

ENERGY MANAGEMENT AND AUTOMATED DEMAND-RESPONSE SERVICES: END-USER INTEREST AND REQUIREMENTS

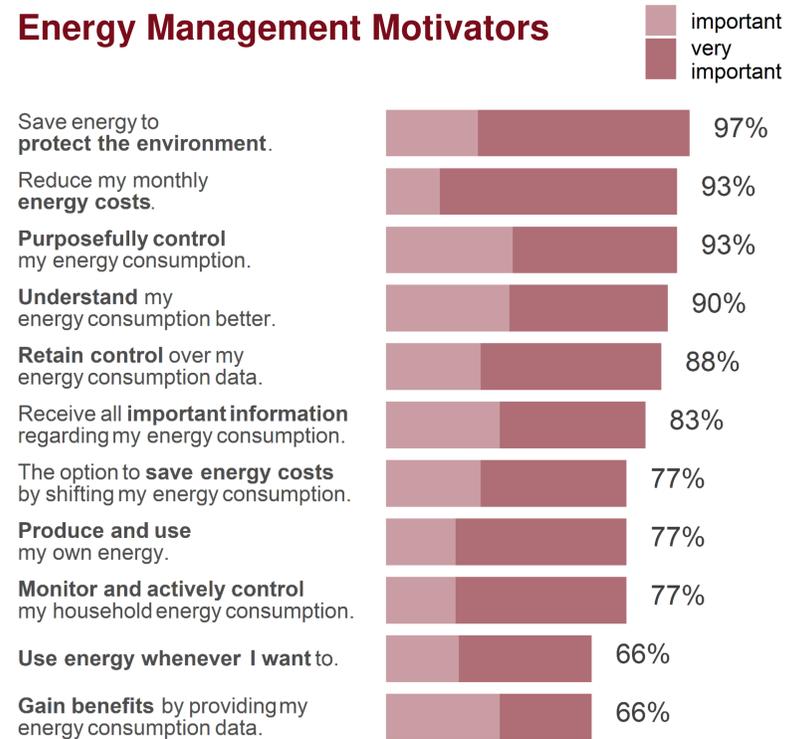
THE IMPORTANCE OF UNDERSTANDING END-USER MOTIVATIONS

Active end-user participation in the smart grid is a crucial part of the transition path towards renewable energy resources and a low-carbon future. Well-designed energy management systems have the potential to ease behavioural costs and motivate and support such participation successfully.

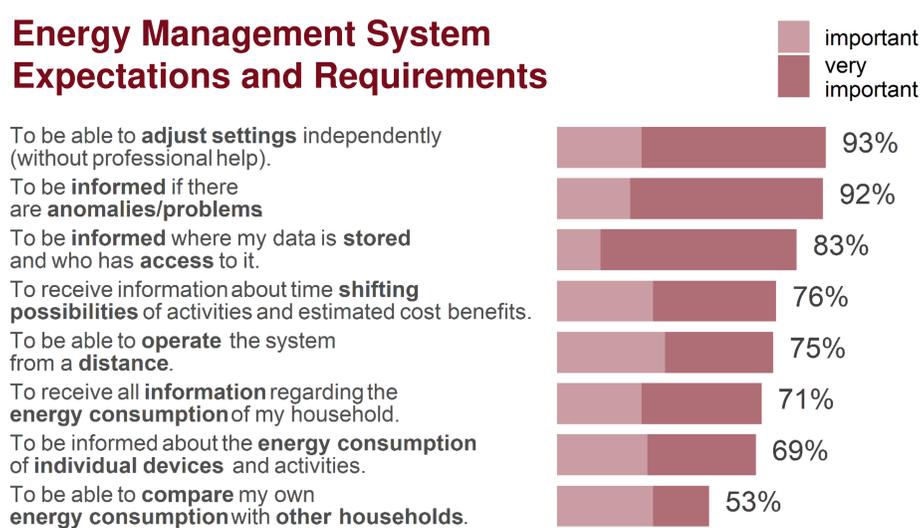
Special care needs to be taken in the context of automated demand response services which are very easily experienced as a threat to personal control and require a higher degree of trust.

In order to achieve this, end-user motivations and requirements need to be investigated carefully and incorporated in design decisions to ensure, that the system provides and communicates benefits and trustworthiness successfully.

Energy Management Motivators



Energy Management System Expectations and Requirements



LOOKING FOR ANSWERS

A questionnaire study was conducted at 2 project demonstration sites: Wüstenrot in Germany (53 participants) and St. Cugat in Catalonia, Spain (46 participants). The questionnaire addressed:

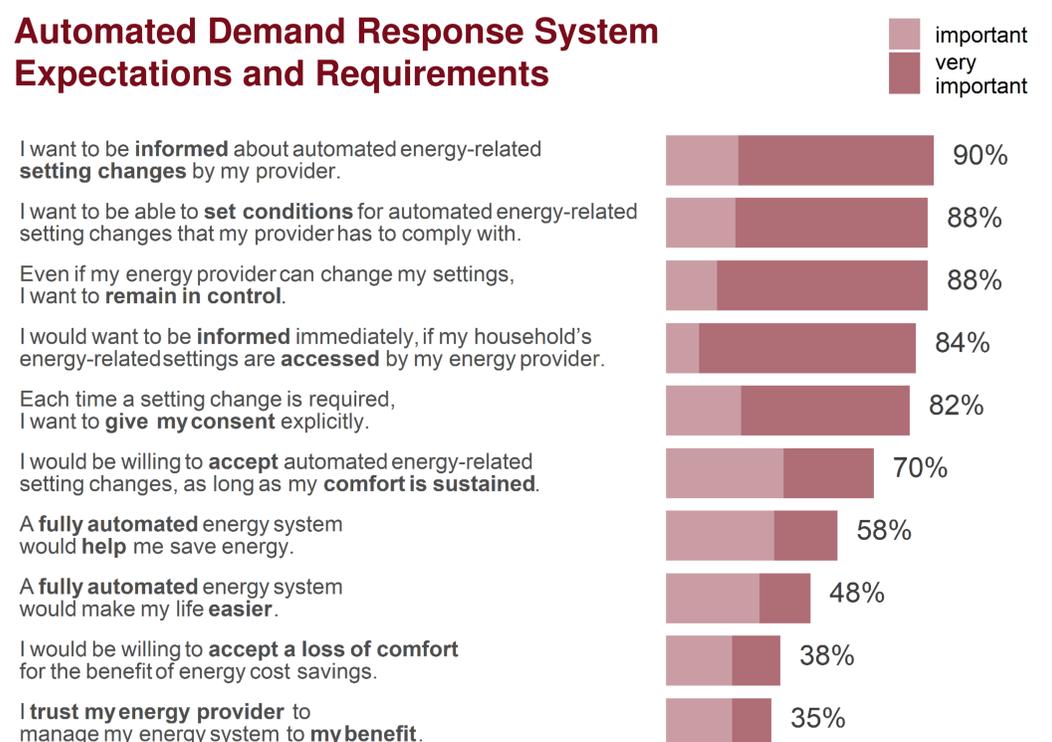
- Motivators for energy management and the use of energy management systems
- System requirements
- System interaction preferences
- Openness towards load shifting
- Expectations towards automated load shifting via demand side management (DSM)

WHAT WE LEARNED

- Environmental protection was the strongest motivator for energy management, followed by financial savings and improved control over consumption
- Information on anomalies or problems, as well as details on data management and data use were considered especially important functions of an energy management system
- Easy and independent control over settings
- Smartphones were the preferred tool to access and control such system (73%)
- Participants indicated a high willingness to shift household activities such as washing of clothes or dishes (83%) but were less willing to shift self care activities such as showering/bathing (23%), cooking (19%), or the use of entertainment equipment (16%).
- In the case of automated DSM it was most important to participants to be informed about any occurring automation, to be able to set conditions, and to ultimately remain in control.

Therefore, next to clear benefit communication, control options, and transparency, a careful consideration of ease of use and flexibility resources is likely to be of special importance to a successful system design.

Automated Demand Response System Expectations and Requirements



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