

Intellect Response to Ofgem Annex 2: In Home Display Questions October 28 2010

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We welcome views on the level of accuracy which can be achieved and which customers would expect, in particular in relation to consumption in pounds and pence.

As we emphasised in our response to the September questions, Intellect believes the customer experience is central to the success of this project. The UK will only have one 'shot' to bring customers on board with the idea of an in-home display clearly visible inside their homes and it is imperative that all involved get this right to set the tone for the new smart energy infrastructure.

Data must be simple and clear in order to be embraced by a wide demographic of the population, and the value of it must be made clear in the face of undoubted concerns and media hype relating to data privacy and the placing of a 'foreign' device in the home. The data which will ultimately change consumer behaviour must be clear and succinct.

It may only take one 'public' error and/or poor experience to undermine the customer experience and enthusiasm for the idea – we urge Ofgem to consult with those with proven experience in this area.

Accuracy

Intellect members have identified two key aspects to accuracy which link to the goal of changing consumer behaviour:

- Accuracy of instantaneous consumption rate

Many of our members suggest this should be commensurate with the accuracy of the meter. The current applicable tariff should be 'known by the meter' at all times, so in most instances this should not present a significant problem. There are some complications however:

- In cases where a tariff depends on information that only becomes known at a later date (such as the end of a consumption period), the instantaneous consumption cannot be calculated exactly in monetary terms.
- A special case of this is the 'friendly block tariff'. A *falling* block tariff (as is common, but not necessarily desirable) can penalise prepay consumers because they pay the higher price earlier and the lower one later, while customers paying in arrears simply pay the average. Current prepay meters can 'forecast' a consumer's quarterly consumption and charge the correct average rate throughout the period. In actuality the forecast improves as the period develops and achieves maximum accuracy at the end.

- Accuracy of cumulative bill to date.

Some Intellect members suggest that cumulative billing information available on the meter (or IHD) will be acceptable to consumers if it is correct to the nearest penny at 02:00 the previous night and dated accordingly. For particular events, especially change of tenancy, these members believe that timed, dated, information should be available within one hour of request.

Special billing statements should be available, correct to the nearest penny, to mark all changes of circumstance, e.g. at time of transferring to a new tariff.

Changing consumer behaviour

Our members suggest that data for achieving this can be provided in two ways:

- First, by providing a spot usage rate to show the effect of turning specific devices on or off. It is likely that this data does not have to be highly accurate as the comparator is important rather than the absolute value.

- Secondly, by providing a cumulative display of usage to show trends over time. Again, a high level of accuracy might not be required in this instance. However, there is a risk that the consumer might compare the IHD information with their billing information. If there is a significant inaccuracy in the IHD display then this could generate a significant number of additional calls to retailers from consumers querying their bill. Therefore, the level of accuracy needs to be set so that over a reasonable period, say a year, that the IHD is not likely to be at variance with any remote system produced bill. Our members would also suggest that at install time the consumer is made aware that the IHD is primarily intended to show trends in usage and not as a means of validating the bill.

Given that the maximum hourly charge for power is likely to be less than £5 (based on a price of 12p per KWh for electricity and a maximum demand of 25 KWh), precision to the nearest pence (or 5 pence) would seem adequate for the hourly or instantaneous results (giving an accuracy of better than 95%). There would appear to be no benefit of sub pence display to the majority of consumers.

We welcome evidence on whether information on carbon dioxide emissions is a useful indicator in encouraging behaviour change, and if so, how it might best be represented to consumers.

Our members do not generally have statistically significant evidence on whether certain levels/display of information on carbon dioxide emissions is useful in encouraging behaviour change. However, we believe there is an important point to be made here regarding consumer *perception* of energy data – which will be fundamental to encouraging behavioural change and must be adequately addressed.

Many Intellect members have significant and leading experience in engaging with customers and managing customer perceptions of complex issues. Indeed, many of our members report that consumers will have different perceptions of what is high or low usage and that they have found total energy consumption to be a close proxy to CO₂ emissions in the minds of most consumers. This may become open to debate if and when consumers actively sign up to a green energy offering that is sold on the basis that it was generated by low a CO₂ process. Moreover, given the automatic focus on CO₂ emissions, our members believe that consumers who actively choose a low CO₂ service will want to see an appropriate statement showing how much they saved by doing so.

The engineering units of measurement are often awkward as most people find “tons of gas” hard to visualise. This has also been shown in the car excise duty arena where the g/km CO₂ metric is not widely understood. It is therefore important that the levels of emissions are expressed in every day terms meaningful to consumers, for example:

- Counting a previous billing period as 100% and working from there.
- Referring to a national average household output that could be calculated once and for all and used as a benchmark. Having pre-set profiles for household types against which comparisons can be made in real time, with consumers able to adjust their profiles will mean people with non-average consumption will quickly realise that it is the *long-term trend* that is important, not the starting point.
- Profiles could present equivalence examples, such as consumption for use of heating over consumer selected period being equivalent to CO₂ absorption of x number of trees. Any local micro-generation would not present as a CO₂ credit as it is not possible to relate to the way in which that energy is used (and therefore CO₂ generated).

We welcome views on the issues with establishing the settings for ambient feedback.

A large proportion of our membership are content that this is a matter best left to suppliers to decide, however our larger members with trial experience are able to offer the following insights:

Successful initial outcome

- Where a display shows different colours depending on energy usage, consumers were much more aware of when high power usage was happening and would take steps to understand why. The settings were made by the user but could be system optimised.

Problems which need to be addressed

However, there are a number of issues with providing such a display. These include:

- Will the display be based on relative usage (showing decreases) or absolute values (showing consumption relative to a benchmark)?
 - If consumers have high electricity usage, even significant changes in their behaviour may not result in discernable changes
 - Consumers with low usage (e.g. in a well insulated home) may become complacent even though there are changes they could make to lower their consumption further
 - Ambient displays would not encourage consumers to continuously improve their energy usage as once consumers achieve a green light, behavioural change will tend to plateau.
- What will the ambient displays be profiled against? Property type, location, age? We would expect that a range of profiles would need to be available to the consumer
- Will two ambient displays be required for each energy type (gas and electricity) or will a combined display be used?
- What level of additional processing power and software complexity will be needed to calculate the ambient settings for display? Will these have a significant cost impact upon the IHD?
- Consideration needs to be given to the possibility of ambient lighting causing unwelcome behaviours. For example, vulnerable elderly people may be discouraged from turning on the heating during periods of cold weather if doing so results in a negative ambient display
- Will the use of different colours for the various day of use tariffs be helpful to consumers?

Do you think there is a case for supply licence obligation around the need for appropriately designed IHDs to be provided to customers with special requirements, and-or for best practice to be identified and shared once suppliers start to roll out IHDs?

Those Intellect members with relevant trial experience support the principle that consideration needs to be taken of people with special needs. One way of doing this would be to have a smaller number of specialist in-home displays that consumers could choose from that could deal with their needs.

These would need to be carefully defined and standardised and specialist organisations such as Age Concern, RNIB etc should be consulted on how these layouts could be made more meaningful and readable by those who would not be comfortable or able to engage with the standard offering. The results of these consultations should be embodied into a set of best practice guidelines which suppliers should be expected to adhere to.

The assumption that these solutions are going to be more expensive need not necessarily be true. Simple solution are often the best, this can be compared with the large display and button phones that are available. This supports the view that IHDs should be available from other sources that just the retail energy companies and that ubiquitous supply of one device may not be the right answer.

We welcome evidence on whether portability of IHDs has a significant impact on consumer behavioural change.

In general, Intellect members believe this is a matter best left to suppliers to decide, however some of our members do have significant experience engaging with customers and would suggest the following:

- IHDs offered as the *sole* interface to PAYG consumers should be firmly wall-mounted.
- The advantage of a portable display is that the consumer in the long term is likely to find a favoured location that is most convenient which may or may not have a power socket accessible. This will continue to provide them with a view of their consumption and provide the long term information they need to manage their usage such as potential tariff benefits etc.
- The ability to move the display around the premises would be beneficial, as this would allow for the quick wins (around the home) which are probably the most substantial wins in the long terms and bring about a change in consumer behaviour. If this can be maintained then the benefits will be long term and the advantage of the display for this type of benefit is likely to reduce slightly anyway.
- An option worth investigation is whether the provision of a small solar panel within the device similar to those in calculators would be sufficient to recharge a local store to power the device. Alternatively, the ability for aftermarket IHDs to be purchased by consumers may allow them to buy portable IHDs if they require one (or more). The consumer will need to be advised that if moving the IHD they need to ensure that it retains connectivity to the meter (similar to moving a portable laptop utilising wireless connectivity).

Our members will investigate whether evidence can be made available to support these recommendations.

Do you agree with the proposed minimum functional requirements for the IHD?

Intellect members with experience engaging with customers on a large scale suggest the following:

The IHD has *two* purposes:

- To enable consumers to interact with some basic functionality of the meter (e.g. pre-payment top-up and gas or electricity reconnection acknowledgement)

This will be required where consumers will not be able to easily access the meter itself, and as such should be included in the minimum functionality.

- To provide a display of information about a consumer's energy (and in the future water) usage.

This is to support consumers in changing their energy usage behaviour by providing feedback to them. To this end, there is a greater range of functionality that can be considered. However, this additional functionality will increase the cost of devices and therefore presents a trade-off between the costs of providing devices by the suppliers against the level of engagement of consumers to deliver the behavioural change necessary.

Our members report that experience from trials and research into the use of IHDs by consumers is mixed; there is some evidence that most consumers use the display for the first few months allowing them to reduce their energy usage and make savings. However, in the long run, many consumers stop using their devices and simply consign them to the cupboard drawer. In light of this rapid tail-off of usage of the IHD, many of our members recommend that the IHD provided as part of the smart metering rollout should provide a very basic level of clear and succinct information display.

The basic IHDs should have the following characteristics:

- The display needs to be portable if possible to allow for ease of locating in the home; therefore long battery life is important. Although it may need to be wall-mounted if it is the only point of access to the PAYG meter.
- The display needs to be easy to read and easily configurable to the consumers needs and wishes, e.g. there is no point in showing gas consumption if the consumer does not have gas.
- The units that the consumer sees need to be easily changed to meet their needs, some will understand Kwh but other may wish pence per minute/hour/day etc.
- Careful consideration needs to be given to how much information is displayed and how it is displayed to ensure its intelligibility. It is recommended that the Programme issue guidelines on this to ensure a minimum standard is provided on the “free” IHDs.

However, smart meters should also provide open, secure interfaces to their data to allow a market in after-market IHDs and other devices (e.g. TV Set-Top boxes) that would allow consumers who are dissatisfied with the base level of information provided but remain motivated to make behavioural change and so wish to “upgrade” their IHD. These external devices may also be able to use additional information from the Internet via a broadband connection to enhance the display. The types of additional functionality that the aftermarket devices might provide include:

- Selection of a usage profile such that consumers can compare their profile day to day
- Highlighting periods of cheaper electricity tariff. A traffic light system off-tariff may be effective. Different time of use tariffs may be shown in different colours to enable ease of notification to consumers
- The presentation of carbon emissions could also be provided for more ecologically conscious consumers. However, it is acknowledged that the calculation of this information is far from straightforward.

A program of education for members of the public should be available from the outset and continuously open and visible.

The free IHD, which might have a short life, needs to be of low cost to maximise the initial benefits. The consumer can then decide how and with what device they will engage with for their on-going energy management. The open standard interface will ensure that there can be a number of providers who can compete in this space.

Additionally, many of our members have flagged that they do not believe that account information should be displayed on the IHD as it would require additional security measures to be put in place which would drive up cost. There will also be situations where members of the

household may need access to the IHD without requiring access to the account information (e.g. lodgers). The display of account information is a data privacy issue. The requirement to manage access to information extracted from the meter needs further analysis.

Do you have any views or evidence relating to whether innovation could be hampered by requiring all displays to be capable of displaying the minimum information set for both fuels?

Our members have no evidence that this has any negative impact on innovation.

Do you agree with the proposals covering the roles of and obligations on suppliers in relation to the IHD?

Intellect members broadly agree with these proposals and make the following points:

- Some of our members draw special attention to the ramifications of the proposal to allow the obligation on suppliers for the provision of IHDs to lapse after one year. While supporting this approach, they note that it strengthens the case for ensuring that meter data is openly available to other devices of the consumer's choice.
- Some of our members also suggest there is the potential to allow consumers to have a creditor token towards a more sophisticated device which would reduce the number of abandoned displays. There would need to be careful terms and conditions around the grounds for replacement to protect the supplier. There would need to be an obligation on the consumer to take reasonable care of the device and supplier to have to replace in the case of equipment failure rather than misuse or abuse. In the case of the pre-payment device the ownership of the device might be less clear to meet the requirements of the security required to maintain data integrity.
- Our members note that the initial gains from the IHD are likely to be in the early adoption period when consumers start to understand the impact of their lifestyle and equipment usage. This will be translated into behaviour changes should they wish to save energy or money. The period of one year is likely to have these behaviours style either engrained or not adopted depending on the consumer. The benefits of the IHD after that period are therefore likely to be substantially lower so the value of keeping the IHD in order are less likely to be worthwhile so the period of one year responsibility would seem reasonable.