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Dear Andrew and Chiara,

## S&C Electric UK Holdings Ltd’s response to Ofgem’s Licensing Consultations on Clarifying the Framework for Energy Storage and Enabling the competitive deployment of storage in a flexible energy system

S&C Electric UK Holdings Ltd welcomes the opportunity to reply your licensing consultations on Energy Storage.

S&C Electric Company has been supporting the operation of electricity utilities in the UK for over 60 years, while S&C Electric Company in the USA has been supporting the delivery of secure electricity systems for over 100 years. S&C Electric Company not only supports “wires and poles” activities but has delivered over 8 GW wind and over 1 GW of solar globally. S&C Electric Company has been actively engaged in deploying Battery Energy Storage Systems since 2006, providing a full range of services and using a range of battery technologies. It currently has 76 MW/189 MWh in operation, including the UK Power Network’s 6 MW/ 10 MWh battery that provides local peak load support and frequency services to National Grid, the GB System Operator.

I have set out our key comments on each of the consultations below and then in the appendix I have set out our responses to Ofgem’s specific consultation questions.

### Key points on the definition of storage in the generation licence

We welcome Ofgem’s proposal to provide clarity on the treatment of electricity storage by defining it as a sub-class of generation at this stage. This is a pragmatic step forwards, which provides greater certainty on issues such as use-of-system charging, end consumption levies, and consistent treatment with other infrastructure for development and planning, without having to wait for changes in primary legislation. It should also help ensure that there are safe practices and installations. However, we consider that this should be an interim measure until electricity storage can be established as a separate asset class, ideally as part of the intended changes to primary legislation.

The definition of storage as a sub-class of generation has several known and unintended consequences. It is likely to result in development of large storage projects by incumbent generators as it excludes other types of licenced companies from owning and operating licensed electricity storage. In the medium to longer-term, it is inappropriate for electricity storage to simply be treated as generation as this does not reflect its ability to both import and export. It is likely to complicate any steps to fully reflect the unique nature of storage in use-of-system charging. The current exemptions for generation are not necessarily applicable to electricity storage. Retaining storage longer-term as a sub-class of generation would also be inconsistent with what is being proposed in Europe, which has called for a move towards a separate asset class and licence as part of the Winter Package Proposed Electricity Regulation Directive.

The proposed licence amendments include a requirement that electricity storage shall “not have self-consumption as the primary function”. This appears to be a rough-and-ready workaround, to manage the



issue of environmental levies on end consumption<sup>1</sup> and address concerns about customers avoiding network charges and policy costs, by putting storage behind the meter.

It would be better to address customers avoiding residual charges through the use-of-system charging methodologies. Similarly, the objective of removing end consumption levies could be managed through HMRC notices, related guidance or changes to the relevant legislation. There is precedent for this. For example, Excise Notice CCL 1/4 sets out that renewable generation prior to 1 August 2015 was subject to the Climate Change Levy (CCL) and generation after that date is not. There are a range of Climate Change Agreements (CCAs) between the Environment Agency and energy intensive industries which mean that they pay a much-reduced rate for the CCL. BEIS or Ofgem could also issue advice ahead of proposed amendments to primary legislation to define energy storage and update all other relevant primary legislation to address such levies.

Any energy that is consumed by electricity storage facilities, through roundtrip losses, could be captured through import and export metering.

Potentially, the current statement on “self-consumption” may limit the opportunity, through confusion, for Commercial and Industrial entities to deploy storage behind-the-meter. We consider that Ofgem and BEIS should be encouraging large-scale commercial behind-the-meter batteries, as an alternative to diesel generation sets. These assets could provide services in the flexibility market (e.g. NGET’s Power Responsive work.) The embedded use of storage seems to be part of the “Smart, Flexible” approach.

## Key points on the consultation on enabling the competitive deployment of storage in a flexible energy system

Ofgem is consulting on distribution licence condition changes to prohibit DNOs from operating storage. The consultation notes that there would be certain small scale exemptions for UPS and emergency response. For any other applications, explicit permission would be required from Ofgem. The circumstances where this would be allowed would be very limited and conditions would include the exemptions being time limited with additional reporting.

While we agree that it is important for DNOs/DSOs to facilitate the development of markets for flexibility services as alternative options to reinforcing their networks, we are concerned that the proposed approach of preventing DNOs from operating storage, except in very narrow circumstances, is very pre-emptive. There is little or no evidence of any market distortion at present. Against a background of a rapid energy transformation, and Ofgem highlighting that it does not wish to favour specific business models, we don’t consider that this approach is justified. It contrasts with the lighter touch approach set out for aggregators and the move to principles-based regulation for suppliers. By excluding particular regulated businesses, Ofgem is unintentionally (or intentionally) picking winners in a rapidly changing environment, and this approach may not deliver the most efficient cost for consumers.

The consultation notes that “because network companies control the infrastructure needed to trade energy and flexibility services, they have the ability to restrict the activities of market participants by denying (or otherwise impeding) their network access”. There are already significant protections against any DNOs/DSOs distorting the development of competition both in terms of the distribution licence and competition law. For example, Standard Condition 2 of the electricity distribution licence states that DNOs must “at all times manage and operate the Distribution Business in a way that is calculated to ensure that it does not restrict, prevent, or distort competition in the supply of electricity or gas, the shipping of gas, the generation of electricity, or participation in the operation of an Interconnector.” It also prohibits cross subsidies with other affiliated businesses. Standard Condition 29 of the distribution licence places restrictions on the de minimis activities DNOs can undertake. We also note that if market

<sup>1</sup> Climate Change levies (CCL), Feed-in-Tariff (FiT), Renewables Obligation (RO) and Contract for Difference (CfD) levies.



power is a key concern, Ofgem should be considering the market power of all market participants including DNOs, generators and suppliers and not simply focus on DNOs/DSOs.

It is unclear why DNOs/DSOs are being specifically targeted, when there are other incumbent regulated businesses such as suppliers and generators, which are deploying or plan to deploy storage.

The consultation highlights that “the network companies’ incentives to invest efficiently in the network can also be affected, if decisions are driven by shorter-term market signals, rather than longer-term investment signals.” It’s unclear why this particularly relates to electricity storage, but in any event the totex incentives that Ofgem has introduced, together with output measures under RII0, drive efficient expenditure by the DNOs.

Ofgem’s proposal also appears to place tighter requirements than Article 36 of the proposed EU Winter Package Electricity Regulation Directive.

There are likely to be cases, where due to the location specific nature of constraints and any investment to manage them, there won’t be sufficient interest for market competition to develop. It is also unlikely to be proportionate or efficient to carry out flexibility tenders in all cases where there are distribution constraints, regardless of location or the economic value involved. Where electricity storage is the most efficient economic solution and the market cannot or do not deliver, there must be sufficient flexibility in the regulatory arrangements for DNOs/DSOs to do so. There is a danger that by imposing a high regulatory burden on the DNOs/DSOs in such cases, it biases decision making in favour of more traditional forms of reinforcement.

There are many cases from around the world where distribution networks have successfully deployed electricity storage to provide value to end consumers. For example, Ergon Energy in Australia used small batteries to improve service and reinforce Single Wire, Earth Return lines in remote areas. This is more cost-effective than re-wiring these areas. Ergon Energy also owns generation, operates on islands and is regulated by both the AER and the Queensland Government (it’s owner). It is the latter that provides enhanced protection to the customer in terms of supply and reliability standards.

The network operator Powercor, in Victoria, Australia, has deployed a 2MW battery storage facility to reduce stress on the network, improve reliability of supply and reduce maintenance costs. It can provide an hour of back-up to 3,000 customers.

In New Zealand, Counties Power, a DNO, and a supplier, Genesis Energy, have jointly funded a battery to manage peak demand, which has the twin role of reducing the need to reinforce and can also earn money through the NZ TSO, Transpower’s, demand response programme, which is used to avoid reinforcement of the transmission network.

Additionally, Ofgem states that where DNOs currently own and operate generation, current longstanding arrangements and protections for consumers are working well. This clearly indicates that DNOs are operating generation within current regulatory requirements without detriment to consumers and that further restrictions on DNOs are unnecessary.

In conclusion, there is no evidence that DNOs/DSOs need to be regulated by new licence conditions with respect to electricity storage. There are existing protections in the current requirements that would prevent many of the activities that are of concern to Ofgem. There are already established models that allow DNOs/DSOs to own and operate generation that Ofgem states work well and have delivered value to the consumer. There are international models that demonstrate the value and savings to the end consumer of allowing DNOs/DSOs to own and operate electricity storage, including examples where suppliers are using electricity storage. Ofgem are taking pre-emptive steps to exclude a specific regulated entity from owning and operating electricity storage without evidence that such an approach is needed.



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In a rapidly developing energy environment it would preferable to apply the lighter touch approaches that Ofgem advocate for other regulated activities in the GB system.

Please do not hesitate to contact me if you wish to discuss any aspect of this response to your two consultations further.

Yours sincerely,

Chris Watts  
Regulatory Affairs Director, EMEA



## Appendix 1 - Answers to specific Ofgem questions on Clarifying the Framework for energy storage

### Proposals and Rationale Chapter

#### **Question 1: Do you agree that the form and content of the licence as proposed in this consultation will achieve the purpose and deliver what we committed to in the Smart Systems and Flexibility Plan?**

As discussed in the main body of this letter, we consider this to be pragmatic step forwards, which provides greater certainty on issues such as use-of-system charging and end consumption levies, without having to wait for changes in primary legislation. However, in the medium to longer-term we consider that electricity storage should be a separate license category from generation.

We also have some reservations about the detail of the drafting. The proposed license amendment includes a requirement that electricity storage shall “not have self-consumption as the primary function”. This appears to be a rough-and-ready workaround, to manage the issue of Climate Change levies and address concerns about customers avoiding network charges and policy costs, by putting storage behind the meter.

It would be better to address customers avoiding residual charges through the use-of-system methodologies and, similarly, the objective of removing end consumption levies could be managed through HMRC Excise Notices or guidance to the relevant legislation.

#### **Question 2: Do you have any views on whether we should include ‘in a controllable manner’ in the definition of electricity storage?**

We consider that it is appropriate to include the qualifier “in a controllable manner” although we suggest including this earlier in the sentence defining electricity storage. Electricity Storage in the electricity system is the conversion of electrical energy into a form of energy which can be stored, the storing of that energy, and the subsequent reconversion *in a controllable manner* of that energy back into electrical energy.

#### **Question 3: Do you think there are any risks or unintended consequences that could arise because of our proposal? If so, please provide an explanation.**

We consider that there are likely to be unintended consequences if electricity storage continues to be treated as a sub-class of generation in the longer-term. It is likely to influence business models and make it more difficult to reflect the unique nature of storage as both importing and exporting in use-of-system charging. It may cause uncertainty of treatment for Business Rates, as some storage types are named plant and equipment with one set of rules, whereas generation is valued using a different approach for rating purposes.

#### **Question 4: Do you have any comments on the list of technologies that should be included or excluded from the definition of storage as set out in Appendix A?**

It would be useful to have explanations of the reasons for particular technologies being included or excluded from the definition of storage.



## Licence Application Chapter

### **Question 1: Do you have any comments on the proposed changes to the Application Regulations for electricity and gas licences?**

We don't have any comments on these changes.

## Answers to specific Ofgem questions on Enabling the competitive deployment of storage

### Chapter on introducing a new licence condition

### **Question 1: Do you agree that the proposed new condition will ensure legal unbundling of DNOs from the operation of storage that benefits from an exemption to hold a generation licence?**

We agree that the proposed condition would ensure legal unbundling of DNOs from the operation of storage that is exempt from holding a generation licence. However, we do not agree that this licence condition is needed given there is little or no evidence of market distortions in this area and given the level of existing protection against these. DNOs/DSOs owning an operating electricity storage may in many cases be the most efficient solution to managing a DNO's network, where flexibility services have not developed.

### **Question 2: Do you agree that the same principles of unbundling should apply to IDNOs?**

Yes, we agree that for equitable treatment the same rules should be applied to both DNOs and IDNOs to avoid creating a 2-tier system.

### **Do you have any views on the application of the specific new condition proposed here applying to IDNOs?**

If Ofgem decides to implement this licence condition, it should apply to both DNOs and IDNOs.

### **Question 3: Do you agree that DNOs should be able to directly own and operate small-scale storage for the purposes of providing uninterruptible power supplies (UPS) at substations?**

Yes, we consider this is necessary for the reliable operation of the distribution networks.

### **Do you agree that DNOs should be able to directly own and operate small-scale storage for the time-limited purposes of emergency restoration and maintenance?**

Yes, we consider that is necessary for DNOs to be able to reliably and efficiently manage their distribution networks and deliver the best performance to customers.

### **Do you think DNOs should be able to directly own and operate storage for any other specific applications?**

Yes, we consider that there is likely to be a range of circumstances where the most appropriate solution for DNOs to manage their network and provide enhanced service to customers is for them to own and operate electricity storage. There will be cases where storage is the most economical solution but owing to the location specific nature of the investment and the value involved, a market does not develop. In some cases, it may not be proportionate to run a full market tender for flexibility services.

There should always be the requirement that operations must be at the most efficient cost to the end consumer. If a DNO can own and operate a battery and demonstrate that to do so delivers electricity to the end consumer at lowest cost, then this should be supported.



### Question 4: Do you have any views on the treatment of existing islanded system generation currently owned by DNOs?

Where generation or storage benefits from an exemption to hold a generation licence and is necessary to support the operation of the DNO, then ownership and operation of these assets should be allowed. Given that Ofgem notes that the current arrangements for islanded generation and storage have worked well for consumers, we do not understand the need to change them now or to limit them in future.

### Do you have any views on the treatment of future use of DNO owned and operated generation of storage in similar island situations?

We consider that DNO ownership and operation of generation and storage should continue to be allowed in island situations. Non-interconnected or islanded systems do not offer the same or secure opportunities to third parties, who may find they themselves stranded at the end of a contract. The DNO is best placed to support the system with generation or storage at least cost to the islanded consumer. There is a similar approach in Queensland, Australia, where regulations support networks undertaking these activities.

It is unlikely that the costs of competitive tendering will be proportionate in all cases, particularly for islanded networks where there are relatively small numbers of end consumers.

### Guidance chapter

### Question 1: What are your views on the three high-level criteria proposed as the basis for assessing applications for consent?

The first criterion sets out that the “DNO must demonstrate that the market is not able to provide an efficient solution – This criterion would require the DNO to demonstrate that it had taken every possible step to obtain a competitive market-based solution at an efficient cost. In most cases, we would expect as a minimum that the DNO would have signalled its needs ahead of time and held well-designed and run, open and competitive tenders to the market.”

This is drafted in an absolute manner and does not consider the costs of carrying out such tendering exercises, which will ultimately be borne by consumers, relative to the costs of investment in reinforcement or storage assets. Presumably the DNOs should only be doing this where it is proportionate to do so.

The second criterion requires that the electricity storage is the most efficient economic solution. This is already covered by the totex incentives that are in place on the DNOs. It’s in the DNOs’ interest to pursue the most efficient solutions for managing its network.

The criteria set out seems to deter the application of storage and not promote it. The DNO is in the best situation to ascertain whether it is appropriate to make use of electricity storage and has incentives to pursue this under the totex framework, where it is the most economical solution. As such, the criteria seem to add additional complexity to investment decisions.

### Do think there are other criteria which should also be included?

As noted above, we consider the existing criteria to be unduly restrictive and we don’t consider further criteria are needed.



## Question 2: Do you have any other views on the scope or content of the proposed guidance document?

We don't have any additional comments on the guidance.

## Question 3: Do you have any views on the process that should apply to the assessment of applications?

We don't have any comments on the application process.

### Reporting and monitoring chapter

## Question 1: Do you have any views on reporting requirements for DNOs that own/operate storage assets?

It would be useful to have further information on what reporting is currently required for DNOs that own/operate storage assets.

There is little detail on the metering arrangements for electricity storage. It would be important for there to be metering on the import and export side and this may need to be done below the threshold capacity for licensing (10, 50 and 100 MW.)

## Question 2: Are there any particular types of data that, if published, could facilitate entry of competitive parties?

Heat maps are already being provided by the DNOs and some of them are already indicating where they would find the connection of third party storage desirable.

## Is there any other information or data that you think DNOs hold about the deployment of storage on their networks that they could usefully make public?

In line with the points above, we consider the following information should be provided by DNOs:

- Interactive Network capacity maps – general network information on substations
- Interactive Constrained/heat maps – problematic areas on the network
- Areas where this is a likelihood of generation curtailments
- Areas where Active Network Management is operating.