Dear DECC,

I would like to respond to a couple of the specific questions in the "Smart Metering Implementation Programme: consultation on draft licence conditions and technical specifications for the roll-out of gas and electricity smart metering equipment (August 2011)". I am a PhD student at Imperial College London working on "Disaggregating Smart Meter Signals To Provide Appliance-Level Consumption Information".

My responses are below:

Consultation question 24: Do you think that there are other requirements that the Government should adopt in the SMETS? Please explain your reasoning.

Make reactive power readings available over the HAN/WAN
I have read your "Functional Requirements Catalogue" dated 30th March 2011 and I note that reactive power (ES.8) and real power (ES.6) shall be measured by smart meters. I also note that the In-Home Display must update every 5 seconds (IH.2). Please may I suggest that reactive power measurements also be made available over the HAN? If as much information about real-time consumption is made available over the HAN then third parties could build accurate disaggregation systems which would connect to the HAN and automatically infer when individual appliances are active (and how much energy these appliances use). Specifically, supplying real-time information about both *real* and *reactive* power at a sample period of 5 seconds of lower should allow for accurate disaggregation to be achieved. Research suggests that appliance-level consumption information is much more useful to consumers than aggregate consumption information (Fischer 2008).

Numerical display of real time power consumption
I have seen some people suggest that the real-time power consumption should not be displayed numerically on the In Home Display because some consumers do not understand numerical representations of energy consumption. I beg you to *please include* numerical, real-time energy use on the IHD in units of kW. Many consumers *are* sufficiently numerate to understand numerical displays of energy usage and would value that information.

"Smart grid" functionality
Please ensure the smart meters will be able to handle technologies such as electric vehicles (with the option to use the EV's batteries as a storage medium for intermittent grid-connected renewable generation like wind).

Consultation question 46: Do you agree with the proposed approach for consumers to access data and transfer it from the HAN via a separate “bridging” device? Please explain your reasoning.

Yes, I agree with the government's position. I (and many people I know) will certainly want to gain access to their Smart Meter data from a computer, and would especially value a "bridge" device which could send detailed information to an Internet service.

References
Corinna Fischer. 'Feedback on household electricity consumption: a tool for saving energy?' Energy Efficiency, 1(1):79-104, May 2008. doi:10.1007/s12053-008-9009-7