

# Demand-side Management Strategies and the Residential Sector: Lessons from International Experience

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**Aoife Brophy Haney, Tooraj Jamasb, Laura M. Platchkov, Michael G. Pollitt**

This paper explores demand-side management (DSM) strategies, including both demand response and energy efficiency policies. The aim is to uncover what features might strengthen DSM effectiveness.

We start with a presentation of key features of residential energy demand, in which we discuss the limits to energy indicators. This handicaps cross-country comparisons. Despite the challenges this poses, the importance of residential energy demand within the broader energy demand, and its large untapped potential remains relevant. This is evidenced by historical energy intensity trends in the sector, which are reviewed.

Turning to the causes for this untapped potential, we survey the barriers to energy efficiency measures in the residential sector. This leads us to identify potential DSM policy responses for addressing these barriers. These policies are grouped into six general policy categories which can be implemented as standalone policies or be combined for greater effectiveness. For each of these categories, the strengths, weaknesses, and success factors are presented.

This reveals the necessity of “integrated policy strategies”. By this, we refer to a portfolio approach, with bundled strategies that seek to simultaneously impact different parts of the market and enhance the strengths of individual measures while compensating for their weaknesses through the use of complementary policies. We illustrate this by looking at

international experience, in Denmark, Germany, Japan, and US. This also allows us to contrast and shed some light on the UK experience.

Based on our review of barriers, policies and the international experience, we conclude with a discussion of the features that might strengthen DSM effectiveness. We underline the necessity of an holistic approach towards DSM in general, and energy efficiency and demand response in particular. Furthermore, several characteristics of the reviewed strategies stand out as strengthening the impact: (1) the clarity of objectives and mandates; (2) the ability to adapt and integrate to the other policy tools in the package; (3) the capability to enable the participation from all stakeholders; and (4) measurement and verification guidelines.

Contact                      lp361@cam.ac.uk  
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