

EXECUTIVE SUMMARY

Energy efficiency (EE) improves energy security, fosters economic gains, and helps to reduce human-induced carbon dioxide (CO₂) emissions. Policies designed to increase energy efficiency have already delivered significant benefits. Worldwide energy consumption would be 56% higher today than it would have otherwise been without the various EE policies that have been implemented since 1973 (IEA, 2007a). These three advantages and the general track record of energy efficiency policies have made EE a policy priority in many countries.

Existing buildings are responsible for over 40% of the world's total primary energy consumption, and account for 24% of world CO₂ emissions (IEA, 2006). Yet, despite the proven cost-effective opportunity to reduce energy consumption, a large portion of the potential for energy efficiency in the existing residential building sector remains untapped.

Numerous barriers are responsible for this persistent energy efficiency gap (IEA, 2007b). Market barriers take many forms, including low priority of energy issues, difficulties in accessing capital, the presence of information asymmetries, and principal-agent problems (or split incentives). Financial barriers are also decisive in inhibiting progress towards more energy-efficient buildings. Such barriers encapsulate a wide range of obstacles, including the initial cost barrier, risk exposure, discount factor issues, and the inadequacy of traditional financing mechanisms for energy efficiency projects.

Focus on financial barriers

This study concentrates on financial barriers. It provides illustrations of policies and measures which, when implemented, have helped overcome the financial barriers to energy efficiency in existing residential buildings. The publication includes case studies from the European Union (EU) and five International Energy Agency (IEA) member states: Japan, the United States (US), Germany, France and the United Kingdom (UK). Each case presents the policy and institutional framework within which policies are enacted. It then provides an overview of the policies and measures implemented, followed by an evaluation of their strengths and weaknesses.

As such, this study seeks to offer policy makers ideas on policies, measures, and programmes available to overcome financial barriers to increased EE in existing residential buildings. The main purpose is to inform policy makers of available options. Due to a lack of sufficient *ex-post* data, systematic quantitative analysis was not possible in all cases. The study therefore provides qualitative evaluation of each policy according to five pre-defined criteria (de T'Serclaes, 2007): i) relevance; ii) clarity; iii) flexibility; iv) impact; and v) sustainability. Moreover, for consistency and to allow readers to make comparisons across the case studies, the policies have been organised into four categories: regulatory measures; financial and incentive-based measures; voluntary agreements and partnerships; and information and capacity-building measures.

Lessons for policy makers

Although the purpose of the publication is mainly informational, five lessons can be drawn from the cases studied.

No silver bullet

First, no single policy category or policy measure can overcome the financial barriers alone. Policy packages that seek to address multiple financial barriers at the same time are likely to be more relevant, have greater impact, and be more sustainable. The German case is an illustration of the success of appropriate policy packages. The implementation of strong regulatory ordinance since the late 1970s combined with public-private partnerships led to a decrease from an average yearly household consumption of 280 kWh/m² in 1970 to an average yearly consumption of 180 kWh/m² in 2004. The US also offers an example of good policy package through a combination of direct funding for weatherisation in low-income households, improved regulations, and support for demand-side management programmes implemented by utilities. Such policy packages have been implemented successfully in certain states, such as California, where the state's energy consumption has remained relatively flat for the past 30 years. In Japan, the successful combination of regulatory and awareness campaigns led to an overall improvement of 28% to 69% of households meeting EE standards.

Public-private partnerships

Second, public-private partnerships offer the best opportunity to meet the five evaluation criteria. They allow different barriers to be addressed concurrently and increase the impact of a policy on market transformation. As such they allow more sustainable changes. An example is the efforts of the French government, which offers fiscal incentives for the use of specific "green" savings products. These have been used by banks such as the Banque Populaire to offer preferential loans to customers putting in place EE refurbishment projects.

Creating a market

Related to this, the goal of market transformation is the third policy lesson: increasing the energy efficiency of buildings in a sustainable manner requires the existence of a market for energy efficiency. This market is currently weak and perceived as too risky. It will require strengthening and increased certainty before private actors are willing to engage further. Private actors are pivotal to the market's development. This circular dynamic underlies the role played between public and private actors in market transformation. The EU is aiming to trigger such market transformation, through policies which combine regulations to be met by member states, as well as both voluntary agreements with manufacturers and regulations to improve the EE standards of equipment and appliances. It also seeks to liberalise the energy supply and services markets across the EU to encourage the creation of a market geared towards increased EE.

Strong political will

Such market transformation however will not take place without increased involvement from the private sector. Strong political will is required to trigger such increase in private participation. The fourth lesson drawn from the case studies, then, is the need for governments to create more favourable conditions for public-private partnerships by increasing certainty through risk-sharing instruments and the promotion of the systematic application of an international framework of measurement and verification protocol.

The importance of national context

Fifth, it is important to note the role of national contexts in determining the success and/or failure of any given policy. The specificities of the buildings stock — *i.e.* whether it is largely inhabited by owners or renters — as well as the energy profile or political structure of a country, are all key features to be considered when designing policy packages. Typically, an energy-dependent nation tends to need less information and capacity-building programmes. For example, the UK has certain policies which are implemented across regions, such as white certificate schemes, information programmes and voluntary agreements with manufacturers. Other policies are left to devolved administrations, such as those targeting EE improvements in low-income households as well as building regulations, to allow for social, economic, and physical differences to be accounted for. The success of the combination of different policies in Japan and the US for instance, shows the importance of adapting to national contexts.

Overall, the study highlights the crucial need for policy makers to collect data in a systematic way at the end of each policy programme. Adequate *ex-post* data is still very scarce and renders comparison between measures and countries much more difficult. Such systematic data collection would enrich future policy analysis.