

# TRENDS AND THOUGHTS ON IN-HOME ENERGY DISPLAYS

## AN INTERVIEW WITH JOEL HAGAN, CHIEF EXECUTIVE OF ONZO

*In-home displays are increasingly coming under the spotlight as an adjunct to advanced metering infrastructure (AMI) to provide energy usage and other information to customers. A growing number of companies are providing products in this space.*

In this interview with Metering International, Joel Hagan, chief executive of the British consumer energy tool developer Onzo, reviews trends in the development of in-home displays and offers thoughts on their current and future use.

### Why is there a need for energy displays?

We have absolutely no information available to us in relation to our use of energy in the home. We get a bill and in the UK it's infrequent and inaccurate and not really helpful at all. Yet we are continuously making decisions in the home about using energy that cost us money and might even be costing us the future of the planet.



Joel Hagan

This is where the display comes in, and I think the energy display can perform a short-term role which is quite useful. It may be the first time someone has had any feedback in real time about their energy use and it's quite surprising and interesting for about a week, maybe a month, but perhaps not enduringly useful.

After a shortish period of time, I see the energy display fading into the background and being more like a clock – the sort of thing one glances at from time to time, and if what one is seeing doesn't accord with what one is expecting then one can do something about it, but generally one has learned enough to know when it supports what one is thinking about.

Think of the analogy of a car dashboard. I need some information fed to me as I drive, such as the speed I'm going, perhaps the revs if I care about when I change gear – continuous information at a glance. I don't sit staring at the dashboard, but from time to time I check it. And then of course around that, I've got alerts like flashing lights for the indicators, warning light for engine temperature, etc.

### What are the typical savings that home displays have led to?

There have been quite a lot of studies suggesting everything from 3% to 20% savings. As they have tended to be rather small, conducted over relatively short periods of time, and used fairly rudimentary displays, one needs to be cautious about interpreting the information. But, on the basis of the "wisdom of crowds," we can say that energy displays deliver a reduction in usage of an average 12.8% across all studies to date.

### What sort of information should displays be showing?

I'd say they should show only a limited amount of information. I'd go so far as to say that just showing how much energy one is using right now would be a valuable tool. It's a bit like asking what you can put on a clock. You can put all sorts of things on a clock, advanced chronographs, dual time zones, date, day of the week, calculators, etc. But still most of us tend to buy something with hands or numbers that tells the time because that's the basic bit of information that is universally useful. The same goes for an energy display.

The thing is right now most people don't know how to tell the energy time. If you ask someone to tell you what a kilowatt-hour is most people wouldn't know, and getting them to understand that much would be a huge advance on where we are now with meters stuck in cupboards under the stairs and no information coming to the consumer apart from the bill from time to time.

All the research shows that knowing your current usage has an impact. It's not easily explainable, you just know something you didn't know before and it reinforces what you know to be true but probably never brings into conscious thinking. If all the lights and heaters are blazing away and you are using the stove, you know you are using lots of energy, but if you are explicitly told then you will probably change your behaviour.

### What about tariff information or peak time notification?

Research has shown that at the moment knowing the tariff doesn't have as big an impact as one might imagine. In relation to a lot or a little use, essentially one soon learns what is a lot or a little for one's situation. It's a number and one gets a feel.

But there are dangers inherent in telling people if their usage is a lot. Imagine a pensioner in winter being told they are using a lot of energy. We don't want them turning off their heating. It's better to tell them how much they are using and they can make their own call about whether or not to turn the heating off.

### Is the trend towards less or more information in DISPLAYS?

I don't think it's quite that easy to say and it's not yet clear quite which way it will go. I think the most appealing things are those that are simple and intuitive to use, but there's also a group of people attracted by functionality.

What will happen is that those forms of information communication that are effective will become known to be effective and other people will copy them.

But if you ask me to bet now I would probably bet on simplicity. If you want anything for mass adoption then simplicity has to be the winner, whereas functionality will probably gravitate to the upper end of the market.

#### Will energy displays replace other forms of communication?

There are other ways of getting information to people, not least the internet. There's information you can put on a website that you can't put on a display, partly because you've got a larger screen and partly because you've got more processing power. Also, people have a different vernacular for interacting with their computer, and they are more likely to expect to see things like graphs.

We also have other communication tools, such as the smart phone, which can do SMS and email, and there are some things, such as alerts, which are useful to get via SMS.

There is also a role for printed material. We still confer on printed material a certain level of authority that we don't on the internet. Additions to the bill such as energy reports can come in that form.

There is a multiplicity of channels and different types of information are suited to different channels.

#### What about long term information?

I don't think the display will be used to store information and, if it does, it will be for a purpose not immediately apparent to the user, such as caching data to pass on to the utility's servers.

#### Is the trend towards smaller portable or larger fixed devices?

I'm not sure I know the answer to that. If utilities are to supply these kinds of tools, inevitably the unit cost will be managed down, particularly if it is a mandated rollout.

At the upper end, the device may well be an in-home management console. In the middle, there will be a relatively simple, clean, affordable piece of equipment a utility will choose to roll out or consumers will choose to purchase in reasonable numbers.

#### What is the best model for display rollout – a device the consumer buys or the utility should provide?

That depends on the market. In North America, I would expect large numbers of utilities to provide displays to consumers because they have a significant effect on consumer behavior and enable those utilities to shift the peak or peak shave, and if not to decrease usage.

There will be a subset of those who don't believe in displays, for example some of the California utilities at the moment who will say to consumers that if you want a display you are welcome to go and buy one.

In competitive territories we'll probably find energy displays and other simple tools being provided to attract and retain customers, and therefore the amount spent on providing the display at no cost will depend on the value of that customer to the utility.

I think differentiation will be a huge driver. Probably over time the "challenger" brands looking to capture market share, such as Red Energy in Australia and POWEO in France, will be the ones

offering displays most aggressively and then the incumbents will have to offer something as a response, because they are looking to differentiate their offering. Electricity is hard to differentiate – one can't do it in a different colour or smell and its price is very competitive, so one has to find other ways to do it.

Regulation will also play its part in those competitive territories. Once large-scale studies have demonstrated the impact on usage of these tools then governments will be mandating utilities to provide them. Europe, in particular, has very aggressive carbon and other emissions reduction targets to hit and right now doesn't seem to have any hope of reaching them.

There's also likely to be the consumer backlash. Smart meters will get rolled out, often at the behest of governments, particularly in Europe, and after that's happened consumers will be saying, "Wait a second, you said smart meters, but I don't see why these are smart and what the benefit is to the customer?" and this will oblige utilities to provide displays.

#### Do you think in the future that energy management functionality will be incorporated?

I'm not sure it will be incorporated in displays, but I do think energy management will definitely become a substantial part of the picture.

I think there will be three phases. In the first phase people will get information and then take their own actions on the back of that information. The second phase will be with more directed helpful information, which tells people

things like the optimal settings for their heating, but they will still be doing the control themselves. Finally there will be automated

control. If we think about automated appliances there

is the whole domestic appliance replacement cycle, which will take a few years.

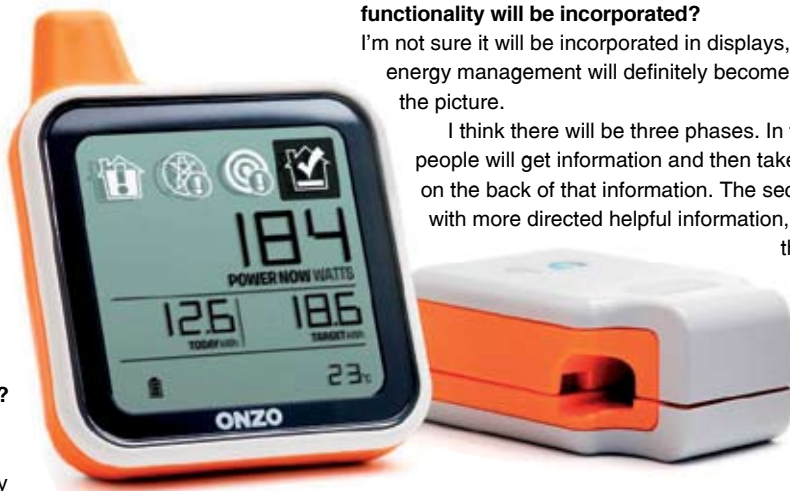
#### What about a display for water?

There are parts of the world where issues pertaining to water are just as pressing as those that relate to energy; In other parts of the world, water is more of a concern than energy. For example, parts of Australia, the US – Texas and the West Coast – and Southern Europe have some real issues with water.

We have adapted our system to work with water. It's not identical as there are different ways of using water than energy, and there are generally fewer decisions during the day about how water is used. Ten units have been shipped to an Australian multi-utility as a proof of concept.

#### Do you foresee displays combining both electricity and water?

I think that is quite possible. Our Australian client is a multi-utility supplying electricity, gas and water, and I'm sure they would be interested in a multi-utility display. The challenge in providing an integrated solution will be when there are different providers. Integrated solutions are desirable but not always practical. ■■



An in-home energy display

#### ABOUT JOEL HAGAN

Joel Hagan, a business architect and entrepreneur, is a founder and chief executive of Onzo. After leaving Oxford University, he joined Arthur Andersen as a management consultant, where he specialised in strategy consulting and was director of strategy and business planning for Andersen globally. In 2002 he joined BBC Technology as head of consulting, then in 2005 he moved to be chief executive of Landmark barristers' chambers. Onzo was founded in 2007 with the aim to create new behaviour changing solutions that would help consumers drive down their energy consumption, whilst at the same time improving their relationship with utility providers. Hagan has a degree in Classics from Oxford.