



Department for  
Business, Energy  
& Industrial Strategy

# SMART METERING IMPLEMENTATION PROGRAMME

Policy conclusions following energy suppliers' trials of alternatives to In-Home Displays

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**OGL**

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# Introduction: Smart Metering Implementation Programme

The development of a world-leading smart energy system delivering secure, cheap and clean energy is an important part of the Government's Industrial Strategy.<sup>1</sup> As our Clean Growth Strategy highlights, smart technologies and services will play a vital role in decarbonising the energy sector.<sup>2</sup> Smart meters are an essential upgrade to our energy infrastructure, enabling a smarter energy system and enabling energy consumers to be better informed and engaged.

The Government is committed to ensuring that smart meters will be offered to every home and small business in Great Britain by the end of 2020. The smart meter rollout will deliver a much-needed digital transformation of our energy system. The rollout is not only an investment in our future; it will also support, for example, the delivery of tangible and immediate energy-saving benefits for households and small businesses across Great Britain.

Energy suppliers are responsible, under standard conditions of electricity and gas supply licences ('supply licence conditions'),<sup>3</sup> for taking all reasonable steps to roll out smart meters to all domestic and smaller business premises in Great Britain. As part of the roll-out energy suppliers are also required to offer domestic consumers an In-Home Display (IHD), at no additional charge, when their smart meter is installed. IHDs provide the consumer with near-real time information on actual energy consumption taken from smart electricity and gas meters through a wireless home area network. They are also key to facilitating consumer engagement and ensuring a good consumer experience.

The 2019 Cost Benefit Analysis (CBA) for the smart meter roll out identifies a net benefit from the Programme of £6 billion for the period to 2034.<sup>4</sup> The direct energy savings benefits to domestic consumers from smart metering systems, of which IHDs are an integral element, are valued at over £4.7 billion.

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<sup>1</sup> See: <https://www.gov.uk/government/topical-events/the-uks-industrial-strategy>

<sup>2</sup> See: <https://www.gov.uk/government/publications/clean-growth-strategy>

<sup>3</sup> See: <https://www.ofgem.gov.uk/licences-codes-and-standards/licences/licence-conditions>

<sup>4</sup> See: <https://www.gov.uk/government/publications/smart-meter-roll-out-cost-benefit-analysis-2019>

## Trials of alternatives to IHDs

In light of the emergence of potentially promising new areas of technology or methods that could act as alternatives to IHDs, in 2016 the government introduced in supply licence conditions a time-limited allowance, which took the form of a derogation from their licence obligations, for energy suppliers to apply to undertake trials of alternatives to IHDs.<sup>5</sup> This was intended to help build a robust, independent and GB-based evidence base in order to assess whether alternatives to IHDs have similar impacts on customers' energy consumption as IHDs themselves, and therefore whether alternative feedback devices and methods can deliver equivalent or greater consumer benefits to IHDs.

Three energy suppliers successfully applied for a derogation.<sup>6</sup> Two suppliers tested smartphone apps that provided near real-time consumption data, feedback, notifications, and past consumption history. Each supplier compared the impact of their app on customer energy consumption to that of customers with conventional IHDs. The third supplier developed an app and prepared a trial but discontinued it due to installation and participant recruitment challenges.

The Behavioural Insights Team (BIT) was commissioned to provide guidance and quality assurance on appropriate research methods, working with BEIS and the suppliers themselves, and to interpret suppliers' trial results and analysis.

## Results of the trials

Each trial used electricity and gas usage data to quantify any differences in energy consumption between customers using an IHD and customers using an app. Quantitative and qualitative research was also included to provide evidence on consumer engagement with IHD or app, including the drivers of any changes in behaviour.

- The trials have now concluded and alongside this policy conclusions document we have published a report by BIT which:
- Reviews the evidence generated by the suppliers' trials; and
- Draws conclusions from these trials with a view to synthesising this with other available evidence from academic, industry and policy research.

On the basis of evidence presented from the trials, BIT conclude that the apps were likely to be less effective than IHDs at reducing customers' energy consumption.<sup>7</sup>

In one supplier's trial, the app was roughly equivalent in its energy-saving ability for electricity but resulted in higher gas consumption relative to the IHD by a statistically significant margin. While there was no statistically significant difference in electricity or gas consumption for the second supplier, BIT's conclusion is that the balance of evidence suggested that the app was

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<sup>5</sup> See: <https://www.gov.uk/government/consultations/smart-meter-in-home-display-licence-conditions>

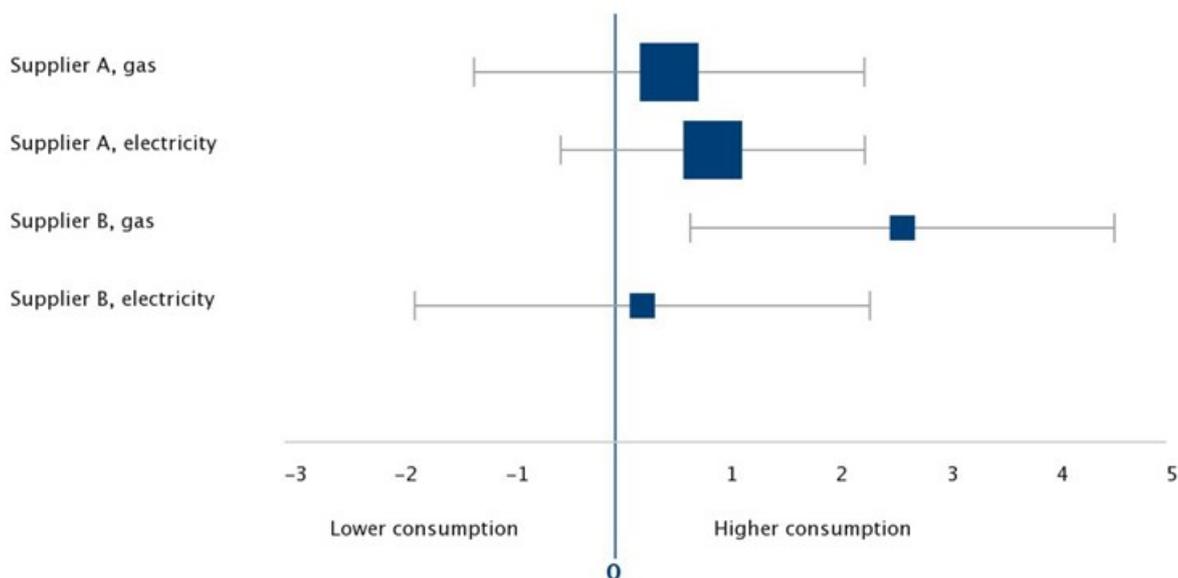
<sup>6</sup> See: <https://www.gov.uk/government/publications/smart-meters-derogation-guidance-supporting-energy-supplier-applications-for-trials-of-in-home-display-alternatives>

<sup>7</sup> BIT (2019): Impacts of alternative feedback devices on customers' energy consumption: A report from the Behavioural Insights Team for the Department for Business, Energy & Industrial Strategy

nonetheless likely to result in higher electricity and gas consumption, in each case by a margin which could be economically meaningful.

The trials also suggested that while some aspects of the apps were valued by consumers, IHDs appeared to be more readily adopted and better suited to a wider demographic.

The four results are summarised in the chart and table below, with 95% confidence intervals shown. A result is statistically significant where the interval does not cross zero.



|                          | App group sample size | Mean percentage difference of app users compared to IHD users <sup>8</sup> | Lower confidence level | Upper confidence level |
|--------------------------|-----------------------|--|------------------------|------------------------|
| Supplier A - gas         | 2,766                 | +0.47  | -1.28                  | +2.26                  |
| Supplier A - electricity | 2,766                 | +0.88  | -0.5                   | +2.26                  |
| Supplier B – gas         | 1,069                 | +2.61  | +0.68                  | +4.53                  |
| Supplier B - electricity | 984                   | +0.24  | -1.82                  | +2.31                  |

**Figure 1: Electricity and gas consumption of app customers compared to consumption of customers with IHDs in the trials**

<sup>8</sup> A positive/negative figure denotes that consumers with the app used more/less energy than those with the IHD.

## Policy conclusions

We welcome the commitment from the suppliers who undertook trials, and the involvement of the consumers who participated in them, which have been useful in providing new evidence on the impact of alternatives to IHDs. However, considering BIT's overall conclusion and notwithstanding that a degree of statistical uncertainty remains around these results, we cannot be confident that alternatives to IHDs would have similar or better impacts in terms of supporting consumers reduce their energy consumption.

Energy saving by domestic consumers, enabled by IHDs, represents a significant proportion of the business case for smart metering. The 2019 CBA estimates that domestic consumers make gross annual reductions of 3.0% in electricity consumption and 2.2% in gas consumption (0.5% for prepay consumers). This results in benefits worth £4.7 billion in present value terms over the appraisal period.

Relatively small differences in energy consumption reductions would therefore have a large impact on the consumer benefits. The evidence from these trials suggests that customers with the alternatives were likely to save slightly less energy than those with IHDs, with the range of possible outcomes including the potential for significantly higher consumption for customers with alternatives.

The BIT report also highlights that the IHDs used in the trials 'seemed to be more widely suitable across the suppliers' population, they tended to be used by more members of the household, and the provision of always-present feedback may have been more likely to prompt widespread behaviour change (as opposed to only impacting the more engaged and proactive users of an app), particularly during the "learning" period immediately after smart meter installation.'

As a result, we do not propose making changes to the current IHD mandate licence conditions. To do so would potentially undermine realisation of benefits to individual consumers and society as a whole.

The trials did, however, highlight some features which may be beneficial in engaging consumers – for example the ability to send push messages or alerts on consumption. We therefore continue to encourage innovation in this area by energy suppliers and other market participants.

In this context, we note that some technology companies are deploying IHDs with additional functionality that allows them to stream smart meter data to the cloud, allowing for additional analytics and services. The addition of onwards connectivity enables these devices to access a range of potential smart energy propositions and services, for example more sophisticated energy insight products and various types of smart appliance including smart thermostats, washing machines, batteries and electric vehicle chargers.

In addition, we recently launched the Smart Energy Savings (SENS) competition which is providing funding to organisations to trial energy feedback products and services that can achieve energy savings for domestic customers and deliver additional benefits alongside IHDs. Through the competition BEIS is aiming to:

- identify innovative products and services using smart meter data that can deliver energy savings, in excess of those currently identified in the smart meter impact assessment, for either the GB population or specific groups within it;
- ensure that solutions are attractive and valued by those who would use them, and easily available (using either existing technologies and delivery channels or cost-effective new hardware);
- support the development of a market for energy products and services, securing investment from technology providers, energy suppliers, and third parties.

The competition recently concluded its application process and up to eight successful bidders will be announced in summer 2019. Following an initial development stage, products supported by the competition will be trialled with households throughout 2020, allowing BEIS to collect robust evidence on their impact.

In the meantime, the analysis of trial results showed that the apps were likely to be less effective than IHDs at reducing customers' energy consumption. Given this overall conclusion we do not propose amending the existing IHD mandate: suppliers will still be required to offer domestic consumers an IHD, at no additional charge, when their smart meter is installed.

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