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&

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9th January 2017

Dear Sirs,

A Smart, Flexible Energy System – Call for Evidence

Thank you for the invitation to respond to the above call for evidence. Bristol Energy is an independent supplier of electricity and gas with a business model that has a regional focus on the South West of England, although we supply customers across Great Britain.

Executive Summary

Bristol Energy welcomes the focus both the Government and Ofgem are putting on the future, more flexible energy system. The UK Energy market is becoming increasingly decentralised and new forms of generation and usage are entering the market in what is a rapid pace of change driven by the need to decarbonise and customer choice.

It is important that the Government and regulator set the regulatory framework to ensure the market can deliver the innovation required to meet our carbon goals, rather than picking the solutions and imposing them on the market. Ofgem's move to principle based regulation is a pillar of that approach in recognising that the old "one size fits all" approach to energy retailers is now hindering customer satisfaction.

We are slightly concerned that this Call for Evidence has been focussed on specific technology developments such as storage and DSR, which whilst important are just examples of known innovations, and would have welcomed a more holistic focus on creating an environment for innovation in the energy market, some of which will be built on innovations such as storage and DSR.

We believe it is in the interest of both customers and the wider market that consumers continue to have a linear relationship with their energy supplier as their point of contact. Suppliers are required by licence to treat customers fairly and can be held to account if they don't. If other parties such as independent aggregators complicate that relationship it could be detrimental to customers and other market participants, and add complexity to an already complex market.

The UK retail energy market is extremely competitive and many of the non-traditional retailers are already

exploring what new products smart metering, combined with HH settlement could lead to. This will lead to a greater diversity of products available and the regulator must learn to accept this diversity and not see it as a barrier in the market, but an opportunity to engage consumers. It must also accept that innovation sometimes leads to unintended consequences, in the worst cases impacting consumers detrimentally. Ofgem must develop an enforcement regime that accepts such events and focus on whether the consequences were reasonably foreseeable, and how they were corrected.

Finally, we envisage that the move to a decentralised energy system will continue and how the transmission owners and operators (gas & electric) are funded needs to be considered, including the greater use of interconnectors.

We have answered some of your specific questions below, expanding our response where necessary.

Q6. Do you agree with any of the proposed definitions of storage? If applicable, how would you amend these definitions?

The definition proposed seem appropriate for commercial storage, which may mean it needs to be licensed. However it would be inappropriate to license all storage as it would then include all domestic size storage, and any electric vehicles. To date anyone connecting small scale generation is not licensed, but does have an obligation to inform the DNO of the installation of the generation equipment. This may be an approach that could be taken by DNOs regarding static storage, but in practice would be difficult to establish for electric vehicles, which are also storage devices of sort.

We propose there should be two definitions. One for large scale commercial storage, which could be licensed, and an equivalent to licensed exempt generation for small scale storage, the second definition may be used in connection agreements, to require DNOs to be notified of its existence.

Q7. What are the impacts of the perceived barriers for aggregators and other market participants? Do you have evidence of the benefits that could accrue to consumers from removing or reducing them?

When considering aggregators it is important to distinguish between independent aggregators and other market players who may perform an aggregation role. The barriers to independent aggregators are more substantial, but do not prevent other players such as suppliers acting in this role.

At the present moment the biggest barrier to aggregation services is the lack of half-hourly metering for all but the largest non-domestic sites which means aggregation services are limited, and also constrained further by the bespoke needs of individual businesses.

With HH settlement, and appropriate levels of control then suppliers should be able to offer aggregation services. This they may use directly to manage their imbalance position (by decreasing or increasing demand), or may use it in a particular locality to alleviate constraints on the system. They could also constrain demand at times of peak requirements. As the relationship remains a bilateral between the supplier and the customer, then the process is one of mutual consent with the customer protected by a license that requires the supplier to treat the customer fairly, transparently and in an honest manner.

Independent aggregators in the market intervene in the bilateral relationship between a supplier and customer and at present is an unregulated activity. The risk is that any value the aggregator passes onto the customer

from aggregation services may be outweighed by additional costs the supplier may impose on the customer due to the unpredictability of their energy demand.

Q8. What are your views on these different approaches to dealing with the barriers set out above?

We believe that the most effective way to manage the barriers, whilst protecting both customers and the system stability is for aggregators to be either licensed or for them to act as agents of suppliers. This maintains the current bilateral relationship between customer and supplier, and it is up to the supplier to manage the aggregation service either in-house or via a 3rd party.

This approach would remove the need for a supplier to be compensated for detrimental actions by an aggregator as it would mean aggregation was done with the suppliers consent and allow it to manage its position appropriately.

Q9. What are your views on the pros and cons of the options outlined in Table 5? Please provide evidence for your answers.

With the exception of the options to Monitor, and for aggregators to have a supply licence we believe the other options complicate further an already complex market. We believe that aggregation is effectively a non-traditional business model variant of an energy supplier, and once HH settlement is wide spread most suppliers will be able, if they choose to, offer DSR services to their consumers and pass on the benefit of this aggregation. The current move to simplify licences to a more principle based approach will help and parties will themselves be able to raise changes to industry codes to remove or reduce any barriers they see without Government or regulator intervention.

Q10. Do you agree with our assessment of the risks to the system stability if aggregators' systems are not robust and secure? Do you have views on the tools outlined to mitigate this risk?

We agree that if aggregators do not have to face the financial consequences of their actions on the system then they could put the system stability at risk. Currently suppliers and generators are incentivised to balance their position or face the imbalance market. This is why we advocate that aggregators should hold a supply licence, as they now need to balance their position through buying power or enacting demand side actions as they see fit. It is this incentive for parties to manage and be held to account for their imbalance that in turn leads to total system stability.

Q11. What type of enablers do you think could make accessing flexibility, and seeing a benefit from offering it, easier in future?

The key enabler is mandatory Half-Hourly settlement which will allow suppliers to provide more flexible tariffs. This may be in the simple form of static Time of Use tariffs where customers can reduce their bills by switching some of their energy demand to cheaper times. Right through to dynamic demand side response utilising automated systems and devices. The pricing signal could be further improved to create a greater incentive if network charges were more reflective of the time of use.

We do not expect end-users to continuously monitor price signals and thus creating a market for automated response equipment and devices is key to this. It will also require Ofgem and Government to consider what protections need to be in place for customers who agree to give suppliers or others control over certain devices for DSR purposes.

Q14. Can you provide evidence to support any changes to market and regulatory arrangements that you consider necessary to allow efficient use of flexibility. What might be the Government's, Ofgem's, and the system operator's role in making these changes?

The UK electricity market is becoming increasingly decentralised, and most flexibility on the demand side will occur/be needed in future at sites connected to the distribution, rather than transmission network. As part of this we believe Ofgem and Government must consider the role of DSO's alongside that of the TSO, so that they can both promote flexibility in their network use.

Q15. To what extent do you believe Government and Ofgem should play a role in promoting smart tariffs or enabling new business models in this area? Please provide the rationale for your answer, and, if you feel the Government and Ofgem should play a role, examples of interventions which might be helpful.

The UK retail energy market is extremely competitive and suppliers will be keen, once smart meters are rolled out and HH settlement enabled to offer smart tariffs to end consumers. We therefore believe that apart from welcoming smart tariffs there is no specific intervention needed by Government or Ofgem to promote smart tariffs.

The natural course of the market is that smart tariffs will start as a niche product taken up by early adopters and tech savvy consumers and then filter through to the more conservative customers in due course, once the benefits can be seen. So banging the gong too early will serve little purpose.

If the Government was to intervene, then it maybe about encouraging appliance manufacturers to make smart products available independently of any energy supplier so that changing supplier will not require a customer to change appliances.

Q16. If deemed appropriate, when would it be most sensible for Government/Ofgem to take any further action to drive the market (i.e. what are the relevant trigger points for determining whether to take action)? Please provide a rationale for your answer.

The Government should be engaging with smart appliance manufacturers now to see if a common interoperable form of communication can be adopted, perhaps in alliance with other countries. Ofgem should also be considering whether the DCC network should be able to use its communication network to allow suppliers to communicate with appliances with a CAD functionality.

Q19. Are distribution charges currently acting as a barrier to the development of a more flexible system? Please provide details, including experience/case studies where relevant?

Distribution charges are not currently acting as a barrier to flexibility as the lack of HH settlement means that any granular pricing signal cannot be passed on by suppliers to end users. Once HH settlement is mandated then network charges will be capable of being used to send more efficient pricing signals to end customers and network companies will need to work with suppliers and Ofgem to establish how they can send price signals that can be used by end users whilst offering domestic consumers certainty of prices.

Q20. What are the incremental changes that could be made to distribution charges to overcome barriers you have identified, and to better enable flexibility?

In order to develop distribution charge methodologies and structures that deliver the required flexibility, Ofgem should be encouraging network companies and suppliers to run charging trials to see what format provides the right level of flexibility whilst maintaining the right element of predictability or security to end consumers. For example, currently a domestic customer with solar panels and storage would face the same DUoS charges as a traditional customer, but could a different methodology incentivise the customer to reduce their import demand at peak times, or even export during those periods?

If network companies wait until HH settlement is mandated before considering the best way to change the current complex methodology based on kWh, then they may inhibit flexibility. RIO-ED2 commences in 2023, and DNOs & Ofgem must be in a position by then to have agreed ED2 based on a new flexible format. This suggest the new charging methodology will need to be agreed by 2021 to allow DNOs to prepare their submissions, which suggest trials must start soon.

Q21. How problematic and urgent are any disparities between the treatments of different types of distribution connected users?

As stated above, any changes to the charging methodology need to be agreed and tested before DNOs make their RIIO-ED2 submissions. This suggest an urgency of reform, especially if coupled with HH settlement, the decarbonisation of heat and transport, and the growing ability of end users to offer flexibility in their consumption if pricing signals are sufficient. Waiting until problems and barriers arise before beginning the long process of changing the current complex methodology, or worse making quick fixes which lead to unintended consequences is not in the interest of either industry or consumers.

Q22. Do you anticipate the underlying network cost drivers are likely to substantively change as the use of the distribution network changes? If so, in what way and how should DUoS charges change as a result?

The current network charges are based on the outmoded presumption of passive end users, and limited embedded generation. For smaller users they are also based on profiled data which will not reflect the diversity of behavioural change that could occur with the advent of smart metering. We therefore believe that the fundamental cost drivers will change, not least in the need for network companies to build a more flexible network and take on a more DSO role. A fundamental review of the whole network charging regime is needed so that it can deliver a robust solution before DNOs need to prepare their RIIO-ED2 submissions.

The industry needs to consider the issues and develop a solution which may require trials of several different solutions to find the most optimum result. At present it is not possible to second guess what changes are required.

Q23. Network charges can send both short term signals to support efficient operation and flexibility needs in close to real time as well as longer term signals relating to new investments, and connections to the distribution network. Can DUoS charges send both short term and long term signals at the same time effectively? Should they do so? And if so how?

With regard to short term signals to optimise the Use of the network around peak times and to encourage load shifting, these should be part of the role of DUoS charges. Whether they can be effective or are even desirable on a close to real time basis given most end-users will remain on a fixed price contract with a supplier is questionable (although a fixed Seasonable Time of Use would be possible). It may be that DNOs will need to

develop options for customers in their choice of DUoS charging structure that rewards customers willing to face close to real time signals or allows them to opt for a more traditional structure.

Long term signals will only work if DNOs can provide long term charging certainty. For example, if a DNO provides an embedded generator with a credit for connecting generation where it negates the need for reinforcement of the network, they must give assurances that this will be the position for a significant length of time, and that there is no risk in the next 5 years or longer that that credit changes to a charge because other generation connections are now causing a need for reinforcement further up the network. The best way to do this is by developing a grandfathering approach, which whilst not negating changes to DUoS charges set down agreement of certain principles.

Q24. In the context of the DSO transition and the models set out in chapter 5 we would be interested to understand your views of the interaction between potential distribution charges and this thinking.

The current DUoS charging methodology is based on the assumption that end consumers import all of their energy needs via the distribution network, which in turn has imported it from the transmission network. This is increasingly not the case as many customers have their own generation or the power is from generators connected to the distribution network.

If DSOs wish to send price signals to influence end customer behaviour then the basis of the methodology is flawed and needs to be revisited. One possibility may be that like retail tariffs, consumers may have a choice of distribution charges depending on their appetite to do demand side response.

Q28. Do you agree with the 4 principles for smart appliances set out above (interoperability, data privacy, grid security, energy consumption)?

We agree with the four principles set out but would add ease of use as a 5th principle. Whilst it may seem to be stating the obvious, it is important that adhering to the other four principles does not compromise the 5th principle on ease of use, otherwise take-up may be the preserve of the tech savvy customer rather than going mainstream.

Q29. What evidence do you have in favour of or against any of the options set out to incentivise/ensure that these principles are followed?

Key to customer confidence is that the devices are “Smart ready” even if the customer is not currently using appliances in smart mode, they may recognise that they may require this functionality in future and thus be incentivised to buy products indicating they can be used in Smart mode. A good example is that during the rollout of digital TV, consumers wanted assurance that their new TV was ready for digital even though they were not yet in an area that had digital services.

Q32. Are there any other options that we should be considering with regards to mitigating potential risks, in particular with relation to vulnerable customers?

Consideration needs to be given to the impact on consumers if different parties (e.g. Supplier, DNOs and aggregators) attempt to use the same smart appliances for different purposes at the same or different times. This may create conflict and suboptimal use for the customer and the energy system.

Licensed energy suppliers will be required to conform with the standard of conduct in how it treats customers who opt for tariffs with a demand side element of relinquishing control to them. It is important that if other parties are granted the right to manage a customers smart appliances then they are required to adhere to the same standards. This is particularly important for vulnerable customers who may be persuaded to grant control of devices based on unrealistic savings or an understatement of the level of inconvenience it will cause them.

Q33. How might Government and industry best engage electric vehicle users to promote smart charging for system benefits?

The promotion of smart charging is dependent on suppliers being able to reward EV customers for charging at times that are beneficial to the system. To achieve this, HH settlement coupled with more granular network charges need to be implemented. Once these are achieved, then customers will see the financial benefit of charging outside peak times, and will then look to the industry to provide automation to take the manual decision making process out of this.

As well as ToU, the Government should also look at the speed of charging. The cost of fast charging infrastructure is coming down, but for most customers the need to fast charge is rarely required. Currently, an EV customer will pay the same price per charge whether they fast charge or trickle charge, and thus will opt for fast charge, especially if the cheap rate window is narrow. This may require an element of dynamic capacity charging, where customers not only pay for the kWh, but for the kW peak they use in any HH.

Q34. What barriers are there for vehicle and electricity system participants (e.g. vehicle manufacturers, aggregators, energy suppliers, network and system operators) to develop consumer propositions for the:

- **Control or shift of electricity consumption during vehicle charging; or**
- **Utilisation of an electric vehicle battery for putting electricity back into our homes, businesses of the network?**

The control of vehicle charging can be done either from the vehicle or charging point. In most cases this should be as simple as setting the charging time start to commence with cheaper electricity rates. If the control is based at the charging point then the controlling device will need to be capable of understanding pricing signals from energy suppliers, which should come via the smart metering network. The industry need to agree how dynamic tariffs will be communicated and ensure that all suppliers conform so that any device can receive signals whoever the energy supplier is.

With regards to vehicle batteries being used in a two way mode, we believe that the falling costs of battery storage means that this market is likely to be overtaken by static batteries installed in homes and businesses. This would remove the complexities with EV, as to whether they are connected when required, or whether they may be depleted and unable to recharge before the vehicle is required. To this end we believe this market will not develop in the way anticipated a few years ago.

Q39. When does engaging/informing domestic and smaller non-domestic consumers about the transition to a smarter energy system become a top priority and why (i.e. in terms of trigger points)?

Until suppliers are able to offer smart tariffs based on high penetration of smart meters and HH settlement, then any engagement of customers is likely to be premature. The UK energy retail market is highly competitive with

50+ suppliers competing for business and as part of that suppliers will be using smart tariffs as a customer acquisition tool. This will be the key point of engagement and a top priority.

Q40. Please provide views on what interventions might be necessary to ensure consumer protection in the following areas:

- **Social Impacts**
- **Data and privacy**
- **Informed customers**
- **Preventing abuses**
- **Other**

Whilst it is important to protect vulnerable customers, we would hope that many of these customers will be able to make significant savings through making simple behavioural changes, and it is important that any consumer protection in this area does not inhibit customers from utilising these opportunities. Suppliers are required by their licence to treat customers fairly, and this would in our view include ensuring that they are on a tariff appropriate to their needs. However, if non-licensed parties are allowed to offer smart services which could be inappropriate to some vulnerable customers then the Government may need to consider giving Ofgem powers to act against these parties, including potentially licencing them.

We believe that data privacy is already protected under data protection law. If HH settlement is mandated, then we believe that this data whilst useful for settlement, and allowing more granular pricing has limited value outside the industry especially as it will always be historical and transferred via the secure DCC or Electralink network. The risk is non-industry parties using 3rd party consumer access devices (CADs), with links to the general internet which may have real time data and less security around them. This could compromise a consumer's privacy, especially if they did not understand the data risks of the service being delivered by the CAD. To this end we believe the Government should consider whether some sort of assurance scheme is required for services which use CADs.

In terms of preventing abuses, it should be noted that CADs could be used by parties beyond TPIs and thus well beyond Ofgem's current remit to regulate.

Q43. Do you agree with the emerging system requirements we have identified (set out in figure 1)? Are there any missing?

We agree with most of the proposed changes, although renewable generation will need to be located where the resource is (e.g. A tidal lagoon will need to be in on a tidal estuary.) and thus unlikely to respond to price signals to locate elsewhere. We also note that an increase in interconnectors is not listed as a driver for system change. This could lead to the UK importing more power when required, or exporting power when there is a surplus of power.

Although it is implicit in the 1st driver for change, the fact that many renewable generators operate at near zero marginal cost will also impact the way the system works. For these generators only a negative price will cause them to stop generating. We believe both Government and Ofgem need to consider the implications of this much further than they have to date.

Q45. With regard to the need for immediate action:

a) Do you agree with the proposed roles of DSOs and the need for increased coordination

between DSOs, the SO and TOs in delivering efficient network planning and local/system-wide use of resource?

b) **How could industry best carry these activities forward? Do you agree the further progress we describe is both necessary and possible in the coming year?**

c) **Are there any legal or regulatory barriers (e.g. including appropriate incentives), to the immediate actions we identify as necessary? If so, please state and prioritise them**

We agree that there is a need for DNOs to develop a role as a DSO and to take a more active role in managing their network. Waiting until problems and congestion arise is not good for the network users, nor is it desirable for the wider UK plc. As part of managing their network efficiently, DSO should be incentivised to seek to balance their own network, thus utilising the transmission system only to fill the gap between embedded generation and supply. This may require DSOs to become proficient in forecasting network usage and providing data to the TSO. We expect in time, that the role of the TSO will decrease and this may require a review of the funding routes of both TSO and TOs.

The main barrier to DSOs developing is that the DNOs appear to be scheduling this transition to take place within RIIO-ED2 period post 2023 and not before as it was not part of the RIIO-ED1 settlement. The transition to DSO is required before 2023 or just after, so Ofgem will need to consider whether this should be a priority and review the RIIO-ED1 settlement at its mid-point review.

Ofgem should also consider the whether DNOs and DSOs need to be separated in the way the TSO and TOs are to ensure transparency and equal treatment of parties.

Q47. Can you give specific examples of types of support that would be most effective in bringing forward innovation in these areas?

Whilst support for innovation is welcome, the Government needs to consider how it supports successful innovative products into the market, and what barriers could prevent their take-up. The take up of solar PV is a recognised success story, but for this to be achieved, regulatory barriers such as requiring export metering were removed, and PV panels were allowed to be installed as permitted development were key to the success not just the feed-in tariff.

A Feed-in tariff style scheme for battery storage should be considered, learning the lessons from the original Fit scheme about ensuring support tracks falls in costs. DNOs should also be incentivise to take the successes from projects within LCNF and others into Business as Usual and not leave them on the shelf as an interesting project for future generations to read.

Q48. Do you think these are the right areas for innovation funding support? Please state reasons, if possible, provide evidence to support your answer.

By its very definition, innovation is something new and the proposals here are about existing ideas which need support to go to market, not further research or trials. We would support further funding to take the areas highlighted to business as usual (with the exception of vehicle to grid, which we believe has been superseded by static storage in buildings which would be better for supporting the grid). However, the Government must maintain funding in developing innovative ideas to test whether they have potential, many of which will not come about until the market develops the current proposals into BAU.

I hope you find this response useful. If you have any queries, please do not hesitate to contact me.

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Kind regards,

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