

**Ofgem E-Serve:  
Smart Metering Implementation Programme: Prospectus: July 2010:  
Consultation**

**Representations by hayball.org**

General comments

The Smart Metering Programme offers considerable potential for authorised third party companies to link in to the data network that will be created. There are no doubt already ideas in the pipeline for this, and other ideas yet to come forward. The Programme should take an open architecture approach to enable those other ideas to come forward.

hayball.org is currently working with a number of companies to develop innovative solutions, particularly in the fields of energy efficiency, water efficiency and home safety. All such innovations are currently subject to Non-Disclosure Agreements. It would therefore be premature to disclose much detail, but, in principle, some of these could work ideally through the Smart Meter Programme.

Suffice to say that the comments provided in this response are intended to influence your Programme so that any data systems created are sufficiently open to appropriate data uses for the benefit of authorised third party developers, and in a way which enables such innovations to be developed at low cost and to maximum economic and social benefit for the UK, Europe, and ultimately, the entire planet!

I am assuming that existing data network companies (cables companies) will potentially see a Data Over Power Line Network (DOPLiN) as a threat, and will therefore resist it very strongly. Equally, hayball.org and other potential authorised third party developers may wish multi-media traffic to be limited or avoided over this new network, for reasons which I will explain below.

My suggestion, is that, in geographic areas where adequate broadband and television services exist, use of the new DOPLiN should be restricted to applications relating to:

- Meter reading and service connection / disconnection
- Health
- Safety
- Security
- Energy efficiency

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- Water efficiency

The reason for suggesting this restriction is to ensure that any data being carried via DOPLiN can be transmitted in the securest and most robust way, without any threat to data integrity.

I accept that, in remote areas of the UK, where broadband or indeed digital television services are very poor in quality or very limited in availability, there may be some logic in uplifting such a restriction.

### Data transmission protocols and other issues

While I can imagine that it may be necessary to develop a data transmission protocol for the DOPLiN, this will need to be compatible with other external protocols in use at both ends of the DOPLiN.

Http, ftp and other internet protocols are of course in common use.

There already appears to be recognition that connectivity of devices within the home (via the HAN) to authorised third party providers (via a Gateway) will be helpful.

Should any devices in the home need to connect to any external authorised third party providers, allowing for the use of existing protocols outside of the DOPLiN will enable the early development of such devices and their data applications.

Clearly the HAN, WAN module and Gateway devices will need to be able to process and transmit communications accordingly, while dealing with data security and other WAN issues.

Within the home or business, it will be necessary to consider whether to allow for wireless, or data over power cabling (DoPC) data distribution methods. In the light of my potential applications, my preference is for DoPC with optional wireless.

There are already wireless and DoPC data distribution methods in existence, and it will be necessary to ensure that there is no scope for interference:

- between broadband wireless and DOPLiN wireless systems
- and between any existing DoPC system and a new DOPLiN DoPC system

It may of course be feasible for two DoPC systems to work over the same circuits, or it may be necessary for the new DOPLiN DoPC system to be confined to specific segregated sub-circuits, with all the complications that may bring in terms of avoiding cross contamination of data between the various circuits. As an Architect, I am now

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officially out of my depth!! There may be an implication for circuit breakers and the IEE Regulations.

<http://www.powerlinenetworking.co.uk/content/view/39/51/> seems to be a useful reference on this subject.

At the Gateway end of things, I am assuming that the Gateway will allow linkage to authorised third parties through the existing broadband network.

The question of providing Gateways at parish, district, regional levels and/or national levels is an interesting one. A gateway at a more local level could allow very local access to the main UK broadband network and keep DOPLiN traffic across the whole DOPLiN network down to a minimum. On the assumption that data movement uses energy, this may also be a more energy efficient way to go, and would minimise carbon emissions, particularly in regard to one application I have been progressing over the last 15 months..

## The DCC Span of Responsibilities

There is a public interest basis for enabling the incorporation of certain authorised third party data storage and processing within the Data Function part of the DCC Span of Responsibilities.

At this moment, I am unable to disclose any further information about this. However, I am prepared to disclose it when I am in a position to do so. It will be most helpful if an appropriate person on the Programme can contact me (or be identified to me) about this.

## Charging

It will be necessary to consider whether and how the broadband-like DOPLiN service should be charged. It seems to me that much depends on the motivation for each type of service to be provided:

### **1. Meter reading and service connection / disconnection**

See 4 below

### **2. Health**

A service linked to health monitoring should arguably be free at the point of use, in line with NHS policy. If a private sector provider were to be involved, where the service is charged to the consumer, then it would seem logical for the provider to be charged.

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**3. Safety**

All services linked to the provision of safety (fire detection, etc) should be free

**4. Security**

All services linked to the provision of security should be chargeable

**5. Energy efficiency**

All services linked to energy efficiency should be free

**6. Water efficiency**

All services linked to water efficiency should be free

The above comments are all based on providing DOPLiN connectivity to homes. Similar questions would arise where DOPLiN connects to non-residential properties.

Overall, if the DOPLiN system is created to cater for some services being charged and some not, then both bases can be covered, and final decisions can be made at a later date, once the scope of authorised third party applications becomes clearer.

Energy displays and information provision

The extent of potential authorised third party applications is not yet clear, and may take years to unfold.

On this basis, my view is that a common protocol is needed to enable the development of alternative enhanced in-home displays, to cater for the array of new technology that is likely to come forward in future years. Some third party developers may wish to be able to add their messages and controls into an enhanced in-home display unit, and so an ability to update the 'firmware' will be helpful.

Are we ultimately looking at a very low-cost netbook pc or PDA for an enhanced in-home display? Could it become part of the heating programmer, or be able to clip to it? Should it be fitted with a usb port where a laptop can plug in for diagnostic purposes or an enhanced information experience?

The Consultation document

Turning now to the consultation document itself:

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Under 2.24: Is an evaluation needed to identify the carbon costs of smart metering as a benefit against the carbon cost of keeping the status quo, including an assessment of the carbon cost of collecting meter readings?

Under 2.37: when meters are replaced, will it be necessary for re-certification of a home's electrical system? This could prove to be an unwanted and substantial additional expense, and make adoption of smart metering something people will become highly resistant to.

Under 2.39: if the number of bedrooms is known at a property, the level of anticipated energy use can be assessed, and properties with excessive usage can be readily identified for:

- Potential energy efficiency measures
- Improper or illegal use
- Other problems

Under 2.42: the ability to monitor all meters may provide suppliers with a tool to readily identify instances of power failure, defects such as brown-outs, and assist in the location of such power grid faults.

Under 2.43: clarity may be required for home offices and live / work units.

Under 2.46: A website listing exceptions will assist all customers. Notes on utility bills giving reference to such a website will also be helpful.

In 3.9: Re-enablement of gas supplies may need a manual reset function for safety reasons.

In 4.15: It will be helpful if a home user can turn their gas and electricity supplies off from their in-home display unit, or by other means, including via the internet.

In Appendix 2, IHD functionality. I would request that the basic in-home display should either have the ability to flash alternative messages in rotation or have enough characters to include an energy saving message extending to 27 characters. A message pause facility or ability to flick through or switch between the various messages will also be helpful.

BH/27.09.2010