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Non-traditional business models: Supporting transformative change in the energy market

Discussion paper

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Overview:
Recently, there has been a wave of new entry to the energy market and many of these entrants have new and non-traditional business models (NTBMs). This is a trend we expect to continue.

Some of these NTBMs could in the future transform the energy market and deliver desirable outcomes for consumers. These include: lower bills; lower environmental impact; improved reliability and safety; better quality of service; and better social outcomes.

We want to ensure that regulation does not stand in the way of organisations which can deliver these outcomes. But, because energy is an essential service, we must also protect the interests of existing and future electricity and gas consumers. And this means we need to understand the benefits, costs and risks of any change to regulation.

This discussion paper is the start of a longer-term engagement on NTBMs through which we hope to better understand their drivers, consumer benefits and risks. Ultimately we are interested in how they could transform the energy market and how regulation may impact upon them both now and in the future.

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Foreword

When Ofgem referred the energy market for a full competition investigation last June, we set out our firm view of the importance of innovative and 'disruptive' business models. When we look at other sectors such as telecommunications and transport, we can see examples of where new innovations have transformed these markets, often providing greater consumer benefits and choice, and driving the incumbents to 'up their game'. There have also been challenges and risks to consumers, which we can learn from.

This is why we need to be open and responsive to such transformation in the energy sector. I want us to get out of the way where regulation poses barriers, and to support innovation where the benefits are clear. But energy is an essential service, so we have to balance getting out of the way with the paramount need to minimise potential risks and keep costs to existing and future consumers down, and to ensure all consumers – especially those in vulnerable situations – are treated fairly.

We are seeing the beginnings of transformative change in the energy market. We have seen an increasing number of enquiries from those looking to provide new and distinctive business offerings through our work on 'Licence Lite', white labels, and community energy. But I want to improve our understanding of what is on the horizon so that we can stay ahead of the curve as an agile and responsive regulator.

This paper is intended to start a public discussion on the benefits and risks to consumers of these non-traditional business models, and to explore how they interact with the regulatory system. This will help us engage with those looking to provide innovative solutions at an earlier stage than would otherwise be the case. It will also provide insight into the risks and benefits of these business models and how to ensure the regulatory system responds to these.

This is not an easy thing to do as non-traditional business models by definition vary hugely. Through their potentially disruptive nature they could challenge the fundamentals of a regulatory system that has evolved over the recent decades. They could also blur the lines between different utilities.

While the Competition and Markets Authority's investigation continues apace and public interest in the energy sector remains high, now is the ideal time to open a debate on how consumers can benefit from the full transformative potential of non-traditional business models. I'm interested in how we can best support and encourage the new innovators, while promoting fairness, protecting consumer rights and keeping bills low.

I look forward to hearing from you.

Dermot Nolan
Chief Executive, Ofgem

Executive Summary

Recently, there has been a wave of new entrants to the energy market and many of them are using new and non-traditional business models (NTBMs). This is a trend we expect to continue. Some of these NTBMs may have the potential to transform the energy market and deliver significant benefits for consumers. Some could also challenge the way we regulate.

We want to ensure that regulation isn't getting in the way of organisations delivering desirable consumer outcomes. But, because energy is an essential service, we must also protect the interests of existing and future electricity and gas consumers. And this means we need to understand the benefits, costs and risks of any change to regulation.

We have identified four important drivers motivating the emergence of these NTBMs:

- The low carbon transition
- Rapid technological innovation
- Lack of consumer engagement and trust
- Greater focus on affordability and especially on supporting consumers in vulnerable situations.

These new businesses may face regulatory challenges due to their size or because of the structure of the energy market. A number of these issues are well-known and are being addressed through our work and through the ongoing Competition and Markets Authority's (CMA) energy market investigation.

Some NTBMs could also challenge the fundamentals of current regulatory arrangements. For example some are seeking to generate and supply energy locally, which, at sufficient market penetration, could challenge the centralised way in which the energy market operates.

The NTBMs we are aware of represent a broad and complex picture. They have a range of characteristics that differentiate them from other market participants, including their value propositions, motivations and organisational arrangements. We have grouped these NTBMs into three broad themes:

- Local energy services (eg community energy)
- Bundled services (eg energy service companies)
- Customer participation (eg peer-to-peer energy).

Whilst this can't capture the diversity of all NTBMs, it is a useful framework for discussing their benefits and market effects.

It is important that we understand the potential market effects of these NTBMs, including the benefits, costs and risks, so that alongside relevant market failures, we can assess whether there may be a need for future regulatory change. There are effects of NTBMs that are hard for us to assess, including: the wider benefits beyond the energy system, and their potential to drive innovation in the energy system.

This discussion paper is the start of a longer-term relationship with those organisations using or considering NTBMs in the energy market and their proponents and stakeholders. Through this we hope to better understand their drivers, consumer benefits and risks, how they could transform the energy market and how regulation may impact upon them both now and in the future.

We need your help to build this evidence base so that we have foresight of future regulatory issues and are able to take action that is in the interests of existing and future consumers.

1. Introduction

Why have we published this discussion paper?

1.1. Some new entrants into the energy market are using non-traditional business models (NTBMs). Some of these NTBMs could transform the energy market and deliver outcomes for consumers that we identified in our corporate strategy[1] as desirable: lower bills; lower environmental impact; improved reliability and safety; better quality of service; and better social outcomes.

1.2. Whilst existing market participants are important in the delivery of these outcomes, we think that non-traditional entrants could provide additional competitive pressure and drive the delivery of these consumer outcomes in new and innovative ways. We want to ensure that regulation does not stand in the way. But, because energy is an essential service, we must also protect the interests of existing and future electricity and gas consumers, and this means we must be clear about the need for any regulatory intervention and understand the associated benefits, costs and risks.

1.3. Our aim in publishing this paper is to engage with organisations using NTBMs, their proponents and stakeholders and together build an understanding of their drivers, consumer benefits and risks. Ultimately we are interested in their potential to transform the energy market and how regulation may impact upon them both now and in the future.

1.4. We need your help to build this evidence base so that we have foresight of future regulatory issues and are able to take action that is in the interests of existing and future consumers.

What is a NTBM?

1.5. We define non-traditional business models as:

> *Business models offering new products or services, or new ways of delivering these, that are different to those traditionally provided in the existing energy market. Those offering such services have diverse motivations (technological, social and environmental as well as financial) and ownership arrangements, and operate at various scales. Over time NTBMs have the potential to transform the existing energy system.*[2]

[1] https://www.ofgem.gov.uk//publications-and-updates/corporate-strategy

[2] When we talk about NTBMs, we mean both those that are already operating in the market and those that may emerge over the next few years. A *traditional business model* is one that is operating in the energy market under current market rules and is offering products or services well recognised and understood its customers. When we say *transform*, we mean innovations in technologies, value propositions and business models which could fundamentally change the way that the energy market operates.

1.6. This definition captures a wide range of organisations in energy that might offer products and services relating to energy generation, energy supply, energy distribution or other energy services (eg energy efficiency, demand-side response services, information services, etc), or a combination of these. They may be new entrants or existing providers that offer a novel product or service. They are offering something different from traditional business models and want to engage in the energy market in a different way. Their uniting feature is their potential to transform the energy market.

1.7. Organisations using NTBMs might not easily fit into current regulatory arrangements. Some might be new to them and others feel constrained by these arrangements. They may offer products and services to consumers beyond energy, for example bundling together home management systems. So the way we engage with, or are engaged by, these NTBMs may need to be different. We recognise that it is difficult to define such a diverse and dynamic area and want your views on whether our current approach is adequate.

The structure of this paper

1.8. We have designed this paper to take you through our understanding of NTBMs in a structured way.

- In Chapter 2 we discuss the drivers for NTBMs emerging in the market
- In Chapter 3 we examine the characteristics and types of NTBMs we are seeing
- In Chapter 4 we explore how current regulation may affect the emergence and viability of NTBMs
- In Chapter 5 we consider the potential market effects of NTBMs and the potential of NTBMs to transform the market.

1.9. At the end of each Chapter we raise discussion points for you to consider in your response.

What are we asking?

1.10. The discussion paper is deliberately broad in scope. This acknowledges the diversity of NTBMs and uncertainty over the benefits and impacts they bring.

1.11. We are interested in how the drivers we outline above are motivating new entry into the energy market. We are also interested in learning more about the characteristics and types of NTBMs and their benefits, costs and risks. We are particularly interested in how NTBMs could transform the energy market to the benefit of consumers and how regulation may impact upon them both now and in the future.

1.12. We might also have missed something that you think is important. Please tell us if so.

How to engage on this and next steps

1.13. We are gathering views until 20 May 2015. During this period we hope to engage with organisations across England, Scotland and Wales in a variety of ways. There are more details on our planned engagement in Appendix 1.

1.14. We see this discussion paper as the start of a longer-term conversation. We plan to publish a summary of responses in summer 2015, and in this we will set out how we will continue this engagement process.

1.15. We are also interested to hear from you how we can engage with NTBMs more effectively in the future.

Discussion points

- What is your view on our definition of non-traditional business models?
- How we can engage with NTBMs more effectively in the future?

2. Drivers for NTBMs

2.1. In this Chapter we examine why so many different types of NTBMs are emerging. We think that there are four important drivers.

2.2. **Low carbon energy transition** – By the 2030s, the power sector will be substantially decarbonised to meet the UK's target of an 80% reduction in greenhouse gas emissions by 2050.[3] Decarbonising the power sector requires some mix of new power sources, including nuclear, on- and offshore wind power, and fossil fuel fitted with carbon capture and storage technology, together with biomass (including combined heat and power plants) and other renewable sources (such as photovoltaics - PV). As a consequence, electricity supply is likely to be more variable than today. Electricity demand could also be higher than today with patterns of consumption more differentiated, driven by other sectors (heat, transport and industry) switching to low-carbon electricity. In order to minimise costs to consumers, a low carbon energy system will need to be energy-efficient, flexible and smart. There are policies in place to enable this, delivering generation capacity (for example the measures under the Electricity Market Reform and the Feed-in Tariff), fuel switching (eg the Renewable Heat Incentive and electric vehicle incentive schemes), energy efficiency (eg the Energy Companies Obligation, the Green Deal and European product policy) and smarter networks (eg Ofgem's Network Innovation Competition). These carbon targets and policies are driving the creation of NTBMs at national, local and household level. As the pace and scope of the low carbon transition expands, so too will the scale of opportunities for NTBMs.

2.3. **Rapid technological innovation** – The smart meter roll-out will open up new opportunities for consumer engagement (eg through innovative tariffs), network operation (eg the smart grid) and system operation (eg enabling new forms of flexibility to enter the market). Alongside this, other technological developments, including energy technologies such as PV and storage, and wider developments such as advances in information and communications technology (ICT), are opening up opportunities in the energy market, enabling new products, services and business models. Similar developments have already had an important impact in other sectors. In hospitality, transport and lending, for example, the growth of peer-to-peer services is having a transformative effect.

2.4. **Lack of consumer engagement and trust** – Our State of the Market report[4] showed that consumers lack the ability to access and act on information on offerings in the market, and so can't exercise effective consumer choice. Trust and satisfaction with suppliers is also low. But this is an incentive for market entrants to offer better prices and a better consumer experience or to act on consumers' behalf.

2.5. **A greater focus on affordability and supporting vulnerable consumers** – Rising energy costs in recent years have been the motivation for some

[3] On a 1990 baseline.
[4] https://www.ofgem.gov.uk//publications-and-updates/state-market-assessment

market entrants which want to make energy more affordable, especially for consumers in vulnerable situations such as those on low incomes or the elderly. For example, there is growing interest from public authorities (local authorities, housing associations, social enterprises, etc) and community schemes in energy generation and supply, with the aim of delivering greater affordability and fairness to their local consumers as well as a number of niche suppliers offering green power and prepayment services.

2.6. We think these are important drivers for the development of many NTBMs and we expect this to continue to be the case. Organisations using NTBMs have the potential to put more competitive pressure on the market and provide consumers with new, innovative products and services. For example they could:

- help manage the move to a low-carbon energy system by increasing energy efficiency or enabling greater demand-side flexibility.
- help consumers better engage with the market by providing more transparent information or products and services that better suit their needs.
- make energy more affordable for local or vulnerable consumers.
- perform important market services or market-making functions to enable new non-traditional organisations to enter and act in the market.
- increase the routes to market available to producers and consumers, boosting competition.

Discussion points:

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

3. Our understanding of NTBMs

3.1. In this Chapter we examine the characteristics and types of NTBMs that we are seeing in the energy market.

3.2. Given the various features of these business models, trying to define NTBMs is difficult and the line between traditional business models and NTBMs isn't always clear.

3.3. However, as a basis for discussion, this Chapter explores how we've defined NTBMs and looks at some of the important characteristics that differentiate them from traditional business models. We welcome your views on all of this.

3.4. Our market monitoring has helped us identify these emerging trends. Enquiries from potential entrants and our related work has helped too.[5] We have also used external resources to inform our understanding, including views from government, trade associations, think tanks, academia and financial institutions.

3.5. The number of customers currently served by NTBMs may be relatively small, in part because some of the providers choose to target particular customer segments. In the future the numbers could be much larger as individual companies grow or certain business models are replicated.

Characteristics of NTBMs

3.6. We have identified certain descriptors that help to broadly characterise 'non-traditionality' in the energy generation, supply, distribution and services sectors, and importantly which differentiate these from traditional business models. These descriptors are: value proposition; motivations; and organisational arrangements.

Value proposition

3.7. An organisation's value proposition outlines how it will meet its customer needs. NTBMs are delivering new value propositions that have not been recognised or offered by traditional business models by exploiting new sources of value (eg those provided by demand-side response) or targeting particular customer segments (eg communities of interest or local communities). NTBMs can participate in the market on a range of price and non-price benefits such as customer engagement and trust, carbon reduction and community benefits. They may also offer additional services such as bundling (eg offering telecoms, IT and energy) or new services (eg

[5] For example, our work with DECC on challenger businesses, that focussed specifically on independent suppliers (https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/341310/Challenger_Businesses_-_Independent_Energy_Suppliers_FINAL_ACTION_PLAN.pdf)

the ability to adopt new technology to control home/business energy services remotely).

Motivations

3.8. The motivations of organisations using NTBMs tend to be closely linked to the ownership structure and financing route. Some may be motivated purely by commercial aims, while others may have a range of aims including commercial, carbon reduction, tariff fairness, community and local benefit, environmental improvement and consumer participation (especially with those less engaged with the energy market).

Organisational arrangements

3.9. Increasingly, organisations outside of the traditional, large shareholder-owned companies are owning and operating businesses in the energy industry. But, we are also witnessing established businesses adapting their organisational arrangements in response to the strategic drivers we outlined in Chapter 2.

3.10. The non-traditional ownership structures include:

- Publicly-owned organisations, such as municipal energy service companies, which operate under specific objectives to reduce carbon emissions or create community value.
- Various forms of community ownership, such as co-operatives, social enterprises, community charities, development trusts, community interest companies and private companies that incentivise customers to become shareholders.
- Niche, not-for-profit, energy suppliers with social or environmental goals.
- Private businesses that seek to provide innovative services, including facilitating other new market entrants, within the current regulatory framework.
- Hybrid ownership models including private, community and public interests.

3.11. These organisations are financed through a range of community, private and public routes, including through subsidies paid for by energy consumers. Some organisations creating NTBMs are using varied, and often non-traditional, financing routes including community share offers, grants, public sector loans, social equity investment, crowdsourcing and other alternatives to balance sheet debt. Often a mix of sources (hybrid financing) is used. For example commercial finance may be obtained for some projects on the back of an income stream that is guaranteed via the renewables subsidies regime.

What NTBMs are we currently seeing in the market?

3.12. We think that the organisations using NTBMs can be grouped into three broad themes, which we set out below.

Local services	Bundled services	Customer participation
• Community • Municipal • Housing Associations	• Energy Service Companies • Multi-service providers • Market services	• Peer-to-peer • Demand side flexibility • Prosumers • Next generation intermediaries

3.13. Below we describe these in more detail. We recognise that this list isn't exhaustive and we seek your feedback on whether there are other NTBMs that we should be aware of. We also recognise that these themes aren't mutually exclusive.

Local services

3.14. There are many initiatives in this category which provide generation, supply and energy services. We focus here on community energy and municipal energy as this is where we are aware of the most activity, although we are also aware of growing interest from Housing Associations.

3.15. **Community energy** – The Department of Energy and Climate Change's (DECC) Community Energy Strategy[6] defines 'community energy' as community projects or initiatives focused on four key strands: reducing energy use; managing energy better; generating energy; and purchasing energy. The Scottish government's draft Community Energy Policy Statement[7] focuses on projects led by constituted non-profit-distributing community groups established and operating across a geographically defined community. The Welsh government's support programme for community energy, Ynni'r Fro,[8] focuses support on the development of community-owned renewable schemes.

3.16. Most community energy initiatives that we have seen have involved geographically local communities although we recognise that some community offerings may be targeted at communities of interest (such as consumers in vulnerable situations). These projects or initiatives share an emphasis on community ownership, leadership or control where the community benefits. This also includes shared ownership or joint ventures, where benefits are shared by the community, and crowd-funded projects. It also includes activities based on community ownership models such as co-operatives, social enterprises, community charities, development trusts and community interest companies. DECC suggest that up to 3GW of community electricity generating capacity could be installed by 2020.[6]

[6] https://www.gov.uk/government/publications/community-energy-strategy#history
[7] http://www.scotland.gov.uk/Publications/2014/08/1223
[8] http://wales.gov.uk/topics/environmentcountryside/energy/renewable/communitygeneration/?lang=en

3.17. **Municipal energy** - A small number of municipally-owned energy companies have been in operation for some time. Such organisations can take several forms, including owning generation and supplying electricity or gas as a licensed supplier, buying electricity and gas on the wholesale market and supplying to the retail market, providing electricity through private wires (or even potentially becoming licensed Distribution Network Operators), or in partnership with licensed suppliers (including through arrangements such as Licence Lite). These schemes tend to operate with wider socio-economic or environmental aims, such as tackling fuel poverty or carbon emissions. Ownership and governance may be fully public, a joint venture or a commercial concession arrangement. Municipal energy companies may offer novel value propositions such as recycling profits back into local projects. There has been an increase in interest from local authorities in these municipal energy arrangements and we're aware of many local areas that are considering developing energy supply operations.

Bundled services

3.18. **Energy Service Companies** (ESCos) – The ESCo business model revolves around providing energy services (such as hot water or lighting) as part of bespoke, value-added, long-term contracts, which require a close and open relationship with the customer. ESCo activities typically include financing, designing, building, operating and maintaining small-to-medium scale demand management and/or low carbon energy projects, as part of either energy service contracts (focusing on provision of useful energy streams such as hot water) or energy performance contracts (focusing on providing final energy services such as light). The main difference between ESCos and traditional utility companies is that the ESCo revenue is to some extent decoupled from customer consumption: an ESCo, particularly one focusing on energy performance contracts, is incentivised to reduce its customers' energy consumption. Another key difference is that ESCos can fall outside the current regulatory arrangements, for example Ofgem does not regulate heat delivered through heat networks. Some municipal energy supply organisations operate under an ESCo model.

3.19. **Niche suppliers** – A number of entrants, operating under various business models (for example, white labels[9] and licensed suppliers) have entered the market to supply particular targeted customer groups. These suppliers may not be seeking to maximise returns to shareholders (for example, they may be recycling surplus profit into charitable activities), may have an explicit value sharing arrangement with their community partners and/or may offer cheaper energy services to their chosen communities.

3.20. **Multi-service providers** – A number of market entrants are seeking to offer multiple services (for example energy, telecoms, entertainment, etc).

[9] A White Label involves marketing electricity to consumers through a partnership with an existing licensed supplier. We are currently consulting on final proposals for White Label arrangements; the deadline for comments is 20 March 2015. Further information can be found at: https://www.ofgem.gov.uk/ofgem-publications/93504/whitelabelproviders-statutoryconsultation.pdf

3.21. **Market services** – A range of organisations, including intermediaries and brokers, are providing services to help new entrants enter or operate within the energy market.

Customer participation

3.22. **Peer-to-peer (P2P) energy** – Some organisations are seeking to enter the market and provide a peer-to-peer service to connect generators (eg a specific wind farm) directly with customers (domestic, industrial and commercial). In this business model, an electricity supplier would usually be required to enable this relationship (unless the connection is provided directly by private wire) by moving power across the public system. This model is already emerging here and in other countries, such as the Netherlands.[10]

3.23. **Demand-side flexibility** – Some organisations, for example aggregators and storage operators, provide energy system flexibility services such as demand-side response, energy storage and demand reduction. New actors are also seeking to enter the market with different propositions, for example using smart meter data to optimise energy consumption and offer system flexibility services. We have recently launched a project on flexibility to develop our strategy to enable and improve flexibility sources across the supply chain in the GB electricity system.[11]

3.24. **Prosumers** – Subsidy schemes, such as the Feed-in Tariff, mean that hundreds of thousands of consumers are becoming energy producers in their own right, generating electricity through solar PV panels and other technologies.[12] Some organisations are providing alternative ways for consumers to take advantage of these technologies (eg rent-a-roof PV schemes). Other organisations are providing technologies that allow consumers to engage with energy in new ways: smart thermostats that can be operated remotely and could deliver energy bill savings are an example of this. The smart meter roll-out is likely to increase this type of opportunity. Aggregation platforms may also emerge to help consolidate participants regionally and locally to help manage risk (though cost avoidance and benefit sharing).

3.25. **Next generation intermediaries** – We are seeing consumers increasingly banding together through switching campaigns (often led by trusted intermediaries) or joining community-led initiatives. New services are also appearing to alert consumers of cheaper deals; we think it likely that the 'brokering' services currently available for non-domestic tariffs will appear in the domestic market in the future.

[10] For example, Vandebron is an online marketplace for sustainable energy based in the Netherlands - https://vandebron.nl/.
[11] https://www.ofgem.gov.uk/publications-and-updates/open-letter-facilitating-efficient-use-flexibility-sources-gb-electricity-system
[12] https://www.ofgem.gov.uk/ofgem-publications/89234/ctrl-shift-thechangingconsumerempowermentlandscape.pdf

Discussion points:

- Have we accurately described the NTBM environment? Have we missed something?
- 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).

4. NTBMs within current regulatory arrangements

4.1. In this Chapter we consider how current regulation may affect the emergence and viability of NTBMs.

4.2. The energy market is in a state of flux and regulation must be flexible enough to allow both non- and traditional business models to enter and operate in the market.

4.3. Many issues can affect the emergence, viability and long-term sustainability of NTBMs. These range from those which are *energy system specific* challenges (eg technical capability and capacity; interactions with legal and regulatory frameworks; accessing technical assets such as ICT, networks, grid and meters) through to more *conventional* challenges that any new business might face (such as access to funding; entering an established market/interacting with market participants; managing cash flow and customer relationships).

4.4. At our request, the Competition and Markets Authority (CMA) is currently investigating the supply and acquisition of energy in Great Britain (GB) to identify whether competition in the energy markets is effective in promoting the interests of consumers. A number of the issues which we cover in this paper may be relevant to certain parts of the CMA's investigation. The CMA's annotated issues statement and various working papers along with submissions made by a number of parties can be viewed on the CMA's website.[13]

4.5. As the GB energy regulator, we must consider and highlight the aspects of the *regulatory system* which, due to their original design and/or current configuration, may unduly affect the emergence and viability of NTBMs. We have identified some issues in the current regulatory arrangements that could be relevant.

4.6. To help those unfamiliar with regulatory arrangements, we have grouped the issues that can affect the emergence, viability and long term sustainability of NTBMs into three categories:

- those issues common to small-scale NTBMs
- potential market structure issues
- those issues associated with emerging regulatory developments.

[13] https://www.gov.uk/cma-cases/energy-market-investigation

Issues particularly affecting small-scale NTBMs

4.7. Organisations using NTBMs may be small[14] both in terms of their size and the communities they seek to serve. Regulation is a 'cost of doing business' for *all* participants, but its complexity and costs can be more of a burden for some new entrants and smaller participants. These businesses often have lower customer bases over which to spread these costs, less resource and fewer staff to engage with regulatory developments and compliance, and limited energy industry-specific expertise.

4.8. Below we describe a range of issues for small-scale NTBMs and the activities associated with them.

Issue	**Details**	**Current status**
Set up costs for suppliers	There are major costs for suppliers entering the market (such as developing IT systems for customer acquisitions, customer information, and billing). Suppliers must post significant collateral to trade on wholesale markets, and when engaging with mandatory industry codes for energy balancing and use of networks. There will also be increasing collateral requirements from implementing Contracts for Difference (CfDs) and the Capacity Mechanism.	This issue is currently being explored by a range of projects, including the BIS Challenger Business project, DECC/Ofgem Independent Supplier project[15], Capacity Market Auction and Market Investigation Reference.
Regulatory compliance costs	Market participants must have enough resources and staff to comply with licenses and engage with and influence policy and rule development.	This is being explored by the DECC/Ofgem Independent Suppliers project.

[14] We recognise that these issues may impact all small entrants, rather than just those that are identified as non-traditional.
[15] https://www.gov.uk/government/publications/government-and-ofgem-action-plan-challenger-businesses-independent-energy-suppliers

Issue	Details	Current status
Environmental and Social Obligation thresholds	Suppliers are subject to social and environmental obligations. But, small suppliers with fewer than 250,000 domestic accounts are exempt from a range of programmes. While this gives smaller suppliers a cost advantage, the threshold can prevent them from expanding because of the high marginal costs of the 250,001st customer.[16]	DECC plan to consult on potential barriers associated with environmental and social obligations, with possible options including a 'tapered' approach to obligations.
Code compliance	The costs incurred from directly complying with the high competency aspects of the industry codes are not scalable and for small-scale electricity suppliers add significant overheads. The codes can also be so complex that small entrants require significant expert resources to understand and comply with them, and they are unlikely to have the skills or resource to seek changes to the rules.	In February 2009, Ofgem introduced an option within the electricity supply licence to allow for conditional derogation from the requirements to be direct parties to the highest cost and highest competency codes. This option – which has become known as 'Licence Lite' – was originally designed to make it easier for Distributed Energy schemes and small suppliers to operate as a licensed supplier. We have recently consulted on updates to the Licence Lite guidance in order to make the operation of arrangements clearer to more prospective applicants.[17]

Potential issues related to market structure

4.9. The GB energy system was originally designed with a focus on a centralised market, with large generators connecting to the transmission system and national system balancing. In both gas and electricity production, assets are typically remote from consumers. Under this system, arrangements are based on a 'supplier-hub' model where national suppliers are at the heart of the energy market, acting as the locus through which the consumer's relationship with the energy system is managed. Suppliers are subject to a wide range of regulatory obligations (such as energy efficiency and the roll-out of smart meters). Although new entrants are emerging in

[16] https://www.ofgem.gov.uk/ofgem-publications/86804/assessmentdocumentpublished.pdf (pp 79-87)
[17] https://www.ofgem.gov.uk/publications-and-updates/licence-lite-proposed-revisions-slc-11.3-operating-guidance

the retail supply space, supply is mostly delivered by a small number of vertically integrated companies. In addition, the broader regulatory framework, including the current system of code governance, can act as a barrier to pro-competitive innovation and change, as identified by the CMA in their ongoing Energy Market Investigation.[18] Some argue that the sheer size and complexity of this system may lead to inertia, which can make it difficult for new organisations to establish themselves, or establish new ways of doing things.

4.10. Below we describe a range of potential issues related to market and the activities associated with them.

Issue	**Details**	**Current status**
Vertical integration	Vertical integration (VI) is a feature of the electricity market, where the largest six suppliers directly own about 70 per cent of generation capacity. We set out in our State of the Market assessment[19] that VI provides a financial hedge against volatile wholesale energy prices and a natural hedge against balancing risk. As well as having less of a requirement to trade, VI suppliers are also likely to have stronger credit ratings, allowing them to post lower levels of collateral. VI has potential costs in terms of reduced competition in energy markets. Low levels of liquidity in the wholesale electricity markets, particularly for certain types of product at particular times, can act as a barrier to entry for non-integrated suppliers. They can also act as a barrier to expansion for those non-integrated suppliers already in the market.	VI has been identified as a theory of harm in the CMA energy market investigation.[20]

[18] https://assets.digital.cabinet-office.gov.uk/media/54e378a3ed915d0cf7000001/Updated_Issues_Statement.pdf
[19] https://www.ofgem.gov.uk/publications-and-updates/state-market-assessment
[20] https://assets.digital.cabinet-office.gov.uk/media/54e378a3ed915d0cf7000001/Updated_Issues_Statement.pdf

Issue	Details	Current status
Liquidity	Electricity supply and demand must be in balance at all times. The Balancing Mechanism incentivises market participants to trade in and out of position in order to balance their physical position in real time. This process needs a liquid market with enough electricity for sale at various time periods and in small enough quantities for buyers and sellers to match their needs. A liquid market is particularly important for companies that are not vertically integrated (ie independent suppliers or generators) and can therefore not easily balance supply and demand from within their portfolio.	We have consistently found that GB wholesale electricity market liquidity is poor, particularly for products traded ahead of when they will be supplied.[21] This has led us to take a range of actions to address liquidity concerns including the introduction of the Secure and Promote license condition.[22] The outlook appears to be improving following implementation of Secure and Promote, but it is too soon to draw robust conclusions. The current CMA inquiry is considering the interaction of market rules and liquidity on market functioning.
Imbalance costs	The Balancing Mechanism[23] places strong incentives on generators and retailers to balance their own supply and demand portfolios by making energy imbalances particularly expensive (through cash out payments). This can be difficult for smaller, non-vertically integrated companies and in response these organisations often outsource balancing responsibility to an offtaking supplier. Some argue that these organisations face a high cost for outsourcing balancing responsibility to licensed suppliers, partly due to the structure of the balancing mechanism. The Balancing Mechanism is used by	In 2013 we concluded that imbalance prices (cash-out prices) do not reflect the cost of imbalance. In response we carried out the Electricity Balancing Significant Code Review[24] (EBSCR) and proposed changes to make cash-out prices more reflective of the costs of balancing the system and strengthen incentives for flexible generation and demand side response. Although the Balancing Mechanism may be a barrier for some NTBMs we also recognise that the current process for system balancing can offer

[21] https://www.ofgem.gov.uk/ofgem-publications/84508/wholesalepowermarketliquiditystatutoryconsultationonthesecureandpromotelicencecondition.pdf
[22] https://www.ofgem.gov.uk/publications-and-updates/wholesale-power-market-liquidity-decision-letter
[23] https://www.ofgem.gov.uk/licences-codes-and-standards/codes/electricity-codes/balancing-and-settlement-code-bsc
[24] https://www.ofgem.gov.uk/electricity/wholesale-market/market-efficiency-review-and-reform/electricity-balancing-significant-code-review

Issue	Details	Current status
	National Grid to balance supply and demand in each half hour trading period of every day at a national level. These arrangements were designed on the assumption that Balancing and Settlement Code (BSC) parties will manage their physical positions to achieve contractual balance at a national level. This may create difficulties for locally based generators and suppliers that are seeking to balance their position within a smaller region.	opportunities for other NTBMs, such as providers of flexibility and demand side response (DSR).
Code modification	Licensees are required to become party to and comply with a number of industry codes, in accordance with the conditions of their licence. These highly detailed multi-party agreements are governed by the industry themselves through industry-led panels. Ofgem makes decisions on any changes to these codes that have a material impact on competition or consumers. Some stakeholders have expressed concerns that industry panels and their various working groups are dominated by members from the larger suppliers, and as such proposed changes to industry codes do not adequately reflect the impact on small suppliers in terms of complexity and compliance costs.	Our Code Governance Review[25] examined the transparency and accessibility of the industry code governance arrangements for all industry participants, particularly smaller parties and new entrants. In response we introduced several changes[26] to the code governance arrangements, such as the Significant Code Review (SCR) process which allows Ofgem to lead complex changes to industry codes and consider cross-code changes. We also introduced reforms aimed at assisting smaller parties, for example a requirement for Code Administrators (the bodies that run the code processes) to act as a 'critical friend', particularly in providing assistance to smaller parties and consumer representatives who may otherwise have restricted ability to participate in the process.

[25] https://www.ofgem.gov.uk/licences-codes-and-standards/codes/industry-codes-work/code-governance-review

[26] Our Code Governance Review changes were introduced for only some of the codes in 2010. These were extended to cover all of the codes under the second phase of our Code Governance Review, which concluded in 2013: https://www.ofgem.gov.uk/publications-and-updates/code-governance-review-phase-2-final-proposals

Issue	Details	Current status
		We recently submitted a paper to the CMA on industry code governance. [27]
Network Connections	DECC's Community Energy Strategy suggests that the costs faced by community energy projects in connecting to electricity networks can be a barrier. In areas where network capacity is constrained and/or reinforcement is required to facilitate a connection, DNOs and Third Parties can already undertake anticipatory investment to reduce overall cost or speed up the process. Stakeholders supporting new developments in major cities, community energy developers and distributed generators have developed proposals which might improve current arrangements.	The specific issues experienced by community energy schemes were examined through a Community Energy Grid Connections Working Group, convened and chaired by Ofgem. In July 2014 the group produced a report outlining the actions to reduce those barriers.[28] These actions fall into three broad themes: customer engagement, enabling smart connection offers, and managing the cost of connection. In addition the report detailed some more transformational solutions which are not deliverable under current regulatory arrangements (such as socialising investment costs) and would require a clear public policy steer from government on the case for distinct treatment of community energy projects. DNOs are already incentivised to meet the needs of connection customers as part of the Broad Measure of Customer Satisfaction (BCMS) scheme. In addition to BCMS, the next DNO price control (called RIIO-ED1[29] - it begins in 2015) introduces an Incentive on Connections Engagement (ICE). The ICE aims to drive DNOs to understand and meet the needs of major connection customers (including distributed generators).

[27] https://www.ofgem.gov.uk/ofgem-publications/92627/cmasubmissioncodegovernance.pdf
[28] https://www.ofgem.gov.uk/publications-and-updates/community-energy-grid-connections-working-group-report
[29] https://www.ofgem.gov.uk/electricity/distribution-networks/network-price-controls/riio-ed1-price-control

Issue	Details	Current status
		We have also recently published an open letter inviting views on ways of enhancing the connections process. We want to understand how we can make it easier and quicker for customers to connect whilst continuing to protect the interests of consumers.[30]
Lack of customer engagement	New market players may find it difficult to attract new customers. A range of issues such as the high number of 'sticky' customers retained by the main suppliers in their incumbent region, tariff complexity and difficulty in switching are likely to make it hard for smaller market players to attract customers. In addition, suppliers seeking to supply domestic electricity and gas consumers are required to offer supplies throughout GB rather than to just one locality.	Some of these issues are being considered by the CMA investigation. We have also taken action to simplify tariffs and reduce switching times through our Retail Market Review[31] reforms.

Emerging regulatory developments

4.11. Of the emerging areas of regulatory development we have identified to date, two areas stand out in particular for their potential to form part of a NTBM's value proposition, these being:

Impacts of demand-side response and other new sources of flexibility

4.12. We have set out in our submissions to the CMA[32] that there might be barriers to effective market participation by customers through Demand Side Response (DSR). For example, under current market arrangements, DSR used by one party may have implications for another party: if a DNO uses a consumer's DSR, it can change a supplier's imbalance position without that supplier knowing or having the

[30] https://authors.ofgem.gov.uk/publications-and-updates/quicker-and-more-efficient-distribution-connections; consultation closes 14 May 2015.
[31] https://www.ofgem.gov.uk/gas/retail-market/market-review-and-reform/retail-market-review
[32] https://www.ofgem.gov.uk/ofgem-publications/88901/submissiontocmafinalpdf.pdf

opportunity to react. This creates operational and financial risks to suppliers and also harms efficient use of consumers' DSR across the value-chain.

4.13. In addition, other sources of system flexibility such as storage and distributed generation may become widely available to industry parties, so we need to understand whether there are synergies between different sources of flexibility and how the system can make best use of all these sources to efficiently run its operation to the benefit of consumers. We have recently launched a project on flexibility to develop our strategy to enable and enhance the efficient provision and use of flexibility sources across the supply chain in the GB electricity system.[33] Some of these issues are also being addressed through the DECC and Ofgem Smart Grid Forum.[34]

4.14. We have also recently introduced half hourly settlement to both small and medium sized businesses. We hope that these measures will not only support better engagement by consumers but also enable more novel business models which make use of half-hourly consumption data from smart meters and support DSR and load shifting services.

Third Party Intermediaries

4.15. Third Party Intermediaries (TPIs) also have the potential to disrupt regulatory arrangements. TPIs are not subject to direct sectoral regulation in the same way as energy suppliers. We have put in place a TPI programme to assess potential regulatory issues. Through this we have set up dedicated working groups and have consulted on proposals to improve the market and enhance consumer protection in both the domestic and non-domestic market.[35]

4.16. In the domestic market, we published our proposals last year with the aim of facilitating innovation among TPIs, while ensuring consumers are protected.[36] We published a revised "confidence code" for price comparison websites on 30 January 2015.[37]

4.17. For the non-domestic market, we have published the output of the dedicated working groups and indicated that a consultation will be published on the approach to address consumer protection in this market.[38]

[33] https://www.ofgem.gov.uk/publications-and-updates/open-letter-facilitating-efficient-use-flexibility-sources-gb-electricity-system
[34] https://www.ofgem.gov.uk/electricity/distribution-networks/forums-seminars-and-working-groups/decc-and-ofgem-smart-grid-forum
[35] https://www.ofgem.gov.uk/electricity/retail-market/market-review-and-reform/third-party-intermediaries-tpi-programme
[36] https://www.ofgem.gov.uk/publications-and-updates/domestic-third-party-intermediaries-tpis-confidence-code-and-wider-issues
[37] https://www.ofgem.gov.uk/publications-and-updates/ofgem-strengthens-confidence-code-price-comparison-websites
[38] https://www.ofgem.gov.uk/publications-and-updates/non-domestic-third-party-

Discussion points:

- 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?

intermediaries-tpis-summary-industry-feedback

5. Market effects of NTBMs and future challenges for regulation

5.1. In this chapter we consider the potential market effects of NTBMs, how NTBMs could transform the energy market and the future challenges for regulation.

Assessing the market effects of NTBMs

5.2. It is important for us to better understand NTBM costs and benefits, alongside any relevant market failures, so that we can assess whether there are future regulatory issues we will need to address.

5.3. NTBMs can potentially increase competitive pressure. This can help to drive down costs and prices and also offer consumers greater choice by providing more products and services. These new business models can also help to address challenges and issues such as the transition to a low carbon energy system or the current lack of consumer engagement.

5.4. The benefits of NTBMs, and the distribution of those benefits, will depend on what form the business model takes (such as the value proposition, motivation and organisational arrangements, as described in Chapter 3) as well as the current and potential scale of the business.

5.5. There are also costs relating to NTBMs. Some of these are direct costs to the market entrant (eg customer equipment, infrastructure, IT, billing and customer service systems) but there are also potential wider energy system costs (eg system coordination costs – a greater number of market players may make some processes such as system balancing and customer switching more complex). In addition, there are possible risks to consumers, for example regarding supply reliability, data privacy or consumer protection.

5.6. Table 1 shows examples of the types of benefits and costs associated with NTBMs. The range of different business models that we are considering under the umbrella of NTBMs is very wide. Individually many of the benefits may not be unique to NTBMs (they could also apply to traditional market entry or expansion). The difference may be the way in which NTBMs combine various benefits and package them together in a way that consumers may want and trust.

5.7. The benefits and costs are uncertain and critically depend on the form of the NTBM. Some of the impacts will only be relevant to certain types of NTBMs, for example some of the social benefits may only be relevant to business models that focus particularly on certain consumer groups. In some instances the effects may be either positive or negative, depending on the type of market entry. For example, services that allow consumers to better manage their energy demand may create

additional flexibility in the system and make it more resilient. In contrast, if NTBMs were to drive a rapid uptake of distributed energy this could have wider effects such as necessitating greater system flexibility to accommodate higher proportions of intermittent renewables.

5.8. When trying to assess the potential effects of NTBMs there are many unknowns and interdependencies. The potential scale of NTBMs may depend on such things as technological development, consumer preferences and behaviour and government policy as well as regulatory arrangements. Given this, we are not trying to use the framework shown in Table 1 in order to quantify the benefits and costs, but more to give us a structure to explore our understanding around them.

5.9. The framework also highlights two key issues:

- Wider indirect benefits (beyond the energy system): Our principal objective is to protect the interests of existing and future energy consumers.[39] When we carry out our functions our main focus is therefore the direct impacts on the energy system and energy consumers. However, some NTBMs, especially in the community energy sector, have highlighted wider benefits that their business models could deliver, such as new jobs and skills, greater social cohesion and wider economic development, and have argued that we should take these into account in assessing the need for regulatory change.

- The potential for NTBMs to drive innovation in the energy system: NTBMs have the potential to deliver new products and services that consumers want, as well as to drive down system costs. This could include helping to drive the energy system transition, which is necessary if we are to achieve a secure, low carbon supply in line with our legislative obligations. When carrying out our functions, we try to incorporate longer term impacts (as demonstrated within the hard-to-monetise part of our impact assessment process).[40] However, we recognise that the potential for NTBMs to drive innovation in the energy system and how this potential can be captured is harder to define than for some of the other effects identified in Table 1.

5.10. We would welcome feedback on the framework, and in particular are keen to explore both the wider benefits and the potential innovation effects of NTBMs through this process of engagement so that we can have a broader view of the NTBM landscape and the potential need for regulatory change.

[39] For further detail on Ofgem's duties see https://www.ofgem.gov.uk/publications-and-updates/powers-and-duties-gema

[40] Ofgem's impact assessment guidance is available at https://www.ofgem.gov.uk/ofgem-publications/83550/impactassessmentguidance.pdf. See https://www.ofgem.gov.uk/ofgem-publications/57015/discussion-paper-strengthening-strategic-and-sustainability-considerations-ofgem-decision-making.pdf for further detail on Ofgem's approach to hard-to-monetise aspects

Table 1: Examples of direct and indirect NTBM effects

Direct energy system benefits	Economic	• Consumer bill reductions through increased engagement and competitive pressure • Avoided/reduced network costs: losses, connection, reinforcement, transmission, distribution • System balancing cost reductions: eg if NTBMs enable greater demand management • System diversity, flexibility and reliability/resilience • Innovation effects: new products, services and processes may drive down costs and enhance consumer choice • Increased market engagement may have knock-on effects: eg, success rates for energy efficiency projects, demand reduction, behavioural change, etc
	Environmental	• Carbon impacts through both fossil fuel and demand displacement • Additional environmental impacts: eg air quality (and associated health effects), impact on natural beauty
	Social	• Increased energy 'literacy' may lead to greater support for renewables deployment and demand-side programmes • May focus particularly on vulnerable, fuel poor or 'hard to reach' energy consumers
Direct energy system costs	Economic	• Additional grid connection costs (connection and potential reinforcement) • System integration costs: eg more back-up generation required or better distribution system management (such as local balancing) • Higher coordination costs due to increase in number of market participants • Equipment costs: eg in consumer premises • Increased costs associated with managing greater system flexibility eg reliance on higher levels of intermittent and distributed generation • Potential risks to personal data, privacy, consumer protection, etc
	Environmental	• Carbon impacts • Additional environmental impacts eg air quality (and associated health effects), impact on natural beauty
	Social	• Potential marginalisation of vulnerable consumers and others not able to access new (digital) services and products
Wider indirect benefits	Economic	• New jobs and enhanced local skills • Economic development (potentially in areas with fewer opportunities) • Regeneration of local areas and enhancement of investment potential
	Environmental	• Greater understanding of low carbon energy may have knock-on effect on other behaviours: eg heating and transport choices • Community and municipal energy projects may lead to broader environmental awareness and schemes focused on the enhancement of green infrastructure and biodiversity
	Social	• May provide funds for non-energy-related projects through community funds/trusts • Wider social impacts on local communities: eg social cohesion or community development

NTBMs and future challenges for regulation

5.11. As discussed in Chapter 4 regulatory arrangements are constantly evolving in response to changes in the energy market. But in the future we see potential for much greater change where NTBMs transform the energy market. This could raise fundamental challenges for regulation.

5.12. As an example, if we consider a future scenario in which local energy services (for example community or municipal energy) have gained substantial market share we can envisage a range of potential market characteristics:

- Greater ownership/control by non-traditional actors (for example community energy groups or public-private partnerships)
- Shift of generation mix from centralised to decentralised
- Innovative supply and distribution models
- Intermediary/third party services to limit exposure to costs/risks inherent in current regulatory arrangements
- Greater deployment of heat networks
- Use of energy storage at a local level
- High consumer engagement (including consumers as prosumers, agents of demand and flexibility, collective switching and purchasing arrangements)
- Wider social benefits (eg targeted action for vulnerable consumers).

5.13. It follows from this example that there could be fundamental challenges to regulation, for example challenge to the centralised way in which the energy market operates. It could also mean that new approaches to consumer protection are required, for example consumers may be willing to take a greater risk (eg of higher prices or risk of the scheme failing) by actively participating in a local energy scheme (eg Community or Municipal Energy).

5.14. We need your help to understand this potential for NTBMs to transform the energy market. We are interested in the nature of potential transformation, the consumer benefits this could bring (as we discussed earlier in the Chapter) and also the issues this raises for regulation. We hope this will give us foresight of future regulatory issues so that we are able to take timely action that is in the interests of existing and future consumers.

Discussion points:

- What are the benefits of different NTBMs to energy consumers?
- Are these benefits experienced by all energy consumers or only those directly receiving the NTBM's services?
- Are there additional wider benefits to the energy system and beyond it?
- Which of these benefits should be taken account of in regulatory policy-making and decision-taking and why?
- Are there energy system costs or risks from any of the NTBMs? How might these be addressed?
- How will NTBMs help to drive innovation within the energy system?

Non-traditional business models: Supporting transformative change in the energy market

- How could NTBMs potentially transform the energy market and what fundamental challenges to regulatory arrangements could this entail?
- How could regulatory arrangements change to accommodate NTBMs?
- What role do NTBMs and other parties have in managing energy market transformation and regulatory change?

Appendices

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Appendix 1 – Discussion Paper Response and Questions

How to engage on this

1.1. This document is a discussion paper and is intended to share our thinking and stimulate debate amongst interested parties. We welcome feedback on any of the issues and the discussion points we have posed.

1.2. We also plan to discuss this at various events across England, Scotland and Wales. If you want to know where we will be discussing this, or are aware of a relevant event we could participate in, please let us know via the contact details below.

1.3. We are gathering views until 20 May 2015. During this period we hope to engage with NTBM organisations across England, Scotland and Wales in a variety of ways.

1.4. We would like to hear your views on this subject. If you would like to respond in writing, then please send your response to sustainable.energy@ofgem.gov.uk by 20 May 2015.

1.5. If you would prefer to discuss this with us directly, please do so by contacting:

Dr Jeffrey Hardy
Head of Sustainable Energy Strategy
Consumers and Sustainability
9 Millbank
London
SW1P 3GE
Tel: 020 7901 7111
Email: sustainable.energy@ofgem.gov.uk

1.6. Any information you provide to Ofgem may be used and disclosed in performance of its statutory functions, in accordance with section 105 of the Utilities Act 2000, and in accordance with Ofgem's obligations under the Data Protection Act 1998 and the Freedom of Information Act 2000. To the extent such information may contain personal data covered by the Data Protection Act 1998, Ofgem will be the data controller.

1.7. Unless marked confidential, we may publish responses to the discussion paper by placing them in our library and on our website: www.ofgem.gov.uk. Respondents may request that their response is kept confidential. We shall respect this request, subject to any obligations to disclose information, for example, under the Freedom of Information Act 2000 or the Environmental Information Regulations 2004.

1.8. Respondents who wish to have their responses remain confidential should clearly mark the document to that effect and include the reasons for confidentiality.

What we will we do next?

1.9. We see this discussion paper as the start of a longer-term engagement. We plan to publish a summary of responses in summer 2015, and in this we will set out how we will continue this engagement.

1.10. We are also interested to hear from you how we can engage with NTBMs more effectively in the future.

Summary of discussion points by Chapter

CHAPTER: One

- What is your view on our definition of non-traditional business models?
- How we can engage with NTBMs more effectively in the future?

CHAPTER: Two

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

CHAPTER: Three

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

- 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?

CHAPTER: Five

- What are the benefits of different NTBMs to energy consumers?
- Are these benefits experienced by all energy consumers or only those directly receiving the NTBM's services?
- Are there additional wider benefits to the energy system and beyond it?
- Which of these benefits should be taken account of in regulatory policy-making and decision-taking and why?
- Are there energy system costs or risks from any of the NTBMs? How might these be addressed?
- How will NTBMs help to drive innovation within the energy system?
- How could NTBMs potentially transform the energy market and what fundamental challenges to regulatory arrangements could this entail?
- How could regulatory arrangements change to accommodate NTBMs?
- What role do NTBMs and other parties have in managing energy market transformation and regulatory change?