

POLICY BRIEF

NUDging consumers towards enerGy Efficiency through behavioural science (NUDGE)



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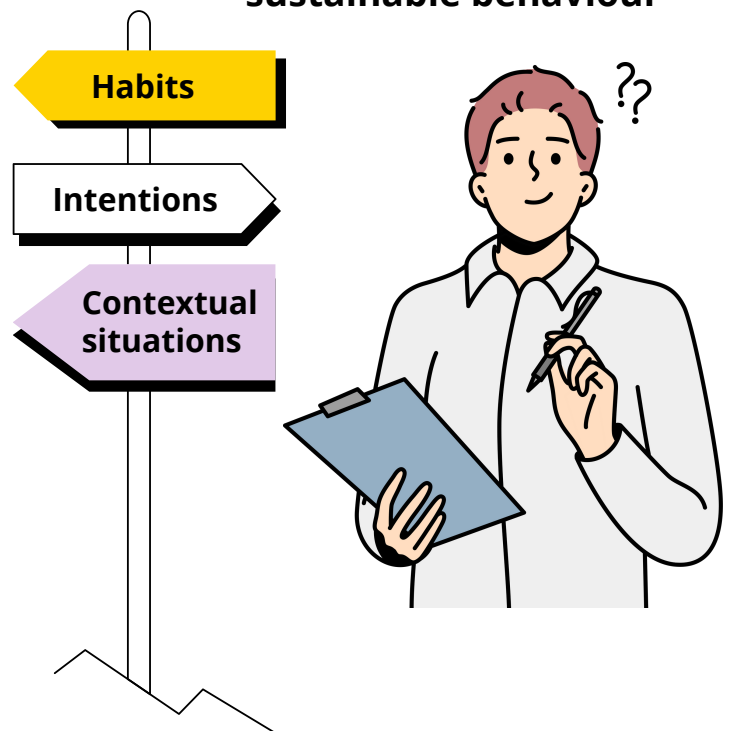
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Introduction

The promotion of sustainable behaviour in the field of housing energy saving is a complex issue influenced by several factors. **Behind every sustainable behaviour there are, in fact, influences stemming from both global and cultural factors as well as more distinctly individual factors. These include habits, intentions and contextual conditions.** In the field of energy saving, therefore, the provision of socially appropriate infrastructures for the realisation of a certain behaviour or the development of incentive policies are intertwined with the intentions of individuals towards sustainability issues, which are themselves **influenced by attitudes (certainty of results and evaluation of results), social factors (roles and norms) and affective factors (perception of self and loved ones) and established habits (frequency of past behaviour) in the field of energy consumption.**

The project '**NUDging consumers towards energy Efficiency through behavioural science**' (**NUDGE**) was conceived to unlock the potential of behavioural interventions for lasting behavioural changes in energy efficiency, paving the way for the widespread use of such interventions as a valuable addition to the policy toolbox.

What factors affect sustainable behaviour



To this end, a Europe-wide survey (available in 15 languages and filled in by more than 3,000 people in 29 countries) was first carried out with the aim of **gaining a better understanding of energy consumers' behaviour in relation to energy efficiency and the factors that act as barriers or facilitators to energy saving.**

The survey identified six different consumer profiles and based on their distinct characteristics, the most appropriate nudges were defined, which are described below.

Table 1 : Energy consumer classes

Consumer profile	Type of Nudge	Description
Environmentally conscious and well-informed energy consumers	Reinforcement	Feedback and awareness: maintaining interest through regular but infrequent information on energy saving
Concerned but comfort-oriented energy consumers	Comparison	Remind of the consequences: Invite the user to consider the consequences of an action, e.g. raising the temperature of the thermostat or air conditioning, insisting on the additional cost involved.
Concerned but unaware energy consumers	Facilitating	Default: turn the energy-saving settings of devices (thermostats, air conditioning systems) into a settings, to spare the user the 'burden' of learning what is appropriate and what is not.
	Reinforcement	Real-time hints and tips: provide users with hints and tips exactly when they interact with device settings that have an impact on energy consumption.
Materialistic energy consumers who shirk their personal responsibilities	Comparison	Remind of the consequences: Invite the user to consider the consequences of an action, e.g. raising the temperature of the thermostat or air conditioning, insisting on the additional cost involved.
Energy consumers prone to social influence	Social influence	Enabling social comparison: using different means to facilitate comparison with other peers (friends, neighbours, consumers with similar demographic characteristics).
	Social influence	Target setting and commitment: getting consumers to make a formal commitment to reduce the energy they consume, often in exchange for a (non-monetary) reward.
Indifferent energy consumers	Facilitating	Default: turn the energy-saving settings of devices (thermostats, air conditioning systems) into default settings, to spare the user the 'burden' of learning what is appropriate and what is not.
	Reinforcement	Feedback and awareness: use suggestions, notifications, marketing campaigns, to raise awareness among this group of users and overcome their reservations about the effectiveness of their behaviour.
	Reinforcement	Hedonistic goal: emphasise the big picture and the impact on the big issues, possibly with some exaggeration, in order to turn energy saving into a goal.







Source: NUDGE - "Profiling of energy consumers: psychological and contextual factors of energy behaviour"

The results of the survey were used in the subsequent phases of the project, which involved the design and implementation of five field initiatives (pilots) to test a wide range of energy-saving behavioural interventions.

The interventions targeted consumers in **5 different EU countries** (Greece, Belgium, Germany, Portugal and Croatia), in **different environments** (residential, energy communities, schools), belonging to **different age groups** (including young children), belonging to **different income classes** (low, medium, high), served by **different energy carriers** (electricity, natural gas), with the inclusion of prosumers and drivers of electric vehicles.

Specifically, the pilots aimed at:



-  Increasing self-consumption (Germany, Croatia);
-  Improving energy knowledge (Belgium);
-  Optimising the charging of electric vehicles with self-generated photovoltaic energy (Germany)
-  Reducing heating-related consumption (Belgium, Portugal and Greece)
-  Reducing electricity consumption (Portugal)
-  Improving indoor air quality (Portugal).

Three nudging interventions were tested in sequence in each of the four pilot projects, excluding the Belgian one which provides educational nudges through courses during the school year. Most of the pilot projects started with nudging interventions that provided feedback on participants' consumption and aimed to increase their awareness. These were followed by more interactive nudges, particularly those with push notifications, just-in-time prompts, gamification or goal setting.

Table 2 : Overview of Nudges

	Germany	Croatia	Belgium	Portugal	Greece
Nudge 1	Feedback and awareness	Stimulating empathy	Educational nudges and pupils as multipliers for two school cohorts	Feedback and awareness	Feedback and awareness
Nudge 2	Gamification and goal setting	Feedback and awareness		Push notifications	'Just in time' suggestions
Nudge 3	Default	Gamification and goal setting		Push notifications, feedback and awareness	Push notifications


Source: NUDGE - "Final report on the evaluation of nudging interventions through pilot data"

The results of the pilots show some positive cases of energy savings ranging from 0.4 to 3.5 per cent and as high as 15 per cent in the case of nudges aimed at smart charging of electric vehicles.

Evidence and recommendations

The promotion of new behaviour is an obstacle course whose outcome is never a foregone conclusion: even when the strategies adopted succeed in changing a person's attitude on a certain issue, this change is not always matched by the adoption of new behaviour. Furthermore, even if a strategy is successful in promoting sustainable behaviour in one group of people, it is not certain that the same strategy can be generalised to other groups of people or that it will be effective in the long term.

Although the experiments of the NUDGE project, through the pilots carried out in the five countries indicated, for the reasons already described, do not provide certain indications regarding the effects of the nudges used in terms of a substantial change in energy consumption behaviour, we feel we must reiterate the importance of continuing to support and implement actions and projects that go markedly in this direction, taking into consideration the criticalities that emerged both from the survey and from the pilots. Attention should be paid to the following critical issues:

 **Lack of adequate environmental awareness and low awareness of the impact that one's behaviour can have on the environment.**

In fact, environmental issues are often part of highly complex systems, characterised by slow and gradual phenomena that are difficult to perceive in everyday life.

This leads people to see them as not very 'real' problems, hindering the process of internalising a true awareness of one's own environmental impact. This phenomenon is even more evident when it comes to energy: the extent of our daily energy consumption is mostly invisible both to us and to the people around us, and the environmental impact of our behaviour is hardly perceived. This applies to consumers belonging to the classes identified by the survey as: concerned but unaware consumers, materialistic energy consumers and indifferent energy consumers.

Our recommendation to the European institutions and those of the Member States is to **continue investing in information and awareness-raising activities on the issues, as a fundamental prerequisite for the acquisition of greater awareness of environmental issues among citizens.**

It will be important to act in coordination between the European and national levels with the participation and involvement of associations representing citizens - including consumer associations, environmental associations, etc. - to make the action itself more widespread and effective.



Lack of specific knowledge on the particular topic.

In our opinion, also drawing on the experience of the Belgian pilot, regarding the direct relationship between increased knowledge in the energy field and the adoption of new behaviours, it is certainly from an initial awareness of this issue that the next steps can take place. Once new information and knowledge about a behaviour has been provided, it is repositioned in the set of values, beliefs and attitudes that represent the basic structure of our acting in the world.

It therefore becomes crucial to structurally provide, within school courses, **training initiatives for a better understanding of energy issues.** Investing in children will make them 'ambassadors' of issues and behaviours to be adopted not only by their families but also, and mainly, by the communities they are part of, through so-called 'peer education', which is very effective in transferring knowledge and skills (and thus behaviours) among children.



Lack of perception that people have regarding the ability to make a difference through their specific behaviour.

Implementing an intervention strategy based on increasing knowledge about effects means providing information about the impact that a specific behaviour can have on the surrounding reality.

An example of information aimed at increasing knowledge about effects could be: "if you lower the temperature of the thermostat by two degrees, you can save 15%". Increasing knowledge about the potentially positive effects of one's behaviour can be a relevant strategy to increase the sense of personal efficacy of those you want to intervene on.

The recommendation for regulators and energy suppliers

is to promote the dissemination of information on how to use the tools available to everyone to monitor their consumption (e.g. simplifying bills, implementing smart-meters and setting up other devices that can provide data on consumption and related expenditure in real time).



Consumption profiles, as highlighted by the survey, are different and require different approaches depending on the type of consumer.

Barriers to the adoption of sustainable behaviour may arise from the coexistence of conflicting motivations in the individual, with non-environmental motivations taking over at the action stage. For example, with respect to the possible behaviour 'to lower or not to lower the temperature of one's home during the winter months', one might find that no matter how motivated a person is to adopt a sustainable lifestyle, they might be inclined not to lower the temperature of their home in the winter because their contextual motivation to promote their personal comfort is more intense.

As effective as the adoption of multiple intervention strategies can be in changing a person's value structure and in promoting the intention to implement energy-saving behaviour, it is necessary to support their motivation also in the actual action phase, in order to prevent contextual motivations from prevailing.

The recommendation for energy service providers is to **consider a prior consultation process to explore users' knowledge gap** in order to facilitate the adoption of energy-saving behaviour.

In addition, training actions aimed at citizens, designed and managed with multi-stakeholder involvement on each territory, would be effective. This approach would be effective with 'adult' citizens. On the other hand, in the case of young citizens, the structuring of educational pathways (as proposed above) from an early age would help reduce the gap between "intentions" and "actual actions" that currently occurs among adults.

The recommendation in this regard is **the valorisation of feedback: the behaviour can be followed up with feedback**. They may vary according to timing, frequency and content. About timing, generally speaking, the shorter the time between action and feedback, the more effective the feedback is. As far as frequency is concerned, the higher the frequency, the more effective the feedback. With regard to the content of the feedback, those specific to one's own personal consumption pattern are more effective than feedback containing general information; those involving a comparison between one's own performance and that of others would appear to be more effective than just individual data; those that focus only on information related to the economic benefit are ineffective and potentially counterproductive as the amounts related to energy savings are generally small and may lead people to think that they are not worth it.



The power of prior habits

Habits predict future behaviour better than intentions because they are linked to unconscious maintenance mechanisms that are very difficult to intervene in. In fact, as reported in the document "Policy Brief how to nudge", nudges are more effective when creating new behaviours instead of improving existing ones.



Technological infrastructures available to citizens

As the experiences within the pilots show, participating households were equipped with applications, interfaces, devices, etc. to monitor their consumption. Citizens, equipped with the appropriate tools, were able to consciously change their consumption habits.

The recommendation is to **ensure the accessibility of tools (such as smart meter and other equipment capable of reporting consumption in real time)** for everyone in order to avoid that conscious consumption behaviour is only available to those in the medium-high income groups and not to those who would need it the most in order to curb the economic outlay related to energy consumption (see energy poverty).



Data confidentiality

The survey “Profiling of energy consumers: psychological and contextual factors of energy behaviour” reveals that

The majority seems unwilling to share the detailed energy data, i.e., on a daily to real-time basis”. The recommendation concerning this aspect is to **provide consumers with adequate information and evidence on how their data are processed in accordance with the legislation in their respective countries and to protect their right to privacy.**





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