IEA, DSM REPORT EXECUTIVE SUMMARY

Task XI Subtask 1
Smaller Customer Energy Saving by End Use Monitoring and Feedback

Background

Energy plays a central role in each of the everyday lives of residential and small business customers but our use of energy impacts our environment and contributes to global warming. Total energy consumption in the EU is approximately 20% higher than can be justified on purely economic grounds. Energy saving regulations and measures have been put in place in developed countries to assist the more effective use of energy in houses and small businesses. Savings are achieved from increasing the propensity of customer to purchase energy efficient end uses and also changing their behaviour so as to reduce thermostat settings and use hot water and lighting more wisely. One of the ways in which customer motivation to save energy can be developed is by identifying and presenting to customers, a breakdown of their individual end uses of energy, its cost and environmental impact (End Use Monitoring and Feedback, EUMF). In order to be effective, presentation of end use information needs to be made in ways which are not too intrusive for customers yet have a powerful impact at the right time.

Objectives

The objective of the study is to quantify work carried out in participating countries to provide energy end use feedback for smaller customers, how successful it has been, what further measures can be implemented and whether disaggregation and feedback have a viable role to play in current and future thinking for energy saving. It is also to quantify the degree of disaggregation and feedback needed to motivate end use behaviour changes and whether the feedback needs to be automatically implemented with customers having override possibilities.

Approach

The study has analysed work carried out and results of trials involving customer groups in order to quantify their responses to end use energy saving motivators. It has also assessed the impacts on different customer responses and energy saving of different levels of end use demand disaggregation and the way the information is presented.

Disaggregating energy end use into its constituent parts is difficult to carry out at low cost. Many techniques and methods have been analysed to assess their suitability as energy saving motivators.

Methods for applying EUMF as a cost effective and continuous methodology for motivating end use energy savings have been quantified using different levels of end use data disaggregation and presentation.

Results

Feeding back disaggregated energy end use information to smaller customers using a range of methodologies has been shown to motivate energy savings of the order of 10%. A survey in one country showed that 70% of smaller customers were prepared to make changes to save energy if they were advised how to do it and it involved little inconvenience. Monetary savings resulting from the application of EUMF to direct electric heating customers have been estimated to be worth 100 Euro per year per customer. Direct measurement of specific customer, end uses of energy on a continuous basis is probably too expensive for wide scale application to smaller customers. Estimates of the costs of face to face and Internet interviews with customers to collect data and feedback end use information and advice show this to be an attractive option. EUMF motivator messages have also been shown to encourage customers to replace energy inefficient end uses with efficient ones.

Implications

End use disaggregated energy data statistics which are available now for national populations in many countries should be added in simple form to smaller customer energy bills. This will help prepare customers for more detailed measures in future and start the education process of making customers more aware of end use energy costs and environmental impacts.

International Energy Agency Demand-Side Management Programme
Task XI: Time of Use Pricing and Energy Use for Demand Management Delivery

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