Bioregional

BedZED Centre
24 Helios Road
Wallington
London
SM6 7BZ

+44(0)20 8404 4880
bioregional.com

20 May 2015

Re: Non-traditional business models discussion paper

Main contact:

Matt Wood
Energy Innovation Manager
matt.wood@bioregional.com

Dear Ofgem,

We were very interested in your discussion paper on non-traditional business models and below is our response.

Bioregional's aim is to create communities and ways of living where we are living well within the natural limits of the planet – what we call One Planet Living. To achieve this are aiming for a sustainable carbon and Ecological Footprint. We use the One Planet Living framework for our own projects, with partners and promote its use more widely. One Planet Living has 10 principles; for this discussion paper the most relevant of these is Zero Carbon, but Culture & Community, Equity & Local Economy and Health & Happiness also inform our approach to NTBMs.

A summary of our aims relevant to this discussion is:

- Zero carbon buildings – both new and existing
- Renewable energy to meet 100% of households' energy demand (plus additional for transport)
- Smart load balancing to use as much renewable energy on site as possible
- Local, community control and ownership of low carbon energy infrastructure

Chapter 1

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

How we can engage with NTBMs more effectively in the future?
Many organisations working in this area are non-profit and/or focused on reducing carbon emissions. We recommend engaging with existing networks such as the community energy and NGO networks.

Chapter 2

Do you think there are other important drivers for market entry?
We think you have accurately described the range of drivers for market entry.

Chapter 3

Have we accurately described the NTBM environment? Have we missed something?
Bioregional is a charity and social enterprise. We set up our own associated enterprises and support other organisations in creating innovative energy projects.

- Community energy schemes
  Community Benefit Societies or Community Interest Companies, they have an explicit interest in local ownership, democratic control and the operation of renewable energy and smart grid infrastructure. Bioregional is part of an Innovate UK funded project called ERIC (Energy Resources for Integrated Communities), looking at local battery storage, twinned with distributed generation (solar PV) in communities.
- Property developers
  The property developers we work with sign up to One Planet Living and are committed to zero carbon in their developments. Grid connection charges are a major financial barrier and alternative models such as flexible plug and play are attractive as part of overcoming this.
- Local authorities
  Bioregional works with local authorities who are increasingly looking to alternative models for delivering energy services in order to reduce carbon emissions and fuel poverty, including having their own energy companies.

We'd like to learn more about organisations using NTBMs. If you are prepared to discuss this, please contact us (see Appendix 1 for contact details).

Chapter 4

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 barriers

- Community energy schemes could earn more income by selling directly to members, but currently they aren't allowed to.

- Supposed grid constraints lead to very high charges to connect renewable energy to the national grid, but the peak period is only for a small percentage of the year.
- Furthermore, the lack of transparency and certainty in formulation of DNO charges in the short and medium term acts as an additional risk and barrier to start-up localised energy projects for developers, community groups and LAs alike.
- Some DNOs are not open to flexible models, preventing us or our partners from innovating in this area. Since there is no ability to choose the local DNO, this blocks projects in regions where we work.
- ESCos cannot restrict residents' choice in electricity supplier, leading to higher risk for new developments with on-site renewables wishing to sell directly to residents. They are allowed to do this with heat.

Our recommendations

Community & Localised Energy

1. Since suppliers do not physically deliver electricity and gas to households, there is no risk of residents being cut off due to a supplier going out of business or broken equipment. Therefore, the cost and admin of directly supplying energy to consumers should be dramatically reduced in order to encourage innovation. Existing consumer protection laws should be adequate, although are often not properly enforced. Community groups could register with Ofgem in order to buy energy from renewable energy sources, which they or their members may also own, and then sell it directly to consumers. Ofgem should encourage new models involving the localised pooling of energy within communities.

2. The Innovate UK funded ERIC project aims to reduce exports of electricity from PV to the grid by using smart energy management tools and battery storage. Electricity is shared between participating houses in the same area virtually, using existing grid architecture with accurate (30sec) monitoring and usually before it even reaches the local substation. However, there is no way for householders to sell the energy they export to their neighbours; the exporter receives 5p/kWh (FiT export rate) and the recipient neighbour pays 15p/kWh for importing from the grid, despite the fact that the energy comes directly from their neighbour's PV panels. This is not a good deal for the recipient and the low export price does not give the PV owner enough potential income to invest in the battery storage technology. The ability to charge a 10p/kWh rate (or whatever is viable) would open up possibilities for P2P business models.

DNOs

We view the DNOs, in their current form, as a barrier to a low carbon, localised energy infrastructure. Their scale and dividends to shareholders mean that significant sums of money that could be used to upgrade our shared infrastructure is lost altogether. There is no competitive market. DNOs are also a

barrier to non-traditional business models as they would generally reduce their profit margins if allowed to operate as intended.

We recommend that the DNOs be converted to non-profit organisations, publicly owned and potentially cooperatively managed. Railtrack's takeover by Network Rail in 2002 is an example of where public ownership has improved service and allowed increased investment in infrastructure. However, we recognise this is unlikely to happen in the near future and also recommend the following:

3. The Low Carbon Hub in Oxfordshire has been trying to connect 250kW of solar PV power generation on the roof of the BRITA factory in Bicester. Despite the fact that BRITA would use the vast majority of the energy produced, the Distribution Network Operator, Scottish and Southern Electric Power Distribution (SSEPD), will not permit the solar panels to be installed before 2017 without paying a large reinforcement cost. The reason for this is that the entire distribution network that connects Oxford to Bicester is stressed and close to capacity. This individual scheme is synonymous for the whole of Bicester – large reinforcement costs for any renewable generation connection. It is unlikely that any new renewable energy generation can be connected (without paying very large costs) for at least 5 years, if not longer. We estimate that there is more than 3 MW of known opportunities for renewable solar energy within the town of Bicester.

A "flexible plug and play mechanism" could be introduced in the area. Flexible plug and play enables renewable generators to connect to the grid without extensive network reinforcement – they restrict the flow of generation at times of stress on the distribution network. Currently SSE in the Bicester area states there is no demand for this scheme, despite Low Carbon Hub's stated desire to use this model.

We recommend that flexible plug and play be allowed across the board, which would unlock existing stalled projects and enable further renewable energy development in the area without impacting on the grid capacity. Renewable energy developers would need to have the right to use this mechanism given that DNOs are currently not obliged to offer it (and often do not).

4. In addition, DNOs block innovative projects looking for Low Carbon Networks Fund (LCNF) or Network Innovation Competitions (NIC) funding if they cannot see a market for the idea or if it will disrupt their business model. Given the need for disruptive models to drive forward carbon reduction and grid investment, **we propose a Smart Grid Delivery Unit**, similar to DECC's Heat Network Delivery Unit. This would provide feasibility funding for local authorities and community groups to investigate innovative network solutions such as battery storage at household and community level.

5. Communities and municipalities in other countries have decided to bring their local grids back into public ownership, notably Hamburg, Germany. We

recommend either a "right to buy" option for municipalities and communities to be able to take over management of their local grid (as long as they meet Ofgem's licensing terms), or a right to bid for a portion of the DNO licence areas (e.g. a local authority area, or town) when the licence is up for renewal. Support would be needed to identify the appropriate geographical divisions based on technical issues.

ESCos

Bioregional have been involved in a number of low carbon housing developments. At each of these there has been an ESCo to provide district heat and renewable electricity, which is sourced from the grid but also generated by on-site equipment such as PV and CHP.

Residents are restricted in their options for heat provider since there are no mains gas connections. This is essential as the upfront cost of the heat generating technology is paid for over a number of years. However, the ESCo cannot prevent residents from changing electricity supplier. This undermines the developer's ability to invest capital in on-site renewable electricity or to bulk purchase green electricity. A power purchase agreement (PPA) can be signed with a non-domestic organisation for a long period, but not with individual householders (and it does not transfer to new owners/tenants).

While we recognise the value of switching in promoting competition between large suppliers for individual existing householders, new developments could be designed differently with more renewable energy and potentially more cost-effectively if there were more flexibility over the terms of supply. This is analogous to the development of heat networks.

We recommend:

6. ESCos should be able to restrict householders' ability to switch electricity supplier on new developments, or existing groups of houses that install private wires/grids. Appropriate safeguards should be put into place in line with current safeguards for district heat networks.

Chapter 5

What are the benefits of different NTBMs to energy consumers?
The primary aims of these models are:

- Greater investment in local renewable energy and storage
- Lower costs for consumers due to greater control and flexibility
- Integrate with wider services such as energy advice and insulation

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

Some consumers will benefit more than others, for example with our ERIC programme, those investing in storage (prosumers) would benefit more than those who simply consume. However, the intention is for all consumers to benefit more than under the current market, both directly and indirectly.

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

- More renewable energy
- More engagement by local people in the energy system
- More local control and ownership
- Access to wider energy services

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

All of them, because our need for and commitment to a low carbon future requires both investment in the infrastructure but also more active engagement by citizens and consumers. So far issues such as energy generation, fuel poverty and energy efficiency have been treated as largely independent challenges. However they are inter-related and once people have more of a direct stake or control over the infrastructure then they can engage better on the other challenges.

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

The challenge of load balancing with renewable energy is a big risk to our infrastructure and carbon reduction targets. However we feel that NTBMs understand these issues and risks better than DNOs and are better placed to provide solutions to them. The current system is restrictive though and does not allow NTBMs any flexibility due to vested interests and over-regulation.

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

Innovation is often driven by start-ups and disruptive ideas, both of which are key components of NTBMs. Ofgem's role should be to protect consumer interests and national infrastructure but also reduce barriers to innovation and encourage it. Currently the barriers are DNOs and regulation. We recommend a Smart Grid Delivery Unit provide feasibility funding for local authorities and community groups to investigate innovative network solutions such as battery storage at household and community level

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

We believe that NTBMs can accelerate the transition to a low carbon, decentralised energy system that is necessary in order to avoid the worst climate change scenarios. It is clear that the big six energy suppliers and DNOs with regional monopolies are incapable of delivering that transition and the lack of trust from consumers will be extremely difficult to overcome.

A “bottom up” approach has the potential to deliver this transition, engage consumers with wider issues and also leverage additional investment (e.g. from consumers themselves for microgeneration).

The future energy market would be a mixture of traditional energy suppliers, new energy suppliers, municipal energy companies, community energy groups, peer-to-peer models and ESCos for new housing developments. These organisations could own or operate energy generation, infrastructure and sell energy directly to consumers.

NTBMs can include renewable energy, energy balancing, time of use tariffs, energy efficiency measures and behaviour change.

How could regulatory arrangements change to accommodate NTBMs?

It is clear that there is over-regulation at the moment. Consumer protection and maintaining grid operation are essential, but at the moment regulations are restrictive and costly. For start-ups these are huge barriers that are currently preventing innovation.

We recommend a full re-evaluation of regulatory arrangements to reduce barriers to innovation and prevent current commercial interests from dominating outcomes.

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

NTBMs are essential parties in the transformation. The big six and DNOs have no incentive and have shown little desire to change unless forced by regulation, and regulations are preventing NTBMs from contributing to market transformation.

Any process for consulting with NTBMs such as consultations, working groups etc. should include NTBMs and make efforts to ensure that traditional companies do not dominate the outcomes of those processes.