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**Ofgem Consultation:
Non-traditional Business Models: Supporting transformative change in the
energy market**

**Response by: *The Energy Policy Group*, University of Exeter:
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Summary of EPG Response:

We are very pleased to see this NTBM discussion document from Ofgem, we welcome Ofgem's receptiveness to new models of generation, distribution, supply, efficiency and ancillary services and agree with much that has been said in this document. However we also feel that there is a need to recognise that this work is not necessarily about developing 'preferential' support for NTBMs but instead about levelling the playing field for innovation and new models in an environment where existing norms, rules and processes overwhelmingly tend to support the status quo rather than system transformation.

We would like to make four overall points and very much hope that Ofgem will take note of our comments:

1. There must be clearer definition of what is meant by 'conventional utilities', not only as the other side of the coin to NTBMs but also because of their (thus far) resistance to change and transformation. The 'conventional' utility model is based on getting large, centralised supply (gas and electricity) to market, securing the best price for supplies en-route, and on maintaining large numbers of largely undifferentiated and unengaged customers (Hannon et al 2013). As such they have not been focused on demand side response, distributed energy or other aspects of sustainability. Indeed, there is a growing body of evidence which claims that large established incumbents tend not to be the most effective innovators and that it is unusual for them to drive transformative change (see for example Smink et al 2013; Geels 2014). Indeed incumbents, given their size and market power, can actively resist change, including competition from NTBMs, in order to defend their considerable sunk investments. Such practices can negatively impact on innovation and sustainable energy system transformation (Stirling 2014). The changes required to deliver a decarbonised, affordable, and secure energy system are huge.

Therefore, strategic and co-ordinated action to support innovation and new business models (across generation, supply, distribution, efficiency, DSR and other energy services) should be a key priority for Ofgem and DECC (see related comments to Q2 on engaging with NTBMs). This work should be properly resourced and not treated as peripheral (or less important than security of supply).

2. The framing of the overall discussion paper in terms of new entrants in the 'energy market' is also worthy of critical examination. There is, perhaps, a need to define the 'energy market' more broadly, given that the markets described here are only one part of the wider regulatory picture. There are new issues emerging for some NTBMs - for example in the South West community energy generation is increasingly coming up against infrastructure constraints. Some schemes cannot go forward because DNO capacity is being taken up by commercial developers. As a result we feel that both systems of regulation and some physical infrastructure are increasingly not fit for purpose. There is not enough emphasis in this consultation document on energy systems as a whole - including other markets actors, such as DNOs, and the role that they could play alongside NTBMs in better facilitating sustainable energy system transformation.
3. Although this NTBM discussion paper does touch on the potential benefit of greater consumer participation, partly enabled by some NTBMs, we feel that not enough emphasis has been placed on the need to engage residential and business consumers more actively. This is not just a case of addressing Ofgem and CMA issues around incumbency and sticky customers, but of transformation being partly based on a much more pro-active link between energy service providers and consumers, and the role of NTBMs in achieving these outcomes. For our energy policy objectives to be met, more meaningful public engagement in the energy system is vital, and should be considered an objective in itself rather than a side-effect of NTBMs.

NTBMs can offer: greater opportunities to 'prosume', to change demand patterns (reduction and flexibility), and to invest in and own energy infrastructure locally through public share offers. The argument here is that through increased involvement, more people will have a stake in energy, better understand its production and use, as well as gaining greater control over their energy worlds (Holmes et al 2015). More informed energy citizens would, furthermore, become more informed voters on, for example, energy infrastructure consent issues. Certainly decarbonisation through DSR, smart grids, aggregation etc., all rely on far greater engagement of people and households.

4. Questions around NTBMs and their role in transformative energy system change are not one-dimensional. They span multiple, inter-lapping areas such as technological, social, cultural and political concerns, as well as individual and community preferences. Because of this it is unlikely that the current economic, efficiency-dominated approach of GB regulation is fit for purpose any longer.

We feel that Ofgem could use the opportunity afforded by a strategic look at NTBMs, and their value to the energy system and wider society, to explicitly think about broad regulatory change. Ofgem could also consider how regulatory structures might need to change to support the low carbon transformative process. The increasingly diverse and decentralised nature of many new business models is likely to require new regulatory structures (for more information please see Mitchell et al 2015; Woodman 2014a and 2014b; RTP Engine Room 2015). As such, it is clear to us that the institutional basis of the GB energy system has to be fundamentally restructured so that it becomes a flexible, co-ordinated approach more suited to transformation.

CHAPTER: One

Q1.1: What is your view on our definition of non-traditional business models?

Response:

Whilst we find a great deal of merit in the fact that Ofgem has defined NTBMs, and whilst we agree with the characteristics set out, we would propose financing as a further characteristic worthy of consideration.

Often NTBMs pursue alternative avenues of finance that allow them greater say over the value proposition they pursue. For example public funding; local shareholders; crowd-funding; co-operative models – each of these can enable different motivations and value propositions, especially if those offering the capital also share the company's ethos. On the other hand, competing for shareholders on highly competitive international equity/debt markets ties incumbent energy companies into having to continually deliver greater profits back to those shareholders leaving less capital to re-invest in innovations that benefit consumers.

In relation to our point 3 above, regarding consumer engagement, we also note that different modes of financing also give individuals and communities the chance to participate in energy markets that they have traditionally been excluded from. We argue that positive engagement with the general public is needed to nurture acceptance and support of changes to the energy system. NTBMs (and the regulatory environment that enable them) should therefore ensure that the public, as energy system stakeholders, can also become shareholders.

Q1.2: How we can engage with NTBMs more effectively in the future?

Response:

Overall, our view is that the current market and network rules and incentives support the conventional, centralised energy system; at best dampening the ability of NTBMs to develop, and at worst positively undermining them (see Lockwood 2014; Kuzemko 2015; various IGov blogs). More effective engagement would require a greater voice for companies that use NTBMs, especially in relation to incumbents. This would require policy and regulatory processes that overtly recognise the value of sustainable innovations, whilst maintaining security and affordability, and that remain flexible to (unanticipated) outcomes of innovations, regulations and policies.

Whilst it is encouraging that a number of working groups and other forums are already addressing issues relevant to NTBMs (such as the Local Supply Working Group, Small Suppliers Forum, Independent Suppliers Project, Grid Connections Working Group, Challenger Businesses Project, Community Energy Contact Group and so on), it can be very difficult for small and/or non-traditional entrants to engage with so many different groups. This approach risks uncoordinated or conflicting actions being taken between groups. Therefore we recommend including a process of oversight to ensure that multiple groups/processes (led by multiple organisations) are co-ordinated and taking complementary action.

CHAPTER: Two

Q2: We would like to hear your views on the drivers for market entry. Do you think there are other important drivers?

Response:

We feel that there are other drivers for NTBMs that should be acknowledged:

- **Change abroad as a driver:**

It is very important to realise that transformational change is already happening in a few energy

systems (Germany, Denmark, California), and that other energy systems are showing signs of movement in this direction (New York and Hawaii). In these cases, the conventional energy utilities and their business models face existential threat – with relevance for some UK incumbents (i.e. those owned by E.ON and RWE). For example, in Germany, profits of the Big 4 have fallen; share prices have dropped, much of the domestic retail market for electricity has been lost, and patterns of ownership have been completely transformed. All this is having profound ramifications for energy systems – both markets and networks.

One characteristic of these energy systems undergoing transformational change is the degree to which the policy and regulatory environment (central and local) has been conducive to NTBMs, new technologies and, in some instances, greater distribution of energy. In many cases enabling energy system transformation, over incumbency, has been a core government objective, albeit there has also emerged a requirement (in this fast changing environment) for regulation and policy to be flexible and co-ordinated.

- **Community as a driver (see also point 3 above):**

Within a more enabling policy and regulatory environment (for example Germany), increasing numbers of individuals and communities have become involved, for example through setting up renewable energy co-operatives. This has been referred to as the distributed energy revolution (Burger and Weinmann 2014), and as their numbers increase, so there are impacts at a system level (i.e. wholesale prices falling).

Such community/distributed energy models, rather than solely being a characteristic (as suggested in chapter 3), can also drive further change - though this is of course only enabled by the other drivers mentioned in the discussion paper (low-carbon transition and technological innovation, frustration around lack of trust or engagement, FiTs etc.). Technologies at the right scale, and with appropriate government support (local or central), have provided the opportunity for redistribution of costs and benefits (often locally).

- **Innovation (more broadly defined) as a driver (see also point 4 above):**

We would define innovation in terms of technological, market *and* social improvements, and consider these varied forms of innovation to be inter-connected. Market innovation (see investment platforms such as Abundance generation, Gen-Community etc.) is also enabled off the back of technologies (renewable energy and ICT/social media). Social innovation – doing things differently as networks of individuals/groups/businesses - is largely driven by social objectives: justice, equity etc. All three modes of innovation can be expected to co-evolve.

As such Ofgem (and DECC) should not expect energy system transformation to end. New technological, market and social innovations may continually move the goalposts. For example, what changes will affordable storage or smart grids facilitate?

CHAPTER: Three

Q3.1: Have we accurately described the NTBM environment? Have we missed something?

As set out above, we are very impressed that Ofgem has produced this paper and undertaken such a good overview. Having said this, in terms of greater accuracy in describing the NTBM environment, we would suggest some additions:

- Whilst the discussion document captures the key ownership models and themes well, it is worth noting that organisations using NTBMs can, in practice, be more mixed and range across the characteristics outlined. For example they can encompass multiple stakeholder types, and offer services under multiple themes, e.g. community cooperatives building partnerships with local authorities, or developers/utilities.

We also think that the learning-by-doing and knowledge development which result from some of these models inevitably lead to new developments (for example Bath & West Community Energy, as a result of learning associated with running share offers and installing renewables, are setting up a new company to manage risks and projects for other communities). There is evidence of continuing evolution within the sector, such as The Plymouth Energy Community, an energy coop that works innovatively with the City Council to address multiple objectives around generation, switching and fuel poverty. Another example is Repowering London who took inspiration from community energy groups elsewhere and formed an innovative model based on promoting local leadership and creating training and employment opportunities for young people. There are similar examples in Scotland where revenue generation has spilled into wider community sustainability advantages. Recent research talks about this in terms of 'knowing and doing' (Stirling 2014).

- There is little mention of NTBMs in relation to heat supply, and particularly district heat networks. It is likely that the proportion of heat delivered by district heat will increase considerably through to 2030. Whilst there is ongoing policy development work within DECC regarding heat networks, it is important to ensure that any action by Ofgem to support NTBMs takes place in the context of an increasingly important heat sector and the likelihood of increasing regulation of heat in the future. Heat regulation should be compatible with an ESCo (performance contracting) model and ensure that suppliers are not incentivised to increase the units of energy sold. For example, rate of return regulation is unlikely to be sufficient for heat networks as it promotes network expansion and increased sale of units of heat rather than system efficiencies). Issues related to heat networks are touched on again in our response to Q5, regarding long-term contracts and switching.

Q3.2: 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: Four

Q4: 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?

Response:

We see NTBMs as central enablers within energy system transformation and, as such, new entrants with a diversity of business models should be encouraged. Whilst we agree with the range of issues facing NTBMs set out in the discussion document (p. 17-18), we would add some further regulatory issues, including some comments about the GB regulatory system, and the extent to which it is currently fit for purpose:

- The current regulatory system was designed and evolved for different goals/challenges to those we now face. The priorities are different, and the approach to future regulation needs to change - as set out in a recent paper on public value regulation (Mitchell et al 2015). Regulation has to be able to keep pace with technological, economic and social change, some of which is happening from bottom up. In some countries support schemes (such as the German FiT, but also the UK solar FiT) have enabled technological and social advances beyond and outside of expectations. Due to the speed and degree of change in electricity markets (solar, wind, distributed production, falling wholesale prices) it is becoming unclear whether 'control', in the old sense whereby policy and regulation acts as a strong steering force, still exists (to the degree that ever did).

In line with point 4 above, we argue that transformation (including knowing and doing and

unexpected consequences) require a regulatory system capable of being **flexible, coordinative, legitimate and transparent**, rather than the more traditional 'controlling' system of regulation that has been more focussed on economic efficiency (ibid 2015). Greater transparency and localised deliberation would encourage greater public trust and involvement, whilst flexibility is required in an environment of falling technology costs, unintended consequences and learning-by-doing. Flexibility of regulation is also important given the speed of change ongoing in (multiple) energy systems. Whilst we welcome Ofgem's forward thinking on NTBMs - the reality is that things are already moving quite quickly and therefore, alongside any review of NTBMs, Ofgem should also be considering ways to speed up/implement regulatory changes as well as protect consumers.

- We also think that regulation is in its current format exists too much in silos, and is not sufficiently joined up. For example statutory codes for gas and electricity companies do not have sustainability mandates built into them – although Ofgem does have sustainability mandates. Another example is the way in which the current Competition and Markets Authority (CMA) energy market investigation separates out its 'theories of harm' when assessing the competitiveness of gas and electricity markets. It is the **combined** effect on NTBMs of multiple obstacles to entry and expansion that is relevant to new companies trying to enter markets or to expand their offerings. In addition, by only considering market competitiveness (as is their mandate), the CMA is failing to consider other energy market outcomes that drive energy policy and regulation – including climate mitigation, affordability and security of supply.

This tendency to separate out issues is reflected also in Ofgem's overall approach to gas and electricity market regulation (see also responses to Q1.2).

We also feel that the significance of some of the regulatory barriers identified in the consultation should be recognised more clearly. In particular:

- We agree that industry licence conditions and associated costs are significant thereby delaying, slowing down and/or putting off innovative new companies. By the same token, License Lite arrangements only go a small way towards reducing this burden on small suppliers. Whilst the impacts of license conditions have been discussed for some time, no broad assessment of the impact of statutory codes and industry licenses on small and non-traditional business models has been carried out. We suggest that this review should be undertaken and published.
- Most corporate license codes, that have considerable impacts on gas and electricity company cost structures and business decisions, do not recognize the energy policy objective of sustainable transformation and/or the need for innovation. Such codes were designed with a centralised system and security of supply in mind, but not climate mitigation – as such they tend to reward the conventional business model that has been built up within the context of rules and regulations designed to enable different policy objectives. The continuing problems of the code governance process have been widely acknowledged (see Ofgem 2015), but action to address these issues remains slow and thus far ineffective. Please also see our response to DECC on the Electricity Market Reform (EMR) consultation on industry code and license modifications for more detail on these issues (EPG 2015).
- Local balancing issues: whilst there may be some potential for License Lite to enable a number of new entrants to take a greater role in energy supply, the current structure of electricity balancing and settlement is likely to limit growth in the License Lite market. As set out by Cornwall Energy (2014) and others, further action is required to facilitate local/regional aggregation for balancing. Cornwall Energy's proposals for a Local Balancing Unit should be pursued in a timely manner. So far developments to Licence Lite, and in support of local supply more broadly, have been slow, and there is a need to be more responsive and agile.
- The new Capacity Market details do not encourage an efficient energy system and so far are

unhelpful to companies trying to establish new markets for demand aggregation (see Tempus 2015; Mitchell 2014a).

CHAPTER: Five

Our responses to questions posed in chapter five acknowledge the many benefits outlined in the discussion paper. We do, however, think that there is a need to clarify some benefits, whilst also adding some additional benefits, and challenging current Ofgem analytical methods and regulatory approaches.

Q5.1: What are the benefits of different NTBMs to energy consumers?

Response:

- As the discussion paper identifies, the scope and scale of benefits arising from individual NTBMs will depend on a range of factors including value proposition, motivation, and organisational arrangements. Additionally, many NTBMs (co-ops and social enterprises in particular) struggle with resource scarcity and an uncertain policy environment, and rely heavily on volunteers and grant funding. These forms of enterprise, however, have the potential to unlock a broad set of benefits, including jobs, skills, engagement and community cohesion, that may be side-lined under more conventional models. Providing a supportive environment for innovation across the NTBM spectrum (including, but not limited to, working with DECC's Community Energy Unit) will allow this broad range of benefits to be realised.
- In addition we would highlight that the weak status of sustainability in Ofgem's Social and Environmental Guidance/SPS, this means that Ofgem are not well placed or mandated to balance multiple priorities or recognise the non-economic/long-term benefits that many NTBMs offer. For more detail please see our response to DECC regarding Ofgem's Social and Environmental Guidance/SPS (see <http://projects.exeter.ac.uk/igov/wp-content/uploads/2014/10/DECCSPSFinal.pdf>).

Q5.2: Are these benefits experienced by all energy consumers or only those directly receiving the NTBM's services?

Response:

It is not simple, nor necessarily desirable, to try to separate out the benefits of NTBMs to their customers from those to all energy consumers. NTBMs are one dimension of a thriving, innovative energy system, and in that sense all consumers benefit. The broad societal benefits of NTBMs enabling the social and cultural shifts required to transform the energy system should be better recognised.

Q5.3: Are there additional wider benefits to the energy system and beyond it?

Response:

In terms of benefits to the energy system:

- Tackling climate change is likely to require far greater involvement and engagement of people, (both in terms of energy specifically but also more broadly in relation to wider consumption) whilst the current energy system is built around, and reinforces, passive consumers. NTBMs are an important route to challenge these norms -not least because many NTBMs are explicitly concerned with engaging individuals and communities, through public share offers or other opportunities for ownership of energy infrastructures, switching campaigns, demand reduction and demand-side flexibility, and local supply arrangements.

- NTBMs can also facilitate more indirect engagement with the energy system, which can be arguably more important in the long-term. This could take the form of a society that accepts and legitimises the changes that are likely to be needed to transform the energy system. For example through support for, and acceptance of, new infrastructure which may be located in closer proximity to populations than has been the case with existing large-scale infrastructures.

In addition to these benefits, community energy in particular has the potential to facilitate a wider range of benefits. While these benefits are outside the realm of conventional energy policy objectives, they are of direct relevance to other public policy areas such as welfare, communities and health, and therefore should not be overlooked. In other words, measuring only the impacts of NTBMs to the energy system risks both missing the point of many NTBMs and disregarding the public demand for other benefits. The 2014 Community Energy Strategy (DECC, 2014) and associated evidence-building exercises (DECC, 2013; Databuild 2014a,b) explored some of the wider benefits of community energy. In summary, wider benefits include:

- **Local economic growth**

A key driver for community energy groups has been the potential to retain some of the value of the area's spending on energy, thereby contributing to local economic resilience. Deploying renewables locally (whether at the individual household or community level) provides potential income streams (through FiTs or the RHI) for redistribution locally, either towards other energy-related projects (street-by-street insulation programmes for example) or for addressing wider social or environmental needs. The market innovations offered by NTBMs offer potential for further redistribution of benefits through the emergence of individuals and communities as stakeholders in local energy infrastructure, through local share offers, for example.

The prospects of community ownership or part ownership further enhance the prospects for local economic benefits, which as DECC's Shared Ownership Taskforce highlights, can facilitate greater understanding, less local opposition and a quicker, cheaper development process (<https://www.gov.uk/government/groups/shared-ownership-taskforce>).

The local resilience drivers of community energy have encouraged many groups to use, and encourage the use of, local supply chains in meeting their objectives. For example, there are several examples of groups publishing directories of local suppliers and tradespeople with the aim of maximising local economic multiplier effects. Objective information about new technologies may be difficult to access or understand, meaning that having accessible, neutral and trusted sounding boards in community groups could be both valuable for local businesses and help protect the reputation of the sector more widely.

- **Employment and skills**

Community energy, and particularly locally focused projects, have the potential to tap into and enhance a wide set of skills. There are several examples of community energy projects with an explicit focus on both creating employment and skills development through apprenticeship and internship schemes (see both Brixton Energy and Repowering London). Even where community energy groups do not have formalised training, their employees and volunteers still gain valuable experience across a range of areas, including project management and social engagement. NTBMS can thus contribute to the up-skilling of people within their communities to address local issues.

- **Building stronger communities**

The social innovations which characterise many NTBMs build on and contribute to the development of social capital (that is, social networks and the trust and reciprocity that they enable). Many NTBMs, specifically those associated with community energy, are dependent on human and social capital in terms of volunteers with the time and competencies to carry projects forward, and the ability of these individuals to form trusted networks within their communities.

Similarly, the growth of these groups is instrumental in widening participation in, and benefit-sharing from, undertaking energy projects. As long as NTBMs are allowed to flourish, such benefits can be expected to reinforce internal momentum of the sector.

- **Health and wellbeing**

Community energy groups are well placed to identify key issues that threaten wellbeing in their local areas (in particular fuel poverty) and, where resources are available, can help to address these issues. Plymouth Energy Community, for example, has demonstrated that developing community-owned energy generation can be carried out alongside both responsive work to address fuel debt, and preventative work to improve the thermal efficiency of homes, with the overarching objective of reducing excess winter deaths. The need to address local issues of affordability is the main reasoning behind new local authority offerings (via Ovo) by, for example, Cheshire East, Peterborough and Southend councils.

Q5.4: Which of these benefits should be taken account of in regulatory policy-making and decision-taking and why?

Response:

The focus in GB should be on acknowledging that complex, multi-faceted, and far reaching changes are required in the energy system but that the regulatory process should simply try to be open to new technologies and ideas rather than restrictive, inflexible and closed to innovation. This can be achieved by using a whole systems approach (i.e. assessing the role of NTBMs within the context of the broader energy system transformation) but is less likely to be achieved by relying only on economic analytical tools and modelling.

Therefore, regulatory policy and decision-making should be trying to establish a regulatory framework that is flexible and adaptive so that it can keep up with change – whether technological or social and cultural (see point 4 above). GB is, in one way, in a fortunate position because it can learn from what is happening elsewhere, both in terms of practice and regulatory change. It can also take the opportunity to engage in discussions about future energy regulation through the reforming the energy vision (REV) process in New York (Mitchell 2014b).

As discussed above, many of the benefits of NTBMs cannot be assessed through standard cost-benefit analysis. However this difficulty should not mean that the complex social, environmental and economic benefits discussed above are disregarded. Ofgem should work closely with DECC (particularly in relation to their Community Energy evidence gathering) to explore how to better incorporate the benefits of NTBMs (and the risks of the status quo) in decision making.

Q5.5: Are there energy system costs or risks from any of the NTBMs? How might these be addressed?

Response:

As set out in response to Q5.4, confining analysis too narrowly within the limits of economics, statistics and modelling is unlikely to give Ofgem/DECC a true picture of risks and costs. Energy systems costs and risks could be better assessed and addressed by taking a whole energy systems approach – which would necessitate greater co-ordination within Ofgem, but also between DECC and Ofgem. Analyses of system costs and risks in a future energy system, partly driven by NTBMs, should be weighed against the potential costs and risks of maintaining a regulatory preference for traditional business models, and should include consideration of the impact on a wider set of economic, social and environmental dimensions, and the additional benefits already mentioned.

Q5.6: How will NTBMs help to drive innovation within the energy system?

Response:

Promoting energy system innovation is not a linear process - it is not possible to undertake 'A' in order to directly lead to 'B'. One can see from Denmark and Germany how undertaking a new practice can lead to new understandings and additional innovations. For example, in Germany increasing amounts of solar electricity at peak times has also led to new insights regarding integrating the demand side into energy markets, and the value of storage (Schuppe 2015).

Innovation within storage technologies is now a major area of change, allowing a new means of operating the energy system so that all functions within the conventional centralised energy system can now, in theory, be undertaken by decentralised technologies. Innovation is therefore a step-by-step process and development of NTBMs is just one part of that innovation process.

We would, however, reiterate the point made in our introductory summary (point 1) that established incumbents tend not to drive transformative change and that, in many instances, they seek to constrain and/or stop change (Smink et al 2013; Geels 2014). Indeed the traditional utility business model is supply-oriented and generally structured on a pay-per-unit basis - which means that as customers use more energy, the utility makes more profit. These models therefore can disincentivise innovation in energy efficiency or DSR given that company profits would reduce. UK incumbents have not, yet, departed from this core business model (see Kuzemko 2015). NTBMs, and particularly ESCo models, however provide the opportunity for new, service-based, profit models to develop which are more compatible with efficiency and DSR.

It should also be noted that NTBMs may promote innovation in other sectors, such as in the financial markets through attracting otherwise untapped capital. For example, Abundance Generation alone has raised £9.5 million for renewables projects, funds which would previously remained in conventional savings and investment products.

Q5.7: How could NTBMs potentially transform the energy market and what fundamental challenges to regulatory arrangements could this entail?

Response:

NTBMs are central to promoting the innovation, experimentation, and change necessary in order to decarbonise the UK energy system. We have set out our views on the benefits of NTBMs elsewhere in this document, however, for the UK to be able to capture those benefits and opportunities we would argue that a fundamental restructuring of the regulatory process is needed (please see our comments in point 4 and response to Q5.4 above). This is not radical; many of the institutional changes proposed are already in place elsewhere – for example, in the Danish electricity system or in different forms in many US states. However, it does alter the basic focus of our regulatory system from being supply focused to demand focused; from being focused on economic efficiency to one that is focused on flexibility, adaptability, cohesion and integration; from one where the assumption that the market will lead to the 'right' outcome, to an understanding that a whole system outcome needs multiple dimensions of input.

Q5.8: How could regulatory arrangements change to accommodate NTBMs?

Response:

Please refer to point 4 of the introduction and our responses above (in relation to Q5.4 and Q5.5) and additionally our comments regarding the need for the regulatory requirements to take better account of non-economic/long-term benefits.

In addition we are also largely supportive of the proposals in the recent iBuild report on 'Local Electricity Supply: Opportunities, archetypes and outcomes' (Hall and Roelich, 2015). In particular

there is a need to reassess the role of competition and switching in a future where NTBMs such as ESCos, heat networks, and other locally based energy services could be commonplace. Whilst we recognise the role of customer switching and competition in delivering some customer benefits (by placing downward pressure on prices), business models that require a long-term relationship with consumers can find it difficult to operate in the current environment where switching is highly valued. Ofgem's work on sticky customers and the ongoing CMA inquiry have both demonstrated that a theoretical ability to switch does not necessarily deliver a competitive market with consumers getting the best price and service. Further work should be carried out to assess the options to allow for very long-term contracts or to exempt certain business models from supplier switching requirements. This work should recognise that there are multiple methods to ensure consumer protection (beyond switching).

Finally, Ofgem has recently indicated its intention to move towards a greater focus on 'principles-based regulation'. Whilst in some ways we welcome these developments in terms of potentially promoting greater innovation in meeting regulatory requirements, we also sound a word of caution. The energy transformation is likely to require a flexible and responsive regulator (or regulators) that provides a support function for new business models (see Mitchell et al 2015). This goes beyond moving towards 'light touch' regulation and also indicates an increase in regulatory role in some areas.

Q5.9: What role do NTBMs and other parties have in managing energy market transformation and regulatory change?

Response:

The current debate regarding NTBMs is framed in terms of how to *accommodate* them within the current system. We suggest that this approach needs to be fundamentally rethought. Instead existing structures, norms and rules should be interrogated to examine exactly how they contribute (or not) to the broader goals of a low carbon, flexible, affordable energy system, with a high degree of innovation (see Lockwood 2014; Kuzemko 2015).

While NTBMs undoubtedly play a role in energy market transformation, their 'management' of the transition will be limited to innovating in respect to the needs, demands, and values of customers. In this sense, energy users themselves will play a central role in demanding new products and services relating to energy (see point 3 of the summary section). Regulation of NTBMs must therefore consider explicitly how these demands might be manifested in current and future NTBMs. Enabling the development of NTBMs thus calls for a more fundamental re-examination of what constitutes customer interests (i.e. trust, engagement, and legitimacy, rather than passive, least cost).

In addition, there are also some significant emerging themes in the energy system that could be better represented in the paper. In particular:

- There is a great deal of interest in the potential for more localised energy markets. This might necessitate a much greater role for DNOs in local balancing and we would welcome further exploration of the implications of such changes between Ofgem, DNOs and others.
- Ofgem's approach to NTBMs could also give much greater attention to the role of demand in the energy system and the dominance of supply-side thinking in policy, regulation and industry. Instead the potential for a 'demand-following' system, which starts from the consumer, should be explored.

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