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Dr Jeffrey Hardy
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Dear Jeffrey

Re: Non-traditional Business Models: Supporting Transformative Change in the Energy Market

Open Utility welcomes the opportunity to respond to Ofgem's consultation *Non-traditional Business Models: Supporting Transformative Change in the Energy Market*.

We design and build digital services to aid the transition to a future where distributed renewables and smart systems power our businesses, homes and public buildings. This summer we are piloting Piclo, our ground-breaking 'online peer-to-peer energy marketplace' where generators will be able to sell their electricity directly to local consumers.

We support Ofgem's move to recognise the importance of non-traditional business models (NTBMs) within the energy market. In the next 5 years, the two megatrends of renewables and smart meters could really transform the industry and open up unparalleled opportunities for customer engagement and empowerment. An online energy marketplace, enabled by scalable technology, would make it simple for anyone to be involved - whether they are a household, small business owner, or conglomerate.

We do think that Ofgem should give more weight to digital service companies that could transform the market by leveraging technological solutions. The report tends to focus on new players who are looking to disrupt the market essentially through competition, who in reality are adopting the same business models as the established players.

Please see attached to this letter:

- Schedule 1: our vision statement, giving context to why we founded Open Utility
- Schedule 2: answers to the NTBM consultation questions

In general, we are happy with the progress that the NTBM paper represents. As next steps, we would encourage Ofgem to further investigate the role of technology in transforming the energy marketplace. We would also be interested to see a greater level of

detail in its approach and the development of specific change proposals to support NTBMs, both of which are essential if any real benefits are to emerge.

Thanks again for inviting us to respond to the paper - we would like to restate our support of the workstream and Ofgem's commitment to supporting innovation within the sector.

We would be delighted to provide additional comments and clarification if this would help.

Yours sincerely,

James Johnston

Co-founder and CEO

Open Utility Ltd

Schedule 1: Vision Statement

A world powered by renewables

The global energy industry is undergoing a transformation. In every country around the world, renewables are challenging the status quo of fossil fuel power generators by providing a low-cost, sustainable alternative.

An open marketplace for trading energy is needed to capitalise on this growth of renewables. A democratised energy marketplace hands trading power back to consumers and generators, the people who are both buying and exporting energy on a daily basis. This has the power to lower energy consumption costs, provide higher returns to generators, build and enable community energy engagement, and provide a sustainable solution to meet the growing energy needs of the world.

However, the fledgling renewables sector is still perceived by many as a premium product, propped up by subsidies and not a practical solution for the mass market. Nethertheless, energy market transformation is already underway, and enabled by technology, the speed of change could be much faster than most people currently realise.

In particular, solar PV has demonstrated a steep learning curve - i.e. it has shown exponential improvements in performance and cost over time. Over the past 30 years, the cost of a solar PV module has dropped by 20% every time the cumulative shipped volume has doubled. Batteries are also showing early evidence of a similar steep learning curve.

Crucially, traditional generation and storage technologies have a relatively flat learning curve, which means they are no longer showing substantial improvements in either cost or performance. The result is that once price-parity is reached, the industry will enter an unstable period of rapid change that will only end once renewables have complete market share. Analysts expect price-parity to occur in most regions of the world (including the UK) within the next 5 years.

Democratisation of energy

Renewable energy will drive a massive upheaval in the architecture of the power industry. Currently, 80% of our power is generated by relatively few large power stations and only 20% is generated locally or onsite. With renewables, it is more cost effective and efficient to generate at or near the point of use, so in the future, this 80/20 ratio could easily reverse.

In this new world, the primary role of the grid would cease to be the unidirectional transmission of power from centralised power stations, and instead would essentially become a backup service that enables buildings to trade their surplus power between each other.

An open access, online marketplace for trading energy would make it simple for anyone to be involved - be it a family, small business owner, or conglomerate. This is a vision of the

democratisation of energy, one which enables everyone to take full control of this essential service, much like how the internet democratized communication over the past 20 years.

Peer-to-peer energy

In order to achieve this vision, a peer-to-peer system for trading energy needs to be developed. There are three key components in this system:

1. a trading system that can scale exponentially
2. a user experience that is both simple and intuitive
3. a seamless interface to smart meter data, the grid and the regulator

We are working with Good Energy to launch our first service - Piclo - as a first step towards building this system and realising our vision.

Schedule 2: Answers to NTBM Consultation Questions

CHAPTER: One

What is your view on our definition of non-traditional business models?

The Ofgem proposed definition is currently very broad, but considering the wide range of new companies and approaches in the industry, it is a suitable starting point for the NTBM workstream.

We do think that more weight should be given to digital service companies that could transform the market by leveraging technological solutions and the vast amount of data produced by the smart meter rollout. The report tends to focus on new players who are looking to disrupt the market essentially through competition, who in reality are adopting the same business models as the established players.

How we can engage with NTBMs more effectively in the future?

We think that a forum approach (perhaps similar to the Independent Supplier Forum) could be very effective. In particular, we think that a key role of this forum would be to encourage discussion across a wide range of disciplines across different types of industries.

We think that it would be beneficial to extend participation of NTBM discussions to organisations and sectors that have not historically been included in energy sector working groups. This is important for two reasons:

1. it is normal for digital technology disruption to blur the lines between previously distinct sectors in unpredictable ways.
2. technology megatrends (like solar, batteries and big data) are driven on a global scale, so it is imperative that the NTBM workstream stays on top of these trends, and their potential impact on the UK energy consumer.

Digital technology could also play an important role in how the regulator communicates and collaborates internally and externally. It can be a powerful tool for quickly and effectively gathering feedback on existing regulations, new processes and views on the best way to implement change.

CHAPTER: Two

We would like to hear your views on the drivers for market entry. Do you think there are other important drivers?

We think that drivers as written in the NTBM are broadly correct, however, we would caution a “hardening of the categories” at this stage. With the rollout of smart meters and renewables, the sector could enter a period of rapid change. Therefore, it is important not to fix upon static drivers for market entry, as these could become outdated quickly.

However, it is still useful to describe at a principle level why a business might enter the market. We can think of three “principles” (and examples) and have written these below summarising the variety of different drivers that might exist.

- **Opportunistic:**
    - Convergence from other sectors (smart buildings, telcos, transportation)
    - Smart meter rollout
    - Government subsidies
- **Enabling more independence and control**:
    - Building level: solar PV and energy storage
    - Community level: financing of renewables, self-supply
- **Mission driven**:
    - Tackling sustainability: developing new generation, giving more choice and transparency
    - Tackling cost: demand response and time-of-use tariffs
    - Increasing resilience: smart grid solutions and generation capacity
    - Tackling fuel poverty

CHAPTER: Three

Have we accurately described the NTBM environment? Have we missed something?

The report is timely and supported by Open Utility along with the move by Ofgem to understand and engage with NTBMs. However, we consider that the environment in which NTBMs are emerging is more diverse than that represented in the discussion paper.

In particular we feel that there is too much focus on domestic customers. They represent less than half of the electricity consumed in the UK (by volume), and are only one stakeholder in a wide range of industry players, which also includes commercial & industrial customers, renewable generators of all scales and grid operators.

Although we realise that domestic energy customers represent the most vulnerable user type (due to their small relative size compared with other players), they also historically have not been drivers of innovation or change in this sector. This has been the true since the birth of the electricity industry at the beginning of the 20th century - the first users of electrical systems were commercial facilities (i.e. factories) and public facilities (i.e. street lighting). Indeed, we believe that it will be businesses and public institutions that will drive the mass-adoption of renewables, energy storage and demand response technologies in the coming 5-10 years. It is our view that once the technologies have proved themselves and matured in the non-domestic context, they will naturally trickle down to mass deployment in the domestic context.

CHAPTER: Four

Our main focus in this paper is on regulatory issues arising from future energy market transformation, but we recognise that there are relevant issues within current regulation. Please let us know if there are any other issues?

The report states “we want to ensure that regulation does not stand in the way of organisations which can deliver these outcomes.” However, the current market structure is incredibly restrictive in terms of innovation, and particularly in relation to peer-to-peer supply at the local level. The following examples illustrate the point:

- the requirement to become licensed at a national level in some manner to undertake even community supply is a good example of a significant restriction because of the systems and costs requirements it creates;
- licence compliance, particularly in the domestic market, where all operators must comply with over 400 pages of licence conditions is also burdensome, and the already cluttered regulatory landscape has been exacerbated by multiple policy obligations, each of which is accompanied by incremental compliance requirements; and
- the energy system, especially electricity, is complex and costs of entry high, with multiple mandatory compliance processes.

The regulator’s move to ease barriers to entry through clarifying regulation around white labels and licence lite do not address this underlying problem, particularly for local or peer-to-peer supply.

The reality is that whilst our Piclo project looks to enable peer-to-peer supply, the benefits of local supply are very limited under the existing market arrangements.

CHAPTER: Five

What are the benefits of different NTBMs to energy consumers?

The benefits to energy consumers will evolve as our business and service offering evolves:

1. **Now**: a simple and intuitive user experience which removes any barriers for the mass adoption of peer-to-peer trading
2. **Future**: effective integration with local grids to ensure the efficient, low cost and robust sharing of energy

More specifically, some of the benefits that our Piclo service offers now are:

- **Route to market:** the direct linking of renewable generation to businesses will allow generators to increase the value they can capture. This has the potential to result in a proliferation of renewable generation development by providing existing generators with increased revenues to reinvest in new sites;
- **Choice:** organisations have exponentially more choice in where they buy their energy from, choosing from parameters like price, location, technology type or owner type. For example one organisation may just be concerned with procuring their energy at lowest cost, and another may be interested in buying local;
- **Sustainability reporting**: the provenance of peer-to-peer trading enables commercial customers to easily meet their sustainability reporting requirements through a higher level of transparency for energy consumption data.

Future potential benefits of peer-to-peer energy trading include:

- **Cost savings**: by having a more integrated relationship with local grid operators, customers that buy from local generators can avoid paying certain nationally applied charges.
- **Network access**: grid operators can leverage local peer-to-peer relationships to enable demand-response services that contribute to reducing network congestion problems. This could lead to lower network connection costs and encourage a proliferation in renewable generation across the UK.
- **Supporting renewables in a post-subsidy world**: once renewables reach price-parity with conventional technologies, the peer-to-peer model will drive competitive pricing between generators and ultimately reduce the cost for consumers.
- **Community engagement:** Communities would be able to buy and sell energy within their community, without having to face large overheads or daunting capital investment costs.

Are these benefits experienced by all energy consumers or only those directly receiving the NTBM's services?

The direct benefits of Piclo will only be felt by those participating in the scheme. However, the wider, indirect benefits include:

- increased renewable generation which helps GB to meet its carbon targets; and
- increased competition, driving more investment into the sector and ultimately lowering prices for all energy consumers.

Additionally increased consumer engagement will occur in the communities with participating generators or business customers. It should also help to rebuild trust in the sector.

Are there additional wider benefits to the energy system and beyond it?

The development of Open Utility's peer-to-peer trading system will encourage open and active participation in energy markets. This will enable customers of any scale to generate their own electricity, and take over control of their energy supply. Self-supply will help improve the system security in the current situation of closing conventional plant and decreasing capacity margins.

Additionally, the experience and meter data gained from Piclo could be used to aid the energy system and generators by providing advice where investments in renewable energy should be made to best increase overall energy system efficiency and minimise the cost of supply for all consumers.

Which of these benefits should be taken account of in regulatory policy-making and decision-taking and why?

All benefits of peer-to-peer supply should be taken into account for policy making and decision taking. This is a new and relatively undeveloped sector of the market, which has the potential to transform the UK's energy system from a legacy system predominantly based around a handful of national players to a modern engaged heterogeneous system.

Are there energy system costs or risks from any of the NTBMs? How might these be addressed?

As with any new entrants into a market NTBMs carry a certain amount of risk, especially if they are leveraging innovative technological solutions. Ofgem should be careful to distinguish between technologies that are fads and technologies that are transformative.

Fads can do a lot of damage to the sector, as they can tarnish other useful and valuable services. Both fads and transformative technologies carry quite a bit of hype, so it is essential to look at principles underlying a NTBM service to judge its long-term value.

Costs for digital services are typically orders of magnitude lower than their traditional counterparts, as they leverage highly scalable cloud computing to automate many processes that would normally be manual. They can also enable greater system efficiency and hence can offset the need for increased physical infrastructure (both in terms of network and plant capacity)

How will NTBMs help to drive innovation within the energy system?

As described in the vision statement, we believe that NTBMs that leverage new technologies will be the primary force for innovation in the energy system.

We do not expect that the incumbent energy suppliers are in a position to drive innovative new models, beyond the “trophy” project stage. The architecture of these organisations do not permit the business model risk required to commercialise and support truly disruptive models.

Likewise, we do not believe that NTBMs that are simply recasting existing business models (and disrupting via increased competition alone) can truly drive transformative change.

How could NTBMs potentially transform the energy market and what fundamental challenges to regulatory arrangements could this entail?

As alluded in the vision statement, solar PV, batteries and smart meters could change the role of grid away from unidirectional transmission of power, towards supporting the peer-to-peer sharing of power between buildings.

Ofgem should continue to keep close attention to global megatrends. In particular, when these technologies reach “price-parity” with conventional solutions, a period of rapid change will likely ensue.

Against this background we think an increased use of derogations should pave the way for a much more flexible approach to the enforcement of rules. In the long term, a coherent focus on principles based regulation is needed.

How could regulatory arrangements change to accommodate NTBMs?

We have identified 3 broad areas of regulatory changes, which should enable the full benefits of peer-to-peer supply to be unlocked.

Simplification of Regulatory Arrangements:

- The energy sector is very complex with numerous different rules and obligations that must be complied with to enter the market. These include, but are not limited to, the licences, industry codes, and legislation. These are all dense, legalistic documents that have been designed with a one size fits all mentality to cover the entire industry.
- In particular, the limitations on tariffs as part of the Retail Market Review are harmful to innovation in the domestic sector. Indeed, we have found that the four tariff cap and the overly prescriptive rules around tariff structures and discounts have directly impeded our ability to launch Piclo to domestic customers.
- We also think that many of the industry charge processes are unnecessarily complex. As things stand, there are multiple charges, multiple payment and reconciliation periods and multiple parties involved. In addition, there are no clear mechanisms for avoiding some of the nationally applied charges for local peer-to-peer trades.
- We therefore would like to see the regulator move to a principles based method of regulation as opposed to the current prescriptive solution. This would allow innovative solutions, particularly those which are technology based, to be brought to customers far easier. This would be particularly beneficial if accompanied by a move to ex-post compliance checks to allow the demonstration and justification of new ideas.

Elective Half-hourly Settlement

- The existing settlement processes limits innovation, inhibiting the true value of smart metering and time of use tariffs - both of which are key attributes in the delivery of a peer-to-peer energy trading system.
- We therefore would like to call for a shift to elective half hourly settlement for all customer types, and a corresponding update to industry charges which makes elective half hourly settlement cost competitive with non half hourly settlement.

Aligned Smart Grid Incentives:

- We believe that the industry should be provided with smart grid aligned incentives. Both the government and regulator have made statements supporting smart grids and the benefits they can provide to industry and consumers. However, beyond the limited work being undertaken as part of the smart grid forum and the LCNF, there is no support for projects looking quantify those benefits or help bring about smart grids in GB.
- The benefits that smart grids can bring include supporting decentralised low carbon generation by allowing the connection and management of greater volumes than

possible of traditional grids. Smart grids also open up the possibility of demand-side response and therefore increased consumer participation, provided volumetric changes can be rewarded through the settlement process.

What role do NTBMs and other parties have in managing energy market transformation and regulatory change?

The existing regulatory and governance change process is too resource intensive and complex for small scale NTBMs to engage with in a meaningful manner. This situation means that the majority of regulatory change in the sector is driven by incumbent players, who have little interest in supporting NTBMs and every incentive to block them.

Additionally in order to engage in the change process, parties must usually be licensed and signatories to industry codes; this means that NTBMs who are attempting to bring new processes or technologies to the market must rely on third parties to engage in the change process on their behalf.

NTBMs should have a direct and meaningful communication channel with the regulator. Without this, the regulator only has a partial and unbalanced view of the energy sector.