Department for
Business, Energy
& Industrial Strategy

SMART METERING NON-DOMESTIC 'EARLY LEARNING' RESEARCH

Executive Summary

November 2017

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Executive Summary

The Government is committed to ensuring that every home and small business in the country is offered a smart meter by the end of 2020. BEIS commissioned this research as part of its work to support a successful smart metering implementation programme, focussing on the value of smart metering for energy management at smaller non-domestic sites.

The research has provided an analysis of the range of enablers which will favour the use of smart metering data to improve energy management and efficiency in different types of non-domestic organisations. It also provides learning on how non-domestic organisations can best be supported and encouraged to benefit from the roll-out, in particular by saving energy.

Background

1. Smart meters are the next generation of gas and electricity meters. They offer a range of intelligent functions and provide consumers with more accurate information, bringing an end to estimated billing. Consumers can have access to near-real time information on their energy consumption to help them control and manage their energy use, save money and reduce emissions. Energy suppliers are required to take all reasonable steps to install smart meters in domestic and smaller non-domestic sites by the end of 2020. The exception to this is in smaller non-domestic sites where advanced meters have already been installed – these may remain in place for their lifetime.[i] For simplicity, the term ‘smart meter’ is used to refer to both ‘advanced’ and SMETS compliant meters in this report.

2. The non-domestic roll-out will cover around two million sites. Consumers may be public sector organisations, Small and Medium Sized Enterprises (SMEs), micro-businesses and some larger businesses operating from single or multiple smaller sites. These sites are very varied; they include private and public sector organisations, and range from small shops to chain stores, from small industrial units to schools.

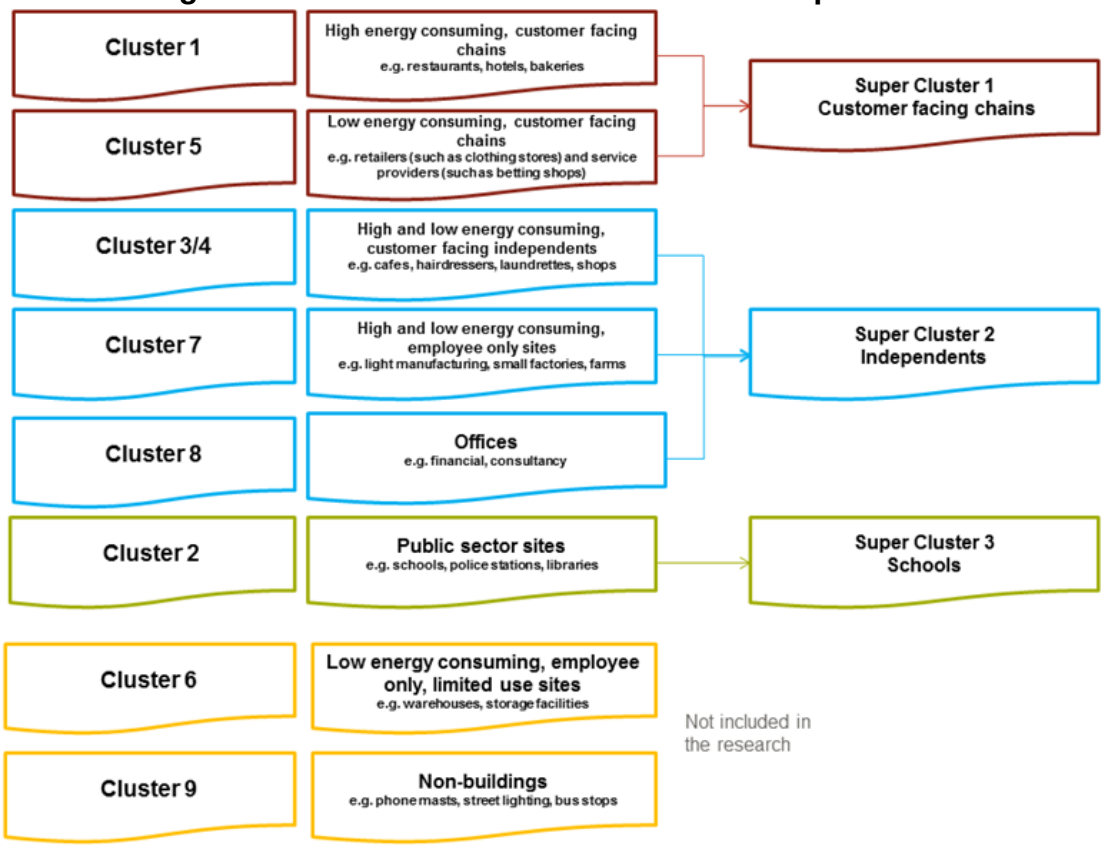
3. The aim of this project was to improve our understanding of the consumer context into which smart meter data will be introduced, and how benefits could be maximised. More specifically, it focussed on the ways in which organisations currently use and manage energy, the role of smart meter data in energy management, and the pathways, enablers and barriers to energy-saving via the use of such data.

4. This project forms part of a broader programme of research[ii] to inform policy development and help BEIS to maximise the overall benefits of the smart meter roll-out.

Methodology

5. The research, conducted by Accent and Creative Research[iii] , involved 41 case studies of sites, most of which had smart meters installed. Each case study consisted of a site visit and one or more face-to-face interviews with key individuals from, or associated with, the organisation to which the site belonged. The research was structured around six different types or 'clusters' of organisations. In addition, 91 telephone interviews were conducted with decision-makers across a range of clusters to add breadth to the findings. The clusters are visualised in Figure 1 below.

Figure 1: The non-domestic clusters and super-clusters



6. The findings are published in an Overview Report with eight annexes (one on each cluster, a cross-cutting report on landlords and tenants, as well as a technical annex which contains further information about the research methodology).

Influences on energy management

7. The extent to which organisations were taking positive steps to manage energy varied considerably across the different types of sites studied. A range of factors were associated with this variability, including the size of organisations, energy intensity, the importance of reputational drivers, the availability of skilled staff to undertake energy management, and cost-effective access to trusted specialist advice.

8. Analysis of approaches to energy management suggested certain clusters of organisations covered by the research had a lot in common, and therefore the six clusters studied could be grouped into three higher-level groups, albeit with cluster-specific differences within them. These groups, described in more detail below, are:

   - Larger, multisite and customer-facing chains;

- Schools (representing smaller public sector sites);
- Independent businesses.

Customer facing chains

9. The customer facing chains taking part in the research comprised hospitality (e.g. restaurants and cafés) and retailing chains. Larger organisations, with greater potential for savings, and also mandatory participation in CRC and ESOS, were doing the most to manage energy consumption. These often had a greater focus/capacity for decision taking, specialist staff that focused on energy management, and regional tiers of management implementing decisions across sites. There were indications that these factors were more pronounced in the more energy intensive hospitality chains, compared to the lower energy intensive retailing chains.

10. Businesses using smart meter data for energy management in this group were generally doing so as part of a broader strategy on energy efficiency, which was embedded in their corporate culture. Where smart meter data was being used, this was to identify and respond to unexpected energy usage (through cross-site comparisons and exception reporting), support energy targets and incentives, evaluate new solutions and support decision-making.

11. The characteristics of businesses not using smart meter data were generally the converse of the above, lacking an energy efficiency strategy and/or corporate culture. These organisations were often unaware of the potential to use smart meter data for energy management, and perceived a wider range of barriers to energy management.

Schools

12. Schools are an important type of smaller public sector site, but are not necessarily typical of other public sector sites (e.g. healthcare, police or fire services). The schools in the sample were found to have relatively high energy usage, with significant heating, lighting and IT equipment.

13. Smart data use again appeared to be associated with broader organisational commitments and involvement in energy and carbon management. The schools that were using data were doing so regularly to identify unusual patterns of consumption and evaluate the impact of changes. Senior leaders/governors supported and prioritised these activities.

14. Access to a trusted energy expert was highly important to decision-making; often, there had been a journey over time, building on early success in demonstrating savings. In these examples, there was a high level of commitment from staff with effective management of on-site energy systems (buildings, plant and equipment).

15. As with the customer facing chains, non-users of smart meter data generally lacked the characteristics above, but also basic awareness of the availability of smart data and how it could be used.

Independent businesses

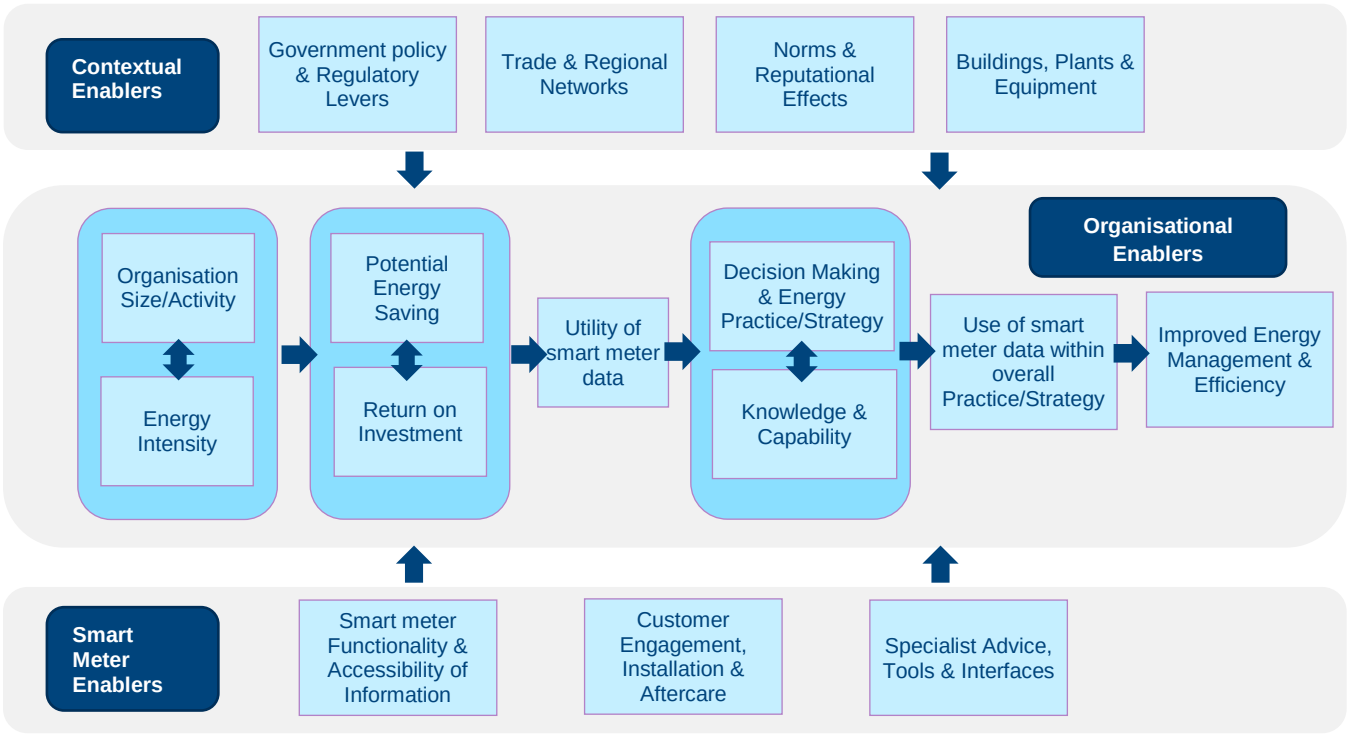
16. This group included small customer facing independents (e.g. shops and restaurants), small (non-office) employee only sites (e.g. manufacturing/ light engineering) and offices (e.g. financial and consultancy services). The research found that smaller businesses rarely (if ever) had staff dedicated to energy management and energy-related decisions were generally taken by the owner/director. Approaches to energy efficiency were basic, often being based on turning equipment down/off when not in use. Barriers to engaging with energy efficiency included lack of management time and access to external expertise.

17. At the time of the research in 2015, very little evidence was found of active engagement in energy management, including the use of smart meter data, amongst this group. In most cases, non-use of smart data tended to coincide with a lack of awareness that it was available at this early stage in the roll-out of smart meters. Even if awareness was improved, smaller organisations indicated that they would still struggle to proactively monitor energy data on a regular basis; new (free or low-cost) products and services which “push” alerts or recommendations to users or identify the running costs of individual equipment are seen as likely to be more useful for this group.

Conclusions

18. The findings set out above have shown that smart meters can encourage improvements in energy management and efficiency under certain conditions – these can be thought of as ‘enablers’ of energy management. Figure 2 illustrates the context into which smart meters are being introduced and the enablers that may promote their use by non-domestic organisations.

Figure 2: The use of smart meters in smaller non-domestic sites: context and enablers



19. Contextual enablers are factors that influence an organisation's decisions about energy efficiency and smart meter use. Some of these enablers are policy related – including programmes such as ESOS or building regulations; and some are to do with access to professional or regional networks which often have advisory resources. These networks can also reinforce norms and reputations – defining 'industry standards' or good practice. The presence of such enablers were shown make it more likely an organisation invests time and resource in energy management.

20. Organisational enablers include characteristics such as organisational size and business activity, energy intensity, existing knowledge and capability, and decision-making practices. The research has suggested that, if an organisation is energy intensive and of a sufficient size, there will be a greater potential for (and demonstrable value from) energy savings. Organisations with these characteristics may be more likely to access and use information on energy use from smart meters - although the extent of use will depend on other enablers such as skills and knowledge available internally and the existence of energy-related management practices and strategies.

21. Smart meter enablers refer to those features of the roll-out of smart meters that might make it more likely that organisations access, understand and use

information about energy use to implement changes in their organisations. For example, easy access to energy use data, or advice/support to use that data.

22. In summary, the research has highlighted the importance of understanding these contextual factors or enablers for work to ensure smart metering can help non-domestic organisations to improve their approaches to energy management and realise the benefits from smart metering.

23. The research showed that smart meter data has the potential to prompt organisations into taking action, provided they know how to interpret it within the context of their own operations and a cost effective solution is available. This study has highlighted the importance of the way organisations are engaged prior to, during and after smart meter installation. However, at the time of the research, there was little evidence of energy suppliers providing any information or support to encourage this, or of organisations in the research embarking on an energy efficiency journey as a result of a smart meter installation alone.

24. The research highlighted the value of:

- Raising awareness of smart metering and tackling barriers to accessing and interpreting data, particularly for smaller organisations
- Developing appropriate products and services and helping organisations understand their energy use and identify practical ways to save energy
- Signposting sources of information and advice and promoting peer-to-peer learning, possibly facilitated by not-for-profit organisations e.g. local authorities, or trade and professional bodies
- Seeking synergies with broader policies and arrangements affecting energy decision-making.

25. The findings also emphasise how the smallest organisations (independents) face additional challenges around skills and capacity – for them, products and services which simplify the involvement required, and that focus on what they can achieve within their own context, will be particularly important.

26. The activities outlined above would help ensure that as many types of non-domestic organisations as possible benefit from the roll-out of smart meters; further work would be required to understand and test the specific activities that would be the most effective for different types of non-domestic organisation.

[i] The Government mandate technically defines a smart meter as one that is compliant with the Smart Meter Equipment Technical Specification (SMETS) and has a specified range of functions including being able to transmit meter readings to suppliers and receive data remotely. Energy suppliers are required to install SMETS compliant smart meters in domestic and smaller non-domestic sites by the end of 2020. The exception to this is in smaller non-domestic sites where advanced meters may remain in place for their lifetime if they were installed before October 2017 for larger suppliers and February 2018 for smaller suppliers.

[ii] Previous BEIS-commissioned research in relation to non-domestic smart metering includes a 2015 'Forward Look on Smart Meters-enabled Innovation for Non-Domestic Customers' and a 2013 qualitative research report 'Attitudes towards and experiences of Smart Meters in the Non-Domestic SME market'

[iii] We also acknowledge the advisory inputs of our expert evaluation advisers Elliot Stern and Avril Blamey, and of the National Energy Foundation who contributed to the early stages of the research.

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