Ofgem Consultation **Non-traditional Business Models: Supporting transformative Change in the Energy Market**

Response from:

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Background – Aston University

Innovative research and development of bioenergy technologies has taken place at Aston University for over 40 years, led by Professor Tony Bridgwater of Aston's Bioenergy Research Group (BERG). In 2008, the University's bioenergy research capabilities were joined together to create the European Bioenergy Research Institute[1] (EBRI) – an Institute to deliver world-class bioenergy research and technology development. EBRI acts as a focus for pan-European activities on scientific and technological aspects of biomass conversion and utilisation of products for renewable power, heat, transport fuels, hydrogen and chemicals.

The Engineering Systems and Management (ESM) Group[2] is a multidisciplinary group of academics with interests in logistics, transport, supply chain and engineering management, systems thinking and engineering education. The Group's research is concerned with the integrated design and operation of complex technological solutions to real world problems. It cuts across the boundaries of traditional engineering disciplines and other fields.

Jim Scott's and Dan Wright's interdisciplinary research on enabling bioenergy implementation combines business decision making, supply chain and engineering perspectives. Louise Knight researches how supply relationships, markets and networks influence strategic change and innovation.

Chapter 1 - Introduction (including definition of non-traditional business model)

Definition of non-traditional business models

Non-traditional entrants may provide additional competitive pressure. They may indeed encourage lower bills and better service outcomes, but one key aspect of the local and not-for-profit variants is the way in which they better integrate energy related goals and other community related goals (e.g environmental projects, social and employment development). Thus the diversity of motivations applies both with respect to energy, and through combining energy with other non-energy objectives. Many NTBM projects are developed to generate revenue for re-investment into social projects.

The boundaries of where and when regulation applies are important when dealing with the interface between utility, ESCO services and consumers. It may be that regulation is required on the consumer side of the meter in some NTBMs.

Chapter 2 - Drivers for market entry

Although not as important as the four drivers identified in Chapter 2 we have observed actors wishing to move towards greater perceived energy security either through self-generation or sourcing of locally/domestically generated energy. This is sometimes due to perceived price volatility in the conventional energy system.

The lack of trust issue applies to new technology and its suppliers as well as to energy suppliers. This is observed in the building services industry.

NTBM enable deployment of new technologies in consumer groups where previously non-technical

[1] http://www.aston.ac.uk/eas/research/groups/ebri/about-ebri/

[2] http://www.aston.ac.uk/eas/about-eas/academic-groups/esm/;
http://www.aston.ac.uk/eas/research/groups/project-supply-chain-management/

barriers limited uptake, for instance tenant vs landlord access to finance for energy efficiency upgrades.

Chapter 3 - Our understanding of NTBMs

Describing the NTBM environment

The archetypes from Dr Hall and Dr Roelich (Leeds) that were shared at the Welsh Government workshop in Swansea provide a useful overview of possible configurations for supply. NTBMs need to be understood in their supply chain context. Some configurations/archetypes have NTBMs at several points in the supply chain, and there are different 'touchpoints' between large market incumbents and NTBMs.

This supply chain perspective could be important for developing a better understanding of the transition pathways for establishing the various new forms of supply and related barriers, and understanding their potential impact in terms of innovation.

Chapter 4 - NTBMs within current regulatory arrangements

Chapter 5 - Market effects of NTBMs and future challenges for regulation

The summary of indirect and direct benefits and direct costs is useful, and worth expanding. Some of the direct benefits may be achieved through indirect costs; indirect costs should be part of the picture.

The question of who pays and who benefits is central here, and suggests the need to extend this analysis and cross-reference the various stakeholders in the various configurations (archetypes) to the benefits and costs.

Time and timing need to be taken into account as part of considerations how to 'create space' for innovation. In particular the rate at which costs are incurred and benefits accrued and by which actors is important. Transaction costs are disproportionately high for small NTBMS (4.7), but also delayed or uncertain timing of benefits will have a disproportionate impact on the viability of small NTBM organisations. Where cooperation between organisations is needed, synchronising inputs to effect change is challenging.

There is much to learn from other sectors to understand how NTBMS can help to drive innovation, for example, the transition in the telecom sector, or shifts to more local production/consumption in the food sector. Transformational change across sectors is underpinned by fundamental shifts in mindsets and in the basis for engagement between the various actors in the market. Tracing how such shifts have played out in other sectors – both highly and less regulated - is also informative, for example:

- Achieving structural flexibility, which challenges the economies of scale mindset[3]
- (legitimate) market shaping activities, where new entrants in established markets or entrants in emerging markets actively influence the evolution of the market[4]
- Building adaptive capacity in ecosystem stewardship[5]

Load defection from the grid onto private wire and self-generation could be a result of NTBM in distributed generation and storage. The way that consumers remaining on the grid are protected from disproportionate grid upkeep charges should be of interest to Ofgem.

[3] Christopher & Martin (http://www.emeraldinsight.com/doi/full/10.1108/09600031111101439)

[4] Möller (http://www.emeraldinsight.com/doi/full/10.1108/sd.2010.05626bad.007), Onyas and Ryan (http://www.sciencedirect.com/science/article/pii/S0019850114001709), Ulkuniemi et al (http://www.sciencedirect.com/science/article/pii/S0019850114001746)

[5] Armitage, D. and Plummer, R. eds. (2010) Adaptive Capacity and Environmental Governance. London: Springer.