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Rhianne Ogilvie
Ofgem
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Dear Ms Ogilvie

Assessing the energy efficiency potential of Great Britain's energy infrastructure

Thank you for the opportunity to comment on this report.

Whilst we can see the drivers for the creation of this report, we are concerned that DECC and Ofgem have an inappropriate focus on it compared to energy efficiency overall. Network losses follow from the end usage of electricity by customers; the biggest reduction in network losses will follow from energy efficiency measures by customers, reducing overall energy usage in GB. It seems odd to be developing energy efficiency approaches to networks, largely in isolation of a wider policy discussion on future energy usage. It is true that the report discusses possible future energy scenarios. However we believe it would make more sense for network losses to be an integrated into an overall energy efficiency strategy for GB, rather than being developed as a standalone response.

The report seems to cover the obvious points and we have little to comment on in detail; such detailed comments as we do have are attached in Appendix 1.

The significant issues we believe you should consider include the impossibility of achieving an absolute measure of losses that is better than two percent accuracy, ie compared to the estimated five or six percent (ie a forty percent error on the absolute level) currently estimated. This is because even post smart metering roll out, the accuracy of smart meters will be only $\pm 2\%$.

There seems to be confusion in treating energy used by DNOs as losses; this is not the case.

There is scope to review the voltage limits in ESQCR to ensure that DNOs are not bound to suboptimum voltage profiles.

Please do not hesitate to contact myself or Mike Kay (mkay@iee.org) if you need any further amplification of the points above, or in the appendix.

Yours sincerely,

pp Sarah Walls
Head of Regulation

Appendix 1

2.1 – the requirement to run an efficient and economic system is a requirement of the Electricity Act.

2.1.2 – electricity used in substations auxiliaries including battery charging and transformer cooling is not non-technical losses. Substation usage should be accounted for either by metering or as unmetered usage.

3.1 – in addition to the loss measurement problem caused by non-half hourly metering at the majority of exit points from the networks, even post smart metering roll out the accuracy of the metering at exit points will be 2%. The accuracy of the metering for energy flowing into networks is in the main 0.5%. Attempting to measure an overall loss of about 6% with 2% and 0.5% accuracy metering is always bound to be inaccurate. The absolute level of losses, ie the GWh, will always be very uncertain within a couple of percent of the total energy distributed.

3.4 – the last paragraph is unclear. It talks about “this scenario” – however it is not clear what this is referring to.

4.1 – in the first para it states that “this ensures that DNOs have access to funding...”. It hardly “ensures” it. “Ensures” is an overstatement for any part of a price control taken in the round as part of the price control package.

4.2 – metering usage – re the losses in metering – it is a moot point if these are losses, or if the usage inside the meter is actually metered – ie appears as customers’ usage. Since the meter is performing a useful function the power used to drive it should not be considered as a loss – however it should be accounted for.

Non-firm generation connexions – the logic here applies to all connexions. It is not clear why generation has been singled out.

5.2.1 – voltage control. Reducing the voltage of all systems apart from the LV system will increase losses. Reducing the LV voltage will reduce energy consumption by customers, but it will increase network losses on the LV network. From an overall energy efficiency view point it is a good thing to do as the overall reduction in energy used will be greater than the increase in losses on the LV network. However, great care needs to be exercised in assessing the benefits of such activity.

5.2.2 – this paragraph highlights the need to review the voltage requirements in ESQCR. Voltages need to be optimized to suit the requirements of generation and demand. The fixed limits of ESQCR, reflecting the approaches from the 1930s, are overdue for a comprehensive review.

6.1.5 – it is far from clear that existing 6.6kV networks will “gradually be replaced”. In some cases they will, but we do not expect to see this undertaken in any significant way within the time horizon of this report.

6.1.7. Substation auxiliaries are not losses – they are legitimate uses of electricity that is accounted for as sales. Whilst this initiative is clearly a good thing, it should have zero effect on losses.

6.1.8 – what is this section trying to say? Which three systems? It sounds like this might be trying to make some point about the co-ordination between transmission companies.

6.2.3 – this is a proposal for energy efficiency, not for loss reduction. Substation energy usage is not losses. In any event this is not an initiative: it has been common practice for 40 years in some DNOs and the primary driver is the need to manage the humidity of the substation environment to control the degradation of insulation by partial discharge, which is often aggravated by high humidity levels. So whilst not wrong, badging this as potential future loss minimization seems wrong in more than one way.

Typos:

P26 third para – program should be programme.

P32 – last para of phase balancing: course should be coarse.