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DECC / GEMA / Ofgem Smart Meter Consultation - July-September 2010

This is Powerwatch's main evidence, submitted by Alasdair Philips, Director.

This response is not confidential.

We have not responded to all the questions.

This document was written with the help and advice of Brenda Short LLB(Hons) LLM.

Personal background:

I am a qualified electrical & electronic engineer who has worked in industry and Government service since 1973. Powerwatch and I have studied energy efficiency issues for many years.

I was a member of OFFER's Eastern Region Consumer Committee for some years before OFGEM was created and spent most of my time on the technical working group.

I have been a member of the Department of Health SAGE (Stakeholder Advisory Group of ELF EMFs) Process since its inception.

Signed

Alasdair Philips
Director of Powerwatch.

Question 3*: Do you have any comments on the proposed approach to ensuring customers have a positive experience of the smart meter rollout (including the required code of practice on installation and preventing unwelcome sales activity and upfront charging)?

In our opinion the consultation fails to address all issues.

The Document represents the joint views of DECC and GEMA and impact assessments by DECC. Your prospectus states your proposals are “*built on the extensive and valuable discussions we have had with stakeholders*”. However, it is unclear whether you have pinpointed all the potential issues and as a consequence will not have included all the relevant stakeholder groups. Although the prospectus states that you have consulted stakeholders, once all the issues have been pinpointed, other groups still need to be consulted. The most significant issue which has not been adequately addressed is the proposed use of wireless communication for the smart meter and potential stakeholder groups concerned with the issue of RF wireless radiation in their homes and the neighbourhood. As part of this we present evidence that DECC and GEMA have not fulfilled all their legislated duties.

A significant number of consumers (we estimate between 2 and 10%) will not want a wireless communicating smart meter in their home. These people choose to minimise their exposure to wireless technology. There are significant protests in the USA, Canada, New Zealand, Australia and the Netherlands against the installation of smart meters and many new users are also reporting EMC interference issues with existing electronic devices in their homes. We deal in detail with this issue later in this response.

OfGEM Report on Consumer Views of Smart metering

The FDS International report did not canvass consumers’ views on the smart meters using wireless technology or RF radiation. The only reference to wireless technology is in respect to whether home display should be plug in or wireless. Given many members of the public concerns about wireless technology in the form of mobile phone masts in the UK and the objections to smart meters using wireless technology in other countries, this should have been properly addressed.

The DECC Impact Assessment DECC0009 reported on Equality IA (EIA)

This test highlighted the Government’s general duties for disability, race and gender equality. However this test did not consider those with certain medical conditions/health problems, such as those with pacemakers and other medical implants and those suffering from electrical hypersensitivity. These consumers might challenge use of RF radiation in wireless smart meters under Disability Discrimination Act 1995 and Equality Act 2010.

Disability Discrimination Act 1995

Those who find their medical conditions/health problems are incompatible with smart meters using wireless technology, could challenge Government policy under the Disability Discrimination Act 1995 (DDA 1995). Under the DDA 1995 service providers have an obligation to make reasonable adjustments to the way they provide a service to make a service accessible.

Equality Act 2010

Challenges to the Government policy could in the future be made under the Equality Act 2010 (EA 2010), coming into force in 1st October 2010. The EA 2010 provides protection against direct and indirect discrimination, harassment and victimisation in services and public functions; premises; work; education; associations, and transport.

The DECC Impact Assessment DECC0009 reported on Health

This test did highlight “*communications technologies which are selected to support smart metering may produce radiofrequency signals (e.g. from mobile communications technologies). Some consumers have concerns about the impacts of these. We will keep under review any evidence related to the effects of radiofrequency signals on individuals health.*” In view of the potential health implications, an alternative method of communications needs to be considered at the pre-design stage.

The DECC Impact Assessment DECC0009 reported on Human Rights Act 1998

Although a test for impact under Human Rights Act 1998 was considered, it was not considered in respect of mandatory roll out of wireless smart meters. Residents/consumers could in the future challenge the Government policy for breaching their human rights under the European Convention of Human Rights

- Article 8 -right to respect for private and family life,
- Article 6 -Right to fair and public hearing by an independent and impartial tribunal,
- Article 13 Everyone whose rights under the Convention are violated shall have an effective remedy before a national authority.
- Article 1 of 1st protocol- Protection of property - Every natural or legal person is entitled to the peaceful enjoyment of his possessions.

Mandatory smart meter rollout in the Netherlands was suspended in 2009 following consumers' fears concerning consumer privacy and potential breach of Article 8 of the European Convention of Human Rights.

Value for money / cost/benefit

The figures produced by DECC and Ofcom are not persuasive as providing a good deal for consumers. A £10 bn cost that will be passed on over time through electricity bills with only a £4.5 bn reduction in energy use (DECC figures) and with Ofgem writing (Factsheet 90) that: *"It is estimated that by 2020 an average consumer will be saving around £14 a year on their gas and electricity bills, as they reduce their energy usage in response to the better information provided by smart meters"*.

That seems a ridiculously un-ambitious result for so much cost and upheaval - about 1% of a typical consumer's annual spend at 2010 prices.

The £15 bn claimed benefits assume that the approx £5 bn saving by removing the need for human meter readers and less staff in call centres for correcting wrongly estimated bills will actually be a real financial saving to the country. Given the current UK and world economic climate many of these people are likely to end up on state unemployment and allied benefits. They get paid from electricity consumers' taxes. A figure for that back-charge to public funds should be costed in.

Did the various Cost Benefit Analysis Tables include all the relevant issues?

1. Cost of making meter readers redundant and subsequent cost of state benefits if they become unemployed (or if their re-employment in the job market leaves another person unemployed during this difficult time in the UK economy).
2. Will the change to smart meters have an impact on manufacturing in the UK? i.e. Are existing meters made in the UK and will smart meters be made in the UK?
3. Cost of householders taking time off work for installation /changeover of meters. i.e. where existing electricity meters are inside the home and for all gas smart meters.
4. Introduction of other low cost and low tech measures to reduce energy peaks and unnecessary usage should be considered alongside or instead the need for *"smart meters"* for both the domestic and non-domestic market.

What are the real advantages

So, many of us start with the feeling that either it isn't worthwhile, or at least the roll-out until 2020 is primarily for commercial electricity industry gain rather than consumers' benefit. It is very important that the more sophisticated features of active load control and network management are efficiently implemented and used at the earliest opportunity to reduce carbon dioxide generation (by optimising generation to load balance and also to penalise bad power-factor users) and to offer consumers cheaper electricity at off-peak load times. It would not be appropriate to offer smart meter consumers cheaper tariffs than those for people who live in remote areas who are not able to have a Smart Meter fitted due to lack of communications infrastructure.

Upfront charges

One concern is that although upfront charges for the basic IHD are not permitted, electricity suppliers may require upfront charges for “enhanced specification and featured” IHDs. This seems an open door to generally providing a very minimalistic IHD and effectively forcing people to pay for a better IHD if they want to make proper use of the smart meter facilities.

Question 6*: Do you have any comments on the functional requirements for the smart metering system we have set out in the Functional Requirements Catalogue?

The following are from Statement of Design Requirements (document reference 225)

Question 6.1, Doc.225 CH3: Should the HAN hardware be exchangeable without the need to exchange the meter?

A: Yes and alternative communication technologies to RF wireless should be made available.

Question 6.2, Doc.225 CH3: Are suitable HAN technologies available that meet the functional requirements?

A: Yes. Various RF wireless, fibre-optic, M-bus, Ethernet, PLC, dLAN, etc., technologies and standards are currently available. Some are already available on Smart Meters being used in other countries. One supplier of such meters is Itron: www.itron.com/pages/products_category.asp?id=itr_000238.xml

Question 6.3, Doc.225 CH3: How can the costs of switching between different mobile networks minimised particularly in relation to the use of SIM cards and avoiding the need change out SIMs?

A: By using a suitable general purpose SIM with a unique metering ID and network reference scheme that is recognised by all the cellular network operators. “Roaming” already effectively does this to a certain extent and this should really not be a significant problem. I suspect that all the cellular operators will want part of the metering traffic.

Question 6.4, Doc.225 CH3: Do you believe that the Catalogue is complete and at the required level of detail to develop the technical specification?

A: It seems so. However, expansion IDs for measurement and storage functions should be allowed for in the software design that can be detailed and used later via remote firmware upgrades. For the time-being they should return null values if interrogated.

Question 6.5, Doc.225 CH3: Do you agree that the additional functionalities beyond the high-level list of functional requirements are justified on a cost benefit basis?

A: Yes, absolutely. Network quality information should be measured and stored to help with more efficient network and load design requirements. This is especially the case with regard to reactive power. This has become a larger problem with the increasing loads using switched- mode power supplies. Reactive power increases losses on the network and increasing overall efficiency is one of the stated main reasons for implementing the Smart Meters scheme.

Question 6.6, Doc.225 CH3: Is there additional or new evidence that should cause those functional requirements that have been included or omitted to be further considered?

A: No comment at this stage.

Question 6.7, Doc.225 CH5: Do you agree that the proposed approach to developing technical specifications will deliver the necessary technical certainty and interoperability?

A: Probably if the specification development files are published on-line regularly in the public domain for external scrutiny. Encryption details should not be in the public domain, but functionality must be.

**Questions 6.8, Doc.225 CH5: Do you agree it is necessary for the programme to facilitate and provide leadership through the specification development process?
Is there a need for an obligation on suppliers to co-operate with this process?**

A: Yes, these both seem necessary as there are already quite a range of “smart” meters and different communication protocols being used. There are already many proposed standards, both within Europe and around the world, for Smart Grid Applications. The history of modern technological change shows that uncontrolled open competition delays final agreement on the way forward and harmonisation and interoperability should be mandatory in the UK.

Question 6.9, Doc.225 CH5: Are there any particular technical issues (e.g. associated with the HAN) that could add delay to the timescales?

A: Yes - the principle of being able to use alternative communications technologies must be agreed as early as possible. Also, many UK meters are installed in the centre of the house under the stairs. If wireless is to be used for the WAN, then provision MUST be made for an external antenna to be mounted on the outside of the house. Lack of acceptance of such requirements could well result in legal challenges under human rights legislation. Also the NEMP radiation hardening issue must not be ignored and may cause extra delays.

Question 6.10, Doc.225 CH5: Are there steps that could be taken which would enable the functional requirements and technical specifications to be agreed more quickly than the plan currently assumes?

A: Probably not as the time-scale is already optimistic. Good authoritative leadership is essential for good timeliness.

Extra Question 6.11, Doc.225 CH3: Should the WAN hardware be exchangeable without the need to exchange the meter?

A: Yes and extra communication technologies in addition to RF wireless should be available.

Extra Question 6.12, Doc.225 CH3: Are suitable WAN technologies available that meet the functional requirements?

A: Yes. Various RF wireless, PLC, M-bus, fibre-optic, Ethernet, etc., technologies and standards are currently available.

Question 7*: Do you see any issues with the proposed approach to developing technical specifications for the smart metering system? See 6.8 above.

Question 17*: Do you have any comments on our implementation strategy? In particular, do you have any comments on the staged approach, with rollout starting before DCC services are available? It might be frustrating for customers. British Gas is currently installing meters that use mobile phone network modem cards. This might be a suitable interim measure, with the modem cards being replaced by the final DCC communications modules when agreed and available.

Question 18*: Do you have any other suggestions on how the rollout could be brought forward? No.

Question 19*: The proposed timeline set out for agreement of the technical specifications is very dependent on industry expertise. Do you think that the technical specifications can be agreed more quickly than the plan currently assumes and, if so, how?

No, it is already a tight timescale and other user groups concerned with enforced RF communications need to be involved.

Question 20*: Do you have any comments on our proposed governance and management principles or on how they can best be delivered in the context of this programme? No.

Further comments on the proposed strategy for roll out including the consumer experience

A1 At present, the specification documents in various places seem to assume that radiofrequency (RF) communications will be used for both the HAN and WAN networks.

(a) Powerwatch has significant concerns about the security of electricity supplies in times of war. Unless the technology is hardened and protected against a nuclear generated electromagnetic pulse (NEMP) attack, the electricity supplies for wide areas of the UK could be disabled with ease. There have been many wars in the last 100 years and terrorism is increasing. The industry has already been allowed to install simple electronic meters - are they EMP protected? Meters must fail in a "supply on" mode.

DECC and the Government must not ignore this issue when insisting on technological change to the UK's energy supply networks and promoting complex electronics to replace more basic and resilient electromechanical devices.

A2 Only offering wireless communications technology will also significantly affect the health and well-being of many electricity consumers who have electrical (hyper) sensitivity syndrome (EHS or ES), a number variously estimated and usually between 1% and 5% of the population.

For the purpose of this response it does not matter whether their suffering is due to direct physical symptoms arising from exposure to low levels of radio-frequency energy or from the perceived fear of such exposure.

(a) It is not appropriate to force these people to have an RF-based Smart Meter in their house when alternative (non-RF emitting) communication technologies could be used.

(b) RF exposure issues, especially with respect to cellphone network or MESH network issues, were not pointed out to the 12 Focus Group nor the ten home groups interviewed by FDS International in DECC's "Consumers' view of Smart Metering" document (227).

(c) No UK groups who are concerned about reported problems of chronic RF exposure (e.g. ES-UK, Radiation Research Trust, Powerwatch, Mast Action, Mast Sanity, hese-uk, Cavisoc, Wifiinschools, Wiredchild, etc) have so far been directly consulted, nor are any of them represented on the Ofgem Smart Metering Implementation Programme Consumer Advisory Group.

(d) A 2005 report [1] by the UK Health Protection Agency concluded that electromagnetic hypersensitivity syndrome needs to be considered in ways other than its aetiology; that is, the suffering is real, even if the underlying cause may not be thought to be related to actual exposure to electromagnetic fields. In Sweden electromagnetic hypersensitivity is an officially recognized functional impairment, but it is not regarded as a disease.[2] However, people with functional impairments have the right for their needs to be considered when government changes the ways things are done in society, especially in their own homes.

(e) The Equality Act 2010 requires provision to be made to support people with a functional impairment.

Regulations may make provision for a condition of a prescribed description to be, or not to be, an impairment. The effect of an impairment is to be considered long-term if:

- (i) it has lasted for at least 12 months,
- (ii) it is likely to last for at least 12 months, or
- (iii) it is likely to last for the rest of the life of the person affected.
- (iv) if an impairment ceases to have a substantial adverse effect on a person's ability to carry out normal day-to-day activities, it is to be treated as continuing to have that effect if that effect is likely to recur.

(f) DECC policy should not unnecessarily decrease the well-being and health of people who suffer from EHS syndrome by insisting on the multiple use of RF technology when viable, cost effective, alternatives exist.

A3 The Electricity Act 1989 (with amendments to 2010) states:

(a) *“For the purposes of this section an electricity safety issue is anything concerning the supply of electricity which may affect the health and safety of members of the public;”*

(b) In performing that duty, the Secretary of State or the Authority shall have regard to the interests of individuals who are disabled or chronically sick;

(c) The DECC Fact Sheet regarding the Energy Act 2010 (energybillfactsheet3.pdf) states: *“Whilst promotion of competition is the foundation of consumer protection, Ofgem should consider whether there are alternative or additional measures that might better protect consumer interests before taking action.”*

(d) The DECC Fact Sheet also states that this means: *“Ensure that the interests of all consumers, future and present, are appropriately taken into account when decisions are made in relation to the gas and electricity markets.”*

Providing fibre-optic, M-bus, PLC or Ethernet connectivity options would be suitable measures in this context.

A3.1 Other measures that might be acceptable (but considered not-so-good by EHS people) are

(i) the WAN RF unit being able to be mounted on the outside wall of the house remote from the internal house electricity meter and connected by screened wires to the meter

(ii) the free removal of the internal house meter and free installation of the wireless smart meter externally to the house (probably on a ground floor external; wall).

(iii) In conjunction with (i) and (ii) a fully wired HAN option to connect the IHD and intelligent appliances. Connection to the gas meter would probably have to be fibre-optic to meet legal safety requirements.

Refs:

1/. Irvine, N. Definition, epidemiology and management of electrical sensitivity. Report for the Radiation Protection Division of the UK Health Protection Agency, HPA-RPD-010, 2005

2/. Johansson O (2006). Electrohypersensitivity: state-of-the-art of a functional impairment. *Electromagn Biol Med* 25 (4): 245–58. doi:10.1080/15368370601044150. PMID 17178584.

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