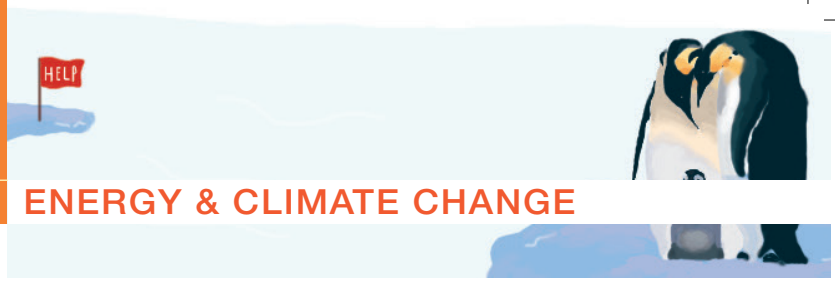

ENERGY & CLIMATE CHANGE

Benefits for whom? Energy efficiency within the efficient market

How should the lack of an efficient energy market affect the design of energy efficiency policies and their implementation? What the consequences of an inefficient energy market on end users' behaviour? This article tries to give an answer to such questions, by considering the decision making of domestic users following a few fundamental concepts of behavioural economics. The mechanism of price formation in the market, with particular reference to the internal energy market in Europe, will be examined and we will show that price remains the inflexible attribute in making an energy choice. Then, some conclusions will be addressed to policy makers on how to overcome the barriers illustrated.

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Introduction

The forty-year history of energy efficiency policies and measures began with the "oil shocks" of the 1970s.
Despite appropriate efforts deployed both in terms of innovative technologies and legislative and regulatory frameworks enabling it, some analysts recognise that the untapped potential for energy efficiency remains huge (World Energy Outlook 2013).
In other words, while energy-efficient technologies offer considerable promise for reducing the costs and environmental damage associated with energy use, these technologies appear not to be used by consumers and businesses to the degree that one would expect based on their private financial net benefits.

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The energy efficiency gap

For some thirty years, there have been discussions and debates among researchers and others in academia, government, non-profits, and private industry regarding the so-called "energy efficiency gap" or "energy paradox". Explanations for this "energy efficiency gap", as Prof. Robert N. Stavins says, tend to fall into three broad categories: (1) market failures, such as lack of information or misplaced incentives; (2) behavioural effects, such as disregard for future energy savings when purchasing energy-consuming products; and (3) modelling flaws, such as assumptions that understate the costs or overstate the benefits of energy efficiency.
Behavioural economics offers different explanations and states that there are several biases in the decision-making of the user and that marketing and offers have to be designed to overcome these biases. For our discussion here, it is enough to consider Kahneman and Tversky's (1979) concept of reference points, which can be summarized as follows:

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"Goods are evaluated by comparison with other goods the decision maker is thinking about";
"The salience of each good's attributes relative to the reference good, such as its quality and price, determines the attention the decision maker pays to these attributes as well as their weight in his decision";
"Consumer's attention is drawn to salient attributes of goods, such as quality or price. An attribute is salient for a good when it stands out among the good's attributes, relative to that attribute's average level in the choice set".
For electricity, and natural gas too, attributes come down to one only: the price. As a matter of fact, so far, it is impossible for the end-user to evaluate the primary source of his commodity and attach high weight to renewable electricity rather than nuclear electricity or vice versa. Similarly, distinguishing between Russian gas and Algerian gas evaluating the respective lower calorific value (Kcal/nm^3) is very hard for the standard end-user. Other attributes which could made the offer more attractive are not yet given enough consideration, as for instance, offering package solutions like comfort, energy security, health and safety, collective services, instead of selling electricity or natural gas as a stand-alone item.
Therefore, price remains the inflexible attribute in making an energy choice. But, what margin of freedom do suppliers (and retailers) have to set affordable and competitive prices?

A well-functioning energy market

To answer this question we need to consider the mechanism of price formation in the market. We're going to do this, with particular reference to the internal energy market in Europe.
The European Commission clearly recognises that the internal energy market is not an end in itself, but its implementation is absolutely essential to achieve the objectives of EU energy policy, in particular the objectives of energy efficiency.
A well-functioning single internal energy market must deliver tangible benefits to European energy consumers, in terms of greater choice and better prices.

The Post-Tax Total Price (POTP) is defined as the sum of the commodity price (Pc), regulated transmission and distribution charges (Ptr and Pdis), and retail components (Rc = billing + metering + customer services + a fair margin on such services) plus VAT, levies and any surcharges (as applicable):

$$POTP = Pc + Ptr + Pdis + Rc + VAT + Levies + Surcharges$$

In this sum, some additions are not negotiable in terms of competitiveness, while others (Pc and Rc) are.
In most Member States, household energy prices are greatly influenced by taxation and network charges, which usually make up more than half the total energy bill. Over the last few years, these non-negotiable charges have significantly increased in many Member States, particularly as a result of costs related to support schemes for renewable energy sources. As a consequence, retail price competition is weakened by the decreasing negotiability of end-user prices. Other consequences of this reduced ability of retailers to compare prices fairly can be summarised as follow:

- lack of switching,
- lew entry into retail energy markets, and finally,
- no means of rewarding the best supplier for their efficiency in producing energy.

Nevertheless, the domestic end-user could continue to invest in energy efficiency whatever the price of the energy supply. It is worth adding here that the capital for investment in energy efficiency is negotiable. Therefore also other types of spending must be considered and a decision between them must be made: at home maybe you could choose to invest in culture or entertainment instead of LED lamps. You then invest in energy efficiency only if it promises a payback time lower than alternative investments, and this does not always happen.
When the result in terms of energy savings is modest, the consumer is inclined to reject the option, albeit economically advantageous.
In other words, in the case of small gains, there is a built-in tendency to put off making the effort, which is considered an inconvenience compared to the expected gain.

Conclusions

Energy-efficient technologies offer considerable promise for reducing the costs and environmental damage associated with energy use. However, these technologies appear not to be used by consumers and businesses to the degree one would expect based on their private financial net benefits (Awareness).
Communication to increase the attractiveness and social acceptance of energy efficiency remains the best tool for tackling climate change, for competitiveness and security of supply in order to enhance no-costs actions (Change bad habits).
Nevertheless, to increase investment in energy efficiency by domestic end-users, and to allow end-users to choose the best supply in terms of price, saving their money and indirectly rewarding the most virtuous producer (retailer) in terms of efficiency (Ability of consumers to switch), a well-functioning single internal energy market needs to deliver tangible benefits to European energy consumers, in terms of greater choice and better prices. In particular, it is suitable:

1. integrating renewable energy into the power exchange;
2. reducing the incentives for renewable energy;
3. moving the surcharges from the energy bill to general taxation.

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