

Regen Members' Forum: The Future of Network Charging 22 January 2019 in London

with Andrew Self, head of electricity network charging at OFGEM and panel discussion - *'How should we pay for the electricity network to underpin a low carbon and flexible energy system?'*

I made some further observations after seeing others' responses to the Targeted Charging Review, to the effect that the Ofgem objective of lowest cost energy for consumers may not conflict with the concerns that climate change has to be the highest priority. I sent these comments in with this response, and have appended them to this document – see last page...

Report on Future of Network Charging event.

Ofgem are running a [Targeted Charging Review](#), with a [Consultation Document](#) (96 pages!) and [15 subsidiary documents](#). Responses can, mercifully, be free-form emails, and are due by February 4. The aim is to reduce distortions in the charging system and increase **fairness*** – to achieve change in a practical and proportionate way. Any summary is going to oversimplify, but from the executive summary:

This is a consultation on changes to the way in which we recover the costs of the networks used to transport electricity to homes, public organisations and businesses. These costs are recovered through two types of charges: 'forward-looking charges' which send signals about how much costs will increase (or decrease) with network usage, and 'residual charges' which recover the remainder of the costs. ... This review would aim to ensure that those who take action which benefits the electricity system and consumers as a whole pay less.

Andrew Self, leading the Targeted Charging Review at Ofgem, gave a good overview. His slides and the delegate list for the day are [here](#).

It helped me to learn that network charges are about a quarter our energy bill, and that whatever 'forward-looking charges' and 'residual charges' are, they are roughly 50:50. The idea is that the 'forward looking charges' should fairly reflect the marginal cost of adding capacity to the network – so if the network grows 20% because we're all using electric cars, forward charges will cover the cost of expanding capacity in the network. Your own bill won't go up unless you're one of the people buying this 20% more electricity. The residual charge is the approximately 50% left of the cost of the network that doesn't go up or down with network size. In this review OFGEM say they are 'minded to' separate these two into variable and fixed charges respectively – i.e. the forward-looking charge ends up in your cost per unit of electricity, and the residual charge ends up in your standing charge. Or that's how I understood it, but I invite feedback corrections, etc...

Ofgem believe this will deliver efficiencies, so the average energy bill will go down...
"In addition to the overall distributional effects, which saves the median domestic consumer £8, our proposed changes to residual charges could save

around £2 a year for households in the longer term. ... The majority of households will benefit from the rebalancing of charges. However, some households who use the least electricity could face a typical annual increase of between £2 and £22 a year when these changes fully come into effect."

For communities and community groups, this alone may be enough to set the cat among the pigeons, because the proportion of the bill that is a standing charge goes up, those who use less will pay more – not great for people in fuel poverty. Conversely, climate change activists will see red because the cost per unit of electricity will have come down, so there is less incentive to cut down your energy use and hence carbon dioxide emissions. On the other hand, if this encourages you to use an electric car because, in effect, the fuel cost has come down, then this replaces fossil fuel emissions from your old toxic diesel, so that is good. And as the percentage of renewable electricity rises, the emissions from increased energy use go down. There are swings and roundabouts here, and it's healthy to have the debate.

When it came to the panel discussion, the more knowledgeable people were concerned that lower per-unit pricing for electricity was going to impact the financials on projects and discourage investment in renewables – perhaps putting projects back by a couple of years. My question, of course, was around what effect this might have on putting solar panels on roofs in Lockleaze in an energy sharing scheme. I got to ask the question, but it wasn't answered by the panel, so I put it directly to Andrew Self afterwards, suggesting that our 'behind the meter' generation of solar on people's roofs would end up saving people less if the per unit cost of grid electricity goes down. But on the other hand, lower transmission charges would help us if we are sharing energy with neighbouring homes in a substation area.

He nodded and helpfully reassured me by suggesting that this whole review might take 2-3 years before it is brought into action – by which time we should have both cheaper solar panels from costs going down and volume going up as we expand, and lower finance charges as well. So, I see no sign to panic. I also sounded him out on my other favourite topics – whether he felt electric vehicles would usefully add storage to the network to balance demand at low cost, as the EVs will be replacing fossil cars that will soon cost more than the EVs, hence have no marginal cost. He seemed very open to that though the idea annoyed another person who was questioning him – who was involved in adding grid balancing services with battery storage that obviously have nonzero marginal cost...

A point that follows from all this is that if you are planning new energy efficient housing, with ample onsite generation for homes, which don't consume much energy, you are going to be hit by increased fixed charges and get less money for any electricity you export. This may create sufficient financial incentive to either turn the site into a gated community with a single commercial meter covering all users – a micro-grid. Or indeed you might want to go off-grid altogether, which might more directly challenge the current legacy network. On this point I tackled Andrew on the idea that a gas grid converted to hydrogen (which inherently contains a lot more transmission capacity as well as a lot of storage) might eventually supplant the electricity distribution network. This idea did not seem to phase him at all.

***OFGEM have a set of 5 fairness principles governing this work** – *"five elements of fairness that we considered most relevant to electricity network charging:*

- a) equity & equality;*
- b) simplicity;*
- c) transparency;*
- d) justifiability; and*
- e) predictability."*

It's obvious that this review itself is causing some immediate short-term unpredictability, and it was clear to some of the speakers and questioners that this is not putting climate change remediation, or the promotion of renewables right at the top, as overarching principles. Of course, the reply was along the lines that sustainability is embedded in everything they do and in all the fairness principles. Some may consider that this is not enough, and it would be good to emphasise this in their responses to the consultation. Lastly, it was not clear whether this still leaves room for reduced network charges for local transmission of locally generated energy (Local Use of Service or LUoS) which would support local renewables – which certainly incur lower 'forward-looking charges' – so it will be good to plug this too.

So, that's my first two cents worth on yesterday's interesting meeting. It marks a new stage in community learning about energy networks, taking us beyond mere renewable generation, and – given the end of subsidies – hopefully in the direction of truly sustainable business models. I'm sure we'll learn a lot more in the coming months and years, and hopefully put it into dynamic action. There are many other consultations going on, e.g. on how to charge for new access to the network for generators – shallow or deep? – i.e. the whole cost of new connections or some kind of marginal cost. The targeted charging review comes up on [page 2 of this comprehensive OFGEM list](#). Community groups will imagine how lovely it must be to be earning a salary while participating in all this. <Grin>.

I'm circulating this to a few others – either for information or in the hope that my early misconceptions can be put right or that this will spark further helpful comments...

Thanks to Low Carbon Gordano for supporting my/our learning, and to Andrew Self for entering the lions' den and surviving – and to Regen for a helpful event...

With best wishes,

David Saunders • Zero Carbon Bristol
davidnsaunders@me.com • +44 7790 779470
Hamilton House, 80 Stokes Croft, Bristol BS1 3QY

Addendum - Zero Carbon Bristol Response to Ofgem Targeted Charging Review

Is the Review Really Fair?

The common thread across community responses is the urgent need to address climate change and decarbonising the energy systems as a top priority, and the sense that setting reducing energy costs for consumers as the overriding goal is not directly addressing what may well be the biggest issue and the defining challenge of our time. During the last year this came more and more sharply into focus, with the IPCC declaration of a climate crisis, and cities like Bristol and Nottingham shifting their 2050 decarbonisation goalposts to 2030 and 2028 respectively. Activist groups like Extinction Rebellion have sprung up arguing that we have to decarbonise by 2025 at the latest, and to those who would respond that we would have to change everything to do this – virtually put our economies on a war footing in order to save the planet, they respond “Great, you are starting to understand...” Every day we get new news – [today's was about the loss of Himalayan glaciers](#). The pressure is only going to intensify, and the energy industry is uniquely positioned to deliver the results we need.

Better Prices versus Lower Carbon

That's my observation, and now I'd like to add the point... Sometimes, when attempting to optimise the behaviour of a system for different criteria, the same end state is achieved. In this case it is increasingly clear that locally generated renewables are also the lowest cost energy. I'm thinking especially about roof mounted solar here, but not exclusively. And rooftop solar is the easiest way to get a chunk of energy to people cheaply without any additional network costs – indeed, in the case of self-use of rooftop generated energy, without any network charges at all. Similarly, any surplus energy can most easily be stored locally, for instance in electric vehicles, and consumed locally putting little or no strain on the local distribution network. Taken to the extreme – and people are already modelling this, and have been doing so since 1975* – surpluses of locally generated solar energy can be used to make hydrogen at substations, and fed into the gas grid, or used directly in hydrogen fuelled transport. The gas grid is an ideal storage medium for surpluses of periodically generated energy like solar and wind, and has massive extra capacity and flexibility compared with the electricity distribution and transmission networks. *In his 1975 classic 'Energy, The Solar Hydrogen Alternative' John O'Mara Bockris argues convincingly for a Solar Hydrogen economy with little or no need for a national electricity grid.

Summary

A little intelligent modelling of future energy scenarios should show that the cheapest electricity is going to come from the most renewable network, and the most distributed generation. And that will make everyone happy, apart perhaps from a few vested interests. For them, the argument has to be that a better world is only possible if we reverse climate change as quickly as possible. And the investment this will require, and the economic opportunities this will create, are going to benefit everyone, including those vested in the old system – if they wholeheartedly embrace change.