Electricity Suppliers; Meter owners, operators and manufacturers; Distribution Network Operators and other interested stakeholders

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Dear Colleague

Use of Central Management System technology on public lighting

In April 2008 we wrote to industry expressing our concern that there might be impediments to the use of Central Management Systems (CMS) technology for public lighting purposes.[1]

Public lighting can be treated as unmetered supply where legislation allows for this.[2] Currently, the consumption of unmetered supply is generally estimated based on the number of street lamps, the wattage of these lamps and either the expected amount of time the lamp will be switched on for, or the operation of a nearby light sensitive switch.

CMS technology offers variable levels of functionality, the simplest of which allows for the remote switching of lights on/off, or dimming to various degrees of brightness ('Basic CMS'). More sophisticated systems can also have metering capability and two-way communication, allowing for remote meter reading and fault detection ('Advanced CMS').

We noted that applying this functionality to public lighting could potentially bring with it a number of significant benefits:

- Environmental, in the form of energy savings and reduced carbon emissions;
- Other efficiency benefits to local authorities, such as remote fault detection, which could cut the cost of monitoring and maintaining these assets; and
- The potential to reduce the volumes, and costs, of energy smeared across other network users by more accurately estimating the consumption of street lighting.

We had received a limited number of approaches from industry suggesting some concern that the pre-existing arrangements might preclude, or deter, the use of CMS.

Given our view that such systems may potentially bring customer benefits, we set out an intention to explore whether changes to governance were required to allow for the roll-out of CMS. We noted that CMS technology for public lighting falls outside of the MID Regulations (and hence the obligation to comply with the Essential Requirements) for two reasons. Firstly, the supply of electricity to public lighting is not considered supply for "trade" purposes, and secondly, supply to public lighting is ordinarily under an agreement where the maximum quantity supplied exceeds 100 kilowatts per hour. We noted that if

[1] http://www.ofgem.gov.uk/Markets/RetMkts/Metrng/Comp/Elec/Documents1/Public%20lighting%20open%20letter%20-%20FINAL.pdf
[2] http://www.opsi.gov.uk/si/si2001/20013263.htm

Advanced CMS was used to measure a "metered supply" for the purposes of the Electricity Act it would need to be regulated under the provisions of that Act. We envisioned that our next steps might take the form of the development of new technical specifications against which compliance with the requirements of the Act could be satisfied. Views were sought on whether this was an appropriate way forward.

Feedback from stakeholders

We received 16 written responses to our April letter, representing a wide range of stakeholder groups: 2 from local authorities; 4 from Distribution Network Operators (DNOs); 2 from meter administrators; 3 from vertically integrated suppliers; 3 from CMS equipment providers; 1 from a trade association representing equipment manufacturers and suppliers; and 1 from the code administrator of the electricity settlement arrangements These submissions are summarised in the annex to this letter, and full copies of the responses, can be found on our website[3].

In addition, we met with and/or sought further information from a number of different stakeholders involved in different areas of the CMS and unmetered supply market, such as equipment manufacturers, meter administrators and market administrators and the National Measurements Office (NMO).

Our views

We note that there was relatively little support for the notion of developing technical standards that would allow for CMS to be used for metered purposes. Indeed, many of the representations made to us suggest that introducing such a standard for Advanced CMS in addition to the existing BSC requirements may cause confusion and delay that could impede, rather than aid, the take up of this technology. The majority of representations by CMS equipment manufacturers did not favour such a step (although we note that not all CMS equipment is capable of generating actual metered reads).

We also note the evidence that a number of CMS systems have been through, or are currently going through, the BSC approval process for use at Unmetered Supply sites. These sites will however be settled on the basis of estimated, rather than actual, consumption.

Notwithstanding these points, we note that no-one has put forward any legal argument that would support the view that the metering functionality of this technology can currently be used. We remain of the view that allowing this aspect of Advanced CMS to be used is in the public interest, and could help to promote energy efficiency and the more accurate allocation of costs amongst market participants.

The BSC approval process that has developed to allow CMS systems to be used at Unmetered Supply sites appears to us to be an improvement on previous processes in so far as it should generate a much more sophisticated estimate of consumption at these sites than its predecessor methodology. But it is nonetheless still an estimation process rather than an actual meter read. We note that there is still the potential for a significant difference between the estimated load and the actual load of public lighting even under the revised methodology. Any disparities can affect not simply the relevant supplier and consumer, but all other suppliers and consumers because misallocated energy is smeared across other supply points.

[3] http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?docid=61&refer=Markets/RetMkts/Metrng/Comp/Elec

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Conclusions

Our view remains unchanged that it is necessary for Advanced CMS to be approved in accordance with the provisions of Schedule 7 of the Electricity Act in order for it to be used to meter supply.

We consider that any standard developed for the approval of such equipment should follow as near as possible the requirements of the MID, but without the need for a visual display device on each individual item of public lighting. Where possible, MID harmonised standards should be used to assess the conformity of the application – for example, EN50470-1/2/3.

We consider that the scope of approvals granted to Advanced CMS systems without visual display devices should clearly be limited to public lighting. We would not support the approval of such systems for use in environments where a visual display device is a practical and appropriate customer safeguard, such as residential or commercial premises.

CMS is an emerging technology and different systems will have different functional capabilities. Whilst we hold the view that Advanced CMS can be approved under the provisions of the Electricity Act, manufacturers must be aware that there is no guarantee that it will be approved. Systems must meet a relevant standard or an approval certificate will not be issued.

The responsibility for determining whether an approval under the Electricity Act can be granted rests with the NMO. Manufacturers wishing to seek approval from the NMO should contact electricity.metering@nmo.gov.uk for further details on how to progress their application.

Gaining approval under the Electricity Act would allow meter reads from Advanced CMS to be used for the purposes of customer billing, but it is not clear that BSC processes would currently allow it to enter settlement. We consider that the BSC Panel and/or ELEXON should give further thought to finding ways to allow actual meter reads from CMS to enter settlement – subject to such steps being cost efficient. Consideration will need to be given to balancing data demands with the need for precisely apportioning consumption data. For example, where multiple items of street furniture are attributable to the same customer within the same GSP Group it may be reasonable for these to be aggregated into a single meter read – but such aggregation will not be appropriate where the demand is split across customers or GSP Groups. Thought should also be given to whether actual meter reads from CMS systems can be used to improve the estimation of the consumption of public street lighting that continues to be settled on estimates.

We would like to thank respondents for taking the time to comment on the issues raised in our last letter and for their detailed and useful contributions.

If you have any queries or comments in relation to this letter please contact Richard Hall on 020 7901 7089.

Yours sincerely

Emma Kelso,
Head of GB Markets

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Annex 1 – Summary of responses to Open letter

We received 16 written responses to our April letter, representing a wide range of stakeholder groups: 2 from local authorities; 4 from Distribution Network Operators (DNOs); 2 from meter administrators; 3 from vertically integrated suppliers; 3 from CMS equipment providers; 1 from a trade association representing equipment manufacturers and suppliers; and 1 from the code administrator of the electricity settlement arrangements.

The responses are briefly summarised below. Full copies of the submissions are available from the Ofgem website here:

http://www.ofgem.gov.uk/Pages/MoreInformation.aspx?docid=61&refer=Markets/RetMkts/Metrng/Comp/Elec

Local authority views

One local authority suggested that perceived legal barriers may inhibit the take-up of CMS. It additionally suggested that the take-up of CMS may be slow due to its expense. The other local authority highlighted that it was trialling CMS systems but also expressed concern that its cost may mean it is not an economically viable option for many councils.

DNO views

The views of DNOs were mixed. One expressed dismay over the proposal to develop a new standard for CMS, suggesting that ELEXON had recently rolled-out processes within the Balancing and Settlement Code (BSC) (described later in this letter) that would allow for customers to enjoy the full energy saving benefit of remote switching and dimming of lamps via CMS systems. One welcomed the introduction of CMS technology provided this avoided any requirements that did not make its adoption impracticable, whilst noting that there would continue to be a need for robust and auditable arrangements for the collection and aggregation of data. One was in agreement with the high level principles outlined in our letter and outlined the areas where CMS was preferable to the status quo. It additionally outlined a number of practical steps that it thought would be needed to build and operate a CMS regime. The remaining DNO also outlined practical steps that would be needed were there to be a large scale migration from the current unmetered inventories regime to CMS, whilst also highlighting the local authorities' concern that the perceived cost of CMS may discourage its roll-out. It queried our assumptions on DUoS charging for unmetered supply and that unmetered supply connections will necessarily exceed 100Kw. It suggested that advanced CMS could have a role to play in network load management through the exercise of pre-emptive rights to turn off, or dim, street lighting.

Meter administrator views

The views of the two meter administrators were polarised. One was critical of our proposals, suggesting that the recently adopted BSC processes meant that the perceived barriers we had identified had already been overcome. It suggested that developing an alternative method to facilitate CMS would cause customer confusion and may mean that organisations' investments in the existing processes had been wasted. The other suggested that the current BSC processes were unsatisfactory and that going to a fully metered solution for street lighting was highly desirable. It suggested a number of technical requirements that the metering equipment, and those that collected data from it, should meet.

Supplier views

Two of the three vertically integrated suppliers were supportive of our proposals, whilst the third provided an ambiguous response. One suggested that the current governance regime for unmetered supply was inadequate, citing problems with the accuracy of inventory and

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switching times that fed into it and criticising the lack of a re-testing regime for ageing equipment. It suggested that issues around the ownership, transferral and assurance of data would need to be addressed by the new regime. One highlighted its positive experiences in the use of CMS and suggested that extending its use to include metering functionality would be a natural progression from the current arrangements. It also suggested that CMS may be useful in other areas of unmetered supply beyond street lighting, using cable television and radio amplifiers as examples. The remaining supplier supported the principle of adopting new metering technology in street lighting whilst raising a number of practical questions about how this might work: for example, the role of the customer in collecting data; and the processes around a site moving from unmetered to metered supply. It queried whether we were seeking to mandate CMS or whether this would be the customer's choice, and suggested that the current market structure could already deliver the arrangements we envisaged.

Equipment provider views

The majority of CMS equipment providers were unsupportive of our proposals. One suggested that the BSC processes could already provide very accurate power consumption data to the meter administrator and the correct incentives to municipalities to install CMS systems whilst still operating in the unmetered framework. It suggested that the only perceived barrier we had identified was in relation to metering and that this was irrelevant, implying that CMS would only be used on sites covered by the unmetered supply regulations. It stated that our proposals were unnecessary and would cause confusion that may hamper, rather than stimulate, the adoption of CMS. The second equipment provider also suggested that the existing market framework already provided for the benefits of CMS to be realised through unmetered CMS. It argued that developing a metered CMS specification would confuse the public lighting market and significantly delay the adoption of energy reduction technologies. It suggested there would be benefits in our mandating the metering of street lighting and provided extensive comments on a range of technical issues surrounding the functionality and performance of equipment. The remaining equipment provider described the BSC processes as only a partial solution that continued to use estimated power loads rather than actual power loads. It preferred fully metering street lighting, envisaging the development of a regulatory framework for this that included equipment specifications, codes of practice and tariff structures and the measurement of reactive as well as active power.

Trade association (for equipment providers and suppliers) views

The trade association representing CMS equipment providers and suppliers re-iterated the views of the majority of CMS equipment providers that our proposals would not help the roll-out of CMS. It suggested that a number of CMS systems are already on the market and that the BSC processes allowed for the delivery of a range of benefits from the technology, such as reduced carbon emissions, improved power factor correction and tolerance to supply voltage variations. It suggested that mandating any additional requirements would take time and may reduce or delay the delivery of these benefits.

Code administrator views

The code administrator of the electricity settlement arrangements outlined the processes that have recently been introduced into the BSC. It suggested that were CMS sites to be treated as unmetered supplies there would be minimal impact on the settlement arrangements, although it suggested that modest changes would be required in order to allow dynamic power factors from CMS equipment to be used in creating more accurate half hourly consumption values. Were CMS sites to be treated as metered supplies, it suggested that more extensive changes would be needed to BSC governance in order to create a new category of site sitting between unmetered CMS and conventional metered supply.

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