



# Changing Behaviour

Research Note 2

## **Rating Expert Advice on How to Change Energy Behaviour**

Summary of a survey by  
Julia Backhaus (ECN) and Eva Heiskanen (NCRC)

with contributions by

S. Breukers, R.M. Mourik, D. Bauknecht, M. Hodson, Y. Barabanova,  
B. Brohmann, V. Bürger, C.F.J. Feenstra, E. Jaraminiene, T. Kallaste,  
A. Kamenders, P. Maier, S. Marvin, H. Meinel, V. Papandreou,  
M. Rask, S. Rinne, S. Robinson, M. Saastamoinen,  
J. Salminen, I. Valuntiené, E. Vadovics

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## **1. Introduction**

There are estimated to be huge cost effective potentials to save energy. For example, the European Commission has calculated that we could reduce energy demand cost-effectively in various sectors by 25-35% by making sensible investments (Action Plan for Energy Efficiency 2006). Changing everyday habits may add tens of percent to these savings (Laitner et al. 2009). As climate change continues to rise on the political agenda, the importance of energy saving grows, because saving energy is the cheapest way to reduce CO<sub>2</sub> emissions (IEA 2008).

Social and behavioural research on energy conservation has tried to find the best ways to influence energy consumption since the energy crises of the 1970s. This research has identified some general lessons that are valuable for energy practitioners. But people's behaviour is influenced by their environment, so people respond differently in different contexts. CHANGING BEHAVIOUR is a European research project that aims to find the best ways to apply state-of-the art research to real-life circumstances.

This paper first presents some general lessons from four decades of energy research. We then present some of the best advice for today's European energy efficiency practitioners working with small energy users (e.g. households, small businesses). We base this advice on an extensive review of literature (see Breukers et al. 2009), while judgments on the value of this advice were made by 13 CHANGING BEHAVIOUR project partners, including eight experienced practitioners working in different European countries.

## **2. Why is it difficult to save energy?**

Energy use is embedded in everyday routines and in the structure of our physical environment. Thus, for most people and most of the time, energy use is invisible, and feedback on how much one has used is usually quite delayed. Because we rarely make a conscious decision to *use* energy, it is also difficult to make conscious decisions to *save* it.

Even though European policy makers today stress the importance of saving energy, there are many forces that contradict even the best efforts to change. Our cities, energy supply systems, housing designs and product marketing systems are not necessarily designed to promote energy saving. An increasing stream of new products counteracts the efficiency gains made in existing ones. Energy is socially invisible too. People rarely talk about it. There are few services available for energy efficient investments or the adoption of more efficient routines.

Nonetheless, change is possible. When trying to reduce our demand for energy, it is useful to differentiate between (a) habitual, everyday routines and (b) energy efficiency investments. Habitual, everyday routines are daily behaviour patterns that we do unthinkingly rather than making conscious decisions. They have their own momentum, and just getting someone to do something differently once is not enough; you need to change the pattern. Energy efficiency investments are more conscious and made more rarely; thus, people process more information. Both types of behaviour, however, are embedded in social habits, traditions and environments; they require learning (and unlearning) by individuals and by society as a whole.

### 3. Changing routines and habits

We asked our partners to rate the evidence-base and their own practical experiences with nine different ‘tools’ to change routine behaviour (see Table 1).

1. **Assess susceptibility to change:** Planning guides (e.g., Dahlbom et al. 2009) stress the importance of assessing whether the targeted behaviour is susceptible to change – i.e., is it feasible to change this behaviour? A particular behaviour may be very important in terms of energy use, but if it is hardly susceptible to change, then you should reconsider whether to target this behaviour. Our partners commented that this is good advice when funding bodies offer flexibility to start with ‘easy’ behaviours (which is not always the case). They also stated that this approach is feasible when the target group is not too diverse. Different people may find different behaviours more difficult or easy to change. At the same time, our partners emphasized that low susceptibility to change is not to be confused with the impossibility to change, but can alert us to the challenges of change and the strategies it requires.
2. **Create awareness of habits:** When dealing with habitual behaviour, it is important to realize that people are often not aware of their habits (e.g. Darby 2005). Practical examples of how to increase awareness of habitual behaviour include home/workplace energy checks, active learning (learning by doing, e.g. exercises, teaching others) and small-scale research or observations by end-users of their own habitual behaviour and its causes. Our partners agreed that there was quite some evidence for this approach, and most had some practical experience of this as well. They agreed that creating awareness of habits can be useful and feasible, yet it needs to be done with care and sensitivity: people may find it insulting if an outsider tells them they are “doing it wrong”. Instead, project implementers should aim at offering constructive solutions and guiding support for behavioural change.
3. **Use emotional appeals:** In order to gain your target group’s attention, you need to reach them with some sort of emotional appeal. Emotional appeals draw on positive (e.g. saving money, caring for the family) or negative (avoid climate disasters) motives. Avoidance of fear or guilt, on the one hand, and desire for positive things like social approval, on the other, are all potentially powerful motivators. However, negative or threatening appeals may be risky unless it is easy for people to avoid the problem (e.g., Futerra 2005). Our partners agreed that emotional appeals are always needed and that the evidence-base for this approach is strong. They also stressed that emotional arguments need to be backed by facts. However, finding the right emotional appeals and using them cleverly may not be easy for people with a technical background. This is reflected in the fact that practical experiences were somewhat mixed (Table 1).
4. **Use rational appeals:** While people engage with energy conservation messages on the basis of emotional appeals, the rational argument needs to be in place as well: why are the behaviours you are targeting important and what difference do they make? Rational appeals should be presented in a way that is personally or locally relevant for the target group: it is important to recognize that their rationality is not necessarily the same as yours. Our partners’ practical experiences of rational arguments were mostly quite positive (Table 1), but also showed that rational arguments don’t always work. Rational appeals are helpful once you have people signed up for your project. The rational argument should also be sufficiently dramatic (i.e., provide significant savings).

5. **Build on ongoing change processes:** One way to change habits is to target moments when things are changing in any case (e.g., Bamberg 2006), for example when people move to a new home, or change work tasks. This approach has been topical in a few recent studies, especially focusing on the travel behaviour of people who have recently moved to a new home. Our partners were fairly convinced by the evidence-base of this approach. However, many (6) did not have practical experience of building on ongoing change processes. Some thought it might be useful in some situations, but an ongoing change can also be stressful, and it might be risky to intervene at such a time.
6. **Change the users' environment:** Habits are shaped by the physical environment, so one way to influence habits is to change the users' environment. Cheap and easy ways to do so include prompts (e.g. stickers put in visible places, see McKenzie-Mohr 2008), 'energy saving packs' with energy-saving devices, meters or alarms, or regular e-mails or letters to remind people about certain behaviours. Our partners agreed that these may be useful, e.g., in a work environment to help create social norms, on the condition that the target group is willing to change. Others noted, however, that prompts can lose value with familiarity and can be annoying. One recommended approach was to get the target group to design their own prompts. The general view was that this approach requires support and needs to be set in a broader context. Practical experiences were slightly mixed, and not everyone had tried this approach (see Table 1).
7. **Give feedback:** Knowing how much one consumes is a crucial first step towards energy saving. However, households or small businesses often cannot make sense of their energy bills. Thus, additional feedback is needed, e.g. via meters or informative bills (Fischer and Duscha 2009; Darby 2006). Feedback can also be produced through monitoring of project achievements. Our partners stressed that feedback is an appropriate tool when people have the opportunity to change their behaviour and when the information is not too overloading. The more personalized the feedback is, and the more this is combined with advice on how to reduce consumption, the better the results. Good feedback is not easy to develop; however, practical experiences were positive for feedback (see Table 1).
8. **Use commitment and goal-setting:** Commitment to goals (e.g., 20% reduction in electricity use within 6 months) is often said to increase the effectiveness of feedback (Abrahamse et al. 2005; Becker 1978; McCalley and Midden 2002). Most evidence claims that goals should be achievable but challenging (i.e., 20% rather than 2%) to have an impact on energy use. Our partners did find some useful applications of commitments and goal-setting: when goals are clear, agreed on and measurable, and frequent feedback is available. Goals can also be confusing if not situated in a wider narrative: "why? why now?". Some were doubtful of the value of goal-setting for individuals – it requires some kind of social context. They are totally useless if the target group does not have the means to reach their goals. These critical points were reflected in our partners' rating of their practical experience with commitment goal-setting (Table 1), which though mainly positive, also included negative experiences.
9. **What about competitions?** They are today a popular way to engage people in playful and fun way. Our partners had identified some good examples of competitions, and the general view was that there was some evidence in their favour. Practical experiences of using competitions were mixed but mostly positive (Table 1). They were deemed most suitable for measures that are easy and fairly cheap to implement in organisations or other groups of

people competing with each other (rather than individuals). However, it is important that rules are fair. Some partners pointed to the danger of dissatisfaction (especially by losers), and some questioned whether competitions really promote long-term change.

**Table 1. CHANGING BEHAVIOUR partners' experience of expert advice to change habitual behaviour**

"Advice"	Own experience, rating: 4= very positive to 1= totally negative	When is it good advice?
Assess susceptibility to change	3.4	When funding bodies offer flexibility to start with easy things, when the target group is not too diverse.
Create awareness of habits	3.4	When used with care: people may find it insulting if an outsider tells them they are "doing it wrong".
Use emotional appeals	3.2	When backed by facts. Not easy to use for people with a technical background.
Use rational appeals	3.4	Once you have people signed up for your project. When the rational argument is sufficiently dramatic.
Build on ongoing change processes	3.0	May be useful in some situations, but ongoing change situations can also be stressful.
Change the users' environment	2.9	When the target group is willing to change. But prompts, for example, can lose value with familiarity and can be annoying.
Give feedback	3.4	When people have the opportunity to change their behaviour, and the information is not too overloading.
Use commitment and goal-setting	2.4	When goals are clear, agreed on in society and measurable and when frequent feedback is available.
Competitions	3.0	When rules are fair, when groups of people (not individuals) compete with each other. Danger of dissatisfaction, might not promote long-term change.

#### **4. Promoting efficiency investments**

Concerning energy efficiency investments, we asked our partners to rate the evidence-base and their own practical experiences with five different 'tools' for change (see Table 2).

1. **Emotional appeals:** Efficiency investment behaviours are more rationally based than habitual behaviours and they involve more information processing. However, most purchasing behaviours are not purely rational: rational arguments are needed to justify the purchase, but the true motivation is rarely based on calculation alone (e.g. Biggart and Lutzenhiser 2007). Our partners agreed that emotional appeals are good when supported by personal advice and appropriate financial mechanisms. In advertisements, famous people can present a suitable emotional appeal for energy efficiency investments, and comfort was mentioned as an important emotional appeal. However, it is important to take into account the diversity in people and in different types of efficiency investments, and one of our partners remarked that emotional appeals are likely to work best for the fuel rich. Another caution was that advertising often draws on emotions, and many advertising claims in the field of energy efficiency are not well substantiated.

2. **Rational appeals** are needed, too, and they should be presented in a way that is relevant for the target group. It is important to recognize that end-users' rationality is not necessarily the same as yours. Most households and businesses require fairly short simple payback periods (e.g., 3-5 years) and rarely calculate the long-term value of energy efficiency investments (Geller and Attali, 2005). People may be concerned about initial costs or about the risks of new solutions. In these cases it is important to reduce time and effort and to find credible information and reliable products and services through personalised advice. Our partners agreed that there is strong evidence for the need for rational appeals alongside emotional ones. They work best when transaction costs can be kept low, when some immediate benefits can be shown (in addition to long term benefits), and when there is feedback available to measure whether the promised benefits have been achieved. Once again, however, different circumstances were highlighted – for example, uncertainties about the future faced by older people.
3. **Build trust and confidence:** The larger the investment, the more people want to make sure they are making the right choice. There are often rumours around that berate energy efficient products. When people feel uncertain, they are more likely to follow the lead of others. This is why it is important to reduce risks of failure (e.g., guarantees, quality certificates) and build on real-life examples that are as similar as possible to your target group. One example is to get people who have conducted successful energy renovations to invite neighbours to see and ask questions on 'Open Home' days (Hamilton and Killip 2009). Our partners agreed that the evidence-base for this advice is strong, and everyone had some positive experiences in following this advice (Table 2). They mentioned many examples when trust and confidence are crucial. However, this only works when your organisation is perceived of as trustworthy (having a good track record). It is also important to know whom or what people are likely to trust.
4. **Provide transparent and understandable information:** Transparent information is important because people in general know fairly little about their energy use or about alternative solutions. Thus, making energy efficiency investments can be very difficult and confusing. It is important to understand that the information that is most useful for you may not be the most useful for your target group. Because you are promoting certain solutions, your target group may also want to make sure that you are treating the alternatives fairly (and not just pushing an agenda). You need to find the right balance between conveying a clear understandable message and providing transparent, unbiased information. Our partners agreed that this was good advice, backed by a strong evidence base and mostly positive practical experiences (Table 2). However, some noted that finding the right balance between transparency and clarify is not easy, and requires a lot of skills.
5. **Provide support and services:** Providing a network of reliable, certified and honest service providers can be an important trigger that helps people out of their inertia and confusion. People can be supported by market surveys, user experiences, quality labels, price quotations and customer ratings of service providers. Lack of suitable financial services may also be a problem for users, so you might provide easy-to-use information on government support schemes, special loan instruments and other financial services. Our partners acknowledge the need for a suitable service network. Especially the fuel poor and those without skills to navigate the market were mentioned as needing 'concierge' type services. Most experiences were positive, but there were also slightly negative ones (Table 2). There was a lack of agreement on the *scale* on which support and services can be provided: organising

support and services is a large investment for the project manager, and some were not sure whether this investment always pays off (in terms of getting more people on board).

**Table 2. CHANGING BEHAVIOUR partners' experience of advice to change investment behaviour**

"Advice"	Own experience Rating: 4= very positive to 1= totally negative	When is it good advice?
Use emotional appeals	3.1	When supported by personal advice and unbiased evidence, when people can afford the investments.
Use rational appeals	3.6	When the case is strong and communicates with a diversity of user concerns (including some immediate benefits); sometimes personal circumstances don't fit in a general rationale
Build trust and confidence	3.5	Practical examples and peer recommendations are usually useful. It is important to know whom or what people will trust.
Provide transparent <i>and</i> understandable information	3.5	Always, but requires skills to assess balance between information overload & transparency
Provide support and services	3.2	Across contexts – but can be costly and risky to manage in small projects

## 5. Beyond individual behaviour: engaging the community

Most projects to reduce energy consumption focus on individuals. But current research stresses that people are also part of society and communities, and they don't make decisions in isolation from others. This is why it is important to look beyond individuals and target the social context. We asked our partners to rate the evidence-base and their own practical experiences with four different 'tools' to engage the community in changing energy behaviour (see Table 3).

1. **Peer-to-peer communications** are considered important because people want to be like the other people around them. It is easier to engage energy end-users when bringing the information very close to their everyday lives. In a world increasingly crowded with media messages, face-to-face communications gain genuine attention (e.g. Futerra 2005). Volunteer advice networks and the organising of local events are topical examples of making use of peer-to-peer communications. Our partners agreed that there is a lot of evidence for the importance of peer-to-peer communications, and their own experiences with peer-to-peer communications were quite positive (Table 3). It was considered good advice in most situations. Yet managing messages that spread through peer-to-peer networks can be complicated, and it may be difficult to identify the right peer communicators. It might be difficult to monitor whether the message gets through. If the end-users need expert advice, you may need to be careful whom you choose as the message carrier.
2. **Social support and social pressure** are highlighted today for many reasons. People learn many behaviours directly by copying (modelling) others (Bandura 1986). People are also stimulated to change because other people whose opinion they value or whom they admire make their commitment to change visible, and may even disapprove of those who do not participate in the change process. When sufficient numbers of people adopt the new behav-



your, it becomes ‘normal’ and appropriate. Practical examples include using role models (like celebrities or respected community members) and building support networks. Our partners agreed that this was good advice, but once again not so easy to put into practice. Their own experiences were mixed though mainly somewhat positive. Examples of problems include identifying good role models (who are actually admired) and making sure that people do not feel *too pressured* (especially in the case of large investments).

3. **Make sure everyone ‘does their bit’:** Social dilemmas are powerful barriers to behaviour change that aims to conserve common goods. This means that individual efforts have no impact on large problems like climate change if other people do not contribute. People don’t want to make useless sacrifices. Your target group needs to know that others are doing their bit and that people are working together to solve a common problem (e.g. Lucas et al. 2008). Practical examples include public commitments and the monitoring of aggregated achievements on the local level. Most of our partners agreed that there is quite some evidence for this argument, however, making sure everyone contributes is easier said than done, especially for small-scale projects. Collective commitments should not only be verbal (just rhetoric), but there is a need to monitor and provide feedback on collective achievements, as they may otherwise not carry sufficient urgency to provoke large sacrifices. Therefore, commitments and their collective evaluation are more likely to influence behaviour in large-scale and long-term projects. In short term and small projects they merely serve to raise awareness or influence public opinion.
4. **Engage stakeholders:** Energy end-users are not the only parties influencing their energy usage behaviour. Change in energy-related behaviour is part of a larger change in the social and technical organisation of everyday life. Small projects cannot change entire systems, but they can engage the relevant stakeholders and ‘gatekeepers’, such as service providers, facility managers or retailers (e.g., Rohrer 2001). This can be done by creating win-win situations where stakeholders gain benefits or credit from success of the project. Our partners agreed that there is clear evidence for this advice, and most had positive experiences in implementing it. It is good advice in situations when you want the changed behaviour to become embedded in everyday practices, and when end-users are dependent on stakeholders (like service providers). But it requires real win-win situations (such as financial opportunities), and it may not always be so easy to align the interests of diverse stakeholders. For example, not every supplier and service provider may agree that there is a fundamental need to save energy.

**Table 3. CHANGING BEHAVIOUR partners' experience of advice to engage the community**

"Advice"	Own experience, Rating: 4= very positive to 1= totally negative	When is it good advice?
Use peer-to-peer communications	3.4	In most situations, especially when the target group is fairly homogeneous and trusts each other. Sometimes it may be difficult to do this in practice or to monitor whether the message gets through.
Use social support and social pressure	2.9	Requires good understanding of social dynamics – who influences whom? May be difficult to manage in practice.
Make sure everyone 'does their bit'	3.2	Especially for long-term and large interventions, when achievements can really be monitored (not just rhetoric)
Engage stakeholders	3.6	When end-users are very dependent on stakeholders; requires real win-win situations and alignment of stakeholder interests

## 6. Conclusions

Social and behavioural research on energy conservation has identified some general lessons that are valuable for energy practitioners. But energy use – and energy saving – also depend on the particular people and context in which you work. For example, our team of researchers and practitioners from nine countries found that some things that work in one country don't work in another. The best advice also depends on the resources available for your energy saving project or programme.

So the best solution for changing energy behaviour can only be found by making a careful analysis of your particular target group and the context for their energy use patterns. CHANGING BEHAVIOUR is preparing a Toolkit for Practitioners that aims to help in developing the best project for you and your particular target group. If you are interested, please get in touch with us (coordinator@energychange.info; <http://www.energychange.info>).

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## Annex: full tables

### Habitual behaviour

"Advice"	Evidence base, $\bar{x}$ , rating 4=very strong to 1= not at all	standard deviation, $\sigma$	don't know, n	Own experience, $\bar{x}$ , rating 4= very positive to 1= totally negative	standard deviation, $\sigma$	don't know, n
Assess susceptibility to change	3.5	0.53	0	3.4	0.50	3
Create awareness of habits	3.5	0.66	0	3.4	0.52	1
Use emotional appeals	3.8	0.42	1	3.2	0.83	2
Rational appeals	3.4	0.52	0	3.4	0.69	0
Build on ongoing change processes	3.6	0.53	2	3.0	0.70	6
Changing the users' environment	3.3	0.82	1	2.9	0.88	3
Feedback	3.6	0.70	1	3.4	0.70	3
Commitment and goal-setting	3.3	0.87	1	2.4	1.01	3
Competitions	2.8	0.79	1	3.0	0.50	2

### Investment behaviour

"Advice"	Evidence base, rating 4=very strong to 1= not at all	standard deviation, $\sigma$	don't know, n	Own experience, rating 4= very positive to 1= totally negative	standard deviation, $\sigma$	don't know, n
Emotional appeals	3.3	0.49	0	3.1	0.57	1
Rational appeals	3.7	0.48	1	3.6	0.53	2
Build trust and confidence	3.6	0.50	0	3.5	0.52	0
Provide transparent and understandable information	3.7	0.47	0	3.5	0.69	0
Provide support and services	3.5	0.52	0	3.2	0.79	1

## Engaging the community

"Advice"	Evidence base, $\bar{x}$ , rating 4=very strong to 1= not at all	standard deviation, $\sigma$	don't know, n	Own experience, $\bar{x}$ , rating 4= very positive to 1= totally negative	standard deviation, $\sigma$	don't know, n
Engage stakeholders	3.7	0.47	0	3.6	0.50	0
Use peer-to-peer communications	3.7	0.48	0	3.4	0.50	0
Make sure everyone 'does their bit'	3.4	0.70	1	3.2	0.46	1
Use social support and social pressure	3.4	0.84	1	2.9	0.57	1