

FUTURE THINKING

# THE EFFECTIVENESS & CONSUMER EXPERIENCE OF IN-HOME DISPLAYS

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## EXECUTIVE SUMMARY

The roll-out of smart meters, with a mandated offer of having an In-Home Display (IHD) provided, is an ambitious change to Great Britain's national energy infrastructure. In recent years, several studies have concluded that by providing near real-time information on energy use, IHDs have made a number of tangible impacts to the ways in which people consume energy in their homes. However, as technology has advanced and the costs of analysing ever-larger amounts of data have decreased, customer expectations have evolved too.

It is within this context that the BEAMA Consumer Energy Display Industry Group (CEDIG) commissioned the independent market research agency Future Thinking to provide objective and contextualised insight about the role of IHDs in influencing domestic energy consumption. This research will help BEAMA to drive continuous improvement of the designs and services its members offer, and to ensure that it understands, on a detailed narrative and qualitative level what consumers expect in the way of energy data.

Future Thinking recruited 35 domestic energy consumers into a qualitative research study.

### KEY FINDINGS

- ⚡ IHDs deliver a positive customer experience and are felt to 'make life easier'
- ⚡ There is a behavioural distinction between those who are primarily motivated to use an IHD by the desire to reduce waste, compared to those who are primarily motivated to use an IHD to reduce cost. Both groups have different needs from their IHDs
- ⚡ IHDs offer a particular set of benefits to pre-payment customers. They find that IHDs provide greater control over budgeting, increase awareness of their remaining credit and make it more convenient to top up
- ⚡ One of the benefits of IHDs (compared to an app on a phone or tablet) is that they are constantly visible by everyone in the household (not just the bill payer), and they have been used as part of general education about energy and the environment
- ⚡ IHDs are often the catalyst for creating interest in other ways to use, monitor, save or manage energy, including in smart energy controls. The IHD is front and centre of this activity, which often leads to additional positive outcomes (such as reduced energy consumption and lower bills)
- ⚡ Complex dynamics in households mean that there are other constraints on behaviour change, beyond access to information. There is a challenge for the energy sector to help drive positive behaviour change beyond access to data

# INTRODUCTION






## BACKGROUND AND CONTEXT

### **What is a smart meter and why were they introduced?**

The roll-out of smart meters is the most ambitious and significant change to Great Britain's energy infrastructure in decades. Smart meters are the next generation of gas and electricity meters and offer a range of intelligent functions. In addition to collecting data on energy consumption, they enable that information to be presented to the customer in near real time on an IHD and securely communicated to the energy supplier.

The UK Government put consumer benefits at the heart of introducing smart metering<sup>1</sup>. Through the provision of near real-time energy consumption data, expressed in pounds and pence as well as kWh, smart metering enables consumers to better manage their energy use, budget, save money and reduce carbon emissions. Smart meters are also designed to bring an end to estimated billing, with consumers only billed for the energy they actually use. These benefits may also make switching energy supplier smoother and faster, making it easier for consumers to get the best deals.

In order to realise these benefits, the UK Government:





-  Opted to implement a 'retailer-led' roll-out (as suppliers held a direct and existing relationship with consumers);
-  Mandated that every consumer must be offered an IHD that provides immediate and direct information on their current and historical energy consumption upon installation of their smart meter;
-  Established Smart Energy GB to ensure consumers understood how to get their benefits.

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<sup>1</sup> <https://www.gov.uk/government/news/smart-meters-the-smart-choice>

## How effective have IHDs been in changing patterns of energy consumption?

IHDs underpin the majority of the benefits outlined in the Smart Metering Implementation Programme's impact assessment<sup>2</sup>. A number of studies have concluded that IHDs have made tangible and positive impacts to the ways in which people consume energy in their homes:

-  BEAMA's 2014 analysis of average results from IHD trials in Great Britain and Europe concluded that electricity savings equated to over 9% per year for at least three years, representing a typical saving of at least £147 to a UK household<sup>3</sup>
-  BEIS's 2018 analysis of the smart meter customer experience identified 47% of all follow-up survey respondents felt their smart meter had helped improve their understanding of their energy consumption
-  Pre-payment respondents were most likely to report their understanding to have 'improved a lot' (31% compared to 18% of credit respondents)<sup>4</sup>
-  Vaasa-ETT (2018) explored the impact that providing electricity and gas consumption feedback to households had in 154 feedback trials. The analysis found an average reduction of 5.4% in electricity and 3.9% in gas consumption<sup>5</sup>, though it should be noted that only six of these trials were based on the UK market. Conclusions from this analysis included:
  - Providing feedback via IHDs leads to the highest savings, attributable to their presence acting as a 'constant reminder' of energy consumption, and their ability to reach the 'entire family' (unlike bills, apps, etc.)
  - People are different and behaviour change is often triggered by different incentives and mechanisms, even for people living under the same roof
  - After a few months, the importance of segmentation and targeted messages become crucial: consumers need to feel that the information they are given is relevant and that the advice is useful.

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<sup>2</sup> <https://www.gov.uk/government/publications/smart-meter-roll-out-gb-cost-benefit-analysis>

<sup>3</sup> BEAMAs report (2014) "Assessing the Use and Value of Energy Monitors in GB". Available from <https://www.smart-energy.com/wp-content/uploads/2014/04/Assessing-the-use-and-value-of-energy-monitors-in-GB.pdf>

<sup>4</sup> Department for Business, Energy and Industrial Strategy (2018). SMART METER CUSTOMER EXPERIENCE STUDY. Available from [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/758010/ces-executive-summary.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/758010/ces-executive-summary.pdf)

<sup>5</sup> VAASA-ETT, The role of Data for Consumer Centric Energy Markets and Solutions

## How has the landscape changed since the smart meter roll-out began in 2012?

Since 2012, technology has rapidly advanced and customer expectations have continued to evolve as people have become increasingly familiar with the smart devices being connected in their homes. In 2018, 78% of adults in the UK used mobile phones or smartphones to access the internet<sup>6</sup>, and have come to expect real-time access to their data from a range of service providers ranging from online banking, to travel cards, to an online streaming service. At the same time, the decreasing costs of measuring and analysing ever larger amounts of data have made real-time data ubiquitous.

Partly in recognition of these changes, the UK Government announced a derogation process in 2016 in which the IHD mandate would be relaxed, and energy suppliers would be enabled to trial alternatives to IHDs.

One such alternative is the consumer access device (CAD). A CAD is a physical or logical device that acts as a gateway between the information from the smart meter and a range of other devices or platforms. When the CAD is paired with the closed smart metering system it becomes able to extract the near real-time energy data; the consumer can then see this data on an app, for example. The main differences between the consumer experience of a CAD and the experience of an IHD is that IHDs are typically accessible to everyone within the home on a constant basis, not just the bill payer, and the data can be seen at a glance without the consumer specifically needing to access and interrogate it to extract the information.

IHDs have been available for some time and have benefitted from many technological generations of refinement and revision, so new models of IHDs are cutting edge consumer engagement tools and very different from the more basic models that were being produced even a couple of years ago. A CAD can be a stand-alone piece of software, or is more often typically embedded in an IHD (or possibly another appliance). CADs are relatively new products and less well tested in the market

One reason for producing this research paper was to help Government and industry understand better how consumers engage with IHDs, and to apply that learning to further improvement of these products.

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<sup>6</sup> Office for National Statistics (2018). Internet access in Great Britain, including how many people have internet, how they access it and what they use it for. Available from <https://www.ons.gov.uk/peoplepopulationandcommunity/householdcharacteristics/homeinternetandsocialmediausage/bulletins/internetaccesshouseholdsandindividuals/2018>





## What are the areas where more insight is needed?

Although various research has been conducted to understand the impact that IHDs have on energy consumption, there are a number of key areas where further insight is required to better understand the barriers and enablers to long term energy behavioural change that different types of technology may offer. The purpose of this research was to explore how behaviours and habits and levels of customer understanding on energy efficiency can be impacted by IHDs and how the design and function of IHDs can help customers.

### *Behaviours and habits*

Energy use can vary by two or three times in homes that are identical and contain similar appliances and are occupied by people with similar demographics<sup>7</sup>. For example, families living in identically-designed homes use strikingly different amounts of energy. This suggests that it is the behaviour of occupants within the building that has the most significant impacts on overall energy use<sup>8</sup>. It is necessary to understand:



-  What are the in-home behaviours of different types of energy consumers, both in terms of their interactions with IHDs and in terms of their energy consumption?
-  To what extent are some more routine energy-consuming behaviours (such as thermostat settings or switching on lights) 'automatic processes' (i.e. more habitual and less conscious)? And are these habitual behaviours more difficult to change regardless of the specific feedback mechanism?

### *Design and function of IHDs*

-  To what extent does the design and function of different types of IHD facilitate behaviour change among domestic consumers?

### *Levels of customer understanding*

Numerous studies have led to the widely accepted conclusion that domestic energy consumers have limited knowledge about what energy efficiency entails, how much energy they consume or how much they pay for it. Within this context, questions include:

-  How do consumers use real-time feedback to learn about their energy consumption? To what extent does it raise awareness or change attitudes? And to what extent does this lead consumers to engage more critically with their habits and practices?
-  What sort of real-time feedback is most helpful for customers? How do people like to explore it, maintain interest in it, and learn in a way that suits them?

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<sup>7</sup>Morley, J. and Hazas, M. (2011) The significance of difference: Understanding variation in household energy consumption available from





[http://www.comp.lancs.ac.uk/~hazas/Morley11\\_SignificanceofDifference-ECEEE.pdf](http://www.comp.lancs.ac.uk/~hazas/Morley11_SignificanceofDifference-ECEEE.pdf)

<sup>8</sup> Although the behaviours of occupants are important, the type of insulation, heating system and energy efficiency of appliances will clearly make a difference too. Further research is required to understand this in more detail



## RESEARCH OBJECTIVES

The BEAMA Consumer Energy Display Industry Group (CEDIG) commissioned the independent market research agency Future Thinking to conduct research that would:

-  identify the key attitudes, experiences and in-home behaviours of a broad range of customers toward their IHD and energy consumption
-  assess the customer experience of using different types of IHDs
-  examine the extent to which IHDs have raised awareness about domestic energy consumption and/or have driven behavioural change
-  explore expectations and the potential for the future design and usage of IHDs

## METHODOLOGY AND APPROACH

*Rationale for approach:* We considered a qualitative approach to be the optimal research design to provide a rich, 'in-the-moment' understanding of the *actual* behaviour of different consumer types in their homes.

*Sampling:* We adopted a purposeful sampling approach, in so far as we recruited participants that would be illustrative of a range of different customer types. Participants were recruited into the study on the basis that they had an IHD installed and engaged with it 'at least occasionally'. We included 35 participants in our research, striking the balance between a diversity of respondents and a large enough sample to allow key themes to emerge.

*Fieldwork:* We utilised a two-phased approach to fieldwork:

- We recruited thirty participants to take part in a fully moderated online community covering a mix of demographics, life stages, ages, locations, engagement with IHDs and amount of time since installation
- We followed this up with five in-depth interviews around the country to build on findings from the community and include harder-to-reach audiences

*Analysis:* Our analysis explored differences between diverse types of customer (based on socio-demography, type of IHD and duration since installation).

To demonstrate the range of experiences and issues consumers have encountered, we present fifteen case studies that illustrate a range of different experiences then provide a summary of the key themes that arose during our fieldwork.

KEY THEMES





# KEY THEMES

The following section presents a short summary of the key themes that emerged during our research that were typical among our 35 participants.

## KEY MOTIVATIONS FOR INTERACTING WITH IHDS

The primary motivations people had for engaging with their IHD were to reduce costs or reduce wastage.

-  **Cost savers** tend to live in financially constrained environments, which may include lower incomes or rented accommodation. They closely monitor their finances and have a clear understanding of their energy outgoings. They rely on their IHDs to provide them with the necessary information to accurately monitor their gas/electricity costs and check their displays regularly to see how much money they have left in their budget. This group were the most likely to have talked to friends/family or used online tools to research ways to reduce energy costs. Being able to see that small changes are making a real difference brought this group 'peace of mind'.
-  **Waste savers** were those with stable (and often higher) incomes who tended to pay their energy bills through direct debit. The cost of their energy outgoings was not a prominent concern, however they were motivated by 'avoiding waste'. They tended to have larger houses and to have already made home improvements to increase energy efficiency. They often had a large number of electronic devices and were the most likely to be 'surprised' when their IHD told them what appliances contributed most to their energy bills.

## AWARENESS OF IHDS

Those who have recently had their IHD installed were more likely to have requested it than those who had their IHD installed more than two years ago. This suggests that awareness of the policy landscape, media coverage, technological capability and benefits of having an IHD have been increasing over time.

Pre-payment customers were the most likely customer group to have actively asked their supplier to install a smart meter/provide an IHD. Pre-payment customers were able to see the immediate benefit of being able to top up over a mobile phone app or to see exactly how much energy they have remaining, when previously their meter would have simply run out.

## INSTALLATION OF IHDS



Consumers generally follow the advice of their suppliers regarding the positioning and location of their IHDs. Usually located in rooms that are frequently occupied (e.g. the kitchen, living room), they act as a "constant physical presence" that keeps energy consumption and expenditure in the forefront of people's minds. Once installed, few reported moving it or changing the positioning. Installing in the kitchen gives the added benefits of consumers being able to monitor devices that use the most energy as they are being used (which tend to be in the kitchen).

The support offered by energy suppliers during installation could be improved. Some participants expressed a desire for more in-depth knowledge about the specific functionality of their IHD and/or more support to understand how the information provided by their IHD could be used to help them decrease energy consumption or expenditure.

## USE OF IHDS

Although participants generally reported keeping a close eye on their IHDs, individual household dynamics tended to have an impact on how much and how often people checked their feedback devices, who in the household paid attention to it, and the overall impact on their energy consumption.

We found that IHDs were most commonly monitored during times of peak energy consumption – although whether this was in the morning, evening or on weekends depended largely on the behaviours of individual participants. For example:




-  even though shift workers and those with young families tended to be more governed by routine, they felt they had little control over their energy usage and few available options to meaningfully reduce expenditure because they had other competing priorities and less time or resources to devote to reducing their energy use
-  on the other hand, empty nesters and others living alone tended to be more engaged with monitoring their energy usage as they felt they had greater control over how much energy they would actually use.

Participants reported checking their display more often during colder months, suggesting that consideration of energy consumption is subject to seasonal fluctuations.

Similarly, the extent to which people engaged with their IHD appears to be largely driven by individual circumstances. Some participants were very active with tracking how much electricity and gas was being consumed, and used this information to understand which devices cost the most to operate. Those who checked their display more infrequently could only see a general picture of their energy consumption and so found it harder to make correlations between expenditure and consumption. This is particularly interesting given that participants who were primarily motivated by saving cost tended to check more often but in less depth (i.e. glancing at the day's spend) in order to monitor how much credit is left.

## CUSTOMER EXPERIENCE




Overall, being provided with an IHD was welcomed by all of our participants and was felt to “make life easier”. The key benefits cited by our participants included:

-  **Functionality:** IHDs were easy to use with simple and graphical relevant information (such as traffic lighting to identify spikes in consumption or bar charts to monitor trends)
-  **Convenience:** Including no longer having to rely on suppliers to get costs/predictions correct, not having the inconvenience of having to be home for meter readings and the ability to top up gas/electricity credit remotely
-  **Budgeting:** Greater control over energy consumption and expenditure, easier budgeting with fewer unexpected bills or ‘nasty surprises’ at the end of the month, and higher awareness of credit or expenditure, particularly among those who utilise apps to top up remotely or manage their credit

Ultimately, our participants felt more conscious and aware of the amount of energy they use as a result of their IHD and tended to be satisfied with the IHD as a means for obtaining top-level information.

The majority of participants reported keeping a regular eye on their IHDs to analyse spikes and drops at peak times or when using specific devices.

When asked to consider potential improvements to increase the effectiveness and engagement of their displays, suggestions included:

-  **Technological advancements:** as other technology around them continues to evolve at pace, the displays people were provided with during installation (particularly older displays) had begun to feel dated and lacked the wider integration with smart devices that some were coming to expect
-  **More tailored provision of information:** among some of our participants (particularly those who had quite a sophisticated understanding of technology), information was felt to be a little too basic and didn’t provide sufficient depth to understand how specific savings could be made
-  **More support in understanding energy use:** Bills and payment of energy are confusing territory that consumers don’t currently understand, and our participants felt energy suppliers could be doing more to help reduce costs, or at least make it easier to choose the most relevant tariffs for their needs. It was apparent that many didn’t have a full understanding of the information they could gain from their displays, nor did they understand energy terms or information provided in kWh.

## BEHAVIOURAL CHANGE

**Among our participants, most started to make changes to their energy consumption following their IHD install.** This included more regularly turning lights or plug sockets off, turning devices off that were previously left on standby, reducing the amount of time spent in the shower or their use of tumble dryers, etc. Some had also made larger scale changes to the overall efficiency of their homes.

**Energy consumption is a difficult concept for participants to understand.** Nearly all our participants had become more aware of their energy usage and felt more in control of their energy use after their smart meter/IHD was installed.

**A key enabler of behavioural change is the ability to break down and monitor energy usage by specific time periods.** This was particularly apparent among those who were able to use their IHD to understand their 'peak consumption hours' where the majority of their energy was used, which in turn drew particular attention to their usage of electric showers, ovens, tumble driers and kettles, etc.

**IHDs have whet people's appetite for energy consumption data and many would like more specific, tailored information to support them in making further behavioural changes.** In particular, tailored advice on how to make specific changes based on their usage data would be welcomed.

**Large-scale behavioural change is difficult to bring about where there are complex household dynamics or financial constraints**

- Where only one person in the household pays attention to the IHD and makes efforts to reduce consumption, this is felt to be a losing battle when other members of the household don't change
- When landlords with live-in tenants charge their lodgers a set amount per month for energy bills, their tenant's incentive to reduce spend or consumption is lower
- Some people have the financial capital and ability to increase the energy efficiency of their homes; however doing so is more challenging for people in more financially constrained environments. Even though this latter group have become more aware of their energy usage and expenditure as a result of their IHD and have often made changes to their behaviour, they are the least likely to be able to replace expensive appliances and are more likely to rent and therefore be unable to make changes to their homes
- Those with a pre-existing, advanced understanding of technology tended to feel they already had a good grasp of how they used energy and which devices were driving their expenditure. Among our participants, people with a very sophisticated understanding of technology had often already made their houses energy efficient (double glazing, insulation, LED lightbulbs, etc.). Even though they were the least likely to have made specific changes as a result of their IHD, and reported finding little 'new' information, they were keen to learn more and build on their knowledge.










## WHAT DOES THE FUTURE LOOK LIKE?







Although our participants were positive in their perceptions of their IHD, we asked them to consider the types of design and functionality changes they feel would drive more behavioural change.

Our participants recognised that the digital world continues to develop at pace, and they appreciated that as households become increasingly integrated and connected, greater and 'smarter' provision of real-time data could make it easier for them to take specific actions.

The concept of "energy waste" can be difficult for consumers to get to grips with, especially when it isn't translated into a specific cost. As such, a key preference among our participants was for the IHD to remain providing fairly simple in the information provided, but have access to additional functionality that would provide personalised advice that might include:

-  More detailed information to help track and compare energy usage
-  Information collated in such a way that they have come to expect from other devices and apps they use, such as consumers being empowered to pick and choose features
-  Advice on how to make their homes more energy efficient and/or reduce costs
-  Automatic identification of appliances that cost the most and provide alternative suggestions
-  Personalised tips and advice based on the amount being spent
-  An ability to change notifications between energy or monetary cost
-  Greater integration between displays with other appliances and devices (particularly when thinking about the future 'connected home').

These findings are well aligned with the broader social and technological changes that may be enabled through smarter homes, including:

-  Consumers having more opportunities to see their energy use in near real time
-  The presentation of near real-time energy data may be increasingly tailored to the household, leading to greater impact and further benefits
-  Consumers will be empowered to use their energy data in new ways, which may lead to profound changes to the way they use energy
-  Homes and other buildings will become more efficient, and energy will be used more effectively with less waste
-  Some consumers will be able to choose to share their data with trusted service providers or third parties, which may provide additional benefits
-  Some consumers may be able to use the insights they get from their IHD to change the way they purchase energy, including taking advantage of new offerings such as "energy as a service"



CASE STUDIES



## CASE STUDIES

The following section presents fifteen studies which illustrate the experiences of a broad range of IHD users.

Our case study approach enables an in-depth exploration of household behaviour in its natural real-life context. This is important because energy consumption and feedback is a complex and multi-faceted issue. Our 'naturalistic' design (an online community followed by in-home interviews) allowed us to explore how people's interactions with IHDs and actual energy behaviours related to their household dynamics and other contextual factors (such as type of tenure and their financial situation).

All names have been changed and identifiable information removed.

# Harry

Works as a manager in a human resources company living in London with his wife and two children



## LOCATION

London



## HOUSEHOLD TYPE

Older Family



## DURATION OF OWNING SMART METER

+ 2 years



## SIZE OF HOUSE

3 bedroom apartment

*I live in London with my wife and two children in a very comfortable apartment. I work in human resources for a construction company so am almost never at home during the weekdays as I work long hours. The weekends are devoted to my family and I now pay a lot of attention to my energy consumption. Before it was a total disaster and it was a hard job to keep on top of everything. The smart meter has helped us solve these problems, from making a cup of tea to controlling the energy levels of my home. Our consumption is now a lot better - we have saved not only on electricity but also on gas. It has been fascinating to see for example that you are spending 94p an hour! It is a very effective way of saving that makes you feel like you have control*

## INSTALLATION INFORMATION

Harry had his smart meter installed two years ago. It's mostly kept in the kitchen, but every now and again it is moved to the living room to help educate their children on the benefits of reducing energy consumption.

## AWARENESS AND USAGE OF IHD

Harry looks at his display four to five times a day during the week, finding it particularly beneficial in the winter months. In order to regulate his consumption and save more energy, Harry uses his IHD to monitor how much money he has spent that day, and to compare that one a day-to-day basis to achieve better performance. He says that being able to see exactly how much is spent by putting the kettle on or having a shower helps to keep costs to a minimum.

*I look at the display all the time, when I am preparing tea or coffee, after a shower, when using the kettle or putting the heating on. It makes it possible for me to make cost savings and is a great benefit because it works in real-time.*

## EXPERIENCE OF USING IHDs

Positively, the IHD helps Harry save money, obtain control and learn more about the amount of energy being used, and how he can consume, waste and spend less. It has made him more aware of behaviours that were previously unnoticed, enabling him to save money.

## HOW HAS IT AFFECTED THEIR ENERGY BEHAVIOUR?

He has reduced the amount of times that he boils the kettle to make tea and coffee as well as how frequently he uses the washing machine and dryer.

*I think it is excellent, every day I am learning something new about my consumption and think everyone should be made aware of this to improve and live in a better world. I am very happy with the results I have achieved.*

# Peter

Lives with his young son and lodger. He recently switched from pre-payment to credit



LOCATION

London



HOUSEHOLD TYPE

Younger Family



DURATION OF OWNING SMART METER

8 months



SIZE OF HOUSE

3 bedroom house

*I am a personal trainer working full time, as is my lodger, so we don't really spend that much time in the house even on weekends. My son also lives here, he is eight years old and although I try and teach him about saving energy I don't want him to worry too much about money so I don't push it too much. I got the IHD because my supplier suggested it as a way of helping me to top up easily and monitor when I was running low so the lights didn't suddenly go out. Since I have a more stable job I now pay monthly and am quite happy with the amount so it's now just more about not wasting energy unnecessarily.*

## INSTALLATION INFORMATION

Peter's IHD was installed eight months ago, when he was a pre-payment customer. He had limited awareness of his remaining credit and was frustrated by having to leave home to top up, so his energy supplier recommended an IHD. Peter has since recommended IHDs to a number of family members and friends and was surprised that there is such low awareness of them considering how helpful they have proven to be for him.

## AWARENESS AND USAGE OF IHD

Peter checks his IHD in the mornings when everyone is getting ready, and in the evenings when the household is watching TV or charging multiple devices. Initially he only used an app to check his credit and top up, but since acquiring a more stable job, he has switched to Direct Debit and now primarily uses the physical display to prevent energy waste.

*I show my son the impact of him leaving gadgets on, but I don't want him to worry about money at his age so I don't push it. My lodger pays a monthly fee to me for bills, I don't think he ever checks it.*

## EXPERIENCE OF USING IHDs

The IHD has helped Peter understand more about how energy is consumed and where his money is going. Previously it felt like an incredibly confusing territory in which his energy supplier had 'ultimate power'. Since installation, Peter feels he has been able to save more by seeing the times of day he uses energy and which devices cost the most.

## HOW HAS IT AFFECTED THEIR ENERGY BEHAVIOUR?

Peter has changed the way he views energy. He feels more relaxed, but has also made behavioural changes: he takes fewer showers, no longer leaves things on standby, encourages his son to turn his TV off at night, and asks his lodger and son to turn off lights.

*I have had a really positive experience with the IHD, people should definitely be made more aware of these. I don't leave things on standby anymore, even if it's only saving you pennies that does build up eventually - but more than that it just shows you that you are literally wasting energy for no reason. If the IHD could help you by breaking tariffs down that would be even more helpful, like with car insurance you can go online and just type in all your requirements and it filters down the deal that is best for you. That would be really helpful.*

# Billy

Family of four focused on becoming more environmentally friendly by reducing energy waste



LOCATION

Birmingham



HOUSEHOLD TYPE

Younger Family



DURATION OF OWNING SMART METER

4 months



SIZE OF HOUSE

4 bedroom semi-detached house

*We have the luxury of not really having to worry that much about money but I really hate wasting things and I am really happy that the IHD helps me to see where that is happening. My family spends a lot of time in the house, I have two young children, and one is only a few months old so my wife is here a lot as well. It has made me realise how much energy is wasted generally in the world, I never thought we used that much but since having the IHD it is obvious how many unnecessary things we were doing without realising. Things we thought were small like boiling the kettle several times before remembering to actually pour tea!*

## INSTALLATION INFORMATION

Billy had his IHD installed four months ago. He had little previous awareness of smart meters but has since become highly engaged. Billy originally kept his IHD in the living room but moved it to the hallway, which the family preferred as they found themselves worrying about energy in a place meant for relaxation.

## AWARENESS AND USAGE OF IHD

Billy is very interested by the information his IHD provides him, often setting himself challenges in the mornings to see if the family can reach targets later in the day. Money is not a barrier for Billy's family but they are environmentally conscious and dislike unnecessary waste (both energy and cost related).

*I look at it mostly in the mornings when everyone is getting ready, it has been interesting to realise that this time of the day is ultimately where most of our cost goes. I also check it when I come in from work just to see how much we have spent in a day. I get happy now when I leave the house and we have spent less than the previous day!*

## EXPERIENCE OF USING IHDs

Billy likes that the information on the screens is compact and easy to understand. He suggests that as well as seeing costs increasing, there could be an infographic of energy seeping out as it is being used to make more of an impact.

## HOW HAS IT AFFECTED THEIR ENERGY BEHAVIOUR?

Billy's attitude towards energy use has shifted but he struggles to change broader behaviours as his family are not currently engaged. With a very young child and little incentive to save more money Billy doesn't want to 'stress' his family out. They have however stopped leaving devices on standby, turn all lights off when walking around the house, and try and use the kettle less unnecessarily.

# Susan

Unemployed and living alone.  
Pre-payment customer where  
budgeting is a key consideration  
in daily life



LOCATION

Birmingham



HOUSEHOLD TYPE

Empty Nester



DURATION OF OWNING SMART METER

9 months



SIZE OF HOUSE

1 bedroom flat

*I am currently unemployed, trying to find a job. I do spend quite a lot of time in the house at the moment but my flat is really small and so I don't really spend that much on energy. I have saved though since getting my smart meter. I spend more when my children come and stay with me, I can't believe how much they use and now I actually have proof! I have always had to be really careful with money so have tried to be as good as I can with the things I do.*

## INSTALLATION INFORMATION

Susan requested installation as she realised an IHD could help her manage her costs. She keeps the IHD in her kitchen and has not moved it since installation, although she prefers to use an app on her smartphone instead of the physical display.

*I always found it really annoying when my TV and lights suddenly went out late at night and I had to drag myself down to the shop. I was at my friends one day and she just topped up from her sofa on her phone! I thought it was amazing!*

## AWARENESS AND USAGE OF IHD

Susan checks her consumption regularly through her app. It started as a basic requirement to simply see how much money she had left and topping up when necessary but she has since found it interesting to see how much energy is used by things in her house, particularly her electric shower. Susan has managed to reduce her spend from £15 to £10 each fortnight as a result of having an IHD.

## EXPERIENCE OF USING IHDs

Susan feels that the IHD has had a positive impact on her life. It has helped her to understand where her money is going, especially larger appliances and devices such as the washing machine and electric shower. It has also shown her that things she was doing previously such as turning off switches and lights do actually have an impact.

## HOW HAS IT AFFECTED THEIR ENERGY BEHAVIOUR?

Due to monetary concerns Susan has always been very careful with not leaving lights on or devices on standby. However, she was surprised to see how much money her shower was costing her. As such, she has cut down how many showers she has in a day now seeing her previous behaviours as unnecessarily frivolous.

*The biggest thing I have done is stopped having as many showers, I used to have several a day! Seeing how much that cost was a real eye opener so I only shower now when I need to.*



# Kate

Couple on m/paternity leave in a new house means saving is important but not always an immediate priority



## LOCATION

South East England



## HOUSEHOLD TYPE

Younger Family



## DURATION OF OWNING SMART METER

5 months



## SIZE OF HOUSE

2 bedroom house

*I am living with my four month old daughter and my husband here, we moved in about a year ago and as you can see its pretty small we have to keep our fridge in the living room! I am on maternity leave at the moment and my husband will take over in a few months so we are spending more time in the house than usual and have noticed that in our bills. Our daughter is young though so spending quite a bit is unavoidable.*

## INSTALLATION INFORMATION

Kate and her husband had their smart meter installed five months ago. Their new supplier had suggested it would give them an accurate picture of how they spent money and help to reduce cost. The IHD was moved to the living room from the hallway as this is where they spend the most time and as such engage with it more frequently.

*Our energy bills have increased a lot recently because of our younger daughter joining the family so we thought it would be useful to understand where we could be saving a bit more.*

## AWARENESS AND USAGE OF IHD

Both Kate and her husband look at the IHD as regularly as they can. As much as they want to save money and energy, a new baby has made their lives busier and more stressful and so energy usage is not always the top priority. The IHD helps them to accurately forecast how much they will spend on energy, so it is helping them to budget for the month more effectively.

## EXPERIENCE OF USING IHDs

With little capital saved and a new child, they do not see themselves making their household drastically more energy efficient in the near future. However, the IHD has enabled them to see in real-time the cost of their devices leading to small changes and an impact on certain behaviours

## HOW HAS IT AFFECTED THEIR ENERGY BEHAVIOUR?

Behaviour changes include turning lights/devices/appliances off more frequently than before and being more clever with their heating usage (i.e. turning it on for longer periods of time to heat the house properly). They have also started to use the tumble drier/washing machine and dishwasher only when necessary and full.

*It has made me feel a lot more at ease about my energy costs because I know exactly what I am spending which makes it easier to budget for other things. We are so busy at the moment and constantly tired so we have changed small things but sometimes we do just cheat a bit*



# Lauren

Unemployed and in remission from cancer, Lauren is focused on cutting costs and changing her attitude to energy usage



LOCATION

Bristol



HOUSEHOLD TYPE

Older Family



DURATION OF OWNING SMART METER

>6 months



SIZE OF HOUSE

2 bedroom flat

I live in Bristol, mostly alone at the moment because my son is at football academy a lot. I am currently recovering from breast cancer treatment so I am at home most of the time. I need to be careful with money more than ever as I am on benefits at the moment. I wanted to see if I could spend under a pound a day, which is my target, and now I don't have to go to the shops or check my meter constantly.

## INSTALLATION INFORMATION

Lauren had a smart meter installed after positive feedback from friends convinced her it would help to reduce costs.

## AWARENESS AND USAGE OF IHD

Lauren checks her IHD throughout the day to ensure she is achieving her target of £1 spend per day. The display helps her to understand how much devices are costing her and she finds the graphs enable her to compare between day, month and season. Checking becomes more frequent at peak usage times of the year such as Easter and Christmas.

*I save money now and feel more in control of what I do. I can schedule better, make plans more easily and not have to worry about my electricity.*

## EXPERIENCE OF USING IHDs

The IHD has handed control to Lauren. She no longer has to top up at the shops and no longer eats into her emergency money. She feels less constrained by budget now that she can accurately predict her spend. She would like to see some of the icons on her IHD become slightly larger, and to be given more education about how to use the graphs to cut costs.

## HOW HAS IT AFFECTED THEIR ENERGY BEHAVIOUR?

Lauren now dries her clothes outside rather than using the dryer, as well as being more efficient with larger devices. For example, she now cooks her entire meal using either the hob or the oven (rather than both), washes her clothes only when the laundry basket is full, and dries her clothes outside.

*I wash my clothes only when the laundry basket is full rather than just for a quick wash, before I was not paying attention to this at all. I try and use the tumble dryer less regularly, I will dry my clothes outside if the weather is nice and so try to do my washing only when there is no rain.*

# Jack

Full time workers and first time house owners, keen to be cost and energy efficient



LOCATION

West Midlands



HOUSEHOLD TYPE

Pre Family



DURATION OF OWNING SMART METER

1 year



SIZE OF HOUSE

2 bedroom terrace house

*I am a full time working professional living with my partner who works part time. We live in a small mid terrace house, I work nine hours a day and my partner does three to four shifts a week. We spend most evenings at home together as well as weekends. I try to pay attention to my energy consumption as we are still finding the most cost effective way to live in our first home.*

## INSTALLATION INFORMATION

The IHD had already been installed when Jack and his partner moved into their new home. They are keen to be cost effective in their first home and have found that having extra information on their consumption has only been beneficial. The IHD is kept in the kitchen, but Jack also regularly utilises the app to monitor energy usage.

## AWARENESS AND USAGE OF IHD

Since exploring the display and app, Jack has found it easy to find information and reduce spend by turning things off. Jack pays more attention to the IHD than he expected to and has seen a considerable change in his bills. The extent to which he checks the display fluctuates depending on the season and time spent in the house.

*It is cold in the house at the moment and I predict that in the upcoming months I will be setting up a daily cycle of heating and spending more. Some days we don't look at it all because neither of us have really been in the house. Other times I will check in the morning or in the evening when I get home if my partner has been at home all day. It is interesting to see the differences day to day. I check when I am using something new or with high energy to see the usage impact.*

## EXPERIENCE OF USING IHDs

The most useful part of the IHD is to see what they are spending in the moment and then turn things off or down if the consumption seems high or suddenly soars. That is where Jack feels he is making the largest cost savings.

## HOW HAS IT AFFECTED THEIR ENERGY BEHAVIOUR?

Jack is more proactive with turning of lights and switches after seeing the impact that has on cost.

*I feel a lot more in control of my energy, I use it less to track cost and more to track what things are consuming the most amount of energy. I can then turn things off or think about using them less in future. There are things that I won't change (such as turning the heating off) but other things like using the washing machine less or making sure I keep turning things off are definitely beneficial. I pay more attention to my consumption than I expected because of seeing how considerable the change can be to my bill when I actively try to reduce it.*

# Natalie

Unemployed and spending a lot of time at home, Natalie has a targeted daily spend



LOCATION

Scotland



HOUSEHOLD TYPE

Pre Family



DURATION OF OWNING SMART METER

1 year



SIZE OF HOUSE

4 bedroom detached house

*I live in a four bed detached house and my boyfriend often stays with me. I spend over ninety hours at home per week during the week and have a limited income, so it's really important for me to monitor how much energy I am using and how much I am spending.*

## INSTALLATION INFORMATION

Natalie had heard about the IHD from family members as well as friends and wanted to get one installed so that she could save some money. The IHD is currently kept in the garage as this is the only place that it seems to get signal to function properly.

*The installation process was easy but we have had difficulties because our device is not very responsive. We have to keep it in the garage because that is where the signal works best but we would preferably move it indoors as currently I only really remember to go and check it once a day.*

## AWARENESS AND USAGE OF IHD

Natalie checks her IHD every day to see how much she has spent and has noticed a decrease in spend since installation. She isn't aware of how to compare day-to-day or how to use the graphs which can lead to confusion, but is currently happy to simply monitor daily spend.

*I check the display once a day to see how much I have spent that day. Today my boyfriend was in all day and we spent 99p which I was happy with. I don't understand everything about the smart meter, I know you can use it to see how much energy you have used day to day but it's not obvious how to do this.*

## EXPERIENCE OF USING IHDs

Natalie can see exactly how much she is spending on energy each day, a change from previously where she simply had to guess in order to cut costs. It helps her feel more in control of how much energy she consumes. Natalie would like to see more graphs and charts, to flag up when she has reached a certain spend throughout the day and to make it more obvious what her spend between gas and electricity is.

## HOW HAS IT AFFECTED THEIR ENERGY BEHAVIOUR?

Natalie now pays more attention to the small things such as turning off lights and switches that cause unnecessary energy loss, as well as changing bigger things such as not turning the heating on as frequently, and preparing meals that take less time to cook.

*I definitely think I have changed attitudes since having the meter installed because I can actually see what I have spent each day. On the days I have spent more I can think about what I have done on those days and change it.*

# Frank

Living with his wife and three children Frank is focused on being totally in control of his energy spend and reducing the cost of running the house



LOCATION

Peak District



HOUSEHOLD TYPE

Older Family



DURATION OF OWNING SMART METER

6 months



SIZE OF HOUSE

3 bedroom house

*I live in a small village in the Peak District in a detached house with my wife and two teenagers who have just left for university. Sometimes I spend much of the time in the house, and sometimes very little. I have 4kw of solar panels, facing SE, and since earlier this year a smart meter. I am very interested in conserving energy to help our planet and reduce pollution, and saving energy costs. I monitor my solar gain and energy use every day I'm around, sometimes multiple times. This is so I can understand energy use.*

## INSTALLATION INFORMATION

Frank had his smart meter installed six months ago. He keeps his IHD in the kitchen near the family's solar display panel to help build a comparative understanding of his energy use.

## AWARENESS AND USAGE OF IHD

Frank checks his IHD at the end of each day and records all the data from it, comparing against previous weeks and months. Consumption in Frank's home goes up at weekends and when he is out of the house because the rest of the family is less conscious of energy saving, so when he comes home he will check it for longer.

*I use it to track both my gas and electricity spend and consumption. I keep a record of everything I have used that day at 6pm each evenings. At the same time I record my solar input from my 4KW system. I have only had the smart meter since March so I haven't been comparing usage too much but I expect this to increase significantly from now on. I anticipate making comparisons to save money by cutting back on consumption. I didn't look at it for as long today because we haven't used the washing machine or electric fire.*

## EXPERIENCE OF USING IHDs

Frank's IHD gives him useful information that makes it easy for him to track and monitor exactly how much energy he uses every day in an effort to reduce the cost of running the house.

## HOW HAS IT AFFECTED THEIR ENERGY BEHAVIOUR?

Since installation Frank has become a lot more aware of how much energy he consumes on a daily basis which has made him pay more attention to what he does around the house. Behaviour changes include waiting for a sunny day to wash clothes and drying them outside as well as turning to his solar energy panels more frequently. His IHD has helped him save money and he envisions it saving him more the longer he uses it for.

# Andy

Retired and focused on keeping in control of all spending



LOCATION

Leicester



HOUSEHOLD TYPE

Older Family



DURATION OF OWNING SMART METER

6 months



SIZE OF HOUSE

3 bedroom house

I live in Leicester near the M1 in a three bedroom detached house. A typical day includes quite a lot of time at home because I am retired but I do visit the gym almost daily. I began monitoring my energy use closely when I retired and started an Excel spreadsheet to keep up to date. It is very important for me to keep tabs on this because my income in retirement is much lower than when I was working, and unlike council tax for example it is a bill you can control to some extent.

## INSTALLATION INFORMATION

Andy had his IHD installed four months ago as a way to help him become more energy efficient and help to track everything that he spends more accurately. Although he had heard little about them previous to installation he has since seen TV adverts and read articles online about their effectiveness. Andy's IHD is kept on the coffee table in his lounge.

## AWARENESS AND USAGE OF IHD

Andy uses his IHD for both gas and electricity, looking at it at least once a day. This has reduced over time as he feels more confident in reducing bills. It is particularly useful in catching his attention when consumption spikes. Andy monitors his IHD similar amounts during weekdays and weekends (due to retirement) but expects to use it more frequently in the winter months.

*The best thing I like about it is that it catches your eye when your consumption suddenly spikes. My main use of the IHD is to be aware of alarming increases in my consumption. One specific thing I realised was that when I replaced my LCD TV with an LED alternative my energy went down considerably.*

## EXPERIENCE OF USING IHDs

Andy finds his IHD convenient (no longer having to take meter readings to understand consumption) and easy to navigate, if slightly less advanced technologically than he assumed it would be pre installation. Bills have become more accurate and the IHD gives reassurance that he is being charged the correct amount.

## HOW HAS IT AFFECTED THEIR ENERGY BEHAVIOUR?

Andy pays a lot more attention to his consumption since getting his IHD, simply down to the fact that it is now easier to monitor daily spend with some understanding of where the money is going. He has stopped using his gas oven as frequently and has refrained from turning his heating on until it is really needed.

*Because consumption goes up right under my nose I have put off turning the heating on until I really need it.*

# Oliver

A full time worker who needs accurate cost estimates in order to budget month to month



LOCATION

Northern England



HOUSEHOLD TYPE

Older Family



DURATION OF OWNING SMART METER

9 months



SIZE OF HOUSE

3 bedroom house

I live with my wife and daughter and currently work as an asset surveyor after retiring from the Emergency Services after thirty years' service. We live in a semi-detached extended house and try to keep it updated. We have had the walls insulated as well as putting in extra loft insulation. It helps keep costs down and we have recently bought a new boiler and double glazing for the windows. I feel that despite our best efforts we are still seeing very little in the way of savings on gas and electricity.

## INSTALLATION INFORMATION

Oliver had his IHD installed in January 2018 as part of the deal when he switched suppliers. He had previously been active in searching for information online about how to save money when it came to gas and electricity and was keen for more ways to better understand how to cut his energy consumption. Usually Oliver keeps his IHD in the kitchen on the counter however they are having work done to the house and as such is currently in the living room.

## AWARENESS AND USAGE OF IHD

Oliver uses his IHD to compare his weekly spending, estimate his bills and then ensure they are accurate. It is used more frequently in colder months as well as when he knows he has had a high energy day.

*I look at the weekly spending features more than daily usage to compare week on week what I have been spending. I like to know that by having a smart meter in the house I will have accurate bills rather than estimated ones meaning I don't get any nasty surprises at the end of the month. I checked it more regularly when I first got it because it was colder and expect to do so again when it gets cold again this year. I am trying to be extra careful at the moment so I can buffer for extra money that we will spend in the winter.*

## EXPERIENCE OF USING IHDs

The home screen on the display is easy to read and has an indicator on the left which shows Oliver when he is using lots of energy. He uses the pound sign feature more than the kWh icon. Oliver would hope that in the future his IHD would give him tips to make even more savings and become more technologically integrated with other devices in his house.

## HOW HAS IT AFFECTED THEIR ENERGY BEHAVIOUR?

Oliver has started having fewer showers and not putting heating on until it is necessary.

# Luke

Young couple on a strict monthly budget focused on being more in control of their energy expenditure



LOCATION

Stockport



HOUSEHOLD TYPE

Pre Family



DURATION OF OWNING SMART METER

10 months



SIZE OF HOUSE

2 bedroom house

*I currently live near Stockport with my girlfriend in a terraced house. I usually leave for work at 7am and get home at 5.30pm. I look at the smart meter at the end of the day before I go to bed just to check what my daily usage is, I know that my monthly bill is around £60 so my daily target is £2 and I don't want to go over that.*

## INSTALLATION INFORMATION

Luke had his IHD installed after seeing adverts regarding free installations. He realised it would help him stick to his daily budget for energy consumption as well as not having to give meter readings. Luke keeps his IHD in the living room.

## AWARENESS AND USAGE OF IHD

Luke checks his IHD every day before he goes to bed to check his daily energy consumption and overall daily cost. He has not recently checked week-to-week as the months are warmer; he is not using as much energy and is simply checking to make sure he is on target for that day. In the winter months he expects to look at the IHD more often.

*I check my smart meter once a day just before going to bed. I normally have a quick glimpse of the combined reading for gas and electricity so I have an idea of the overall daily cost.*

## EXPERIENCE OF USING IHDs

Luke believes the best reason for owning his IHD is so that he doesn't have to take monthly meter readings, which saves time and energy (by not having to log on to his computer to pay the bill). Luke has come to understand the seasonal differences in energy consumption, which has enabled him to spend more in the winter and less in the summer more easily than before. It has also been interesting for him to understand the actual cost of having his electric fire on for a prolonged period of time.

## HOW HAS IT AFFECTED THEIR ENERGY BEHAVIOUR?

Luke now makes a concerted effort to cut down more in the summer months so that he can spend more in winter and not go over his target spend, he has also stopped using his fire for such long periods of time when not necessary.

*The best reason to get a smart meter is that you never have to provide meter readings. It saves you time organising a meter reader to come to the house and take the numbers required or having to enter them online. I have learnt the difference between the seasons for my energy consumption.*



# Tony

## Couple focused on reducing cost and energy waste in retirement



LOCATION

Nottingham



HOUSEHOLD TYPE

Empty Nester



DURATION OF OWNING SMART METER

>6 months



SIZE OF HOUSE

4 bed detached

*I live in Nottingham with my wife in a four bed house that we purchased from new about fifteen years ago. My wife still works but I was lucky enough to take early retirement. I'm out for at least a few hours most days but I do spend quite a bit of time at home. I have to admit that we use quite a lot of energy. We have an outdoor hot tub, which is a real luxury but absolutely eats electricity!! Fortunately we are in a position where we don't have to worry too much about bills but I am conscious about wastage and I do keep an eye on our usage display - just to make sure that I understand what's running when it shows high usage.*

### INSTALLATION INFORMATION

Tony got his IHD installed around seven months ago by his energy supplier and found the idea appealing as he has a large house and appliances that consume a lot of energy. Tony and his wife wanted to know where he was spending the most in order to work out if there was any way of saving costs in certain areas. Tony keeps his IHD in the kitchen.

*We have always been super cheap gas users but our electricity consumption lets us down so we thought it would be useful to monitor more effectively.*

### AWARENESS AND USAGE OF IHD

Tony finds the red/amber and green status light the most useful feature of the display which gives him a real-time summation of his energy usage that day. He will glance at it every time he walks past and likes the fact that he can give his supplier extremely accurate readings. He uses the graphs to work out his energy consumption that day compared to previous weeks and days so he can work out what he is consuming and how this affects things.

### EXPERIENCE OF USING IHDs

Although Tony considers himself to be energy savvy, he does also feel the IHD has helped him understand more regarding which of his individual appliances cost the most. Having an IHD has made him feel more in control of his energy consumption.

### HOW HAS IT AFFECTED THEIR ENERGY BEHAVIOUR?

Tony feels his IHD has helped him change his behaviour around the house as well as showing him that the decisions he has made to buy more energy efficient appliances/devices such as LED bulbs has been worth it and has saved him money.

*In my view, having information is never a bad thing. That's what the IHD gives me: information - information about my usage that I can investigate and, if possible, choose to do something about, or not. I consider myself to be quite 'energy savvy' already so the IHD acts as a constant reminder and, if I do see the amber or red lights, I can stop and think: what's running?*

*My IHD has clearly shown me that the decisions I made to perhaps spend a little more to buy energy efficient items, for example our dishwasher and boiler, have visibly improved our efficiency – of course I would see this also in our bills!.*

# Celine

Lives with her partner and son, and is focused on accurate bill estimations and cost reduction



## LOCATION

Glasgow



## HOUSEHOLD TYPE

Older Family



## DURATION OF OWNING SMART METER

1 year



## SIZE OF HOUSE

2 bedroom house

*I live in Glasgow with my partner and nineteen year old son. I live in a two bedroom house and am usually at home in the evenings and at weekends and work during the day. When I am at home the TV will be on in the living room and in my son's room with my son also playing his computer. I do a washing every day and boil my kettle multiple times a day and use my shower daily not to mention phones being charged and also laptops so all that power certainly adds up. I always pay attention to how much power I use it is important for me to do my best to keep on top of it as much as I can.*

## INSTALLATION INFORMATION

Celine requested installation from her supplier after seeing adverts and reading up online. Celine keeps her IHD in the kitchen and it has not moved from this area.

## AWARENESS AND USAGE OF IHD

Celine mainly uses her IHD for electricity rather than gas which she feels she uses less of (other than in the winter when she monitors both equally). She tries to check her IHD daily, but sometimes when she is really busy with her son or at work she forgets. Celine mainly checks her display to look at cost and then think about what she has used that day that could have gotten it to this price. Previously Celine had to check her supplier website all the time just to check her costs and now it can be done with a glance when walking through the kitchen.

## EXPERIENCE OF USING IHDs

Celine believes the best feature of the IHD is the ability to check her balance, keep up to date with her spend and energy consumption and, therefore, the help it gives her in setting a monthly budget that is more accurate than providing an estimate. Celine feels she no longer wastes as much energy as she did previously and is happy that her IHD has helped to teach her how to become more energy conscious.

## HOW HAS IT AFFECTED THEIR ENERGY BEHAVIOUR?

Celine now pays a lot more attention to the energy that she is using, reminding herself to switch off devices and lights when not in use and paying special attention to the amber/green/red lights turning off appliances or using them less frequently if they use a lot of energy.

*I have found it very useful since having it installed as it has made me more energy conscious and I don't burn as much power as I used to. It made me realise how much a household actually uses with all the technology we have nowadays but I have saved money as my bills are not as bad as they used to be. I definitely feel more in control of my energy and glad I had it installed as it has helped me a lot and also saved me quite a bit of money.*

# Paul

Young couple focused on having a better understanding of appliances that use the most energy



LOCATION

West Yorkshire



HOUSEHOLD TYPE

Pre Family



DURATION OF OWNING SMART METER

1 month



SIZE OF HOUSE

2 bedroom house

*I currently work part time at Sainsbury's and live with my partner and all our animals. We live in a quiet cul-de-sac in a two bedroom house. At the moment I do a lot of overtime at work, I am contracted for twenty four hours a week over four days but at the moment I am doing forty or so over five days. On an average week I am in and out of the house working or spending time with my friends and partner. I pay a lot of attention to how much energy I use as I am on a tight budget and if I consume more my monthly budget would be even tighter.*

## INSTALLATION INFORMATION

Paul had his IHD installed around one month before this trial commenced after requesting it from his supplier. He had seen adverts on Facebook and on TV and wanted to attempt to get his monthly usage down. Paul keeps his IHD on top of the microwave.

## AWARENESS AND USAGE OF IHD

Paul checks his IHD daily to monitor energy use, sometimes several times a day depending on how much time he has spent in the house. Keeping an eye on usage is easy for him as he finds the display easy to navigate, with different menus depending on what information he wants to look at. He finds the traffic light system is the most beneficial feature.

*Money is tighter at the moment so I am looking at the meter even more than usual. It is easy to find the information that I am looking for and switch through different menus. The traffic light system is really good because it shows on the display when the most energy is being used, which makes it easier to know which appliances use the most energy and make changes accordingly.*

## EXPERIENCE OF USING IHDs

For Paul there are many positives to owning a smart meter. In particular, he finds the features and capabilities of his IHD have helped him to cut costs.

## HOW HAS IT AFFECTED THEIR ENERGY BEHAVIOUR?

Paul feels that he has become a lot more conscious of energy since having his IHD installed. This has been most noticeable in leading him to turn off his lights and appliances off when they are not in use. He has also stopped using high cost appliances as much (or at least, less frivolously), for example filling his kettle with less water and using the filter on his fish tank less often.





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