

The Electricity Storage Network  
Dairy Farm  
Pinkney  
Malmesbury  
Wiltshire  
SN16 0NX

Mr. Andrew White  
Energy Systems Integration Team  
Office of the Gas and Electricity Markets,  
9 Millbank,  
London,  
SW1P 3GE  
By email: [flexibility@ofgem.gov.uk](mailto:flexibility@ofgem.gov.uk)

[policy@electricitystorage.co.uk](mailto:policy@electricitystorage.co.uk)

27<sup>th</sup> November 2017

Dear Mr. White,

**Response to Consultation on Enabling the competitive deployment of storage in a flexible energy system:  
Changes to the electricity distribution licence**

I am writing to you on behalf of the Electricity Storage Network. We are the only trade association dedicated to supporting the development of the energy storage industry. Our core membership comprises installers, developers and manufacturers of energy storage technologies as well as finance houses and consultants.

We believe that energy storage has an important role to play in making distribution grids operate more efficiently and at lower cost to consumers. However, we do not believe that a dependence on third party solutions for storage will ultimately deliver the most optimal solution to achieve that aim.

Our proposed approach to assessing procurement of services alongside direct DNO ownership of assets is considered by our members to ensure the best value is always achieved for consumers.

We encourage Ofgem to consider this position carefully as they craft their positions on ownership and licensing, so as not to preclude DNOs from finding innovative and economically efficient solutions that use storage as an alternative to traditional investments.

I would be happy to meet with you to discuss this further or to organise a workshop to enable Ofgem to converse directly with our members on any of the points raised within this response, if that is of value to your team.

Yours Sincerely,



**Georgina Penfold**  
Chief Executive – the Electricity Storage Network

## Enabling the competitive deployment of storage in a flexible energy system: changes to the electricity distribution licence – Consultation Questions

### Consultation Questions

**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?**

The Electricity Storage Network believes that the legal unbundling of DNOs into separate activities is not necessary.

There are commercial structures that can both enable DNOs to benefit from storage as a distribution asset and keep the unbundled structure separating DNOs from generation activity.

For example, if a DNO is faced with load growth in a particular area, energy storage can serve as an alternative to a costly substation or line upgrade. The energy storage asset would charge during a period of low demand, then discharge when the distribution asset is constrained. This would ensure all loads on the feeder are adequately served.

If direct ownership by a DNO is not possible, a third-party storage provider could be appointed to respond to directions from the DNO. In return the storage provider would receive a capacity payment for their availability during a set period of time. In such a scenario, the DNO would not receive any revenues from operating the storage asset in the balancing market.

To ensure such an arrangement delivers best value for the consumer, the DNO must take an active approach to selecting sites where storage, or indeed any other technology, can help solve a problem.

Developers would benefit from forward financial visibility in the form of long term contracts which again would help remove uncertainty from the market and encourage third-party providers to step up to the challenge. With the appropriate regulation in place, the markets can be designed such that the storage owner is permitted to utilize the asset when not providing a service to the DNO for other services, such as system balancing.

Another possibility that addresses the unbundling issue is enabling the DNO to take ownership of an energy storage asset, but permitting the network operator to lease the asset to 3<sup>rd</sup> party energy market participants during times where it is not being used for a network purpose. This again would enable optimum asset efficiency and therefore maximum benefit to the system and return on investment, but still preserve separation of the DNO from the energy market.

It is worth noting that in other markets where energy storage has been around for longer this topic has been given considerable thought. The US market has set a policy precedent through the introduction of FERC ([PL17-2-000](#)) which approves DNO equivalents rate-basing storage as a network solution whilst also participating in system service/wholesale markets and provides guidance as to how to approach any perceived concerns.

In Texas, storage is classified as generation but not strictly, meaning it can serve other functions for the grid. In fact, a [judicial ruling](#) in Texas found there is no rule that prevents transmission and distribution companies from owning and rate-basing storage.

Under this approach, DNOs are permitted to own storage, whilst still enabling maximum investment efficiency by operating across the market.

The approach that storage be treated as generation whilst giving flexibility over its application of is markedly similar to the proposals by Ofgem, and the ESN recommends that Ofgem look to the experiences of other nations to assist in making an informed decision.

The Electricity Storage Network further notes that, with regard to section 2.13, in order for a “DNO to justify a request to depart from the usual unbundling rules” they must demonstrate best efforts to obtain a market-based solution first.

The Electricity Storage Network considers that this structure would inhibit DNOs from:

1. Responding to urgent needs on their system in a timely manner.
2. Identifying circumstances where DNO-owned or operated storage is the most economic and efficient solution. A ‘third-party only’ procurement does not enable the Buyer to accurately assess whether the best of the available third-party solutions is more or less optimal than a DNO-owned solution ‘base case’.

With regard to the previous point, in the event that an urgent need to address system failure should arise, a lengthy procurement process would need to be run. This would both significantly delay the carbon, cost and reliability benefits delivered to consumers.

In the event that the procurement activity did not deliver an appropriate solution, and a second lengthy procurement process was set up and also run for a DNO-owned solution, this would also double the administrative overhead costs.

We propose as an alternative that each time a need for deployment of energy storage is identified, the market-based solutions are evaluated alongside DNO-owned or operated storage solutions. This would ensure the most economically efficient solution for consumers is chosen on a reasonable timeline.

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

Yes, we believe that IDNOs should be held to the same principles as DNOs and the commercial structures discussed in our answer to Question One can be applied to IDNOs, just as they do to DNOs, without creating commercial discrepancy.

**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?**

***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?***

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

The Electricity Storage Network believes yes: there are situations where DNO ownership of a storage asset does make sense.

We agree that DNOs should own and operate their own storage for use as UPS. As an aside, we suggest that UPS are excluded from the list of technologies in Annex A of the consultation on licensing.

DNO's should own and operate their own small-scale storage for restoration and maintenance. This does not compete with the small-scale generation market and this is a similar application.

DNO's should also have the ability to own and operate storage assets to exclusively perform any function where either the market fails to provide, or where it would be cost-effective to do so. These situations may include (but are not limited to):

- Distribution substation upgrade deferral
- Distribution line replacement/upgrade deferral – Like the APS project to defer investment on an expensive line replacement to serve a remote load, energy storage can defer, or avoid completely, upgrades to long radial lines that serve remote locations
- Distribution system reliability – May include supporting greater penetration of intermittent renewables by injecting real or reactive power to maintain voltage stability and improve power quality
- Peak load relief
- “Virtual Power Lines” as described in Project RINGO

The determination of whether something is cost-effective is whether the cost of external procurement for a traditional solution exceeds the cost of doing it themselves.

This option of direct ownership should be available in addition to, not instead of, being able to contract for services from energy storage operators.

Further to this question, the Electricity Storage Network considers that implementing New Condition 43B in its current form would prevent DNOs from accessing the benefits that storage can realise for the energy system:

#### **Optimal deployment of size and location**

Without enabling DNOs to own or operate storage, there is a risk that assets will not be deployed in the most appropriate geographic location, or that are not optimally sized to serve the needs of the distribution network. Instead, developers will seek to build in locations that best suit them.

This could be mitigated by having the DNOs offer land availability as part of the competitive procurement process; although that is not always possible, nor viewed favourably by the third-party bidder.

#### **Market structures and provision of what the system actually needs**

The current market structures and revenue opportunities favour single primary use, short duration systems; but long duration energy storage systems are usually needed to meet the needs of distribution system non-wires alternatives.

Products such as the EFR or dynamic FFR are optimised in the range of 30min – 60min. The actual needs for distribution applications is typically 2-4 hours. This has been recently evidenced by UKPN's flexibility tender.

Similarly, the selection of technologies for frequency regulation are typically designed to favour a 50% state of charge and small cycles; whereas DNO applications call for a more robust and flexible system usage and a requirement for deeper cycling.

This means there is a danger that, because the technical capabilities of storage are being constrained through market design, asset providers take a decision to maximise their commercial opportunities through unplanned DNO revenue stacking.

To achieve best value, storage should be enabled to provide all the services that they can across the whole system. Any regulatory constraint that forces the resource to only provide a specific service will reduce the efficiency of the entire system.

Storage for use as peak load relief type only happens on occasion during the year, yet the asset is connected to the system all the time. It makes sense to use this valuable resource for additional functions in the grid during the periods when it is not providing that peak load relief.

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

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

Since vertically integrated island systems can gain most from the whole system benefit of incorporating storage, it is in the best interests of their customers if DNOs install, own and operate storage to reduce overall operating costs.

Therefore, within the context of a regulated and vertically integrated and regulated utility, it is recommended that the DNOs should be able to own and operate storage. This will enable them to optimise the use of storage assets across the whole system.

Such an approach is in line with the current status of islanded utilities, where generation is planned alongside transmission and distribution in an integrated fashion.

As per the current arrangement of existing generation currently owned by DNOs, the network operators should be able to continue to procure the lowest-cost technologies to serve their customers.

As the market evolves, DNOs will be able to see if alternative options such as leasing or contracting in a service, or an asset is more cost effective than outright ownership. In this area, we agree with your views.

It is also important to note that island systems are typically excluded from European unbundling rules.