NDSEMIC INSIGHTS FOR INNOVATORS

Developing Smart Energy Management Services for SMEs

Acknowledgements

OGL

Contents

Basis and purpose of this document

The Non-Domestic Smart Energy Management Innovation Competition (from here on referred to as 'the Competition') was an £8.8m innovation competition, funded by BEIS between March 2018 and January 2020, aimed at maximising the potential for energy saving in smaller organisations in three priority sectors (hospitality, retail and schools).

To achieve this, it funded seven 'Competition Partners' (innovators) to develop energy management products and services that use smart meter data to help organisations to manage their energy consumption better. These ranged from apps to online platforms with energy management alerts and tips, to data-driven activities for school users.

Through the process of developing, testing and piloting these solutions, the Competition gathered evidence with an aim to inform and support broader market transformation beyond the seven pilots. This was facilitated by the Competition's Research and Evaluation Programme (REP), a two-year programme running alongside the Competition delivered by Ipsos MORI, the Carbon Trust and Technopolis.

The purpose of this document is to extract concise insights, gathered through the REP, for other innovators wishing to develop smart energy management services for smaller non-domestic sites. "Innovators" includes any organisation involved in the development or commercialisation of such products/services (for example technology companies, brokers, energy suppliers and new entrants). More detail about the Competition's original objectives, including its longer-term aim to stimulate a market for smart energy management services in this space, can be found in the evaluation of the Competition published alongside this document.

Evidence base for this document

This document is based upon Action Research activities led by the Carbon Trust as part of the Competition's REP. These activities involved advancing learning around the common challenges or opportunities experienced by the Competition Partners in developing their solutions and taking them to market. Such activities included events to facilitate industry networking, workshops to scope solutions to challenges, deep dive sessions with Competition Partners to gain a further understanding of market barriers and a small number of interviews with key industry stakeholders.

Therefore, this document is a summary of the experiences of Competition Partners that may be helpful for others – it is not intended as either comprehensive or prescriptive guidance. The REP has removed information that may be viewed as commercially sensitive by Competition Partners or sector stakeholders in order to present anonymised and aggregated market insights. Insights are provided under three themes: learnings about identifying routes to market, accessing smart meter data, and engaging smaller non-domestic consumers in the retail, hospitality and school sectors.[1]

---

1 Insights provided for consumer engagement have also been drawn from evaluation activity led by Ipsos MORI, as well as from Action Research activities led by the Carbon Trust.

Routes to Market

Context

Competition Partners explored a range of routes to market – i.e. routes by which to reach pilot sites or future customers. In some cases, this involved partnerships with other market actors or intermediaries who acted as 'gatekeepers' to their customers or members. In other instances, this involved exploring 'business to business' models of partnership – i.e. where the primary customer of a tool is another business (such as an energy supplier), who may then offer a tool to their customer base as part of their service offering (thereby producing an 'indirect' relationship between the innovator and end user). Insights from Competition Partners' engagement with market stakeholders were captured in order to disseminate learnings to other innovators.

Schools

Competition Partners identified two key stakeholder types for the school sector that supported them in obtaining market access for their solutions – **local authorities** and **multi-academy trusts (MATs)**. Insights from Competition Partners in engaging with these stakeholders are as follows.

Local authorities may centrally control energy procurement and energy efficiency measures for their maintained schools. They may already be using platforms to manage energy data relating to their schools. Where such a platform is in place, local authorities may be able to provide data access to service providers directly. Competition Partners explored both partnership and commercial relationships with local authorities, with the approach taken driven by the degree of centralised control held by them.

Partnership arrangements developed when local authorities recognised the benefits of the solutions on offer (e.g. energy cost savings or emissions reductions) and chose to promote the solution to their schools. This arrangement was primarily adopted where schools controlled their own budgets. Where school budgets are managed centrally, as is the case in Scotland and Wales, interviews with local authorities indicated that direct commercial relationships can be established with the local authorities themselves, who will then roll the solution out to schools.

Multi-academy trusts undertake a similar role to local authorities for academies, with some centrally procuring energy and energy efficiency services. MATs may, however, take different approaches to centralisation of decision making due to the management preferences of the MAT and the nature of their estate, including factors like the number of schools under management, or the ratio of primary to secondary schools. The MAT may delegate some responsibilities to some schools and not others, depending on the capacity of each school to engage directly in energy procurement.

Other potential routes to schools were explored in less detail by Competition Partners. These routes include working with third party organisations such as community energy groups and eco charities, or actors in the energy service sector, including LED lighting and solar PV panel installers, and energy service companies (ESCOs), who might act as either customers or partners to innovators.

Small and Medium Enterprises (SMEs)

For SMEs in the retail and hospitality sectors, Competition Partners explored a variety of relationships with stakeholders to reach businesses, including energy suppliers, Third Party Intermediaries (TPIs), Data Collector and Data Aggregators (DCDAs), ESCOs, equipment installers, trade bodies, non-energy service providers, and symbol groups. Insights from Competition Partner engagement with these stakeholders are as follows.

Energy suppliers that engaged with the Competition saw value in energy management solutions as a form of customer engagement, acquisition and/or retention. The approach taken by those participating in the research programme involved bundling these services within energy supply contracts. Given their existing relationships with customers, and the associated access that they have to customer energy data, energy suppliers represent significant potential for market scalability of these solutions. However, suppliers may also become competitors to independent innovators in this area as they seek to develop their own solutions.

TPIs and ESCOs may present an alternative partner with whom to engage, and, due to the nature of their business model, are likely to have direct discussions with end customers on their energy consumption and costs. TPIs engaged as part of the research activities typically provided a basic energy supply procurement service, with those serving larger, energy intensive customers often providing advice on their energy strategy, including energy management solutions. TPIs engaged with as part of the Competition indicated that, for the SME sector, there is currently limited provision of energy management solutions in the market.[2]

DCDAs are organisations responsible for collecting and managing half hourly (HH) meter data from energy consumers with advanced metering infrastructure (AMI meters). Engagement with DCDAs as part of the research activities indicated that they may also offer energy management services, delivered by their analytics teams, that run reports and analysis for the site energy manager who may not have the time to do so themselves, and make recommendations on interventions to achieve energy savings. These may be provided by themselves, or a third party provider.

Trade bodies often help their members save money through the promotion of services and solutions such as legal, tax, finance, and marketing support. While not acting as a direct route to market, they may have a role in identifying and promoting energy efficiency solutions that meet the needs of their membership or in matching energy innovators with members that would benefit from their services.

Non-energy service providers including companies providing other digital platforms to the market (e.g. property management systems, building management systems, booking systems in the hospitality sector, stocktaking and procurement systems) may represent additional routes to market through partnerships. Energy management systems could be promoted within a broader product/service offering and/or bundled with existing solutions under contract. Competition engagement showed that such providers typically have high levels of engagement with SME business owners on a regular basis, have active sales departments to promote products and services, and have already established a trusted relationship with them. An alternative route to market for energy management innovators could involve identifying providers that have compatible service offerings and company principles around sustainability.

---

2 Based on insights from interviews conducted with TPIs in Great Britain.

Symbol groups or franchise operators also showed potential for scalability through access to their networks of franchise stores. Competition Partners showed success in accessing multiple sites simultaneously through these symbol groups who held an interest in promoting energy efficiency and sustainability in their stores.

Data Access

Context

This section outlines the metering landscape and data access routes explored by Competition Partners. There are overlaps with section 2 – routes to market – in that some routes to market may unlock access to data whereas others may not.

Metering Landscape

Two key types of smart meter are in use in the non-domestic sector in Great Britain; advanced meters, referred to in this document as Automated Meter Reading (AMR) meters, and meters which conform to the Smart Metering Equipment Technical Specifications (SMETS) standards.

SMETS meters are enrolled onto the Data Communications Company (DCC) network; the DCC provides the services and software infrastructure that link suppliers, network companies and DCC Other Users (defined later in this chapter) to data held within meters[3]. There are two main variants of SMETS – SMETS1 and SMETS2. While SMETS2 meters are automatically enrolled into DCC systems, SMETS1 meters are being migrated into the DCC to ensure their smart functionality is retained even if the customer switches supplier.

In the case of AMR meters, other organisations are involved in data collection and handling. Data Collectors (DC) are responsible for collecting, validating and estimating data (as required), as well as reporting on the content of that data. Data Aggregators (DA) are responsible for receiving data from the DC, validating it and providing exception reporting to DCs. DAs also manage the entry of data onto the relevant aggregation system for billing and settlement by energy suppliers. Together these functions are often performed by a single organisation referred to as a DCDA.

For context, Figure 1 shows the split between advanced and SMETS meters installed in non-domestic sites to date as of Q1 2019. BEIS anticipates that installations of SMETS2 meters will increase in coming years, shifting the market balance.

---

3 SMETS meters enable access to tariff information as well as energy use. While this functionality is important and additional, this document focuses on access to energy consumption data.

Figure 1: Cumulative deployment of advanced and SMETS meters (gas and electric) from Q3 2012 to Q1 2020 including historical installations. Data from BEIS Smart Meter Statistics and denotes meters installed by large suppliers only.

Cumulative quarterly meter deployment for non-domestic sites by large suppliers
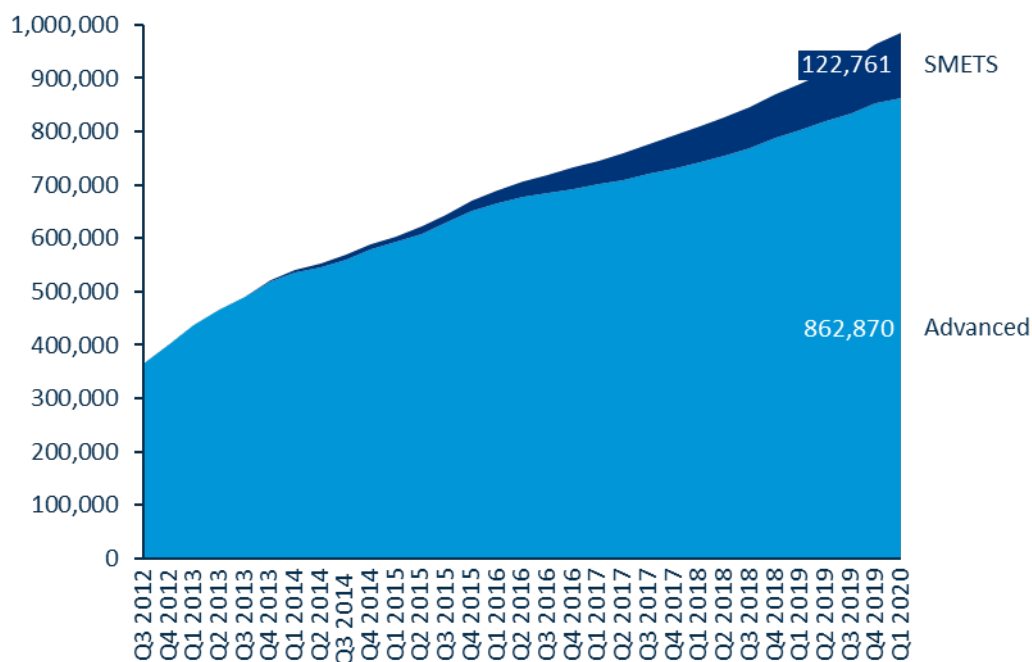
Source: BEIS Smart Meter Statistics[4]

4 https://www.gov.uk/government/collections/smart-meters-statistics

Data access routes

Six routes to accessing smart meter[5] consumption data were explored by Competition Partners during the Competition – two of which (routes 1 and 2) refer to SMETS consumption data an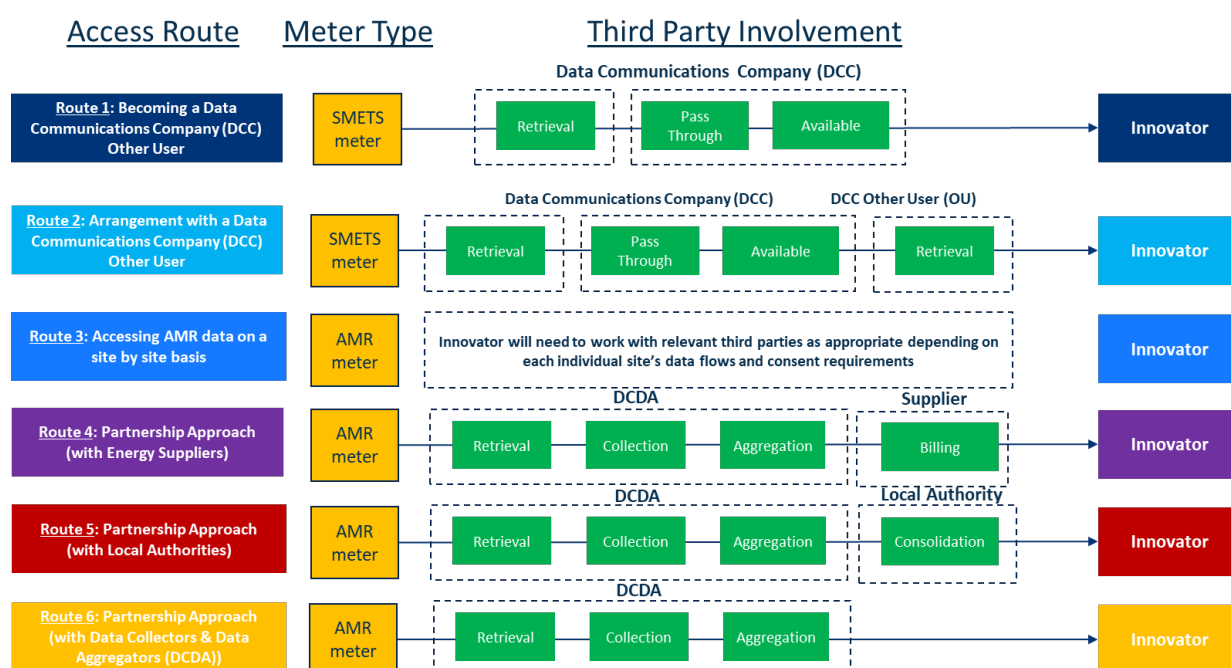d four of which (routes 3-6) refer to AMR consumption data. These routes are summarised graphically in Figure 2. All data access routes discussed in this chapter rely on an innovator having the relevant consent from the end consumer.

Figure 2 Graphical representation of the data access routes explored by Competition Partners

Source: Action Research conducted as part of the Competition's REP.

SMETS Meters[6]

Route 1 – Accessing SMETS data by becoming a Data Communications Company (DCC) Other User

This route focusses on accessing half hourly SMETS electricity and gas consumption data via the DCC by becoming an Other User. DCC Other Users are organisations that have applied to become certified users, who can communicate directly with the DCC network to extract data

---

5 In some cases, Competition Partners used clamps or monitoring equipment to access energy consumption data where the relevant metering was not available or where more granular data breakdowns were tested. However, given the nature of the Competition this document focuses on learnings about routes to accessing smart meter consumption data.

6 Although not the focus of this document, near real-time [30 second intervals] electricity SMETS data can also be accessed via a Consumer Access Device. A CAD is a device that supports Zigbee Smart Energy and can be paired to the home area network (HAN) via 3G/4G/Wi-Fi. Any live DCC User can register a CAD. More information about this route can be found on the Government's website here: https://www.gov.uk/government/publications/smart-meters-smart-data-smart-growth

from SMETS devices without the involvement of a third party. More information on becoming a DCC Other User can be found on the DCC webpage.[7]

Key Considerations from the Competition

Becoming a DCC Other User involves various security and audit requirements. Therefore, Competition Partners found that time, costs, a solid understanding of the requirements and internal capabilities to meet these requirements were all important considerations. Equally, Competition Partners found that Route 1 (as is the case with Route 2) is a data access route rather than a route to market – i.e. an innovator will still need to consider the pros and cons of using partnerships (or simply their own networks) to identify a pilot or customer base before data can be accessed via the DCC. For instance, partnering with an energy supplier to identify a customer base (even where data is accessed directly as an Other User) may mean aligning services with the business goals of the supplier, for example improving customer retention, improving customer satisfaction or incentivising SMETS meter installations.

Route 2 – Accessing SMETS data by partnering with, or reaching a commercial agreement, with a DCC Other User

This route also involves accessing half hourly SMETS electricity and gas consumption data via the DCC. However, data access is achieved by partnering with a DCC Other User, rather than the innovator needing to become a DCC Other User themselves. Such DCC Other Users include organisations that offer third party access to data for a fee (sometimes referred to as 'DCC Managed Service Providers' or 'Proxy DCC Other User Services'). Many energy suppliers are also registered DCC Other Users and may facilitate access to SMETS data for their partners. A list of DCC Other Users can be found on the Smart Energy Code (SEC) website under the list of 'Other SEC parties'[8].

Key Considerations from the Competition

The view of Competition Partners at the time of the research activities conducted was that the market for proxy third party data services is nascent but likely to grow over the next few years as the number of non-domestic SMETS meters grows. Insights from the Competition suggest that cost structures vary between different DCC Other Users offering proxy services, and it is important to understand these costs, as well as the nature of the services offered and any security and privacy requirements that must be met by the innovator under the terms of the proxy service.

AMR Meters

Route 3 – Site by Site Approach

This route involves accessing consumption data on a "site by site" basis, i.e. working with individual sites to understand their AMR data flows, seeking consent from the end consumer and then approaching a site's energy supplier or DCDA to seek access. This may overlap with routes to market whereby an innovator chooses to recruit sites directly themself or has partnered with a recruitment organisation that also does not have access to consumption data.

---

7 https://www.smartdcc.co.uk/customer-hub/about-dcc-users/

8 https://smartenergycodecompany.co.uk/download/9989/

Key Considerations from the Competition

As this route does not involve partnerships with suppliers or DCDAs, Competition Partners found during the Competition that there may be an additional cost involved to access the data, particularly when the customer is not signed up to any data services from their supplier or DCDA. The costs of data were usually charged per meter (electricity or gas) and varied between different suppliers and DCDAs. A signed consent form from the end consumer/tool user citing the specific meter information (Metering Point Administration Number (MPAN)[9]) was required to secure quotation of costs. Competition Partners also found that the format of the consent form required by different suppliers and DCDAs varied across the industry. Innovators will therefore need to consider the overall cost, time and stakeholder engagement that might be required to secure consent and data access.

Route 4 – Partnership Approach (with Energy Suppliers)

Similar to Route 2 but also including AMR data as well as SMETS data, this route involves establishing an arrangement with an energy supplier to secure sites/customers, with the supplier then facilitating data access. In this case the 'customer' can either be the supplier, who pays for the solution to offer greater value to its customers (thus also serving as a route to market), or the end consumer.

Key Considerations from the Competition

Competition Partners found that supplier partnerships can help to provide scale and reduce the direct costs of accessing energy consumption data from customer sites. However, they did find that suppliers have different systems to consolidate and manage data and this needs to be considered for the data transfer aspects of the solution. Competition Partners found that understanding and considering the benefits of the solution to the supplier, as well as the end consumer, can be helpful during partnership discussions.

Route 5 – Partnership Approach (with Local Authorities)

This route applies to those developing energy management solutions for schools[10] and involves accessing school meter and energy consumption data via the local authority. It is more applicable to state schools where local authorities provide support to schools directly and may hold detailed information on the schools' energy use and underlying metering infrastructure. Where the local authority utilises centralised energy management systems, data access can be facilitated for innovators (subject to relevant consent and data protection compliance).

Key Considerations from the Competition

Like supplier partnerships, some Competition Partners found that local authority collaboration helps to access school consumption data at scale within an area. However, Competition Partners found that local authorities are diverse in terms of their use of energy management systems, metering arrangements and resource availability to support data requests from innovators. In cases where meter and/or energy consumption data is not consolidated by the local authority and no other partnership exists, Competition Partners found they may need to revert to site by site access discussed in Route 3.

---

9 MPAN numbers are required by a DCDA or a supplier to identify a unique meter to help access the associated meter and usage information.

10 This route has the potential to apply to other public sector buildings, however the Competition [and any evidence collected] only explored the retail, hospitality and school sectors.

Route 6 – Partnership Approach (with DCDAs)

This route is similar to Route 4, with the difference being that the partnership is with a DCDA organisation rather than an energy supplier. In this model, the DCDA facilitates access to AMR meter data without specifically becoming involved in engaging users. The DCDA is not the customer in this route; rather, they take a commercial interest in easing access to data given the potential to onboard further customer sites through the delivery of additional added value services.

Key Considerations from the Competition

DCDAs are required for all AMR sites and customers can choose their own DCDA or a default one will be assigned by their energy supplier. DCDA charges are levied as part of the customer's energy bill and can include services such as access to energy data via an online portal. The customer's DCDA contract can be changed by the customer themselves or by third parties (such as innovators) through securing the consent of the customer and requesting the supplier to "re-nominate" the chosen DCDA.
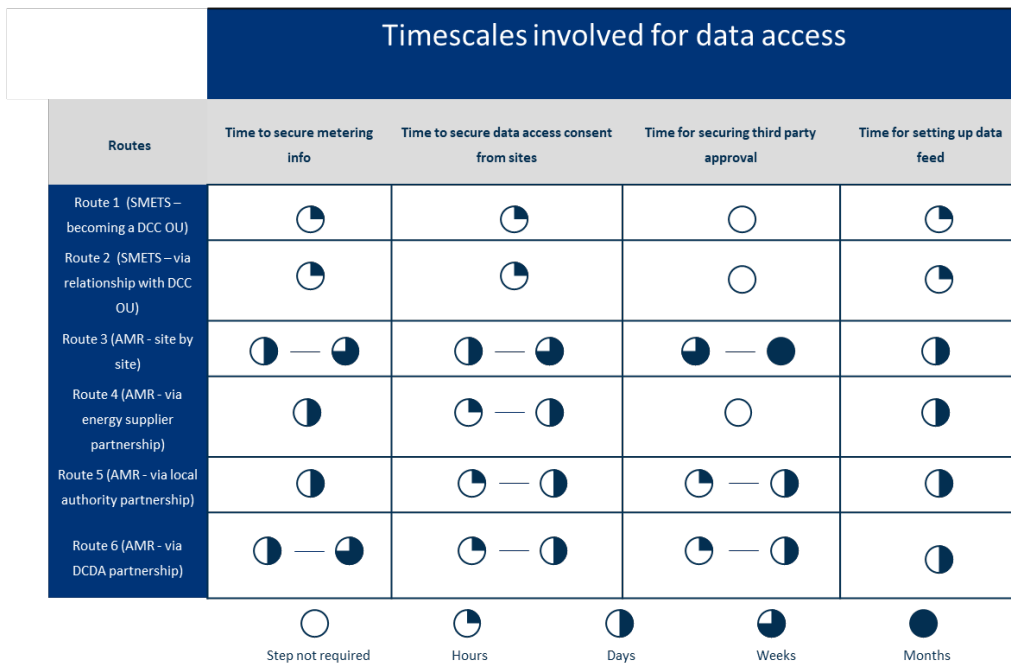
Competition Partners found that DCDA partnerships could provide access to consumption data, but only initially for sites that the DCDA has a pre-existing contract with. For sites that were interested in the Competition Partner's product/service but had a different DCDA, it was possible to re-nominate to one where a partnership exists. This process required securing consent for a change of nominated DCDA from the site and engaging with the site's supplier to carry out the re-nomination. Some Competition Partners found this to be time intensive as the specific format and details required as part of the consent process varied across the industry.

Competition Partners also found that if a site changes their DCDA for other reasons whilst an innovator is relying upon this data access route, data flows may stop and would require a re-nomination.

Considerations for Innovators

Competition findings suggest that organisations seeking involvement in non-domestic smart meter data value creation stand to benefit from an awareness of the opportunities, barriers and relative time and resource investments associated with the above-mentioned routes. Timescales derived from Competition Partner experiences are summarised below in Figure 3, though it is acknowledged that these may not be generalisable to all innovators in the market.

Figure 3: Assessment of the timescales of six data access routes pursued in the Competition, based on seven Competition Partner experiences[11].

Routes	Timescales involved for data access			
	Time to secure metering info	Time to secure data access consent from sites	Time for securing third party approval	Time for setting up data feed
Route 1 (SMETS – becoming a DCC OU)	Hours	Hours	Step not required	Hours
Route 2 (SMETS – via relationship with DCC OU)	Hours	Hours	Step not required	Hours
Route 3 (AMR - site by site)	Days — Weeks	Days — Weeks	Weeks — Months	Days
Route 4 (AMR - via energy supplier partnership)	Days	Hours — Days	Step not required	Days
Route 5 (AMR - via local authority partnership)	Days	Hours — Days	Hours — Days	Days
Route 6 (AMR - via DCDA partnership)	Days — Weeks	Hours — Days	Hours — Days	Days

Legend: ○ Step not required · ◔ Hours · ◑ Days · ◕ Weeks · ● Months

Source: Action Research conducted as part of the Competition's REP.

Competition Partner experiences were that SMETS data Routes 1-2 could offer faster access to data, as the standard format and processes reduced timelines needed for gathering consumer consent and setting up of data feeds. Competition Partners also found that SMETS data access routes may potentially offer a lower cost route to accessing data than for AMR and pulse metering. However, the timescales associated with these factors need to be considered alongside any upfront investment in terms of time and costs.

Route 3, while requiring minimal upfront investment, had the greatest uncertainty in terms of costs and timelines depending on the site and associated supplier/DCDA consent processes.

Routes 4 and 5 offered the potential to reach customers at scale through relying on the existing customers and relationships of energy suppliers and local authorities. Competition Partners found that these routes had minimal direct data access costs as they were mostly provided by the partner.

Route 6 offered Competition Partners the benefits of timely access to data as long as the site already had the same DCDA as the innovator's partner. Where this was not the case, setting up data access for the site required further upfront time/resource. Similarly, this route also required resource to identify and engage customers, as this route did not serve as a route to market, only a route to accessing data.

---

11 "Time to secure metering info" means the time taken to access details such as the MPAN, and is required to arrange consent and data access. "Time to secure data access consent" refers to the time taken to get permission to access and use a user's meter data, which is a requirement for all routes. In most cases this requires the issue of a 'letter of authority' that confirms that consent has been given. "Time for securing third party approval" refers to the time taken in getting permission from suppliers and DCDA organisations to access the user's data. "Time for setting up data feed" refers to the time taken in introducing and deploying a system to collect and transmit site data.

The Competition has identified a number of overarching recommendations for innovators:

Understand the site, their resources and their metering infrastructure

The sites piloted across the Competition highlighted the variety of metering infrastructure, on-site skills and resources and underlying supply and metering contracts. In particular, Competition Partner experiences suggested that many sites had limited awareness of their existing metering arrangements. These different aspects are important to consider early in the solution development phase. Evidence suggests that the time and resources required for site engagement and sign-up should also be considered when evaluating the costs and benefits of different data access routes.

Consider data flows and consent processes

Accessing data from pre-existing metering infrastructure involves a series of steps such as mapping agents associated with the meter, securing site and third party consent and approval, and setting up an effective data transfer process. These steps also vary depending on the site and their metering infrastructure and the nature of energy contracts and so require careful consideration in line with the nature of the solution.

Examine partnerships options

The Competition showed that some routes to market and data access routes rely on having partnerships in place – either to facilitate access to a customer base, or access to consumption data. Sometimes these partnerships can be with the same third party such as an energy supplier. Scoping appropriate partnerships and having discussions earlier in the innovation process can help streamline the innovation process.

Consider changing metering landscape

Though AMRs are still a dominant feature of the non-domestic metering landscape, SMETS 2 meters continue to be deployed and SMETS 1 meters are migrating to the DCC. Considering how innovations being developed align with different meter types, data access routes, formats and ways of data transfer could help to future-proof projects.

Customer Engagement

This section summarises learnings from the Competition's evaluation, published alongside this document, that may be of particular relevance for innovators wishing to build and design non-domestic smart energy management services that are engaging for customers.

Specifically, it summarises learnings about: features of the tools that most gained and sustained customer interest, the role that customer support played in customer engagement, the kinds of messages that initially attracted customers to use the piloted tools, customer willingness to pay and implications of willingness to pay on possible customer payment models.

The section is intended to be concise and high-level; for more detailed insights please refer to the evaluation reports.

Tool functionalities that gained and sustained customer interest

- **Different types of detailed access to consumption data were well received**:

  o Timely and granular data proved significant for engagement, with users most appreciating having access to live data[12] at half hourly (or less) intervals, and users with temperature and equipment-level monitoring feeling most able to make changes in how and when they use energy. In most cases, this level of detail was new (i.e. additional to information available through energy bills).

  o Existing energy monitoring in pilot schools and businesses was often limited to (monthly) energy bills or meter readings and customers were positive about the idea of having more timely and detailed information available.

- **Clear and simple data presentation is important for engaging customers**. The tools which were most successful were those which presented information in visually appealing and easy-to-understand ways. Features that help customers interpret information, such as comparisons of energy use for the present versus the previous week, and energy use displayed as £, also received positive feedback from customers. Features to give a simple overview of usage, such as data dashboards, were also well received.

- **Energy efficiency tips kept energy consumption front of mind** and made it easier for some customers to take action, but only when they:

  o **Were tailored** to the school or business type, their operations or equipment and premises and therefore seen as relevant by customers;

  o **Recommended specific and actionable changes to implement**, **rather than just** describing energy use;

  o **Highlighted no-cost and low-cost ways to improve energy management**, as well as those requiring larger investments; and

  o Gave customers an **indication of the impact** of changes.

  Where tips were not tailored, they were disregarded by customers.

- **Customers appreciated benchmarks and comparisons to other organisations only where this was with organisations of a similar size and operation**. Comparisons reassured customers where they showed similar usage and helped to identify anomalies in energy spend. In schools, comparisons were often made between participating schools through **leader boards** which ranked schools on metrics like overall energy use, off-peak energy use, energy saved, and a number of energy saving activities completed (by pupils). These boards were effective in sustaining pupils' and teachers' interest in energy efficient actions.

- Within retail and hospitality businesses, **tools were particularly effective where they helped to embed changes in routine business practice/processes** (for example, a

---

12 Live data in the context of this Competition describes energy consumption data at half hourly (or more detailed) granularity fed to the tool or platform on an on-going basis. Non-live data may provide the same level of granularity but is not updated on an ongoing basis, for example being uploaded to the tool or platform once a day (and in arrears).

standard process of staff turning ovens on only when needed, rather than at the start of each day). Automated controls such as smart plugs were highly effective ways of ensuring equipment was turned on/off appropriately; and reports and tips provided within tools were sometimes integrated into standard monitoring or meetings.

- **Learning and educational resources appeared to be critical in engaging schools with energy management tools, and it is important that users are aware of them.** Tool users in schools found the package of learning materials and resources attractive, and teachers were enthusiastic about the learning materials included with some tools. Overall, involving pupils as users of energy monitoring data helped to increase take-up and improved results. Once engaged, pupils acted as effective agents of change within their schools, driving behaviour change among other pupils and school staff, and more efficient energy management processes.

Factors relating to customer support

- **The induction or onboarding process was a crucial point of engagement** with the tool's offer. Customers were more likely to engage with tools if the induction process was straightforward, with clear guidance materials provided. **The clarity of the induction process was also important**, especially where customers were recruited via third parties (rather than the tool developer), to ensure they were fully aware of the tool's features.

- **Some customers welcomed personalised guidance or demonstrations of the tools** to help them get to grips with the tools and their functions initially. **This was particularly the case in schools**: schools that received hands-on support and induction were more likely to use the tool effectively, and to make use of the full range of features that the tools offered. Some tools required IT equipment to be installed at the school, and while manuals and videos were provided to enable school IT staff to set up the equipment independently, significant levels of personalised support were still needed initially and during the pilot in the form of telephone support, text messages, email and, in some cases, face-to-face visits[13].

- While the tools were broadly seen as being intuitive and easy to use by SMEs, **ad hoc advice** was essential in a few instances to help sites interpret their data and identify how to conserve energy.

- Most critically, **offering enhanced support packages alongside the tools for SMEs**, such as consultancy advice combined with equipment-level monitoring or tailored face-to-face advice, **appears to have made the tools more effective in prompting significant change**. This is because such support can help to identify the potential for savings where businesses lack the time or knowledge to do this themselves, and in cases where businesses are unconvinced there is any potential for savings.

---

13 The commercial viability of different support approaches is discussed in the evaluation reports published alongside this report.

Messaging that gained initial interest in the tools[14]

Customers often had a number of different reasons for being attracted to the energy management tools piloted through the Competition, but were typically motivated at least in part by an expectation of either financial benefits (seeing the tool as way of achieving cost savings); environmental impacts; and/or (for schools) educational benefits. Indeed, this was a key attraction for schools, who were motivated by the opportunity to teach specific skills, such as coding and the use of graphs, and to engage students generally in energy use and climate change.

Both schools and businesses with and without an existing interest in energy efficiency and sustainability were attracted to using the tools. This meant that tools attracted those with existing energy monitoring systems in place (where the tool offered them new and more granular information, it was considered as adding value). It also attracted those both with and without an environmental brand or established environmental agenda.

The following message frames proved effective for engaging customers (throughout tool design and at point of sale):

- "Involve children in energy and environmental issues".

- "Quick and easy access to energy information".

- "Feeling in control/avoiding surprises".[15]

- "Make your day-to-day life easier".

- "Supporting you to operate more effectively".[16]

Case studies of similar organisations who have made use of the tool (and who have also made tangible financial savings) can also encourage initial engagement. These need to be as specific to the sector/size of the school or business as possible. When asked whether they would be willing to pay for the piloted tools, a key factor for some customers was whether the tool would be cost-effective and worth the investment, and such examples helped to demonstrate the potential savings that could be achieved.

Climate change emergency declarations from local authorities acted as a key driver for schools' interest in some cases. The support of local authorities for particular programmes/tools also helped to drive interest in some of the piloted tools.

It is important to consider **appropriate timings** when approaching schools or businesses; for example, businesses said they were likely to be most receptive during quieter periods (e.g.

---

14 This is explored further in the interim report published as part of this evaluation, found here:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/827945/ndsemic-interim-report.pdf

15 Some SME owners and managers who participated in initial user testing were sceptical of the billing they received from energy providers and reported being 'surprised' by the energy costs presented to them on bills. These users responded positively to messaging that highlighted how energy management tools can help make energy use and energy spend more visible, understandable and immediately accessible.

16 Customer, staff and pupil comfort is often paramount, so linking better energy management and efficiencies with creating a more comfortable and appealing operating, working and/or learning environment can help engage interest in energy.

post-Christmas for hospitality) or when starting/expanding the business. In schools, exam time should be avoided.

Customer willingness to pay for tools

Whilst customers piloting the tools as part of the Competition were offered the tool for free (thus customer willingness to pay was not tested in a real-world environment), customers were consulted on this topic during evaluation interviews.[17] After the pilot period, a majority[18] of customers across sectors were open to the idea of paying for a tool (on the assumption that it was a small cost) including some customers who did not have a 'green' agenda or existing sustainability agenda. Actors in small retail[19] businesses were generally less open to paying than hospitality businesses and schools, which may be related to perceptions among these customers that their energy use was very low and thus any cost savings would be minimal.

Customers indicated that the decision over whether to pay for a tool would ultimately be determined by the extent to which the perceived benefits outweigh the cost. They described the need for the tool to 'pay for itself' and felt they would need to make an assessment about how quickly it would do so before purchasing it. Additionally, in schools the return on investment was considered not only in energy savings but also whether it could be used in the classroom as a teaching tool.

Considerations for customer payment models

- Most end-customers who expressed a willingness to pay gave a figure of between **£50 and £500 per year**, although they found it difficult to articulate how much they felt they would pay without the confirmed value of savings being known. This cost was sometimes estimated based on **what they spend on the most comparable services and apps they use** for their business or school.

- **Monthly payments were generally preferred** because of the ability to **spread the cost**, meaning a minimal monthly cost that is more acceptable to pay and is a **less noticeable outgoing**, especially for the smallest businesses. Another benefit of monthly payments (mentioned by stakeholders) was the **implication of ongoing support and training from the provider**, which would be expected for something that is being paid for on an ongoing basis.

- A **minority indicated that they would prefer a one-off fee** so that they could understand the cost upfront and make a better assessment of value. Those in bigger businesses or with broader budgeting responsibility (e.g. in a procurement role) were less concerned about whether it was monthly, annual or one-off, although one customer preferred a one-off payment in order to limit the number of invoices that needed processing.

- A **flexible or monthly rollover payment method** that could be tailored depending on the needs of the organisation (both in terms of the long-term need for energy monitoring after initial inefficiencies had been identified, as well as other budgetary pressures) was

---

17 Though it is acknowledged that stated preferences may be subject to bias and therefore may not be indicative of behaviour in a real-world scenario.

18 Based on a tally of responses from 61 qualitative interviews.

19 This could also be in part due to the size of businesses interviewed as part of the evaluation, which were generally slightly larger in the hospitality sector than their retail counterparts.

appealing, as some expressed a reluctance to sign up to a subscription or feel tied into a contract.

- In schools, for tools that have an educational element, some customers suggested that the cost of the tool could be covered **under individual subjects' budgets**.

Alternatives to direct payment models

Whilst some small non-domestic sites may, with the right consumer offering and payment model, be willing to pay for smart energy management services, the Competition has also shown that this may not be universal. This is particularly the case where consumers lack confidence that the benefits of an investment will outweigh the time and cost required.

In those circumstances, Action Research activities conducted as part of the Competition's REP began to explore the alternative business models that innovators may test in future to mitigate this willingness to pay challenge. One such model is the 'bundling' of smart energy management tool costs under pre-existing services or upfront costs of broader solutions. Tools could be bundled with services offered by existing energy service providers (i.e. those offered by suppliers, TPIs, DCDAs, energy service companies/installers). Or, they could be offered by non-energy service providers (i.e. digital platform providers – for example of payment systems, building/property management systems, stocktaking/procurement systems and booking systems – or other general suppliers).

This 'bundling' approach may reduce barriers to payment, as the solution can be presented as a value-add to pre-existing and trusted services as opposed to a new and unknown service line at additional cost. The cost to the customer may also be partially, or even entirely, absorbed by a commercial partner if it perceives the solution to represent a differentiator and competitive advantage for their services in the market.

For schools specifically, willingness to pay challenges may also be alleviated through direct commercial arrangements with local authorities or MATs under centralised procurement programmes. In such instances, the school would not pay for the solution and decisions on procurement would be made centrally by these organisations, as discussed in the Routes to Market chapter. Similar centralised procurement structures may also be possible at the head office level of retail and/or hospitality chains; however, this was not investigated to any significant degree in the programme.

Summary of Considerations for Market Engagement

This guidance note has collated findings regarding the experiences of Competition Partners in three main areas: routes to market, data access and customer engagement. A number of considerations for innovators have been highlighted:

- Competition Partners noted that building relationships and partnerships was important for accessing customer sites in both the schools and retail/hospitality sectors. In the school sector, opportunities exist to quickly access a number of sites through engagement with local authorities or multi-academy trusts. Similarly, partnering with energy suppliers, intermediary organisations and franchise operators, among others, can deliver efficient access to retail and hospitality SMEs.

- The experiences of Competition Partners suggest that partnerships can also be important for accessing meter and energy consumption data from customer sites. Sometimes, the data access partner may be the same organisation that has brokered an introduction to the site, however in other cases, further relationships may be required.

- When approaching customers, it is important to seek an early understanding of user sites' skills, resources and levels of awareness of energy efficiency and accompanying systems in order to understand the nature and degree of engagement required with the customer. The type of metering infrastructure already installed by the site is also a key factor likely to determine the level of engagement required to secure access to their energy consumption data.

- Competition Partners found that understanding the timescales and resource implications of a chosen data access route is important when designing a route to market strategy.

- Insights from the Competition pilots suggested that users responded well to tools and solutions which provided them with more detailed information on their energy consumption, particularly when that information was granular (half hourly or sub half hourly) and timely (with a preference for 'live' data evident among users).

- Pilot sites responded best to energy efficiency tips when these were tailored specifically to the individual site and its consumption, and prompted low-cost and no-cost solutions to energy management to achieve efficiencies. For retail and hospitality this was particularly effective when changes were automated (e.g. through smart plugs) or embedded into routine business processes (e.g. turning ovens on and off). For schools, combining the offering with learning and educational resources resulted in an increase in interest and engagement.

- Sites interviewed during the Competition indicated that the decision over whether or not to pay for a tool would ultimately be decided by cost. They described the need for the tool to 'pay for itself' and felt they would need to make an assessment about how quickly it would do so before purchasing. Alternative business models through product bundling with route to market partners may hold potential to alleviate these challenges.