Greater Access to the Distribution Network in Northern Ireland

Recommendations Document – Appendix 1

This Appendix outlines the full responses received from non-confidential respondents.

Contents

1. KELVATEK

Q1) Yes, but we believe that an ongoing programme of monitoring and stakeholder engagement will be required as the transition progresses and new systems are established.

Q2) Yes

Q3) Yes, but the detail of the NCAP program will be important. This may require the creation of a steering group of service providers and other related stakeholders to ensure a fair and acceptable system.

Q4) Yes – but see answer to Q3. NIE Networks with its position as a fast follower, seeking a least regrets implementation, should continue to identify synergies with work already underway in GB.

Q5) Yes, but we would note that this move to a real time, dynamic system will result in less certainty for potential suppliers to justify their investment decisions. NIE Networks with its position as a fast follower, seeking a least regrets implementation, should continue to identify synergies with work already underway in GB.

Q6) We believe that the PoA as they currently set out are too narrow in definition. Ideally commercial markets should be motivated by a measure of cost as this tends to be the most efficient mechanism to ensure value for money. To avoid the inevitable risk of monopolisation and other forms of pricing/market manipulation an element of fairness should also be applied as a break to a purely cost driven market. Other factors to consider that are not necessarily direct costs to consumers could potentially have a secondary cost, for example air quality, carbon footprint and other environmental impacts. There is a technological aspect and associated cost that could be enshrined within the PoA which would go some way to mitigate environmental cost but may create an unacceptable barrier to participation in the short to medium term.

Managing the dynamic range of costs in order to select the cheapest option while ensuring fairness in the marketplace can be managed algorithmically if the correct data models have been specified. We have seen moves in this direction within the GB market and although their particular specificities for ‘market optimisation’ may not be suitable in the NI market, the methodologies used to govern these markets are relevant and should be referenced.

Q7) Yes

Q8) We think that “DSO as a First Call Service Provider” should be adopted, as this should result in the lowest costs to end consumers.

Q9) Yes. We agree with this approach and the choice of innovation projects chosen to inform this process.

Q10) Yes. We agree that this is a necessary step towards reducing barriers to the decarbonisation of the network.

Q11) Yes. We believe this is crucial for the future where the intent is to decarbonise the network whilst minimising the cost of network reinforcement.

Q12) Yes.

Q13) Yes – we agree with the timescales described.

2. NI COMMUNITY ENERGY

Q1) No

Active Automatic Demand Control

Passive consumers should be protected from power outages caused by more active consumers demanding large currents for heat pumps or electric vehicles. e.g. In response to night-time prices.

Preparing Passive consumers for the Energy Transition

Since 'Passive' consumers may be obliged accept 'Smart' meters and an opportunity to become more 'Active' over time, they should be given the opportunity to prepare in advance*, by having the opportunity to monitor and tailor their consumption at different times of the day and night, and to estimate the effect on their bills, even when this does not immediately impact on their bills.

e.g. By low cost monitors putting energy use data onto their own private web database, by alerting them to the availability of renewable energy on the grid, and by providing switching signals that can be used by those interested in lowering their carbon emissions. e.g. To heat hot water at night.

*e.g. Installing more responsive home electrical or electric heating installations, insulating a home, or altering their energy use behaviour at different times of the day and night.

They should also be kept well informed of the opportunities in the Energy Transition and in being offered a broader range of home energy services.

Early adoption and least cost Learning Curves

Allowing limited numbers of domestic 'Early Adopters' to become more active consumers or 'Prosumers' early, e.g. by permitting them to have 'Time of use' metering installed when connected to market based tariffs, can lower the eventual cost to Passive consumers of the transition to low carbon. e.g. By piloting the installation of 'Hybrid' high wattage heating systems capable of using either renewable electricity and biofuels at different times, and by installing bulk hot water storage tanks that can be made locally, the performance of such systems can be increased and their cost lowered over a longer time. Building such local capacity and skills would enable the benefits of any Smart Metering rollout to be obtained more quickly, lowering the effective cost of the rollout.

Piloting new Energy Services

New types of energy services that protect the wellbeing of customers in fuel poverty should be trialled. e.g. That prevent temperatures falling so far at night so that humidity and the risk of mould increase, or which occasionally pre-heat a home with some renewable electricity making it less likely that a fossil system will be activated, or a polluting coal fire or stove lit.

Passive Consumers of Heat and fractional use of renewable electricity

People require heat but may not care whether it comes from renewable or fossil energy. e.g. Boilers and Heat Pumps operated together as 'Hybrids' can provide most annual heat demand from electricity at a high efficiency and low emissions, but can avoid the need for extra grid investment in the short term by activating the boiler in the coldest weather to release electricity for new homes wholly heated by lower wattage heat pumps. This type of 'Smart' control should be piloted.

In rural areas and for fuel poor and rented homes, for such Hybrid systems to support the grid as intended, it will often be necessary to provide an affordable way to pay for heating oil. The metering data uploaded for this,

together with electricity use data, can also make future investments in the decarbonised energy grid and homes more cost effective. e.g. For PV panels providing both power and some heat and summer hot water.

Passive Consumers and heating system breakdowns

Passive consumers will usually only upgrade their heating systems in response to breakdown, but these interventions, with tradespeople on site, are least cost opportunities to prepare homes for the energy transition. As heating systems are seldom upgraded in many homes, and consumers learn by doing, NIEN should identify additional 'Smart' controls to direct intermittent electric inputs to heating homes and hot water, even when these inputs may initially be manually controlled. e.g. By mobile phone text, or choices made on a Smartphone (even before Smart tariffs come in):

Failure:

Immersion, hot water tank, or back boiler failure: An opportunity to install smart controls, frost protection, and a larger and better insulated tank to act as a 'thermal battery'. Installation of PV panels with an automatic hot water switch.

Radiator leaks: An opportunity to install a dual/ electric radiator to provide zone control and a backup heating/ frost protection system.

Q2) I agree that preparations should be made for the transition from a Distribution Network Operator to a Distribution System Operator. e.g. Lab testing the possible role of existing immersion heaters and central heating hot water cylinders in accepting local zero carbon generation on the lower voltage distribution system without overloading the higher voltage regional transmission grid.

Policy Uncertainty

It is important that NIEN investment plans can accommodate policy uncertainty. e.g. That sufficient network capacity is produced to accommodate a range of demand scenarios. Direct electric water heating can utilise capacity and solar or wind output to displace fossil heating fuels when there is uncertainty about the number of heat pumps that will be installed, but the same grid capacity can produce two or three times as much heat if heat pumps are connected.

Policy Deficit

The cost of renewable electricity generation is falling substantially, with new wind farms being installed without direct subsidy. This risks increasing the times when wind would be curtailed, unless new markets can be found for this power. Displacing the use of high carbon heating fuels is a very large potential market, and by delaying the consumption of fuel stocks, has an energy storage duration of months, much longer than the usual duration of electric battery storage.

The requirement for hot water in particular is a very large year round market, even before considering that the demand for heat in the winter peak is much larger than current electrical capacity.

As the size of these new markets can be easily investigated by NIEN by low technology lab rigs, no Policy Inhibitor can be considered to be operating yet, though tests and fuel poverty concerns may indicate a case for new tariff types. e.g. With similar tariff rates year round for lights and appliances, but variable rates for interruptible or night-rate heating when consumers are not awake to respond to price signals.

Q3) The policy inhibitors that may become prevalent in the medium term, such as Tariffs for EV's/ heat pumps, and metering functionality, can be foreseen and preparations made to inform change:

Demand profiles should be monitored and recorded for heat, hot water, and estimates made for future demands from EVs. e.g. From current journey patterns, to inform metering and payment system proposals. e.g. It will make sense to use affordable pre-payment systems ensure that oil is present and affordable for 'Hybrid' boiler & heat pump systems, and for systems that heat hot water electrically with immersion heaters at times when renewable energy would otherwise be constrained off.

Q4) If 'DER' = Distributed Energy Resources it would be useful to indicate that this includes devices with controllable consumption, such as heat pumps, electrical batteries, and direct heating of thermal stores.

Q5) Yes.

Q6) There should be a combination of cost and 'Round Robin'. i.e. So that a provider is guaranteed some access to network capacity, ideally to cover typical fixed costs or to exceed them slightly, but obtains more capacity when costs are lower.

Rationale: As renewable generation, network capacity, and interconnectors are developed, the amount of spare capacity in any particular area will increase (or temporarily decrease) in a stepwise manner. However, we should not reduce the returns from active demand side load management or an efficient generator to the point where it may be disconnected or decommissioned and then needed later when, say, the grid is reinforced or extra demand added locally. e.g. An allocation of capacity could ‘tide over' a wind generator in a poor wind year with repairs, or a large solar system until more homes and businesses were built nearby.

Q7) Yes, but scenario planning should include a greater presence of controllable heating loads.

Q8) NIE should not be given an early advantage in a grid regulation market it cannot fully supply.

Electrification of home heating and hot water loads is now foreseen, to deliver carbon reduction at lower cost. e.g. The cessation of fossil boiler installations for new UK homes. In the short and medium term, "Interruptible" electric heating loads have considerable potential to regulate voltage and currents at lower voltages, and the volumes of this DSM resource should be assessed before proceeding with solutions that compete with this resource, potentially reducing its attractiveness and delaying its deployment at scale.

It may be appropriate to only use the Nodal solution in industrial areas where there is less prospect of connecting controllable aggregated heating and hot water loads.

Q9) No.

MPs have just indicated strong support for decarbonising the UK, directing us towards a more strategic approach to rapidly increasing grid capacity. Although some of the techniques in the document can be applied to manage stepwise increases in capacity by delaying 'wires' upgrades. There is now is too much emphasis in this document on an incremental approach, when the electrification of heating loads and EV charging, also new housebuilding and wind energy capacity, will require more conventional network upgrades. The emphasis should now be on maximising the number of zero carbon kWh transferred and the use of each stepwise upgrade of the grid to displace the use of fossil fuels, by increasing grid utilisation for electric heat, hot water, and vehicle charging.

In particular, the activation of existing high wattage immersion or other direct electric heaters can be varied in time as upgrades proceed, reducing the amount of electricity directed to them as systems with higher value outputs, such as heat pumps and electric vehicles, are installed over time.

Early installation of grid upgrades should be considered for areas that are very likely to require upgrades, for example in support of Community Plans for new housebuilding or industry, and more renewable electricity used for direct electric heating until this capacity is needed for other uses.

An approach that is too incremental, postponing most investment in low voltage capacity, risks increasing the eventual cost of the transition to a low or nett zero energy system.

Q10) We agree that this process is likely to be successful in engaging consumers in decarbonisation and in maximising compliance in terms of informing NIEN/ SONI of systems connected.

However, there are dangers when the price of PV+battery systems is likely to continue to fall:

- An increasing share of fixed costs falls on users without PV panels, such as those in rental accommodation, and in winter when the risks of fuel poverty and power prices are greatest.

- These systems result in increased network reinforcement costs in many areas, costs which are again also levied on users without PV systems.

Introduction of such processes should be accompanied by programmes to spread the benefits of the introduction of PV or electrical battery systems, and to have PV users paying a fairer share of costs:

1. Investigating tariff reforms. e.g. To ensure that 'spare' wind energy is used at night.

2. Investigating the use of battery systems to shave peak loads in winter, and to re-charge and night using wind energy.

3. Investigating the potential to heat hot water and rooms with wind energy, to avoid constraint when both wind energy and sunshine are present. e.g. To bring hot water tanks to safe hot water storage temperatures, or to heat bathroom towel rails to reduce damp.

4. Fitting nearby homes without PV systems with equipment to divert excess solar energy to water heating, to reduce the need for network reinforcement for summer exports, and investigating incentives for East and West facing panels, to match outputs to occupation better.

Q11) Yes. Scheme developers may have other means to reduce constraint over time. e.g. The installation of large electric heat pumps linked to community heating, local promotions of battery systems.

Q12) Yes

Q13) Since this consultation was published the British Government and Committee for Climate Change (CCC) has indicated stronger policy for decarbonisation of heat in particular, with the CCC calling for bans for oil boiler installations within a few years and a ban on gas boilers for new homes, implying a lot of electrification of heat

e.g. Hot water, as a year round load, is a huge load that has some facility to be shifted in time at relatively low cost using equipment with better durability and fewer fire risks than electric batteries.

The timetable should include preparations for this.

3. NIRIG

Introduction

The Northern Ireland Renewables Industry Group (NIRIG) represents the views of the renewable electricity industry in Northern Ireland, providing a conduit for knowledge exchange, policy development, support and consensus on best practice between all stakeholders. Committed to making a positive difference, we promote responsible development, support good community engagement and deliver low-cost electricity generation from sources such as onshore wind, tidal, solar and storage using our greatest natural resources.

NIRIG welcomes the opportunity to respond to NIE's Consultation on Greater Access to the Distribution Network in NI. The further decarbonisation of our entire energy sector is a crucial element of our contribution to national and international climate targets. The UK Clean Growth Strategy outlines how the low-carbon sector can help to increase both competitiveness and productivity in our economy.

General comments

We do not believe that the 'low risk, least regrets' approach proposed by NIEN aligns with the recognition that:

'Climate change legislation… is forecast to create significant growth in technologies in turn requiring major changes in how the electricity industry manages and operates the network.'

Levels of renewable integration and management on the all-island system are extremely sophisticated and at a TSO level the DS3 programme has delivered benefits to consumers and the environment. We believe that decarbonisation of the power system requires more ambitious approaches to both conventional network investment and system operation at distribution level.

A key aspect of decarbonisation is the need for increased levels of renewable electricity in order to address climate change. This will require the connection of substantially more renewable generation to the NIE transmission and distribution system. NIRIG acknowledges and supports the electricity system will have to become 'smarter' to allow this change, but this will not take away from the need to continue to develop the transmission system with conventional technologies.

We again urge that conventional reinforcement be progressed as a network solution in parallel with, rather than instead of or delaying more innovative solutions. NIE Networks needs to invest conventionally, i.e. upgrading existing and new transmission circuits and investing in existing substations to bring up to modern standards.

There is immediate need for NIE Networks and SONI to bring forward the appropriate conventional and smart transmission solutions to provide firm transmission access for all contracted wind generation. For a substantial amount of non-firm generation the transmission works are either not advancing or progressing extremely slowly.

We request that these works are prioritised going forward and SONI and NIE Networks communicate regularly with generator on progress on these works. Considering the long timeline to develop transmission infrastructure it is critical that SONI and NIE start works on new projects that can increase the capacity of the transmission system in the West of Northern Ireland.

Q1) Wind energy has paid back to consumers in Northern Ireland: £4 per consumer, per year, every year from 2000-2020[1]. The deployment of wind energy has displaced imports of fossil fuels and has reduced fossil fuels consumption by 72TWh, saving £1 billion. Wind has also avoided 9 million tonnes of power sector CO2 emissions. Overall, the gross costs of wind energy of £0.7 billion are outweighed by a gross benefit of £0.8 billion. Wind farms reduce consumers' exposure to the price of gas.

[1] http://www.ni-rig.org/wp-content/uploads/2017/02/NIRIG-The-Wind-Dividend-Report-WEB.pdf

The bulk of domestic consumer bills, whether passive or active, comprises wholesale electricity costs, and wind energy acts to depress these. We therefore believe that an evolution which facilitates higher levels renewables should be prioritised for the benefit of all consumers.

Q2) We agree that there are currently no obvious policy or regulatory inhibitors that prevent the *commencement* of evolution. The greater inhibiting factor is that current policy is not fit for purpose or that the necessary policy updates will not be implemented in a timely enough manner to keep up with the energy system transition.

The believe that the growing complexity of network operations, the additional flexibility needed and the increase in prosumers, among other factors, may lead to increased digitisation which requires capabilities that traditional network operators may not be able to provide, and which current policy does not cater for.

Q3) We agree with the identified policy inhibitors, but there are other issues that we believe need to be addressed. NIRIG believes that a fundamental review of the policy and legislation underpinning energy in Northern Ireland is required. New technologies, new markets, increased interconnection, the growth in flexible demand and an increasing number of disruptors will all mean that the energy system in the next decade will be significantly different to the current one. NIAUR and policy-makers must prepare for these changes by ensuring that policy and regulation facilitates and promotes decarbonisation, flexibility, coordination, innovation and cost-effective modernisation.

For example, existing legislation only facilitates competition in the supply and generation of electricity, which effectively restricts competition in the distribution of electricity. It allows exemptions for connections based on capacity, which is now impacting upon the connection of low-carbon generation. Existing legislation prevents rapid responses to necessary policy changes such as rebate policy and we understand that this is hampering EV charge-point deliver. There are likely to be other issues that cannot be progressed under existing legislation.

Should the proposed model be adopted we urge that the interface between SONI/TSO and NIEN/DSO will require a streamlined and barrier-free communication mechanism. Our members have experienced delays and mis-communication in cases of generator connections involving both SONI and NIE. If the interface between SONI and NIE is not able to function effectively for a connection then it does not give confidence that more complex interactions will run smoothly. We recommend a comprehensive and clear Transmission Interface Agreement, developed with appropriate consultation and deploying rapid response mechanisms for identifying and rectifying any problems as they may arise. More policy is also needed in data management beyond the increased roll-out of metering.

We recommend a review of the duties and obligations of public bodies, including to strengthen requirements for sustainability, and a review of NIAUR powers to enable more flexible policy-making.

Q4) No response

Q5) No response

Q6) No response

Q7) NIRIG supports the work that NIE/SONI have done to date in progressing the roll out of the nodal controller in NI. The roll out of the nodal controller is essential and which we understand that it needs to be done on a phased basis we urge that the nodal controller is rolled out as quickly as possible to allow distribution connected generators to contribute to system services as quickly as possible. We suggest that if an approach similar to that already trialled by ESBN is adopted then a further year trial is not required by NIE/SONI. This would serve to speed up the roll-out of the nodal controller further.

We would appreciate further information on the following:

- Has consideration been made as to how the services will be procured from other flexible distributed energy resources (DER) and what basis?

- Will volume requirements per node be published on a regular basis to provide market signals to prospective providers?

- When delivering the service, how will the service be quantified, by measuring the reactive power at the DER connection point or the reactive power delivered at the T&D boundary node? Remote DER (from the T&D boundary) will be significantly less effective in delivering reactive power to the T&D boundary: will there be any prioritisation criteria and what will that be?

Currently there seems to be a connection design policy to oversize connection assets to enable this service to be delivered by projects connected via long lines (e.g. voltage rise criteria for long connections) which is network inefficient and provided at high cost to connectee. We request that this policy be reviewed and that design takes into account the fact that service requirement of full export of reactive power at times of high voltage is not a valid study assumption. The ESB Networks policy that specifies reactive power capability requirement according to type of connection is a good example of an appropriate approach.

Figure 14 suggests that the service will only be sought from Wind farms only. We request clarification that all DER that can deliver the services (regardless of technology) are eligible to provide this service.

Q8) There is no doubt that the services identifies are useful in addressing system critical event but none of the four proposed service provider options appear to be suitable. This is because all options involve the DSO providing the services to a certain extent yet the DSO role is supposed to be neutral market facilitator in the provision of such services.

It can also be argues that NIE Networks actions in opening breakers or reducing tap positions to reduce demand in response to system events does not make NIE Networks a provider as such. Rather, it can be argued that in this case NIE Networks is only facilitating the services and that it is the affected consumers whose demand is reduced in the process that are ultimately provided the services. These consumers can therefore be regarded as the service providers and be paid for the services.

NIE Networks can be compensated costs incurred as a DSO in facilitating the service delivery. With the advent of smart metering it should be possible to utilise smart meters to quantify the volumes of service that the affected consumers are providing during such events and appropriately remunerate them. Such an appropriate mechanism would also send appropriate market signals to consumers willing to participate in these services. In tine NIE Networks do not have actively take such actions but the smart functions in consumer installations would respond to frequency signalling and automatically provide such services. It is recognised that suggested model may take time to put in place, thus in the interim the DSO could perhaps continue to provide such services.

Q9) NIRIG would support the approach shown in Figure 21 as it does consider multiple options to facilitating distribution connections. It is important that NIE actively engages applicants/developers through the process of deciding on the options to be considered for their project and ultimately the option to be provided for their connection. Considering the network is becoming more dynamic and variable, it must be more efficient long term to develop the network with more smarter solutions as well as conventional reinforcement.

Q10) No response

Q11) There is already an all-island policy for non-firm transmission access. We understand that NIE/SONI will shortly be consulting on non-firm transmission assess for distribution connections. NIRIG will be responding to this important consultation. We still believe that the best solution for renewable generation growth in NI is significant investment in the network to allow for the full potential of renewable wind resource to be realised and

that non-firm access can only be a short-term solution that allows generation to connect in parallel with the essential network development required.

We understand that NIE currently only offer firm access distribution connections. We would support NIE consulting on changing to non-firm/flexible distribution access as a short-term solution only. Options of how constraints should be considered, for example the pro-rata and last on-first off approach should be considered. It is important that existing projects do not suffer excessive constraints as a result of non-firm access, so if pro-rata is adopted then it has to have a threshold applied above which non-firm distribution projects will have constraints applied in a last-on, first-off approach.

If NIE do bring in non-firm distribution connections, from the experience of having non-firm transmission access for over 10 years, it is vital that NIE provides regular and up to date constraint analysis to applicants and also the input data for applicants to complete or commission their own constraint analysis. We do not believe that existing constraint analyses are sufficiently detailed.

Q12) Yes

Q13) We urge that this timeline be assessed against the likely target of 70% renewable electricity by 2030 and the expected growth of electrified heat and transport to judge whether it is sufficiently ambitious.

4. POWER NI

Introduction and General Comments

Power NI welcomes the opportunity to respond to the NIE Networks' Consultation Paper in relation to access to the Distribution Network, the services offered and the potential future role of NIE Networks.

Engagement with all stakeholders is an important facet of the work NIE Networks is undertaking. The electricity industry is facing major change. Power NI recognises the factors outlined in the scene and context setting sections of the Consultation Paper and that NIE Networks has an important enabling role to play in the energy transition. Suppliers also have an important role to play. Suppliers will and do act as the route to market for many of the developments including distributed generation, EVs, storage etc. as they have the relationship with the end consumer who may wish to avail of some of the services offered or actively take part in this changing market. It is in that context that it is disappointing that there are no supplier representatives on NIE Networks' Customer Engagement Advisory Panel. Power NI would encourage NIE Networks to look at this panels make up and widen its representation.

Q1) It is encouraging that NIE Networks recognise that not all customers will wish to avail of the different options available post the energy transition. Specifically the recovery of fixed costs will be an important aspect to consider. It is important that NIE Networks are mindful that domestic standing charge is not typically explicitly charges as a distinct item but incorporated into a suppliers single tariff rate. NIE Networks therefore may attempt to send a price signal via a standing charge however if the retail tariff is not based on a similar methodology changing the signal is ineffective.

In 2017 the UR undertook a consultation exercise in relation the application of DUoS standing charge in domestic billing. Within that paper the UR suggested that the disconnect between DUoS billing and generally accepted retail billing in terms of standing charge would inevitable result in the reintroduction of domestic standing charge. Power NI agreed with the UR in this assessment and also agreed that the reintroduction of domestic standing charge would have an adverse impact on low volume customers, vulnerable customers, transparency, easy of tariff comparison and create confusion. It was and remains Power NI's view that these disadvantages should be avoided.

The removal of the standing charge from the DUoS charging methodology is a comprehensive solution to this issue. It means that there is no basis for the reintroduction of a domestic standing charge and therefore ensures the protection of low consuming and vulnerable customers while also incentivising energy efficiency, supports transparency and enables easy price comparison. Power NI does however recognise that that does not deal with the issue in relation to prosumers potentially benefiting by contributing very little to the fixed costs of the network they use at the expense of what NIE Networks refer to as passive consumers. Power NI believes tailored solutions can be found and would encourage NIE Networks to give this further consideration.

Q2) The question of inhibitors is one that only NIE Networks can truly answer. NIE Networks operates within a regulatory framework and that framework must give the flexibility for NIE Networks to develop from a DNO to a DSO in a controlled and efficient manner.

Q3) Power NI would remain concerned that the price control framework may not facilitate the flexibility for NIE Networks to innovate during the control period.

Q4) Power NI would welcome further clarity from NIE Networks on how the interactions with SONI will operate. Ultimately the services will only be provided by the Distributed Energy Resources (DER) if the route to market exists. Unless NIE Networks are prepared to pay for these services then that route to market exists via SONI. The revenue streams and information flows need to be clearly defined to ensure business cases can be developed. In many ways this is as, if not more important, than the process for securing capacity.

Q5) Similar to Question 4 the key aspect of the running sequence and deliverable will be the interaction with the market which ensures the deliverable can be funded. The market position and revenue stream is an important aspect which NIE Networks should be able to articulate.

Q6) Without clarity on the route to market and the obligations that places on participants, it is difficult to fully consider this questions.

Q7) No response.

Q8) Power NI would welcome further clarity on how NIE Networks might provide system services i.e. would NIE Networks offer a route to market for Distribution Services offered by DERs? This is an important enabler. Would NIE Networks in effect become some form of services aggregator for smaller scale DERs who could offer services and be compensated for such provision or are NIE Networks solely focussed on the use of their own asset as offering services?

Power NI can see benefits in both NIE Networks availing of system services for the benefits of the generality of consumers and offering a route to market to DERs. If this is developed it may support multiple options being considered as the preferred provider function dependent upon the ownership of the asset.

Transparency of all approaches is important and Power NI would expect that NIE Networks would have clear policies and procedures in relation to the performance of this role. In relation to any role performed on behalf of DERs, Power NI would draw parallels to the Agent of Last Resort role SEMO performs in the wholesale market.

Q9) At a high level the proposed approach of identification of congestion then seeking a market, smart or conventional solution before evaluation is logical. Greater detail on the market solution is required before any further comment can be made. How is that submitted? What are the selection criteria? And further information on the cost award and income stream will be required as NIE Networks develop the proposal. Clarity on this side of the equation will be required with a clear route to market and remuneration identified, otherwise it risks rendering this aspect moot.

Q10) Power NI strongly supports the fast tracked process and believes it should be implemented as a matter of urgency as its absence is stifling development of domestic storage linked to already in place PV installations.

Q11) To develop this area and ensure that the DSO role can keep pace with future developments Power NI would encourage NIE Networks to consider options for flexible generation.

Q12) Power NI does wish to be included on circulation lists associated with this topic.

Q13) Power NI has no specific comments on the timeline other than to encourage NIE Networks to implement the fast tracked G99 process as soon as reasonable possible.

Conclusion

The energy transition will place increasing requirements on NIE Networks to provide system services and a route to market for new technologies being connected at a distribution network level. Power NI welcomes NIE Networks exploring the options available to it and remains committed to providing support and assistance at this important stage.

5. POWERON

General Comments

We commend the Call for Evidence and Consultation process for being thorough, open and underway but we would suggest that the pace of change is such that, NIE Networks as DNO and NIAUR, both need to accelerate their considerations and decisions.

Feedback from our customers and visits to other markets confirms that new opportunities for customers to get a better service and reduce costs are being delayed due to the absence of more, wider-ranging activity within RP6 to test options, gather objective data and learn what could be achieved.

This will require flexibility from customers and DNO/DSO, regulators and government. Those customers who are offering flexibility need to be encouraged in those behaviours and the agencies need also to be encouraged in the current price control period, as this is the period when the lessons can be learned and applied in RP7.

Q1) The determination of NIE Networks and ENA of Passive Consumers does not reflect sufficiently the multiple roles that even domestic consumers will be playing in the new world envisaged for Distribution Networks and the DSO. The availability of data from customers and for customers is not sufficiently recognised as being transformative in the relationship between DSO and consumers. The document refers to TSO and DSO data exchanges but does not address the challenges that Open and Big data are bringing to highly regulated areas such as finance, pharmaceuticals and healthcare along with transport. The protection of passive consumers in regard to data collection, usage, storage and sharing needs more attention in this process.

Q2) PowerOn agree with the regulatory inhibitors identified in the Call for Evidence. Tariff may not even be the correct descriptor for how flexibility, risk-reduction and innovation are “priced” in the scenario of a DSO vs. DNO market.

Specifically we would ask that the DNO Price Control mechanism be reviewed to see how the wider set of players in a DSO scenario can be incentivised, encouraged and rewarded when only a bi-lateral price control is used. A Price Control for the Market may bring forward more innovation, customer-centric solutions and more flexibility in approach.

The CfE does not fully address the much more granular, data-led, performance-based review of actual outcomes for consumers that should be the aim for the DSO scenario.

Q3) Response covered in Q2.

Q4) No response.

Q5) No response.

Q6) PowerOn support Cost as the PoA of choice. The economic argument in favour of cost will make any potential entrants’ decision process more transparent. The risks arising from complexity could be mitigated by investment in more granular and frequent exchange of data and investment in systems.

Q7) No response.

Q8) The document speaks about intuitive beliefs of the DNO and we would suggest that this is another area where more innovation, testing and collection of evidence would assist greatly.

The table presented is inadequate to balance the issues of incumbency bias, assets bought and paid for by customers generating subsequent, additional revenues and exclusion of potential new players by preferential treatment of the DNO asset behaviour.

However, with the above caveats, we would see Option 4 as preferable. We do not agree with the red rating on the long term impact, stranded assets risk. If that was rated as amber, the overall rating of Option 4 is most attractive.

Q9) No response.

Q10) Yes, PowerOn agree. We would contend that a 10 day standard should be reviewed as a 'self-serve', certification process could be more efficient and prompt.

Q11) No response.

Q12) PowerOn wish to be considered for the consultation envisaged.

Q13) We agree with the sequence of steps but would suggest that some more indication of elapsed time would enable a more considered response. Your diagram misses the options for paralleling some of the activities.

6. QUEEN'S UNIVERSITY BELFAST

Q1) Considering the various charging reforms (e.g., rebalancing of Distribution Use of System charges) as well as service provider roles (e.g., DSO as system service provider, DSO as first call service provider, etc.) proposed by NIE Networks in this document, it is the opinion of this respondent that sufficient plans are being put in place for protecting passive consumers from unintended consequences of the DNO to DSO transformation.

We note that discussions on changes to NIE Network's charging policies are currently underway. We would therefore like to urge the authorities to adopt policies and implement reforms which strike a healthy balance between encouraging uptakes of LCTs and offering suitable protections to vulnerable customer groups.

Q2) Yes, we do agree that there are currently no policy/regulatory inhibitors preventing the commencement of the DNO to DSO transformation. Though this is not an area of expertise for us, we would still like to encourage policy makers to be as flexible as possible to facilitate the uptake of LCTs.

Q3) Yes, we do. We think that medium term policy inhibitors towards transitioning to a DSO would be: 1) a pricing policy conducive to convincing/encouraging consumers to invest in LCT, and 2) a data management policy conducive to convincing consumers to have smart meters installed at their premises for greater access/control of their energy consumption data. We believe that both factors have been suitably accounted for in the bullet points presented in Section 3.6.3.

Q4) While we agree with the proposed NCAP architecture as well as the running sequence presented in Figs. 10 and 11 (respectively), we believe that additional information, relating to data paths, could be included in both figures to better illustrate the connection between the timescales (Fig. 11) at which the different information/control flows (Fig. 10) occur. In view of that, we propose that Fig. 10 be modified as follows. Note that some of the data flow type (i.e., control or information) have also been modified in Fig. 10 (with respect to the original figure in Section 4.1.1.3). The numbers 1 – 4 in Fig. 10 denote the different time scales in relation to execution of the NCAP, which are further illustrated in Fig. 11 below.

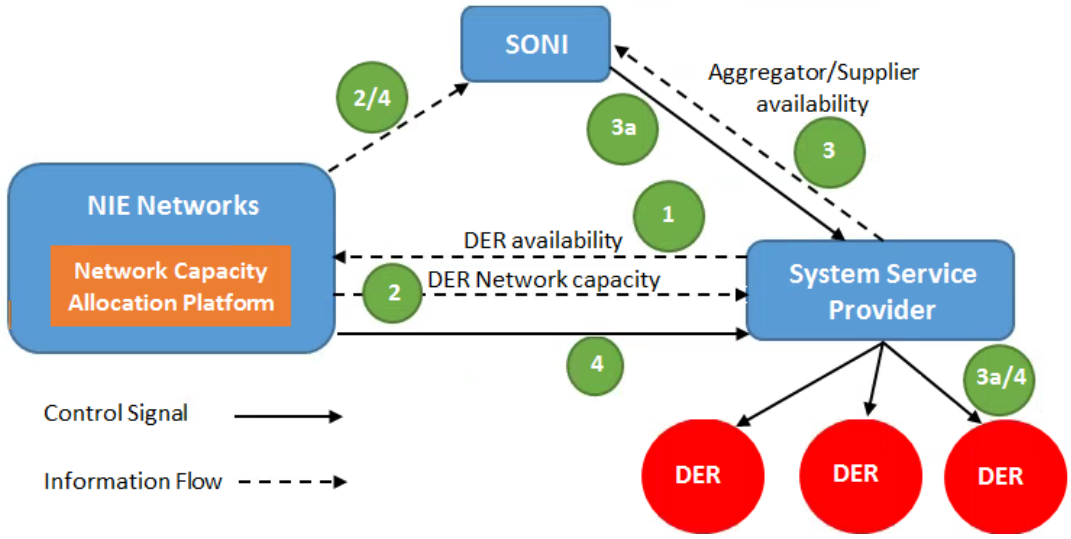

Fig. 10

Q5) In continuation of the explanations provided in Q4, we propose the following modifications in Fig. 11 in order to explicitly number the execution sequence of NCAP events. Additionally, it would be beneficial to specify the durations 'y' and 'x' in Fig. 11 (Section 4.1.1.3) so as to appreciate how long before real-time (t=0) the

system service providers need to communicate their availability to NIEN and SONI respectively. The duration 'y' also needs to be judiciously chosen in line with the forecasting tools/resources available at NIEN's disposal.

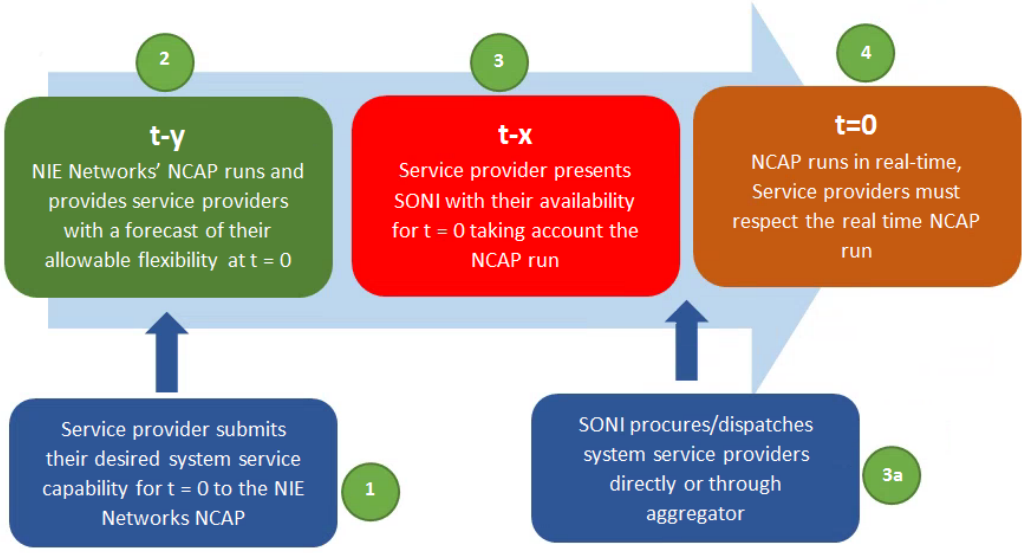

Fig. 11

Q6) We believe that the 'cost-based' PoA arrangement could be used in the NCAP over other alternatives. Not only does this correspond to the economically optimal solution, it is a fair way of distributing network capacity (rather than, say rewarding early adopters) given that network assets are largely funded by consumers' money. It is important to note here, however, that the priority dispatch of a cheap DG as part of a 'cost-based' PoA arrangement is contingent upon all network security constraints being satisfied vis-à-vis the DG's location in the network.

Regarding the 'cons' of the cost-based approach specified in Table 3, we believe that even though generation costs pertaining to renewable technologies tend to fall with technological advancements, they can be considered fixed for a few months before the next update according to market trends. Considering the computing facilities currently available in the market, we believe that the cost updating process should not be that complicated to manage. Additionally, since the proposed NCAP runs far closer to real-time (Fig. 11) than the more conservative annual instruction sets currently in use, it is our opinion that the factor about 'difficulty in forecasting longer term network availability' should not be seen as an obstacle to the realization of the new NCAP framework.

Q7) Given that nodal controllers are also being trialled by ESB Networks, and this technology (or the equivalent TDI 2.0 Control Software solution being developed by UKPN) is being most frequently considered by regional network operators in terms of provision of steady state reactive power system services, we agree that it is wise to trial this in the context of NIE Networks as well. We also agree with the proposed phased manner in which nodal controllers are planned to be incorporated into the network by NIEN. Considering that ESB Networks are currently trialling nodal controllers at dedicated substations connecting Type B wind farms (no loads connected to these substations), it is wise to start with similar cluster substations first, carry out detailed cost/benefit analyses, and if need be, roll out the solution for bulk supply points as well.

Q8) We would prefer the First Call Service Provider option to be adopted by NIE Networks in its role as a system service provider. It is important for NIE Networks to adopt a role which can be perceived to be financially beneficial to all consumers, especially considering the concerns raised by previous respondents regarding the impacts of the DNO to DSO transformation on vulnerable customers. We believe that this therefore makes criteria 2 (DSO as System Service Provider) and 3 (First Call Service Provider) look more

favourable than the others. Our justification for selecting criterion 3 over 2 is that the former is operationally easier and less expensive for NIE Networks to implement, and this is in line with the 'low-risk, least regrets' stance taken by NIEN towards its DNO to DSO evolution.

It is, however, to be noted that active customers investing in renewable technologies (e.g., PV panels, storage devices, etc.) in turn encourage the growth of local industries. Considering that both criteria 2 and 3 are less favourable to active customers (as compared to the other options), we believe that efforts should be made to adopt an approach which is more encouraging to them. For this reason, we would recommend NIE Networks to start with criterion 3 for now, but not totally ignore criterion 2 in the long term. In fact, if future findings from additional studies/practices employed by UK DNOs (e.g., ENWL) or other operators worldwide seem to favour criterion 2 (or a similar role) over 3 in terms of providing additional benefits/flexibility to active consumers, we would recommend slowly switching to criterion 2 in the long run.

Q9) We agree with the proposed congestion management approach as outlined in Fig. 21. We think that all applicable alternatives – conventional (option A), smart (option B) and market-based (option C) solutions – are reasonably well accommodated in the figure, and a detailed cost/benefit assessment of options A, B and C is essential to determine the optimal way forward. However, it would be beneficial to have some additional clarification on what a 'high level assessment' (as mentioned in Fig. 21) entails, and how NIE Networks intends to use this assessment tool to determine the appropriateness of options A, B or C.

Q10) Considering that NIE Networks is currently in the process of updating the G83/G59 standard documents, we would like to encourage harmonization of standards and practices included in the replacement documents with respect to those adopted by DNOs in the rest of the UK. However, assuming that the inverter rating thresholds and the standards (e.g., G98, G99 and G100) mentioned in Fig. 26 are already in line with similar practices/standards/regulations adopted by operators in the rest of the UK, we do agree with the proposed connections process outlined in Fig. 26. We also welcome the introduction of the G99 fast track process in Fig. 26, and believe that this is a good step for encouraging the uptake of LCTs in the future.

Q11) In our opinion, implementing flexible/non-firm connections would actually help in leveraging the full potential of the DNO to DSO transformation process, as it will enable deferral of network reinforcements while accommodating more connections in a smart way. We note that the workflow relating to 'managed connections' has already been incorporated into Fig. 26.

We believe that since the implementation of non-firm connections require a certain amount of flexibility from concerned customers, it would be better to conduct a pilot study first using large customers, e.g., industries. Depending on the findings of the pilot study, this technology could then be rolled out for small-scale (domestic) connections. Another important point of consideration pertaining to implementation of flexible connections is the amount of curtailment/penalty a potential customer would face with respect to his/her location in the distribution network. Comparing the case of a rural vs. an urban customer, it may be difficult for the former to consider investing in flexible connections, given the increased likelihood of him/her being subjected to higher curtailments/penalties solely based on his/her more remote location in the distribution network. We would therefore like to encourage more research to be conducted for ensuring a fair and equitable allocation of curtailments and penalties amongst all flexible customers across the distribution network.

Information pertaining to hours of constraint and connection offer lifetime would understandably vary between customer types. Our opinion is that as much information as possible be made available so as to enable potential customers to take an informed decision on whether they would like to apply for flexible connections.

Q12) Yes.

Q13) The overall high level indicative timescale outlined in Fig. 33 is agreeable to us. We note that individual milestones depicted in the figure are not step changes. However, the sequence in which some of these milestones occur do not appear logical. For example, forecasting functionality is required for NCAP runs (Fig. 11), yet it is scheduled to be developed after the NCAP platform development as per Fig. 33. Similarly, data

from LV networks would be essential for successful roll out of the market-based solutions for congestion management, yet the SCADA roll out in LV networks is scheduled at the very end of the indicative timescale presented in Fig. 33.

7. SONI

Introduction

SONI welcomes the opportunity to respond to the NIE Networks Consultation on "Greater Access to the Distribution Network in Northern Ireland". SONI is the Transmission System Operator (TSO) for Northern Ireland. SONI is responsible for planning and operating the Northern Ireland transmission system safely and securely to ensure a reliable supply of electricity. SONI also operates the All-Island wholesale electricity market with EirGrid (the TSO in Ireland) through the Single Electricity Market Operator contractual joint venture.

These wholesale market arrangements have been in operation since November 2007, and were recently integrated with the wider European electricity market. This has introduced ex-ante trading and a one hour gate closure for the balancing market.

SONI is also the operator of the capacity market, which operates through auctions taking place both four years ahead of delivery and also one year ahead of delivery.

We provide a substantive response on the many questions asked in the Consultation and the approach NIE Networks are proposing to take in the context of these roles.

Throughout our response we refer to the need for whole system thinking i.e. distribution and transmission. This is due to the potential for significant implications for the transmission system if the proposals within the consultation are considered only on a local distribution basis. As such we would urge any impact assessment, cost benefit analysis, trial or lessons learned to be based on whole power system thinking and engage all relevant parties to ensure the proposed evolution is right for the Northern Ireland customer.

Key Points

SONI has reviewed NIE Networks' consultation paper on 'Greater Access to the Distribution Network in Northern Ireland' in the context of its role as Transmission System Operator and also as Market Operator.

SONI welcomes the opportunity to respond to NIE Networks' consultation on 'Greater Access to the Distribution Network in Northern Ireland', having previously responded to the call for evidence. SONI looks forward to working with NIE Networks on the proposals within the consultation and on developing solutions that will benefit the NI consumer and system as a whole.

The NI power system is evolving to meet the challenge of climate change. One of the most significant developments in the electricity sector has been the adoption of renewable generation. As noted in NIE Networks' consultation paper, renewable generation will play a significant role in future efforts to increase decarbonisation and as such, is a consistent driver behind the proposals presented in NIE Networks' consultation paper and previous call for evidence.

As highlighted in many collaborative industry and academic projects such EU-SysFlex[2], the increased level of renewable generation connecting to tackle climate change introduces new issues that will create a paradigm shift in how the power system is operated. EU-SysFlex for example, has identified 6 main categories of technical power system scarcities that will manifest while moving towards power system with high integration of renewable generation. Given the mutual interdependence of the transmission and distribution systems, these technical scarcities (frequency control, voltage control, rotor angle stability, congestion management, system restoration and system adequacy) have the potential to greatly negatively impact on the operation of the power system as a whole if they are not properly addressed collectively by the electricity sector. While SONI believes that the proposals presented by NIE Networks are a good starting point to address a few of these technical

[2] http://eu-sysflex.com/wp-content/uploads/2018/12/D2.1_State-of-the-Art_Literature_Review_of_System_Scarcities_at_High_Levels_of_Renewable_Generation_V1.pdf

scarcities, they are largely energy based (capacity allocation etc.) and focused on the distribution system rather than the power system as a whole. SONI believes that taking such a narrow view of system wide issues may benefit a select set of NI consumers in the short term but will ultimately lead to greater adverse impacts for all NI consumers in the medium to longer term.

In SONI's response to the call for evidence, concerns were raised regarding perceived or potential conflicts of interest if NIE Networks were to operate as a service provider and a market facilitator. Following review of NIE Networks' consultation paper, SONI still has concerns regarding the potential for conflict of interests to be created. Further to this, if NIE Networks' consultation proposals were to be implemented regarding service provider and market facilitator, SONI believes that this puts NIE Networks in a unique position as distribution system operator, to influence market operation for market participants. If sufficient mitigation measures are not put in place, NIE Networks could have the ability to negatively impact on the ability of competitors to deliver benefits to consumers. While NIE Networks' consultation proposals may benefit a section of NI consumers in the short term there is a very real possibility that this influence could undermine market confidence and ultimately result in an increase in cost for all NI consumers in the medium to long term.

SONI has provided more detailed responses to the questions asked by NIE Networks in the remainder of this document. Throughout our response we highlight the need for engagement with SONI and other industry partners. SONI believes that wider system issues like those mentioned above, can only be overcome with continuous engagement and to this end we look forward to working with NIE Networks to agree the next steps in the endeavours on the distribution network which have implications for the operation and development of the transmission system in Northern Ireland. Through this and the engagement with the wider industry we are confident that solutions for the benefit of all are identified and implemented.

Q1) SONI supports the view that vulnerable customers should be protected however; further clarity would be required before SONI could ascertain from the level of detail in the paper specifically if passive consumers are suitable protected. There could be a significant risk to all consumers if the evolution to DSO works against established wholesale market mechanisms that have been designed to provide an efficient and economic market for wholesale electricity and system services on an all island basis.

As stated in the consultation, NIE Networks' proposed approach to put downward pressure on prices for the protection of customers it to:

- Introduce a charging reform,
- Provide additional system services to the TSO, and
- Use smart and market based solutions in conjunction with conventional reinforcement.

Each of these proposed areas are complex in nature and have the potential to impact the system as a whole. NIE Networks should therefore ensure that each of these proposed areas are fully assessed on an economic cost benefit analysis as well as the cumulative effect. Such detailed system assessment of changes to areas outlined above unintentionally introduced and cause cost for all consumers to increase, thereby negating any perceived benefits to vulnerable consumers.

SONI is encouraged that increased engagement us recognised as one of NIE Networks key areas in order to provide passive consumers with appropriate protection. It is important that there is joined up thinking and engagement between all entities that contribute to the makeup of consumer tariff products. SONI would therefore welcome the opportunity to engage with NIE Networks, especially given the complex nature of the areas mentioned above and their potential to impact the system as a whole.

Q2) While NIE Networks have not identified any policy inhibitors or regulatory barriers preventing the commencement of the DNO to DSO evolution, SONI must perform its function in line with a number of policies including those defined in the I-SEM Trading and Settlement Code.

For example the TSO and DNO both have an obligation for priority dispatch and ensure maximum levels of renewable generation are scheduled under SEM-11-62 and SEM-11-63. Changes occurring from NIE Networks transition from DNO to DSO would need to ensure that there would be no direct impacts on SONI's ability to run the system in an economically efficient manner, while respecting the priority dispatch obligations.

SONI would like to request greater clarity on what charging policy will be in place to facilitate NIE Networks transition from DNO to DSO? It is also worth noting that NIE Networks need to be cognisant that any new charging policy will need to align with current transmission charging principles, including the all-island tariffs charged through the SEM.

It would be beneficial if any business case for the transition would be made available in an open and transparent manner, particularly costs and alignment or confliction of strategies with TSO. In this regard SONI would encourage engagement together with the Utility Regulator in an effort to assess opportunities or constraints posed by the need to align with SEM, I-SEM Capacity Remuneration Mechanism (CRM) and DS3.

Q3) In the medium term the TSO is award of a need for an ambitious strategy and focus on a grid which can provide services to manage increasing volumes of flexible and adaptable technologies to drive decarbonisation. Ensuring these TSO and DSO policies remain complementary is important to ensure that we can both provide the best possible innovative solutions that work towards decarbonisation while ensuring alignment with wholesale energy market design.

With the increase in Small Scale Generation (SSG) connected to the distribution system the TSO will require more data. The TSO may require control of SSG on the distribution system, to ensure, for example, that the system is run in a secure and economically efficient manner. This will see an increase in communication links and will invariably increase cost.

Again SONI would like to request clarity on what charging policy will be in place to facilitate NIE Networks transition from DNO to DSO? NIE Networks will also need to be cognisant that any new charging policy will need to align with current transmission charging principles and signals from the wholesale market.

Q4) The dynamic application of network capacity has an increasing role in the future as building further infrastructure becomes more challenged. However this dynamic application has ramifications for the transmission network, the power system and the financial outcomes of participants in the SEM as well as for expectations of consumer utility by the end customer. To this extent it is necessary that any application needs to consider these wider impacts before any implementation mechanism is even designed, let alone implemented. SONI looks forward to working with NIEN on agreeing the next steps in this regard.

More specifically SONI is obliged to operate the system economically and as such SONI has to schedule the power system with all available data, including the reserve provided by system services providers. NIE Networks' Network Capacity Allocation Platform would have to safeguard against replacing well tested system services providers, such as large conventional generators, with a great number of smaller service providers. If this amount of system service was then going to change on a regular basis, SONI may encounter difficulties obtaining the relevant information to be included in scheduling runs if inadequate service provider processes are not put in place.

SONI includes the optimisation of reserve but when scheduling the system, however there is no direct cost as such attached to that service other than the cost of running generation away from its market position. Having reserve with a cost only associated with it will increase the complexity of the optimised solutions produced by SONI for the balancing market, potentially putting upward pressure on the cost to NI consumers.

Regarding control of these system services proposed by the Network Capacity Allocation Platform, if the TSO does not have sufficient control over these DSO system services, then SONI may have difficulty meeting its requirement to operate the system economically, again having a negative impact on the cost to NI consumers.

Rigorous testing and certification practices would also need to be implemented to ensure consistent delivery of system services.

SONI would also encourage NIE Networks to be mindful of alignment with current SEM and EU[3] principles on allocation of capacity when developing the Network Capacity Allocation Platform.

Care should also be taken in terms of future connections and in particular the calculation of Firm Access Quantities (FAQ).

Given the areas raised above, the TSO would welcome engagement with NIE Networks on this to ensure the capability developed by the DNO Networks Capacity Allocation Platform is usable for the TSO and that any investment will provide benefits.

Q5) As stated in the call for evidence SONI agreed that the current static process is not providing an efficient solution for the TSO, the DSU or the end customer. The introduction of dynamic instruction sets has the potential to enable the generator to provide energy and/or system services to the system for more periods that then current process allows.

The benefit of providing these instruction sets in real time should be carefully considered, as timelines will need to be aligned with the wholesale market design and timeframes, to avoid unintended adverse consequences.

For example, if a generator bids into a T-4 capacity auction on the assumption that the DSO will facilitate access at peak times, but that doesn't materialise, there will be a financial impact on the generator and also a potential supply issue.

Any dynamic instruction sets will only facilitate customer benefits if the information is available sufficiently far ahead of energy market timeframes, particularly the ex-ante and balancing market gate closures.

The quality of information on a real time basis provided to SONI, and what service providers have provided capacity, will also play an important role in the efficient running of the system.

The TSO looks forward to working with NIE Networks on this to ensure the capability developed by the DNO is usable for the TSO, and that any investment will provide benefits to all NI consumers.

Q6) It is difficult to ascertain from the level of detail in the consultation paper specifically which PoA arrangement should be used in the Network Capacity Allocation Platform. Given the potential impact to customer costs, SONI feel that the PoA should be developed in more detail in an open and transparent manner.

In general SONI supports the most economical solution, however using the tariff structure for service provision under DS3 as an example, it may not be possible to choose providers on that basis given they will all be paid the tariff.

SONI would need to be confident in any proposed solution before the system could be scheduled using the NIE Networks Network Capacity Allocation Platform.

Q7) This would have to be co-ordinated with SONI to determine the overall optimum investment and to ensure it is designed in conjunction with network reinforcements on the transmission system.

The need for steady stare reactive power has decreased due to the demand power factors at bulk supply points rising closer to unity. This has reduced the need for reactive power on the system. This has been driven by the

[3] https://www.uregni.gov.uk/sites/uregni/files/media-files/UR_IU_Regulatory_Authorities_Agreement_on_amended_CCM.pdf

progressive ongoing changes and modernisation to customer equipment. Good examples of this are they widespread introduction of low energy lighting and invertor technology at industrial sites.

Engagement with SONI would be required to agree how voltage issues in the future are to be managed and to identify the locations where nodal controllers could be utilised and be part of the DS3 system services arrangements (which is a requirement for this capability to proliferate).

As the nodal controller will impact TSO operation, SONI would also need to agree the proposed design as well as the control arrangements and operating principles.

Finally SONI are looking forward to working with NIEN to propose an agreed funding mechanism for the procurement of nodal controllers and similar distribution located system service enabling operator owned technology to the Utility Regulator going forward. We see this as a key barrier to enabling the wide spread deployment of nodal controllers as originally envisaged through the DS3 programme.

Q8) Given the high-level of information within the consultation paper it is difficult to provide a definitive recommendation on which service provider option should be adopted by NIE Networks.

In general SONI are supportive of innovative mechanisms and using existing infrastructure to support the system for any system events. SONI would see benefit in the DSO being able to contribute to this.

However, as suggested in SONI's call for evidence response, there is a risk of a perception of conflicts of interest between the roles of market facilitator and service provider. The SEM Committee has already opined on this and SONI would expect similar measures to be required of NIE Networks.

SONI would like clarity on how these actions can be taken by the DNO and not have a knock on impact on existing services providers connected to the distribution network in Northern Ireland.

Q9) In making network investment decisions NIE Networks should ensure that these are fully assessed on a cost benefit analysis of the whole system. In identifying potential network solutions NIE Networks should be cognisant of the cumulative impact of a given technology on the transmission system and the boundaries of their distribution licence.

Any DSO Smart Solutions outlined in Figure 21 deployed by the DSO would need to ensure that the TSP has adequate visibility and assurances that the TSO's requirement to operate the system would not be negatively impacted. For example the DSO's operation of Facilitation of Energy Storage Services (FESS) particularly during periods of discharging, could impact the power flow on the system and possible infringe on the TSO's licenced responsibility to control power flows.

SONI would also encourage NIE Networks to be mindful of alignment with current SEM and EU principles on allocation of capacity when developing the DSO Smart Solutions as well as any impact on future connections and calculation of FAQ.

Q10) SONI believes this question relates to the ongoing Connection Policy discussions. Given the system wide implications of the suggestions it is more appropriate to address these issues in that joint forum. We also have concerns about the quality and timeliness of information of uncontrollable generation connected on a fit and inform basis.

SONI has further concerns that creating a "Fast Track" G59 process will compromise the quality of network analysis carried out. In particular SONI would have concerns on this "fast track" approach on the quality of fault level information available to SONI.

With these wider and potentially significant impacts in mind, SONI is of the view that connections initiatives should be undertaken jointly to ensure that coordinated solutions are delivered that are in the best interests of NI consumers.

Q11) As above, SONI believes this question relates to the ongoing Connection Policy discussions. Given the system wide implications of the suggestions it is more appropriate to address these issues in that joint forum. SONI has concerns that further connection of generation on a fit and inform basis may adversely impact on the quality of the information provided to SONI in regard to zero export generation connected to the system.

It is essential that this information is accurate as SONI must understand the cumulative impact of this uncontrollable generation on demand patterns to ensure the safe and efficient operation of the transmission system.

NIE Networks should also be cognisant of the impact that their proposals have on the wholesale market and the potential for cost impacts there.

Consideration should also be given to how NIE Networks intent to charge for these connections, for example connection/operation & maintenance/network charges etc.

With these wider and potentially significant impacts in mind, SONI is of the view that connections initiatives should be undertaken jointly to ensure that coordinated solutions are delivered that are in the best interests of NI consumers.

It should be noted that increased levels of embedded generation would require a new approach to facilitate two way data transfer for SCADA services between NIEN and SONI. Current and future levels of embedded generation which depend on ICCP to provide network visibility and control to SONI present a risk to system security due to exiting support arrangements currently in place within NIEN.

Q12) SONI would welcome an opportunity to discuss the interaction between the signals sent by distribution and transmission tariffs and would therefore like to be included on the consultation circulation list. We also would consider it beneficial to include some of these measures in more formal TIA processes between our two companies.

Q13) The proposed time-line is very high-level so it is difficult to comment in a meaningful way in terms of adequacy and deliver times.

As a general view the time lines seem very challenging considering the amount of work that will be required. From a TSO perspective we will also experience extensive changes over the same time period from a market perspective with additional system services and providers so careful planning between DSO and TSO would be required. SONI would need to be involved in any NIE proposals to ensure we can accommodate any proposals which would impact on or involve changes to TSO systems.

SONI would also ask for clarity on the decision to choose the date of 2025 for charging reform. SONI would expect this to be developed closer to 2020 to allow time for customers to respond to signals.

SONI would also like to stress the importance of joined thinking and regular engagement with the TSO and industry given the changes to the system as a whole and future projects being led by the TSO SysFlex, DS3 etc.

8. SCOTTISH POWER RENEWABLES

Q1) The bulk of domestic consumer bills, whether passive or active, comprise wholesale electricity costs, and wind energy acts to depress these. We therefore believe that an evolution which facilitates higher levels renewables should be prioritised for the benefit of all consumers.

Q2) We agree that there are currently no obvious policy or regulatory inhibitors that prevent the commencement of the evolution. The greater inhibiting factor is that current policy is not fit for purpose, or that the necessary policy updates will not be implemented in a timely enough manner to keep up with the energy system transition.

The believe that the growing complexity of network operations, increase of DER and new technologies such as smart meters prompting the additional flexibility needed and the increase in prosumers, among other factors, may lead to increasing digitalisation which requires capabilities and a new mindset that traditional network operators may not be able to provide, and which current policy does not cater for.

Q3) We agree with the identified policy inhibitors, but there are other issues that we believe need to be addressed.

SPR believes that a fundamental review of the policy and legislation underpinning energy in Northern Ireland is required. New technologies, new markets, increased interconnection, the growth in flexible demand and an increasing number of disruptors will all mean that the energy system in the next decade will be significantly different to the current one. NIAUE and policy-makers must prepare for these changes by ensuring that policy and regulation facilitates and promotes decarbonisation, flexibility, coordination, innovation and cost-effective modernisation.

For example, existing legislation only facilitates competition in the supply and generation of electricity, which effectively restricts competition in the distribution of electricity. It allows exemptions for connections based on capacity, which is now impacting upon the connection of low-carbon generation. Existing legislation prevents timely responses to necessary policy changes such as rebate policy and we understand that it is hampering EV charge-point delivery. There are likely to be other issues that cannot be progressed under existing legislation.

Should the proposed model be adopted we urge that the interface between SONI/TSO and NIEN/DSO will require a streamlined and barrier-free communication mechanism. Our members have experienced delays and mis-communication in cases of generator connections involving both SONI and NIE. If the interface between SONI and NIE is not able to function effectively for a connection then it does not give confidence that more complex interactions will run smoothly. We recommend a comprehensive and clear Transmission Interface Agreement, developed with appropriate consultation and deploying rapid response mechanisms for identifying and rectifying any problems as they may arise. More policy is also needed in data management beyond the increased roll-out of metering.

Regulation needs to make sure that relevant codes are set for purpose for hybridisation of sites including new technologies such as storage in order to allow new flexibility to come online by optimising existing network infrastructure.

We recommend a review of the duties and obligations of public bodies, including strengthening requirements for sustainability, flexibility reviewing NIAUR's powers to enable more flexible policy-making.

Q4) No response.

Q5) No response.

Q6) No response.

Q7) SPR supports the work that NIE/SONI have done to date in progressing the role out of the nodal controller in NI. The roll out of the nodal controller is essential and while we understand that it needs to be done on a phased basis we urge that the nodal controller is rolled out as quickly as possible to allow distribution connected generators to contribute to system services as quickly as possible. We suggest that if an approach similar to that already trialled by ESBN is adopted then a further year trial is not required by NIE/SONI. This would serve to speed up the roll-out of the nodal controller further.

We would appreciate further information on the following:

- Has consideration been made as to how the services will be procured from other flexible distributed energy resources (DER) and what basis?
- Will volume requirements per node be published on a regular basis to provide market signals to prospective providers?
- When delivering the service, how will the service be quantified, by measuring the reactive power at the DER connection point or the reactive power delivered at the T&D boundary node? Remote DER (from the T&D boundary) will be significantly less effective in delivering reactive power to the T&D boundary: will there be any prioritisation criteria and what will that be?

Currently there seems to be a connection design policy to oversize connection assets to enable this service to be delivered by projects connected via long lines (e.g. voltage rise criteria for long connections) which is network inefficient and provided at high cost to connectee. We request that this policy be reviewed and that design takes into account the fact that service requirement of full export or reactive power at times of high voltage is not a valid study assumption. The ESB Networks policy that specifies reactive power capability requirement according to type of connection is a good example of an appropriate approach.

Q8) We believe there is no straight answer to this question as it would depend on the network configuration and operation in areas across NIE network. We consider that NIE should be proactive in undertaking DSO approaches and could start by targeting specific locations to open up flexibility platforms. This would allow NIE to learn by doing and fully understand implications with customers and other stakeholders like the SO and TO.

For specific areas, the energy mix and the network configuration could allow a DSO as main service provider. For others, the best approach could be to have a passive role and to let the SO take the lead on driving the services. We also believe that NIE should consider third party platforms as an option to enhance the DSO role. We understand that putting in place the systems and infrastructure for running a DSO approach could be resource intensive and costly when there is no previous experience and therefore creating an impact on customers.

Q9) SPR would support the approach shown in Figure 21 as it does consider multiple options to facilitating distribution connections. It is important that NIE actively engages applicants/developers through the process of deciding on the options to be considered for their project and ultimately the option to be provided for their connection and provides transparency on the cost benefit assessment when deciding for a particular solution.

Q10) No response.

Q11) We believe that a number of options should be investigated to include individual and hybrid options of:

- Firm Access Quantities
- Active Network Management
- Soft intertrip arrangements

All of the above should consider security options whereby connectees can opt to only be connected in an intact system.

In terms of information, the transparency must span in order to allow a developer to sufficiently assess, with a sensible amount of assumption, their investment case. Information should include estimates such as:

- % availability per annum/season
- Forecast of maintenance that could affect the connection
- History of planned/unplanned outages
- Stack/queue, e.g. for ANM schemes, how others' capacity could affect a trigger to turn down or trip

In terms of length of time series, we believe it would be fair that NIE predict for as long as they have plans in place and visibility of potential best view connection proposals.

While we accept any information is only an estimate, we believe that NIE are in the best position to provide such information and it should not be deemed to be contractually binding.

Q12) Yes

Q13) We urge that this timeline be assessed against the likely target of 70% renewable electricity by 2030 and the expected growth of electrified heat and transport. Furthermore, we'll welcome more information about the metrics and deliverables related to the items showed within the timelines and how those are going to be tided up to specific renewable penetration targets.

9. THE CONSUMER COUNCIL

Introduction

The Consumer Council is a non-departmental public body (NDPB) established through the General Consumer Council (NI) Order 1984. Our principal statutory duty is to promote and safeguard the interests of consumers in Northern Ireland.

The Consumer Council has specific duties in relation to energy, postal services, transport, and water and sewerage. These include considering consumer complaints and enquiries, carrying out research, and educating and informing consumers.

We welcome the opportunity to respond to this consultation. The Consumer Council recognises the effort and evidence that Northern Ireland Electricity Networks (NIEN) has put together to inform its Greater Access project and we welcome the level of engagement with us and other interested parties.

Background

The Consumer Council responded to NIEN's Call for Evidence on the Greater Access Project in October 2018[4]. In our response we acknowledged the importance of starting to consider how Northern Ireland will transition to a new energy model that can deliver a carbon free, lower cost energy sector that meets the needs and demand of consumers. We recognised also the important role that NIEN plays in the transition of the Northern Ireland energy sector and we welcomed the Greater Access Project.

However, the reality is that the vast majority of domestic and small business electricity consumers remain passive with regard to their energy supply.

Furthermore, the higher level of fuel poverty and low income levels in Northern Ireland relative to GB indicate that there is a vulnerable consumer base that will require protection from any unintended consequences from this energy transition. Those consumers who are unwilling or are unable to be more active with regard to their energy supply should not be penalised for being so.

We have answered some of the questions in the consultation paper in the areas of greater potential impact to consumers. Our responses should be read in conjunction with our response to the NIE Networks Call for Evidence, where we provided high level commentary on some of the technical elements of NIE Networks' proposals.

Q1) The Consumer Council recognises the need and value of identifying the needs of passive consumers in the energy transition. The reality is that only those who have the means and inclination to become prosumers may benefit fully from the new energy models that are evolving. However, becoming a prosumer presents a number of significant challenges and barriers. These include the investment required to purchase small renewable generation and energy storage that would be required, and the knowledge, time and confidence required to operate in complex markets.

The evidence about consumers' engagement in the energy and other markets shows the following:

- Power NI retains 56.8% of domestic market share despite facing nearly ten years of competition[5];
- 40% of Northern Ireland consumers have never switched electricity supplier[6];

[4] https://www.consumercouncil.org.uk/policy-research/publications/submission-nie-networks-greater-access-distribution-network-ni-call

[5] Source: UR Quarterly Transparency Report Q4 2018

- Phoenix Natural Gas began building the gas network in the Greater Belfast area 23 years ago and yet one in three consumers is yet to connect in areas where gas is available[7];

- Firmus Energy started the Ten Towns network in 2006 and two thirds of households where gas is available are yet to connect; and

- This lack of engagement is observed also in non-energy markets[8].

The evidence shows that a large proportion of consumers in Northern Ireland are likely to be passengers rather than active participants in the new electricity market model. This indicates that the DNO to DSO project and other "energy transition" initiatives will be at the beginning industry rather than consumer led.

We ask NIEN to consider the following high level measures to help ensure consumers are protected and represented effectively during the DSO and energy transition:

- Cost protection

    - "Passive consumers" should not have to pay more for their electricity under the new model than they do now resulting from investment required to facilitate the DSO and energy transition; and

    - Domestic consumers and small businesses should not have to carry the bulk of the cost of the DUoS tariff as a result of the DSO or energy transition. A review of the DUoS tariff structure that has the interest of consumers at the centre of any decision is essential.

- Adequate regulatory oversight – it is essential that UR scrutinises proposals such as the DNO to DSO transition. We believe strongly that the consumer interest must be at the heart of any such decisions;

- Adopting a phased approach in the DSO and energy transition that maximises the value of investments and future proofs any technology required.

- Effective consumer representation – The Consumer Council recognises the inclusive nature of NIE Networks' approach to developing this project and we agree that the Consumer Engagement Advisory Panel (CEAP) is good vehicle to ensure the engagement continues during any delivery phase. However, we believe that the consumer engagement should not be limited to the CEAP group and that a wider strategy with specific roles for the Department for the Economy (DfE) and the Utility Regulator (UR) should be put in place. This DSO project and the energy transition are complex projects that will have a profound and long lasting impact on consumers and Northern Ireland as a whole. Therefore it is essential that the interest of consumers is at the heart of these projects.]

Q2) & Q3) The Consumer Council acknowledges that NIEN proposes a "least regret" option in terms of the DSO models it should adopt. While we acknowledge the merits of NIEN's proposal, The Consumer Council remains of the opinion that DfE and UR should be responsible for any decision to introduce a DSO in the Northern Ireland electricity market.

We believe that any such decision must be based on the following:

- Ensuring that any decision is compliant with existing legislation;

- Putting the interests of consumers at the heart of the DSO and energy transition and ensuring they are protected effectively;

[6] Source: UR Northern Ireland Domestic Consumer Insight Tracker 2018/19: Findings
[7] Source: PNG presentation to The Consumer Council on 13 May 2019 based on figures at 31 December 2016
[8] Source: UR Northern Ireland Domestic Consumer Insight Tracker 2018/29: Findings

- Aligning it with the aims and objectives of DfE energy strategy post 2020;
- Assessing best practice and TSO/DSO models elsewhere; and
- Carrying out a comparative cost benefit analysis of joint and separate TSO and DSO models – would it be more beneficial for Northern Ireland to have a single TSO and DSO or two companies undertaking the duties separately?

The question about potential policy inhibitors in the medium term highlights in The Consumer Council's opinion, the importance of getting right from the outset the decision and timing about the DSO model that is best for Northern Ireland. DfE and UR need to consider carefully and adequately the proposals, and the extensive and complex evidence.

NIEN, DfE and UR must ensure that the consumer voice informs and helps deliver a new electricity distribution system that meets the needs of all consumers, and particularly those who are vulnerable. The Consumer Council believes that the Consumer Principles framework can be an effective tool to help inform the transition. We also consider that it is important that we use plain language that helps non industry experts understand the choices that they face and the impact of what is being proposed.

Q4) No response.

Q5) No response.

Q6) No response.

Q7) No response.

Q8) No response.

Q9) The Consumer Council recognises that it is an important function of the electricity distribution system to accommodate future demand and growth. We agree that it is essential that the safety, security and quality of the supply is not compromised. However, we believe that NIEN should ensure also that passive and vulnerable consumers do not disproportionally bear the cost of the future distribution network. Also, investment decisions should be subject to regulatory scrutiny to so that consumers overall do not pay more for their future electricity needs than they do now in real terms.

Data provision

From a consumer perspective, at least in the short and medium term, the evidence about lack of engagement in the energy and other markets suggests that consumers may not make use of an increased access to network data. However, we recognise that the area of data is to become ever more important as we embark on the energy transition, and therefore it merits further discussion and consultation at a future date.

We agree with the point made in page 62 of the consultation document that "it is necessary to understand what data and where data is required". It is also important to understand who requires the data as the needs of domestic consumers and small businesses could be radically different to those of large users or generators. A concern is that making more data available will require investment – for consumers it could be smart meters – and those investment decisions may result in higher costs for consumers. Therefore any future additional data requirement ought to be considered carefully to ensure they deliver quantifiable benefits for consumers and meet their needs.

Charging

The Consumer Council shares NIEN's concern that under a volume based DUoS tariff, passive consumers may bear a higher proportion of the distribution network costs.

We welcome NIEN's proposal to undertake a review of the DUoS charging methodology. This is an issue of critical importance for consumers, therefore we ask to engage with NIEN and UR at the earliest possible opportunity to help inform the proposals.

Q10) No response.

Q11) No response.

Q12) Yes

Q13) No response.

Conclusion

The Consumer Council welcomes NIE Networks' Greater Access project in the context of a much needed debate, and progress in defining an energy transition in Northern Ireland that delivers for present and future consumers. We look forward to continuing our engagement with NIE Networks, UR, DfE and other parties as part of this and other projects.

10. ULSTER FARMERS UNION

The Ulster Farmers' Union (UFU) welcomes the opportunity to contribute to this Consultation.

Representing 11,500 farmers and landowners in Northern Ireland, our interest in the Distribution network is four-fold. Firstly, 21,000km of 11kV overhead lines crosses rural NI and consequently the land, which we own/access is integral to our day-to-day work. Secondly, our members businesses rely upon the 11kV/33kV network for servicing the electricity and power needs of their farms, as well as when connecting new-build farm buildings to the grid. Thirdly, many of our members have connected small-scale renewable generators to the grid, using the electricity they generate, making them the definition of what is referred to as "prosumer" in the consultation. Finally, and possibly most crucially of all, the land based sector still have so much to offer in terms of renewable energy provision and this Consultation represents a recognition by NIE Networks of the changing landscape in the energy market.

Q1) Whilst the UFU are reassured that this evolution will be covered within the scope of CEAP, we continue to have reservations about the risk to cyber security. This is by no way directed to nor a slur on NIE Networks, rather a reflection of the volatile world we live in today. Despite this we are assured that NIE Networks identify the threat and are carrying out the necessary preventative work. The proposed evolution will need to be carried out in a gradual stepped process and we are assured by the comment in the consultation that NIE Networks have stated that this not preclude the transition to more radical models, which the UFU have long advocated.

Q2) The URU agree with the comment in the Consultation that the development of energy and review of Utility Regulator powers are outside the remit of NIE Networks. Yet, at the time of writing this Consultation response, we are nearly 30 months without a functioning government and the longer this goes on, the longer the potential knock-on impact on wider business issues.

We feel compelled to comment on the implications and fall out from the Renewable Heat Incentive (RHI). This has created an element of mistrust on the ground and moves will need to rebuild relations if we are to progress with a new energy policy. Furthermore, we need to consider the furthering of good relations between landowners and NIE Networks. There is no getting away from the fact that in the rush to get small-scale renewable projects connected to the grid, relations were strained at time when our members experienced difficulty with their grid connection applications. In fact, a large number of members ended up out of pocket and this remains a sore subject for those affected.

Q3) Please refer to comment above on lack of functioning devolved Government in Northern Ireland.

Q4) Yes. However, we would repeat the suggestion made in the Call for Evidence regarding SCADA.

Q5) Yes. It is crucial that the capability declared to the market equals the capability available in real time and this running sequence will go a long way to achieving this.

Q6) No opinion at this stage.

Q7) The phased approach is both logical and practical.

Q8) The UFU would be in favour of Option 1 – Maintaining the current process. The game changer is the benefits for active customers and the fact that there will be no conflict of interest as far as the DSO remaining a neutral market facilitator.

Q9) In the absence of a more radical solution, the UFU are supportive of smart incremental reinforcement in the short-term. The UFU have long advocated solutions such as DSR and energy storage.

Q10) Yes.

Q11) The UFU are in favour of Active Network Management. Regarding the level of detail required, in terms of constraint and connection offer lifetime, we are unable to provide an answer at this stage but would welcome the opportunity to do so at a later stage.

Q12) Yes.

Q13) Yes.