Changing Behaviour

SEVENTH FRAMEWORK PROGRAMME

Deliverable 4
Past 10 year of best and bad practices in demand management: a meta analysis of 27 case studies focusing on conditions explaining success and failure of demand-side management programmes

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1. Introduction

The Changing Behaviour project addresses demand side management (DSM) programmes and projects i.e., financial instruments, energy service companies, energy performance contracting, third party finance, general information and education campaigns, metering and feedback, energy audits, energy advice, negotiated agreements, voluntary programmes and commitments, and urban multi-stakeholder programmes, or a combination of these. Demand management programmes represent an emerging focus on energy services rather than on energy production. Today, energy efficiency is promoted under a variety of headings, including climate change mitigation, sustainability, eco-efficiency or energy self-sufficiency. Thus, while CHANGING BEHAVIOUR focuses on programmes to promote energy efficiency, energy conservation and load management, we also take into consideration programmes for end-user generation and energy self-sufficiency, as well as broader low-carbon, environmental or sustainable lifestyle, business or regional programmes provided there is a clear link to energy conservation

The current design of demand management programmes is not often based on a good understanding of the *interactions between technology, behaviour and context*. For example, demand management programme design has often been based on a few important, but quite simplifying assumptions about end-user behaviour. Existing programmes have exhibited a range of more and less successful results in terms of energy demand reduction, but the reasons for success or failure are not fully understood. Most of the existing literature focuses on success stories and programme characteristics, whereas a deeper analysis of unsuccessful programmes and contextual conditions is often lacking.

This document (Deliverable 4, D4) has evolved from the work done in Work Package 2 of the CHANGING BEHAVIOUR project. CHANGING BEHAVIOUR is a project that aims to support change in energy use and energy services. We do so by applying social research on technological change to practical use. CHANGING BEHAVIOUR is supported by the European Commission under its Seventh Framework Programme (contract number: 213217). The project is coordinated by NCRC (Finland), and other members of the consortium include 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 2 is coordinated by Energy research Centre of the Netherlands (ECN). The overall aim of Work Package 2 is to develop a conceptual framework enabling an understanding of why demand management programmes succeed or fail. This is done in order to provide a theoretically rich yet practicable framework of the sociotechnical change involved in energy demand-side management programmes. The model will enable an identification of improvement needs in demand-side management programmes, their working models of social and technical change, and the ways in which programme managers use different interaction schemes to interact with and learn about energy end- users.

Deliverable 4 presents the in depth meta-analysis of 27 demand-side management cases from various EU countries. Moreover, this deliverable will make an in-depth analysis of causes for success and failure, with a special focus on the role of context, timing and actors.[1] These case studies have been selected on the basis of several criteria, discussed in more detail in Deliverable 2[2]. In brief, the cases represent the diversity available in terms of: target groups, countries,

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[1] See Deliverable 5 for a discussion on these concepts. www.energychange.info.
[2] See www.energychange.info.

initiators, scale, scope, technologies implemented, behavioural change targeted and intervention methodologies used. A separate selection criterion is the successfulness of the demand-side management programme. We have selected cases that were both successful and unsuccessful in terms of efficiency, effectiveness and learning. The analysis of these case studies is based on programme reports and statistics, including long-term statistical and documentary data on the continued impacts of early programmes. Moreover, interviews with programme managers and policy makers as well as key programme stakeholders have been conducted. The cases have been analysed using a framework developed by project partner ECN, focusing on different aspects and phases of demand-side management programmes. The methodology and format used to conduct the analysis were based on a six-step framework tracking the evolution of goals, design and process solutions and outcomes as well as the influence of context factors and stakeholder networks. The format for analysis is discussed in more detail in Deliverable 2

The remainder of this document is organized under three chapters:
- Chapter 2 is a brief introduction of the cases.
- Chapter 3 contains the lessons learned from the case studies, with ample citations from the cases.
- Chapter 4 presents a summary of the main findings and the conclusions from the analysis.

2. Introducing the cases

This chapter presents a brief overview of the cases and their variety. Below you first find an overview of all selected cases. Each partner country contributed at least two cases, and preferably four if two partners represented the same country in the consortium. In many of the tables below, the cases are numbered as C1, C2, etc. This numbering corresponds to the numbering in the following chapters. The detailed case studies are available on the project website (http://www.energychange.info → Project output → Case studies).

Table 2.1   *Overview of case programmes analysed in CHANGING BEHAVIOUR*

Country	Programme	Aim of the programme
C1. Netherlands	Green Energy Train The Hague	Reduce the energy, heat and water use in apartment houses by 5% through a specific education and communication approach
C2. Netherlands	Green Energy Train Leidsche Rijn	Reduce the energy, heat and water use in apartment houses by 5% through a specific education and communication approach
C3. Hungary	Social Housing Energy Efficiency Renovation	Implement energy renovations in apartment blocks
C4. Finland	Green Office programme	Certification and management scheme to reduce CO_2 and resource consumption in offices
C5. Finland	Ilmari Climate Change Campaign for Schools	School climate change awareness campaign implemented by environmental and youth NGOs
C6. Latvia	EnERLIn - Efficient Residential Lighting Initiative	Increase the efficiency of residential lighting by 50% increase in CFL penetration via promotion campaign and quality charter
C7. Germany	EcoTopTen initiative	Nation-wide information and rating service for energy efficient products
C8. Hungary	Energy Trophy	Competition for saving energy in office buildings through change in employee behaviour.
C9. UK	CIS Co-operative insurance Society Solar Tower	Renovate a landmark building using solar panels
C10. Finland	Energy Expert programme	Training of volunteer residents promoting energy efficiency in housing associations
C11. Germany	Contracting Rommerskirchen	Implementation of energy performance contracting for municipal buildings
C12. Lithuania	Multi-apartment buildings modernisation programme	Promote energy modernisation of multi-apartment buildings via demonstrations and subsidies
C13. Lithuania	Taupukas Residential Awareness Campaign	Communicate the benefits of energy and water consumption efficiency and stimulate energy and water saving
C14. Germany	Off. Really Off?	State-wide campaign to create awareness of standby energy among consumers and retailers
C15. UK	Metropolitan Police Energy Efficiency Programme	Improve energy efficiency in existing buildings and practices of the Metropolitan Police Service

Country	Programme	Aim of the programme
C16. Hungary	Climate Watch	Educational and award programme for school groups to reduce CO_2 emissions
C17. Hungary	Carbonarium Association	Produce information on participants' personal climate change impacts and promote public awareness
C18. Denmark	Samsø	Creation of a renewable, energy self-sufficient island municipality
C19. Finland	Municipal Energy Efficiency Agreements	Negotiated agreement to promote energy audits and investments in municipalities
C20. Latvia	Building Energy Audits	Energy audits of apartment blocks
C21. Germany	Sanit	On-site advice service for energy efficiency renovations provided by consumer NGO
C22. UK	MiMP Climate Change Pledge	Attract citizens in Greater Manchester to sign up to a Climate Change Pledge, with information and marketing to encourage a switch to less carbon-intensive lifestyles.
C23. Estonia	KredEx Energy Saving Competence Centre	Promotion and knowledge networking on energy saving measures in apartment buildings
C24. UK	Manchester is My Planet (MiMP) programme	Increase policy development/implementation on Climate Change among Greater Manchester local authorities
C25. Europe	Eco n' Home	Reducing energy use and CO_2 emissions in 940 households in Europe via personal energy advice
C26. UK	Warmzone Kirklees	Free cavity-wall and loft insulation in the Borough of Kirklees
C27. Greece	Active Learning	Energy education at 10 primary schools in Attica and on Crete

Partners decided on the need for comparability between case studies in terms of target groups. Therefore it was decided that a minimum of 3-5 similar cases should focus on: schools, municipalities, households and offices or Small and Medium Enterprises (SMEs). In addition, it was agreed upon that preferably there should be a balance between case studies that differ in terms of geographical and often consequently, cultural context, and case studies that are situated in the same context. So a minimum of three case studies should share the same target group but differ in context. The cases represent the geographical coverage of the participating partner countries, with cases from both Old and New Member States.

Table 2.2 *Overview of target group and geographical context of case programmes analyzed in the CHANGING BEHAVIOUR project*

Target group	Old member states	New member states
Tenants/housing associations	• Netherlands: Green Energy train Leidsche Rijn • Germany: Sanit • Finland: Energy Expert programme	• Hungary-Social Housing Energy Efficiency Renovation
House/apartment owners	• Netherlands: Green Energy Train The Hague • Germany: Sanit • Belgium, France, Portugal, UK, Germany and Italy: Eco n' Home • UK: Warmzone Kirklees	• Lithuania: Multi-apartment buildings modernisation programme • Latvia: Building Energy Audits • Hungary: Carbonarium Association • Estonia: KredEx Energy Saving Competence Centre
Privately owned offices/buildings	• UK: CIS solar tower project • Finland: Green Office	• Hungary: Energy Trophy
Schools and other municipally owned buildings	• UK: Metropolitan Police • Germany: Contracting Rommerskirchen • Finland: Climate Change Campaign for Schools • Greece: Active learning	• Latvia: EnERLIn • Hungary: Climate Watch
Local communities (municipal level)	• Denmark: Samsø • Finland: Municipal energy and climate agreements • Manchester is My Planet (MiMP) programme	
Manufacturers/retailers	• Germany: EcoTopTen • Germany: Off. Really off?	• Latvia: EnERLIn
Consumers/citizens	• Germany: EcoTopTen • UK: MiMP Climate Change Pledge • Germany: Off. Really off?	• Latvia: EnERLIn • Lithuania: Taupukas Residential Awareness Campaign • Hungary: Carbonarium Association

Figure 2.1 *Overview of cases per country*

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3.   Main lessons learned from analyzing the cases

In this chapter we highlight lessons learned from the detailed analysis of 27 case studies on successful and less successful demand-side management programmes. The analysis of the 27 case studies has highlighted many conditions influencing the success or failure of demand-side management programmes and projects. Our focus is on particular conditions that influence the success of programmes managed by intermediary organisations, and especially, on conditions which can increase the likelihood of bringing about lasting change in energy related behaviour that have not gained sufficient attention in the literature thus far.

We have divided the conditions into four sections. Factors promoting successful energy efficiency projects included both internal and external influences The first set of conditions that are important to consider for intermediaries are 'internal/project based conditions' such as e.g. availability of financial and capacity resources, available experience and knowledge. The second section focuses on 'external management and context conditions': the social, political, economic and institutional context as a source of predisposing, enabling and reinforcing factors for change. The third section focuses on 'temporal and/or timing conditions', and the last section focuses on the conditions influencing the activities that intermediaries can undertake to interact with and engage with the target group and the other stakeholders. For a more detailed discussion of the distinction between internal project context and external context and the interventions and translation activities that intermediaries undertake, see Deliverable 5[3].

For analytical purposes and to be able to present some clarity in our overview, we have presented the critical conditions individually. However, when talking about critical conditions, it is clear that different conditions do not operate in isolation but are strongly intertwined e.g., finance and staffing, but also government support and the extent to which government is considered trustworthy by citizens. We thus stress the importance of not taking the individual conditions as solely responsible for project success. One should always take into account what other conditions are at play and how they interact and either strengthen or weaken the influence of a particular condition. There is no single critical condition – there is no 'silver bullet'. Moreover, each new project presents intermediaries with different combinations of issues, conditions and actors that are relevant in the context of that particular project. In other words, there is no one-size-fits-all formula for success. We have put the number of cases in which the condition was identified in parentheses. In addition, we use quotes from the cases to provide a more detailed understanding of the condition and its influence.

3.1   Internal factors influencing the success of programmes

This section outlines conditions influencing success that are internal conditions of either the intermediary running the project, or to the project itself – its resources and other conditions set, for example, by those funding the project. The first set of conditions is 'general conditions of successful project management', which are well known from the literature on project management in general or energy behaviour change projects in particular. However, the second set of conditions has received less attention: they pertain to the need to find an appropriate balance between top-down planning and bottom-up processes.

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[3]   See www.energychange.info

3.1.1 Well-known factors

Our meta-analysis, firstly, identified a number of internal factors influencing success that are already quite well-known- but not less important for that matter. However, since they are either self-evident or discussed elsewhere extensively (Greer et al. 2001; Dahlbom et al. 2009) it is sufficient here to merely give a short overview of the issues raised in the cases including some highlights from the cases.

Several cases stressed the importance of ensuring *a strong financial basis, not* only building on the possibility of governmental financial support, but also other stakeholders (C6) (C22) (C23). Another issue that came to bear in many cases was the need for *clear focus and goals* (C5) (C7) (C22) (C26) and a good understanding of the problem that the programme aims to tackle. In addition several cases recommended that *responsibilities* and commitment of different partners and required stakeholders, including financial issues, were agreed on at an early stage (C4) (C10) (C14). Another condition deemed important was that programme managers and those working on the project should have a *sound background in energy and technical data* (C7) (C26). Almost every case, explicitly or implicitly, stressed the importance of having *sufficient time* available to conduct project and allow for the end-users to change their behaviour (C4) (C10) (C11) (C2) (C22), but they also stressed the importance of ensuring the *continuity* of the project. Establishing *a permanent office, recruiting dedicated staff* and ensuring that sufficient experienced staff is kept onboard were deemed crucial (C18) (C21) (C22) (C23).

For example, the Estonian KredEx Energy Saving Competence Centre project which aimed for promotion and knowledge networking on energy saving measures in apartment buildings was hindered by the limited resources available. The Energy Saving Competence Centre is in fact a small unit having two employees only. The small scope of the programme sets the limits to the range of topics it can currently cover. There is an obvious need to enhance the range of topics to be handled, however, the budget constraints do not allow the centre to involve more experts and widen the scope of interests at present.

A factor that is particularly related to changes in energy behaviour, and widely discussed in the literature (Abrahamse et al. 2005; Dahlbom et al. 2009), is *regular monitoring and feedback to participants*. Monitoring energy consumption patterns and possible decreases in them is particularly relevant to energy projects as consumers, in general, are not aware of their use of energy. Energy consumption is often only the secondary result of activities such as cooking, driving, reading, and as such it is often more or less invisible or at least difficult to grasp for the users. Many cases stressed the importance of regular monitoring and feedback about e.g. energy consumption to participants (C4) (C8). To be able to do so, however, requires a baseline with targeted figures and historical data on energy consumption or at least existing behaviour patterns (C4) (C8) (C25). A focus not solely on outcomes of the project but also on monitoring the process leading to these outcomes was found to be important, as well as monitoring and evaluating the impact of different strategies and activities (C6) (C14).

The Latvian EnERLIn project which aimed at increasing the efficiency of residential lighting by 50% increase in CFL penetration by means of a promotion campaign and a charter establishing the required quality actively undertook monitoring and evaluation activities. These activities led to learning on the side of both the programme manager and the end-users. The impact of each strategy was evaluated in quantitative form (number of CFLs acquired, variation of CFLs per household, number of people that has been trained) but also in qualitative form (opinions of end-users on the learning materials, reaction to targets, change in mentalities). All learning elements will be summarized and published on the project website later.

What many cases appreciated, beforehand or after the programme had run, was the need to design the measuring/metering, monitoring, evaluation and reporting activities as an integral, perhaps even mandatory, and above all easy, part of the programme (C4) (C8).

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The Hungarian Energy Trophy programme which involved a competition for saving energy in office buildings through change in employee behaviour attempted to make their requirements within the programme, for example monitoring and reporting, an easy or passive task. To that end, the programme incorporated automatic monitoring and reporting for many partners or the weekly submission of energy data on the protected component of the Energy Trophy website. These requirements limited participants to organisations who currently meter energy consumption and have three years of historical data regarding energy consumption available. It was noted that by requiring office spaces to have historical energy data available (at least 3 years), new or recently moved organisations could not participate. There is still not clear solution for this problem; however, it has been acknowledged as a problem and steps are being made to overcome this issue.

The choice not to conduct monitoring and evaluation activities was often based on the limited or lacking resources and plans to perform monitoring and evaluation in practice (C2) (C3) (C5).

In the Finnish Ilmari project, a school climate change awareness campaign implemented by environmental and youth NGOs, the only time that pupils were asked about their opinions was in the context of a MA thesis that took the project as exemplar. Limited financial resources were identified as the barrier for more systematic evaluation.

Another recommendation that followed from many cases was the importance of creating a dissemination package on experiences (C6) or at least making results publicly available (C6).

3.1.2 Planning approach

An internal/project based condition that has hitherto not gained sufficient attention in the literature is the balance between central planning and bottom-up processes in the programme. The case analysis shows that finding the 'right balance' involves basing the goals of a demand-side management programme (at least in part) on 'user needs' - the sort of problems and solutions that users perceive - and on 'user capacities' - focusing on which barriers need to be tackled to make a behavioural change possible. This need for balancing becomes apparent where goals that have been set top-down are not accompanied by instruments that are aligned with these end-user goals. What follows from several cases is that one of the success conditions (more or less independent of context) is user orientation. This means that the programme managers must first learn about the needs, capacities and motivation of the users, after which the programme intervention method and objective are adapted to meet these findings (at least to a certain extent). Usually, the users are not able to influence the ultimate goals (e.g. the target for energy use or emission reduction) which have been set prior to their involvement. However, there are still many ways of taking the user into account, taking the user perspective as a starting point, and involving users in developing the programme. A 'bottom-up' approach building on user needs is very compatible with the 'service' approach discussed in the introductory chapter, which is different from a government-driven (or utility-operated) programme. It is close to the notion of community-based social marketing (MacKenzie-Mohr 2000; Stern 2000). Below we discuss several ways of taking the user into account

- Learning by doing, interaction between users, programme developers and policy makers (C7) (C11) (C16) Programme managers often stress the role of issues which they cannot influence, but that hinder the successful outcome of their programme. This observation suggests that if users and policy makers are involved in the design and implementation of these programmes, the programme managers would gain first hand knowledge of the issues relevant to the target group, and would to a certain extent be able to align the different expectations and interests of all stakeholders involved.
- Continued monitoring and evaluation (C4) (C8): bottom-up programmes require constant monitoring and evaluation of context, behaviour and intervention instruments to assess the outcome and to be able to react to changes in the needs and requirements of users, and a

changing context. Evaluation guidelines in many projects emphasise quantitative effects and 'free-rider effects'. However, if programmes are designed more as learning processes, what traditionally are called 'spin-off-effects' and 'multiplier effects' are potentially more important than direct effects. Thus, evaluation methods need to be flexible and adaptable as well.

- Taking the user as starting point(C4) (C7) (C18): mass marketing approaches which categorise or segment people based on "ideal types" such as lifestyles or attitudes may overlook the multiple and sometimes conflicting identities that people have. A more bottom-up approach can start with a target group localized around a shared problem (such as outdated heating systems). Taking users' problems as the starting point can alleviate many of the common communication problems in mass marketing campaigns. However, when involving users in defining the problems, goals and solutions, they should be enabled and assisted in order to participate constructively. This condition will be discussed in more detail under the section on 'engaging end-users and other stakeholders when discussing the possibilities of working with a prior motivated target group.

- Allowing adaptation of the content and goal of the programme (C2) (C4) (C7): programmes can gain a better 'fit' with their context if they build in flexibility to accommodate learning about the target group's expectations and demands (learning by doing). Most if not all guides for designing more successful demand-side management programmes follow a "planning model" approach. Goals are formulated a priori and the programme is designed around them in such a manner that they can be met in theory. However, this can result in a top-down approach in which the social context is seen mainly as a 'barrier' for energy efficiency. Although such an approach has advantages, it limits the opportunities for designing and implementing a programme that is sensitive to the context, actors and technology. In contrast, ex-durante interactive learning processes between the target group, context and project manager may lead to better outcomes because potential misfits can be dealt with in time during the course of the programme. Bottom-up approaches also have their cons however. When attempting to combine diverse interests, they are more susceptible to a loss of focus, unclear responsibilities or mixed messages.

- Careful design/balancing: The previous observations suggest that each programme needs to strike the right balance. A possible compromise between planning and 'learning by doing' could be found in the size and role of a programme. One possibility is to start with a small pilot and some fieldwork, and develop the programme in interaction with participants and in reaction to learned lessons and changes in user needs, behaviour and context.

Below is a discussion of how the balance between central planning and bottom-up processes was achieved in some of the cases.

In the Finnish Green Office case, which aimed at introducing a certification and management scheme to reduce CO_2 and resource consumption in offices, the programme was "piloted" with 6-8 offices in 1999-2002. These first offices were the 'test-bed' for the programme, they were paying clients but they also helped to develop the programme and its various elements. For example, training needs and barriers to change were identified during this process and this led to a programme that is closely tailored to its particular target group. From these different information sources, it was recognized, for example, that there are people in organizations who are very enthusiastic about 'greening' their office, but there are also others who are more sceptical about whether significant improvements can actually be achieved by small behavioural changes. This highlighted the importance of quantitative reporting and the provision of calculations that reveal the cumulative effect of small conservation actions, when made regularly. Other barriers include the difficulties in making changes in facilities (few of the participating offices own their building). In general, it was noticed that staff in charge of such aspects as facilities or office IT have very little awareness of the energy consumption of these things, so new information linkages are needed. The programme has clearly learned, and the most important learning elements relate to: (1) The environmental impacts of office work, including new and emerging issues like the energy consumption from server rooms, and (2) How to motivate organisations and their employees and how to manage the change process. These 'lessons', how-

ever, have not influenced the core elements of the programme, which have been unchanged since 2002. This is because the programme itself is quite flexible, and organisations have sufficient leeway in how they define and achieve their targets.

The Finnish Green Office case also demonstrates that it is a successful strategy to get companies to participate when you provide them with an easy point of entry by setting initial goals and objectives that are not too ambitious, such as e.g. realising simple actions within offices (turning off lights, installing sleep modes for computers, etc.). It is easy to join the programme, and participating organizations can learn gradually. This is a benefit because energy and environmental issues can be very confusing for non-experts. People are happy to grasp at an easy and simple solution to their concerns and problems. When easy solutions are combined with a commitment to continual improvement, the actions and changes become continuously more ambitious and thus more challenging. This commitment, used in the Finnish Green Office case, implies that the participating offices will need to search for new actions as time goes by, but can begin their initiative but picking the low-hanging fruit.

The German EcoTopTen project which aimed at a nation-wide information and rating service for energy efficient products made significant efforts to adapt the message and the content of its campaign in accordance to what the (green) consumers had expressed as their expectations and demands from a sustainable product. Thus, the campaign did not focus so much on why a change in behaviour is necessary, but rather focused on which products exist that are in line with certain attitudes or beliefs, or just purely the desire to make a good purchase in economic terms.

The Dutch Green Energy Train Leidsche Rijn project aimed at reducing the energy, heat and water use in apartment houses by 5% through a specific education and communication approach. This programme also concluded that the design of the project and the materials should be tailored to the target group and the particular geographical setting. In addition, the method and communication material used should be tested in advance, so that necessary changes can be made.

3.2   External factors influencing the success of programmes

This section deals with external conditions influencing success, and the ways in which programmes can work with the context to ensure their successfulness. The first section gives an overview of generally important context factors, and the subsequent sections discuss context conditions that were found particularly important in the cases.

3.2.1   Taking context on board

The operating context of a project or programme was in most case studies[4] acknowledged to be of significant influence on the outcome of a demand-side management programme. However, it is acknowledged that this external context is most often beyond the scope of intermediaries to influence directly.

Taking context 'on board' can be done in many ways. This could be done by selecting a favourable national or local context or selecting the right design for the context, by adapting one's programme to the context, or by changing the context. Not all of these options are open to programme managers. Usually, demand-side management programmes are domestic programmes, so for example in case of lacking government support this support cannot be sought in another country, even if it is not present in one's own country. On the local level, the situation is different. If necessary conditions are missing in one region, a programme manager can look for a re-

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[4]   This acknowledgement often takes place in retrospect, as the result of learning within the project.

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gion where the conditions are more favourable to the programme. Another way to 'take context on board' is to think about e.g., whether instruments, programme ideas and designs that were successful in one context can be "imported" to another context. For example, even if the Manchester is My Planet project was successful, one should consider closely whether it can be duplicated, for example, in Helsinki. Adapting the project to context could e.g. mean changing the project to be able to make use of the support that is available. Many of the Baltic cases, for example, are focused on building renovation exactly because this is where there is government support. Changing the context in this respect would include, for example about lobbying the government, changing market structures or initiating national debates. These types of activities are largely beyond the scope of the programme managers that we target with CHANGING BEHAVIOUR. However, successful programmes such as the Finnish Green Office case might eventually have an (indirect) influence on government policies.

Many external context conditions were identified as influential (political, institutional, cultural and socio-economic). The political-institutional context involves the manner in which policy has an impact on other (administrative) levels. Policy and regulation can come from different tiers of government: EU, national, regional, and local/municipal. Social-economic contextual conditions that have impacted the projects were investigated as well. These conditions refer to EU, national or sub-national levels. In addition they can refer to institutional conditions like for instance market formation or transformation.

Conditions that were considered to be overall conducive to success were national issues such as high energy taxes (C18), limited domestic energy resources (C3) (C9), and energy dependence (C3) (C9), as these can contribute to strong motivation for energy saving activities. Media coverage boosting the national pride and linked to climate change issues can increase awareness and motivation to change energy behaviour (C3). The presence of environmental debates stressing the importance of saving energy and renewable energy resources and a programme that capitalizes on the growing environmental concern also increases awareness and motivation (C3) (C4) (C5) (C6) (C7) (C8) (C9). An open cultural attitude to new ideas, especially new technologies positivey influenced the implementation of demand-side management programmes and can thus facilitate the change process (C4) (C21). A positive public attitude to energy conservation (C4) (C14) and the availability of necessary technologies (C7) (C11) (C21) (C26) were also identified as factors conducive to success. Energy poverty (C3) (C7) (C26) and the size of the local implementation location (C11) (C26) also influenced success, as did the presence of norms and regulations. More local issues such as the boosting of regional activities, economies or capacities due to the programme were also considered as conducive to success (C9) (C11) (C21) (C26).

Constraining conditions were identified as a low public level of environmental awareness (C3), inadequate access to environmental information (C3), reluctance to adopt new technologies on the individual level (C6) and a public perception of global warming as an issue where ordinary people feel unable to contribute significantly and the accompanying tendency to shift blame to authorities (C3). In addition, the physical geographical environment can pose additional challenges to the successful design or implementation of a behavioural change programme if geographical and/or demographical circumstances make it particularly difficult to save energy ,- e.g. cold climate, low population density; negative historical experiences with similar programmes (C4) (C6) (C9). Constraining conditions can also refer to issues that are more linked to sector or technology specific situations which hinder the successful and timely deployment of the project (C1) (C2) (C10) (C19), or the symbolic meaning of a building or project site that can either hinder or facilitate changes (C9).

In the Dutch Green Energy Train project Leidsche Rijn, which aimed at reducing the energy, heat and water use in apartment houses by 5% through a specific education and communication approach, it turned out impossible to have new residents as participants. Newly delivered homes in Leidsche Rijn need extra heating for some 2 to 3 years, in order to 'dry' the houses. It

made no sense to have participants participate in a project aimed at energy saving while they were still in the midst of this 'drying' phase. The window of opportunity for behavioural change therefore was lost. The targeted people were living in their houses for 2 to 3 years and their new routines and habits had already gotten shape.

In the CIS solar tower project aimed at renovating a landmark building using solar panels the emblematic and symbolic significance of the building and the issue of climate change have both been seen as priorities for the participating organisations and stakeholders. The project has a significant impact to the local area as the building was once the largest building in the UK outside of London; furthermore, the solar project is the largest vertical solar cladding project in Europe. As an iconic landmark in Manchester, the solar tower project required and received substantial support from the local community, public agencies and government

The European Eco 'n Home project that aimed at reducing energy use and CO2-emissions in 940 households in Europe via personal energy advice method of energy audits and advices was implemented in nine samples in six different European countries. These samples show the effect of adapting the method to the local context. The samples had diverse outcomes on specific aspects that in many cases can be explained by the variations of the overall method used in practice and the different local contexts of the samples, for example local policy (and subsidies) or stakeholders involved.

The Finnish Municipal Energy Efficiency Agreements programme which focused on negotiated agreements to promote energy audits and investments in municipalities, for example, suffered from the economic issues following the depression in early 1990s. On one hand it has been an initiative to seek new options to find ways to lower the costs. On the other hand, some municipalities have not been very eager to commit to a long-term agreement. This is due to a fact that many municipalities have been forced to reduce their services for example by shutting down schools. This has affected their willingness to make investments in the buildings.

The following sections provide detailed examples of the most important external context conditions identified in the cases.

Governmental conditions
Governmental conditions for energy saving in general and/or demand-side management programmes in particular were identified as conducive to success in many case studies (C1) (C2) (C3) (C4) (C7) (C9) (C14) (C15) (C16) (C18) (C25) (C26). Governmental support can include subsidies; environmental regulation; norms and standards for new buildings; or voluntary agreements with the private sector. At the same time, several case studies demonstrated that other influences can very much weaken the positive effect of governmental support, such as the level of trust of citizens in the government. In addition, the impact of the support depends on the choice of instruments. Governmental support can hence be regarded as a necessary but not sufficient condition.

Fragmentation and discontinuity or volatility of governmental support was identified as constraining in many cases. Policy and regulation can come from different tiers of government: EU, national, regional, and local/municipal, but here we address mainly EU and national arrangements. This can take the form of lack of clarity as to which ministry department is responsible for a support mechanism (C3) or discontinuity due to financial and capacity shortages on the governmental level to sustain support (C3) (C12) (C13). These shortages are also due to politics as they are the result of a political decision that no more resources will be awarded to a particular goal.

The Lithuanian Multi-apartment buildings modernisation programme that aimed at promoting energy modernisation of multi apartment buildings via demonstrations and subsidies assigned approximately 15 millions euros for modernization activities in 2008, but this budget was very

(too) quickly claimed. Renovation projects that were submitted had to be queued awaiting allocation of additional subsidies. The government corrected the programme, and decided to exclude renovation of the lift, lighting system and landing area from subsidies. As such the government hoped that the subsidies would be used for modernizations that would substantially contribute to (heating) energy savings. However, these changes influenced the trust of those that were by that time motivated to start renovating their apartment building and this resulted in a decrease in applications. An additional issue that complicated the matter was that local authorities/local governments lacked sufficient resources to undertake activities.

Mixed and irreconcilable policy goals
If policy goals are communicated to the public in a mixed and sometimes even irreconcilable manner, this can create confusion and undermine the willingness to change energy behaviour. The Kirklees case (C26) also showed that not only mixed messages might be a problem, but also if a variety of funding schemes or other governmental support schemes are in place and target different groups, it gets unclear for people which scheme they are eligible for. Another example is that policies argue for the struggle against climate change while at the same time striving for the lowest possible energy price (C3) (C10) (C7). This is visible e.g. in the UK with their Cost-effective Climate Change Strategies (mitigating climate change while guaranteeing the lowest-possible prices). Another example stems from the German cases Off-really Off and EcoTopTen, where political debates focusing on technology rather than "soft" aspects such as lifestyle or mobility deter attention from the end-user and his/her behaviour, focuses on technological fixes and can hinder motivation to partake in demand-side management programme. On the other hand, technological fixes might seem easier for people to implement, and if provided at low cost or even for free, can prove to be very successful (C26).

The Finnish cases exemplify the problem of mixed messages: the importance of saving energy and using renewable energy resources has been stressed in the Finnish environmental debate since the energy crises. At the same time, the prevailing energy policy has always stressed the importance of providing a cheap and reliable supply of energy for industry.

Tradition of active civic engagement
A tradition of active civic engagement can enhance public acceptance of and commitment to change energy behaviour. The capacity of end-users to take an active role in changing their energy behaviour influences their ability to take responsibility for the achievement of the goals of the programme or project. Cooperative local ownership of projects and requirements to facilitate participation in decision-making can promote engagement and thus contribute to success (C10) (C18)

The Danish case study on the island of Samsø which aimed for the creation of a renewable, energy self-sufficient island municipality demonstrates the importance of community ownership: the energy sector has a fairly decentralized structure and a high degree of co-operative and municipal ownership. Many district heating and co-generation companies are owned by co-operatives or municipalities. Denmark has a longstanding tradition of community ownership and civic engagement in renewable energy. For example, it is estimated that approximately 150 000 families have an ownership stake in wind energy projects. Due to this co-operative tradition, acceptance of renewable energy is reported as being high.

The Finnish Energy Expert case aimed at training volunteer residents to promote energy efficiency in housing associations originated in a large housing service company, VVO, which has a long tradition of tenant participation in decision making. This background provided residents with the capacities and structures to take responsibility for energy management and efficient use of energy in everyday life.

Market conditions that discourage changing energy behaviour
Market conditions that can discourage or demotivate people to change their energy behaviour include a low national energy consumption per capita compared to other European countries (C6) (C12); low energy prices (C10) (C20) (C21) (C25) as well as socio-economic crises (C3) (C4) and decreasing living standards, which both may distract attention from environment and sustainability issues. Another discouraging condition found was that energy savings are easily offset by trends towards increasing equipment ownership rates and capacities (C4) (C7).

From the Latvian government's point of view the country already is consuming less than other European countries, so the need for energy efficiency is felt less. This attitude is also to some extent held by the inhabitants. This formed a barrier for the EnERLIn project since it first had to tackle the environmental attitude of the inhabitants to motivate the purchase of CFLs.

In Germany, and also occurring in other EU member states, another discouraging trend is visible. Electricity consumption of private households is increasing to a larger extent than the overall electricity consumption of the country. Efficiency gains through technology development are overcompensated by augmenting equipment rates (e.g. tumble driers) and the trend towards larger appliances (e.g. larger TVs, refrigerators). The growth in consumption is locked-in by several general tendencies, such as higher living standards, the increase of one- and two-person households, augmenting requirements for product functionality (e.g. better equipped cars), and the increase of new products that do not substitute other products (e.g. electronic devices). These trends (consumption and use behaviour and demographic transition) may very well overthrow the ecological gain through technological improvement in products.

Another discouraging trend is exemplified by the Finnish Energy Expert case aimed at training volunteer residents to promote energy efficiency in housing associations. This case demonstrates how several trends may have an effect on the demand for energy advice and training. One example is the fact that relatively low energy prices for housing in Finland compared to the energy prices in some central European countries probably have made the service less used that it would have been if the energy price were higher. However, public awareness of environmental issues has risen and the price of energy is also expected to rise, thus increasing the interest various energy conservation methods in the housing sector. The German Sanit project which aimed at providing on-site advice service for energy efficiency renovations provided by a consumer NGO also experienced the negative influence of low energy prices. Due to the coincidence of increasing wages and relative low heat-energy prices, many of the suggested measures to increase efficiency did not seem profitable for consumers.

3.3 Timing the intervention

Temporal issues discussed under this section are about the timing of projects. Timing is suggested in our cases to be of utmost importance. Timing can be defined broadly in terms of 'planning' the start of the programme; making use of windows of opportunity (for example sector specific economic situations, or specific user needs, specific regulations in place, natural moments of change such as a renovation of a neighbourhood), but also in terms of linking to ongoing activities such as other campaigns. We acknowledge that 'planning' the start of the programme is a very intricate issue, as the context of a project can change rapidly, e.g. in reaction to a global event such as the 2008-2009 financial crisis.

3.3.1 Making use of windows of opportunity

Making use of windows of opportunity was very often identified as a condition conducive to success. This can include linking the programme to ongoing developments, i.e. linking a pro-

gramme to motivation and action on the level of a municipality aiming at reaching targets for CO_2 reduction (C1)(C2) or linking the programme to regional activities aimed at turning a region in industrial decline to a forerunner in green technologies and services (C9) (C22). However, making use of a window of opportunity can also refer to addressing specific target group needs; or the ability of a programme to address gaps (knowledge, human resource or energy-related needs) in a sector (C2) (C3) (C4) (C5) (C6) (C8) (C14) (C16) (C21). Below are some examples from the cases.

In the Hungarian Social Housing Energy Efficiency Renovation case which aimed at implementing energy renovations in apartment blocks a combination of issues led to its success. Due to the combination of poverty, bad state of residential dwelling resulting in high energy bills, energy bills representing a major share of household expenses, increasing energy prices, need for poverty alleviation, and the presence of a social business enterprise, this programme was effective in this particular context.

The Hungarian Energy Trophy programme which involved a competition for saving energy in office buildings through change in employee behaviour also addressed a window of opportunity: the majority of energy management systems do not have regulated performance requirements or regulated reporting systems and this has left a large gap in organisational management systems which could be filled by means of the Energy Trophy programme..

The Dutch Green Energy Train Leidsche Rijn project aimed at reducing the energy, heat and water use in apartment houses by 5% through a specific education and communication approach. This programme aimed to create a window of opportunity by making use of the element of timing. It was thought that new residents in new houses are willing and open to change.

The window of opportunity can also refer to specific target group needs or felt gaps.

In the Finnish Green Office case, which aimed at introducing a certification and management scheme to reduce CO_2 and resource consumption in offices, the choice of the target group was based on a sense of a gap. Many of the large, environmentally sensitive industries had already adopted environmental management systems and acknowledged the notion of 'pollution prevention pays'. In contrast, the service sector was still a relatively 'untouched market', in which recognizing and capturing energy savings potentials did not in many cases require very detailed engineering expertise.

Many of our case programmes gained a large boost from increased media coverage of climate change issues. Some were even capable of building on multiple 'windows of opportunity' such as climate change and demand for regional economic development (as in the German Sanit programme). Flexibility in programme design is a success condition that can enable programmes to expand when operating conditions provide "windows of opportunity":

The Green Office programme in Finland started well before the large-scale interest in climate issues. It was, however, originally a small-scale programme that had no fixed budget or expected size of the target group. As climate issues became a hot topic in 2006, the programme manager was able to provide a well-tested service to meet the demand that surged as a result of the Stern report, Al Gore's film An Inconvenient Truth, and increasing discussion of climate issues in the domestic business community.

3.3.2 A motivated target group

Working with a motivated target group is a bottom-up approach that finds a target group localized around a shared problem, which can address their issue through the programme. This alleviates many of the communication problems since the target group would in principle not have to be made aware of the problem, and would not need to be (externally) motivated to change its

behaviour. They would in the best situation want to change; only lacking empowerment. Below are some examples from the cases where this approach was taken. This approach to address an issue around which a target group is localized is on the other side of the coin where a project designs its goals and methods around the needs and capacities of a fictive target group and then sets out to 'find' this target group (C1) (C2) (C3) (C5) (C6) (C10) (C21).

In the Hungarian Social Housing Energy Efficiency Renovation case which aimed at implementing energy renovations in apartment blocks, a target group was selected that is motivated (due to financial and comfort interests) but does not have the (financial) capacity to install energy efficient options. The programme targets middle-low income apartment blocks in Budapest and some other Hungarian cities where the majority of tenants cannot afford energy efficient renovations due to low income and high costs of such works but will benefit strongly in terms of alleviation of poverty and increased quality of living (only a quarter of residential buildings are in satisfactory conditions).

Audits are another way of providing a motivated but not yet capacitated target group with the means and the knowledge to act. The German Sanit project which aimed at providing on-site advice service for energy efficiency renovations provided by a consumer NGO used not only personal advice and consultancy, delivered upon request of a target group, but was also knowledgeable about financing possibilities and helped the target group to finance the proposed measures.

The Finnish Ilmari project, a school climate change awareness campaign implemented by environmental and youth NGOs, was started as a demand oriented project: many schools were asking the members of the environmental NGOs to visit schools. The same applies to the Finnish Energy Expert case aimed at training volunteer residents to promote energy efficiency in housing associations. The origin of the programme is partially the result of active tenants who contacted the housing organization. They wanted to have more possibilities to have an effect on energy use in their everyday life. The development of the energy expert concept started as part of an energy conscious housing project. The same active residents that were involved in the beginning were also the first Energy Experts.

3.3.3 Linking to regional development

Linking the programme to motivation and action on the level of a municipality aiming at reaching targets on CO_2 reduction (C1)(C2)(C26) or linking the programme to regional activities aimed at turning a region in industrial decline to a forerunner in green technologies and services is another condition conducive to success.

The CIS solar tower project aimed at renovating a landmark building using solar panels also experienced the influence of regional activities. The region where the CIS solar tower project is situated has strong interests in promoting energy efficiency solutions, mainly for economic reasons. According to the Northwest Development Agency, the region will mainly focus on developing the energy efficient market in the next few years as part of a major regional push to boost the Northwest's energy industry and meet government targets on climate change. Furthermore, the success or otherwise of the CIS Solar Tower project was linked to attempts to boost local regeneration effects in Manchester, which already had support from the regional development agency and the Government Office for the Northwest.

The German Sanit project which aimed at providing on-site advice service for energy efficiency renovations provided by a consumer NGO also was part of a strategy encompassing more than merely energy and/or climate issues and aiming to boost the local economy. The project region is especially characterised by a strong structural change. Many of the former coal-mining and coke- and steel-production sites have been closed and new technologies and services have been more or less successfully installed. Since the 1970s this area is characterised by an elevated

level of unemployment compared to North Rhine Westphalia (NRW) and the federal republic. Concurrently, many people were leaving the Ruhr area. This tendency continues. For real estate this is a difficult situation because it might happen that many houses cannot be let. This particularly threatens older houses with poor living standard and high additional property expenses, e.g. for heating-energy costs. The project's focus on energetic renovation that affects aspects, unemployment and high energy consumption of the building stock, and thus increases the attractiveness of the region. The emphasis was also put on empowering the local economy, as it is assumed that many of the recommended measures are implemented by local craftsmen.

3.3.4 Links to prior or ongoing programmes and policies

Linking to prior or ongoing programmes and policies can also be conducive to success (C3) (C5) (C7) (C22) (C26). Such linkages can strengthen the message and image of a programme. Moreover, using existing communication schemes and channels can strengthen the potential impact of a new campaign. From a psychological point of view, repeating a similar message in different campaigns will also help those receiving the message to remember it more easily. However, this does not always work out positively, e.g. when messages communicated in parallel campaigns are different from (or even contradictory to) the programmes' message, this poses a problem (C5). Pioneering a campaign can be conducive to success since the message is then new and fresh to the public, but is also difficult since the pioneering organisation might not yet have the required (communication/marketing) expertise (C13). Moreover, if the government is propagating citizens' responsibility as key message in campaigns on mitigating climate change (C5), this can be conducive to success.

The Lithuanian Taupukas Residential Awareness Campaign that set out to communicate the benefits of energy and water consumption efficiency and stimulate energy and water saving was the first programme in Lithuania that aimed for these targets. This pioneering role was problematic for at that time the only institution responsible for energy saving "the governmental Energy Agency's Efficiency Centre" did not have any experience in implementing such campaigns. However, this was solved by using the campaign explicitly to build up exactly such expertise and capacity by teaming up with market research, communication and management and public relations companies.

The Finnish Ilmari project, a school climate change awareness campaign implemented by environmental and youth NGOs, was implemented in parallel to a total of 62 projects funded through the ILMU-programme, which had a total budget of some 2.5 million Euros. This created a secondary problem for possible follow-up programmes: competition between these 62 projects led to creativity in terms of activities. When the programme is completed, new and innovative forms of activity will have to be invented to attract additional funding, which is difficult if much has been thought of already. Even more problems can be created by parallel campaigns if the message conveyed is mixed or even contradictory to the programmes' message.

The UK Warm Zone project in the Borough of Kirklees offers free cavity wall and loft insulation and other services to any eligible household. The Council leads the Affordable Warmth Strategy which was initiated in April 2006 and fed into the development of Kirklees Warm Zone with the support of over 40 public organisations, e.g. several governmental departments, the National Health Service, voluntary and community groups, but also private parties[5]. It was estimated that between 35,000 – 45,000 households are living in fuel poverty in Kirklees, hence creating a need for action. The energy efficiency of existing housing stock in Kirklees was deemed to be low, while tenants and residents were hardly aware of or confused by the variety of available options or funding schemes to decrease their energy consumption. Leading up to the formation

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[5] For a complete list, see
http://www.kirklees.gov.uk/community/environment/energyconservation/AWStrategyLeaflet.pdf

of Warm Zone, several schemes were offering free home insulation or heating grants, but these were criteria based, focusing on vulnerable households, e.g. elderly citizens and people on state benefits. For instance, the KEEP Warm project offered free house insulation to low income households whose residents are over 60 years of age. The funding of this project has been incorporated into Warm Zone, as this has the same intervention planned, but for the much larger target group of all households within Kirklees – independent of age and income of their members. Although uptake of these schemes was good, people found all the different funding streams and criteria confusing. Kirklees Warm Zone offers local residents an easy, criteria-free approach which removes many of the barriers preventing people from insulating their homes.

3.4 Interaction with and engagement of end-users and stakeholders

3.4.1 Engaging end-users and other stakeholders

We found in our meta-analysis that the ability of programmes to reach their goals was often dependent on the engagement of end-users and other relevant stakeholders in the user context. The importance of a good understanding of the problem and the end users and stakeholders who can influence it was thus one of the main lessons learned from the case studies.

Engaging the end-user is about understanding the target group and building up a meaningful relationship with them. It is about engaging the end-users ('target groups') as active players, who may also have their own opinions of what is meaningful. Predisposing, enabling and reinforcing factors are all addressed.

Engaging the other stakeholders is built on the notion that energy consumption (and conservation) is always a result of social processes on the individual, family, community and institutional level (Lutzenhiser 1993; Wilhite et al. 2000). Moreover, individual choice is limited by the way cities, energy supply systems, housing designs, service networks and products are configured (Wilhite et al. 2000). Below follows an empirical discussion of the importance of engaging other stakeholders highlighting findings from our cases.

For example, many of our case studies dealt with energy use by people living in multi-apartment dwellings. Here, households are usually the target group for behavioural interventions and additionally, more technical interventions can be addressed to managers and facility owners. Many of our case studies, however, indicated that these two types of interventions are often addressed separately, which makes the programmes less effective and can even reduce participants' motivation in the long term. Moreover, many larger energy related decisions require concerted action by residents – here boards (e.g. condominium boards in owner-occupied housing) and committees are important decision making forums, but also informal interaction between residents (especially 'opinion leaders') can be important. The ability to change energy-related practices may also depend on the availability of suitable service providers (e.g., banks, contractors, retailers and suppliers).

Another example can be taken from cases dealing with energy use at the workplace. The possibility to change energy-related practices is essentially conditioned by the relations and responsibilities of management and employees. Successful programmes need to engage employees and empower them to act. There are also particular groups of staff who have an impact on procurement and management decisions that influence others' possibilities to save energy. The organisations' motivations, capacities and the availability of positive feedback on change also depend on how the organisations' clients value energy efficiency. Co-operation with facility owners and managers influences the possibilities to change business premises to accommodate energy-conserving practices, and suppliers and service providers are naturally crucial for access to more energy-efficient equipment and services.

Below several conditions influencing the activities of intermediaries in engaging and interacting with end-users and other stakeholders will be discussed in more detail. We start with a discussion of the importance of getting to know your target group and aligning your programme's objectives, goals and instruments to the needs of this target group, then focus on the role of trust, peer to peer communication, social pressure and shared problems, norms and values between all (programme managers, stakeholders and end-users), and continue with a discussion of the importance of providing multiple benefits to end-users, and end with a discussion on the role of networks.

3.4.2 Knowing the target group

Having a programme manager that is familiar with the problem, having trust between all involved and being able to make use of peer to peer communication strategies and social pressure are important conditions influencing the success of a programme. Perhaps an even more important condition is the meaningfulness of the intervention to the target group. A first step in making the intervention meaningful is to get to know the target group. Many programmes drew from lessons learned in prior similar projects, or programme managers invested time to get to know the target group. Investigating and addressing the target group as a heterogeneous group, with multiple roles, needs and demands, and subsequently tailoring the message and content of the programmes accordingly, were found key to success. Many cases demonstrated the need for research to get to know the target group (C1) (C2) (C7) (C20) (C25).

In our analysis, we were particularly interested in how the programme got to know their target group: how information was gained about the needs, capacities and interests of the energy-end users, and how this information fed into the design of the programme. When examining the case study data as a whole, we identified a variety of ways in which programme managers learned about the needs of the end-users, which could be classified into five categories of interaction schemes. Table 3.1 shows the categories as well as the number of cases in which each type of scheme has been adopted. Below is a discussion of the different interaction schemes found in the cases. For a more detailed and analytical discussion of the pros and con's of the different interaction schemes see Deliverable 5.

The Dutch Green Energy Train project in The Hague aimed at reducing the energy, heat and water use in apartment houses by 5% through a specific education and communication approach. The project was based on a demand driven approach. This means that the project firstly investigated the broader demands of the target group (not just energy related issues, but living conditions in general) by asking what they consider as sustainable living. These demands are then translated into education and information materials and communication channels. The idea behind the demand driven approach is that only when the target group is changing its behaviour towards its own demands its behavioural changes will last. This case demonstrates that it is necessary to know the demands of the target group before starting the project. In this case it turned out that the target group had higher demands on improving their living environment by making it cleaner and safer, than in reducing their energy use and costs.

In the German Off, Really off campaign, a state-wide campaign to create awareness of standby energy among consumers and retailers, household electricity consumers in Schleswig-Holstein were addressed, a state with 2.8m inhabitants. This is obviously a very heterogeneous target group that cannot be approached with a 'one size fits all' method. Research on the target group consisted of establishing the attitude and level of knowledge of the target group prior to the advertising campaign to establish a baseline for the ex-post evaluation. Within this broad group, the campaign specifically sought to target those consumers who want to be 'in control' and do not want to be charged for electricity consumption that does not have any benefit for them. At the same time, the campaign focused on predominant purchaser and user of consumer electronics. All in all, the main target group were young consumers, between 16 and 40 years old, with

a focus on male consumers. The campaign thus did not target consumers that have a high affin-ity to energy efficiency issues, but rather a group of consumers that is generally not particularly open for energy efficiency issues, but plays an important role in buying and using consumer electronics. Despite this focus, it was one of the objectives to exclude none of the other con-sumer groups.

The German Sanit project which aimed at providing on-site advice service for energy efficiency renovations provided by a consumer NGO highlights the need to really know the target group. The project used existing statistics and information to design more specified information mate-rial. For regions with a high rate of immigrants special flyers and posters were printed and in-terviews in their radio stations were given. But this did not lead to a higher response. It became apparent in practice that most of the immigrants owning houses have a good knowledge of the German language and were not reached with the flyers and radio broadcasts that were in their native language.

Table 3.1   *Approaches to learning about end-users applied in the case projects*

Approach to learning about end-users	Number of cases applying this approach*
1. Surveys, interviews or group meetings	7
2. Prior research, particular theoretical perspectives	9
3. Experience from prior projects and similar examples	6
4. User-driven project (or pilot project)	8
5. Familiarity and informal interaction with the target group	7

NB: the number of cases is larger than the total number: some projects used multiple approaches.

3.4.3   Providing multiple benefits

When a programme manager "knows" the target group it means that he or she is able to assess what problems (other than direct energy related) this target group is facing. The programme manager can then attempt to find ways to use the project to 'solve' or alleviate these problems. As such the project can provide multiple benefits. Of course, the project can also aim to provide multiple benefits that do not solve already existing problems. Many cases (C3) (C4) (C8) (C11) (C12) (C18) (C21) (C23) (C26) demonstrated that programmes are more likely to resonate with a target group if they bring multiple benefits besides energy saving, such as increased comfort, increased value of properties, increased sense of being in control, increased income, increased social cohesion, etc. This is because these programmes addressed the target group as being het-erogeneous in terms of identities, interests, values, goals, preferences and needs. Even one indi-vidual can have different needs depending on what identity the programme addresses: con-sumer, citizen, local resident or employee.

In the Estonian KredEx case which aimed for promotion and knowledge networking on energy saving measures in apartment buildings much emphasis was placed on providing multiple bene-fits for residents. As a result, the apartment owners highly appreciate the changes in the ap-pearance of their building and the significantly improved heating system: adjustability accord-ing to the individual needs. The housing conditions of the residents have improved considerably – the majority of apartment owners while assessing their living after the complex refurbishment are of the opinion that it is beautiful, clean, warm and safe now.

The German Contracting Rommerskirchen case which aimed at implementation of energy per-formance contracting for municipal buildings demonstrates the power of objectives that have multiple benefits for multiple stakeholders, and thus are able to engage and commit multiple stakeholders for multiple reasons: All the participants of the project have more or less actively been involved in the project and most of them could serve their own interests with it. The ad-

ministration had the need to reduce expenditures, the council is responsible for the decision and the budget of the municipality in general and any reduction of the budget is welcome. The energy agency of NorthRhineWestfalia aims to assist government in these kinds of projects. The council gets stability and lower energy prices for the future, they get rid of obligations to care for technical equipment; for the performance contractor it is a profit-making investment.

The Dutch Green Energy Train The Hague project aimed at reducing the energy, heat and water use in apartment houses by 5% through a specific education and communication approach was a user driven approach based on answering the demands of the target group. In The Hague the target group has indicated at the beginning of the project that their main priority was improving the safety and living environment of their apartment blocks. Saving energy was a second priority. The process of the project was adapted to the demands of the target group and thus much attention has been given to other aspect than saving energy.

In the Hungarian Global Environmental Social Business case study, the programme was tailored to the level of interest of the target group by emphasizing first of all the financial benefits from upgrading the apartments (money saved on the energy bills), information about the costs of installations, condition of loans, payback periods; and only after that on the environmental ones (saving energy and reducing CO_2). This was prioritized in this way because for the chosen target groups living in poor social conditions it is hard to place environmental benefits first.

The Hungarian Energy Trophy programme which involved a competition for saving energy in office buildings through change in employee behaviour emphasised environmental performance with costs savings providing a dual incentive for industry to participate in the program: significant financial benefits and an improved public image. Through linking energy consumption with the issues of environmental concerns and cost savings, participants could essentially choose their motivation, from improving their corporate social image to simply saving money, and join the competition and contribute to overall energy conservation. The programme was designed in this way to maximise the participant base to reduce consumption as much as possible.

The Danish case study on the island of Samsø which aimed for the creation of a renewable, energy self-sufficient island municipality was designed so that the target group would also have other benefits than energy savings as a result of their behavioural change. They would get economical benefits not only from saving energy but also from making investments to new technology, like wind turbines. The islanders have gained economic benefits from the programme in several ways. It has brought investments and more tourism to island, and thus generated jobs. The residents are shareholders in the wind turbines and are gaining profits from it. The project also relied on the social benefits that it would create when the Samsingers would work together to contribute to renewable island project.

3.4.4 Tailored message

Once a programme manager "knows" the target group it is easy to meet the following important condition: tailoring the message, the information and communication material and the channels to the users (C1) (C2) (C3) (C5) (C13) (C22) (C25). The use of a personal, individual, face to face approach and/or the use of trained envoys and or trained experts from the target group were conditions of great importance(C3) (C5) (C6) (C10). Another important condition evident in many cases was the need of addressing the target group as the heterogeneous group it is in its multiplicity of roles and consequently tailoring the message accordingly (C1) (C2) (C5) (C7) (C14) (C18) (C21). A final note on these conditions is that several cases (C10) (C21) demonstrated the need for people that have the social skills necessary for communication and dissemination. Below are examples from the cases.

Although it is a condition for success to base demand-side management programmes on theories or philosophies on how to change consumers' behaviour, the Dutch Green Energy Train

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project in The Hague aimed at reducing the energy, heat and water use in apartment houses by 5% through a specific education and communication approach demonstrates that theories should be made invisible towards the target group and that form and content of material need to work well together and need to complement each other. One important lesson drawn from this case is that communication and education materials should not refer to theory. The target group in this project thought that the philosophy of Live Energy on which the project is based was too complex. More concrete and practical education and communication was favoured. The Dutch Green Energy Train project in The Hague however, was sensitive to the fact that different communication channels are needed to reach a heterogeneous target group A large range of communication and education activities was used: excursions, energy course, working groups, newsletter, photos, an example-apartment, etc.

The Dutch Green Energy Train Project Leidsche Rijn also aimed at reducing the energy, heat and water use in apartment houses by 5% in another region of the Netherlands through a specific education and communication approach. This project aimed at recruiting people from the target group to become coaches. However this failed as the coaches dropped out of the course as they found it too complex and difficult. The project used similar materials as the project in The Hague, in spite of the fact that this material was considered too complicated and abstract by participants, but also by part of the project team members. Green Energy Train Project Leidsche Rijn additionally also used very colourful, playful and visual material, presentations and activities.

The Finnish Ilmari project, a school climate change awareness campaign implemented by environmental and youth NGOs, flourished, amongst other reasons, because of the tacit knowledge of the consortium members that a behavioural change can best be achieved by face-to-face contacts and communication, which is a basic principle of many NGOs.

The Finnish Energy Expert case aimed at training volunteer residents to promote energy efficiency in housing associations makes use of trained laypeople. Energy experts are volunteer tenants/residents who have been trained to be active in energy issues in the building they live. Experts can monitor sudden changes in the energy, electricity and heating consumption within the building where they live. They also provide advice and assistance to other residents/tenants about more efficient energy and water use practices. They also act as contact persons towards the housing organization and the housing management company and vice versa. Experts do not perform actual repairs or instalment of appliances. They concentrate on dissemination of information, advice and being focal contact point between housing organization and tenants/residents. They themselves say they could be considered as "cultural ambassadors of wise energy use".

3.4.5 Aligning expectations

In the process of getting to know a target group, an intermediary also finds out about possible diverging expectations with respect to the programmes' goals and objectives. Many projects appreciated, either beforehand or along the way, the need to create opportunities to negotiate these expectations, and align them with the aims of the projects (C2) (C16) (C14) (C17) (C15) (C18). End-users can have different needs and expectations depending on their local circumstances, and often the expectations of the end-users are different from those of the programme managers. Alignment refers to an attempt to find solutions that meet different expectations. Of course this condition is closely related to the condition of 'knowing the target group', which is a basic condition to be able to articulate different needs and expectations and to find ways in which all parties can reach their own goals.

The UK Metropolitan Police Energy Efficiency Programme aimed at improving energy efficiency in existing buildings and practices of the Metropolitan Police Service (MPS), for example highlights the importance of aligning different expectations and needs of different stakeholders. With an organisation the size of the MPS, with the number of employees and the breadth of estate it covers it is important to develop understanding of the expectations of those whose everyday practices may be affected by attempts to 'implement' energy efficiency programmes at the level of individual police stations and offices. The process of mediating between the strategic aspirations of the MPS in respect of energy efficiency and the achievement of small scale projects that take place was deemed essential for success.

The Danish case study on the island of Samsø which aimed for the creation of a renewable, energy self-sufficient island municipality shows that this project also worked towards negotiating expectations. The number of participants grew along the way. More and more parties, who could realize their own interests, came along. The main project was therefore divided into several subprojects, in which the participants could negotiate the different expectations. The Samsø project demonstrates the value of flexibility as necessary condition to be able to align expectations. There were some problems during the project, e.g. when they tried to implement district heating plans in open countryside or introduce electric cars in the island. If the original plan encountered problems, then they usually tried to solve it another way. E.g., when it became evident that a proposed district heating plant could not produce heat to four villages (as planned) without a large heat loss from the distribution system, they changed the plan so that the district heating plant would cover only the two nearest villages. In some cases, if the original plan didn't work at all, then they abandoned it. Like in the case of electric cars, when it became evident that there was no market for them. The original master plan of the Samsø project included detailed plans and calculations. These plans changed along the way, when local residents took part in the planning processes.

A third project that aimed for alignment of expectations was the Hungarian Carbonarium Association programme that focused on producing information on participants' personal climate change impacts and promoting public awareness.

3.4.6 Trust and peer to peer communication

Trust or the lack thereof was an essential condition in some of the cases (C2) (C20). There are many ways to build trust between the target group and the programme and the programme manager. And there are many different forms of trust[6]. Peer-to-peer communications are important in many ways. Particularly people who are similar to the end-users that the programme manager wants to target can be engaged as 'multipliers' of the message conveyed. The key issue here is to identify the social networks of the end-users and find communicators who are close to the end users to carry the message. These communicators are also able to better customise the message to 'fit' the end-users' contexts. Examples of peer-to-peer communication that can help building trust in the programme are e.g. the use of role models such as neighbours, colleagues, trusted friends can help to build up trust if the end-users relate to them and if they are perceived as trustworthy by the target group(C3) (C4) (C5) (C6) (C7) (C8) (C10) (C11) (C12) (C18) (C22). In addition these role models have to commit themselves to the programme. Celebrities can also be effectively used as 'energy ambassadors' or change agents such as Al Gore. Building on ref-

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[6] Firstly, trust in the competence and in the intentions of another party can be two separate issues (Lewicki 1998). For example, we may trust the competence of an equipment supplier, but not its intentions, whereas we may trust the intention of an environmental NGO, but perhaps not its competence in technical issues. Moreover, trust may be more active or passive: generalised or 'system' trust is called 'confidence' (Luhmann 1998) and it reflects the general trustworthiness and predictability of the environment. Finally, trust may have different bases (Zucker 1988): Process-based trust is based on experience of mutual interaction (we trust because the party has proved trustworthy before). Characteristics-based trust is based on membership in a group with common norms (e.g., people may trust others with a similar background to their own). Institutional-based trust builds on formal structures and procedures to ensure accountability (e.g., certification).

erences to other similar projects that were successful (e.g. conducted by the same programme manager or with a similar target group or in the same location) is yet another way of getting the end-users to trust the programme and its manager (C8). Volunteers from the target group who become proponents of the programme can help create trust, if they are perceived as trustworthy themselves. Other conditions that can increase trust in the programme and the programme manager include e.g. the good reputation of the programme manager, relevant expertise, good networking skills, commitment to the programme, and familiarity with the problem at hand (C1) (C3) (C4) (C5) (C7) (C11) (C16) (C18) (C21) (C25) (C26).

The German Contracting Rommerskirchen case which aimed at implementation of energy performance contracting for municipal buildings shows the importance of a project manager that has relevant experience and a good reputation within the local community which has allowed him to motivate the key players. The energy agency leading the project (in close cooperation with the municipality) is quite active in consultancy and support activities with projects similar to this one and approximately 20 years of experience.

In the Green Energy Train project in The Hague which aimed at reducing the energy, heat and water use in apartment houses by 5% through a specific education and communication approach, the target group were renting their apartments of housing association Vestia. Due to bad communication and contact ability, rent increases, etc. the relation between the target group and Vestia was troublesome. Due to this negative image of the housing association, a majority of the inhabitants were not willing to approve the 'technical track' of renovations proposed by Vestia. This caused delays and fewer renovations than planned in the apartment blocks of the target group.

The UK project Warmzone Kirklees provides free cavity-wall and loft insulation in the Borough of Kirklees. Initiator of the Warm Zone project was Kirklees Council together with a number of other public and private organisations. The reputation of Kirklees Council is strong and positive in the field of sustainability, emission reduction and fuel poverty alleviation. The Council joined the UK emissions trading scheme already in 2002 and after successfully focusing on demand-side management and the use of renewable energy for governmental and public buildings first and then shifted attention to the private sector. Warm Zone is the biggest project in that sequence of events.

3.4.7 Social pressure

An aspect that is closely linked to trust is social embeddedness, i.e., the extent to which the programme activities are linked to the social environment of the target group. People tend to follow the example set by others, and to conform to the expectations in their social environment. Thus, social or peer pressure can help to promote the aims of the programme. Because energy use is largely conditioned by social conventions, social influences are also important in changing energy use patterns. Social support is important for many reasons: it can provide 'moral support' and reinforce commitment, but it can also provide practical 'how to' support though peer-to-peer exchange of experiences. Social pressure is the opposite side of the coin. End-users are stimulated to change because others whose opinion matters to them or who they admire make their commitment to change visible, and may even disapprove of those who do not participate in the change process.

The role of social pressure is also visible in the Finnish Green Office case, which aimed at introducing a certification and management scheme to reduce CO_2 and resource consumption in offices. Organisations' desire for social legitimacy was met by 'rewarding good companies' with a certificate. Organisations could use the certificate to communicate to their stakeholders (including current and future employees) that they are seriously addressing their environmental responsibilities. This motive has become more pronounced as more and more organizations want to position themselves as 'socially responsible'. Social pressure and social recognition are thus integral parts of the programme. Often the initiative to join the scheme comes from one of

the employees or from a mid-level manager. There is also pressure from outside: from customers and prospective employees. These pressures are often diffuse: employees and clients want to work with a 'responsible company' that 'cares for the environment'. Green Office is in fact a simple way to respond to these diffuse pressures by adopting a simple, easy-to-use system. Social pressure and imitation has also been used by having 'admired' and well-known companies as participants in the scheme.

The UK MiMP Climate Change Pledge aimed at attracting citizens in Greater Manchester to sign up to a Climate Change Pledge, with information and marketing to encourage a switch to less carbon-intensive lifestyles, used celebrities from sport and television to brand the campaign with a fun and cool image. Political endorsement was sought from both national and local figures to provide gravitas to the campaign. In Phase 1 of the UK MiMP Climate Change Pledge the primary benefit for the target group was participating in, and alignment with, a cool, fun and feel-good initiative. The aim was to create a campaign 'buzz' which energised participants and media alike. The leadership and inspiration to participate was provided from the large partnership of organisations, the celebrity endorsement and internal advocates from within participating organisations. In this sense there was a subtle message of 'don't get left out'.

The UK project Warmzone Kirklees provides free cavity-wall and loft insulation in the Borough of Kirklees. Without having planned to use word-to-mouth as communication channel, according to one of the project initiators it might turn out to have been rather reliable and successful. People who have been in touch with Warm Zone and have experienced the service share their experiences openly, and certainly also critically with other locals. Hence, providing reliable, good and quick service is of utmost importance, in order to ensure the news that spread within the target group remain positive.

3.4.8 Shared problems, norms and values between all actors

If the programme manager can relate to the problems, values and norms of the end users, the programme is more likely to target the users in the most meaningful manner (C4) (C5) (C18). Of course the possibilities for this kind of relationship depend on how homogeneous the target group is.

The Danish island Samsø which aimed for the creation of a renewable, energy self-sufficient island municipality, is a small island and community, where almost all the residents know each other. Therefore, trust isn't a problem, when the locals are interacting with each other. A particular aspect of The Finnish Ilmari project, a school climate change awareness campaign implemented by environmental and youth NGOs, is that since the members of the three environmental and one youth organization came from rather similar reference groups and shared rather similar values, this helped them work effectively (without e.g., conflicting about goals or means of activity) and gave them a high motivation to continue to work together.

3.4.9 Networks: using, strengthening and building them

Our analysis suggested that stakeholder networks can provide communication and information channels to the targeted end-users (C25) (C27). Often, however, programme managers did not perceive this kind of networking as an explicit way of interacting with end-users. Stakeholder interaction was often informal and done on an ad hoc basis. It could, for example, include involving various stakeholders in the design and implementation of the programme (e.g. housing associations, different types of staff members) (C26). Some programmes could select multiple target groups, each with dedicated messages and interventions. Successful programmes often actively thought about and addressed the social environment of end-users by engaging, e.g. schools and opinion leaders within the target group. In some cases, however, it appeared to be difficult to engage some relevant stakeholders because they failed to see how getting involved would serve their interests.

Our analysis thus indicated that for intermediary organisations, the ability to engage diverse stakeholders and align their interests was a critical condition for success in many cases. As will be shown in more detail in the following section, understanding existing stakeholder networks and building on them was shown to be one of the crucial conditions for gaining access to the different parties whose participation and resources was needed for completion of the change programme.

What follows from almost all case studies and also from several pieces of literature is that programmes that are successful typically have made use of networking in multiple forms. This networking can be the use of existing formal or informal networks to convey the message and to create commitment and social pressure. The networks can also be built up as part of the programme management process, or emerge among energy end-users as its result. Networks are cheap and easy 'multipliers' (once established, which is not an easy task). Networks can also provide competencies: if a network involves, for example, persons with different skills (both within the programme management and within the target group), and this network is interacting, learning will take place, which can significantly increase the success of the programme. The networks can also help to remove barriers to behaviour change: the energy end-users often cannot change their behaviour due to external constraints, such as the lack of suitable service providers. Successful programmes can make use of existing networks, they can reinforce existing networks, or they can create entirely new networks. The following sections provide a more empirical discussion of the importance of using, strengthening and building networks, including some highlights from the case studies.

Making use of existing networks
Existing networks or the lack thereof can support, but can also obstruct the aims of the programme as became clear in several cases (C1) (C2) (C3) (C4) (C5) (C6) (C16) (C18) (C21) (C22) (C25). It is thus important for programme managers to be aware of the networks that exist among target groups and other stakeholders, and to make the best use of them.

In the Greek Active Learning case, aiming for energy education at 10 primary schools in Attica and on Crete, two general categories of target groups were selected, one primary and one secondary one. The primary project target groups were target groups addressed directly by the project and involved the educators (teachers, school management and local/regional/national school authorities) and the pupils/children in primary schools (age between 6-12 years old). The members of the secondary target group were addressed indirectly during the project merely through the social interaction with the members of the primary target groups. They included families and friends of the targeted children and the educators as well as consumers generally involved in the project (school personnel, building owners, local authorities, etc).

In Hungary, there is a very successful eco-school network[7] (coordinated by the National Institute for Public Education) operating in Hungary since 1986. At the moment, there are 353 schools that are members of the network, which provides training, teaching materials, best practice example and assistance for its members and also manages the annual eco-school award. The success and popularity of the network as well as the training programmes and competitions it organises means that a great number of schools (and teachers!) are already open to participation in programmes. The Hungarian Climate Watch competition, an educational and award programme for school groups to reduce CO_2 emissions really profited from this open attitude. Furthermore, some schools participated in the Climate Watch programme because they believed it would help them gain the eco-school status.

The Danish case study on the island of Samsø which aimed for the creation of a renewable, energy self-sufficient island municipality demonstrates that this project also made use of existing

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[7] Further information on the eco-school network can be found at http://www.okoiskola.hu

networks and organizations. The project was based on networks and communities that already existed. That increased the reliability of the project. The project initiator was a local insider, who knows the locals and their habits, is already inside the community, and thus trustworthy.

The German Sanit project which aimed at providing on-site advice service for energy efficiency renovations provided by a consumer NGO also highlights the positive influence of making use of an already existing (and obviously positively experienced) network. In former projects the energy consultants were embedded in a locally known and appraised structure. For this project they mostly started in municipalities which had not had institutionalised energy consultancy. In some municipalities they had the advantage to benefit from the infrastructure, name and reputation of the local advice centres of Verbraucherzentrale NRW.

The UK MiMP Climate Change Pledge aimed at attracting citizens in Greater Manchester to sign up to a Climate Change Pledge, with information and marketing to encourage a switch to less carbon-intensive lifestyles, also made use of an already existing network. The campaign was developed within the context of the wider Manchester: Green Energy Revolution Study which was developing a wider Climate Change Programme for the city-region. This process directly engaged with over 200 climate change, energy, planning, communications and other contacts within the 10 local authorities, 4 universities, public utilities, private businesses and community/voluntary organizations. This allowed the pledge and communication campaign to plug into an extended network enabling high gearing of communications activity. These 'transmitter' organizations were a key component of the methodology to achieve high pledge numbers. The participation of more than 100 partner organisations as 'transmitters' of the campaign message was central to the pledge success.

The European Eco 'n Home project that aimed at reducing energy use and CO2-emissions in 940 households in Europe via personal energy advice method of energy audits and advices was implemented by project partners locally in nine samples. These project partners had been active in the region with energy services before. They used their existing networks of households and stakeholders and experiences in for example the recruitment of participants and the involvement of other local stakeholders. For example households that had been involved in earlier energy programmes were contacted directly to participate in the Eco n' Home project by MVE in Montreuil (France). Another example is the involvement of the municipality in the different samples which led to a grant scheme in the case of the Leicester sample.

However, making use of volunteers can also lead to issues related to lacking resources, as the following case highlights:

The Hungarian Carbonarium Association case that focused on producing information on participants' personal climate change impacts and promoting public awareness also highlights problems related to the volunteering nature of its participants. Carbonarium does not have any full-time employees; it relies solely on voluntary work and the personal commitment of its members. Because of its voluntary nature, it does not always provide the necessary structure for effective action. In the specific case of Carbonarium, none of the members had the time and capacity to design and implement a communication programme and to establish links with other organisations working in the field. For this reason, the initiative remained isolated and little known.

Strengthening existing networks
Involving new actors in a network to broaden the basis in terms of expertise, capacities and competences ensures a strong basis for continual learning and alignment of interests (C4) (C5) (C12) (C13) (C20) (C22). In addition a broad-in-scope network also allows tackling a number of issues at once, which might not all be related to energy, but are still beneficial for the target group as it can provide multiple benefits. Several cases further demonstrated the importance of

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institutionalizing learned lessons and skills (C3) (C4) (C18) (C21) and the importance of capacity building among the target group (C18).

In the Finnish Green Office case, which aimed at introducing a certification and management scheme to reduce CO_2 and resource consumption in offices, particular effort was devoted to engaging an energy company, later also IT companies and HVAC technology companies in order to gain a network of companies with different kinds of competencies. This created a network with different competences that strengthened each other and increased the success of the Green Office programme.

Another example illustrating the importance of a balanced mix of competences in the network of stakeholders is provided in the Finnish Ilmari project, a school climate change awareness campaign implemented by environmental and youth NGOs. The three environmental organizations first initiating the project applied for funding for 40 school visits. Financiers' response was that the basic idea of Ilmari was valid, but that their plan on how to make contacts to schools was insufficient. The initiators then started co-operating with a youth organization called Youth Academy and the new consortium applied again based on the idea that the environmental organisations that were involved would provide the content, and the youth organisation that was involved would take care of the contacts to schools. This proved to be a successful combination and funding was acquired.

The Latvian case on building energy audits which focused on performing energy audits of apartment blocks also demonstrates the importance of a network that incorporates multiple expertise and capacities. The project was realized including several partners such as banks, heat insulation manufacturers, and construction companies and was supported by local municipalities and mass media. Tight relationships and contacts developed between these partners and this helped to solve different questions and to allow for learning amongst the partners. Some banks decreased their interest rates for those residents who decided to take a bank loan for renovation purposes.

The UK MiMP Climate Change Pledge aimed at attracting citizens in Greater Manchester to sign up to a Climate Change Pledge, with information and marketing to encourage a switch to less carbon-intensive lifestyles, also built on the power of a consortium that provided a mix of experience and skills. The consortium included a range of organizations chosen for their specialist skills and experience in sustainable energy project development identified in the earlier scoping study. An additional benefit of such a mix of participants is that affinity deals could be negotiated with environmental companies. The affinity deals highlighted the promotional asset of a database of 10,000+ members. It enabled the offer to the environmental companies of the marketing of an environmental product or service (and hence having affinity with the campaign ideals) in exchange for a discount for pledgees. Deals with Solortwin (solar thermal installers) for a 5% discount, and WhizzGo (car club company) for a 50% discount on the joining fee, offered something back to pledgees and helped create a more interactive feel to the campaign. Green Gold bio diesel also promoted with a discount to pledges. Climate change themed theatre productions also offered free tickets to the campaign for promotion of the production using the same methods.

Building new networks
Continuation of changes initiated in the programme is crucial to the success of a programme in the long term and a necessary condition for wider system change. Creating opportunities to continue what was started in the programme is supported by networks, it can also follow from the co-operation of the programme with other programmes and likeminded stakeholders, to both widen the scope and the pool of resources to draw from. Therefore it follows from both literature and practice that the consortium should ideally be a network involving users, producers, manufacturers, retailers, financers; in other words the operating environment needs to be represented. This network will get stronger during the course of the programme, and hopefully be re-

silient enough to survive the ending of the programme. Incorporating capacity building during the programme and institutionalization of changes and learning experiences significantly contribute to sowing strong seeds for system change. To increase the possibility for strengthening the newly built network, a long-term approach is very valuable. Creating seeds for continuation of the changes initiated in the programme can also follow from the co-operation of the programme with other programmes and likeminded stakeholders, to both widen the scope and the pool of resources to draw from.

The Finnish Green Office case, which aimed at introducing a certification and management scheme to reduce CO_2 and resource consumption in offices, has been very successful in creating new networks and institutions. The Green Office companies interact with each other regularly and share experiences. In fact, being part of this 'club' seems to be an important motivator for the participants, and the participating organizations working in the energy sector have had the opportunity to present and 'advertise' their own solutions to other members of the network. Thus, new business networks have also built up that promote the supply of energy-efficient solutions. Green Office is also starting to institutionalize in the public sector and on policy agendas.

The German Sanit project which aimed at providing on-site advice service for energy efficiency renovations provided by a consumer NGO highlights the importance of creating a network. However, it also demonstrates that this creation of a network can be a spin-off of good interactions during the project with all relevant stakeholders. The project did not aim at creating a sound and sustainable network to support the project or its results after its conclusion. Nevertheless all the negotiations on regional level in preparation and during the project guaranteed a stable environment supporting the project. On the local level, the contact between the stakeholders, like politicians, associations of house owners or of colonies, chambers of craftsmen and chamber of architects and engineers not only promoted the project but also integrate energy consultancy into the practice of engineers, architects and craftsmen and it produced demand for their services. This happened by personal talks, lectures given for them or in direct cooperation.

The Danish project on the island of Samsø which aimed for the creation of a renewable, energy self-sufficient island municipality created an activity that would generate follow-ups and that would outlive the project itself. E.g. the Samsø Energy Academy was opened in 2007 and now is the basis for research, education and training. It's a community hall for energy concerns, a meeting place for energy and local development. They also operate a school service that prepares educational materials and confronts a large number of local and visiting school classes with a "hands-on" learning experience. Samsø Energy Island is a display window for Danish RE technology. Its achievements are presented in broad media coverage. In that way the lessons learned from the project are disseminated to all interested parties. Also, all the networks that they were involved in, work a way to disseminate the results.[8]

The UK project Warmzone Kirklees provides free cavity-wall and loft insulation in the Borough of Kirklees. The access to all households enabled in the framework of Warm Zone is used to help meet these objectives, including the distribution of free carbon monoxide detectors (there had been several cases of CO poisoning reported in the past). People are to be made aware of their energy consumption and possibilities to lower it, frequently accompanied by improvement of comfort and health. Several other services are offered or informed about, for example fire safety checks, water conservation advice, financial benefit and funding schemes, also for private renewable energy options. Additionally, the local economy was to be stimulated with the funding available by involving a local subcontractor to do the installation works and employ a team of people to take care of the management, communication and successful implementation of the project.

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[8] One might argue that building a network on an island is an easier task than on mainland.

A final note on networking is related to the need to publish to avoid perishing. Dissemination of findings and lessons learned is crucial, not only for subsequent programmes that otherwise run the risk of reinventing the wheel and failing during the process. Many cases demonstrate the importance of making use of lessons learned in prior project, similar examples, and or (copying elements of) working models whose practical benefit has been proven in previous projects (C4) (C3) (C13) (C16) (C22). Creating follow-up programmes that draw on knowledge and experience from previous programmes is yet another important step in creating system change, and was demonstrated in several cases (C5) (C16) (C18) including ones creating dissemination networks and practices that outlive the project (C3), (C4) (C18) (C21). Systematically following through on previous programmes and building up 'history' and 'momentum' helps to break our current energy use patterns. This has not received sufficient attention in existing demand-side practice or guidelines.

4. Summary and conclusions

This document (D4) has attempted to highlight the lessons learned regarding conducive and constraining factors from 27 case studies from various EU partner countries involved in the EC FP7 funded project CHANGING BEHAVIOUR. This meta-analysis, particularly in chapter 3, has stressed the importance of interaction and learning in order to arrive at demand-side management programmes which 'fit' the context in which they are embedded. Furthermore, it has also revealed the need to account for the context of the energy intermediaries delivering the programmes as these actors are embedded in their own context which exerts influence on the programme as well. Developing a comprehensive understanding of context is acknowledged to be a difficult and complex task, but one which can contribute to designing demand-side management programmes which move beyond the 'one size fits all' approach; providing specific contextual awareness and a good basis for bringing about lasting change.

The findings from the meta-analysis are understandably quite extensive and while many of the cases served to reaffirm well established success factors; they are none the less important or influential on programme success. In addition, the meta-analysis also stressed lesser discussed factors such as providing feedback to participants through continued monitoring and evaluation and general conditions such as temporal factors. All findings are presented in table 4.1 below which lists the four general conditions, the five corresponding themes and specific underlying factors as identified through the cases analysed.

Table 4.1   *Conditions, themes, factors affecting programme success*

Conditions	Themes
Internal factors	**Planning approach** • Gathering and defining baseline information and conditions • Continued monitoring and evaluation to provide feedback to participants as crucial element for changing behaviour • Taking the end-user as starting point • Allowing adaptation of content and goal of the programme according to Learning by doing, interaction between users, programme developers and policy makers • Careful design/balancing between planning and flexibility and top-down and bottom-up approaches
External factors	**Taking context on board** • Governmental support for demand-side management programmes (direct or indirect) • Opportunities to link up with prior or ongoing programmes and policies • Not having to cope with mixed and irreconcilable policy goals • Tradition of active civic engagement • Market conditions that encourage or discourage the motivation and willingness to change energy behaviour

Conditions	Themes
Temporal factors	**Timing your intervention** • Making use of a window of opportunity (e.g. a neighbourhood reconstruction; making use of the 'All Gore effect' which created momentum for climate change issues) • Cooperation with existing and planned initiatives to 'piggyback' resources and momentum • A motivated target group. • Linking to actions to trigger regional development
Interacting with and engaging end-users and other stakeholders	**Engaging end-users** • Knowing the target group. • Tailored message • Communication channels and formats (in line with interest of target group) • Aligning expectations (of intermediary, target group members and other stakeholders) • Focus on/target a multiplicity of benefits (in line with notion of multiple identities and needs of target group members) • Closeness of programme manager and stakeholders to each other and to target group. • Trust
	Engaging other stakeholders • Make use of existing networks • Reinforcement of existing networks • Build new networks (institutionalisation) • Sharing findings and lessons (during the programme and afterwards) • Creating a dissemination package of experiences or at least making results publicly available

It is important to note that while the above factors list specific conditions there is a great deal of interrelation between them. Often times ensuring a particular factor is accounted for in project design implies that other factors must be taken into account. For example 'knowing your target group' and the 'planning approach' are clearly related to one another as the approach taken (central or bottom-up) will affect the possibilities to address target group needs and expectations. In addition, all issues relate to the importance of contextualizing changes. This highlights the issue of diversity – behavioural change strategies can often involve different people, with different motivations, in different local contexts of practice – which reinforces the need to move beyond a 'one size fits all' approach whilst at the same time enriching our understanding of specific contexts. Consequently, rather than creating universal recipes for success, combinations of issues need to be understood in relation to different projects/programmes in the local context of their 'targeting' and 'implementation'. Identifying how programmes can actively engage with contexts - rather than just 'dropping' programmes into contexts is a recurring theme.

This report has presented the basic empirical knowledge in which the CHANGING BEHAVIOUR conceptual framework is grounded. In Deliverable 6 this conceptual framework is formulated, based on this empirical knowledge and the additional empirical and theoretical knowledge collected in Deliverable 5. Furthermore, the practical elaboration of all this knowledge into a context-sensitive toolkit is underway and will be finalised the end of 2010. This toolkit will be made available online.

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