Energy Local

Energy Local's Response to Call for Evidence: Smart, Flexible Energy System

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Our response is based on our experience of developing a new business model for the Electricity Market and the field trials we have carried out to date. As a result of this and previous work, we have several years of experience of working with households and communities. We understand their response to time of Use Tariffs and local balancing. In engaging with them, we have demonstrated the other motivations for them, sometimes stronger than price, the information they need and level of complexity of providing flexibility that is practical for households. The following is summary in response to the call for evidence. Further details can be provided.

About Energy Local

Energy Local's aim is to help thousands of communities to get more value from their local renewable generation by using it locally. By sharing local generation we can

- reduce the cost of electricity,
- tackle fuel poverty,
- give local renewables a fair price for their power, increasing their viability and attractiveness for investors.
- keep the financial benefit local to build stronger, fairer, more resilient communities.

Energy Local keeps within the existing regulatory framework. By forming an Energy Local 'Club' (legally a Cooperative), domestic customers are rewarded for matching use to local generation (local balancing) or using power at cheaper times of day (via a 4 band Time of Use Tariff). Local generation receives a higher price for their export if it is used locally with the club when it is generated and customers pay a lower price. The distribution network benefits from local balancing. Suppliers benefit from price signals to smooth the load curve and stay in balance. Grouping customers locally gives a practical means for engagement, local balancing and national balancing as well as peer to peer learning.

Storage

Energy Local's primary aim is to encourage demand side management rather than the use of storage in the first instance, as the capital cost and losses are lower. However, Energy Local believes that there is a role for storage within the electricity sector.

Questions 2-5

In providing a business model and 'bridge' between the needs of the network operators, suppliers and generators, Energy Local can provide a mean for storage to be used most effectively. Changes in regulation should therefore aim to encourage:

- Correct point of connection and size of storage to maximise its use for local balancing of generation and demand, management of reactive power and voltage for the network. It is therefore unlikely to be connected at a domestic scale behind the meter as this makes control for these different services much harder. However, it is likely to be at LV (at larger scale than domestic, remote on a feeder or at a distribution substation) or 11kV to ensure it contributes to local balancing. At the distribution substation or 11kV, more than one feeder can be controlled. Much of the domestic storage installed to date, to store produced domestic solar, cannot be used for network management and therefore it is a partially wasted investment, this is a market and regulatory failure.
- Use of storage for multiple services for the network and local balancing. At present the regulation does not encourage multiple use of storage for network management and to operate in the electricity market. This requires the ability of network operators to schedule storage for network management. At present storage can only be used to store local solar for one building or operate in the capacity market (however, Energy

Local provides a means to share storage within a community). Only DNO owned storage is being used for network management at present.

Aggregators and other market participants

Questions 7-9

Working with participants for Energy Local trials, is it clear that for domestic and small commercial customers, the different parts of the market and services (before and after gate closure) are difficult to understand. They are also not in a position nor have the desire to engage with the complexity of multiple contracts with a range of different market participants. There is an issue of consumer protection but also a practical barrier. Furthermore, the size of load at any one domestic connection requires low cost technology for automatic control to be cost effective. Savings or income earned by each domestic connection is no more than a few pounds per year for any one service. And yet there is considerable value in aggregating the potential services that small consumers could provide to the energy system. Working with Energy local, De Montfort University are currently modelling the impact of multiple Energy Local projects across the country. Initial results show the load curve is smoothed and local balancing ensures the voltage envelope is narrowed. In the first 6 months of the CEGADS trial, 48 households matched roof top solar (~1kWp per household) such that during even in May only 10% of the power was not used locally, avoiding voltage rise problems.

De Montfort University Modelling

"Modelling has been conducted to investigate the effects of multiple Energy Local clubs operating with different numbers of participants, differing demographic constitution and different technology mixes. Results indicate that Energy Local can successfully deliver increased use of local energy alongside savings for users across a range of scenarios. In particular, the model shows that with the quantity of local renewable generation available during the day or predicted in the near future, a sizeable proportion of locally generated energy can be utilised within the community with small amounts of change to existing usage patterns. The model shows that the greatest quantitative effects are achieved when participants agree to automated control of appliances, but that effects are still substantial with manual reaction to information provided. The model indicates that to deliver ideal results, the price structure used in each club would be individually tailored to suit the usage patterns and technology ownership of participants within the club. However, it is recognised that in the real world such a per-club price model may be impractical, particularly from an energy supplier's point of view, so modelling has been conducted with a standard tariff model as per the ongoing InnovateUK cofounded project CEGADS and Bethesda trial. This demonstrates the feasibility of such a tariff.

The model framework implemented can be used to test a wide range of scenarios and this work is ongoing.

De Montfort University Modelling

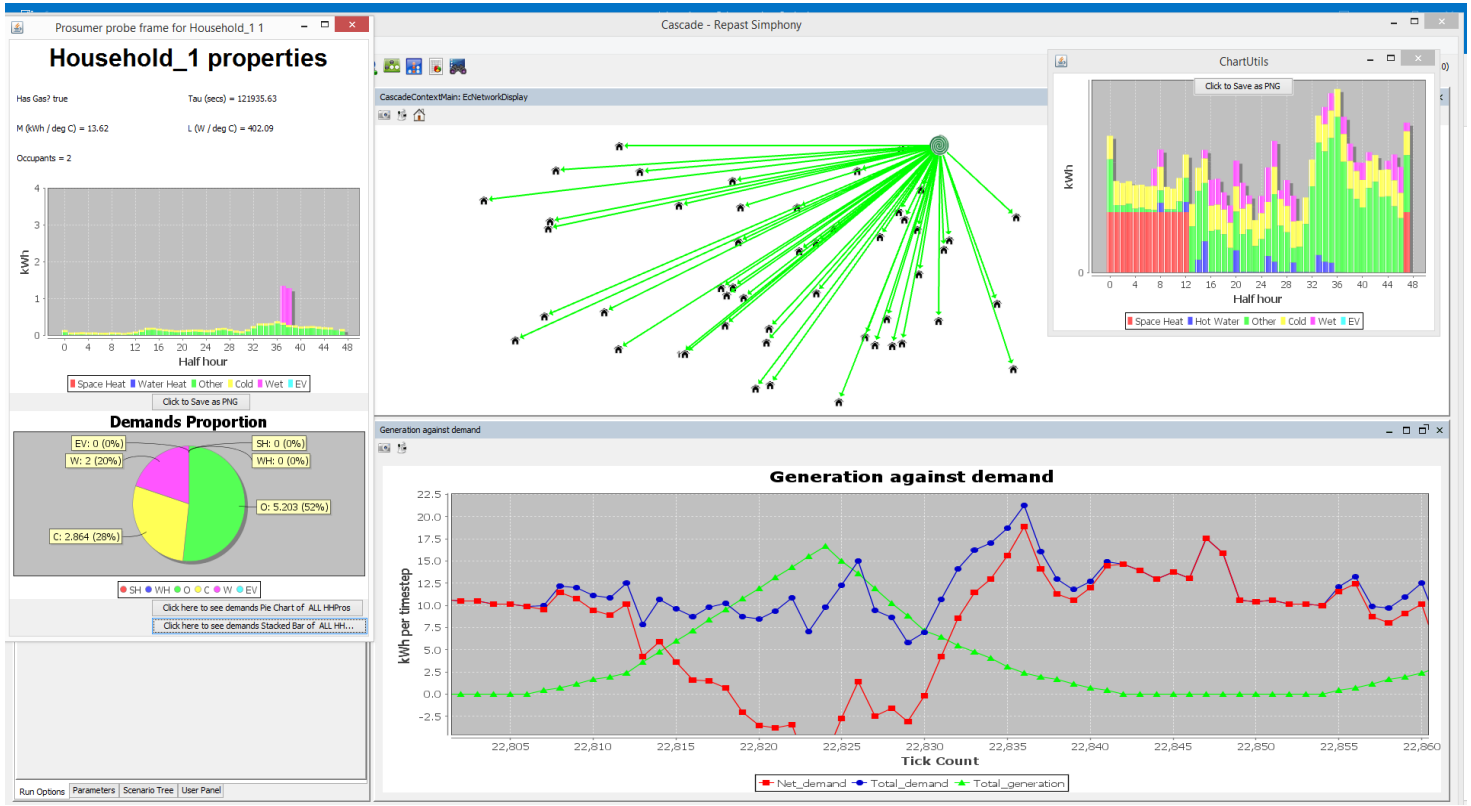

Figure shows:
Left panel – monitoring of a single household (yellow = cold, pink = wet appliances, green = other (lights / cooking etc.)
Centre top – the entire energy local club – all households economically connected to the club
Top right – the stacked demands of the entire club
Bottom right – the net demand and generation for the entire club. This is for a sunny day. See the peak in demand in middle of the day soaking up solar – this is demand being shifted as we wish. There is still a little spill onto the grid (-ve net demand), but the club is achieving the aim of soaking some local generation by shifting demand where possible

The Business model proposed by Energy Local is to group consumers into an Energy Local ' Club' (a cooperative). With Half hourly settlement, the Energy Local Club (ELC) can negotiate a price plan with a supplier including the ability to turn down loads and ancillary services and Time of Use tariffs or services for third parties such as a DNO. The individual households just view it as one contract and suppliers provide the normal consumer protection but it harnesses the potential of a group of consumers for their benefit and that of the systems. Form the DNO or suppliers point of view they only have to negotiate with one entity within a local area which is more practical that individual households.

Under the CEGADS trial co-funded by InnovateUK, we showed that there is a natural diversity in groups of customers in use and response to price signals. The number of customers involved and their natural diversity of use avoids voltage step changes or instability. CEGADS further smoothed the response by indicating the optimum time to use power via a probability signal that can take into account the needs of the local network, forecast of local generation and supplier's price signals. A slow feedback avoids erratic responses. Further work is required to understand how a probability signal can be relied upon to balance the system. However, this approach avoids the risk of instability and conflicting signals from aggregators and suppliers.

These results indicate that there are other business models than aggregators that harness the potential of consumers to offer balancing services that avoid the potential for instability and are simpler and more cost effective for small consumers. Adapting the Balancing and Settlement Code to easily facilitate a group consumers' demand and generator meters would be advantageous.

Approaches. We believe that Ofgem is best placed to make regulatory changes or changes to the Balancing and Settlement Code as too many BSC parties have interests in the status quo and cannot balance the needs of consumers and industry effectively. Third parties do not have the influence to enable code change. However, there is a need to trial new business models in a number of locations and scenarios to ensure regulation and changes to the BSC are the right ones.

System Value Pricing

Question 11

The enablers for system value pricing are advanced metering and half hourly settlement for domestic customers. Customers need to access to all their data so that they can share it with those they are contracting and within their

community. For value pricing to be practical for small customers, grouping domestic customers together is essential. This means that their behaviour and potential smoothing can be modelled effectively so that diversity is taken into account. Energy Local has shown that grouping customers together at a local level also enables local balancing whilst being able to respond to national price signals. This is a more efficient approach than the current market incentives that pay for post gate closure services; it is better to the manage the system to minimise the intervention required by the SO

Question 12.

At present Energy Local is focusing on the market before gate closure. The model allows:

- Local matching of generation and demand
- Response to Time of Use Tariffs.
- Peak lopping for supply from a national licensed supplier
- Forecasting of the output of many small scale generators
- Forecasting demand curves from data.
- Reduce constraints on generation via local balancing.

The market model avoids the problem of proving many small loads have been dispatched from direct signals or bidding platform. There is no reason why an Energy Local project could not contract after gate closure services, however more work it required to understand how before and after gate closure activities can be combined.

Question 13

The Business model proposed by Energy Local is to group consumers into an ELC. With Half hourly settlement for customers, the ELC can negotiate a price plan with a supplier including the ability to turn down loads, ancillary services and Time of Use Tariffs or services for third parties such as a DNO. The individual households just view it as one contract and suppliers provide standard consumer protection but harnesses the potential of a group of consumers for their benefit and that of the system.

Without the incentive of using local power and routes to engagement such as Energy Local, the response to Time of Use Tariffs is much smaller and not well maintained.

At present the metering arrangements used by Energy Local require the use of at least 1 class C meter, this can be cost prohibitive and should be changed.

To be able to maximise the benefit of HH metering, the communications need to be low cost such that real time or near real time readings can be provided for active network management and local balancing.

At present the line loss factor arrangements make it difficult to balance generation and demand connected at different voltage levels (i.e. 11kV and LV). This misses opportunities in remote areas where there is little LV network and should be altered.

Question 14

Work to date in CEGADS and in Bethesda North Wales trials show that clear information and help programming and scheduling domestic appliance is very important for households to make the most of Time of Use Tariffs. Two participants have an electric vehicle and the information and price signals have encouraged households to charge them at time of low costs or ample local generation. Energy Local is working with others to provide such home automation but without a market pull of a viable business model such as Energy Local, domestic appliance manufacturers are reluctant to develop remote control of their appliances or open their protocols. Energy local is thus having to develop the technology and the market at the same time. There is a need for regulation to provide a generic protocol for control of appliances in the home. This will enable cost effective development but also increase competition and protect consumers as they will not be locked into one manufacturer's system.

To ensure such local balancing business models can be harnessed to the full, there needs to be a streamlined mechanism to provide metering dispensations or changes to the BSC in future.

There is a need to investigate the best means to allow local balancing between connections at LV and 11kV under the same primary substation. Given local balancing will prevent much of the losses, a new line loss factor may be required.

Smart Tariffs

Question 15

At present the regulatory framework does not facilitate additional business models below a licensed supplier. In the past, licensed supply was all that was required as the electricity system was national, with one way power flows. It is important that the responsibilities of billing, credit, system balancing remain with licensed suppliers and drive efficiencies via scale where appropriate. However, there needs to be a means by which locally based organisations can

contract and interact with national organisations. There is a need to identify the roles that are suitable at a local level, the skills required, and how they can enhance the efficiency of the market and protect consumers (rather than increase bureaucracy and overheads). Many of the benefits are less tangible in terms of peer to peer learning and social inclusion. Others benefits to the local economy are by increasing jobs and skills. This framework should allow innovation to be trialled.

CEGADS trial showed that by shifting and matching local solar, in the first 6 months, in total, the 48 participants would have saved £389 from local balancing and £1659 from demand shifting (this include 6 electrically heated properties).

Question 18

As yet there are many costs to a supplier that are hard to identify e.g. the risk of imbalance, customer churn. In addition, it is difficult and expensive for a national supplier to understand the load characteristics and demand side management potential of thousands of small customers. Grouping customers locally enables characteristic to be understood at a more manageable scale to build new relationships. Furthermore, working at this scale should provide greater visibility of supplier costs and improves forecasting of load and generation at a useable scale.

Smart Distribution Tariffs

Question 19

DUoS charging itself is not a barrier, however the data and the means by which data is sent to DNOs and suppliers can be a barrier to innovation in other parts of the sector. Likewise, MPANs are used for identifying the energisation state of connections and notification of outages by a DNO whereas settlement use MPANs for identify use of power. These two uses can be conflict and should ideally the identifiers should be separated by using different codes or flags. A review of IT systems and the use of MPANs to streamline the process would enhance competition and innovation.

Question 20

There is a need or a mechanism to trial new means of DUoS charging to understand the benefits and customer response before large scale changes are made. At present there is no framework for this. Such trials should be evaluated in terms of:

- Is it fair in terms of all users paying proportionally for the use of the system.
- Does it encourage the right behaviour in customers it terms of demand shifting and optimise the use of the system
- Does it encourage a low carbon economy
- Does it unfairly harm vulnerable customers.

An 'end state' of the principles of the type of DUOS framework that is desirable should be agreed.

Energy Local trials will provide results to inform how a new framework can be constructed. Further projects will be able to provide further evidence and trial different frameworks with different demographics.

Key areas to trial are:

- Visibility of Time of Use Distribution Tariffs
- Different summer and winter Time of Use tariffs for areas with solar and high winter demand.
- Time of use capacity charging.
- Rewards for local balancing.

Results should allow incremental changes to achieve the desirable end state.

Question 21

The results of trials and incremental changes should be reviewed to test whether progress to the desired end state is being achieved. If this is not the case, the results should be used to inform a review of whether fundamental change is required.

Part of a fundamental review should include whether load reinforcement should be socialised as it is at present, or whether those with above average use should contribute (possible via options to buy different levels of capacity).

Smart Distribution Tariffs: Fundamental Change

Question 22

The majority of network costs are general maintenance. Even with advanced automation, fault finding and self-healing networks, this is likely to remain the case. These costs need to be shared fairly. All those who benefit from the

network availability should share in these costs even if those who use more capacity or export or import more volume should pay more.

Question 23

An advanced notice to customers that unless load is shifted or reduced, network upgrades will be required would be useful. If local customers change behaviour such that reinforcement is avoided a reward could be paid. At present DNOs are reluctant to use demand side management as they may still incur reinforcement if demand side management is not maintained. Rewarding customer after the correct response it achieved would avoid this dilemma. Rewards for different amounts of load reduction could be via a charge for capacity. These signals can be built into business models such as Energy Local

Question 24

Where fundamental change may take place, is in the context of a DNO moving towards becoming a DSO and wishing to pay for services for Active Network Management or Demand Side Management. The slow pace of the process for change with the CDCM could hamper such developments and new mechanisms to introduce such payments will be required. As noted described in response to questions 43-45, Active network Management and Demand Side Management should be carried out as locally as possible so that the DSO or SO actions do not conflict and payment for after gate-closure services are minimised.

Other Government Policies

Question 25

The sudden drop of in Feed in Tariffs have resulted in projects no longer being viable. With a few more years of Feed in Tariffs and a tapering of support, technologies could have reached a price point where they were self-sufficient. As a result of the cliff edge reduction in tariffs, much of the industry in the UK has been lost. This includes the development of industries around renewables (in demand side management, communications etc.). Furthermore, initial work for projects in feasibility studies, often funded by the tax payer, has been wasted as the projects are now no longer viable. Such sudden changes in policy (and sudden changes from focuses on MW to kW sized capacity and back again) has led to inefficient development of projects and higher costs as the process cannot be streamlined. Furthermore, the development of the distribution network is inefficient as a strategic plan is not possible as forecast

of connections switches back and forth from LV to 11kV. None of additional cost benefits the tax payer, customers or the economy.

There is a need to ensure that the true value of renewable generation is recognised by facilitating and rewarding local balancing such that renewables can become self-funding. Furthermore, there should be greater transparency of subsidies to fossil fuels in the form of tax breaks etc. These should be published on an annual basis to ensure a level playing field.

A System for the Consumer

Question 28

We agree with the four principles.

Question 29

We agree that all three options should be used to incentivise and provide a market for smart appliances. However, it is important that not only are appliances interoperable but that communications can be received easily from third parties from a range of local area network (LAN) communications – that is the use of Zigbee, Wifi, Z wave etc. to communicate in the home. LAN communication media should either be interoperable or one generic LAN communication media agreed for all appliances. This should be a requirement just as Energy Efficiency ratings are now mandatory.

Question 30

The lowest cost means to achieve demand shifting is to use existing appliances not add additional hardware such a storage (especially as it is more appropriate connected higher up the network - see response to storage questions). Most households have a range of appliances and no one load forms the majority of the demand. Therefore, a range of demand shifting techniques are required. As shown in Energy Local trials, households are prepared to shift the use of wet appliances. Automatic scheduling whereby the user can indicate the latest a cycle must the finished gives a user control whilst allowing demand shifting.

In future, being able to cycle cold appliance will be very useful, however this requires more development from the manufacturers to ensure temperatures are kept within safe limits.

The majority of domestic homes do not have cooling and mechanical ventilation. For those with air source heat pumps or storage heaters there is

potential to demand shift but this heating should not be fitted simply for this reason. As well as being expensive, diversity in energy supply for heating and power provides more energy security than relying on one energy medium and network (electricity) for all energy needs.

Question 32

It is important that users understand tariffs and how to programme appliances so they do not inadvertently incur higher costs. Community organisations are a good vehicle for support and peer to peer learning. Example quotes from a survey in CEGADS indicates how a household can be engaged as part of a community are given below. As a result of the project, they now are aware of their usage and of matching to local PV output.

> *Some surprises in my usage (e.g. ovens in my newish cooker use more than I expected and how much I use at night (charging electronics and stuff like router on standby), though I can't feel pleased with myself as my night-time percentage seems about average for the community. 2) In general the timing of my power use. 3) Comparing my usage with the community as a whole 4) Seeing the effect of sunny weather!'*
>
> '*Our own consumption figures and the ability to compare them with the community usage.'*

About two thirds of participants have discussed the CEGADS project with other people, spreading information further. Of these there seems to be a good mix between discussing within the project, and discussing with friends, family and colleagues outside the project. This has ranged from: '*Just general interest amongst friends'*; and discussions with those near and far: '*Next door neighbours interested and seemed keen to join project but did nothing about it! Two sets of friends in Swindon. One pair are quite "green" and very interested. The others are not and quickly glazed-over! Also a family in St Albans interested, particularly the 16 and 10 year olds'.*

Furthermore the responses showed how additional engagement alongside a display helps:

> *'I read the newsletters that come out, and they recommended doing the washing at times when the sun was out, and that fits in with day to day routines. So that's a handy tip, but obviously easier to do in summer than in winter*.'

There have been different experiences from the drop in sessions. Some participants reported learning, (others have not learnt anything new however):

'*Lighting. Scheduling of appliances where possible. Differing tariff prices. Domestic appliance consumption ratings*.';

'*LED bulb change was prompted by the meeting in the Barrington*';

'The drop-ins definitely helped me use the equipment more effectively'..

31 respondents from 48 participants reported shifting times of activities, to a greater or lesser degree. Some quotes:

'*We have shifted things into as late in the evening as possible... the best time is after 11 pm and I try to go to bed before that. So actually putting the DW or WM on at that time is sometimes quite difficult*.'

'to put it into practice, to look out the window and see if the sun's shining, and think 'actually I could leave the washing until tomorrow if its pouring down with rain. I would never do that before, but because of this trial happening, I've tried to get myself more conscious about it.'

'*yes using more during the day e.g. dishwasher and washing machine on delayed timer to take advantage of solar generated power'*

'*Putting dishwasher on when going to bed instead of straight after dinner'*

Although others struggle to shift

'*Not at all flexible, we have a routine. I should also add at this point that my wife and I are not fanatical conservationist but are happy to do our bit where possible*.';

'I could, washing and varying dishwasher a bit more, but current timings suit me. I'm a creature of habit!'.

Ultra Low Emission Vehicles

It is important that control of charging can be carried out by third parties and consumers are not locked into one system to control charging. Electric vehicle charging can then form a useful part of demand side management. When coupled with local balancing it can help support local community generation. This can help avoid the cost of costly network upgrades due to EV charging (a cost that is socialised) and embed EV charging into a local carbon electricity system.

The depreciation in value of an EV battery with each charging cycle means it is unlikely that there is value in using EV batteries to feed domestic demand.

However converting old EV batteries into stationary batteries and reusing the valuable battery management system could be a useful second life application for EV batteries that have reached the end of their useful life for transport.

Consumer Engagement

Question 39

For domestic customers to achieve the maximum from local balancing and time of use tariffs, engagement must start as soon as there is an opportunity to for Time of use tariffs and local balancing. Working through local organisations and peer to peer learning is the best route to engagement.

Consumer Protection and Cyber Security

Question 40

It is important the consumers understand tariffs, demand side management and use of data. Whilst the responsibility and risk of debts must still remain with the licensed supplier, local organisations can provide a useful conduit for peer to peer learning and support. Likewise many social landlords have an existing good relationship with tenants that can be harnessed. For example, via their 'energy wardens' or 'energy debt counsellors' staff. It is important that local community organisations are not compromised by being seen to 'sell' for a particular supplier. Their role should be to help their community select what is best for them and be informed. Groups must be able to choose to switch and not be locked into one supplier. A framework or code for what work and responsibilities suppliers may request communities to carry out or what types of work communities may decide to take on would help clarify this.

For meter readings, the security of communications for data collection should remain with the MOP for half-hourly settlement with advance meters. Rather than having one system, MOPs should demonstrate they comply with a set of standards.

The Roles of Different Parties in System and Network Operation

Question 43

We do not believe that Figure 1 identifies the full system requirements.

The figure does not distinguish between the needs of different parties and voltage levels. In particular:

- The network will need to adapt to where connections are required rather than send signals as to where it would be optimum to connect. The network dictating where connections are made according to available capacity is very much an old framework mentality and does not fit with renewable technology that is location specific.
- It does not indicate that there needs to be appropriate roles for different types of consumers and connections.
- It is focused on a transmission downwards approach to manage an active network rather than distributed load and generation upwards focus that will be the drivers of the future.
- The need for strategic planning and grouping of loads and generators for connections in an area is not clearly articulated.

Question 44

Evidence from CEGADS shows that within a local LV network around 90% of the solar power is used by the 48 households involved, thus this would mitigate against any voltage excursions and avoided reinforcement. Furthermore, one or a group of generators, can be connected and not experience any constraint as long as local balancing takes place. A simple trip system can be fitted rather than a complicated, costly active network management system. The financial incentive to balance locally will be sufficient to avoid constraint whilst a simple trip ensures the system is safe. This will save tens of thousands in connection costs.

Grouping of LV customers and local balancing will reduce export to the transmission network and provide reliable data on load curves, remote voltage measurement and reactive power measurements. With advance metering this can be provided in real time and with no additional cost in equipment. This is an example of where solutions can be provided at a LV level upwards rather than at the TSO/DSO interface.

By starting at the LV level and managing local balancing, voltage and reactive power at this level first and then grouping these together to manage the 11kV and 33kV level, active network management schemes will be co-ordinated rather than conflict. This is counter to traditionally management techniques, for example tap changes from the highest voltage first. However, for active network management that operates to avoid system constraints rather than manage them, it is more cost effective and co-ordinated to manage them as locally as possible. This is because this will entail the lowest cost equipment

(LV equipment is generally lower cost that for higher voltages) and minimal intervention as it is as local as possible.

Frequency response is generally due to an imbalance between load and generation, by encouraging as much local balancing at a local level, this minimise intervention at a national scale and should co-ordinate the DSOs, SO and TOs requirements. Any additional action from the SO and TOs should then complement local response. This local balancing will be very low cost as the incentive is in the local balancing tariff with no need for additional contracts from the SO and TOs. Minimal additional contracts are needed to dispatch load or generation by the SO as local balancing via a local market such as Energy Local incentivises the right behaviour with no additional cost. For example local balancing will match local demand to solar so that the SO does not need to pay to dispatch load on a sunny summer day.

Question 45

The roles outlined are appropriate but the DSO must be regulated so that all suitable parties can play a role in an active distribution system. There is a risk that a DSO can take an approach that favours large players or incumbents.

The next steps are appropriate, however, greater visibility must include technical detail. For example, existing 'heat maps' for connections do not provide information on the types of constraint so third parties cannot propose solutions. The information available from advanced meters is very important to increase efficient use of the system at LV. Openness must be wider than that between the TO, SO & DSO.

Too much focus is on the TO, SO and DSO. At a local level, strategic planning must include a strategic approach to allow groups of generation to connect as one connection application and take into account future load forecasts. Stronger links to local authority master planning should be made so that a strategic network planning can be carried out effectively and potential opportunities for demand response made. Therefore, there must be links to local authority planning portals and strategic plans to take changes of load into account. A risk based methodology should be developed to gauge the potential of future load materialising. This requires changes to regulation for DSOs in how they make connection offers and recoup costs but does not involve the SO or TO.

The onus is being placed on the DSO without suitable development of an electricity flexibility market or business models such as Energy Local (where the majority of the value for customers lies – DUOS is a small fraction of a electricity bill). This makes it much harder for a DSO to develop active

network management and does not encourage local balancing that (as noted above) is a low cost approach avoids the risk of conflicting actions from a DSO, SO, and TO.

Question 46

There will be the requirement for more interaction between the DSO, SO and TO, especially when power is exported from on GSP to another. However, by focusing on a bottom up approach and building on local balancing, the additional interaction will be minimised. As outlined earlier in this response, by grouping local generation and demand and encouraging local balancing, small consumers have a practical means to participate with a simple framework. This is much more robust, flexible and cost effective than a bidding platform. To operate efficiently in this manner, 'cells' can balance within themselves and a DSO can monitor power flows between them and between voltage levels. Simpler models that minimise the communications required should therefore be considered. Minimising communications reduces the risk of the system failing and makes organisational structures simpler. Cells can maintain a reasonable balance within themselves even if there is failure elsewhere on the system thus reducing the potential for cascade failure. The potential for local balancing is starting to be demonstrated by Energy Local trials in Bethesda.

Innovation

Cross industry innovation must be much broader than described, it must include distribution, supply and generation. At present NIA and NIC focus on benefits to the distribution system and therefore prevents DNOs facilitating trials that primarily benefits supply.

The focus on storage and flexibility platforms is premature given that there may be much more costs effective solutions as outlined above. Given the depreciation of the battery is not cost effective, vehicle to grid should not be a focus for innovation.