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Dear Sirs

Please find attached Welsh Power's response to 'A Smart, Flexible Energy System – A call for evidence'

### **Background**

Welsh Power Group is a privately-owned energy company with a strong track-record in the development, construction and operation of both conventional and renewable power generation projects. The company has owned large thermal generating plant, Uskmouth Power; developed and financed a new build 850MWCCGT, Severn Power; established a successful supply business, Haven Power; and constructed a small 50MW peaking portfolio which it sold to Alkane Energy in July 2014.

Since 2014 Welsh Power has been working in partnership with an investor to bring forward a portfolio of new flexible, efficient gas fired generating capacity to the UK market. The portfolio currently comprises 19 separate power plants totalling some 300MW of generating capacity making it the largest portfolio of its kind in the UK electricity market.

Welsh Power welcomes the opportunity to respond to Ofgem's call for evidence.

The call for evidence, whilst focusing on future sources of flexibility, encompasses a very wide range of issues and whilst it is helpful to identify the issues to be addressed, Welsh Power is concerned about the potential for making wide ranging changes to products, codes, technology and governance in a rush towards fulfilling the Government's flexibility ambitions.

The document lists changes to balancing services, the design of the balancing market, the connection process, transition to DSO's, smart metering, smart tariffs, European codes and many other major parts of the electricity industry as being areas for review and modification. Welsh Power would caution against a wide ranging overhaul of existing market structures and instead focus on those areas that are likely to deliver the greatest benefits in promoting flexibility.

As a priority Welsh Power believes that facilitating access to the Balancing Mechanism for smaller parties and aggregators is key to unlocking the flexibility value for smaller parties and delivering value to end consumers. Currently only the largest generating plants are able to price the flexibility value of their assets through the BM. Opening access to the BM to smaller parties is likely to bring forward new forms of flexibility as these parties are able to price and value their services through the BM. This in turn would introduce new competition into this market and help to improve liquidity and keep down the costs to the end consumer.

We also believe action is needed to resolve the volume of connection capacity that is tied up

across the DNO networks in accepted but unbuilt capacity. The volume of dated connection offers numbers many GW's across the network and this reserved capacity is preventing new forms of flexibility, storage and generation from being connected and in many cases is providing a false signal to reinforce the network. In parallel we believe that the ease with which a connection application can be made is presenting a barrier to genuine projects progressing as in recent years many specialist developers are submitting bulk connection applications to identify capacity on the network. We believe measures should be taken to prevent this behaviour which imposes costs on all network users due to unnecessary network reinforcement.

An area which also needs oversight is managing the transition from DNO to DSO's. There does not appear to be a consistent or coherent definition of the meaning and purpose of a DSO across the network. Whilst we believe that, implemented correctly, the DSO initiative can lead to efficiencies in network operation we are concerned that if implemented in the wrong way, the DSO's may actually introduce a barrier to competition. In the same way that the TO and TSO are to be legally separated consideration should also be given as to whether the DNO and DSO roles should be preformed by independent entities.

Our detailed comments on these matters and the questions in the call for evidence are provided below.

### **Removing policy and regulatory barriers - Enabling Storage**

1. Have we identified and correctly assessed the main policy and regulatory barriers to the development of storage? Are there any additional barriers faced by industry?  
Please provide evidence to support your views.

Welsh Power believes that storage will play a key role in balancing the electricity system in future and provide a means of storing surplus renewable energy generation to be used at times when the renewable fuel source is not available. As such it will provide a complimentary generating technology to the growth in renewables and enable intermittent renewable generation to be effectively integrated into the UK's energy system.

Welsh Power does not believe that special treatment should be offered to storage and as a technology it should be subject to the same commercial drivers as other forms of non-renewable generating technologies and should not attract a specific subsidy. With rapid developments in storage technology any attempts to encourage the growth in storage deployment through subsidy or other special initiatives risks locking in costly storage capacity before the technology has fully matured and costs have fallen.

Welsh Power acknowledges the duplication of environmental levies on electricity imported for storage and believes it appropriate to address this issue. However we do believe that storage should be subject to network charges on both import and export to reflect the costs that are imposed on the network.

2. Have we identified and correctly assessed the issues regarding network connections for storage? Have we identified the correct areas where more progress is required?  
Please provide evidence to support your views.

The issues of receiving a 'timely and fairly priced network connection' are not unique to storage and affect all generators wishing to connect to the network and we believe that improvements should benefit and be aimed at all forms of generation.

We note with some concern the 19GW of storage application cited in the report. It is our experience that the single largest issue affecting generators seeking to connect to the distribution network is the amount of capacity tied up in speculative and unviable connections. There are many GW's of connection capacity tied up in dated connection offers and reinforcement requirements are often driven by accepted but unbuilt generation schemes.

Currently the cost of a connection application is the time taken to fill in a form and as such speculative development is being encouraged by the system. As DNO's are obliged to treat each enquiry identically much work, effort and resources are tied up in connections which have little chance of materialising as the applicant, in many cases, has no ability to fund or finance the project.

The 19GW of storage applications is substantially in excess of any projections of the likely deployment potential and should therefore serve as a cautionary note on the ease of accessing DNO resources.

3. Have we identified and correctly assessed the issues regarding storage and network charging? Do you agree that flexible connection agreements could help to address issues regarding storage and network charging?

Please provide evidence to support your views, in particular on the impact of network charging on the competitiveness of storage compared to other providers of flexibility.

Storage has the potential to place unique strains on the network requiring both an import and export connection and has the potential to create significant volatility with an ability to move from full import to full export instantaneously. The costs that this potential behaviour impose on the network should be appropriately costed and the costs borne by the storage installation. To the extent that storage provides benefits to the distribution network these should be valued as commercial or flexibility services and should attract specific commercial revenue streams which will encourage and/or drive the desired behaviour.

4. Do you agree with our assessment that network operators could use storage to support their networks? Are there sufficient existing safeguards to enable the development of a competitive market for storage? Are there any circumstances in which network companies should own storage? Please provide evidence to support your views.

Welsh Power's believes that storage may play a role in assisting network operators to

support their network however we believe that storage should only play this role if it is cost effective to do so and its use should be assessed against other flexibility options eg distributed generation, demand turn up/down.

We do not believe that there should be a separate storage market and that storage should compete in the electricity and balancing markets with existing generation and DSR. On the distribution network commercial models for securing flexibility are undeveloped and immature. Significant time and effort needs to be spent designing fit for purpose flexibility products to be offered by the DSO.

Welsh Power notes with concern some of the developments in the DSO framework and believes there should be very clear restrictions on network companies owning storage and other sources of flexibility as this will almost certainly compromise the development of a competitive market.

5. Do you agree with our assessment of the regulatory approaches available to provide greater clarity for storage? Please provide evidence to support your views, including any alternative regulatory approaches that you believe we should consider, and your views on how the capacity of a storage installation should be assessed for planning purposes.

We have no specific comments on this question

6. Do you agree with any of the proposed definitions of storage? If applicable, how would you amend any of these definitions? Please provide evidence to support your views.

We have no specific comments on this question

### **Removing policy and regulatory barriers Aggregators**

7. What are the impacts of the perceived barriers for aggregators and other market participants? Please provide your views on:

- balancing services;
- extracting value from the balancing mechanism and wholesale market;
- other market barriers; and
- consumer protection.

Do you have evidence of the benefits that could accrue to consumers from removing or reducing them?

Welsh Power believes that the issues identified as barriers for aggregators are in many cases also issues for smaller generators and that any solutions or remedies to identified barriers should not make a special case for aggregators but should rather ensure a level playing field for all participants in the market, large or small, transmission or distribution connected, demand turn down or generation. Unless indicated otherwise the responses below are given from the perspective of market failures and barriers that apply equally to

aggregators and small generators.

### **Balancing services**

Product design and procurement of a number of balancing services has in many cases remained materially unchanged for many years and there are a number of balancing services that either explicitly exclude non Balancing Market participants (aggregators or smaller generators) or implicitly exclude them due to minimum size requirements. The design of balancing services has therefore lagged behind the dramatic changes observed in the electricity market with the closure of significant numbers of large thermal power plants replaced by new sources of decentralized energy. In order for the system to benefit from new forms of flexibility it is imperative that the System Operator (“SO”) ensures it procures a suite of products which are fit for purpose and reflect the current and expected future makeup of the electricity market. Care needs to be taken that a proliferation of new products does not overwhelm the market and that new or replacement balancing services are designed to cover the widest possible pool of providers and afford the SO maximum access to these assets without unnecessarily segmenting the providers into fixed products. For example fast reserve and STOR products could be combined with providers differentiating based on their dynamic parameters eg speed of response, duration of delivery.

Fundamental to the development of new products and accessing new providers of flexibility is an upgrade of the SO’s IT systems. Currently many balancing services are held on a different system and only utilised during exceptional fault conditions. This results in smaller providers of balancing services being unable to capture sufficient value from balancing services and prevents the SO from utilising these sources of flexibility at times when it is economic to do so.

### **Balancing mechanism and wholesale market**

Significant progress has been made to ensure that, for certain short dated electricity products, there is a liquid market so that smaller parties can access day ahead and within day market prices for the sale of electricity. However the Balancing Mechanism (“BM”) has seen no such progress. Due to a combination of inadequate IT systems and an over reliance on a small number of large plants for balancing the system smaller parties have been unable to access the BM and as such smaller providers (including aggregators) have been unable to access the true value of the flexibility being offered by their capabilities.

Smaller parties who have acceded to the BSC in order to participate in the BM have been overlooked in favour of larger units. Since the SO runs a predominantly manual despatch system for BM actions the SO’s control room is not equipped to deal with a proliferation of small parties in the BM. The SO’s delayed new IT balancing system (EBS) is expected to introduce systemisation of balancing actions, both scheduling and despatch, and is a necessary precondition to smaller parties accessing the BM. The advent of this new EBS will be a key first step towards opening access to the BM.

Currently participation in the BM can only be achieved by acceding in full to the Balancing and Settlement Code. For smaller parties this represents a significant administrative hurdle. Welsh Power would encourage a review of the BSC to ensure that full accession is a necessary qualifying requirement for participation in the BM.

### **Consumer protection**

Welsh Power recognises that a balance needs to be struck between direct access for aggregators into the BM and the complexity and costs that this may impose on other system users. On balance we believe that it is proportionate to require aggregators to obtain supply

licences in order to access the BM as facilitating direct access will require significant changes to a number of market systems and codes and which inevitably take a significant amount of time to implement.

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

Of the approaches suggested we believe that an approach driven by the SO would be most likely to deliver an appropriate solution. We believe that any changes initiated by an individual BSC party or designated third party is likely to lead to a solution which favours a small number of parties who effectively resource the change process. This may not necessarily be in the interests of the wider market or deliver the best solution.

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

Many of the issues identified in this section of the report are currently being addressed in the BSC P344 process relating to Project TERRE. It would seem sensible to review the output of this process and evaluate whether the direction taken on this answers the issues of aggregator and smaller parties access to the BM.  
We have not seen any evidence to date that the Power Responsive campaign is addressing non-BM parties access to the BM and would suggest that P344 is a better initiative to monitor.

10. Do you agree with our assessment of the risks to 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 aggregators systems need to be robust and secure but believe that any aggregators who cannot demonstrate this on an ongoing basis is unlikely to be successful in the market and as a consequence this should be self reinforcing.

### **Providing price signals for flexibility - System Value Pricing**

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

As noted in earlier section IT system development and market access are key enablers for valuing and rewarding flexibility. Currently DNO's have no commercial framework for accessing flexibility, many (smaller) generators are locked out of the Balancing Market, a key market place for pricing and valuing flexibility and the SO's systems lack behind policy

aspirations placing a break on progress.

12. If you are a potential or existing provider of flexibility could you provide evidence on the extent to which you are currently able to access and combine different revenue streams? Where do you see the most attractive opportunities for combining revenues and what do you see as the main barriers preventing you from doing so?

Welsh Power operates a 300MW portfolio of flexible gas fired generation. Whilst we are able to access a number of different markets and products we are required to nominate a market in advance of delivery and are therefore restricted from making decision closer to real time when the value of flexibility is better known. In the case of balancing services decisions are required week, season or year in advance.

13. If you are a potential or existing provider of flexibility are there benefits of your technology which are not currently remunerated or are undervalued? What is preventing you from capturing the full value of these benefits?

14. Can you provide evidence to support changes to market and regulatory arrangements that would allow the efficient use of flexibility and what might be the Government's, Ofgem's, and System Operator's role in making these changes?

### **Providing price signals for flexibility –Smart Tariffs**

15. 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 a rationale for your answer, and, if you feel Government and Ofgem should play a role, examples of the sort of interventions which might be helpful.

Welsh Power believes that the market is best placed to deliver smart tariffs and new business models and are likely to be best at discovering which products are most effective in securing customer engagement and take up. We believe however that Ofgem and Government have a key role to play in ensuring fair competition and treatment of consumers.

16. 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.

We do not believe it is appropriate for Governemnt/Ofgem to drive the market.

17. What relevant evidence is there from other countries that we should take into account when considering how to encourage the development of smart tariffs?

We have no specific comments on this question

18. Do you recognise the reasons we have identified for why suppliers may not offer or why larger nondomestic consumers may not take up, smart tariffs? If so, please provide details, especially if you have experienced them. Have we missed any?

For all but the largest non-domestic customers the value of shifting demand and responding to smart tariffs is unlikely to justify the effort or disruption to their businesses. In order to encourage load shifting and uptake of time of use tariffs pricing needs to be sufficiently variable to provide an adequate distinction between peak time use and other times of day.

### **Providing price signals for flexibility - Smart Distribution Tariffs - Incremental Change**

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

Distribution charges do not currently promote or encourage flexibility. Limited ToU tariffs and credits over the winter demand peak provide limited flexibility signals but are set using static network models of system adequacy rather than dynamic price signals reflecting real time, real world requirements. A move to a more dynamic ToU tariff will provide a signal to and encourage flexible behaviour which will yield benefits.

However significant investment decision have been made based on the prevailing charging arrangements and care must be taken that dramatic changes do not result in perverse results and stranded assets. Similar issues were encountered in the transition to the EDCM charging model where older assets (pre-2005) were permitted to opt out of the new charging regime. Whilst this has the effect of slowing down the realisation of the benefits of flexible charging it does mitigate against unintended consequences of dramatic change.

20. What are the incremental changes that could be made to distribution charges to

overcome any barriers you have identified, and to better enable flexibility?

Sharpening winter peak price signals to generate and/or reduce demand under both the CDCM and EDCM methodologies.

21. How problematic and urgent are any disparities between the treatment of different types of distribution connected users? An example could be that that in the Common Distribution Charging Methodology generators are paid 'charges' which would suggest they add no network cost and only net demand.

**Providing price signals for flexibility - Smart Distribution Tariffs – Fundamental Change**

22. Do you anticipate that 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?

We have no comment on this question.

23. 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?

As DUoS charges are currently recalculated annually and set using a forward looking methodology they are subject to change from year to year depending on changes to the network (reinforcement, new generation/demand connections, changes in assumed demand growth etc). Since these changes are not transparent and beyond the control of the customer it is difficult to respond to DUoS signals as a basis for long term investment. Similarly the investment itself is likely to lead to the removal of the signal if responded to. Whilst we believe it is desirable for DUoS to provide a long term cost signal we believe that in its current form it is not possible.

24. 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.

**Providing price signals for flexibility - Other Government Policies**

25. Can you provide evidence to show how existing Government policies can help or hinder the transition to a smart energy future?

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Continual policy change provides uncertainty and undermines investor confidence. The extent of changes observed in recent years within the electricity industry has potentially reduced appetite to invest and fund the transition to a smart energy future.

26. What changes to CM application/verification processes could reduce barriers to flexibility in the near term, and what longer term evolutions within/alongside the CM might be needed to enable newer forms of flexibility (such as storage and DSR) to contribute in light of future smart system developments?

We do not support any further relaxation of the entry requirements to the CM. DSR and storage are able to participate directly or via aggregators and are able to compete for CM contracts with other forms of generation. It is questionable whether the de-rating of storage is appropriate and that no standards of persistence of delivery are specified in the qualification criteria. This should be addressed to ensure the CM does not deliver 50GW of storage which can only provide electricity for 10 minutes in a CM stress event.

27. Do you have any evidence to support measures that would best incentivise renewable generation, but fully account for the costs and benefits of distributed generation on a smart system?

We have no specific comments on this question

**We have no comments on the following sections:**

**Q28-32 Smart Appliances**

**Q33-35 Ultra Low Emission Vehicles**

**Q36-39 Consumer Engagement with DSR**

**Q40-42 Consumer Protection and Cyber Security**

**The roles of different parties in the system and network operation**

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

We agree with the identified emerging system requirements identified in the document.

44. Do you have any data which illustrates:

- a) the current scale and cost of the system impacts described in table 7, and how these might change in the future?
- b) the potential efficiency savings which could be achieved, now and in the future, through a more co-ordinated approach to managing these impacts?

Care should be taken in permitting DSO/TSO coordination to bypass the flexibility provider. Under a DSO/TSO integrated system it is conceivable that current despatch decision for procured balancing services will be prevented by DSO managing the DNO network in effect obtaining network constraint services for free from the flexibility provider. There needs to remain a separation between DSO and TSO actions to ensure that flexibility services when provided, be they to the TSO or DSO, be fairly valued. Constraining generation on the transmission network requires the TSO to pay affected generators constraint payments. Currently no such payments are made to constrained parties on the DNO network. Constraining generation due to network issues is a form of flexibility service and should be commercially treated as such.

45. With regard to the need for immediate action:

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 resources?

b) How could industry best carry these activities forward? Do you agree the further progress we describe is both necessary and possible over 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 have concerns about the transition to DSO's and the cultural and commercial changes required to facilitate this transition. The current operating model for DNO's is one of command and control. ANM, whilst facilitating flexible network connections in many cases mandates the provision of flexibility services at no cost. Providers are required to agree flexibility provisions as a precondition of connecting to the network. Similarly most DG connections require connectees to be able to vary their power factor when generating providing network support at zero cost. There are a number of other flexibility services being

provide to DNO's but on a mandatory rather than commercial basis. We remain concerned that flexibility requirements will be imposed rather than procured.

As outlined earlier in the response we believe clear rules need to be put in place to govern the relationship between TSO, TO and DSO to ensure that all flexibility services are properly valued and remunerated.

46. With regard to further future changes to arrangements:

a) Do you consider that further changes to roles and arrangements are likely to be necessary? Please provide reasons. If so, when do you consider they would be needed? Why?

a) What are your views on the different models, including:

i. whether the models presented illustrate the right range of potential arrangements to act as a basis for further thinking and analysis? Are there any other models/trials we should be aware of?

ii. which other changes or arrangements might be needed to support the adoption of different models?

We believe it is too early in the development of DSO's to comment fully on this question. A consistent and coherent plan is yet to emerge from the DNO community as to how and what a DSO will operate.

We have serious reservations about the DSO being the route to market for flexibility services and the BM. To date we are unaware of the DSO having any commercial qualifications to perform this role and believe that the type of arrangements envisaged in Figure 2 are many years away.

#### Q47-48 Innovation