

CHANGING BEHAVIOUR

Project Presentation

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. Our focus is on the interaction between energy experts and energy users: How can these different groups learn to understand each other better? Another focus is the role of context in successful interventions to change energy behaviour.

CHANGING BEHAVIOUR is an action research project. Researchers and practitioners work together to study and develop tools for improved interaction between DSM programmes and energy end-users. The project: (1) develops a sophisticated but practical model of end-user behaviour and stakeholder interaction; (2) integrates knowledge of context (e.g., culture and institutions), timing and actors into demand-side practice; (3) pilots the transfer of context-tailored demand side programmes from one European country to another and (4) creates a toolkit for practitioners to manage the sociotechnical change involved in demand-side management. The project partners are researchers and energy practitioners from nine different countries:

- National Consumer Research Centre NCRC, Finland
- Energy research Centre of the Netherlands ECN, Netherlands
- University of Salford, SURF Centre, United Kingdom
- Institute for Applied Ecology, OEKO Institut e.V, Germany
- Central European University, CEU, Hungary
- Stockholm Environment Institute, Tallinn Centre SEI-T, Estonia
- Cowi Baltic, Lithuania
- Energy Service Company Enespa Ltd, Finland
- Manchester Knowledge Capital, United Kingdom
- GreenDependent Sustainable Solutions Association, Hungary
- Ekodoma, Latvia
- Verbraucherzentrale Nordrhein-Westfalen e.V. VZ NRW, Germany
- Centre for Renewable Energy Sources CRES, Greece

The project is supported by a Policy Board, which ensures the relevance of the project work for the current needs of energy policy implementation. The Policy Board Members include:

- Senior Expert, Mrs Antoinet Smits, Behavioural Change Programmes, SenterNovem, the Netherlands
- Communications Director, Mrs Päivi Laitila, Motiva, Finland
- Head of Department, Mr Jozsef Feiler, Department of Climate Protection and Energy, Ministry for Environment and Water, Department of Climate Strategy, Hungary
- Representative from the Lithuanian Energy Agency, Energy Efficiency and Saving Division
- Research Professor, Mr Seppo Kärkkäinen, IEA-DSM /VTT, Finland
- Professor, Mrs Andra Blumberga, Riga Technical University
- Programme Manager, Mr Richard Rugg, The Carbon Trust, UK
- Executive Director, Mr Jukka Noponen, the Finnish Innovation Fund
- A Policy Board Member from Germany has been invited

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Background and focus of the project: why are we doing this and for whom?

Europe has set ambitious and far-reaching goals for managing energy demand. The aim is to shift the European energy market toward an increased focus on energy services based on end-user needs (e.g., thermal comfort rather than heat). Such a shift requires the adoption of radically innovative technologies entailing significant behavioural and social change. This requires a close understanding of end-user behaviour and needs. Here, an enhanced understanding of the role of end-users in technology adoption, appropriation and changing use patterns is key.

The project focuses on:

- Demand side management (DSM) programmes, i.e., informative instruments, pilot/demonstration projects, auditing and investment support, voluntary agreements, third-party financing schemes and the like. Demand management programmes represent an emerging focus on energy services rather than energy production. They are often focused on energy efficiency and end-use energy saving, but can also include sustainable end-user energy generation.
- Intermediary organisations operating in the field of energy DSM and related programmes and projects. Intermediary organisations have an important role in shifting the European energy market toward energy services based on end-user needs, because they mediate between the contexts of energy production and consumption. They include governmental energy agencies, non-governmental organisations, consultancies and energy service companies (ESCOs).
- Programmes with broad target groups, such as households, the building sector, municipalities and SMEs, for example programmes promoting efficient appliances, energy efficient building design, renovation and usage, training and capacity development programmes, or campaigns, commitments and competitions. Energy conservation can also be a core element in broader environmental or sustainability programmes, such as sustainable lifestyles, environmental management systems, energy self-sufficiency or sustainable city regions.

Shifting the European energy market toward energy services based on end-user needs (like thermal comfort rather than heat) requires a close understanding of the behaviour and demands of the end-users. The greatest potential for demand side measures exists among broad and heterogeneous target groups, such as households, the building sector and SMEs. Different target groups have different kinds of drivers for and barriers to change, and designing a successful programme requires a good understanding of the *interactions between technology, behaviour and context*. These can be related to: (1) learning about and adopting new technologies, e.g., compact fluorescent lamps, pellet burners or solar thermal collectors, (2) utilisation of new services, e.g., maintenance of refrigeration equipment or investments in heat pumps made via an ESCO service and (3) behavioural changes resulting from technology adoption such as use of new equipment in the workplace or living in a passive house. These changes involve a wide range of potential configurations of new technology and user behaviour, ranging from simple issues such as becoming aware of energy consumption, or learning to use new equipment, to broad lifestyle or workplace culture change..

There is a wide social science literature on how new and sustainable technologies are adopted in different social contexts. Socio-technical research on technology adoption, the appropriation of innovations and the relations between technology and behavioural change has made great strides in recent years. Theoretically, we are much closer to understanding the role of end-users in technical evolution, as well as the social, cultural and institutional factors conditioning the rate and direction of technical change. Little of this cutting-edge research has translated into energy management practice, and there is a dire need for dialogue between researchers and practitioners.

Work plan: how will we do it?

The overall strategy is based on intensive co-operation between researchers and practitioners. The methodological basis of the project combines conventional policy and programme evaluation with a sophisticated understanding of models of social and technical change, in particular in the field of energy. The results of this analysis are then tested under real-life conditions in collaboration with the relevant actors, and the outcomes are reflected on together with those involved. The overall work plan consists of the following six work packages:

WP1	Inventory of European demand management programmes
WP2	Development of the conceptual model: success factors, underlying models of sociotechnical change, and methods of target group interaction
WP3	Researcher-practitioner dialogue with intermediary organisations
WP4	Context-tailoring and piloting of best practice programmes
WP5	Evaluation and Toolkit development
WP6	Management and dissemination

WP1 Inventory of European demand management programmes aims to identify the relevant DSM and their operating contexts. The focus is on different contexts: (a) different countries including Old and New Member States and (b) different local contexts within countries (e.g., urban and rural). The focus is also on demand management programmes run in different sectors: (a) SMEs, (b) built environment (houses, industrial and service complexes), (c) households. Even though demand management, e.g., in the transport sector is not the main focus of this project, a summary review of innovative programmes within these fields is also made in order to identify best practices and key lessons. The end-product is an inventory database of European demand management programmes targeted at SMEs (services, small industry), the building sector and households and their results. This database serves as input for WP2, but it is also an independent product, which will be publicly available, web-based, searchable and allows comparison of programme inputs, instruments and results by country and by target group.

WP2 Development of the conceptual model: success factors, underlying models of social and technical change, and methods of target group interaction aims to develop a conceptual model of why demand management programmes succeed or fail. The model will enable an identification of improvement needs in the programmes' working models of sociotechnical change and they ways in which programmes interact with and learn about their target groups. This is done by first making a preliminary identification of 10-20 of the best and worst practices in earlier programmes on the basis of efficacy, effectiveness and learning criteria, and then analysing the underlying factors explaining success or failure. The projects are analysed on the basis of their underlying models of sociotechnical change and methods of target group knowledge management, using recent social research on technological change as a theoretical framework. The end products of this work package include (1) a database of the past 10 year of best and bad practice in demand management (2) an analysis report including an executive summary with highlights for policy makers and (3) a concise, thought-provoking synthesis of this report for policy makers and intermediary organisations.

WP3 Researcher-practitioner dialogue with intermediary organisations aims to initiate intensified interaction and co-operation of the project with intermediary organisations. The purpose of this interaction is to map the social organisation of intermediaries in contexts of energy consumption, initiate dialogue between practitioner experience and academic research on sociotechnical change; validate the findings of the analysis conducted in WP2; and identify context-tailoring measures necessary for the transfer of best practices. The overall aim is to accelerate the exploitation of intermediaries in energy demand management through an enhanced understanding of context, actors and timing. Dialogue will be mobilised by organising four regional workshops for intermediary organisations in different European countries. The end products delivered by this work package include: (1) workshop reports from each workshop (2) a selection of best practices for piloting in WP4 and (3) a preliminary list of measures needed for tailoring programmes to context, which are then further tested in WP4.

WP4 Context-tailoring and piloting of best practices aims to test the conceptual model and context-tailoring measures developed in WP2 and WP3 by piloting best practices in a new context in co-operation with intermediary organisations. The pilots are designed with due attention to the recognised contextual features and needs. The work package will initiate and carry out 4-6 pilot projects in different countries, including New Member States. The pilots will be carefully selected to enable the testing of the conceptual model and the procedures for tailoring projects to context that it suggests. The intermediary organisations (practitioners) participating as project partners will be closely involved in the pilots, but also programmes involving other intermediary organisations can be included in the pilot selection. The end products delivered by this work package include: (1) documentation of pilot projects, including design, implementation and context-tailoring measures (2) analysis of more and less successful features of pilot projects.

WP5 Developing a toolkit: Evaluation and documentation aims to evaluate the results of the entire project and to use them for constructing a Toolkit for Practitioners. The toolkit will be sensitive to the influence of context, timing and actors, and will thus facilitate the cross-country transfer and adaptation to local context of European best practices. In particular, the toolkit will address the diversity of conditions and behaviour patterns in old and new EU Member States. The detailed format and content of the toolkit will be designed in co-operation with the intermediary organisations involved, and tested with users in a final workshop for intermediaries. Particular attention will be devoted to developing a useful contents and a user-friendly

format. The Toolkit will be made freely available online over the Internet and translations will be undertaken into at least two languages.

Expected final results and their impact and use

The expected final results of the project include a theoretically rich, but practical, model of end-user behaviour and stakeholder interaction, which integrates knowledge of context (e.g., national culture and institutions), timing and actors into energy demand management practice. This model will be:

- based on an inventory of European DSM programmes in old and new Member States
- tested in a meta-analysis of prior more and less successful European DSM programmes
- tested in a dialogue with intermediary organisations
- tested in pilot projects in different European countries
- codified in a user-friendly toolkit for practitioners to manage the sociotechnical change involved in energy DSM.

This new knowledge is created in a process involving intensive dialogue between research organisations and energy DSM practitioners, both within and outside the project. Close dialogue is also maintained with policy making organisations, which are involved via the Policy Board of the project. On the basis of this co-operation, a summary report for policy makers will be made, including a list of 8-10 indicators of key elements of successful energy demand programme management.

The expected impact of the project is to contribute to a more sustainable energy economy. In particular, it will improve energy efficiency, as well as contribute to speeding up the deployment of a range of renewable energy technologies. It will do so by:

- 1** *Providing knowledge tools for policy:* The project will provide important knowledge tools for future EU policies related to energy efficiency and demand reduction. It will enhance the competencies of practitioners operating in the field, thus reinforcing the implementation mechanisms for energy-efficiency policies. Moreover, it will provide a database of effective modes of demand side management.
- 2** *Improving knowledge of end-user behaviour and demand-side measures:* By evaluating existing programmes and providing new knowledge on energy-related behavioural changes, the project will significantly improve current DSM practice by enhancing existing models and methods with a sophisticated understanding of a broad range of drivers and obstacles to behavioural change, including the role of cultural and institutional context.
- 3** *Facilitating a shift toward energy end-use services:* The project will support a service shift by accelerating the transformational role of intermediaries in energy demand. Moreover, it will support the shift toward services by developing and disseminating sophisticated tools to explore end-user behaviour and respond to energy end-use service needs.
- 4** *Enabling the exchange of best practices across cultural contexts:* The project will provide a knowledge base on the influence of cultural and institutional context on the outcomes of demand side measures. By applying this enhanced understanding of context to the exchange of best practices, the project will provide a systematic base for the exchange of experiences and context-tailored transfer of best practices.
- 5** *Promoting dialogue between science and society:* The project will build on a dialogue between researchers, intermediary organisations and other stakeholders, and thus demonstrate a new approach to programme development and evaluation in co-operation between academics and practitioners. Moreover, it will introduce novel modes for collecting user and stakeholder feedback and stimulating idea generation through open innovation.

The use of the results will be achieved through public reports, other publications and face to face communication with different audiences, as well as through the project website and the Toolkit for Practitioners. The Toolkit will be freely available over the Internet, designed using open software tools, translated into different languages, and also available for organizations to download and customize into their own internal manual. Because the project involves intensive networking with intermediary organisations at

all stages, including continual feedback, it is expected that this Toolkit will be widely adopted and tailored to the needs of European intermediaries in the field of energy DSM.