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## **OFGEM CONSULTATION: NON-TRADITIONAL BUSINESS MODELS**

Dear Dr Hardy,

### **Introduction**

Thank you for providing the opportunity to respond to the Ofgem discussion paper on “Non-traditional business models: Supporting transformative change in the energy market” issued on 25 February 2015. Within this document we set out our position as Highlands and Islands Enterprise (HIE).

Highlands and Islands Enterprise (HIE) is the Scottish Government’s agency responsible for economic and community development across the North and West of Scotland and the islands.

HIE along with its local partners: the democratically elected local authorities covering the north of Scotland and the islands: Shetland Islands Council, Orkney Islands Council, Comhairle nan Eilean Siar, Highland Council, Argyll & Bute Council and Moray Council make representations to key participants on behalf of industry to influence the way in which grid construction is triggered, underwritten then accessed and charged for in the region.

### **General**

We welcome this opportunity to comment and enter the discussion around the area of “Non-traditional business models” (NTBM). The Ofgem discussion paper is timely, relevant and in our view an important opener to discussions around the future structure of our electricity (supply) industry.

Within this letter we set out the background to the current status of generation, transmission, distribution, supply and demand and our beliefs in the steps that must be developed in facilitating the interests of the consumer, particularly at a local or community level.

### **Background**

Over the last 26 years since privatisation the electricity industry has changed significantly. We have moved from:

- An era of large centralised thermal power stations to one of thousands of distributed generators where renewable energy technologies have become commonplace appearing at all levels of the transmission and distribution system including at a local and domestic level.
- An era of large vertically integrated monopolies to privately owned and separated businesses with a multiplicity of technologies, players, schemes and consumer preferences, where local and community level renewable energy schemes have become both a desirable and necessary means to further local consumer interests.

Generation and consumer preferences have thus shown much change but between these wide and diverse sets of consumers and generators are the transmission and distribution wires, businesses and suppliers where change has not kept up. We currently have:

- A regulated monopoly of 3 transmission owners (excluding offshore transmission) and 14 distribution businesses with very few independent owners (e.g. IDNO).
- A relatively small set of suppliers where 70% of the supply market is controlled by just 6 suppliers, the remainder by a larger (but still small) number of more niche suppliers. This does not contrast well with the position at privatisation where supply was undertaken by the 14 regional boards.

In addition to the above, technology has moved at pace with many facilitating technologies including but not limited to communications, smart meters and systems, energy storage devices, the internet and on-line business, the use of electricity in heat networks, and controllable consumer demand with flexible generation. It is no surprise then that in our markets based system there are many new players with new ideas about not only how to generate and use electricity but also how to transmit, store and supply it.

A key driver for this change has been the environment but other important drivers also exist at the community and domestic consumer level including social responsibility, social empowerment, the price of energy, choice and competition.

Looking again at the future, it is clear that the diversity and decentralisation currently being seen will continue as projects, technologies, generation and consumer preferences continue to evolve and new players with new ideas continue to enter the market.

### **Supply of electricity**

Over the last six years, supplier choice has increased and the supply side has taken small steps to try and keep pace with this change through mechanisms such as "Licence Lite" and "White Label". Whilst these measures are commendable, we believe the supply side is falling behind and remains in an era where supply is based on a national market business model with little scope for innovation, change and local supply, and presents a barrier to the ongoing development of the industry at its most fundamental level, i.e. with the consumer at a local and community level.

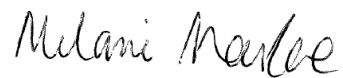
We believe that to facilitate the future of electricity supply there is a need to continue to develop the top down deregulation approach from an unlimited national market with nationwide licensed suppliers to a tier of niche suppliers occupying a less

burdened middle ground to a completely local level of suppliers either exempt from or with very limited regulatory obligations.

We recognise that reducing the regulatory burden on some suppliers may mean that those suppliers cannot compete across the range of national markets. We note however that this is acceptable and that if choice and competition to consumers is maintained, for example between a local and national supplier, that the interests of the consumer will remain protected.

We therefore welcome this opening discussion paper from Ofgem and look forward to further engaging on this very important theme.

Yours Sincerely,

A handwritten signature in black ink, appearing to read "Milani Macleod". The signature is written in a cursive, flowing style.

Senior Development Manager, Renewable Energy

In partnership with:  
Shetland Islands Council  
Orkney Islands Council  
Comhairle nan Eilean Siar  
Highland Council  
Argyll & Bute Council

## Responses to consultation questions

### Introduction

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

We are satisfied that Ofgem's definition captures the breadth and depth of diversity of NTBM. We suggest that as NTBM develop and the frameworks necessary to facilitate them become clearer then the definition can be refined and may also be split out into different components. For the time being this remains a diverse and difficult to define subject.

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

We suggest a process of engagement across the NTBM spectrum to gather evidence of NTBM drivers, issues and future requirements. We suggest a workshop with projects in the Highlands and Islands to encourage bi-lateral engagement, gather evidence and provide possible case studies for the development of further policy and guidance. We would be happy to participate in the facilitation of this, should this be required.

### Drivers for NTBM

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

We agree with Ofgem's key drivers but suggest the following can also be considered:

- Empowerment. At a community level the drivers for NTBM are not just about those worse off but also about empowering community and local generators with decision making ability, choice and financial flexibility.
- Financial. Whilst it is mentioned by Ofgem briefly it should be borne in mind that very few NTBM will be seen that do not involve commercial benefits, be it through cheaper energy or by gains made in selling and/or engaging more directly with the electricity supply market.
- Wider socio-economic benefits. In conjunction with the above and allied to Ofgem's own driver of affordability and assistance to the vulnerable, even relatively small levels of local socio-economic uplift can be transformational in terms of jobs, welfare, and incomes. Ofgem latterly notes indirect benefits could be seen in the creation of new jobs and funds for non-energy-related projects through community funds/trusts which we confirm a key driver.
- Grid issues. Our experience is that many of the features of NTBM at a community level are borne in part of overcoming grid issues, thereby necessitating the use of Active Network Management schemes, technology such as storage, private wire arrangements or other innovative arrangements.

### Understanding of NTBM

4. Have we accurately described the NTBM environment? Have we missed something?
5. We'd like to learn more about organisations using NTBMs. If you are prepared discuss this, please contact us.

We believe Ofgem has reasonably described the NTBM environment. To assist, we have included a number of scheme examples from the HIE region and wider Scottish context as an appendix to this letter.

### NTBM within current regulatory arrangements

6. Ofgem's main focus in this paper is on regulatory issues arising from future energy market transformation, but it recognises that there are relevant issues within current regulation. Are there any other issues it should be aware of?

We believe Ofgem has set out well, at high level, the regulatory issues. The key issue from our perspective is simply the complexity and cost of the regulatory burden for those wishing to follow an NTBM as many would be participants are relatively small, operating at a municipal or community level.

We therefore believe that the regulatory challenge going forward is twofold, in providing further small steps to reduce the costs and complexity for medium size NTBM, but also in providing a simple packaged regulatory solution for the smaller community level NTBM which either relieves or greatly simplifies the regulatory requirements.

### Market effects of NTBM and future challenges for regulation

7. What are the benefits of different NTBM to energy consumers?

We consider that there are clear benefits to NTBM. These include the following.

- The introduction of further **competition** and choice in the supply market and we note that this can be at all levels, not just a community and local level.
- Reduced **costs** to the consumer through local supply arrangements, increased competition and choice.
- Increased uptake of low carbon (renewable) generation and associated technology helping to continue the **environmentally beneficial** low carbon transition. This boost can be further enhanced through local generation and supply arrangements that do not involve the cost of transmission and distribution.
- **Empowerment, financial, wider socio-economic** and other consumer benefits as have already been mentioned above.

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

Not all consumers will be able to access all NTBM services but should be able to access more than is currently available to them. We believe that ultimately NTBM can exist and be accessible at all levels to provide competition, choice, cost reduction and other benefits to all consumers.

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

We believe that the benefits of NTBM in themselves will bring wider benefits to the energy system. Some examples are as follows.

- Diverse energy vectors such as district heating, electric vehicles, hydrogen storage and use and other such examples.
- Decarbonising the electricity generation market through renewable energy (for example) will also facilitate decarbonisation of heat and transport through mechanisms as noted above.
- Uptake of new technologies potentially offering services to the wider energy system such as energy storage, balancing, reactive power, frequency response, and the offload of energy meaning reduced transmission and distribution losses.
- Reduced need for energy system reinforcements through more localised arrangements.
- Increased resilience and the potential to create micro-grids which can work with the national transmission and distribution systems or stand alone.
- The potential to increase diversity along with generation and provide greater system security.

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

We see no reason why all benefits should not be taken into account. We suggest it might assist in listing out the benefits, classifying them and deciding from there what is appropriate.

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

Some risks are likely and may include considerations of national energy system security, and difficulties and regulatory oversight of a wider market amongst others.

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

NTBM are already driving innovation – please see our example projects. Further facilitation of NTBM has the potential to drive further innovation and benefits.

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

Please see our answers within this response and notably to questions 3, 7 and 9. We believe a quantum transformation is possible and probably necessary but will require a major shift to greatly reduce the regulatory burden on small players with NTBM.

14. How could regulatory arrangements change to accommodate NTBMs?

As stated earlier we believe regulatory arrangements in regard to (supply) arrangements with NTBM need to continue to develop small step regulatory variations but in our view a less regulated and/or simply packaged regulatory model needs to be made available.

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

The role of NTBM and other parties is to work with Ofgem to identify the needs for change and the required format for change. We believe this discussion letter is an excellent start to this process.

## Appendix – NTBM examples from the HIE region – (further detail on these and other projects can be provided on request)

Group	Project Name	Project Summary
Shetland Island Council	Demand Side Management Phase 2	<p>The project is planning to use large scale controllable thermal storage in council buildings to provide additional supplementary controllable demand to the local DNO. This is being undertaken to facilitate further uptake of community renewable energy generation schemes and a means to deal with 'excess energy' at times when demand is otherwise low. The new large scale controllable thermal storage will be integrated into the existing Shetland Islands Active Network Management scheme.</p> <p>We note that the Shetland Isles currently are not connected to the mainland GB grid and operate under a separate arrangement. This NTBM is using thermal heat as an energy vector to soak up excess renewable energy generated as electricity.</p>
Orkney Islands Council	Low Carbon Inter-Island Orkney Ferries	<p>The project plans to use alternate energy vectors to overcome grid electrical export constraints applied to renewable energy projects, e.g. hydrogen / electric fuel cells for ferries. Surplus energy that is generated but cannot be exported to the electrical grid will be diverted to use as a fuel source for the ferries.</p> <p>This NTBM is using the conversion of electrical energy to another form to avoid dealing with grid issues.</p>
Gigha Green Power Limited	Gigha Network Islanding Feasibility Study	<p>This project is looking to operate Gigha island grid independently from the rest of the distribution network under certain circumstances, i.e. as a micro-grid. There is currently 1MW of renewable generation on the island, with the installation of a 1.26MWh battery to minimise grid constraint.</p> <p>This NTBM is using a battery to store and control electricity flows to respect grid constraints but ultimately realise the metered value of the renewable energy. The NTBM is examining how it might work in the case the local island is 'islanded' from the rest of the grid but continues to generate and consume.</p>



Unst Partnership Ltd	Unst Smart On/Off Grid	<p>This project is seeking to use alternate energy vectors to allow increased installation of renewable energy generation into a very constrained grid (Unst being a northern island within the Shetland Isles). The project is seeking to use/convert electrical energy to produce hydrogen, nitrogen and oxygen for heating and transport and sale to local industry.</p> <p>We note that the Shetland Isles currently are not connected to the mainland GB grid and operate under a separate arrangement. This NTBM is seeking to convert electrical energy to other energy vectors / products to soak up excess renewable energy generated as electricity.</p>
Sustaining Dunbar	Dunbar Local Energy Project - second part	<p>This project is proposing to use local generated green electricity to produce hydrogen and thereby create a 10% hydrogen / 90% methane mix and supply this to the local gas grid. This is being considered as the local electricity grid is highly constrained in terms of connecting further renewable generation. The project further proposes to offer the use of electricity to produce the hydrogen as a Demand Side Response service to both the local distribution network operator and other generators.</p> <p>This NTBM is proposing to use convert electricity to a different energy vector to soak up excess local renewable generation and provide this as a Demand Side Response service to generators and the distribution network operator.</p>
NG Homes	NG Homes BRRC	<p>The project aims to use solar energy production from council owned derelict sites to provide energy to 200 households across two tower blocks in Springburn Glasgow. It will utilise existing electric storage heaters within the two tower blocks to make best use of output from the solar farms to reduce high end heating costs (and hence fuel poverty) for electrically heated homes. It will use smart meter and home technology and also aim to provide Demand Side Response to National Grid Electricity Transmission as the GB transmission system operator.</p> <p>This NTBM is proposing to use domestic scale thermal storage heating to utilise locally produced solar energy and also to provide Demand Side Response at a national level. The storage heating will be predominantly used when wholesale electricity prices are lower (at night but also during the day), meaning reduced supply costs and reduced consumer costs but with improved all round access to heat.</p>

Fintry Development Trust	Fintry Development Trust Smart Meter Feasibility Study	<p>The project is seeking to use smart meters to link consumption of residents and business in Fintry with the electricity produced at a local biogas plant with the aim of reducing energy pricing compared to grid supplied power. The project is seeking to understand how this local generation and supply model can work (without private wires).</p> <p>This NTBM is seeking to match local generation and demand to provide lower cost electricity locally.</p>
HHP CESCO (Hebridean Housing Partnership)	Local Supply Balancing Feasibility Study	<p>This project seeks to bring a group of domestic customers together under an entity called a Community Energy Services Company (CESCo). Their half-hourly smart meter readings are grouped together (referred to as 'virtually aggregated'). This forms one demand curve showing the energy used at different times of day and will be large enough for half hourly settlement.</p> <p>The CESCo will negotiate with a licensed electricity supplier for time of use tariffs (that is, different prices for power at different times of day) for half-hourly settlement of this one demand curve, in effect becoming a virtual 'unlicensed supplier'. The local consumers will receive simple flat rate tariffs for various times of day. The aim is to provide a basis via the CESCo for local based tariffs that reduce costs overall and involve a local generator. Local controllable demand would be used to provide further enhancement to the scheme.</p> <p>A number of CESCo may group together to negotiate with a supplier under a Community Services Enterprise (CSE).</p> <p>This NTBM plans to use aggregated domestic scale half hourly meters to create a single virtual metered supply suitable for half hourly settlement purposes. This virtual metered supply will then be negotiated with a licensed supplier.</p>

Isle of Rum Community Trust	Rum, Island Energy and Infrastructure Study	<p>Rum is not connected to the GB transmission or distribution grid and runs as an island. It currently uses two hydro generators of 15kW and 30kW which run at capacity at peak times, supplemented by a 53kWh battery bank through a 45kW inverter, and diesel gensets of 38-60kVA. The project is seeking to double the local population and expand electricity capacity to accommodate this. The project is seen as a test side for microgrid, storage and network management technology. Electricity is currently charged at a low (subsidised) rate by the local owner of the system.</p> <p>This NTBM is using various technologies in an islanded system.</p>
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