Hi Neil/Andrew et al

Moixa – a UK based pioneering R&D company involved in Energy Storage, Aggregate Storage Services, DC Migrogrids, New Utility Models, welcomes the opportunity to provide some input into this consultation.

Moixa has some awareness and involvement in DNO R&D activity. We have reviewed/proposed various NIA projects with selected DNO's to address the opportunity of energy storage to reduce network costs and upgrades for solar developers and peak energy demand for developers. Moixa was a project partner in the LNCF SOLA-BRISTOL project (for Siemens and WPD). We also have worked with DNOs in various Innovate UK projects we are leading or involved in, and with DNOs in a large Energy Storage Demonstrator for DECC (under the Energy Storage Demonstration projects initiative). We have deployed around 1MWh of distributed energy storage behind the meter, managed in part as an aggregate virtual power resource and are preparing to scale subject to regulatory and clearer mechanisms for commercialising storage in the UK, for end user/utility, network and system operator/grid benefits,

LNCF and NIA provides a valuable initiative for DNO innovation. In our view the original £500m allocation is an investment to de-risk and develop lower cost approaches to reduce the forecast £177m required to upgrade UK energy infrastructure – on mixture of objectives; low carbon shift, maintenance of aging system, capital investment for new peak and network capacity, adaptation to accommodate lower carbon or wrong time of day intermittent renewables, shift to distributed and multi-actor marketplaces.

Moixa has interest in greater mechanisms for Storage for DNO and other parts of the energy system. LCNF has in part de-risked some network centric storage opportunities but also highlights some issues with the funding mechanism and DNO led focus. Since DNO's are only one actor, or approx 25-35% of value case for storage in the UK system, with the other beneficiaries being grid services/central, and end user/utility or community and other local actors (e.g. Distributed generators and ESCO models). As such value cases, and funding projects, as seen across a tier of LCNF projects have delivered good results on DNO storage opportunities, but generally where these are limited to DNO or regulated RIIO measured or targets, are not economic if benefits on either side (end user/utility) and Grid services are excluded. The structure of LCNF sponsorship in Tier 1 and Tier 2 therefore rules out some opportunities, and also constrains full innovation of disruptive or full-value chain models.

As an example, it took the wider DECC initiative of a £20m fund for storage – without constraint to actor being DNO led, or without the Thematic constraint of say InnovateUK Competitions on a specific ask for innovation in a narrow brief, for Moixa to deliver a fully distributed energy storage pilot to test benefits across the entire energy system.

Similarly a potential concern of 8 year RIIO contracts, is that it rewards/or incentives business mode l activity within an apriori setting – and is not responsive to new technology developments , business model or learnings. A rolling or evolving LCNF NIA/NIC brief could take advantage of new opportunities or encourage and support market failures or regulatory constraints to initiatives. An example is say an opportunity for storage to help PSR – priority service register customers in emergency back-up being of 'qualitative' benefit to a DNO under RIIO but not a quantitive/economic or reward activity for a D NO or a LCNF project, so whilst a storage project could deliver such benefits it isn't clearly in the interest of a DNO to deliver or benefit from this – despite it's wider social, economic and national energy security as well as health objectives. This in part points to a

weakness in 100% DNO led use of such funding, which is charged to customer bills as a kind of adjacent budget to the capped LCF.

There would clearly be a public interest in allowing such funding to be accessed by other actors in the system, and led by external parties, with DNO's as a sponsor or involved partner to validate the DNO side benefits, but not be the primary beneficiary in some cases. This might allow a greater range of innovation, commercial testing, and also disruption to occur – particularly across multi-actor opportunities where the DNO is an important but not necessarily driving opportunity.

There is also an opportunity for un-used funding to be made available for projects or commercial tests that benefit networks but deliver value to other participants, as a form of extension to LCF capped limits on say renewables (FIT), efficiency, where the network itself is impacted (either positively or negatively). For example Solar is generally a wrong time of day production in Europe as is Night wind, whereas in US solar is more aligned with intraday peak, as such some renewables might be viewed as a 'liability' to networks causing increased network infrastructure costs to accommodate connection, flexibility, power quality. Whereas with the addition of active management, storage or other technologies, such liabilities can become network or system assets. Storage is a critical enabler of this, as can time-shift, leverage excess supply, or reduce peak demand, and deliver a range of services. It could be an opportunity in market of falling Feed in Tariff rates, and no subsidy or financial support for storage, to use spare capacity in the NIA/NIC funding or set objectives for projects, to provide benefits for storage deployment, where storage can aid network objectives. Examples being enabling more solar connections or reducing network charges for connections. Deferring capital. Reducing peak network demand for new build. Managing power quality. As this funding is on customer bills, it is a form of extension of the LCF budget on bills, but rarely rewards customers unless the funding could be used to directly aid communities, households and reduce network costs.

There is also an opportunity for NIA/NIC funding to simulate or provide relief for commercial testing and models involving storage or other flexibility assets that might attract contractual income when regulatory barriers are addressed (e.g. High cost of Half Hourly residential settlement), Disparity across different networks for the price of adding solar, new build, capital deferral. Ownership of storage assets and effective finance. Trading value of demand response and storage shift across different regions, and in short –term contracts. Use of spare funding to underwrite shortfalls in finance or in return whilst regulatory changes take place could be an opportunity to accelerate business models and leverage larger capital funding. An example is perhaps the EDR (energy demand reduction) auction that DECC implemented where a budget was auctioned to a range of infrastructure or development projects that had an outcome (reduced winter peak demand) and acted to 'top-up' a business case or justification by an investor to deploy larger amount of capital. With say solar now at 4% returns – this is not attractive for sector large scale investment, but use of an investment fund to 'top-up' an interest return by a percentage point could have the impact of making more projects financed and leverage considerable capital. Such an approach could be beneficial to the storage market, or storage+solar market in homes – which has a significant network benefit, by helping to improve the investment return or reduce the trading risk in the short term, or on a structured digression until expected market reg ulatory improvements.

In summary LCNF and funding in this area is a critical and important function to improve the UK energy system, but enabling other actors to bid, lead or deliver projects, or demonstrate commercial deployments accessing the funding, could deliver more rapidly improvements in the UK energy system and better direct value to household bills

Simon Daniel , CEO Moixa Energy Holding