europe. Any understanding of energy issues in the Netherlands needs to be viewed through this lens. Additionally, the Netherlands still has significant amounts of natural gas and a relatively large oil refinery industry. Not only is political geography an issue but so also is political history and culture where policy programmes are underpinned by the Dutch Polder Model which is based on consensus decision making where complex co-ordination and co-operation between different interests is required. A further issue of importance is that the Netherlands with its high population density has implications for buildings renovation due to a lack of space to build new dwellings.

Further characteristics specific to each country include that the comparatively decentralised electricity supply system in Germany lends itself to localised energy efficiency interventions. Yet, within a German national context the replacement of existing stocks by efficient substitutions lacks policy effectiveness. The Hungarian population displays growing consumption levels while at the same time it is generally characterised by a low environmental awareness as compared to other EU countries. The UK energy sector has undergone significant liberalisation and privatisation in recent decades. This splintering of provision and the emergences of a wide range of social interests meets with the paradox of a highly centralised culture of political decision-making and attempt to address this through constitutional experimentation.

Policy Priorities

Policy priorities are manifold in relation to energy efficiency across Europe. Here we highlight five aspects of that: general policy priorities; priorities for households; industry and the public sector; and for transport.

General Policy Priorities

In each country policy priorities sit within managing a wider set of priorities in relation to energy security, meeting environmental commitments and responding to climate change and ensuring economic growth. This relates to long-term priorities in each country that includes increasing the share of renewable energy, significantly increasing the efficiency of the energy system and a downturn of CO2 emissions. These are in line with the commitments of individual countries in relation to European and international commitments and, of course, targets and actions in relation

to these issues differ by country. In relation to energy efficiency specifically, targets entail improving energy efficiency across each country, laid out in national action plans, particularly in respect of housing/households, business and the public sector and transport. The policy frame for energy efficiency across countries encompasses a wide range of different measures and taxes, regulations, programmes and instruments.

Priorities for Households

More specifically, in Finland, there are agreements and economic incentives for all other sectors, but there are few incentives for private homeowners. There has been intensified attention recently to improving energy efficiency in buildings particularly through more stringent building regulations and a wide recognition of the need for a more programmatic and ambitious set of measures to promote renovation. Yet, public funding still remains low and funding mechanisms – aside from grants, a particular loan instrument and incentives - are not yet widely used for energy efficiency.

In Germany where the building sector is responsible for significant – 40 per cent of the country's - GHG emissions, renovation of existing building stock is increasingly an issue. Climate protection is the critical energy and environmental policy imperative that informs enhancing minimum efficiency standards and which underpins a nationally funded education and information campaign for climate protection –encompassing different measures and target groups that has been in place since 2004.

In Hungary numerous financial funds and programmes provide loans for energy efficiency and renewables projects to address targets - particularly over the period to 2013. In respect of the residential sector, support is provided through the 'For a successful Hungary' programme which provides financial aid for the retrofit of residential buildings and the use of renewable sources of energy.

The Dutch 'Meer met Minder' (More with Less) national programme aims at reducing the energy use of 2.4 million houses and other buildings by 30 per cent by 2020. This it will do practically through a combination of voluntary agreements - between the government and key players in the Dutch housing, energy and construction sector – through improving minimum standards for new buildings, which since 1995 have been strengthened several times and through energy labelling appliances which was introduced in 1996.

In respect of households and energy efficiency and the UK the approach is a combination of regulations, codes, certificates; advice, labelling and awareness raising; and metering. In particular, through revisions in building regulations and measures the aim is that a home built in 2007 would be at least 40 per cent more efficient than one built in 2002. Furthermore, all new homes in England should be zero carbon by 2016, primarily though regulations, codes and certificates. Advice, labelling and awareness raising are important considerations raised in the Action Plan in relation to households. In respect of metering, the government has aspirations over the coming decade to get 'smart meters' into households.

Priorities for Business, Industry and the Public Sector

In the Finnish context there is an historic and contemporary dominance of a set of voluntary agreements on energy conservation with various sectors including industry, services, real estate and the public sector, in which the signatories receive support for audits and investments. In Germany, in addition to households the public sector is also the focus of a nationally funded education and information campaign for climate protection. To take one example, this is done through the energy management of schools and aspects of energy behaviour of school children.

National government in Germany has also established a 'Special Fund for Energy Efficiency in SMEs'. In Hungary there are numerous financial funds and programmes that provide loans for energy efficiency and renewables projects to address targets - particularly over the period to 2013 – for public institutions, local governments, SMEs, district heating companies, churches, and civil organisations. In the Netherlands, long-term agreements (LTA) and Benchmarking Covenants have been undertaken since 1992 with energy intensive industries whilst the Energy Investment Allowance is a tax deduction to encourage companies to invest in energy-efficient equipment and renewable energy sources. The UK government is mobilising a number of measures and instruments to address energy efficiency in private and public sectors. This includes market-based – trading and levy – approaches. In addition to trading and cap and trade schemes the UK has made 'advanced metering' mandatory for large energy users and government will consult on whether energy suppliers should provide all but the smallest non-household users with advanced metering services within the next five years. Furthermore, Government has developed a series of grants, loans and tax allowances to contribute to the improvement of the energy efficiency of businesses and has set targets for reducing emissions on its own estate by 30 per cent by 2020.

National Institutions Configurations

In the national contexts the institutional landscapes differ in many respects – e.g. in terms of relationships between national and sub-national agencies; levels of funding; relationships with other intermediary agencies etc – but there are also similarities. There are different configurations of intermediaries, which need better understanding of in terms of the sum that the parts add up to. There are differing architectures and the 'translation' of energy efficiency priorities into practice is envisaged to take place in a variety of ways involving multiple actors, factors, levels and organisation. Many intermediaries, across these different national contexts, are often deliverers of national priorities – national energy policy priorities often cut across different ministries. In translating these priorities national intermediaries are responsible for different aspects of energy efficiency.

In Finland there is a single critical intermediary (Motiva) which is the key implementer of energy efficiency policy in Finland. On the local level, the energy efficiency architecture is currently largely project-based, piecemeal and under-funded but this is under review and subject to change. The field consists of national, regional and private intermediaries as well as NGOs. There is a loose network of regional energy agencies, with different operating areas and funding sources, mainly reliant on project-based funding, having initially been set up by EU project funding. In addition to these intermediaries, Sitra, the Finnish Innovation Fund, has recently launched an Energy Programme which aims to contribute to improving the energy-efficiency of the built environment, citizens and business. There are emerging efforts amongst some municipalities and larger cities to develop a systematic agenda on energy efficiency also beyond their own building stock.

In Germany a variety of energy efficiency activities, campaigns, programmes and other instruments are implemented in relation to schools, business, households, public estates often through intermediaries and networks of intermediaries at different scales and with different responsibility (the national, the sub-national and the local - respectively the regional – context). Within this wider framework, several federal, state, regional and local agencies have emerged and have been central to making energy efficiency in the household and business sectors a core topic. Additionally, there is an important role for consumers' protection agencies, operating at a state level within a national framework. Many of these agencies have emerged in recent years but some agencies have a long history. These can be characterised as public, public-private and regional and local intermediaries. There is also a key critical intermediary, the German Energy Agency (dena), which is a public intermediary established by national government in 2000 and is central

to the delivery of 'national efficiency'. Public-private energy agencies at state level work in 'partnership', where the emphasis is more specifically related to the development, demonstration and commercialisation of new energy technologies, offering advice to SMEs and supporting new business and housing developments. At the regional and local levels agencies and authorities also play a central role in the 'delivery' of national energy efficiency priorities.

In Hungary national policy priorities are supported by several major institutions, often organized and funded at the level of the national state. In particular The Ministry of Environment and Water and its Climate Change and Energy Department has an overall responsibility for climate change issues. The Hungarian Energy Office (Magyar Energia Hivatal) is the primary institution which deals with energy issues. A second critical intermediary institution working on energy issues in Hungary is the Energy Center (Energia Kozpont) – the state owned national energy agency that supervises energy efficiency and renewable energy programmes in Hungary. These institutions have recently experienced considerable personnel cuts and restructuring due to a high budget deficit. In addition to these national level intermediaries numerous NGOs work on energy efficiency, renewables and climate change issues.

In the Netherlands energy policy has a primary ministry but it cuts across multiple ministries. The ministries use different instruments to achieve the targets set out in the different policies and do so through a variety of public and public/private intermediaries. There is a critical and dominant public intermediary as an agent of government - SenterNovem (part of ministry of Economic Affairs). In addition cooperation 'platforms' for national ministries' local government, market actors, scientists, NGOs and others sees six Dutch ministries cooperate in the Energy Transition Platforms. Local authorities are primarily seen as 'implementers' of national government priorities on energy efficiency.

In the UK energy efficiency priorities are addressed using different instruments to achieve the targets that are differentially funded and prioritised and operate over varying timescales. Consequently the translation of UK Government priorities into practice are envisaged to take place in a variety of ways that includes public and public-private intermediaries, regional development agencies (RDAs) and local authorities. Public intermediaries delivering national energy efficiency priorities primarily include the Energy Saving Trust (EST) – primarily in respect of households and domestic users - and the Carbon Trust – primarily in relation to business and the public sector - as central to the 'delivery' of national energy efficiency priorities. Private intermediaries funded by public money to deliver national priorities work with local authorities and publicly funded Regional Development Agencies (RDAs) play a central role in the 'delivery' of national energy efficiency priorities with a strategic responsibility for economic and sustainable development. Additionally, local authorities with their statutory responsibilities in relation particularly to housing, transport, planning and their own estates and fleets are able to influence the 'delivery' of national energy efficiency priorities through their strategic priorities. 'Delivery' of priorities is often addressed in partnership with intermediaries such as EST. The exemplary role of London means that many national policies are pre-tested and formulated in relation to energy efficiency in London.

4. Understanding Current Intermediary Practice in European Energy Demand Management Programmes

Mediating Priorities and Responses – who are energy intermediaries and how do they function?

In this section of the report we reflect on 25 rich case studies, undertaken by partners in the Changing Behaviour project (see Annex 3), with European energy intermediaries to improve understanding of energy intermediaries, who they are and how they function. The case studies were produced through the use of an Intermediary Case Study Proforma that was designed to ensure standardisation in the way in which the different cases were researched. What follows in this section is a comparative analysis of these 25 cases that is structured under six headings:

- Establishing and funding energy intermediaries
- Energy intermediaries: timeframes and purpose
- Energy intermediaries, their functioning and participation
- Intermediary Practice
- Problematic issues frequently confronting energy intermediaries
- What should energy intermediaries do differently?

Establishing and funding energy intermediaries

The vast majority of the energy intermediaries we worked with were established within the last 20 years, although there were notable exceptions that had been established as long ago as 1972 and even 1958. The individuals and coalitions involved in the initial establishment of the energy intermediaries varied greatly (see Annex 4 for details). This included energy intermediaries that were established by entrepreneurial individuals, environmental NGOs, agencies working on behalf of national governments, partnerships of local groups working on consumer issues, as state-owned agencies, and particularly by partnerships of local authorities, regional agencies, local authorities and universities, and city authorities and municipal utilities. Where the energy intermediary had been established for a length of time there were views that these organisations adapted over time to incorporate 'energy efficiency issues' as a matter of either responding to a changing environmental agenda, the changing of consumption patterns and the need for a long-established organisation to recognise 'energy efficiency' as part of its corporate social responsibility.

The funding of energy intermediaries was frequently derived from multiple sources (public, private), at different scales (EU, national, regional, local, consumer) and through grant funding and revenue generation. Often this was across different scales – EU, national and local where sometimes this was through the local management of national initiatives or the local implementation of European programmes. Frequently funding though relied on a mixture of public and private sources of funding from multiple scales of governance, although the balance varied between different intermediaries and in respect of the variety of activities that intermediaries provided. Although many of the energy intermediaries were set up to provide free or inexpensive advice, other intermediaries charged through consultancy work and for

consultancy services and project management. Furthermore although funding often came from multiple sources a small number of the energy intermediaries were either state-owned, supported by a mixture of national and European funding, operated on project-specific funding or on the donations of private members or benefactors. Annual budgets for the different energy intermediaries generally, with exceptions, ranged from a few hundred thousand Euros to a few million Euros. Funding streams and regimes were not fixed and static but constantly unfolding and needed to be worked at to maintain funding bases.

Energy intermediaries: timeframes and purpose

Three issues characterised the timeframes over which the energy intermediaries were established to operate. First, they were frequently reliant on project funding and, where this was the case, when a project was due to finish or had already finished then this was linked to the end point of the intermediary. Second, by far the dominant view was that there was no foreseeable end point for many of the intermediary organisations. There was in many ways a tension between short-term funding streams and views of the intermediary that worked without a temporal orientation for the organisation rather than particular projects. Third, many of the energy intermediaries adapted constantly over time where they moved from a project-based view of the organisation to one where there was no foreseen end point for the organisation but where the aims of the intermediary changed over time. They adapted, for example, from undertaking planning functions or narrowly dedicated energy projects to seeing their role within the context of addressing climate change. In doing this, the issues energy intermediaries dealt with changed over time as did the roles of intermediaries and the types of networks they developed. In short, the intermediaries were ongoing or episodic, they were time limited or open-ended, but this changed over time.

The energy intermediaries were established to address a number of issues and perceived problems. In line with our conceptualisation of the priorities of energy intermediaries, intermediaries often functioned in support of different priorities. The variety of different priorities encapsulated by the 25 energy intermediaries we worked with can be summarised as energy intermediaries that functioned:

- In support of national energy policy priorities, often especially energy efficiency and renewables in relation to buildings, renewables, new employment creation.
- In addressing national priorities on CO2 reduction.
- To serve the interests of consumers through advocacy and lobbying of their interests to politicians.
- To assist city-regional level policy – particularly addressing energy efficient buildings, CO2 savings and energy costs for consumers.
- At a ‘general societal level’ to address climate protection, raising awareness about renewable energy and energy efficiency.
- In support of regional level priorities and local level projects, including retrofitting buildings and innovative energy concepts for new buildings.
- In support of regional and local energy efficiency, energy conservation and renewable energy services.

- As part of EU funded initiatives of national projects addressing buildings as contributors to CO2.

- As a national conservation body concerned with sustainable lifestyles, nature conservation and saving forests with an emerging agenda around climate change and sustainable use of renewables and energy efficiency – not initially or even primarily set up for energy efficiency.

- As regional agencies passing down responsibilities to municipalities in respect of energy efficiency, energy conservation and renewables.

- To address climate protection at city level and CO2 reduction through retrofitting public buildings.

- To implement the social responsibility and public service function of energy utilities by promoting energy efficiency and energy conservation.

- At a national level and in terms of a need for more energy efficient buildings and relevant information on this.

These different prioritisations highlight four issues in particular that are both narrowly and broadly conceived and change over time. First, these prioritisations are frequently initiated at different scales. Not only are they initiated at different scales but they may be implemented either at the same scale or at a number of different scales of action. Second, these priorities are produced from a variety of different positions and social interests at these different scales of governance. Third, the framing of priorities increasingly emphasises climate change and CO2 emissions reduction as the context for understanding these priorities rather than a more narrowly focused emphasis solely on energy efficiency, retrofitting buildings, energy conservation and so on. Fourth, this is part of a continual shifting of agendas where some intermediaries were not initially set up to deal with energy efficiency issues but have subsequently done so and where some intermediaries were established to deal with energy efficiency issues in a narrowly perceived sense but are now doing so within a wider context of contributing to climate change priorities at multiple scales of governance (EU, national, regional, city, local, developers, buildings, consumers).

Energy intermediaries, their functioning and participation

We illustrated above that energy intermediaries were established to address a range of issues and perceived problems. Our interest here is in examining how energy intermediaries address issues and problems, who gets involved, why and how.

In trying to achieve the priorities set out, the different intermediaries utilised various combinations of the following tasks, activities and services:

- Advice and information provision
- Energy audits
- Installation
- Finance
- Promotion
- Education
- Training and courses and stimulating companies/organisations

- Advocacy
- Lobbying
- Dissemination
- Project initiation, management and coordination between projects
- Technology procurement
- Exemplification through demonstration
- Network-building of 'relevant' social interests
- Funnelling and direction of enquiries
- Awareness raising
- Organising campaigns

In undertaking these activities the intermediaries were at the interface of sets of priorities and their 'translation' into practice. In doing this a variety of social interests became involved. This can be characterised as often being around a small core organisation – which could also be part of a larger organisation - and attempts to build capacity through collaborations and partnerships. Although there were a number of well staffed and large energy intermediaries, in most energy intermediaries full-time staff and employees frequently numbered less than 10. The energy intermediaries sought to build networks and relationships in numerous different ways: through developing funding streams, in setting their priorities and the tasks, through the different activities and services they provide and with the different target groups (e.g. community groups, schools, local authorities) to whom they sought to provide these activities. Often these coalitions looked very different in relation to various energy intermediaries and changed over time as the constant search for funding streams resulted in different priorities and activities altered. The framework here is one broadly of a small core capacity seeking to harness and develop relations with a range of providers, both public and private, to deliver services where some stakeholders were more involved than others (e.g. some social interests were involved in a number of initiatives and others in single projects).

Given limited capacity, networking and attempts to cooperate were seen as highly essential to being 'successful'. This was important both at a local level, where personal relationships were often seen to be important and at national (and sometimes European) level where limited capacities could potentially be addressed through national priorities and sources of funding.

As might be expected the networks that energy intermediaries assembled varied as to whether they were broadly or narrowly constituted and this was not unconnected to whose priorities underpinned the work of the intermediary. To take one example, where the central actor in setting-up an energy intermediary was a municipal authority the aim of the intermediary in meeting its goals was to engage all organisations with a concern with and stake in energy efficiency matters. The constitution of energy intermediary networks, of course, changes over time and as such there is an unfolding and changing membership of their networks. In this respect it is not only important to understand who becomes involved in energy intermediary networks but when they become involved. Timing is an important issue in that one clearly articulated view was that actors and social interests should become involved at the 'early stages' of both intermediary organisations and particular projects to harness not only their skills but also their enthusiasm at an 'upstream' stage. Of course, the issue is one also of who becomes involved given that energy efficiency is a wide ranging area, involving multiple areas of policy, decision-makers and wide range of groups. There are many different ways of framing energy efficiency issues, ranging along a continuum from very specific and narrowly to very broadly and within the context of a whole range of issues related to, for example, transitions to low carbon futures. In this way there

are potentially a wide range of social interests who can have an involvement in 'energy efficiency' activities.

The framing of 'energy efficiency' by energy intermediaries thus may be informed by funding and priorities, the networks that are built around the intermediary and can be changeable over time. Furthermore, underpinning this is the core staff of the energy intermediary where the collective knowledge, dispositions and capabilities to act is fundamental to any framing. It is capacity and capability issues that are also fundamental to whether the energy intermediary is piecemeal and episodic in its orientation or whether it has an ongoing, long-term strategic orientation.

Intermediary Practice

One issue that is not particularly clear about energy intermediaries is how effective they are in doing what they do. In this section we address this through examining how energy intermediaries are evaluated and asking intermediary practitioners what does and doesn't work well in their practice.

Formal evaluation of energy intermediaries is variable in focus, application and over time. Some energy intermediaries engage in significant evaluation activities whilst with others this may be much more limited. Across the 25 European energy intermediaries that we researched, there were numerous evaluation activities which often emphasised quantitative measures and metrics, in relation to contracts and targets. These included measures of:

- Calculations or assumptions of amounts of CO2, energy and money saved.
- Evaluation questionnaires filled out by participants attending conferences and training seminars.
- The national monitoring of local programmes through issuing targets to intermediaries that were part of national networks – for example, in line with national priorities around carbon savings, energy savings, costs to taxpayers etc.
- Measures of attendance at special training events and at broader communication events.
- Quantities of personal advice given through, for example, site visits and telephone advice.
- Monitoring local newspaper articles and radio/TV talks.
- Numbers of completed projects.
- The obtaining of project funding and funding from partners and their desirability as a partner in projects.
- Evaluation to ascertain whether project goals have been met in relation the requirements of external funders.
- Numbers of customer contacts, participants in lectures and web site visits.
- Financial metrics like turnovers and balance sheets.

To summarise the evaluation processes in energy intermediaries; certain intermediaries and projects were evaluated more than others and some intermediaries' projects had feedbacks designed in. In doing this, much statistical data was collected and aggregated, like, for example, how many people visited an advice-centre, called, asked for special advice, visited events and so on. These evaluations were often initiated by either external or internal parties or both. Furthermore, evaluation activities were both informal and legal requirements built in to contracts and/or to provide indicators in annual reports. The shape of evaluations may have been informed by the funding streams and priorities that followed from them. Overwhelmingly the view was that evaluation was a feed*back* rather than part of an ongoing attempt to understand practise and the reception of this practise as it was happening. There was, though, in a small number of cases a

view that evaluation was as much about understanding and working on the culture and communication of the energy intermediary through regular meetings between staff. In line with this there was a view, albeit much more marginal, that evaluation should also involve understanding the extent to which the energy intermediary was participating in wider national debates, cooperating with and challenging government policies and providing alternatives.

It is useful to characterise the purpose of evaluation as often, though not exclusively, as being concerned with monitoring advice given and activities rather than the actions following from that advice and the consequences of any actions. So, there was often a very limited characterisation and emphasis on the forms of advice given. To take another example, the allocation of carbon savings was often not in respect of customers' action subsequent to advice received but through the allocation of amounts of 'carbon savings' to particular forms of advice. Evaluation often utilised blunt and crude measures. It was target driven and inevitably focused first on meeting the targets, to achieve and maintain often insecure streams of funding, rather than necessarily the quality of advice. This gets to the very purpose of not only what an intermediary is and what it should be, but also how would we know? Current forms of evaluation offer a limited understanding of the ways of working of energy intermediaries and how they can be more effective. It is necessary to broaden out evaluation of energy intermediaries to better understand what energy intermediary practitioners think works well and not so well.

Lessons from Practice: Households, SMEs, Municipalities and Schools

This section draws upon four regional workshops with over 150 energy efficiency practioners from across Europe (see Annex 6). The four workshops were held in Tallinn, Estonia (November 2008), Budapest, Hungary (February 2009), Manchester, UK (March 2009) and Athens, Greece (June 2009). The purpose of the workshops was to provide a forum for a critical and constructive interaction between the emerging findings of the CHANGING BEHAVIOUR project and a broad constituency of energy intermediary organisations. More specifically, the principal aim of the workshop was to develop a critical engagement between the factors and issues identified by research as contributing to more and less successful demand side management programmes and the rich, everyday experiences garnered by a range of practitioners. In this respect this section of the report draws upon material from these workshops [2] to understand lessons from practice in relation to households, SMEs, municipalities and schools.

Households

In relation to the issue of energy efficient households a series of critical messages recurred across the four workshops. These can be summarised as follows:

- The first of these we characterise as a frequent disconnection between a widely assumed need for grand action on energy efficiency, identified by a range of practitioners and the small scale of individual households as central to responses. This is captured in the individualised questions: what difference can I make? Or, why should I get involved as a householder? The challenge here for practitioners is in how they engage with householders across this 'gap'. In doing so, practitioners need to recognise that there needs to be a clarity in the messages that are communicated to households about why they should engage with and participate in energy efficiency initiatives that demonstrate and develop a narrative that very small-scale interventions on energy efficiency matter.

[2] See http://www.energychange.info/workshops

- The term 'households' is not a unified category. It is important, therefore, for practitioners not only to develop a narrative(s) on small scale interventions but also to know who their target groups are in doing so and how to 'reach them'.

- This means that in addition to large national campaigns and programmes on energy efficiency more locally relevant and designed campaigns and programmes should be designed.

- It requires getting beyond the mixed messages and uncertainty engendered by different campaigns that are conceived at some distance from the target groups and designing campaigns and programmes with relevant messages and mixing of messages locally – where those messages could range from issues to do with increased domestic comfort to the potential money savings of energy efficiency activities.

- This means a need to demonstrate the effects of energy efficiency convincingly at a local level. The message needs to be carried not just through campaigns but also in various parts of the media and through small, successful demonstrations in particularly visible local buildings.

- To underpin this there is also a need for financial support aimed at this target and level.

SMEs

The key issues in relation to energy efficiency and SMEs were many, as one would expect from such a widely constituted target group. Below are critical issues of concern in respect of energy efficiency, industry and small businesses.

- The key question that needs to be successfully engaged with by practitioners in these sectors is: what's the value to business in acting in an energy efficient way? Linked to this is the issue of how energy efficient actions add value to business practices. This was a view broadly held by many but there was also a widely held sense that business views on energy efficiency were slowly changing.

- What was highlighted was the sense that there was a 'gap' between current business practices and future, more energy efficient business practices. From this 'gap' emerged four key issues: (1) a view, rightly or wrongly, that there is a lack of information on cost-effective solutions; (2) that there is an under-developed understanding amongst users of the costs of energy efficiency measures; (3) a similarly underdeveloped understanding of the consequences of green actions and (4) a view that was articulated about a lack of willingness amongst businesses to share best practices as there is competitive advantage in such practices.

- As with the category of households, business is not a homogenous category and there is a need for practitioners to develop sensitivity to different 'types' of businesses and their energy uses.

- Practitioners and businesses should address the 'gap' in understanding between current energy use and future more efficient energy use amongst business by developing more sophisticated understandings of not only different types of business but by engaging constructively with these different businesses to construct a 'need' (including a justification) for business to be energy efficient.

- For different businesses and sectors the above-mentioned 'need' could be different combinations of benefits: of saving money; improving production efficiency; the PR benefits of greenness; corporate social responsibility; avoiding penalties. In short, value needs to be attached to energy efficiency in different business contexts.

- To do this there may be a necessity for different combinations of: regulation and new energy services but also various change agents, opinion leaders, decision makers and motivators.

Municipalities
Looking at the challenges for municipalities from the energy efficiency agenda key issues were highlighted. Importantly, these included:

- Energy efficiency is often low on the extensive list of priorities often confronting municipalities – it is difficult to push because other things are considered more important. This is particularly so in a context of multiple competing pressures on often limited municipal resources.

- It is important also to recognise not just the priorities of municipalities but the ways in which they are positioned relatively to respond to these priorities. So, within municipalities often overloaded with other more prioritised activities and issues than energy efficiency the size of the municipality matters. Energy practices may be difficult to change culturally in large municipalities but there may be greater access to resources in such authorities. Conversely small municipalities may have better personal networks to inform a change in cultures of energy practice but a limited access to resources.

- Differences between municipalities extend not only to resources but also in respect of the fact that municipalities 'sit' within often complex multi-level governance frameworks which enable and constrain their ability to act. European and national decision-makers assume particular roles will be undertaken by municipalities in delivering European and national priorities. On the other hand, local citizens have expectations of the provision of services by municipalities. This differs between municipalities and between municipalities in different national contexts.

- One issue for municipalities in transforming energy use and behaviour is the need to engage with various third parties. One view that follows from this is that there may be some degree of fear of losing control by, for example, involving third parties, like ESCOs.

- A further issue to consider in relation to municipalities is the disjuncture between often long-term commitments needed in relation to energy efficiency practices and the length of electoral cycles over four or five years. For many it was felt that 'visible results' of energy efficiency interventions need to be ready before the end of the electoral cycle.

But what was also clear was that it was important to recognise not just the difficulties for municipalities but also that they have huge opportunities. Municipalities can lead by example on energy conservation and efficiency through using their own estates and through the question of land use.

- Hence, the view was commonly articulated that the long-term goals of energy efficiency initiatives should be broken into several smaller ones.

- The important issue, particularly given the difficulties in making energy efficiency a key priority at this level in the crowded field of competing priorities, limited resources and electoral cycles was the need to influence local and national politicians and agenda setters consistently and over time whilst acknowledging that in an era where politicians 'have no time to listen', communication and explanation of the need for and benefits of energy efficiency needs to be made rapidly and in easily digestible ways.

- In particular one of the most effective forms of communications was deemed to be 'visible results' - or in other words the highly visible and relevant exemplification of energy efficiency interventions and practices through the estates and fleets of municipalities.

Schools
In relation to schools the following issues were critically raised:

- There is a great opportunity in connecting schools to the energy efficiency agenda. Yet, it is important to recognise that schools consist of many constituent parts, including buildings, teachers, pupils, parents and lessons and that each of these and the interrelationships need to be thought through in respect of energy efficiency activities in schools.

- Similarly the boundaries of school are not at the playground gate as children may bring changes home to their families.

- This of course depends on the age of children and how energy efficiency issues are communicated and taught. In this respect it is often difficult if energy efficiency is not a part of the curriculum. Energy efficiency needs to be seen not as a standalone issue but has to be linked to and made a part of other issues in the curriculum.

- Students need to be motivated by energy efficiency and learn about it in a fun way. In doing so the boundaries of the school are extended by children acting as teachers to their parents. A commonly made point was that making learning fun for children needed to be integrated with games and communications platforms like Facebook.

- Yet it is teachers who mediate between understanding energy efficiency and children. Teachers need to understand and be taught about these issues.

- School infrastructure and buildings are also an issue here and often this relates to the role of municipalities. What municipalities are doing with their buildings influences teaching. If school buildings cannot be seen as examples it becomes harder to teach energy issues to children. Energy saving solutions in school buildings, for example, would make energy efficiency education very concrete.

Problematic issues frequently confronting energy intermediaries
Practitioners from energy intermediaries, through both case studies and in the workshops, highlighted a large number of issues that they felt inhibited effective working. We have characterised these below in respect of eight interrelated issues.

i. *Funding problems:* Funding, in particular the insecurity of funding, was frequently cited as a significant problem. This was particularly the case in that energy intermediaries were narrowly working to achieve the demands and targets of funders, from a basis of an organisational context where there was limited strategic orientation. The constant search for funding also meant that this could drive organisational agendas so that when funding sources changed the organisation's objectives shifted accordingly.

ii. *Projects rather than programmes:* This promoted largely, though not exclusively, a view that projects and project funding drove fixed-term, project constrained activities rather than a programmatic orientation for the energy intermediaries.

iii. *Strategic scheming and inadequate leadership:* This was not unconnected from a lack of strategic orientation and often inadequate leadership and difficulty in forging coherent working partnerships and relationships.

iv. *Employee insecurity:* Where a lack of secure funding and project-based funding stream has implications for employees, many of whom are on fixed-term contracts. Temporary employment informs temporary attachments and difficulties in retaining staff and their expertise and tacit knowledge. New employees have significant knowledge to build before being able to effectively 'replace' previous staff. In this context it is not unsurprising that career structures and incentivisations are underdeveloped.

v. *Difficulty in forging effective coalitions:* This in turn is linked to difficulties in gaining a coherent justification and context for working together and building capacities both locally and across other levels of governance.

vi. *Difficulties in locally embedding initiatives:* With limited resources of project-based funding, staff insecurity and difficulty in forging effective coalitions, it should not be surprising that effectively embedding energy intermediaries locally is difficult.

vii. *Difficulties in exerting influence nationally:* Many energy intermediaries highlighted the difficulties of engaging high-level political actors and being involved in related discussions. They pointed out that it was difficult to make a significant impact in this respect.

viii. *A preoccupation with the 'new':* A project-based intermediary culture was often continually concerned with developing new products and tools often at the expense of much-needed continual provision of advice.

What should energy intermediaries do differently?

When asked about their practice and what they would do differently if they were setting up an energy intermediary knowing what they know now, there were a number of responses which can be characterised as follows:

i. The view from a number of energy intermediary practitioners was that they would not do an awful lot different!

ii. Where there was reflection and then a view that things needed to be different, this was frequently in relation to securing funding and doing so over a longer time period than is

often the case and from a variety of sources thus reducing reliance on particular funding streams.

iii. This links to a further point, which was that a more diverse and longer-term funding base would create the conditions for more independence and the possibility of strategic, long-term planning.

iv. A more diverse funding base related to another issue frequently voiced by those with experience of intermediary practice. This was the need to re-frame the agendas that energy intermediaries deal with from ones that were often narrowly constituted around energy efficiency to a broader reading of low carbon futures and the role of energy within this.

v. A broader agenda suggests the need to engage a broader variety of knowledges and social interests. This highlights two issues: 1) how communication between these different social interests should be organised and 2) how far participation should extend.

vi. This necessitates a degree of organisational learning and adaptability, learning from experiences and adapting to 'external' pressures, that is often absent from energy intermediaries given the issues with financing and staffing mentioned previously.

5. Re-conceptualising Energy Intermediaries? A Framework for Energy Intermediaries and Recommendations for Policy, Practice and Future Research

In this section we reflect on the critical issues that we have raised in this report. In doing this we do two things primarily: (1) we use the understandings that we have generated from our analyses of intermediary practice and national contexts to develop a framework for active and configurational energy intermediaries; and (2) following this we develop a set of recommendations for policy, practice and future research the follow from this.

Our fourfold conceptualisation of energy intermediaries (Figure 1), that we set out earlier in this report, was primarily a characterisation of energy intermediaries and what they do, where they do it and whose priorities they promote in doing so. We also critically assessed, through a series of case studies and their comparative analysis, how energy intermediaries work and how we and energy intermediary practitioners understand how they practise (see also May, 2008; Hodson and Marvin, 2009). In addition, we developed a richer understanding of not only intermediary practices but also the ways in which different national contexts enable and constrain this and the sectoral issues facing intermediary practice for households, industry and SMEs, municipalities and schools. The conceptualisation that we set out in Figure 1 allowed us to characterise:

- What energy intermediaries are.
- Whose priorities they work to promote.
- Where they operate.
- And whether their responses are organised on a project or programmatic basis.

In addition, through actively and effectively addressing the seven critical issues of our framework, we address how energy intermediaries can function actively and effectively (see Figure 2). This requires that intermediaries actively negotiate two issues in particular:

Between 'external' and 'contextual' priorities

The imposition of 'external' priorities on local contexts raises questions about the legitimacy of these priorities in a local context. It also tends to ignore the forms of knowledge and expertise that locally configure these 'external' priorities. In short, priorities become disconnected from contexts of 'application' and 'use'. Contrary to this position, a concern solely or largely with 'context-based' priorities privileges local priorities, forms of knowledge and expertise in the context of 'use' and 'application', but in doing so produces a disconnection with broader priorities and policies.

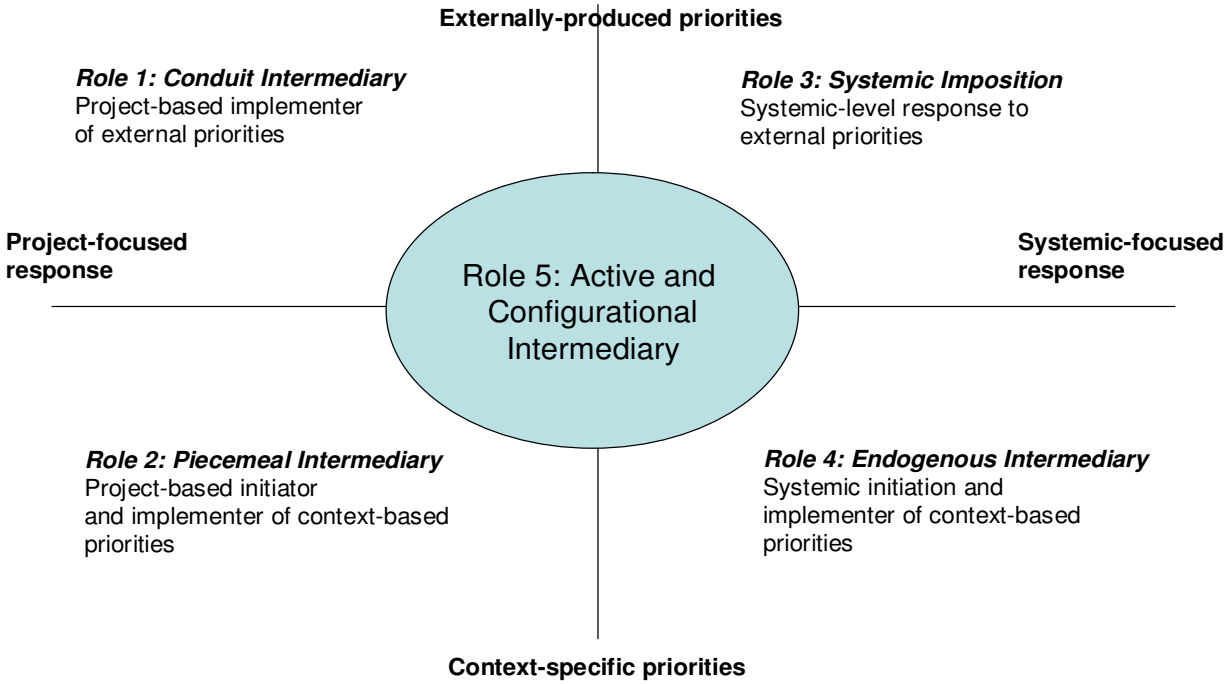
Between projects and programmes in developing responses

Intermediaries need also to effectively mediate between programmes and projects. They need to do this for the reason that an emphasis solely on projects means that the responses that intermediaries develop are likely to lack coherency and are unlikely to be able to forge effective responses in relation to priorities. Yet, if intermediary responses are solely programmatic they ignore the very particular sets of projects that 'translate' the priorities of programmes into action.

Active and effective intermediaries need to bridge the gap between these positions. To do this is to focus on and develop 'configurational' (see McLoughlin, 1999) aspects of intermediation where there is an emphasis on the specifics and contexts of intermediary practice, local forms of knowledge, historical practices, and the shaping of energy efficiency in 'application' in terms of specific circumstances - where these 'specific circumstances' take account of the importance of working between external and contextual priorities and between projects and programmes.

Inevitably this framework will be further developed through sensitivity to different contexts which requires bringing together research and practice.

Figure 2: 5 roles in the What, Where, Who and How of Energy Intermediation



Source: Following from Hodson and Marvin (2007).

From this foregoing analysis we present here an emergent framework that consists of seven interrelated issues which are necessary but not sufficient factors to inform active and configurational intermediation. The framework does not offer a prescription nor does it offer short-cuts to success for practitioners. What it does do is to provide a series of issues that need to be seriously addressed in order for intermediaries to function effectively. That is to say these issues need to be developed and populated further in relation to different intermediary contexts, taking account of national and sectoral contexts (as discussed in previous sections). The seven issues that require consideration, reflection upon and action are detailed in Table 2.

Table 2: A Framework for Active and Configurational Intermediation

1.	**Financial issues**	Intermediary needs to: • Develop a context of broad-based and stable sources of funding – as a means of reducing the risk of funding being withdrawn. • Additionally this offers the potential for financial independence. • Long-term funding creates the conditions where the priorities of the intermediary are not largely dictated by the reactive chasing of funding and the priorities of different funders • This is important in creating stability in relation to a series of further issues – see below.
2.	**Staffing**	• Security of funding provides the potential for underpinning the security of core employee positions. • It creates the stability and backdrop where staff training and skills programmes can be developed. • Where stability means that resources are available so that staff and employees within the organisations can be incentivised, feel rewarded and not subject to the whims of short-term funding. • This begins to form the basis for an organisational commitment to the careers of employees.
3.	**Organisational structures and cultures**	• This is particularly important where the framework within which many energy intermediaries work is one of a small core with a broad network of a variety of partners where a stability of organisational resources and organisational commitment provide the basis for a shared organisational culture and clarity around different organisational positions. • Small capacities require energy intermediaries to be able to effectively 'plug in' to the networks of partners to enhance capacity but to be able to do so from a shared organisational view. • This very dynamic set of circumstances means that energy intermediaries must develop as effective learning cultures and develop the ability to adapt to changing pressures and new issues. • In this respect, the development of shared organisational cultures is unlikely to be effective through project-based thinking and funding but rather should be systemic, strategic and long-term.

4.	**Knowledge base**	• The adaptability and learning required by energy intermediaries means that they must constantly work at developing and re-developing the knowledge base to which they have access. • In addressing long-term, systemic and strategic issues a wide variety of technical, policy and local forms of knowledge need to be constantly negotiated and effectively integrated.
5.	**Communications**	• Negotiating and effectively integrating different knowledges requires the alignment of different sets of social interests and their priorities and the creation of communications forums to be able to do so. • This requires that energy intermediaries develop a local presence and good local networks through proximity and face-to-face communications. • Energy intermediaries also need to develop effective relationships and resources, beyond what may be the limits of local networks, with national policymakers.
6.	**Credibility**	• This requires that energy intermediaries think carefully about how they represent what they do to the variety of different partners they build relationships with. They may need to recognise that perceptions of impartiality, neutrality and their reputations as experts need to be represented in an appropriate way. • This is important in communicating credibility and building trust with a variety of partners, who in other aspects of their work and business may have competing priorities. • Symbolic visibility in the local and national media is important, as is symbolic exemplification through demonstration and showcasing. This is part of the positioning of the energy intermediary as distinctive, as 'first mover' and 'the people to turn to'.
7.	**Influence**	• These previous six issues are important in embedding the energy intermediary within a local context and facilitating the development of the resources, relationships, forms of knowledge and communications and, thus, visibility, to be able to effect a credible influence. • But the energy intermediary also needs to develop a shared organisational view as to how it would know if it was influential beyond the often narrow metrics of external funders.

The Opportunities and Limits of Energy Intermediaries: Recommendations for Policy, Practice and Future Research

In this report we have critically assessed the roles of energy intermediaries in different contexts across Europe. Through analysis of 25 rich case studies from across Europe we have recognised the multiplicity of different priorities, governance arrangements, scales of action and contexts of work that different energy intermediaries operate within. In the midst of this complexity we have developed a novel fivefold conceptualisation of what energy intermediaries do, how they do it and how they can do it more effectively.

There are critical and often interrelated sets of issues that this raises for policymakers, researchers and practitioners. Whilst policy, practitioner and researcher worlds are often distinct it is also helpful to explore, encourage and develop the overlaps between them. We do this here by making four sets of recommendations from this work for policy, practice and research.

R1: Energy efficiency priorities should be framed and funded through long-term programmes. Projects should sit within these programmes rather than as standalone initiatives.

- Policymaking on energy efficiency takes places across many policy areas. Energy efficiency programmes should be developed that link together different policy domains.

- Researchers should develop academic programmes around energy efficiency rather than projects based largely on responding to a series of funding calls.

R2: Energy efficiency is not an end in itself – it is a means of achieving numerous other priorities. A clearer understanding of 'to what question is energy efficiency the answer' is required. As such, energy efficiency needs to be understood better and demonstrated more convincingly at local levels as there are many different ways of framing energy efficiency.

- A more sophisticated understanding of the wide variety of ways that energy efficiency programmes can and should operate at a local level needs to be developed. It is recommended that policymakers fund comparative action research on energy efficiency at a local level. Policymakers would benefit from being clearly aware that there are many alternative ways to organize action on energy efficiency.

- It is recommended that energy intermediaries should be both part of this action research and will be able to benefit from its findings in a practicable way.

- Researchers need to actively develop more 'insider' case studies of success and failure that focus on the rich processes of HOW energy intermediaries 'implement' demand-side programmes. These are desperately necessary.

R3: Better understanding is required of the ways that intermediaries do, can and should collaborate, compete and overlap with the competencies of each other.

- It is important that policymakers do not only understand how energy efficiency operate at a local level but also that they have an overarching understanding of the ways in which the range of different projects and interventions contribute to policy objectives.

- Energy intermediaries should benefit by learning from the practices and experiences of other energy intermediaries.

- Researchers should not only undertake more 'insider' case studies of HOW energy intermediaries 'implement' demand-side programmes but also need to develop a comparative and composite understanding of the different ways in which demand-side programmes are implemented.

R4: Many different people and organisations promote energy efficiency. The combinations of people and organisations working on energy efficiency may be different across national contexts. A better understanding is, therefore, required of different national policy and institutional contexts and the ways in which they constrain and enable intermediaries and the extent to which intermediaries can contribute to policy.

- European level policymakers in particular should actively encourage and fund comparative understanding of national policy and institutional contexts.

- National policymakers would benefit significantly from understanding the range of different institutions contributing to policy priorities and the extent they do so.

- Energy intermediaries should respond positively to researchers and policymakers seeking to engage with them on this agenda.

- Researchers should engage with this kind of research through building networks through European level funding (e.g. Framework programmes) and through national research funding mechanisms.

In doing this we have provided a means to both practically utilise the findings of this work package and to build upon them through further work that requires contributions but also offers potential benefits for policymakers, practitioners and researchers.

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Annex 1: Intermediary Organisations Case Study Proforma

‘Intermediary Organisations Case Study Proforma’

WP3 – Coordinated by SURF with contributions by all partners

Background and Rationale

There are many different kinds of intermediary organizations – ESCOs, energy advice agencies, etc, etc. These organisations potentially play an important role in, for example, working between energy conservation, energy efficiency, consumer advice and demand side management projects and programmes and the different local contexts to which these projects and programmes are ‘applied’.

In WP3, we will build on the Inventory of demand-side programmes in WP1 and the examples of best and worst practice highlighted in WP2. To build on these requires that we understand the role of the intermediary organisations that act as agents ‘implementing’ the demand-side programmes. We need to develop an appreciation of their aims, objectives, the relationships they develop, their practices and capabilities.

This is not straightforward as these intermediary organisations frequently have different aims and objectives, operate in different geographical parameters and are able to mobilize differential levels of financial, technological, social and knowledge resources. We need a much more sophisticated understanding of intermediary practices in different local contexts. In short, we need to develop a process for: ‘Mapping the social and technical organization of energy intermediaries in the different local contexts’.

Intermediary Organisations Proforma

Using the 'Intermediary Organisations Case Study Proforma' (see below), in Task 3.1 we will build up a case study database of the different social and technical organisation of intermediary practices in a variety of different local contexts. We will do this through each partner (in discussion with the work package coordinator) selecting 2 of the initial 4 demand-side programmes we each reviewed in WP1 and undertaking original research on them in relation to the proforma questions below.

Sample/Scope

This process will result in a case study database of 24 intermediary organisations (12 partners each filling in 2 case study proformas) and the social and technical organisation of their intermediary practice in a number of different local contexts. Building on the database developed in WP1 will ensure the intermediary organisations are distributed across Europe, at different policy levels and with different focuses of application.

Filling-in the 'Intermediary Organisations Case Study Proforma'

The 'Intermediary Organisations Case Study Proforma' involves undertaking some original research and should be filled in using multiple methods. This will include undertaking at least 1 interview with a representative of each of your 2 intermediary organisations and also using websites, policy documents, newspaper articles and telephone conversations to answer the questions in the 'Intermediary Organisations Case Study Proforma' in relation to each of your 2 demand-side programmes.

Timings

SURF will draft 2 illustrative proformas and circulate to all partners by 9 May 2008. All partners to send their 2 completed proformas to Mike Hodson at SURF by 25 July 2008 and copy Eva into these emails.

‘Intermediary Organisations Proforma’

	WHY DOES THE INTERMEDIARY ORGANISATION EXIST?	
1.	What is the background and history to the emergence of the intermediary organisation? (Answer this by addressing the questions below in this section and then writing up the answers in at least half a page of text)	**Write at least half a side of text in answering question 1**
A	*When was the intermediary organisation established?*	
B	*Who established the intermediary organisation?*	
C	*How is the intermediary organisation funded? (national government, EU, local authority, NGO, etc)*	
D	*When is it envisaged that the intermediary organisation will complete the work it was established to achieve? i.e. when will it cease to exist?)*	
	UNDERSTANDING INTERMEDIARY ACTIVITY	

2.	What problems was the intermediary set-up to address and how did/do they practically deal with confronting these problems? (Answer this by addressing the questions below in this section and then writing up the answers in at least one page of text)	**Write at least one side of text answering question 2**
A.	*What problem(s) and policy issue(s) was the intermediary set-up to address?*	
B.	*How did it plan to address these problems and issues?*	
C.	*Who were the key actors and social interests that became involved in addressing these problems and issues?*	
D.	*Why was it these actors in particular?*	
E	*How did these different actors become involved in addressing the problems and issues?*	
	HOW DOES THE INTERMEDIARY ORGANISATION KNOW IF IT IS EFFECTIVE?	

3.	How does the intermediary organisation know if it is effective in meeting its aims and objectives? (Answer this by addressing the questions below in this section and then writing up the answers in at least one page of text)	**Write at least one side of text answering question 3**
A.	*What were the 3 things that worked well for the intermediary in trying to address the problems and issues it was set-up to achieve?*	
B.	*What were the 3 things that did not work well for the intermediary in trying to address the problems and issues it was set-up to achieve?*	
C.	*Does the intermediary organisation evaluate its activities?*	
D.	*If so, how does it do this?*	
E.	*What would the intermediary organisation do differently if it was being established now to address the issues and problems?*	

Annex 2: What are the landscape, policy and institutional contexts that conditions energy efficiency intermediary activity and practice in particular national contexts?

SURF, NCRC, ECN, OEKO, CEU, CRES, SEI-T – to each produce three pages on the landscape pressures, policy priorities and institutional contexts within which energy intermediaries operate in their own countries.

We agreed that that each of these partners would do this to the following brief by 30 May:

Q: What are the landscape, policy and institutional contexts that conditions energy efficiency intermediary activity and practice in particular national contexts?

In 3 sections, answer the questions below:

> In your country, discuss what the **particular** landscape pressures are that energy efficiency intermediaries are confronted with. (1 page)
>
> In your country, what are the **key national policy priorities** and targets that energy efficiency intermediaries must take into consideration? (1 page)
>
> In your country, which **institutions** are critical to promoting these national policy priorities and how do they do it? (1 page)

A 3-page (minimum) review document produced by each of NCRC (Finland), CEU (Hungary), ECN (The Netherlands), OEKO (Germany), CRES (Greece), SEI-T (Estonia) and SURF (UK) by 30th May 2009

Annex 3: List of 25 Case Studies of Energy Intermediary Practices

(Authors: SURF, NCRC, ECN, OEKO, CEU, SEI-T, Cowi Baltic, Enespa, M:KC, Green Dependent, Ekodoma, VZ NRW, CRES).

Case 1: Ekodoma Ltd, Riga, Latvia
Case 2: Construction, Energy and Housing State Agency (CEHA)
Case 3: Kovet - The Hungarian association for environmentally aware management:
Case 4: WWF Finland
Case 5: The Greater Manchester Energy Savings Trust Advice Centre (GMESTAC)
Case 6: HessenENERGIE GmbH
Case 7: Manchester is my Planet
Case 8: 'proKlima' Climate Protection Fund Hannover
Case 9: The Southwest Finland Energy Agency
Case 10: The Greater Manchester North Energy Efficiency Advice Centre
Case 11: Tampere Energy Agency
Case 12: Alt-BAU plus e. V.
Case 13: Verbraucherzentrale NRW (Consumers Association of Northrhine-Westfalia)
Case 14: Magyar Természetvédők Szövetsége / Hungarian Society of Conservationists (NSC), also Friends of the Earth Hungary
Case 15: ELMÜ, Budapesti Elektromos Művek / Budapest Electric Works
Case 16: Enespa
Case 17: Motiva
Case 18: London Green Homes Programme
Case 19: Kaunas Regional Energy Agency
Case 20: Energy supplier Nuon
Case 21: Best Practice Project of BEEN in Estonia
Case 22: Energy Efficiency Competence Centre (ESK, Energiasäästu Kompetentsikeskus)
Case 23: Energia Klub, Hungary (http://www.energiaklub.hu)
Case 24: Aarde-Werk
Case 25: Energy saving Consultancy Centre

Annex 4: Establishing and Funding European Energy Intermediaries

	Energy Intermediary	Established when and by…	Funded by…
1	Ekodoma Ltd	1991 by two professors from Riga technical University, Latvia	'Self-sustaining' and some EU funding
2	Construction, Energy and State Housing Agency (CEHA)	Founded in October, 2002 to implement united state policy in the field of housing, and united sustainable housing policy in Latvia.	CEHA is founded by the state and is financed from state budget funds, EU funds and the private sector.
3	The Kovet Association for Sustainable Economies (Kovet)	Founded in 1995 by Gergely Toth who served as executive director from 1995 – 2006 and currently acts as secretary general.	Funded by local, national and EU funding, membership fees, donations from legal entities, organisations and private persons, fees collected for services. The average annual budget is reported to be 350,000 EUR.
4	WWF Finland	Established in 1972 and is a conventional environmental organisation, which more recently has developed a programme called Green Office, which focuses on energy- and resource efficiency in office workplaces.	Most of the funding for WWF Finland comes from private members and donors (42% in 2007), from company sponsors (31% in 2007) and from the government (project funding, 25% in 2007). Green Office is today funded through participation fees by the participating companies.
5	Greater Manchester Energy savings Trust Advice Centre (GMESTAC)	Established in June 2008, from the merger of North and South Manchester Energy Efficiency Advice Centres (EEACs).	The ESTAC is funded by the Energy Saving Trust, managed on a contract by the regional EST Manager. Additional financial support is provided by the ten local authorities and in-kind by Manchester City Council, the host organisation.
6	hessenENERGIE	Founded as a state energy agency in 1991. In 2002 the ownership was taken over by the public energy company OVAG. hessenENERGIE is a limited liability company (GmbH).	Originally established as purely profit orientated company. Since hessenENERGIE was sold to OVAG the company is operating on the market and is gaining its revenues by selling contracting and consultancy services.
7	Manchester is my Planet	In 2004 by an informal grouping of regional and local sustainable development and knowledge economy specialists.	Funding totaling £150k pa was secured from AGMA (£50k), NWDA (£50k), Local Universities, GMPTE, GM Strategic Health Authority (50k). Additional project funding of c.£160k was secured for a community engagement Climate Pledge Campaign. A further £55k was later secured for ongoing climate change communications (Aug 07-Feb 08) and through two European Programmes combined with match funding from the NWDA.
8	ProKlima	In 1998 the city of Hannover and the municipal utility	The fund has a maximum annual budget of just over 5m EUR.

		'Stadtwerke Hannover AG' (now Enercity), initiated the proKlima fund. Five towns around Hannover joined the fund to provide financial contributions.	The municipal utility of Hannover contributes 3.25 % of its annual profit (capped at 2m EUR) and a gas price component of 0.05 Cent per kWh gas sold. Its total contribution is capped at 3.9m EUR. The city of Hannover contributes 3,25 % of the profit contribution it receives from the municipal utility (capped at 1m EUR). The other municipalities contribute 2.5 % of their concession fees (ca. 165,000 EUR).
9	The Southwest Finland Energy Agency (SWFEA)	Established in 1999 with the help of 3-year project funding from the EU SAVE II programme. This funding aimed to establish a comprehensive network of regional energy agencies. The prime movers in setting up the SWFEA were the Regional Council of Southwest Finland, people from the University of Turku and the municipality of Kaarina. Today, the SWFEA is hosted by the City of Turku in a newly established unit called Valonia, in which the operations of the SWFEA and the South-West Finland Local Agenda Office have been combined.	The SWFEA is funded via project funding (most years amounting to > 50% of the budget), the Regional Council of Southwest Finland, the City of Turku, and local and national energy companies (Turku Energy, Gasum). Moreover, funding is obtained via chargeable services provided to municipalities and other clients.
10	Greater Manchester North Energy Efficiency Advice Centre (GMNEEAC)	The Energy Efficiency Advice Centre (EEAC) network is a UK network of 52 EEACs initiated on behalf of national government by the Energy Savings Trust (EST), a non-profit organisation set-up in 1993. As part of the national network, the Greater Manchester North EEAC involved four of Greater Manchester's 10 local authorities (Bolton, Bury, Rochdale and Oldham) working with each other in a partnership.	Each centre is funded jointly by EST and partners with the aim of providing free, impartial and expert advice to householders to assist in the reduction of energy use and associated cost savings. All EEACs are managed nationally by the EST but operated 'locally' – where locally can mean a number of local authorities working in partnership.
11	Tampere's Energy Agency (Ekokumppanit)	Established in 1999 with the help of 3-year project funding from the EU SAVE II programme. The Energy Agency was established mainly by the city of Tampere with a steering group including, e.g Motiva, the city of Tampere, the University of Tampere and ENGOs. It was transformed into Ekokumppanit in 2003, with funding from the city of Tampere (including city-owned electricity plant, the waterworks, transport services and the city's environment services) and by the regional waste management company.	The first 3-years were funded by the EU SAVE Π programme and by the city of Tampere. Ekokumppanit is a limited company and the owners of the company provide financial support that is approximately half of the annual turnover. The financial support depends on the owners' own turnover. Half of the budget consists of project funding and the selling of the expert services.
12	Alt-Bau Plus	Established in 2004 when the council of the town (Aachen, NRW) decided to contribute to Climate protection, particularly in relation to traffic and old buildings. The council gave order to the administration to found an alliance concentrating on the reduction of CO2 in the sector of old buildings. The intermediary organisation 'Alt-Bau Plus (old- building-plus)	The members pay a membership fee of 500€ /year. The city of Aachen is funding the organisation with 22.500 € /year. The local energy supplier also contributes. The region of Aachen also supports the organisation. Also the staff of the organisation is on the payroll of the town (1,0 manager), the local energy-supplier (1,2 advisors), and the Verbraucherzentrale NRW (20% of the capacity of the advisor)

		was established as an association of local and regional organisations.	
13	The Verbraucherzentrale NRW (VZ NRW)	Established in 1958 by various local working groups on consumer issues and regional associations. Foundation members included: German Association of Housewives, Department Westfalia and Department Rhineland; Syndicate of Evangelistic Housewives; Central association of Catholic Women And Mothers' Communities; Working Group of Women in the Association of Displaced Germans; Women´s Guild of Retail Cooperatives; Regional Association of Tenants- Clubs; Regional Association of the German Family's Association; Association of German Retail Cooperatives; Catholic Worker's Movement; German Women´s League, Rhineland.	The budget of today about 25 M Euro per year is diversified on different sources: 36 % are an institutional grant by the state government, 28 % are paid by municipalities with advice centres (this are 50 % of the cost for advice centres, the other 50 % are included in the grant by the state government), 20 % state and federal projects, 16 % fees from consumers (for advice, for books, etc.)
14	Magyar Természetvédők Szövetsége / Hungarian Society of Conservationists (NSC),	A not-for-profit and non-governmental organisation established in 1989 with the overall objective to 'protect nature as a whole and to promote the implementation of sustainable development'[3]. At the moment NSC has 113 associations and more than 30,000 individuals as its members in all the different regions of Hungary.	NSC is funded from different sources: 1. Its members (both organisations and individuals) pay membership fees. 2. It prepares applications to EU and national funding sources. 3. From the central budget as well as from local governments. 4. From public benefit activities. 5. From entrepreneurial activities.
15	Budapest Electric Works	Has been operating for over a century. It still continues the activity it was founded to carry out: supplying electric power to various consumers, households as well as commercial customers. Budapest Electric Works is a company limited by shares, the majority of which are held by a foreign strategic investor. The various energy efficiency programmes of the company were started in the autumn of 2007 as part of their corporate social responsibility activities, and partly by adapting the similar running programmes of the parent company[4].	Through supplying electric power to consumers, investments, etc.
16	Enespa	The energy service company (ESCO) Enespa was established in 1999 and it was the first ESCO company in Finland. The founders of the Enespa were owners of a wind power company called Lumituuli Oy. The owners of the company wanted,	Enespa is a limited company. The biggest shareholders are Lumituuli Oy and Vantaan Energia (a energy utility), which together own almost half of the company. The Ministry of Employment and the Economy (TEM) funds new projects from 20% to 40%. The amount of financial support

[3] Source: http://www.mtvsz.hu/index_en.php (consulted on 22 July 2008)
[4] Source: the annual report (2007) of the company available at http://www.elmu.hu/download/ ELMU_MAGYAR.pdf

		however, to invest in sustainable energy with a shorter payback period than wind power. On the other hand, they wanted to invest earnings from Lumituuli. One of the founders of the Enespa had already got familiar to the concept of the ESCO by his work as a researcher.	depends on the characteristics of the project – innovative technology gains higher support.
17	Motiva	Motiva is a fully state-owned company, which focuses on the promotion of energy efficiency and the adoption of renewable energy sources. It started as a 3-year project organization in 1993 (Energy Information Centre) as a part of the Finntech Finnish Technology Ltd Oy. Motiva was incorporated in November 2000, when the Ministry of Employment and the Economy (formerly the Ministry of Trade and Industry) purchased its entire stock. There are about 30 employees in the Motiva.	Motiva is a state owned limited company. It receives its funding from the Ministry of Employment and Economy (budget allocation for energy conservation) on the basis of an annual contract. The Ministry of Employment and the Economy is Motiva's largest customer (66% of turnover). Motiva invoices also other ministries, other public administration, companies and international activities. The turnover of the Motiva was in 2007 four million euros.
18	The London Green Homes Programme	The London Green Homes Programme was first made a policy commitment in London's Climate Change Action Plan (CCAP) published in February 2007. The London CCAP was developed by the Greater London Authority (GLA) and launched by the (former) Mayor of London Ken Livingstone. The programme is delivered by the Environment and Climate Change Unit of the London Development Agency.	The proposed total budget of £7 million between 2007/8 and 2009/10 is from public sector budgets in the LDA. But it is envisaged that 'significant additional resources will also be leveraged in from national public and private sector energy programmes'. Funding is budgeted at £2.68M in 2007/08 and £2.16M in each of the following years.
19	Kaunas Regional Energy Agency	Was established in 2003, as a measure of the SAVE II programme project and the 'Establishment of 3 SAVE Energy Management Agencies in the Municipality of Venice (Italy), the Region of Kaunas (Lithuania), the Region of Reunion (France)'. The founders of KREA are: Municipality of Kaunas city, Lithuanian Energy Institute, Kaunas University of Technology and AB 'Kauno energija' (district heating company of Kaunas city). KREA was established as a non-profit organization.	Investments for establishment were given from EU SAVE programme resources. At present the agency participates in several EU financing projects. Sponsorship from the founders of KREA.
20	Nuon	Founded in 1997 by a fusion of several local public service corporations and currently has over 10,000 employees.	Turnover of five billion euros. The company is largely owned by provinces and municipalities including Amsterdam.
21	Baltic Energy Efficiency Network (BEEN)	BEEN was carried out as one part of the wider BEEN network. The aim was to reconstruct an exemplary apartment building using the innovative schemes on energy efficiency, developed during the BEEN project in Estonia which was implemented by the 6 Estonian partners which participated in the BEEN project.	BEEN – occurred within the framework of the European Union programme INTERREG IIIB. The total cost of the implementation of the Best Practice Project of BEEN in Estonia was EUR 403,035**.** It was funded by the BEEN project (16,2% of the total cost), by the state budget(8% of the total cost) and by the Home Owners' Association of

		The duration of the project was 2.5 years, from July 2005 until December 2007.	Paldiski Road 171 (75,8% of the total cost). In addition to its own funds, the Home Owners's Association took a loan for EUR 268,429 from the bank in order to cover the reconstruction costs.
22	Energy Efficiency Competence Centre (ESK, Energiasäästu Kompetentsikeskus)	Energy Efficiency Competence Centre (abbreviation in Estonian – ESK, Energiasäästu Kompetentsikeskus) started its work as a separate entity in January 2006. It functions in cooperation with Estonian Credit and Export Guarantee Fund KredEx. The ESK was created by KredEx in cooperation with the Ministry of Economic Affairs and Communications.	The ESK is funded 50/50 from the state budget and by the European Regional Development Fund (for the years 2007-2013). Part of the financial support gained from the state budget is 'amplified' by co financing different EU projects. The amount of support from the state budget varies from year to year. Thus, the scope of the planned and realized activities for the year depends on the amount allocated to the ESK for the particular year.
23	Energia Klub	*Energia Klub* is an NGO established in 1990 by 10 green organizations in Hungary. The founders of the organization belong to three levels: international, national and private. The organisation is said to be a legal successor of the ELTE Nature Conservation Club Working Group.	The funding is provided by several channels. First of all, the company generates revenue by providing expertise or services, for example, research or consulting Secondly, the finances partly come for grant applications, donations and support from honorary members. According to the managers, at least 50% of financing comes from the EU-funded projects. Finally, having a status of an association, *Energia Klub* has a membership fee for private and legal persons, however the amount of the fees is negligible.
24	Aarde-Werk	Gea Boessenkool established Aarde-Werk in 1994 as a one-woman business. Since which the company developed towards a commercial company with currently eight employees.	As Aarde-Werk is a consultancy firm they do not get any direct funding but work in projects for clients. They have a wide range of different clients like: housing associations, all kind of governmental organisations (municipalities, governmental agencies like Senter Novem), industries, NGO's, etc.
25	Energy saving Consultancy Centre	Energy Saving Consultancy Center was established in 1997. The functions of this centre were administrative, Demonstrational Energy Saving Project and council owners of multi apartment buildings or their communities. In 2004 Energy Saving Consultancy Center was reorganized to Housing and Urban Development Agency, subordinated to Ministry of Environment of the Republic of Lithuania.	Energy saving Consultancy Centre is nationally funded.

Annex 5: National Context and Energy Demand-Side Programmes

Energy intermediary activity takes places in a wider set of circumstances. To address this issue, this Annex examines the landscape, policy and institutional contexts that conditions energy efficiency intermediary activities in five European countries: Finland, Germany, Hungary, The Netherlands and the United Kingdom. It does so, in each national case, through an analysis of national, EU and sub-national policy documents that is informed by answering three questions. The three questions are:

1. In each country, what are the particular landscape pressures that energy efficiency intermediaries work within?

2. In each country, what are the key national policy priorities and targets that inform the work of energy efficiency intermediaries?

3. In each country, which institutions are critical to promoting these national policy priorities and how do they do it?

With this in mind, the overarching question that the Annex is concerned with is: What are the 'landscape' pressures, policy priorities and institutional contexts that condition energy efficiency activity and practice in each country? The structure of this section is organised around answering each of the three questions in relation to each national case.

Finland

This section of the report examines the landscape, policy and institutional contexts that conditions energy efficiency intermediary activities in the Finland. As a background for considering these issues, a few particular features of the Finnish energy system are worth keeping in mind:

- Finland's per capita energy consumption is almost double the EU-27 average. This is largely due to the industrial structure, which is more dominated by heavy industries than any other country in Europe. Industry accounts for about half of the inland energy consumption. It is generally considered quite energy efficient, partly because energy is an important cost factor for this kind of industry.

- The energy system is quite diversified, with almost equal shares of various energy sources (coal, gas, oil, hydro, renewables, nuclear). Finland is constructing a new (fifth) nuclear power plant. Thus, energy security is not so much of a concern as in other countries. Large companies have historically been dominant in the energy system, and the public debate on energy is somewhat less active than in other countries (Ruostetsaari, 2009).

- The building stock is relatively new: more than half of the current buildings were built after 1970 (Ministry of Employment and Economy, 2009). They are thus relatively energy efficient, and the first large wave of major renovations has only just started.

- Due to the above-mentioned factors, the role and visibility of smaller energy users has been more limited than in other countries. In particular, households are not as important as energy users as they are elsewhere (22 per cent of total inland energy consumption), and there are fewer energy policy instruments targeted at households.

- Municipalities have large autonomy in Finland, with large budgets from income and other taxes, and also large responsibilities (healthcare, education, infrastructure and many others). Municipalities have a large role in influencing energy consumption, but energy and climate issues are not the legal responsibility of municipalities and they lack the resources to invest and improve energy performance. There are still many small municipalities, which are struggling to meet their basic responsibilities.

Energy policy landscape pressures within which Finnish energy efficiency intermediaries work

The importance of saving energy and using renewable energy resources has been stressed in Finland since the oil crises. However, energy efficiency has not been a matter of high political urgency for decades, until the debates leading up to the Energy Efficiency and Energy Services Directive (2006/32/EC). The discussion intensified in connection with the preparation of the European Commission's Climate Energy Package (2008). The package proposed to all member states a reduction in greenhouse gas emissions of emissions trading sectors by at least 20 per cent by 2020 compared to the 1990 level. Finland is required to reduce its emissions in non-ETS sectors by 16 per cent compared to the emissions in 2005.

The *Climate and Energy Strategy* (2008) aims to halt the growth in final energy consumption: in 2020, final energy consumption should remain almost equal to the current level, which is about 10 per cent less than the current trend. There are also aims to limit the growth of electricity consumption. The targets entail improving energy efficiency particularly in housing, construction and transport. Detailed measures are proposed by an Energy Efficiency Committee set up by the Ministry of Employment and Economy , which has proposed 125 detailed measures related to transport efficiency, energy performance of new and existing buildings, energy efficiency agreements, R&D and support for full-scale implementation of energy performance directives on equipment. Additionally, many measures relate to stimulating end-users through training, advice, infrastructure and financial support (Ministry of Employment and Economy 2009).

Until the present, the dominant energy efficiency instrument has been a set of voluntary energy conservation agreements with various sectors (energy sector, industry, real estate, private services, municipalities, residential building sector) (NEEAP, 2006). In most cases, these agreements require the sectors to conduct audits and work toward sector-specific targets. In return, the Ministry of Employment and Economy provides grants for audit and investment costs. This has provided business for a quite active network of energy consultancies providing energy audits and related services for organizational customers.

Apart from this, the energy intermediary network in Finland is still somewhat sparse and patchy. Motiva is the key implementer of energy efficiency in Finland (for more details, see the section on institutions). In addition, a wide range of players are working on energy efficiency on a part-time or full-time basis. These include a few regional energy agencies, consultancies, a few ESCOs, various NGOs and various functions in municipalities. However, there is no systematic nation-wide network of local energy agencies or advisory agencies for energy efficiency. The players working in this field suffer from a lack of funding and recognition for their work. Energy efficiency is mostly promoted on a project basis. Many campaigns have been organised, most visibly, the Communication Campaign on Climate Change, which engaged in particular with schools and the general public and provided project funding for a number of local intermediaries.

The situation seems to be changing, however. More attention has been directed to energy use in services and households. There is currently work underway to develop a national architecture for energy advice. In particular, the fact that there are almost 1 million houses in Finland with

'inappropriate' heating systems (oil heating or electric heating) has raised attention. The previous second Minister of Employment and Economy has actively propagated the need for heating systems conversion and the need for energy advice for households.

In summary, there are few (full-time) energy efficiency intermediaries and thus also few pressures. Motiva and the municipalities are likely to be the most influenced by the proposals of the Energy Efficiency Committee, whereas the private and NGO intermediaries will probably perceive any pressures as new opportunities. The intensified pressures may also help to stabilize the role and funding of the regional energy agencies, which is still quite precarious at the moment.

One of the main pressures is that there is today a perceived need to improve energy efficiency, but limited funding, in particular for energy efficiency improvements in small and dispersed energy end-use sectors like households, SMEs and small municipalities. Private funding is difficult to obtain as energy is still relatively cheap at the moment, making the payback period for energy efficiency investments quite long. This situation is bound to change, however, as especially electricity prices are expected rise due to the convergence of the European energy market. Government funding is directed mostly at larger organizations and larger investments, and funding is easier to obtain for innovative projects than for the use of established technologies.

Key Finnish policy priorities and targets and the work of energy efficiency intermediaries
This section focuses on policy priorities related to energy efficiency, and in particular energy efficiency in stationary energy use. Hence, priorities and targets related to industry and traffic are not discussed (see Long-Term Climate and Energy Strategy, 2008).

In Finland, the Ministry of Employment and Economy is in charge of energy policy and domestic climate policy. The aim of the Finnish energy policy is to secure energy supply and a competitive price of energy and keep the arising environmental emissions within the international commitments. The targets of the most recent Long-Term Climate and Energy Strategy (2008-2020) include the following:

- The share of renewable energy is to grow up to 38 per cent of primary energy demand from the current 27 per cent.
- The aim is to increase the efficiency of the energy system significantly (primary energy 11 per cent less than BAU).
- CO_2 emissions are to turn permanently downward.
- There are also aims to limit the growth of electricity consumption.

The targets entail improving energy efficiency particularly in housing, construction and transport. The residential sector accounts for only 22 per cent of the total energy consumption, and services hold an approximately similar share. There are comprehensive voluntary agreement schemes and economic incentives for all other sectors except private homeowners. There is a voluntary agreement and incentive scheme for multi-apartment dwellings, but this has not been as popular as the agreement schemes in other sectors (NEEAP, 2006). Moreover, the agreement scheme is not well known among owner-occupied housing associations, and few have joined.

The Finnish National Energy Efficiency Action Plan estimates that current measures will account for 71 per cent of the total indicative savings target of 9 per cent set out in the Energy Efficiency

and Energy Services Directive. The remaining share will be covered by a new extensive energy and climate conservation agreement scheme. Moreover, future savings are expected through energy efficiency in public procurement, new ESCO projects and other technology-specific projects. The outlined measures are not very specific, and it has been noted that many of the energy efficiency initiatives have been short-term, not very programmatic, and not very closely evaluated. This is one of the reasons why the Energy Efficiency Committee was established to draw up a more programmatic and ambitious set of measures.

There has been intensified attention recently to improving energy efficiency in buildings. Finland was once a forerunner in this, but has recently recognized that other countries have clearly taken the lead. For example, energy efficiency requirements for new buildings are currently more stringent in other Nordic countries. The new building regulations, with 30 per cent more stringent energy efficiency requirements, will enter into force at the start of 2010. Preparation for the next stage of improvements is underway and the target is to improve energy efficiency in new buildings by a further 20 per cent (Long-term energy and climate strategy, 2008). Most of the existing instruments (NEEAP, 2006; Long-Term Energy and Climate Strategy, 2008) focus on production or on energy consumption in industry, services and the public sector. Even where instruments are targeted at residential energy consumption, they are more focused on developers, builders and housing associations. However, there are many instruments in place to reduce energy consumption from transport, including state support for public transport, urban planning guidelines for more condensed urban plans, as well as a differential vehicle tax based on CO_2 emissions.

There is as yet no such mechanism at present in Finland as the Carbon Trust or the Energy Saving Trust in the UK to fund energy efficiency initiatives. There is thus not significant, regular public funding for energy intermediaries. In the Long-Term Energy and Climate Strategy (2008), the state budget for the coming years allocates about 270 MEUR to energy efficiency. Of this, about 120 M EUR are allocated to R&D. 100 MEUR/a is for low-interest loans for housing associations and 30M EUR/a for low-energy housing construction. There are some instruments such as grants for the renovation of existing multi-apartment houses (about 24M EUR/a for renovation grants) and private households can use a tax deduction (max 3000 EUR/person/a) for the labour component of energy renovations. 6M EUR/a are additionally allocated to training, education and communication. This is about 1 EUR/inhabitant. The Energy Efficiency Committee has proposed the need for additional allocations, especially for energy advice to households.

Institutions in Finland critical in promoting these priorities and how they do it
At the moment, the following institutions are critical in promoting national energy efficiency policy priorities:

Motiva is the key implementer of energy efficiency policy in Finland. It is a limited liability company which operates as an affiliated government agency whole share stock is fully owned by the state. It has many tasks, which include the marketing, support and monitoring of the Energy Efficiency Agreements, development and certification of energy audit services, increasing the use of renewable energy, promoting of material and energy efficiency, influencing attitudes and consumer habits and monitoring and impact assessment (Motiva 2008). It has also been central in recent years in implementing relevant European directives and providing advice on new energy technologies. According to the Energy Efficiency Committee, some of these tasks – as well as some tasks dealt with today by the Ministry - may in the future be transferred to the Energy Market Authority, to Tekes, the Finnish Technology Agency, and to new regional centres

In addition, there is a very loose network of *regional energy agencies* in Finland, consisting at the moment of eight agencies with different operating areas and funding sources. Most of these have been set up by project funding from the EC funded SAVE II project, but have since been left to fend for themselves. They obtain part of their funding from local or regional authorities and part from project funding.

Sitra, the Finnish Innovation Fund, has recently launched an Energy Programme, which aims to contribute to improving the energy-efficiency of the built environment and the energy awareness of Finns, in addition to creating new business opportunities from the transition that the energy sector is undergoing (Sitra, 2009). The programme seeks innovative operating models and technologies to improve energy efficiency. It does this by funding programmes and making venture capital investments in promising startup companies.

The Long-Term Climate and Energy Strategy (2008) highlights the role of *municipalities*, but does not suggest new support measures beyond the existing system of Energy and Climate Agreements with the Ministry of Economy and Employment. Some larger cities have been active in promoting energy efficiency, and two cities have signed up for the European Covenant of Mayors initiative. Many municipalities are involved in the ICLEI climate campaign. In some municipalities, the building inspectors have taken an active role in providing energy advice to permit applicants. Municipalities are also allowed to account for savings achieved outside the municipal building stock as achievements in their energy efficiency agreements with the Ministry of Economy and Employment, but not many have yet made use of this opportunity. Currently, five smaller municipalities have committed to become climate-neutral, and perhaps they will set an example for others to follow.

Environmental and other NGOs (e.g. industry, professional, local, homeowners' and consumer associations) mainly work on energy efficiency on a part-time basis. A large climate change communication campaign funded by the (then) Ministry of Trade and Industry (2006-2007) served to mobilise this group of NGOs and create civil society competencies in the field of energy and climate conservation.

Apart from the energy agencies, various *companies* work in the field of energy efficiency. These include consultancies, a few dedicated ESCOs and some other companies providing ESCO services. A number of new and existing companies have recently expanded into the provision of energy advice for consumers and small-scale energy users. Most energy retailers have signed an additional amendment to the energy conservation agreement with the Ministry of Employment and Economy, which requires the setting of targets for and reporting on customer advice and information.

There are changes underway currently in the network of energy efficiency intermediaries. In response to the pressures to develop a more comprehensive local *energy advice network*, the Finnish Innovation Fund, Sitra, set up a working group to design an 'architecture' for energy advice in Finland. The proposed architecture consists of a centralized advice bureau coordinating a network of local service providers (Sitra 2009). Municipal building inspectors and regional energy, environmental and economic development agencies or centres feature visibly in this network.. However, as stated above, funding issues are still not resolved.

Germany[5]

This section examines the landscape, policy and institutional contexts that influence energy efficiency intermediary activities in Germany.

Energy policy landscape pressures within which German energy efficiency intermediaries work

Generally, current landscape pressures for intermediaries are quite similar within the European Union, namely liberalisation and privatisation, sustainability and climate change as well as the increasing need for infrastructure investment.

As in other countries, in Germany, liberalisation of energy markets has been a dominant driver during the last decade. However, it has not been quite as dominant as, for example, in the UK, and it has been easier to maintain or introduce issues or instruments that are seen as 'outside' the market paradigm. Climate change objectives have been and are relatively ambitious. The comparatively decentralised structure of the German electricity supply industry with a large number of municipal companies has been maintained to some extent despite liberalisation, and also lends itself to energy efficiency measures at the local level, and the support of intermediaries.

The general, national context of energy efficiency goals and policy can be characterized as follows:

- Overall goals: Germany has a 2008/2012 GHG reduction target of 21 per cent (compared to the base year 1990) that most probably will be achieved. In addition, Germany has a 40 per cent reduction target for 2020, is striving to double its energy productivity. One element for that is incentivising efficiency measures in the building stock - the German government is aiming at substantially increasing the overall renovation rate, and offers significant subsidies for that.

- Consumption: The energy consumption per household (adjusted to the EU-27 average climate) is comparable to the EU-27 average. Whereas the energy consumption per capita is above the EU-27 average, the specific energy intensity (energy consumption per GDP) is below this average (BMWI 2008, Odyssee 2008). Regarding electricity, the average household consumes approx. 3.620 kWh per year, whereas the EU-27 average is 4.110 kWh. However, electricity consumption of private households is increasing to a larger extent than the overall electricity consumption of the country. Whereas the latter has increased by approx. 0.4 per cent per year between the 2000 and 2006 (EU-27: 2.4 per cent per year), the annual increasing of the electricity consumption in the household sector was in the range of 1 per cent/year. The market penetration of efficient A/A+/A++-rated products is already relatively high today in Germany, the rise of electricity consumption in the household sector clearly implies that efficiency gains through technology development

[5] This section additionally utilizes material from the following websites:
http://www.co2online.de/kampagnen-und-projekte/projekte/energiespar-ratgeber.html
http://www.dena.de/en/
http://www.klimabuendnis.org
http://www.iclei.org
http://www.fesa.de/
http://www.hessenenergie.de/
http://www.klimaschutz-hannover.de/index
http://www.proklima-hannover.de

are overcompensated by increasing equipment rates (e.g. tumble driers) and the trend towards larger appliances (e.g. larger TVs, refrigerators).

- Prices: The energy prices have increased substantially in recent years, except through the early opening of the electricity market in 1998. Currently, prices have reached a level at which some low-income households are not able to pay electricity and gas bills, making energy poverty an issue on the political agenda.

- Policies: The policy framework for demand side energy efficiency encompasses a wide range of different measures including, for instance, energy taxes (e.g. posed on electricity, natural gas, liquid fossil fuels), building regulations, financial support programmes (e.g. for efficiency measures in the building stock), transparency instruments (such as product labels) and information measures. So far, Germany failed to implement the EU Energy Service Directive 2006/32/EC.

  Whereas the Ministry of Economy is favouring to only implement the minimum requirements of this Directive, the Ministry of Environment has brought forward a proposal to oblige utilities that supply non-renewable energy carriers to the end consumer to implement energy savings measures at their customers. The latter would imply a rising demand for demand side energy efficiency programmes at which energy efficiency intermediaries might be entitled to participate.
  While a number of national and sub-national programs and (regulatory) frameworks are in place to promote efficiency in the various demand side sectors, there is still a lack of policy effectiveness as far as the replacement of existing stocks (especially building, heating systems and appliances) by efficient substitutions is concerned.

Key German policy priorities and targets and the work of energy efficiency intermediaries
In its Coalition Agreement of 2006, the federal government highlighted the need for enhanced energy efficiency and laid down the objective to steadily increase the energy efficiency of the national economy with the objective of doubling energy productivity (=primary energy consumption per GDP) by the year 2020, compared to 1990.
On behalf of the federal government, the Ministry of Economics and Technology (BMWi) issued a national Energy Efficiency Action Plan in November 2007 in line with the 2006 EU Directive on energy services and energy end-use efficiency.
The Action Plan contains a 9 per cent reduction target for a 9-year period, which amounts to savings of 833 PJ.

There is also an interim target for 2010 of 510 PJ, which amounts to ca. 61 per cent of the overall target. It has to be noted that for roughly 45 per cent of the target, early action measures will be claimed.

The proposed measures include:

- Considerably tightening the requirements for the energy efficiency of building
- Expanding and launching various promotion programmes in order to mobilise the most inexpensive efficiency potentials in the fields of commerce, households, agriculture and forestry, trade, services and the transport sector
- Continuing the CO2 building modernisation programme and extending support eligibility
- More investments in the energy efficiency of public buildings
- Procurement of energy-efficient products and services by the German federal government

- Liberalising the electricity measurement system with the aim to create the speedy preparation of 'smart metering'
- Incentives for the replacement of off-peak-power storage heatings
- Energy-saving contracting in the field of residential buildings
- Improvement of the energy consumption labelling regarding cars
- Call for the immediate setting of standards for appliances and products within the framework of the implementation of the eco-design Directive and the improvement of energy consumption labelling
- Launch of a technology programme 'Climate protection and energy efficiency'
- Expansion of energy research to enhance energy efficiency in the fields of, among others, buildings, trade and industry and services.

In recent years, energy efficiency is gaining more attention in the political debate. Different from the discussion about pro and cons of selected renewable energy source (especially wind), there seems to be a consensus across all political parties on the issue of energy efficiency.

Before the German electricity market was opened for competition, several utilities operated efficiency programmes such as bonus schemes for A-rated appliances, or energy consultancy. However, many of these programmes were discontinued after the liberalisation of the electricity market.

Policies in Germany comprise energy taxes (e.g. posed on electricity, natural gas and liquid fossil fuels consumption), various energy labelling activities (including those following the Energy Labelling Directive 92/75/EEC, governmental activities such as the Blauer Engel label as well as private initiatives) and financial support schemes.

Households:
In Germany the building sector is responsible for around 40 per cent of the country's greenhouse gas emissions. Here, the large efficiency potentials can mainly be assigned to the building stock. For that reason, the German government is aiming at substantially increasing the overall annual renovation rate.

The efficiency standards of buildings are regulated by the Energy Conservation Act (EnEG) and the Energy Saving Ordinance (EnEV). The EnEG, which was passed in 1976 in response to the oil crisis as well as the accompanying price increases for mineral oil, originally pursued the goal of decreasing Germany's dependency on crude oil imports.
In the last 30 years, both the basic conditions of energy policy and the objectives of environmental policy have changed significantly. Nowadays, it is the requirements of climate protection which particularly call for an effective instrumentation to exploit the potential savings in the building sector and which is the main driver to periodically enhancing the minimum efficiency standards.

Awareness raising, advice and labelling are claimed to be important instruments for the implementation of energy efficiency in private households. Thus, on the different levels of decision, various campaigns and other promoting measures are in place.

Funded by the German Ministry of Environment, an education and information campaign named 'Klima sucht Schutz', with the main focus on the reduction of CO_2, was started in 2004 with a bundle of different measures and addressing different target groups. One of the elements is an

online tool advising people to reduce their energy consumption. Also, a competition was set up for homeowners addressing energy saving investments.

Business and Public Sector:
Besides private households, also the public sector is addressed by the above mentioned campaign 'Klima sucht Schutz'. Under the umbrella of this national climate protection programme, a sub campaign called 'Klimaschutz in Schulen und Bildungseinrichtungen' ('Climate protection in schools and educational institutions') established several activities. As specific long-term parts of the program, the energy management of schools together with the aspects of energy behaviour of school kids were included.

The Ministry of Economics and Technology (BMWi) together with the KfW bank have established the 'Special Fund for Energy Efficiency in SMEs' to tackle both the informational and cost barriers faced by SMEs. The programme has two components: the advice component and the financing component. The advice component provides grants for SMEs to obtain advice and consultation regarding energy efficiency.

Transport
In the transport sector, the Federal Ministry of Environment (BMU) established – besides other policy instruments - an initiative to promote an action programme on alternate mobility. With 'Effizient mobil' ('Efficiently mobile'), 15 regional networks were supported to give information and practical advice to change the travel routines in everyday life.

The Ministry of Research and Education (BMBF) is funding a research programme that encompasses projects on public transport/modal split and the conditions to use more efficient technologies were discussed with the involvement of customers.

The Ministry for Transport and Housing (BMVBS) is currently preparing a study program of 'city mobility' which aims at supporting modal shifts, and infrastructure development for public transport, and biking.

Institutions in Germany critical in promoting these priorities and how they do it
The political energy efficiency priorities encompass targets that address different sectors, use different instruments to achieve the targets that are differentially funded and prioritised and operate over varying timescales. Consequently, the translation of priorities into practice is envisaged to take place in a variety of ways.

Energy efficiency activities, campaigns, programmes and other instruments are implemented in relation to schools, business, households, public estates and this is often through intermediaries and networks of intermediaries at different scales and with different responsibility. These institutional backbones can be classified at different levels of action: the national, the sub-national and the local - respectively the regional – context.

In the last 20 years, several intermediaries such as the German Federal Energy Agency (Deutsche Energieagentur 'dena') and numerous energy agencies on the state level ('Bundesland') as well as local and regional agencies have emerged and made the issue of energy efficiency in the household and business sector to a core topic.

Another important type of institution are organisations such as the consumers' protection agencies which are operating from a state's level with a roof organisation at national level

(VZBV) as well as 'Stiftung Warentest' or 'Ökotest' which provide a large degree of transparency in the variety of different energy using products.

The latter ones are carrying out and publishing product quality tests and consumer information.

German Energy Agency - dena (public intermediary)
The Federal Energy Agency was established in 2000 by the Ministry of Environment and the Ministry of Economy, its shareholders are the Deutsche Bank AG, KfW-Bank, DZ Bank, Allianz SE and the German Government. The agency is – in the eyes of the political actors – the key player to the delivery of 'national efficiency'.

Dena assists local authorities to deliver their energy responsibilities through a range of initiatives, such as information campaigns and services which provide assistance and advice on implementing climate protection and efficiency policies. Dena offers several platforms of exchange for experts or intermediaries as well as for laymen (websites, conferences, regional events).

Among other fields of energy advice, the agency is also running an initiative on efficiency for companies (mainly SME), 'Initiative EnergieEffizienz' which offers first-hand information on successfully implemented projects at an internet database.

Energy Agencies at States' level (public/private intermediaries)
The focus of agencies at the states' level is more specifically related to the development, demonstration and commercialisation of new energy technologies, offering advice to SMEs and supporting new business and housing developments. Their activities require 'partnership' working with business support and other public, private and public-private 'intermediaries'. In all German States one can find an institutionalised energy intermediary – even though they are build on different business models, they follow similar aims and have similar tasks.

hessenENERGIE GmbH, for example, is an agency based in the State of Hesse that promotes the efficient use and environment-friendly production of energy. It provides consulting services and develops investment projects. It was founded in the late 1900 years as a public body and acquired a lot of expertise that is implemented in its range of services. The core business of hessenENERGIE – in the meantime converted into a private company - is to determine the energy-saving potential that could be exploited in state Agencies as well as in small and mid-sized companies by implementing modern technology and intelligent control devices. In this context, power-saving technology, decentralized CHP plants and innovative concepts to optimize building heating play a key role. Another central element is the use of renewable energy sources, such as wind and biomass.

Regional and Local Agencies
Regional Agencies also play a central role in the 'delivery' of national energy efficiency priorities with an own strategic responsibility for economic and sustainable development in the particular region. They do this through efficiency strategies and, in some cases, climate change strategies which set out targets and priorities and which aim to support the deployment of energy infrastructure and the development of skills and innovation at a local and regional level.

One of these successful examples on the local and regional level is the agency fesa e.V. which is responsible for the promoting of solar energy and efficiency in the Freiburg region since 1993. The agency describes the main objectives as follows: 'increase public awareness for energy efficiency and renewable energy; demonstrate new possibilities through innovative projects; and,

through our network, forge useful links with and between political, business and non-profit leaders.' Through their quarterly publication, 'SolarRegion', a monthly newsletter and several events they provide current information on renewables and energy efficiency for different target groups (SME as well as homeowners and local authorities).

Another example of a successful promoter on the regional level is the climate network Hannover (KLima-Netzwerk), which was founded in 1998 with the support of the local administration and municipal utility. The main idea and vision was to promote more interest for the issue of energy retrofitting, using a mix of marketing instruments. Several campaigns of the network addressed house owners as well as craftsmen, planners, manufacturers and construction firms. The construction business was addressed with the aim to ensure quality and capacity building within the region. Together with Agenda 21 groups and other partners the network motivated house owners to consider energy retrofits thus implementing the idea of social marketing by multipliers in private buildings.

Local authorities
Local authorities with their statutory responsibilities in relation particularly to transport, planning and their own estates and fleets are able to influence the 'delivery' of national energy efficiency priorities through their strategic priorities. 'Delivery' of priorities is often addressed in partnership with intermediaries like regional agencies or platforms on the main purpose of climate protection. Many local administrations have – for their own purpose – an energy manager, who is often also involved in an energy advice programme for private households.

Very well known in a national and also international supportive context are the two networks for local authorities: the 'Climate Alliance of European Cities' and ICLEI with its' Local CO_2 Reduction Project.

Over the years, both networks did a great job in motivating local administrations to participate in climate protection and energy efficiency activities. They also offer tools for calculating CO_2 and different strategies for CO_2 reduction on the local level. Apart from local authorities they also address private households directly with some of their tools and campaigns.

Hungary

Energy policy landscape pressures within which Hungarian energy efficiency intermediaries work[6]
In Hungary energy efficiency intermediaries face various pressures. According to the Hungarian National Energy Efficiency Plan (NEEAP), three objectives are to be met in the field of energy policy. These are related to strengthening competitiveness, increasing the security of energy supply and promoting sustainable development. The first objective basically emphasizes the need for achieving economic growth goals while adhering to environmental standards and also improving the environmental protection which enhances competitiveness of the economy. The second objective calls for the diversification of energy supply in order to achieve the independency from energy imports which is currently up to 76.6 per cent (Government of the Republic of Hungary, 2007). One of the ways to achieve the security of energy supply is by

[6] This section has also referred to the following websites:
Hungarian Energy office: http://www.eh.gov.hu/home/html/index.asp?HKL=1&lng=2&msid=1&sid=0
Hungarian Energy Center: http://www.energiakozpont.hu/index.php?p=181
Energy Club:www.energiaklub.hu

increasing the share of renewable energy sources. In accordance with the EU requirements, Hungary is to double its present 3.6 per cent share of renewables in the primary energy production, increase the share up to 3.6 per cent in the electricity consumption and reach 5.7 per cent share of biofuels in the fuel market by 2010 (Toth, n.d.). Apart from increasing the use of renewable energy, the sustainable development objective for Hungary also means fighting against climate change and increasing energy efficiency. One of the main constraints for Hungary is the low potential for energy efficiency as compared to other EU countries due to small dwelling spaces, smaller and fewer cars, underdeveloped transport sectors and others (Government of the Republic of Hungary, 2007). However, the fact that national energy consumption for heating in Hungary is 70 per cent higher than the EU-15 average makes it a good target for energy efficiency measures (Government of the Republic of Hungary, 2007).

In addition, meeting the energy security supply target requires a substantial upgrading of the energy infrastructure that is mentioned in the New Hungary development plan (Government of the Republic of Hungary, 2006). This will require additional funding from various sources.

Energy saving is also emphasized as important in meeting energy policy objectives and commitments. Housing and public building retrofitting is envisaged to be carried out by the energy intermediaries with the governmental support to achieve energy savings (Government of the Republic of Hungary, 2007).

Finally, the role of promotion of sustainable consumption is highlighted as one of the priorities for Hungary. The reason for this objective is that the Hungarian population displays growing consumption levels while at the same time is characterised by a low environmental awareness as compared to other EU countries (Government of the Republic of Hungary, 2007). Therefore, energy efficiency intermediaries are encouraged to promote energy efficiency technologies and techniques, support spreading sustainable consumption patterns and developing environmentally friendly attitudes (Government of the Republic of Hungary, 2006).

Key Hungarian policy priorities and targets and the work of energy efficiency intermediaries

In compliance with the Directive 2006/32/EC of the European Parliament and of the Council, the Government of Hungary passed the Decision No. 1107/1999. (X. 8.) that established the energy saving target of 75 PJ/annum to be achieved by 2010 (Ministry of Economy and Transport, 2007). The Hungarian National Energy Efficiency Action Plan sets out key energy efficiency programmes and measures available to reach the energy saving target. The Action plan is closely linked to the New Hungary Development Programme and it is emphasized that the targets set for different sectors are in line with the budget available within the New Hungary Development Programme (Ministry of Economy and Transport, 2007).

The Energy-Saving Credit Fund that has been in operation since 1991 through the provision of loans for energy efficiency and renewable projects and is expected to achieve savings of 6-6.5 PJ/annum by the end of New Hungary Development Programme.

PHARE Co-financed Energy-Efficiency Credit Construction is aimed to provide financial assistance for energy efficiency investments. The savings from the operation of this programme are assumed to be 5-5.5 PJ/annum by the end of 2013.

The Environment and Energy Operational Programme (Government of the Republic of Hungary, 2007-2013) supports energy-savings investments for public institutions, local governments, small

and medium-size enterprises, district heating companies, churches, and civil organisations. By 2013 Environment and Energy Operational Programme aims to achieve savings of 6 PJ/annum.

The residential sector is supported through the 'For a successful Hungary' programme which provides financial aid for the retrofit of residential buildings and the use of renewable sources of energy. The energy saving target for the residential sector is estimated at 3 to 3.3 PJ/annum by 2013.

As for the actions targeting energy efficiency of transport, there are two main measures carried out by the Government. First, the registration tax for the new vehicles is to be maintained. The tax is differentiated according to the emission qualification and the cylinder displacement of the motor vehicle. This tax measure is expected to result in 0.5 PJ of annual energy savings up to 2013. The second measure is the introduction of a charge for heavy vehicles and is estimated to achieve 0.7-1.0 PJ per year up to the target year of 2013.

Overall, the combined effect of all energy efficiency programmes and measure will ensure 1 per cent end use energy savings for Hungary per year, as recommended by the EU Directive. In addition, the energy efficiency action plan states other actions that are likely to bring additional savings (Ministry of Economy and Transport, 2007):

'– extension of state aid in respect of replacing household installations with efficient ones, compact fluorescent tubes, etc.;
– state aid to investigations aimed at exploring energy losses;
– state aid to the development of energy-saving awareness (school syllabuses, programmes, etc.);
– making the use of energetically efficient office installations obligatory;
– extension of the system of specialists for energy management;
– promotion of the dissemination of building technologies resulting in the smallest use of energy;
– state aid to the P+R system in transport;
– support to railway and water transport, development of the combined transport of goods and of logistic centres;
- enforcement of air pollution and energy consumption requirements when new motor vehicles are entered into circulation (enforcement of the EU's gCO2/km Directive, initiation of a system of checking tyre pressures, energy-efficient air-conditioners);
– strengthening of the energy aspect of environmental and traffic safety considerations in connection with the import of used vehicles;
– in connection with the registration tax of vehicles and with the vehicle tax allowing the operation of vehicles, the favouring of motor vehicles with smaller fuel consumption and less performance;
– regular environmental protection inspection of the vehicles in operation, which also has an indirect effect on fuel consumption'.

According to the Hungarian Strategy on Climate Change in force since 2008, the full implementation of the strategy by 2020 will lead to an 18 per cent decrease of greenhouse gases calculated against a 1990 emissions baseline. the strategy envisages such measures as consumer credits, industrial changes, subsidies and tax benefits for households, and the extension of eco-labelling to electric appliances and vehicles (IEA, n.d.).

Institutions in Hungary critical in promoting these priorities and how they do it
In Hungary national policy priorities are supported by several major institutions. The Ministry of Environment and Water, in particular its Climate Change and Energy Department, has an overall responsibility for climate change issues, including the maintenance of a national greenhouse gas inventory and climate reporting and supervising the implementation of a national climate change strategy (Ministry of Environment and Water and Hungarian Meteorological Service, 2007).

Next, the Hungarian Energy Office (Magyar Energia Hivatal) is the primary institution which deals with energy issues. It is an independently managed body financed through the state budget and accountable to the Ministry of Economy and Transport of Hungary. The Energy Office performs a variety of activities. It participates in the preparation, monitoring and supervision of electricity, district heating and natural gas prices. The Office also issues and amends licenses for the generation, distribution, trade and supply of electric energy. Finally, the Energy Office plays an important role in the protection of consumers by dealing with consumer complaints in writing, over the phone or personal meetings. Beside these tasks, the Energy Office takes an active part in the preparation of regulations by advising the Ministry of Economy and Transport and participates in the work of Inter-Departmental Committee of Energy Saving as an advisor.

The second intermediary institution working on energy issues in Hungary is the Energy Center (Energia Kozpont). This national energy agency belonging to the Ministry of Transport, Telecommunications and Energy supervises energy efficiency and renewable energy programmes in Hungary. In particular it is responsible for managing subsidies and loans for energy efficiency and renewables, preparation of government strategies on energy efficiency and alternative energy sources, provision of energy related statistics and public information services. The Center is also involved in the management of tenders and organization of energy related campaigns, as well as an advisory role to the Ministry of Transport, Telecommunications and Energy.

It should be mentioned however that the above described institutions have recently experienced considerable personnel cuts and restructuring due to a high budget deficit (IEA, 2007).

At the level of non-governmental organizations working on energy efficiency, renewables and climate change issues, the Energy Club (Energia Klub) is the most influential civil society organization in Hungary. The Energy Club undertakes numerous activities on related issues such as awareness raising campaigns, lobbying, capacity building and networking in the CEE regions. The organization also offers services for NGOs and businesses. One of its achievements is the establishment of an energy advisory network throughout Hungary.

The Netherlands[7]

Energy policy landscape pressures within which Dutch energy efficiency intermediaries work
This section examines the landscape, policy and institutional contexts that condition energy efficiency intermediary activities in the Netherlands. Like in many countries, the 'Landscape' pressures in the Netherlands that promote, constrain and structure energy efficiency activity are numerous and often interrelated.

Firstly the country is an important transit and trade hub for natural gas, oil and electricity in Europe due to the Rotterdam and Eemshaven harbour (transit and refinery), the natural gas fields

[7] Material also used from: Dutch ministry of finance www.minfin.nl.
Meer met Minder (More with Less) Foundation www.meermetminder.nl

and the extended electricity and natural gas grids in the country used for transfer between different countries in North and West Europe. Also the Netherlands still has significant amounts of natural gas and a relatively large oil refinery industry. The gas and electricity markets are liberalised and the grids are owned and operated by independent, state-owned companies. The government focuses on further improvement of continental energy security via policies, market regulations and infrastructural measures for the trade and transport of gas and electricity.

The aim of the country's energy policy is to have a clean, affordable and reliable energy system. To fight global climate change and create a sustainable energy future the government has set ambitious targets for the improvement of energy efficiency, the increase of production and use of renewable energy and the reduction of CO_2 emissions. These targets and related action plans are described in the Clean and Efficient (Schoon en Zuinig) programme, the Energy Report 2008 Strategy and the Energy Transition Framework[8] and are based on EU laws, regulations and targets. To meet all the targets the government has planned to invest EUR 274 – 314 million per year on energy efficiency measures between 2008 and 2011.

The above mentioned policy programmes ask for complex co-ordination and co-operation between the different ministries, energy transition platforms and universities and other research institutes that are often actively involved in decision making[9]. In combination with the Dutch Polder Model, which is based on consensus decision making including a lot of dialogue between government, labour associations and other social partners, the government sometimes lacks the required decisiveness and continuity in policy development (OECD/IAE, 2009). For example the abrupt end of the subsidy scheme in 2006 for renewable energy was only replaced over two years later in 2008 by a new scheme[10].

Another landscape feature of the Netherlands are the well organised and relatively powerful NGOs. These organisations often work together to set up influential campaigns. An example is the HIER campaign, a co-operation of 40 NGOs to battle climate change by all different types of projects on a small and larger scale. NGOs are also involved in governmental decision making on all levels, for example via the energy transition platforms. Apart from NGOs focussing on environmental issues also a lot of non profit organisations and networks are set up around certain process themes, like the transition network (a network of people working in transitions on different fields to exchange experiences), the innovation network (an organisation developing innovative concepts and putting them into practice via facilitating the interaction between actors).

Another aspect influencing the implementation of energy efficiency measures (and thus reaching the policy targets) in dwellings is the high density of population in the Netherlands. Due to the lack of space to build new dwellings, houses are more often restored and renovated instead of being taken down and replaced by new-build dwellings compared to other European countries.

Key Dutch policy priorities and targets and the work of energy efficiency intermediaries

[8] These are further explained in the next section.

[9] for example the structure of the energy transition platforms was based on scientific theory on transition management developed by Dutch universities.

[10] The subsidy scheme (MEP) was suddenly ended in 2006 due to the over-demand on subsidies and the lack of a maximum budget. Because the costs of the subsidy scheme became too high, the minister decided to stop the complete scheme unannounced in summer of 2006. It took over 2 years for the government to set up a new subsidy scheme for renewable energy (SDE).

In this section we develop a better understanding of how these landscape priorities and targets are embodied in Dutch policies for energy efficiency; which in turn inform the activities of Dutch energy efficiency intermediaries.

1. *The Clean and Efficient (Schoon en Zuinig) programme*. The targets of this programme for 2020 are:
    - Reducing emissions (mainly CO2) by 30 per cent compared to the level of 1990
    - Increasing the share of renewable energy to 20 per cent
    - Increasing energy efficiency of buildings to increase energy savings from 1 to 2 per cent per year between 2008 and 2020.

    These targets are linked to, but more ambitious than, the European targets of 20-20-20 by 2020[11].

2. The *Energy Report* 2008: Energy Reports are written every four years and describe the country's energy and environmental framework. The Energy Report 2008 details the governmental strategy through 2011 and long-term visions for 2050. The Report is written towards the aim of a clean, affordable and reliable energy system and sees the need for technical breakthroughs, energy co-operation, changes in behaviour and adjustments to the energy infrastructure. The Report describes the country as an important transit and trade hub for energy and an important partner in developing environmental and energy technologies. Innovation is an important pillar of the policy framework and over 900 million Euro is reserved for demonstration projects and other innovation activities.

3. The *Energy Transition Framework* was developed by the national government to achieve the transition to a more sustainable energy future. It brings together knowledge, creates create efficient laws and regulations and supports projects financially. It is an initiative of six Ministries (Economic Affairs; Housing, Spatial Planning and the Environment; Agriculture; Nature and Food Quality; Transport, Public Works and Water Management; Foreign Affairs and Finance) and implemented in cooperation with market parties, scientific and civil organisations and governmental agencies. Each platform is chaired by a non-governmental person and includes innovative business people, creative NGO's, trendsetting companies, knowledge institutes, etc.

These three pillars of the Dutch governmental policy related to energy have led to a wide number of policies, regulations and laws implemented in different fields. Below the most relevant in relation to the sustainable use of energy are highlighted for households and other buildings, industries and public sector and transport.

Households and buildings:
Meer met Minder (More with Less) programme: this national programme aims at reducing the energy use of 2.4 million houses and other buildings by 30 per cent in 2020. It is a combined agreement of ministries (Economic Affairs and Housing; Spatial Planning and Environment), a transition platform, energy companies, housing associations and the building industry.

Voluntary agreements: part of the More with Less programme are voluntary agreements the government has signed with key players in the Dutch housing, energy and construction sector. The aim is to reduce energy consumption of buildings with 100 PJ in 2020.

[11] The European 20-20-20 targets for 2020 include reducing emissions with 20% compared to 2005, increasing the share of renewables to 20% and reduce energy demand via energy efficiency measures with 20%.

Building Decree: since 1995 the building Decree contains minimum standards for new buildings based on the EPC (Energy Performance Coefficient). The EPC is related to the size of the building. The standards have been strengthened several times and led to an energy efficiency gain of 50 per cent since 1995.

Energy labelling appliances: Energy labelling for appliances has been introduced in 1996. This has lead to energy and emission savings and a very high market share of A-label appliances.

Industry and Public Sector:
Long-term agreements (LTA) and Benchmarking Covenants: Since 1992 long-term agreements on energy efficiency have been signed with energy intensive industries. In 1998 new agreements have been signed that extend until 2012. The LTA requires these industries to introduce appropriate process efficiency measures with a payback period of five years and to implement energy management systems. Additionally the government has set up a Benchmarking Covenant for the energy intensive industries in which it is agreed that they will be among the world leaders in terms of energy efficiency for processing installations. Nearly all energy-intensive industries in the country are participating in this covenant.

The *Energy Investment Allowance* is a tax deduction encouraging companies to invest in energy-efficient equipment and renewable energy sources. 44 per cent costs of investment in EE equipment and RES can be deducted from the taxable profit.

Transport:
Fuel and motor vehicle taxes: High fuel taxes (45 per cent for gasoline and 34 per cent for diesel in 2007) make the Dutch fuel prices one of the highest in Europe. Simultaneously the government is currently changing the registration tax for motor vehicles based on the price of the cars into a vehicle tax based on the emissions of the car. This is done in several steps between 2008 and 2013. In 2009 already an exemption of the registration tax is installed for 'clean cars' (less than 95 g/km CO_2 emissions for diesel and 110 g/km for gasoline cars) and polluting cars are punished with an extra tax of 125 euro per g/km emissions above the limit of 205 g/km for gasoline and 170 g/km for diesel cars.

New Driving Force Campaign (eco-driving): This campaign was launched in 2000. It included several initiatives including driving style training and examination (part of the drivers test), use of energy saving in-car equipment, improvement of tyre pressure and energy labels for cars. These labels are currently connected to new the vehicle tax system described above. The Eco-driving initiative has also set out goals for trains, specifically more efficient travelling by rail, and inland shipping.

A *Flight tax* was implemented in 2008 on every flight from Dutch airports (€11.25 for flights within Europe and €45 for other flights). However, to stimulate travelling in light of the economic crisis, the flight tax is cancelled in 2009.

Institutions in the Netherlands critical in promoting these priorities and how they do it
The Ministry of Economic Affairs is the primary authority responsible for energy policy in the Netherlands. However the Ministry of Agriculture, Nature and Food Quality, the Ministry of Transport, Public Works and Water Management and the Ministry of Housing, Spatial Planning and the Environment are also closely involved in the formulation of the targets and the implementation and enforcement of the policy measures. The ministries use several different instruments to achieve the targets set out in the different policies. Energy efficiency activities,

plans and instruments are implemented in relation to schools, businesses, households, public estates and this is often through intermediaries and chains of intermediaries at different scales with different funding systems and different timescales. Below the most important (groups of) intermediaries are described.

Public intermediaries
The 'Clean and Efficient' programme is practically translated into approximately 100 projects which are executed by the *programme board* in cooperation with the industry and other governmental departments and agencies on the national and local level. Members of this programme board are representatives of the different ministries involved in the programme.

The governmental agency *SenterNovem* (part of ministry of Economic Affairs) is the most important public intermediary organisation. They promote sustainable development and innovation on the national and international level. SenterNovem directs programmes and projects to explore renewable energy sources and assist the government in such investments. Their tasks also include: (1) the implementation of the renewable electricity promotion schemes; (2) grant subsidies based on renewable energy certificates; (3) establish and manage the long-term agreements with industries; (4) direct programmes and projects aiming at monitoring emission reduction.

Energy Transition platforms
Six Dutch ministries cooperate in the Energy Transition Platforms. These seven platforms were installed around different aspects of the energy transition with high economic opportunities for the country. In these platforms the national government cooperates with local governments, market parties, scientists, NGO's and other organisations/actors maybe with an example as well. These platforms encourage cross-border thinking, improvements of laws and regulations and innovative projects by means of subsidies.

Local authorities
Both on provincial and municipal level local governments can stimulate the implementation of national governmental policies by designing complementary local policies in various fields including housing, industry, and transport to name a few. These local policies are often combined with other measures of stimulation like subsidies, parking fees, etc.

Foundations and other non governmental organisations
ECN (Energy research Centre of the Netherlands) is a large research institute working in the field of energy and links the fundamental research of universities with applied technologies in practice. ECN is also the main institute providing forecasts for the national government on the development on energy savings and energy efficiency. This also includes a yearly review of the 'Clean and Efficient' programme.

The *Foundation Meer met Minder* executes the 'More with Less' agreement on behalf of the partners involved (ministries, housing associations, constructing industry). The foundation supplies information, tools, subsidies and specialised advice to all actors involved in the housing sector to attain higher energy efficiency in houses and other buildings.

United Kingdom

Energy policy landscape pressures within which UK energy efficiency intermediaries work
This section examines the landscape, policy and institutional contexts that conditions energy efficiency intermediary activities in the UK.

'Landscape' pressures in the UK that promote, constrain and structure energy efficiency activity are numerous and often interrelated. The UK has a statutory requirement to reduce its contribution to global CO2 emissions by 80 per cent by 2050 compared to 1990 emissions levels, with a duty to ensure the trajectory to 2050 is consistent with an intermediate target of by 34 per cent by 2020[12]. In particular the 2007 Energy White Paper (BERR, 2007) detailed two critical long-term challenges for UK energy policy:

1. To address climate change through the reduction of carbon dioxide emissions both within the UK and abroad; and

2. To maintain security of energy supply through• ensuring not only secure, but also clean and affordable energy that addresses increasing UK dependence on imported fuel.

Though these two issues are key to UK energy priorities they also relate to a further set of national government priorities. In particular, this includes an emphasis on maintaining economic competitiveness, both through stated aspirations to reduce energy bills via energy conservation and efficiencies and also through the development of energy efficient technologies and the export opportunities it creates for UK business. A further stated priority is addressing fuel poverty through improving the energy efficiency of UK households via energy savings measures and the related reduction in fuel bills.

Furthermore, these targets must be addressed in a context of infrastructure systems and legacies that were frequently developed a century and more ago. Additionally the privatisation and the liberalisation of energy, transport and water infrastructures in the UK over the last 25 years and the opening up to competition of infrastructure provision means that a wide range of distributed stakeholders and social interests are now involved in the systems of production and consumption of infrastructures.

The functioning of UK infrastructures is often seen from very many different viewpoints and positions (including utilities, local authorities, regulators, consumers, citizens, businesses etc) in respect of different issues and pressures (economic growth, climate change, resource consumption, fuel poverty) at different levels (supranational political institutions, national government, RDAs, local authorities, business, households and so on). The challenge of achieving 'effective' energy efficiency practice is thus predicated on multiple factors, multiple actors and multiple levels that require effective coordination.

Key UK policy priorities and targets and the work of energy efficiency intermediaries

In this section we develop a better understanding of how these landscape priorities are embodied in policies and targets for energy efficiency that have been developed and that inform UK energy efficiency intermediary activity. In particular the Energy Efficiency Action Plan 2007 (DEFRA, 2007) aims to fulfil two commitments of the UK Government:

1. To meet the UK's requirement in relation to Article 14 of the EU Energy End-Use Efficiency and Energy Services Directive to produce a National Energy Efficiency Action Plan for submission to the European Commission (Directive 2006/32/EC); and

2. To review and update the Government's 2004 Energy Efficiency Action Plan (DEFRA, 2004) – the document that outlined how energy efficiency targets and priorities in the

[12] http://www.decc.gov.uk/en/content/cms/legislation/en/content/cms/legislation/cc_act_08/cc_act_08.aspx

2003 Energy White Paper (DTI, 2003) would be met – by taking into consideration related and relevant policy developments since its publication. This includes the 2006 Climate Change Programme (DEFRA, 2006), the 2006 Energy Policy Review (DTI, 2006) and the 2007 Energy White Paper BERR, 2007). The aim here being to produce a clear and coordinated statement of UK energy efficiency policy.

The Action Plan sets out a wide range of policies and measures that contribute to climate change and energy security priorities. In particular it sets out a 9 per cent energy savings target by 2016 – with a proportionate interim target by the end of 2010 - under the EU Directive, which it claims it expects to exceed with a saving by the end of 2016 of 18 per cent over the target period (DEFRA, 2007). The Plan highlights a series of measures in relation to households, business and the public sector and transport. Key aspects can be summarised as follows:

Households:
Regulations, codes and certificates: Energy efficiency in new homes are to be achieved through revisions in building regulations and measures to achieve compliance with these regulations so that a home built at the time of the new regulations (2007) would be at least 40 per cent more efficient than one built in 2002. In new homes it is proposed to make all homes in England zero carbon by 2016, with interim targets primarily though regulations, codes and certificates.

Advice, labelling and awareness raising: Awareness raising, advice and labelling are claimed to be important considerations of the Plan in relation to households. This is illustrated, particularly through the 'Act on CO2' initiative, as part of DEFRA's wider Climate Change Communications Initiative, of the role that individuals can make in responding and contributing to reducing CO2 emissions in simple ways and also through the Energy Saving Trust (EST), energy efficiency advice is offered and targeted and energy efficient products are endorsed and promoted.

Metering – in the longer-term the government has aspirations over the coming decade to get 'smart meters' into households and Government is also *working with retailers and manufacturers*, for example, to phase out inefficient light bulbs for domestic use by 2011.

Business and Public Sector:
Emissions Trading Scheme (EU, UK, cap and trade) and Climate Change Levy – The UK Governments uses, and claims it has aspirations to strengthen, the EU ETS as 'the' key mechanism to reduce emissions in energy intensive organisations. It aims to implement a Carbon Reduction Commitment (CRC) cap-and-trade scheme for large commercial and public sector organisations by 2020 having completed a voluntary pilot UK Emissions Trading Scheme (DEFRA, 2007). Additionally a Climate Change Levy has been introduced to reduce energy use in industry and the public Sector.

Metering - The UK Government has made 'advanced metering' mandatory for large energy users and will consult 'on the implementation of a proposal that energy suppliers should provide all but the smallest non-household users with advanced metering services within the next 5 years' (DEFRA, 2007). The Carbon Trust provides energy efficiency *advice* for organisations.

Grants, loans and allowances - Government has developed a series of grants, loans and allowances to contribute to the improvement of the energy efficiency of businesses. These include: (1) the Enhanced Capital Allowances (ECA) scheme which provides businesses with a first year 100 per cent tax allowance on designated energy efficient equipment investments; (2) building *regulations* to encourage businesses to improve the efficiency of boilers, heating systems

and air conditioning systems; (3) providing loans, through the Carbon Trust, to SMEs for qualifying energy efficiency investments.

Targets for government's estate - Government is also keen to 'lead by example' through improving energy efficiency throughout the public sector and through its own estate. Government has set targets for reducing emissions on its own estate by 30 per cent by 2020, to reduce emissions by road vehicles by 15 per cent by 2010/11, to make the Central Government offices carbon neutral by 2012, and for Departments to increase their energy efficiency by 30 per cent per m² by 2020. Targets have also been set for energy efficiency in the National Health Service (NHS) and the Education sector.

Transport:
Energy efficiency in relation to transport is arguably less ambitious than in respect of the two other sectors but it includes the following:

Transport and the EU ETS – where the UK Government claims it is pressing for aviation to be included in the EU-ETS and where the Government will 'continue to investigate the possibility' of including surface transport in the EU-ETS. *Communication and public engagement* – where public investment in public transport is being communicated and in respect of *Innovation, technology and transport* Government is funding innovation and will finance a new Low Carbon Vehicle Innovation Platform aimed at accelerating UK technology research.

Institutions in the UK critical in promoting these priorities and how they do it
UK Government energy efficiency priorities, as has been illustrated, encompass targets that address different sectors, use different instruments to achieve the targets that are differentially funded and prioritised and operate over varying timescales. Consequently the translation of UK Government priorities into practice are envisaged to take place in a variety of ways. Energy efficiency activities, plans and instruments are implemented in relation to schools, business, households, public estates and this is often through intermediaries and chains of intermediaries at different scales. 'Delivery' of energy efficiency priorities in the UK can be characterised as being undertaken by the following institutions or 'intermediaries':

Public intermediaries
'Intermediaries such as the Energy Saving Trust (EST) and the Carbon Trust are central to the 'delivery' of national energy efficiency priorities. The EST, for example, manages the UK's Low Carbon Buildings Programme which encompasses both energy efficiency and microgeneration technologies in buildings. It does this using grants totalling £86m (between 2006 and 2009) in a range of buildings including schools, social and local authority housing, businesses and public buildings. The EST also does this in other sectors, for example transport, through the promotion of low carbon vehicles, fuels and advice in relation to businesses through a review of their fleets – for organisations with more than 50 vehicles, in England - or free telephone advice for those with smaller fleets and more generally to consumers through a network of advice centres. The EST also assists local authorities to deliver their energy responsibilities through a range of initiatives, such as the 'Practical Help' service which provides assistance and advice on implementing environmental policies including sustainable energy policy. Similarly The Carbon Trust was set up in 2001 by UK Government as an independent company that would work with organisations to reduce carbon emissions, reduce energy bills and develop commercial low carbon technologies through practical advice, publications, interest-free loans, and on-site surveys[13].

[13] http://www.carbontrust.co.uk/default.ct

Private intermediaries

Private intermediaries have also been founded by national Government to 'deliver' energy efficiency priorities. Salix Finance Ltd, for example, is a private company funded by Government that was set-up in 2005 as a pilot to work with local authorities and to which funding of £20 million was allocated between 2006 and 2008. Its aim is to establish energy efficiency revolving loan schemes in the public sector, to deliver ongoing energy and carbon savings, where energy costs saved by projects are fed-back to support further projects in an ongoing manner[14].

Regional Development Agencies

Regional Development Agencies (RDAs) play a central role in the 'delivery' of national energy efficiency priorities with a strategic responsibility for economic and sustainable development. In particular they do this through energy strategies and, in some cases, climate change strategies which set out targets and priorities and which aim to support the deployment of energy infrastructure and the development of skills, innovation, research and development at a local and regional level. More specifically this relates to the development, demonstration and commercialisation of new energy technologies, offering advice to SMEs and supporting new business and housing developments to set standards for energy efficiency and carbon emissions significantly above national building regulations. RDAs' development and piloting of these agendas requires 'partnership' working with business support, skills, resource efficiency and other public, private and public-private 'intermediaries'.

Local authorities

Local authorities with their statutory responsibilities in relation particularly to housing, transport, planning and their own estates and fleets are able to influence the 'delivery' of national energy efficiency priorities through their strategic priorities. 'Delivery' of priorities is often addressed in partnership with intermediaries such as EST.

The exemplary role of London

London frequently occupies an 'exemplar' role in UK policy development and implementation. The Mayor of London has statutory responsibilities to develop strategies for climate change mitigation and energy and climate change adaptation that outline proposals and programmes relating to energy efficiency. The Mayor's Climate Change Action Plan (Mayor of London, 2007) encompasses Green Homes, Green Organisations, Green Energy and Green Transport programmes which have a significant energy efficiency remit.

[14] http://www.salixfinance.co.uk/home.html

Annex 6: List of participants at the four CHANGING BEHAVIOUR workshops

Tallinn Workshop, 28th November 2008, National Library, Tallinn

Mirja Adler, KredEx, Estonia
Artur Belavin, OSRAM, Estonia
Mari Habicht, Archimedes Foundation, Estonia
Teet-Andrus Kõiv, TUT Estonia
Heikki Kulbas, Ministry of Economic Affairs and Communications, Estonia
Madis Laaniste, Ministry of Economic Affairs and Communications, Estonia
Anton Laur, SEI-Tallinn, Estonia
Siim Link, Tallinn University of Technology, Estonia
Marek Muiste, Estonian University of Life Sciences, Estonia
Kalle Virkus, Credit and Export Guarantee Fund KredEx, Estonia
Peeter Raesaar, Tallinn University of Technology, Estonia
Mikk Saar, Eesti Energia AS, Estonia
Heiki Tamm, University of Tartu, Estonia
Aare Vabamägi, SA REK, Estonia
Lea Gynther, Motiva Oy, Finland
Pirkko Kasanen, Koordinet Oy, Finland
Tuuli Kaskinen, Demos Helsinki, Finland
Mikko Kuiri, WWF Finland, Finland
Vesa-Matti Lahti, Sitra (Finnish Innovation Fund), Finland
Irmeli Mikkonen, Motiva Oy, Finland
Aleksi Neuvonen Demos Helsinki, Finland
Çirts Beikmanis Chairman of the Board of the Association of Management and Administration of Latvian Housing, Latvia
Julija Bulgakova, Ekodoma Ltd, Latvia
Inese Berzina, Building, Energy and Housing State Agency, Latvia
Elmārs Jasinskis, State Environmental Service, Latvia
Ingus Kalniņš, SIA "CDzP" Housing Management Company Latvia
Raivis Jansons, Building, Energy and Housing State Agency, Latvia
Jānis Zemene Jelgavas pašvaldība, Latvia
Lina Balčiunienė Housing and Urban Development Agency, Lithuania
Lina Balkelytė Center for Environmental Policy, Lithuania
Darius Biekša Vilnius Gediminas Technical University, Lithuania
Viktorija Bobinaitė Lithuanian Energy Institute, Lithuania
Agnė Dulkytė Housing and Urban Development Agency,Lithuania
Egle Jaraminiene Vilnius Gediminas Technical University,Lithuania
Inga Konstantinavičiūtė, Lithuanian Energy Institute, Lithuania
Vaidotas Nikžentaitis, Energy agency, Lithuania
Natalija Siniak COWI Baltic Lithuania
Sergej Suzdalev Baltic Environmental Forum Lithuania

Hosts from the CHANGING BEHAVIOUR project
Tiit Kallaste, Stockholm Environment Institute Tallinn Centre, SEI-Tallinn Estonia
Maarja Orasson, Stockholm Environment Institute Tallinn Centre, SEI– Tallinn Estonia
Eva Heiskanen, NCRC, Finland
Mikko Jalas, Enespa Oy, Finland
Mikael Johnson, NCRC, Finland
Laura Korhonen, NCRC, Finland
Erja Pylvänäinen, NCRC, Finland

Mikko Rask, NCRC, Finland
Petteri Repo, NCRC, Finland
Samuli Rinne, Enespa Oy, Finland
Mika Saastamoinen, NCRC, Finland
Janne Salminen, Enespa, Finland
Veit Bürger, Öko-Institut, Germany
Yulia Barabanova, CEU, Hungary
Edina Vadovics, GreenDependent Sustainable Solutions Association, Hungary
Agris Kamenders, Ekodoma Ltd, Latvia
Inga Valuntiené, COWI Baltic, Lithuania
Sylvia Breukers, ECN, NL
Ruth Mourik, ECN, NL
Mike Hodson, University of Salford, UK
Simon Marvin, University of Salford, UK
Simon Robinson, Manchester: Knowledge Capital, UK

Budapest Workshop, 3rd February 2009, Central European University, Budapest

Ámon, Ada, Energy Club, Hungary
Balaci, Adrian, D.V.D Ltd. Hungary
Bándi, Enikő, Environmental Partnership Foundation, Romania
Bieru, Anca, Romania Green Building Council, Romania
Botár, Alexa, NSC-Friends of the Earth Hungaryngary, Hungary
Bubenheimer, Felix, CEU/3CSEP,Germany
Civin, Vilmos, Hungarrian Power Companies Ltd., Hungary
Csanády, András R. , Ministry of Environment and Water, Department of Environment and Development, Hungary
Dezsény, Zoltán, GATE Zöld Klub Egyesület, Hungary
Dobi-Rozsa, Aniko, D.V.D Ltd., Hungary
Feiler, József, Office of Parliamentary Commissioner for Future Generations, Hungary
Fischer, Corinna, Verbraucherzentrale Bundesverband, Germany
Gawlikowska, Anna, Foundation 'Being World', Poland
Gigli, Michaela, Fachbereich Energie, Germany
Halmay, Richard, Pannon GSM Telecommunications Inc., Hungary
Harembski, Marcin, Polish Ecological Club (Mazovian Chapter), Poland
Hintz, Margit, Verbraucherzentrale Schleswig-Holstein e. V., Germany
Hroneska, Natasha , Analytica, Republic of Macedonia
Hum, Tibor, Budapest University of Technology, Department of Environmental Management, Hungary
Illés, Zoltán, CEU, Hungary
Iványi, Zsuzsanna, Regional Environmental Center, Hungary
Kiryushin, Peter, Lomonosov Moscow State Unvierstity, Russia
Kohlheb, Norbert, Szent István University, Department of Environmental Economics, Hungary
Kovács, Bence, Independent Ecological Centre, Hungary
Lohász, Cili, Energy Club, Hungary
Lorek, Sylvia, ANPED, The Northern Alliance for Sustainability, Germany
Moczek, Nicola, PSY:PLAN, Germany
Molnár, Szilveszter, Hungary
Molnár, Tibor, Eötvös Loránd University (ELTE), Hungary
Munkácsy, Béla, ELTE University, Department of Environmental and Landscape Geography, Hungary
Pilibaityte, Vaida , CEU, Department of Environmental Sciences and Policy
Ripken, Ralph, CEU, Department of Environmental Sciences and Policy
Schneider, Lothar, Sekretariat für Zukunftsforschung, Germany

Szabados, Viktor, Federation of Hungarian Student Organisations, Hungary
Szaflarska, Aleksandra, THE AERIS FUTURO FOUNDATION, Poland
Szörényi, Gábor, Hungarian Energy Office, Hungary
Ürge-Vorsatz, Diana, CEU, 3CSEP, Hungary

Hosts from the CHANGING BEHAVIOUR project
Antal, Orsolya, GreenDependent Sustainable Solutions Association, Hungary
Barabanova, Yulia, CEU, 3CSEP, Russia
Pariag, Justin, CEU, Department of Environmental Sciences and Policy, CA
Steger, Tamara, CEU, 3CSEP, Hungary/USA
Vadovics, Edina, GreenDependent Sustainable Solutions Association, Hungary
Vadovics, Kristóf, GreenDependent Sustainable Solutions Association, Hungary
Bauknecht, Dierk , Oeko-Institut, Germany
Breukers, Sylvia, ECN, The Netherlands
Bruhn, Claudia , Verbraucherzentrale NRW, Germany
Heiskanen, Eva, National Consumer Research Centre, Finland
Hodson, Mike, SURF, UK
Johnson, Mikael, National Consumer Research Centre, Finland
Kallaste, Tiit, SEI-Tallinn, Estonia
Maier, Petra, Verbraucherzentrale NRW, Germany
Meinel, Helmfried, Verbraucherzentrale NRW, Germany
Mourik, Ruth ECN, NL
Rinne, Samuli, Enespa, Finland
Robinson, Simon , Manchester Knowledge Capital, UK

Manchester Workshop, 5th March 2009, Bridgewater Hall, Manchester

Alex Travell, E.ON UK
Andrew Hunt, Trafford MBC, UK
Andrew Jeffrey, South Yorkshire Housing Association, UK
Andy Routledge, Mersey Basin Campaign, UK
Angie Jukes, Stockport Council, UK
Ben Willians, Groundwork UK
Bev Taylor, Manchester City Council, UK
Cees Egmond, SenterNovem, the Netherlands
Charlotte Draycott, GMPTE, UK
Chris Wright, Action for Sustainable Living, UK
Christina Sexton, Tameside MBC, UK
Damien Smith, University of Manchester, UK
Nirit Shimron, Manchester Business School, UK
Faith Ashworth, Creative Concern, UK
Frances Cooke Tameside MBC
Gary Raw, Department for Communities and Local Government, UK
George Marshall, COIN, UK
Glenn Wilkinson, Carbon Saver, UK
Howard Coney, Manchester Airport, UK
Howard Gott, Rochdale MBC, UK
James Noakes, Wigan MBC, UK
Jessica Pykett, Aberystwyth University, UK
Jessica Symons, Krata, UK
Jonathan Atkinson, Low Winter Sun, UK
Joy Dent, GMPTE, UK
Julia Green, NEA, UK
Julian Hickinbottom, Hyndburn Borough Council, UK

Kirk Thompson, University of Manchester, UK
Lisette Firet, Utility Consulting Partners, UK
Louise Marix Evans, Quantum Strategy & Technology, UK
Marjo Kroese, BuildDesk, the Netherlands
Martin Steinestel, Verbraucherzentrale NRW, Germany
Max Bishop, Rochdale MBC, UK
Melanie Watts, Joule Centre, UK
Michelle Shipworth, University College London, UK
Miriam Ricci, University of Salford, UK
Phil Korbell, 100 Months Club, UK
Rebecca Frost, Energy Saving Trust, UK
Rhys Jones, Aberystwyth University, UK
Richard Darlington, Oldham Friends of the Earth, UK
Roanne van Voorst, Aarde-Werk, the Netherlands
Ruth McCarthy, Slater Heelis Collier Littler, UK
Scott Davidson, Global Action Plan, UK
Shona Thomas, Energy Saving Trust, UK
Steven Glynn Association for Sustainable Change, UK
Suzanne Kornecki Manchester City Council, UK

Hosts from the CHANGING BEHAVIOUR project
Simon Robinson Manchester: Knowledge Capital
Pritpal Virdee Manchester: Knowledge Capital
Chris Charlton, Manchester: Knowledge Capital
Julia Backhaus ECN
Dierk Bauknecht Oeko-Institut
Sylvia Breukers ECN
Eva Heiskanen NCRC
Mike Hodson SURF Centre
Tiit Kallaste Stockholm Environment Institute, Tallinn Centre
Simon Marvin SURF Centre
Justin Pariag ECN/CEU
Vasilis Papandreou, CRES
Vicky Simpson, SURF Centre
Vivian Liang, SURF Centre

Athens Workshop, 16th June, 2009, Hotel Titania, Athens

Eleana Poreca, Emilia Romagna, Italy
Irina Birlica, Romania Energy Agency, Romania
Bojan Kovacic, SEEA, Serbia
Biljana Kulisic, EIHP, Croatia
Sea Rotmann, Energy Efficiency and Conservation Authority, New Zealand
Paolo Ferri, Emilia Romagna, Italy
Nikitara Eleutheria, READ SA; Greece
Iakovos Sarigiannis, Anatoliki S.A.- Energy Agency of Central Macedonia, Greece
Athanasios Olpasialis, Region of Kastoria, Division of Development , Greece
Louiza Papamikrouli, CRES, Greece
Christos Kaloudis, YPEXODE, Greece
Kyriaki Tsagaraki, General Secretariat of Consumer Affairs Directorate of Consumer Policy, Greece
Tasos Kromidas, MedSOS – Greens, Greece
Theodora Petroula, WWF Greece, Greece
Giannis Geragotelis, KINO, Greece

Dimitrios Tousiakis, Euro-consultants, Greece
Michalis Evagelidis, ALPHA PLAN, Greece
Kostis Kritsonis, EBOCAT, Greece
Vassilis Nikolopoulos, Intelen Group, Greece
Stratos Paraskevaidis, Intelen Group, Greece
George Gomozias, UNIMED, Greece
Kostas Theodoropoulos, Consulting Company (ERASY), Greece
Ioannis Pappas, Green Evolution SA, Greece
Ilias Plastiras, Sustainable Energy Services, Greece
Athanasia Christodoulou, Noratex SA, Greece
George Stampoliadis, Hellenic Navy, Greece
Vasileios Zoupas, ZZZ_Design, Greece
Eleftheria Margariti, Margariti A.E., Greece
Dimitris Galaktopoulos, Plagal Developments Ltd, Greece
Alexandra Zargli, NTUA, Greece
Periklis Zolkou, NTUA, Greece
Alexia Togelou, Greece
Vanessa Stournari, Technical University of Athens, Greece
Maria Sinni, Technical Office, Greece,
Vassiliki Bakali, ARCHITECTURE, Greece