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COMMENTS ON OFGEM'S 2-YEAR HORIZON FORWARD WORK PROGRAMME (FWP)

Summary

The UK has successfully met the first carbon emissions budget (2008-2012) and is on track to outperform the second (2013-17) and third (2018-22) budgets. However, it is likely that territorial¹ emissions will exceed the fourth (2023-27) and fifth (2028-2032) carbon budgets unless robust policy commitment along with adequate resource is made available (Committee on Climate Change, 2018).

Ofgem has a role to play in assisting government deliver against the targets set by The Climate Change Act 2008, and establishing a FWP that can be shared and agreed throughout the organisation, and with stakeholders, is the means by which to focus attention on these activities as well as to continually improve the broader regulatory role Ofgem plays within the gas and electricity market to deliver a stable and secure supply, and value for consumers.

The recent Glasgow Conference, Energy of the Future, laid out a draft FWP – identifying four priorities, and sought feedback from a range of stakeholders. The comments that follow are confined to the first two priority areas: making retail markets work for all – where it is felt the present proposals fail to provide protection to a large number of vulnerable consumers, and enabling future markets and systems - where opportunities to increase the pace of change to meet future carbon budgets are identified.

Priority 1 - Making retail markets work for all

Ofgem CEO, Dermot Nolan, emphasised at the Conference that he wanted to see significant improvements in terms of value for money for customers by making retail markets work for all. The point to draw out, in case it should be overlooked, is that the energy market does not work for all consumers at present – where many are potentially vulnerable and without protection.

¹ The term 'Territorial' is used here to signify all business activities taking place within the UK that give rise to CO₂ emissions with the exception of goods and services that are exported.

Significant here is the number of energy consumers who have no access to the gas grid and who consequently depend on other, more expensive, forms of energy to heat their homes. LSOA 2017 estimates for households not connected to the gas grid that there are over 1 million consumers in Great Britain who depend on these other forms of heating. Leaving to one side electricity, which is regulated by Ofgem, the majority of these consumers depend on oil, solid fuel or some other form of energy.

Coming closer to home, to Scotland, there are over 100,000 households that fall into this category, with only six of Scotland's 32 unitary areas comprising some 75% of this figure. These areas are:- Dumfries & Galloway; The Borders; Highlands; Argyll and Bute; Perth and Kinross, and the Orkney Islands, who all have around 50% or more households not connected to the gas grid. For these, oil is the most common form of heating (62,650 households on oil and 13,476 using solid fuel) and most of the properties are detached with a ratio of rented to owner occupied varying from 1.11 – 1.65.

Many of these properties are old, traditional stone built, poorly insulated and thus less energy efficient, and those dependent on oil experienced a 33% increase in the cost of fuel over the period Q2 2017 – Q2 2018. By comparison, mains gas increased by around 2.0% in real terms over this period.

These six unitary Council areas also share another similarity: they are classified as rural areas according to the Scottish Executive (2004) Urban Rural Classification. Rural areas such as these face a range of socio-economic problems such as, in relative terms: falling employment prospects; low wages; poor productivity; low educational attainment; limited levels of entrepreneurship; ageing populations and subsequent increasing demands on the National Health Service. Remoteness from principle towns and larger villages; longer commuting distances; poor public transport; the essential need for car ownership and low broadband speeds aggregate to present these areas as communities where many consumers face the prospect of becoming vulnerable to fuel-poverty.

Indeed, the combination of poor energy efficiency, low disposal household income and the relatively high price of domestic fuel saw fuel poverty rates increase in Scotland from 26% in 2016 to 40% in 2017 – with over half this number arising from older households (Energy Action Scotland, 2018).

It is reassuring that Dermot Nolan acknowledged the difficulty of defining vulnerability – but accepted the need to do so in updating Ofgem's vulnerability strategy. We invite the Ofgem team, therefore, to reflect on the issues of rurality raised in this note and the synergy between rural areas, the predominance of off-grid fuel for heating, and the link with fuel poverty.

While it is appreciated that Ofgem has no responsibility at present for regulating the oil and solid fuel retail markets the Authority is urged to take steps to seek such responsibility on the grounds of:

a) the lack of regulation of this large and unprotected market; b) the disproportionate influence this form of energy source has on carbon emissions; c) recent consolidation in the supplier market leading to reduced competition; d) the potential for collusion, and e) the absence of innovation in the market. Each of these factors may individually or jointly lead to an increase in the level of fuel poverty. Furthermore, in line with the UK Government's Clean Growth Strategy, seeking such responsibility would usefully place Ofgem in a position to monitor the phasing out of high-carbon fossil-fuel heating in homes and businesses off the gas grid during the 2020's.

Priority 2 – Enabling future markets and system arrangements that will benefit consumers

1. Implementing new systems and rules for a smarter, more flexible energy system - and also an energy system that is decarbonised in both electricity and heat by 2030, 2040 and 2050

Priority 2 is challenging, and yet the FWP activities in this sub-area, namely: continuing to support the smart meter programme and consulting, and deciding on market-wide new arrangements for half-hourly settlements, feels wholly inappropriate in helping bring about decarbonisation of both electricity and heat. Several points are drawn out here.

Firstly, the power sector has already gone well down the route of decarbonisation, with, since 2012, around 75% of UK total emissions reductions arising from changes within electricity generation, which experienced a 59% fall in CO₂ emissions over the period 2008-2017. This implies that decarbonisation of electricity (and heat too) is a journey and not an end-state resulting in zero emissions – at least in the foreseeable future. Consequently, it would help to talk in more specific terms when discussing decarbonisation. Reference to and progress towards some recognisable target would help. For instance, the UK Committee on Climate Change cite in their 2018 report a figure of less than 100gCO₂/kWh as being achievable in the near term – with political commitment and resource.

Secondly, electricity in particular is inherently interlinked to other sectors, such as heat and transport where, for example, any significant transition to heat pumps and/or to electric vehicles will result in the need for additional demand from low-carbon electrical sources (estimated in the order of 100TWh, or around 1/3 of existing GB annual electricity consumption) to facilitate such a move.

Ofgem, surely therefore, has a major role to play in facilitating this process by providing a long-term view of future low-carbon power Contract-for-Difference auctions to signal market expectations and strengthen investor confidence. Satisfying part of this additional low-carbon energy mix may also require Ofgem to look at how the cheapest forms of low-carbon generation can be afforded a clearer route to market in light of, for instance, the Department of Business, Energy and Industrial Strategy

(BEIS) announcement that as of 1 April 2019 the FiT scheme for solar generation will close to new applicants.

Finally, heating – despite several initiatives this is an area where emissions rose slightly in 2017 compared to 2016, with the majority of building emissions arising from residential property. Against this rather poor performance it is perhaps unsurprising that the withdrawal of incentives has cut home insulation installations to around 5% of 2012 levels. On the other hand, under the UK's Clean Growth Strategy, there is a requirement for new buildings to require at least half the present energy consumption, by 2030. These two factors appear incompatible.

Ofgem clearly has a key role to play in reducing emissions from heat. Continued use of grid gas for providing heating to the majority of UK consumers cannot be justified longer-term. Electrification (via heat pumps) for off gas grid consumer's needs additional incentive as the take-up has stalled somewhat. Ofgem should consider how key technology, whether that be related to hydrogen, biomethane, biomass, heat pumps, or other forms of heating, can be employed at unit and aggregate level while also being cost effective, and therefore attractive for developers and consumers alike. Ofgem has an important signalling role here to provide market certainty. Part of the role also involves convincing Government that the market needs assistance in order to grow the low-carbon goods and services sector.

2. Develop solutions and systems for future consumers

The second priority for Ofgem's FWP also includes a sub-area that involves looking again at improving network access. While not explicitly stated in the draft FWP, it is assumed this activity refers to developers, and particularly those wishing to connect renewable generation to the network. If this interpretation is correct, then plans to improve network access should not come at the expense of increasing constraint payments for existing generators at times when there is insufficient network capacity.

3. Electricity network access review

The third area falling under Ofgem's second key priority: enabling future markets and system arrangements, involves the decarbonisation of transport and the roll-out of electric vehicles – with the Department for Transport 2018 report, Road to Zero, setting the scene by stating that by 2040 each new car sold in the UK is to have an electric driving range of 50 miles. Or, the Scottish Government's more pressing challenge - that by 2032 there will be no more new car sales of hydrocarbon powered vehicles.

While both challenges are welcome, given that transport has now become the largest emitting sector of the UK economy – accounting for around 28% of UK greenhouse gas emissions in 2017, Ofgem's

draft plans in this area appear to be light in one very important area: how electrification of transport may affect the future cost of electricity. The question raised here is how the UK Government will recover the £25 billion² or so lost from fuel tax on petrol and diesel, together with the VAT charged on this amount. The issue for Ofgem, given that as the transition to electric vehicles takes hold, is the variable cost element of the electricity for charging these new vehicles could almost triple³ in price.

Some of the ethical challenges for Ofgem then become: a) should all consumers pay this additional cost, whereby those without cars end up subsidising those who drive electric vehicles; b) should consumers be informed that smart meters could help level the playing field by automatically detecting when an electric vehicle is being charged; c) on the assumption that the government will seek to recover revenue lost from hydrocarbon fuels, at what stage should the public – especially the motoring public, be made aware that the variable rate for electricity to charge electric vehicles will have to rise to some premium level?

4. Energy consumers continue to benefit from a stable and secure energy system

The UK is well endowed with low-carbon generating capability – in which 2017 saw electricity generated from this source increase to 52% of the total energy demand, with fossil fuel generation making up the remainder. However, the present GB fleet of nuclear power plants that contribute day-in and day-out toward satisfying the need for low-carbon electricity are ageing and beyond 2030, unless the Office for Nuclear Regulation grant further extensions, only one of the current fleet will remain operational: Sizewell B. The 2030's and beyond will also be a time when, as the transition to

² The UK Petroleum Industry (UKPIA) refer to the fuel retail sector being equivalent to 36bn litres in 2017, with the total road fuel market standing at 46bn litres. If the lower domestic market figure is used together with the 57.9p/litre fuel tax and with 20% VAT on top then the gross annual duty (fuel duty plus VAT) is in the order of £25 billion per annum and exceeds £30 billion for all road transport.

³ Two methods have been used to estimate the unit cost of electricity to charge electric vehicles, should the government decide to recoup revenue lost from taxing hydrocarbon fuel. The first method is based on an approximate 3 miles/kWh achieved in practice from a range of EVs. The RAC publish figure for the number of cars on GB roads in 2018 (31.6 million) and, in the case of cars and taxi's only, they estimate 244 million vehicle miles in 2014. Using these figures, therefore, suggests something in the order of 80TWh's of electrical energy will be required to charge EVs in place of hydrocarbon fuels. Lost fuel and VAT of £25 billion divided by 80TWh's yields a tax/kWh of 31.25p.

The second estimation method involves using the energy density of hydrocarbon transport fuels, where petrol and diesel are assumed to be equivalent to 37MJ/litre. With cars and taxi's consuming 36bn litres in 2017 this represents a total energy requirement of almost 370TWh's. However, as petrol (and diesel) engines are inherently inefficient, around 25% efficient, only around 92.5TWh's is converted into kinetic energy, with the remainder lost as heat. At an annual consumption rate of 92.5TWh's the tax/kWh therefore becomes 27p.

Given the present domestic variable cost of a unit of electrical lies between 16-17p then the retail price of a unit of electricity needed to charge an EV would cost, today, between 43-48p – an almost 300% increase.

the electrification of transport and heat works through the system, an additional potential of up to 100TWh's of electrical energy could be required to meet annual demand.

Plans for new nuclear generation to replace those coming off-stream over the coming decade or more appears to have stalled with only Hinkley Point C looking likely to connect to the grid in the late 2020's. Set against this limited achievement the UK Government, following on from the National Policy Statement for Nuclear Power Generation (2011), expected around 16GW of new nuclear power by 2030, but this is now looking more uncertain. Urging action, a Royal Academy of Engineering report, dated 2015, highlighted the concern for system security should new nuclear be much less than 15GW by 2030 while the House of Lords Select Committee for Economic Affairs (2018), taking oral evidence from Greg Clark MP, pressed for a back-up plan in light of significant and on-going concerns about the deployment of new nuclear installations.

In view of the level of apprehension for the likelihood of the planned low-carbon energy mix failing to materialise on time and the potential negative impact for achieving a stable and secure energy system, does Ofgem, along with National Grid, have role to play in considering what steps may be taken to increase the pace of renewable and/or other deployment to make up any shortfall in nuclear – should it materialise?

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