

EXECUTIVE SUMMARY

1. Existing buildings require over 40% of the world's total final energy consumption, and account for 24% of world CO₂ emissions (IEA, 2006a). Much of this consumption could be avoided through improved efficiency of building energy systems (IEA, 2006a) using current, commercially-viable technology. In most cases, these technologies make economic sense on a life-cycle cost analysis (IEA, 2006b). Moreover, to the extent that they reduce dependence on risk-prone fossil energy sources, energy efficient technologies also address concerns of energy security.
2. Energy efficiency's advantages notwithstanding, most houses today fail to be as energy efficient as they could be (IEA, 2006b).
3. Numerous barriers impede the improvement of energy efficiency in homes. The energy efficiency market is still characterised by information failure, numerous perverse incentives in the energy chain, high subsidies, and disparate processes of measurement and verification¹.
4. Specific features of buildings, including their residents, further limit the energy-efficient function of existing homes. Despite recognition of efficiency's benefits, residents of established households do not easily shift habits of energy consumption. Another case of specific obstacles to households is the principal agent problem, where each actor responds to different incentives. In most cases, owners and occupiers of buildings are not the same parties. When a landlord is not responsible for the energy-utility bill, he or she has little incentive to consider equipment's energy efficiency beyond calculation of equipment's initial cost. As such, landlords often choose to install initially expensive, inefficient equipment. Similarly, tenants have little incentive to pay for energy efficient equipment that they cannot take with them. Landlords make the investment decisions, while tenants shoulder financial responsibility. Consequently, both are discouraged from investing in energy efficiency.
5. The financial barrier, a general term which encapsulates initial cost barrier, risk exposure, the debates on appropriate discount factors, the nature of the financier, and controversial evaluation methods, is another important obstacle to increased energy efficient homes.
6. These different barriers mean that when the market is left alone, there is too little investment in energy efficient refurbishments. Due to the relatively weak coverage of the financial barrier in the literature, the study will focus primarily on this barrier.
7. Traditional financing mechanisms follow strict standards: reproducibility obligations and quick rates of return among them. In most cases, these factors do not apply to energy efficiency investments. Using a simple payback method to compare energy efficient investments to other traditional investments using a simple payback method disadvantages

¹ The International Performance Measurement and Verification Protocol (IPMVP) does seek to establish an international framework highlighting the best practices of energy savings' methods, however it is still not widely adopted.

the former². Furthermore, a fear of hidden costs has discouraged investors from funding energy efficiency. Even today, most financiers believe that energy efficient investments have a higher risk exposure than most traditional financing, and debate on the adequate discount rate.

8. Specific instruments have been implemented to overcome such financial barrier. Governments have implemented fiscal incentives, launched awareness campaigns, and subsidies programmes. While private actors, such as banks, have increasingly joined forces with large public institutions to offer preferential loans and other financial incentives to customers. The study will provide an overview and brief assessment of such policies and measures.

9. The observation and brief evaluation of policy measures, following a set of five pre-defined criteria—relevance, clarity, flexibility, impact, and sustainability—lead to four policy lessons.

10. First, help from both fringes of the market—the public and private sector—is needed to overcome the financial barrier. As shown by the KfW and PREVair examples, public-private partnerships tend to offer the best combination of relevance, clarity, flexibility, impact, and sustainability. Most importantly, public-private partnerships offer the unmet advantage of sustainable impact. When mere subsidies offer short term relief, public-private partnerships, by calling on forces from both actors, foster genuine market transformation.

11. Second, packages of multiple policies have proven much more effective than single measures over the long-term. Though some instruments—preferential loans—are more adequate than others—isolated grants and subsidies—overall no single policy instrument can fully resolve the problem. A review of the Australian policy measures demonstrates the long-term advantage of simultaneously addressing the initial cost barrier, information failure, and training failure of the financier. Isolated grants and subsidies are particularly ineffective in fostering long-term market transformation. A diverse set of policy packages will always be more successful in bringing about market transformation. The example of the Danish Authority's multi-pronged policy package illustrates this global approach to financial barriers. While paying customers to purchase energy efficient boilers, the Danish Authority launched concurrent campaigns of information, labelling, and training programmes to genuinely transform the market.

12. Third, lasting changes will only come through the creation of a market for energy efficiency. Such markets today remain very rare, as weak demand for energy efficiency and efficient products requires few providers. Enlivened demand and actors' competence in energy efficiency would strengthen markets (Urvoas, 2006). Soft instruments, such as labelling, training, and information would further spur demand for energy efficient residences. Although investors need more insurance and certainty to invest, enhanced demand will also push them to design appropriate tools for energy efficiency.

13. Finally, strong political will is required to pave the way for private investors. Broad and sustained market transformation requires the creativity and resources of private actors.

² More details on the misleading nature and inappropriateness of such approach will be given later in the study

However, evidence suggests they will not enter the market in the present context. Uncertain quantification methods of energy benefits, the small size of the investments, as well as the difficult standardisation of the investment, and the continuing debate on the nature of the discount rate, still discourage investments in energy efficiency.

14. Neither markets nor public intervention will overcome the financial barrier alone. Most financial measures to address specific obstacles—such as the initial cost barrier—exist, but the absence of a common framework for energy efficiency investments and the subsequent scepticism of financiers hamper implementation of existing tools. An international framework establishing common quantification methods of energy savings in residential buildings as well as a set of adequate discount rates, could typically contribute to more favourable grounds for private investors. Although the IPMVP is a good first step in that direction, however it still needs to be heavily publicised to private investors and mainstreamed.

15. Contrary to expectations, this study's findings emphasise that increased capital availability is not the most important tool in overcoming energy efficiency's financial barrier. Instead, the solution lies in carefully designed policy packages, and strong political will. Policy makers should focus on reducing obstacles to the involvement of private actors.