At the tipping point in reaching energy efficiency targets

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Energy efficiency in buildings is fundamentally linked to human behaviour, so policy design, implementation and evaluation have to address this particularity. The human element is too often overlooked even when it can have a pivotal impact on either improving or reducing technological efficiencies. This is where the ENTRANZE project comes in by offering effective policy implementation support and an in-depth analysis of stakeholder behaviour in 9 target countries. Mapping the decision-making processes of stakeholders makes it easier to take behaviour into account when putting policies in place. Thus, while a multitude of factors are considered by policy makers when designing policies - ranging from the institutional setup, legal basis, financial possibilities and so on - behaviour patterns have a growing importance.

Because behaviour-based energy efficiency programmes are the next natural step in achieving our targets, it is pivotal to know both the barriers we face and the main drivers for successful implementation. The intricacies of stakeholder behaviour is thoroughly analysed by taking into account a variety of criteria that play a role in the decision making process. As such, ENTRANZE research considers the structures of ownership, building types and level of professionalism with which buildings are managed.

Buildings have considerable heterogeneity in Europe and the differences in ownership structure stand out across Member States. While owner-occupied single-family homes are a category that is relatively similar in all countries, multifamily buildings can differ greatly, resulting in more complex decision making processes.

Graph 1 Initial selection of decision criteria

For instance, co-ownership of multifamily buildings is a problem that needs more attention because the measures taken so far to encourage energy renovations prove to be ineffective. Owners are put in the situation of having to take collective decisions that might affect them in different ways. In this case, owner-occupancy by low income households or by elderly people pose a particular problem: people in different financial situations and of different ages have widely divergent resources and interests relating to energy investments. These problems boil down to the organisational side of any decision making process which also has a bearing on the financial barriers and intensifies the transaction costs, such as concerns over disruption and risk of failure. Prior to dealing with lack of incentives, large-scale energy renovation plans should address organisational issues by putting in place step-by-step technical and organisational support moderated by external and unbiased professionals.

These patterns outline barriers and drivers that serve as decision criteria. Graph 1 shows the decision criteria taken into consideration throughout the ENTRANZE research. It considers intertwined factors of a sociological nature and also takes into account attitudes and perceptions, as well as more technical elements. Country case studies demonstrate that almost all building owners prioritise

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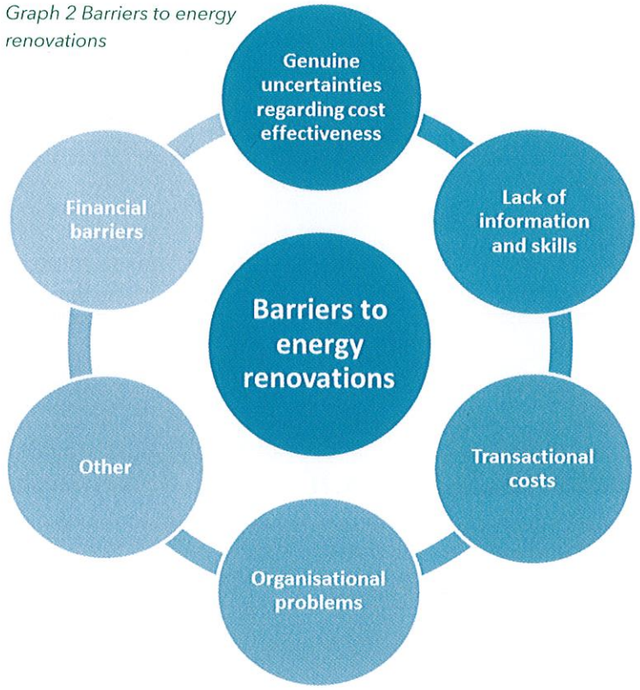
the initial cost in their decision making process. This is due both to the lack of reliable and accessible financial analysis and to genuine uncertainties about other financial indicators for which there are no guarantees. On the other hand, energy cost savings and, even more so, improved comfort are major drivers for renovations in several countries. But by adding government support programmes into the mix there is a possibility to influence even more the type and scope of energy improvements.

Graph 2 identifies barriers to energy renovations also covering a wide range of indicators. While social and psychological barriers cannot be overlooked, external finance and organisational factors also have an important place in the mapping of human behaviour as previously mentioned. What also stands out is the lack of skilled service providers, high information search costs and risks of renovations. Of course the situation of different types of stakeholders creates different conditions for the decision-making process, but overall high initial costs and perceptions of a long payback time are common barriers. In spite of the efforts made to raise awareness about the benefits of energy investments, there are still lingering uncertainties regarding cost-effectiveness which can be better dealt with by policy makers.

Graph 2 Barriers to energy renovations

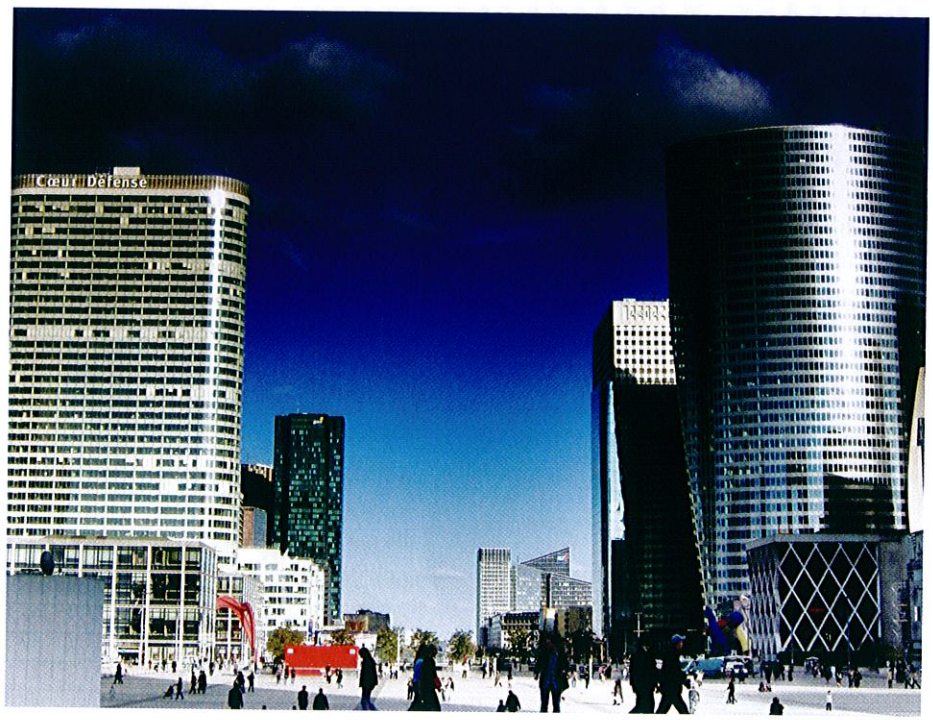


POLICY IMPLICATIONS

There is a long road ahead before achieving deep and comprehensive energy renovations covering all of Europe. Some of the incentives used at this moment are not sufficient because barriers are structural and deep-seated. And when it comes to human behaviour sometimes habits cannot be changed solely by rational interventions such as information and incentives alone.

For example, engagement of the owner-occupants is necessary and further legislation should be drafted in this regard. But in order to really improve the current situation there is a need for a combination of well-designed advice schemes and the establishment of local and regional networks of qualified service providers. Furthermore, public advice should be strengthened through public-private finance schemes which at this moment pose a problem. Currently, owners do not consider investments in renovations due to long return rates with no guarantees.

However, financial support schemes are only part of the solution, because they must be mixed with advisory services, technical support and supplier certification in order to give particularly good results. Moreover, policy measures should take advantage of "windows of opportunity" like the change of



The ENTRANZE report Literature review of key stakeholders, users and investor can provide more detailed information and behaviour insights:

http://www.entranze.eu/ files/downloads/D2_4/D2_4_Complete_FINAL3.pdf

About BPIE

The Buildings Performance Institute Europe (BPIE) is a European not-for-profit think-do-tank, delivering policy analysis, advice and implementation support. Its focus is knowledge creation and dissemination for evidence-based policy making in the field of energy performance in buildings. The Brussels-based institute is the European Hub of the Global Buildings Performance Network (GBPN).

www.bpie.eu and www.buildingsdata.eu

About ENTRANZE

The ENTRANZE project backed by the Intelligent Energy Europe programme actively supports policy making by providing the required data, analysis and guidelines to achieve a fast and strong penetration of nZEB and RES-H/C within the national building stocks. The project connects building experts from European research and academia to national decision makers and key stakeholders with a view to build ambitious, but reality proof, policies and roadmaps.

www.entranze.eu

BPIE is organising a High-Level Policy Conference within the framework of the European Sustainable Energy Week (EUSEW), entitled *From Ambition to Action: How to best deliver European building sector policies on the ground?* The event will take place in Brussels, on June 26 from 2.30pm. To register, visit: **www.eusew.eu**

ownership of buildings. Timing is of utmost importance in planning renovations. For instance, the technical need to undertake renovation, for example to replace worn-out building components (e.g. windows, roofs) or technical systems (e.g. heating plant or lighting) is a key driver in all countries and other chance opportunities can come up. As for renovation models currently in use, for at least some of the less wealthy single-family homeowners, it might be more rewarding to implement step-by-step energy renovation models which can lead to near-zero energy levels over the course of several years.

All in all, a variety of factors influence consumer behaviour, from technological developments, economic situations to age, social norms and cultural traits. And these relationships fluctuate thus policies have to keep up and take the human component into consideration when designing strategies.