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Dear Ms Kulhavy

**Distributed Energy – Initial Proposals for more Flexible Market and Licensing Arrangements**  
**Ofgem reference 295/07**

The consultation document on proposals for a more flexible market and licensing arrangements for distributed energy is welcome. The document raises many important issues which, while not necessarily stopping the development of worthwhile distributed energy projects, are part of the resistance which can dissuade all but the highly motivated from working in this area.

Swanbarton Limited is a consultancy and project management company which works almost exclusively in the area of electrical energy storage. There is a very clear requirement for electrical energy storage in the size range of 500 kW up to 5 or 10 MW, and also at larger scale from 20 MW up to 100 MW. The requirement may be ascertained both from market studies as well as by considering the technical operation of distribution and transmission networks. Therefore the terms of reference of this consultation document fit well with our company's knowledge and experience in this area.

The consultation document makes some comment on the need to include electrical energy storage in this review process. Electrical energy storage should be considered in the context of matching supply and demand over both short (seconds or minutes) and long (hours) time frames. We can see applications for making private wire networks secure and independent from other networks, or reducing the need for distribution asset reinforcement, supporting new network connections for either generation or demand as well as trading energy with other participants on the network. Although operation and maintenance costs of electrical storage projects are generally low, the initial capital investment cost is high (and will be so until some economies of production have worked their way through to the market place.) It is therefore important that energy storage is supported in a positive way, for example by some initial grants for demonstration projects, as well as by removing institutional and regulatory barriers as much as possible. The arguments for increasing the

proportion of electrical energy storage are well known and publicised. The importance of electrical energy storage as a complementary technology to more conventional distributed energy sources is worthy of repetition.

Our comments on specific questions raised in the document are attached to this letter.

Yours sincerely

Anthony Price



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**Chapter Two, Question 4:** We welcome views on the 2001 Class Exemption Order, and areas where there could be more clarity in particular.

The 2001 Class Exemption Order has not been written with the concept of electrical energy storage in mind. It is difficult to interpret the class exemption order if one is to consider an electrical energy storage project operating either independently or as part of a hybrid system. The Order uses different definitions to those contained in other related legislation.

One simple effect of this is to immediately increase the expenditure on a project as legal advice must be taken before any serious financial commitment on a project is made. This is a major inhibitor to progress.

Furthermore, our market research has indicated that several distribution companies might wish to own and operate their own distributed storage. (This is common in other countries such as the USA and Japan), yet the constraints of the Order, and related legislation present an immediate obstacle to the consideration of a project if full economic value is to be obtained.

**Chapter Three, Question 6:** Have we considered all the options to address the risk DE schemes are exposed to if trading in the wholesale markets? We welcome any other proposals to accommodate the needs of DE schemes selling their electricity in this way.

The costs of trading can present a significant barrier to market entry, especially for small participants. It is important that there is also a stable market environment, which will not be subjected to major regulatory change. In the specific arena of electrical energy storage, where payback rates are relatively low, long term stability of the market is a necessary prerequisite. As a counter to this, volatility of electricity prices would be the desire of every energy storage plant owner, and storage can thus be seen a mechanism for smoothing both the supply and the demand in real and monetary terms.

Although electrical energy storage is often cited as a complement to smaller scale renewable energy, costs of trading are disproportionate to the expected return. Furthermore, there would be additional licensing requirements depending on whether the storage plant's output is to be considered a supply, requiring a supply licence, or to be treated as sales through power exchanges or in ancillary services.

It is also worth pointing out that DE schemes would be subject to Business Rates. For small projects, this can present a significant risk, as the costs of addressing business rates are high.

For large projects, Business Rates present another uncertainty as the rating reviews and changes in legislation give no guarantee about the future level of expenditure.

**Chapter Four, Question 7:** Do you consider that third party purchasers undervalue exports from DE schemes? We would welcome information from both generators and purchasers on prices that have been agreed for electricity from small generators. If necessary, the information can be provided in confidence.

The electricity market is complex and the market is aimed at large producers and purchasers. The costs of servicing a contract are similar for small and large producers, so it is not unreasonable to assume that DE projects will be of lower value to a third party producer. Electricity storage could be used as a means of encouraging DE without resorting to the broader market and the network. For example, rather than trying to establish a feed in tariff or some form of net metering, the customer produces their own energy, and it is stored at their expense and then used.

An additional improvement would be the removal of the difference between system buy price and system sell price for small distributed energy projects. This would simplify arrangements and develop the understanding of time of day pricing.

A further consideration should be given to the importance of a market for both energy and ancillary services and other products. Distributed energy can bring obvious capacity benefits for a DNO, and these should be rewarded.

**Question 9:** Have we considered all the reasons for the lack of development of consolidation services in the market? We welcome views on whether further changes to the market rules may be warranted to remove any barriers to entry that continue to exist for consolidators.

We believe that operating energy storage in conjunction with consolidators would form a powerful trading mechanism, which would bring some benefit to the market.

**Question 12:** Do you have any views on how the understanding and forecasting capability for DE technology could be improved?

This question opens up many opportunities to extol the virtues of electrical energy storage. Storage systems can be one method of absorbing a variable input from DE sources, with benefits for both energy and optimisation of the network assets, and can also be used as a means of smoothing output so as to reduce balancing costs.

Equally, the role of energy storage in providing ancillary services should be emphasised. This will become an ever increasing necessity as the system is populated with more variable DE.

Although many will argue for a simple flat rate for energy sales and purchases through the day, the wholesale market has been established on the basis of time of day pricing. Overall, variable pricing throughout the day send the best signals to all (customers and suppliers)

about the value of energy and power at any particular time. Indeed, if there is over or under production from variable DE sources, reflected in variable pricing, then distributed or centralised storage can be used for inter-temporal arbitrage to smooth (but not eliminate) bring the price volatility.

For this reason, we would not support the introduction of fixed rate feed in tariffs for small scale renewables, which can have the effect of swamping the market. A variable rate feed in tariff would encourage all to participate in response to demand, and could be achieved by using as net metering tariff.

**Chapter 5, Question 16:** DE schemes face a trade-off between carrying the cost and ongoing maintenance of a private wire network linking their sites, and the direct and indirect costs of using the licensed distribution network. We are keen to better understand circumstances that lead a scheme to favour the private wire option and how incentives vary depending on the distance of the second (or multiple) sites?

This question also opens up opportunities to discuss the merits of electrical energy storage as a means of developing independent private wire networks that can avoid the need for external trading of power. In our work, we have not found any significant incentives to encourage such investment in the UK. A private wire network, operating as an energy island could well include CHP, thermal heat storage and / or tri-generation along with electrical energy storage for modulation of output and network resilience.

**Question 22:** We welcome views on the proposed options to improve the accessibility of the licensed network to DE schemes, and whether there are any other relevant options we have not considered.

We re-iterate the need to consider the ownership and operation of an energy storage asset by a distribution network operator. If the storage plant is considered to be generation, then the DNO is prevented from operating it. Yet the DNO would need to operate it in an electricity production mode if the device is to have any value as part of a network. The value of storage can be seen as a network asset, reducing the costs of operation of the network, so therefore this should represent better value for the consumers.

**Chapter Six, Question 27:** Do you consider that there is a case for a new DE supply license? If so, do you have views on its key terms? Please explain your reasoning in detail.

We would consider that either clarification is given that shows exemption of energy storage devices from licensing, or a new form of licence that recognises the role of storage as being part of the generation, transmission, distribution and supply businesses.