

National Energy Action (NEA) response to Ofgem's RIIO 2 Framework Consultation



Action for Warm Homes

About NEA

NEA¹ work across England, Wales and Northern Ireland to ensure that everyone in the UK² can afford to live in a warm, dry home. To achieve this we aim to improve access to energy and debt advice, provide training, support energy efficiency policies, local projects and co-ordinate other related services which can help change lives. Our subsidy Warm Zones is a not-for-profit Community Interest Company that also aims to work in partnership in various locations across the country to deliver integrated packages of energy efficiency measures, benefits and energy advice³. NEA also provide the secretariat for the All-Party Parliamentary Fuel Poverty & Energy Efficiency Group to raise awareness of the problem of fuel poverty and the policies needed to eradicate it⁴.

Background to this response

NEA works with partners from local and national government, Ofgem, industry and the third sector to deliver practical solutions to improve the quality of life for those living in cold homes. In 2012, NEA developed a scoping study with Ofgem to explore how well placed network companies are to deliver social action cost-effectively and support the alleviation of fuel poverty. Throughout ED1 and GD1, NEA has worked with Ofgem and the network companies to embed many of the recommendations which, despite well-defined gaps in national provision⁵, attempted to exploit the potential for linkages across the whole energy sector and more generally cultivate deliverable propositions for vulnerable households, especially for low income households off the gas network. Subsequently, some of the main drivers for NEA's on-going collaborations and recent work with the networks include:

- ❖ Ofgem requiring networks and energy suppliers to enhance their work on the Priority Services Register (PSR)
- ❖ Requiring energy suppliers and Distribution Network Operators (DNOs) to be proactive in identifying 'need' and act on the stakeholder and collaborative incentives to trial new approaches which have a positive social impact at the same time as proving alternatives to conventional network reinforcement
- ❖ Ensuring exemplar network innovation projects are developed and disseminated fully and encouraging network companies to ensure fuel poor and vulnerable households directly benefit from these innovation competitions and allowances
- ❖ Encouraging the networks to deliver non-network solutions (either themselves and by partnering with others)
- ❖ Requiring Gas Distribution Networks (GDNs) to exceed the previous Fuel Poor Network Extension Scheme (FPNES) targets and supporting this activity on the ground
- ❖ Ensuring GDNs provide more consistent advice and support for vulnerable households when they have to disconnect gas supply at properties when the boiler is deemed to be unsafe
- ❖ Undertaking research and practical projects to raise awareness of the risks of Carbon Monoxide (CO) poisoning and acting on the key links between this and the risk of being in fuel poverty

As well as directly supporting the delivery of ED1 and GD1, NEA has also ensured network companies are playing a key part in the delivery of the UK Government's Fuel Poverty Strategy. Alongside supporting the industries' efforts to develop new interactive mapping solutions for off gas grid homes⁶, NEA undertook a review last year of progress toward meeting the 2021 gas connection targets. The report "In from the Cold"⁷ underlined the value of First Time Central Heating (FTCH) as a key measure to address fuel poverty⁸. The report also found that at the halfway point, slower progress across England had been made compared to the other GB nations in the delivery of FPNES targets.⁹ The constrained funding landscape for in-house measures was identified as a primary reason for this slower progress. This initially prompted the UK Government's £25m Central Heating Fund and more recently the £150 million National Grid Warm Homes Fund and better incentives for FTCH within the new phase of ECO from September 2018. NEA has also championed the need for revisions to the Digital Economy Act to allow local authorities, public sector health bodies and energy network companies to undertake direct data matching process with the Department for Work and Pensions (DWP), independent of licensed gas and electricity suppliers¹⁰. Finally, NEA is now in the process of engaging with both the networks, Ofgem and the UK Government on the future of RIIO 2. We hope the final RIIO 2 framework will build on and strengthen this positive partnership work.

Summary of this response

The overall efficiency and cost effectiveness of both the gas and electricity networks plays a key role in either mitigating or exacerbating fuel poverty levels across Great Britain¹¹. As noted within the consultation, network companies will be permitted to recover revenues of circa £96bn to provide safe, secure, reliable, low carbon and smarter network services¹². This investment is clearly necessary but will be recovered exclusively through energy bills, which is known to be an inherently regressive practice¹³. Whilst the consultation focuses on reducing the quantum of costs (via addressing financing costs and limiting company returns etc), NEA is concerned that such little consideration has been given for how networks can directly support those in or at extreme risk of fuel poverty, through-out the RIIO 2 period. Whilst it is accepted that this is because the document does not intended to set out the precise sectorial, network specific outputs and incentives; the absence of any details in this area risks undermining the valuable work that has been undertaken within ED1 and GD1 for those households with the lowest disposable incomes¹⁴. We therefore focus the majority of this response on how Ofgem's RIIO 2 decision document must set out further detail on how it intends to strengthen the positive partnership work which is cost-effectively contributing to the direct alleviation of fuel poverty.

Whilst noting these concerns above, NEA does however welcome Ofgem recognising the key opportunity for networks to be more directly engaged in facilitating and funding improvements in energy efficiency. Through-out the current price controls, NEA has worked hard to cultivate new models that identify energy efficiency improvements in contrast to conventional network reinforcement (or defer it). If fully captured this approach can achieve collective goals; reduce the cost consumers will pay with RIIO 2, help end fuel poverty, support a successful industrial strategy¹⁵, support small business growth in every region, help to achieve carbon emissions reductions¹⁶, improving local air quality¹⁷, reduce health & social care costs¹⁸ whilst providing real benefits to households who are struggling financially. As NEA notes below, whilst the early adoption of these alternative investment strategies has been encouraging, NEA states that if Ofgem are to dramatically enhance the role of networks delivering energy efficiency, further incentives and models need to be adopted which can complement the future role of both DNO/Distribution Systems Operators (DSOs) and GDN. We argue the former could be encouraged or incentivised by reforming current share factors, the current losses incentive, and the latter, via a reform to the current outputs of the FPNES.

NEA also highlights the wider need for networks to respond to the enhanced needs of people in vulnerable situations, this is particularly acute in the case of GDNs. NEA believes GDNs should be required to identify and provide direct support to vulnerable households when they have to disconnect gas supply at properties as the boiler is deemed to be unsafe. Our current research to date shows this removes one hazard with another (living with an unsafe gas appliance to having no access to essential heating, hot water etc). If this situation is not quickly resolved this can prompt multiple issues, particularly for more vulnerable residents unable to afford to replace the affected boiler/space heaters. Where the property is either privately rented or social housing, tenants could be required to notify their landlord that the gas leak or Carbon Monoxide (CO) risk has been identified by a gas engineer and it can be some time until the gas appliance is either repaired or replaced. Again, NEA highlights how these key outcomes could be achieved; namely by enhancing the incentives already in place to raise awareness of the risks of Carbon Monoxide (CO) poisoning and ensuring they directly link up to the equally life threatening risk of being in fuel poverty. These new outputs and incentives could also be strengthened by building on the vulnerability principles that are already in place for energy suppliers to uphold their obligations to treat their customers fairly and respond to the enhanced needs of those in vulnerable situations¹⁹.

NEA's submission also aims to ensure that any innovation funding and incentives support consumers in the transition to a low-carbon future, particularly those in or most extreme risk of fuel poverty. In this context, NEA cite the findings of our research in decarbonisation and social equity and our Technical Innovation Fund which aimed to facilitate community-level trials of innovative technologies not traditionally within the scope of current retrofit or energy saving programmes²⁰. This work demonstrates the potential for innovative approaches to have direct benefits to low income and vulnerable people and we highlight the need for future innovation funds to directly demonstrate these outcomes, not simply socialise the cost of technology-led trials. NEA also stresses the need for any on-going learning of innovation funds to be pooled alongside existing evidence from successful trials under the current levy-funded Network Innovation Allowances (NIAs) or those that are tax funded through research councils and independent universities which are also investigating the potential for new energy technologies. As a result, key learning from these areas can be brought together so the risks around research duplication are lessened and any research gaps can be identified and addressed.

Finally, as well as directly supporting and championing the key role networks can directly play in support those in or at extreme risk of fuel poverty, in order to address the wider regressive practice of recovering significant revenues from fuel bills, we also urge Ofgem, alongside the UK Government, to consider how the RIIO 2 proposals may be delivered alongside a far fairer distribution and recovery of network related policy costs. Any proposals to address this issue solely by recovering policy costs on a unit basis, should set out clearly how to mitigate impacts of these reforms for low income households who have unavoidably high consumption and may be worse off under rising block tariffs. In the short to medium term, Ofgem should also do far more to investigate and reform the setting, and recover of, network standing charges. In particular, the re-profiling of DUOS charges should lead to a much more progressive outcome than is currently the case (or is expected in future). It is not right that those that use very little energy and have negligible impacts on the use of the system pay the same Use of System Charges (DUOS) as much larger customers. NEA therefore challenges Ofgem to use the momentum created by the Helm Review to work with the UK Government to finally tackle this entrenched issue. Even before RIIO 2, Ofgem should consider removing DUOS's contribution to standing charges for low income and vulnerable households that are at significant risk of continued self-disconnection if they are unable to access units of energy when top up Pre-Payment Meter. In addition, Ofgem must ensure the changes to half hourly settlement and any mandatory time-of-use pricing (or domestic style TRIADs) do not negatively impact vulnerable consumers that have inelastic energy usage and may need to maintain high demand at peak periods.

Summary of key recommendations

1. The RIIO 2 decision document must set out high-level details on which sectorial, network specific outputs and incentives will be supported under RIIO 2. This must be supported by a clear statement that Ofgem will ensure it strengthens the positive partnership work which is cost-effectively supporting the alleviation of fuel poverty.
2. The decision document must set out further detail on how the regressive practice of recovering significant revenues from fuel bills will be addressed so RIIO 2 leads to a fairer distribution and recovery of network policy costs.
3. In advance of the RIIO 2 period, NEA urges Ofgem to re-profile DUOS charges and, working alongside the UK Government, ensure the changes to half hourly settlement and any mandatory time-of-use pricing does not impact unfairly on vulnerable consumers that have inelastic energy usage and may need to maintain high demand at peak periods.
4. In order to cultivate the opportunities for energy efficiency improvements to be prioritised by DNOs/DSOs Ofgem should reform the current share factors and weight projects dependent on whether they have a direct social and environmental outcome.
5. Ofgem should also consider reforming the current losses incentive so that DNO/DSOs are incentivised to deliver these energy savings within domestic properties by replacing energy inefficient appliances or electric heating.
6. GDNs must be required to continue to deliver direct assistance to fuel poor households via a reformed FPNES mechanism. Instead of solely on providing new gas connections, GDNs should be given some flexibility to deliver alternative actions which lead to equivalent heat cost savings.
7. Ofgem should enhance the incentives already in place to raise awareness of the risks of Carbon Monoxide (CO) poisoning and the direct links between the equally life threatening risk of being in fuel poverty.
8. The proposed outputs and incentives on both GDNs and should be strengthened by building on the vulnerability principles that are already in place for energy suppliers to uphold their obligations to treat their customers fairly and respond to the enhanced needs of those in vulnerable situations.
9. Any innovation funding and incentives should directly support consumers in the transition to a low-carbon future, particularly those in or extreme risk of fuel poverty.
10. Any on-going learning of innovation funds to be pooled alongside existing evidence from successful trials under the current levy-funded Network Innovation Allowances (NIAs) or other tax funded research which is also investigating the potential for new energy technologies.

Response to the consultation questions

Please note NEA has only responded to the consultation questions it feels able to comment on with some authority. Where we have not respond to a consultation question, we request that Ofgem does not infer we either support or are disinterested in the outcome of these issues. We would therefore welcome further engagement to enhance our understanding of the detail of these proposals or the issue which is being considered.

Chapter 3 - Giving consumers a stronger voice

Q1. How can we enhance these models and strengthen the role of stakeholders in providing input and challenge to company plans?

Whilst welcoming the opportunity to contribute to the RIIO-2 Challenge Group and we agree consumers must be more directly engaged in the initial stages of the RIIO 2 process; NEA is concerned that the methods described set out processes before key consumer based outcome and outputs have been articulated, consulted upon and agreed. We believe this ambiguity will frustrate attempts to engage specialist stakeholders via the RIIO-2 Challenge Group or Customer Engagement Groups. This could also inhibit the contribution of those with limited knowledge of network activities given it is likely that key decisions by network companies would be deferred until the ambiguity on company incentives and required outputs was addressed. NEA believes these risks could be mitigated if the RIIO 2 decision document set out high-level details on which sectorial, network specific outputs and incentives will be supported under RIIO 2. This must be supported by a clear statement that Ofgem will ensure it strengthens the positive partnership work which is cost-effectively supporting the alleviation of fuel poverty. In addition, NEA believes that engagement during price control is just as crucial and stakeholders must be able to challenge on-going performance of the networks to meet outputs, respond to incentives or challenge investment decisions in a meaningful way.

Chapter 4 - Responding to how networks are used

Q2. Do you agree with our preferred position to set the price control for a five-year period, but with the flexibility to set some allowances over a longer period, if companies can present a compelling justification, such as on innovation or efficiency grounds?

Yes, NEA agrees with the move back to price control being delivered over a five-year period.

Q3. In what ways can the price control framework be an effective enabler or barrier to the delivery of whole system outcomes? If there are barriers, how do you think these can be removed? What elements of the price control should we prioritise to enable whole system outcomes?

Cross-vector energy sector considerations and infrastructure planning are immensely complex. NEA contributes to addressing some of these challenges and opportunities via the National Centre for Energy Systems Integration (CESI), which is administered by Newcastle University and primarily funded by the Engineering and Physical Sciences Research Council (EPSRC) and Siemens. The aim is to understand how a range of partners need to enhance co-operation to optimise the energy network, therefore drive down customer bills and inform future Ofgem or government policy. Whilst the outputs of the various work programmes are still pending, there is consensus that a focus on demand reduction can achieve collective goals and will reduce the cost consumers pay with RIIO 2, reduce the cost of decarbonising heat, help end fuel poverty, support a successful industrial strategy²¹, support small business growth in every region, help to achieve carbon emissions reductions²², improving local air quality²³, reduce health & social care costs²⁴ whilst providing real benefits to households who are struggling financially.

Q3. In what ways can the price control framework be an effective enabler or barrier to the delivery of whole system outcomes?

As noted through-out this response, NEA welcome Ofgem recognising the key opportunity for networks to be more directly engaged in facilitating and funding improvements in energy efficiency. Our response to question 10 in particular highlights how this key goal should be achieved.

Q6. Do you agree with our view that National Grid's electricity SO price control should be separated from its TO price control?

Yes, it is clear that that an electricity Systems Operator and a Transmission Operator have different functions and competing objectives. Where these functions are provided by one entity and overhead costs are shared or existing assets fully depreciated, this should be reflected in the final settlements that area reached.

Q9. What options, within the price control, should be considered further to help protect consumers against having to pay for costly assets that may not be needed in the future due to changing demand or technology, while ensuring companies meet the reasonable demands for network capacity in a changing energy system?

As noted through-out this response, NEA welcome Ofgem recognising the key opportunity for networks to be more directly engaged in facilitating and funding improvements in energy efficiency. Our response to the following question highlights how this key goal should be achieved.

Q10. In light of future challenges such as the decarbonisation of heat, what should be the role of network companies, including SOs, in encouraging a reduction in energy use by consumers in order to reduce future investment in energy networks?

➤ *The role of DNOs/DSOs in delivering energy efficiency*

As noted in the introduction to this response, NEA welcome Ofgem recognising the key opportunity for networks to be more directly engaged in facilitating and funding improvements in energy efficiency. In 2012, NEA developed a scoping study with Ofgem to explore how well placed network companies are to deliver social action cost-effectively and support the alleviation of fuel poverty. A key focus was how to develop a new role for network companies to encourage reductions in energy use by consumers in order to reduce future investment in energy networks. Throughout ED1, NEA has worked with several DNOs to trial new approaches which have had a positive social impact at the same time as proving alternatives to conventional network reinforcement (or deferring it). NEA has been encouraged by many of the DNO's appetite to develop these new approached to manage grid constraints in contrast to network reinforcement, some the projects NEA is aware of are:

- ❖ The Solent Achieving Value from Efficiency (SAVE) Led by Scottish and Southern Energy Power Distribution (SSEPD) in the Solent and surrounding area. For more information visit: <http://www.energy.soton.ac.uk/save-solent-achieving-value-from-efficiency/>.
- ❖ Less is More Western Power Distribution partnered with the Centre for Sustainable Energy to help communities reduce their electricity demand, especially at peak times so that less money was spent on upgrading substations, to cope with rising demand. For more information visit: <http://www.lessismore.org.uk/>
- ❖ The Power Saver Challenge project with Electricity North West aimed to extend the life of existing network assets by working with customers to reduce the amount of electricity they use, in return of a reward. The aim was explicitly to test the feasibility of avoiding investment in an urban primary substation and extend the life of the existing asset. For more information visit: <http://www.powersaverchallenge.co.uk>.
- ❖ TOU trials within Energywise which involved low income households in East London who took part in trailing two different ToU tariffs. One trial was British Gas's free Saturday energy and the other is a Prepayment Critical Peak rebate (essentially PPM customers get sent a text asking them to avoid peak use on certain days and then they are given a rebate for the amount of energy they don't use within these periods based on historic consumption).

NEA and Agility ECO also produced a report investigating the possibility to divert budgets currently allocated to load-related network upgrades into local schemes that improve energy efficiency. In the report this concept is explained fully and is referred to as Alternative Investment Strategy (AIS).

Specifically, the report looks to analyse the “Size of the Prize” on Northern Power Grid’s network, the economic feasibility of investment in local energy efficiency and how this compares to conventional network reinforcement and practical feasibility²⁵. The report highlighted the cost effectiveness of a variety of AIS investment types. These were calculated in terms of cost per household, for each kW of demand reduction at peak time²⁶. The report also included an adjustment for “confidence level”, which reflects the certainty placed in the various energy efficiency measures to achieve the peak load saving, in the context of a diverse population of customers. The number provided is based on industry research²⁷, and calculated by considering average engagement levels of households in a population²⁸, their receptiveness to a change of behaviour²⁹, the ability and desire to use technology to best effect and any rebound effect³⁰ likely in that population³¹. This research highlights the variables which impact the ability of permanent demand reduction to contribute to peak reduction. By using the steps below, it would be possible for DNOs (or Ofgem) to identify the following opportunities in a given part of a particular distribution area (or across all distribution areas)³²:

- I. Identify ahead of time load related ‘reinforcement hotspots’ within a geographic territory
- II. Obtain a forecast from the DNO of the business as usual reinforcement costs
- III. Ofgem could then establish an alternative cost-benefit analysis indicating which ‘other actions’ could be taken to either defer or mitigate the reinforcement need in an area entirely (through permanent electricity demand reductions, not demand shifting).
- IV. This would require working with supportive agents to simultaneously assess the scale of electricity demand reduction potential within that area of the network and aggregate this potential
- V. It would then be possible to grade the potential aggregation of electrical demand reductions
- VI. Ofgem could then evaluate if the AIS met the ‘Golden Rule’ test set out below

It is also important to note that in order for these alternative energy efficiency projects to occur, first they must be located in similar locations to those places where the DNO/DSO is planning to invest in network reinforcement alongside areas with relatively high population density, high deprivation and high penetration of electrically heated housing. This means the opportunity to invest in these projects will not be evident in every instance and this ‘convergence’ will not always occur in a planned reinforcements a DNO’s may be planning on their network. Another critical challenge for these alternative investments (and the key for delivering value to all energy customers, not just the direct beneficiaries of these measures) is that the contribution by the DNO to the cost of these projects would always have to be lower than the cost of the business as usual network reinforcement (the so-called ‘Golden Rule’ referenced above). Where the ‘Golden Rule’ criteria is met this would ensure the investment in energy efficiency is more cost effective than reinforcement; benefiting all energy consumers on that network whilst also providing a direct social outcome for the recipients of the energy saving measures. NEA also highlights that this model, or the losses incentive model below, could also be reconfigured or used to extract a contribution via the TSO, who instead of contracting for new interconnectors, could be encouraged to invest these funds in demand reduction projects.

Despite the positive progress in trailing these approaches and its potential value in the future (either for the companies, the direct beneficiaries of the energy saving measures or DUOS customers in general), NEA notes that the relative “hassle factor” of aggregating domestic properties means that DNOs will invariably focus on larger non-domestic energy uses to secure these outcomes. The preference to contract for commercial DSR opportunities (or default to conventional reinforcement) should be considered by Ofgem to be a form of market failure and we highlight a continued reliance on the current generic share factors will not be sufficient to avoid Business As Usual (BAU). As a result, NEA stresses the opportunity for a weighting to be given to domestic DSR or demand reduction projects that have a direct social benefit as opposed to focusing on commercial DSR projects. As noted above, NEA also states that if Ofgem are to dramatically enhance the role of DNOs/DSOs in delivering energy efficiency, a further incentive could also be adopted by reconfiguring the current losses incentives, so that the equivalent energy savings that currently realised via reducing line losses instead delivered in domestic properties via the upgrading of white goods, lower cost appliances or upgrades to inefficient electric heaters. Again, the priority should be targeting this assistance to low income household with little or no disposal incomes, as they can’t currently benefit from improved product standards, despite potentially benefiting the most from these energy efficiency gains. As with the model above, where the ‘margin of feasibility’ is tight DNOs/DSOs would also be encouraged to identify complementary energy efficiency activity that is already being planned or developed within an area. This is where the potential exists to ‘piggyback’ a DNO investment alongside 3rd party fund instead of making the investment entirely

independently (albeit with the same intention of avoiding an unnecessary reinforcement of the network) making this activity complimentary to current EE schemes.

➤ *The role of GDNs*

In addition to the key opportunity for Ofgem and the DNO/DSO/TSOs to do far more to cultivate the aforementioned electricity-led demand reduction models, NEA also underlines the value of assistance currently provided by GDNs under the FPNES. NEA stresses it is imperative that RIIO 2 ensures GDNs continue to build on this valuable support they provide to fuel poor households. NEA's report last year, "In from the Cold"³³ underlined the value of First Time Central Heating (FTCH) plays in addressing fuel poverty³⁴ and the successful delivery of the UK Government's statutory fuel poverty targets or the near-term milestones in England³⁵ (as well as similar targets elsewhere in GB). However, whilst NEA believes GDNs should continue to provide some gas connections under the RIIO 2, GDNs are rightly being changed to improve targeting of the *Fuel Poor* Network Extension Scheme (FPNES) scheme³⁶. In addition, GDNs must be challenged to maximise the affordability outcomes FPGNES provides by ensuring cost effective insulation measures are installed as well as primary heating and they provide much more adequate advice³⁷ to maximise the benefits of the new energy saving measures can prompt.

In addition, to improving the delivery and targeting of the FPGNES scheme, there is also currently a big gap in provision for low income or vulnerable consumers who cannot afford to repair or replace their heating system. Throughout the winter, NEA highlighted that if a household faces financial barriers to repairing or replacing their faulty heating appliance, there is virtually no support provided nationally³⁸ and no repairs have been undertaken to gas boilers under Energy Company Obligation (ECO) since April last year. The prolonged loss of space heating in particular has the potential to detrimentally impact on a household's health and wellbeing, especially during the recent harsh winter and amongst occupants most vulnerable to living in a cold home.

A broken or unsafe heating appliance is also likely to prompt the use of secondary heating appliances. Using electric portable heaters is recognised as one of the most expensive forms of heating³⁹. Alternatively, alongside poor ventilation, use of combustion room heaters such as LPG and solid fuel fires can significantly increase carbon monoxide (CO) exposure risk⁴⁰. Furthermore, older and unsafe boilers are less energy efficient⁴¹, increase carbon emissions⁴² and lead to heightened risks for nearby neighbours also as a result of CO poisoning⁴³ or potentially, in extreme situations, fires and explosions⁴⁴. As a result, NEA recommends that the incentives already in place to raise awareness of the risks of Carbon Monoxide (CO) poisoning should directly link to these areas and simultaneously address the equally life threatening risk of being in fuel poverty. NEA also believes these steps would also be greatly enhanced in if as part of RIIO 2, Ofgem built on the vulnerability principles that are already in place for energy suppliers and ensure DNOs and GDNs uphold their obligations to treat their customers fairly and respond to the enhanced needs of those in vulnerable situations⁴⁵. NEA highlights how this can be achieved; by communicating the support that is available via the networks in a more consistent and assessable format, consistently provide adequate referral and advice and ensure any contractors highlight how other forms of supplier-led assistance can be accessed if the most vulnerable fail to benefit from energy saving measures under the RIIO 2 framework⁴⁶.

As well as highlighting the opportunity to reform the current FPGNES and CO outputs and incentives, NEA has also been involved in some limited trials of innovative technologies that can help address future challenges⁴⁷, particularly the decarbonisation of heat. As noted in the following questions on innovation, NEA believes that while the FPGNES could provide further flexibility to incentivise these approaches directly⁴⁸, any innovation funding and incentives should also be used in this context to support consumers in the transition to a low-carbon future, particularly those in or most extreme risk of fuel poverty. More generally, NEA has also warmly welcomed the publication of the National Infrastructure Commission's (NIC) interim National Infrastructure Assessment (NIA). The interim NIA rightly identifies the need to urgently address the energy wastage in UK homes and states dramatically enhancing energy efficiency must be a key national infrastructure priority. NEA is also an active member of the Energy Efficiency Infrastructure Group who strongly supports this approach⁴⁹. This approach is also currently supported by a growing number of Non-Departmental Public Bodies, academics, industry and NGOs⁵⁰. They all highlight why Ofgem is right to prioritise network energy efficiency; no other form of investment can deliver so much.

Chapter 5 - Driving innovation and efficiency

Q11. Do you agree with our proposal to retain dedicated innovation funding, limited to innovation projects which might not otherwise be delivered under the core RIIO-2 Framework?

Q12. Do you agree with our three broad areas of reform:

- I. increased alignment of funds to support critical issues associated with the energy transition challenges
- II. greater coordination with wider public sector innovation funding and support
- III. increased third party engagement (including potentially exploring direct access to RIIO innovation funding)?

Q14. What form could the innovation funding take. What would be the advantages and disadvantages of various approaches?

NEA recently commissioned Maxine Frerk of Grid Edge Policy and Dr Keith MacLean, Providence Policy to undertake some new research into heat decarbonisation and social equity⁵¹. The headline results were staggering:

- Over 90% of today's homes will still be in use in 2050 and a major programme will be needed to decarbonise the way we consume energy if are to meet both fuel poverty and national carbon targets.
- Decarbonising domestic heating will require retrofitting an average of 20,000 properties each and every week for 20 to 25 years
- The costs could be socialised across energy bills and/or taxation
- The additional total costs from heat decarbonisation, if recovered evenly across 20 years through levies on energy bills, could create an extra 0.6 million to 2.6 million fuel poor households in GB (on the 10% measure)

In addition, the research revealed **all main options to decarbonise heat have very different cost profiles** (ie the mix of up front and on-going costs) associated with the different solutions raises different equity concerns (i.e is upfront grants needed or on-going subsidy). There are also **No clear "winners"** with all low carbon heat solutions require considerable investment, changes to customers' heating systems in their home which may impact on comfort factors or the responsiveness of the system. This means that end consumer engagement even more important than now. **Location and type of property** are also critical; the optimal solution will be highly dependent on the location and type of property. In turn, this points to a greater role for local authorities in strategy development and potentially financing and funding. Then report also concluded that consumers' interests are best served at this point by keeping all options firmly on the table. That means providing innovation funding to build understanding on the future options for use of the gas grid – and continuing the FPGNES and gas mains replacement programme that opens up the hydrogen option. The report also highlighted how to **allow GDNs to consider alternatives to gas now**. The report argued that Ofgem must expand work to encourage "smart" alternatives to traditional reinforcement for electricity and the same could be introduced for gas. If it isn't cost effective to maintain a gas supply for one or two individuals in a tower block who just use gas for cooking for example, then GDNs should be able to buy such customers out (providing electric cookers) and for that to count as acceptable opex. Another common theme of our practical work with GDNs and DNOs is the local dimension. Ofgem should send a stronger message that the companies' engagement should include key stakeholders that can deliver clear outputs. **FINALLY** – the report said that delivery of the UK Government's fuel poverty targets is a priority in any scenario and Ofgem and the UK Government must also take responsibility for analysing distributional impacts in an on-going manner.

In addition, as noted above, NEA has also been involved in some limited trials of innovative technologies that can help address future challenges⁵², particularly the decarbonisation of heat. NEA notes that whilst the FPGNES could provide further flexibility to incentivise these approaches directly⁵³, any innovation funding and incentives should also be used in this context to support consumers in the transition to a low-carbon future, particularly those in or most extreme risk of fuel poverty. NEA's Technical Innovation Fund has specifically aimed to facilitate community-level trials of innovative technologies not traditionally within the scope of current retrofit or energy saving programmes⁵⁴.

This work demonstrates the potential for innovative approaches to have direct benefits to low income and vulnerable people and we highlight the need for future innovation funds to directly demonstrate tangible outcomes for these customers, not simply socialise the cost of technology-led trials. NEA also stresses the need for any on-going learning of innovation funds to be pooled alongside existing evidence from successful trials under the current levy-funded Network Innovation Allowances (NIAs) or those that are tax funded through research councils and independent universities which are also investigating the potential for new energy technologies. As a result, key learning from these areas can be brought together so the risks around research duplication are lessened and any research gaps can be identified and addressed.

Q15. How can we further encourage the transition of innovation to BAU in the RIIO-2 period? How can we develop our approach to the monitoring and reporting of benefits arising from innovation?

As noted above, NEA stresses the need for any on-going learning of the innovation route to be pooled alongside existing evidence from existing trials under the levy-funded Network Innovation Allowances (NIAs) or those that are tax funded through research councils and independent universities which are also investigating the potential for new energy technologies. In particular, NEA highlights the Energy Systems Catapult (ESC) which has a specific technology and innovation centre set up to help the UK navigate the transformation of our whole energy system and capture the new commercial opportunities created (covering electricity, heat and combustible gases). Initial estimates by the ESC suggest that over £100 million has been invested in related work in the UK over the last 10 years, with the Government investing further R & D in smart systems, industrial energy reduction and offshore wind. However, despite the potential for low income and vulnerable energy consumers to be beneficiaries of this learning, outputs of this work need to be publicly available or centralised as this learning could help accelerate the UK Government's fuel poverty commitments in England over the next 12 years as well as support the other UK nations to meet their own statutory fuel poverty targets (or support more cost-effective decarbonisation). As a result, key learning from these three areas (NIA trials, tax funded via research councils, RIIO 2), must be brought together so the risks around research duplication are lessened and any research gaps can be identified and addressed. One area to address in this context, and more broadly, is how applicable current learning regarding technological innovations is in private sector housing⁵⁵. Outside of the consultation, NEA would like to work with BEIS and Ofgem to deliver these outcomes.

Q32. How can we make the annual reports easier for stakeholders to understand and more meaningful to use?

NEA would like to see the networks publish details of network extension and reinforcement schemes on both the gas and electricity distribution networks and the related costs of these upgrades.

Chapter 7 – Fair returns and financeability

As noted in the introduction, the efficiency and cost effectiveness of both gas and electricity distribution networks play a key role in either mitigating or exacerbating fuel poverty levels. NEA is largely reliant on Ofgem to assess value for money and our main focus is supporting the current and future outputs of RIIO so they lead to tangible outcomes for low income and vulnerable households. Network companies will however be permitted to recover revenues of circa £96bn to provide safe, secure, reliable, low carbon and smarter network services. This investment is clearly necessary but will be recovered exclusively through energy bills, which is known to be an inherently regressive practice. Whilst this section of the consultation focuses on reducing the quantum of costs (via addressing financing costs and limiting company returns etc), it is startling that such little consideration has been given for how networks can directly support those in or at extreme risk of fuel poverty or crucially, how network costs are likely to be recovered. As well as directly supporting and championing the key role networks can directly play in support those in or at extreme risk of fuel poverty, in order to address the wider regressive practice of recovering significant revenues from fuel bills, we urge Ofgem, alongside the UK Government, to consider how the RIIO 2 proposals may be delivered alongside a far fairer distribution and recovery of network related policy costs.

Any proposals to address this issue solely by recovering policy costs on a unit basis, should set out clearly how to mitigate impacts of these reforms for low income households who have unavoidably high consumption and may be worse off under rising block tariffs. In the short to medium term, Ofgem should also do far more to investigate and reform the setting, and recover of, network standing charges. In particular, the re-profiling of DUOS charges should lead to a much more progressive outcome than is currently the case or is expected in future. It is not right that those that use very little energy (and have negligible impacts on the use of the system), pay the same Use of System Charges (DUOS) as much larger customers. NEA therefore challenges Ofgem to use the momentum created by the Helm Review to work with the UK Government to finally tackle this entrenched issue. Even before RIIO 2, Ofgem should consider removing DUOS's contribution to standing charges for low income and vulnerable households that are at significant risk of continued self-disconnection if they are unable to access units of energy when top up Pre-Payment Meter. In addition, Ofgem must ensure the changes to half hourly settlement and any mandatory time-of-use pricing (or domestic style TRIADs) do not negatively impact vulnerable consumers that have inelastic energy usage and may need to maintain high demand at peak periods.

Chapter 8 – Next Steps

Q49. Are there any sector-specific issues or policy areas that we should ensure we review and consider as we develop our sector-specific proposals?

1. The RIIO 2 decision document must set out high-level details on which sectorial, network specific outputs and incentives will be supported under RIIO 2. This must be supported by a clear statement that Ofgem will ensure it strengthens the positive partnership work which is cost-effectively supporting the alleviation of fuel poverty.
2. The decision document must set out further detail on how the regressive practice of recovering significant revenues from fuel bills, will be addressed so RIIO 2 leads to a fairer distribution and recovery of network policy costs.
3. In advance of the RIIO 2 period, NEA urges Ofgem to re-profile DUOS charges and, working alongside the UK Government, ensure the changes to half hourly settlement and any mandatory time-of-use pricing does not impact unfairly on vulnerable consumers that have inelastic energy usage and may need to maintain high demand at peak periods.
4. In order to cultivate the opportunities for energy efficiency improvements to be prioritised by DNOs/DSOs Ofgem should reform the current share factors and weight projects dependent on whether they have a direct social and environmental outcome.
5. Ofgem should also consider reforming the current losses incentive so that DNO/DSOs are incentivised to deliver these energy savings within domestic properties by replacing energy inefficient appliances or electric heating.
6. GDNs must be required to continue to deliver direct assistance to fuel poor households via a reformed FPNES mechanism. Instead of solely providing new gas connections, GDNs should be given some flexibility to deliver alternative actions which lead to equivalent heat cost savings.
7. Ofgem should enhance the incentives already in place to raise awareness of the risks of Carbon Monoxide (CO) poisoning and the direct links between the equally life threatening risk of being in fuel poverty.
8. The proposed outputs and incentives on both GDNs and should be strengthened by building on the vulnerability principles that are already in place for energy suppliers to uphold their obligations to treat their customers fairly and respond to the enhanced needs of those in vulnerable situations.
9. Any innovation funding and incentives support consumers in the transition to a low-carbon future, particularly those consumers in vulnerable circumstances.
10. Any on-going learning of innovation funds to be pooled alongside existing evidence from successful trials under the current levy-funded Network Innovation Allowances (NIAs) or other tax funded research which is also investigating the potential for new energy technologies.

¹ For more information visit: www.nea.org.uk.

² NEA also work alongside our sister charity Energy Action Scotland (EAS) to ensure we collectively have a UK wider reach.

³ For more information visit: <http://warmzones.co.uk/>.

⁴ For more information visit: www.nea.org.uk/fpeeg/about-fpeeg/

⁵ In Wales and Scotland, the Energy Company Obligation (ECO) is supported by other key national energy efficiency schemes. ECO is the only remaining domestic energy efficiency delivery mechanism in England. The 'notional annual spend' on the overall ECO programme was reduced from the original £1.3bn to £640 million in the 2015 spending review. Given the notional 'spend envelope' of £640m per annum is defrayed across the whole of GB – it is clear this policy alone will not provide the required investment necessary to meet statutory fuel poverty targets or the near-term milestones in England. The limited GB resources ECO can deploy have been clear for many years. During the passage of the 2011 Energy Act, the UK Government gave repeated assurances that the withdrawal of the Exchequer-funded Warm Front programme should not be a matter of concern since the Energy Company Obligation would provide significantly greater resources for fuel poverty programmes. In fact the projected expenditure on the affordable warmth element of the Energy Company Obligation represented a significant reduction in funding to improve energy efficiency in dwellings occupied by low-income and vulnerable households. Prior to the Comprehensive Spending Review of 2010, expenditure on Warm Front had exceeded £1.1 billion over the period 2008–11. This expenditure was augmented by annual expenditure on Priority Groups through the Carbon Emissions Reduction Target of approximately £600 million over that same period, and this in turn was further supplemented by the £350 million Community Energy Saving Programme. The milestones require the upgrading of as many fuel poor homes as is reasonably practicable to Energy Performance Certificate Band E by 2020 and to Band D by 2025. According to the Committee on Fuel Poverty (CFP)'s latest annual report published on 17th October 2017 even if the current remaining investment from ECO is netted off, beyond March 2019, £14.4 billion of additional funding will be required to install the necessary energy efficiency measures in fuel poor households in England. As noted in the response, whilst it is welcome the Government's stated intention is to shift the current programmes towards making a bigger difference for fuel poor households; the impact assessment highlights this will not provide the required investment to meet current statutory targets or the near-term milestones.

⁶ See: <https://www.nongasmap.org.uk/>.

⁷ In from the Cold: The funding gap for non-gas fuel poor homes under ECO and a proposal to fill it, NEA, February 2017.

⁸ The report noted that because those off the gas network are more reliant on expensive fuels such as electricity, fuel poor households off the gas grid experience average fuel poverty gaps that are double those of on-gas fuel poor. Since then, the latest fuel poverty statistics highlight the same pressing gap, (on gas fuel poor have average gaps of £296 vs off-gas £607).

⁹ NEA. 2017. In From The Cold: The Funding Gap for Non-gas Fuel Poor Homes under ECO and a Proposal to Fill it. Available: http://www.nea.org.uk/wp-content/uploads/2017/02/In-From-The-Cold_ECO-Funding-Gap-Paper_Final-1.pdf.

¹⁰ At present it is not possible for these key groups to do this without being subject to the enhanced General Data Protection Regulations or a time consuming appraisal of the household's circumstances and securing individual 'opt in' consent.

¹¹ Following the findings of the Independent Review of Fuel Poverty in England led by Professor John Hills in July 2013, the UK Coalition Government modified the timetable to address fuel poverty in England and simultaneously confirmed that they would modify the common definition of fuel poverty with a new measurement, specific to England, with immediate effect. The 'new' measurement of fuel poverty under the Low Income High Cost (LHIC) in England is now very different to the definition based on the 10% measurement still used in Wales, Scotland and Northern Ireland. Whilst much of the UK's energy policy is assumed to be a devolved matter, in reality, certainly across Great Britain, the policy mechanisms to address fuel poverty represent a complicated mix of devolved and reserved powers and responsibilities and these need to be fully understood by policy makers. Whilst much of the UK's energy policy is assumed to be a devolved matter, in reality, certainly across Great Britain, the policy mechanisms to address fuel poverty or aggravate it represent a complicated mix of devolved and reserved powers and responsibilities.

¹² RIIO-2 Framework Consultation March 2018, p.12.

¹³ Energy Prices, Profits and Poverty, Energy and Climate Change Committee, 2013.

¹⁴ Net disposal income after housing costs of a low income household is £248 per week (£12,933 per year), equating to 60% of the UK median of £413 per week. The income after housing costs of a fuel poor household is even lower: £10,118 per year, equating to a net disposal weekly income of £194. Investigating income deciles shows the poorest 10% of UK society have a gross average weekly household income of £130 (£6,760 per year). Fuel poor households overwhelmingly comprise the poorest fifth of society: 85% of households in fuel poverty in England are in the first and second income deciles and 78% of English households in those two deciles are fuel poor.

¹⁵ Draft National Infrastructure Assessment, National Infrastructure Commission, October 2017.

¹⁶ Committee on Climate Change, Next steps for UK heat policy, October 2016.

¹⁷ The Fuel Poverty Action Plan, Greater London Authority (GLA), June 2017.

¹⁸ Age UK. 2012. The cost of cold: Why we need to protect the health of older people in winter.

¹⁹ These principles are set out in the Standards of Conduct (SLC 0 and SLC 0A). These are enforceable overarching rules aimed at ensuring licensees, and their representatives in the case of domestic suppliers, treat each domestic and microbusiness customer fairly. These broad principles relate to how suppliers behave, provide information, and carry out customer service processes. In the case of domestic consumers, the Standards also relate to how suppliers seek to identify each consumer in a vulnerable situation and respond to their needs.

²⁰ For further information visit: <http://www.nea.org.uk/hip/technical-innovation-fund/>.

²¹ Draft National Infrastructure Assessment, National Infrastructure Commission, October 2017.

²² Committee on Climate Change, Next steps for UK heat policy, October 2016.

²³ The Fuel Poverty Action Plan, Greater London Authority (GLA), June 2017.

²⁴ Age UK. 2012. The cost of cold: Why we need to protect the health of older people in winter.

²⁵ To read the report visit: <http://www.northernpowergrid.com/downloads/1704>.

²⁶ Our analysis only covers domestic AIS, and there may be non-domestic AIS which could be suitable.

²⁷ NEA Report "Technical Feasibility Study for Electricity NW Ltd into Electricity demand Reduction in Heaton Norris and Heaton Mersey areas of Stockport" May 2013.

²⁸ City-Scale Domestic retrofit Schemes: Learning from the early adopters:

<http://www.tandfonline.com/doi/abs/10.1080/09640568.2014.965299#.VNnL1vmsU9Y>.

²⁹ What Works in Changing Energy Behaviours in the Home? – A Rapid Evidence Assessment – DECC Final Report <https://www.gov.uk/government/publications/what-works-in-changing-energyusing-behaviours-in-the-home-a-rapid-evidence-assessment>

³⁰ BRE Energy Follow Up Survey 2013 <https://www.gov.uk/government/statistics/energy-follow-up-survey-efus-2011>.

³¹ The service level standard that a DNO is required to guarantee leaves little space for speculation on the ability of a solution to a network problem to deliver. Current traditional methods of asset upgrades deliver a certainty nearing 100%, because the extra capacity created is a known factor, and this is an aspect on which AIS will have to compete against. In this report, we accept the judgement of the NEA experts as a valid reference point. Further research, including that already undertaken by other DNOs (for example the SAVE project), will help explore this point.

³² Strategy decision for the RIIO-ED1 electricity distribution price control, Ofgem, 04 March 2013.

³³ In from the Cold: The funding gap for non-gas fuel poor homes under ECO and a proposal to fill it, NEA, February 2017.

³⁴ The report noted that because those off the gas network are more reliant on expensive fuels such as electricity, fuel poor households off the gas grid experience average fuel poverty gaps that are double those of on-gas fuel poor. Since then, the latest fuel poverty statistics highlight the same pressing gap, (on gas fuel poor have average gaps of £296 vs off-gas £607).

³⁵ The milestones require the upgrading of as many fuel poor homes as is reasonably practicable to Energy Performance Certificate Band E by 2020 and to Band D by 2025. According to the Committee on Fuel Poverty (CFP)'s latest annual report published on 17th October 2017 even if the current remaining investment from ECO is netted off, beyond March 2019, £14.4 billion of additional funding will be required to install the necessary energy efficiency measures in fuel poor households in England. As noted in the response, whilst it is welcome the Government's stated intention is to shift the current programmes towards making a bigger difference for fuel poor households; the impact assessment highlights this will not provide the required investment to meet current statutory targets or the near-term milestones.

³⁶ Within NEA's response to Ofgem Consultation on potential change to the Fuel Poor Network Extension Scheme, NEA recognised the merits of improving targeting of the FPNES scheme, delivering better value for money for existing and future gas customers and better integrating the criteria to reflect national and Great Britain (GB)-wide energy efficiency schemes. Without adapting the current approach, we noted it is likely that remaining connections under FPNES will continue to disproportionately benefit social housing tenants and their landlords within eligible IMD areas. Recognising the limitations of using England statistics for a GB-wide scheme, we nonetheless noted that only 17% of properties in England are social rented and that this tenure contains the fewest number of fuel poor households in England. By contrast, private renters are the most likely tenure group to find themselves in fuel poverty but NEA understands that very few fuel poor connections have been delivered to this tenure. As such, we recognise that the current IMD criterion has not incentivised GDNs to deliver connections to deprived households who may be harder to engage (in particular, fuel poor private tenants) but who have much to benefit from the scheme. The merits of better targeting notwithstanding, NEA also said it remains concerned about the pace of Ofgem's proposed change consistently highlighted how power under the Digital Economy Act should allow network companies to directly access information from central Government about the support energy suppliers can provide to eligible households in their area which would help them identify some of the most vulnerable customers and deliver more bespoke solutions to them.

³⁷ The areas where residents regularly need advice on installations are specific to the new heating system, including implications of changing controls (for example, how to work the programmer, setting room thermostats) or how the new system will require changes in paying for fuel (for example, the most appropriate tariffs, changes to the amount the householder may have to pay through direct debit, to what extent the new technology will require a household that is off the gas grid to reduce or stop the delivery of solid or liquid fuels). The advice/advice provider should also be able to explain running costs of the new system (for example, expected savings, inclusive of any expected comfort taking, the costs of servicing, the cost of using any supplementary electric heaters). The advice/advice provider should also be able to offer further advice and support (for example, other low-cost and no-cost measures that could be adopted, local and national grant and discount schemes, or who to contact for further advice or repairs). The advice/advice provider should offer follow-up visits/helpline for those customers who need further help after the installation process. Where advice of this nature is provided directly the practical results are hugely positive. Through the provision of advice, there is a key opportunity to both amplify the benefits of the technology and to maximise the experience of the initiative/programme that helped finance the project in general etc.

³⁸ Whilst ECO continues to provide some limited support for gas boilers, from a high of 85,000 boilers installed from the three months October to December 2013, only 13,037 boilers were installed in the five months from April to August 2017, only c. 5,500 were gas boiler replacements, less than 6% of what they were at the start of ECO in 2013. There have currently been no repairs under the scheme since April 2017.

³⁹ Ofgem noted earlier this year that there are around 1.8m electric heating households in England (8%) with higher proportions in Scotland, 0.3m (13%), and lower proportions in Wales, where there are less than 100,000 (5%), homes using electric heating. A substantial minority (0.5m) use direct-acting heating systems without storage functionality, which instead generate heat instantly when needed, and use electricity at that time. The majority of these are electric room heaters which are high energy inefficient. Households that use electric heating tend to be of lower income. In England, around a third have incomes of less than about £14,500. This combined with higher costs of heating, means these households are more likely to be fuel poor.

⁴⁰ Carbon monoxide (CO) is a poisonous gas that in homes is caused by unsafe or the misuse of gas, oil and solid fuel appliances, along with poor ventilation. Limited research (e.g. Ezratty et al., 2011, Kokkarinen et al., 2014) suggests that those on low incomes and who struggle to afford heating costs may be more vulnerable to CO poisoning. Between 2015-2017 NEA worked with the Gas Safety Trust and GDNs to further investigate this relationship between CO exposure risk and household vulnerability. NEA would be happy to share the findings of our most recent report; "Understanding Carbon Monoxide Risk in Households on Low Incomes and in Vulnerable Situations".

⁴¹ In a typical semi-detached home, upgrading heating controls and replacing a gas boiler that is around 80 per cent efficient (D rated) with a new boiler will save around £85 a year, whereas replacing a boiler that is 70% efficient (G-rated) could save over £300 a year. (This is based on a 70 per cent or below efficient boiler with no heating controls being replaced by an at least 90 per cent efficient boiler with heating controls.) Households which have the worst performing boilers could save even more than this. Heating and hot water accounts for about 60 per cent of what a household spends in a year on energy bills, so an efficient boiler makes a big difference, especially to those households which are struggling to pay their energy bills.

⁴² Replacing a boiler could save between 0.3 and 1.5 tonnes of CO₂ each year depending on the efficiency of the boiler being replaced. 1.5 tonnes of CO₂ is the equivalent of a return flight from London to San Francisco. Boiler replacement will also have a positive impact on air quality.

⁴³ The National Health Service estimate that every year in the UK, more than 200 people go to hospital with suspected carbon monoxide poisoning, which leads to around 50 deaths.

⁴⁴ For example an old disused back boiler can explode if they are left unused and empty. *Woman's coffee table saves her from being chopped in half when central heating boiler explodes like a bomb*, 14 January 2015.

⁴⁵ These principles are set out in the Standards of Conduct (SLC 0 and SLC 0A). These are enforceable overarching rules aimed at ensuring licensees, and their representatives in the case of domestic suppliers, treat each domestic and microbusiness customer fairly. These broad principles relate to how suppliers behave, provide information, and carry out customer service processes. In the case of domestic consumers, the Standards also relate to how suppliers seek to identify each consumer in a vulnerable situation and respond to their needs.

⁴⁶ Energy suppliers offer a range of services but these are often poorly promoted as part of ECO by obligated parties or their suppliers and contractors. Without adding costs to the ECO scheme, obligated parties and their suppliers and contractors should be able to provide information on how households can register for priority services, get the best energy tariff, check if they can receive the WHD and hence benefit from the Safeguard Tariff, make a meter reading, benefit from a smart meter, how to maximise their income, contact their supplier to discuss energy debt, benefit from a carbon Monoxide alarm or free gas safety check.

⁴⁷ See: <http://www.nea.org.uk/hip/technical-innovation-fund/>).

⁴⁸ In this context NEA highlights how instead of solely providing new gas connections, GDNs should be given some flexibility to deliver alternative actions which lead to equivalent heat cost savings. In addition, the FPGNES could be reformed to develop a fare reward for District Heating projects.

⁴⁹ NEA has helped produce a new report by Frontier Economics which recommends a comprehensive Buildings Energy Infrastructure Programme to achieve major energy savings across the UK. Key recommendations include introducing a new target for all low-income households achieving a C rating by 2030 and subsidies for all low-income home-owners to make energy efficiency renovations to their properties.

⁵⁰ A range of organisations have noted this key opportunity; Better Homes: Incentivising Home Energy Improvements, Hall and Caldecott 2016, p27; Too Hot to Handle? How to decarbonise domestic heating, Howard and Bengherbi 2016, p.14; A report on initial positions, Committee on Fuel Poverty 2016, p4; After the Green Deal: Empowering people and places to improve their homes, recommendation 5, Rosenow and Sagar 2015; Effective Policy Efficient Homes, Confederation of British Industry (CBI) 2015, p2 and CCC, Meeting Carbon Budgets – 2016 Progress Report to Parliament, June 2016. More recently that investment in energy efficiency targeted at fuel poverty must double.

⁵¹ Heat Decarbonisation: Potential impacts on social equity and fuel poverty, Maxine Frerk, Grid Edge Policy; Dr Keith MacLean, Providence Policy, September 2017.

⁵² See: <http://www.nea.org.uk/hip/technical-innovation-fund/>).

⁵³ In this context NEA highlights how instead of solely providing new gas connections, GDNs should be given some flexibility to deliver alternative actions which lead to equivalent heat cost savings. In addition, the FPGNES could be reformed to develop a fare reward for District Heating projects.

⁵⁴ For further information visit: <http://www.nea.org.uk/hip/technical-innovation-fund/>.

⁵⁵ Under TiF, beneficiaries were predominantly living in social housing, (82%). NEA has therefore highlighted the critical need to develop approaches to engage private landlords and home owners with more innovative products (all of which needs to be installed properly, explained to households, run efficiently/maintained/serviced and then decommissioned safely). Our TiF projects either relied on the contractor, social landlord or our own project co-ordinators to perform these functions. This therefore presents a big challenge to get private landlords to engage, provide co-funding and/or ensure private householders feel more confident performing some of these key roles.