Northern Ireland Electricity Networks

GREEN RECOVERY

Opportunities to accelerate a green recovery in the context of a developing energy strategy for Northern Ireland

Briefing to Economy Committee
07/10/2020

CONTENTS

EXECUTIVE SUMMARY

The Northern Ireland Executive's (NI Executive) Medium-Term Recovery Strategy[1] published by the Department for the Economy (DfE) in June recognises the "*substantial economic recovery opportunity … to build a more competitive, inclusive and greener economy*", and highlighted Clean Energy as one of the potential areas for growth.

In response to that Strategy, this briefing paper sets out Northern Ireland Electricity Networks' (NIE Networks) views on how a green economic recovery can be progressed within the context of a developing energy strategy for Northern Ireland (NI). We also reiterate our commitment to playing our part in creating a sustainable future that works in the interest of all citizens, including the most vulnerable in our society.

The Energy Strategy process being led by DfE will provide long term direction for energy in the context of the UK target for net zero carbon by 2050. NIE Networks fully supports and is engaged with that process. However, we believe there are opportunities to accelerate some aspects of policy now to make progress in both economic and sustainability objectives in the short term.

We have focused on the areas in which we are confident that swift action will maximise the economic opportunities for NI as we manage our way through the COVID-19 pandemic, alongside progressing towards net-zero ambitions.

We have set out eight tangible areas of opportunity to support the economy by unlocking investment in low carbon infrastructure and fast-tracking decarbonisation of heat and transport. They include:

- Joining up policy and regulation to encourage investment;
- Accelerating investment in renewables;
- Bringing forward network infrastructure investment;
- Improving the planning process;
- Accelerating low carbon transport with initial emphasis on delivery of public EV charging infrastructure;
- Accelerating digitalisation of the Energy System to support the provision of data;
- Supporting energy efficiency through modernisation of building regulations;
- Optimising innovation for Northern Ireland.

We also set out the impact the proposal will have on skills in the energy industry and some of the outcomes customers and society can expect.

Our goal is two-fold: to enable NI to tackle the climate emergency and to compete economically with our neighbours in Great Britain and the Republic of Ireland. Currently, there is a risk of NI being left behind these regions in terms of missed opportunities.

[1] Rebuilding a Stronger Economy, Department for the Economy, 17th June 2020: https://www.economy-ni.gov.uk/publications/rebuilding-stronger-economy-medium-term-recovery

To realise the full potential of Clean Energy for the NI economy will require action and input from the NI Executive, the UK Government, Regulators, and all industry participants.

NIE Networks does not have all of the answers, but is putting forward practical suggestions that we believe will generate momentum in delivering against 2030 environmental targets, and could also contribute to providing employment for our existing skills base, creating higher paying jobs; developing a highly skilled and agile workforce; and delivering a more regionally balanced economy, as part of a Green Recovery.

NIE Networks is willing to work with all other stakeholders to help advance these objectives and is open to engaging on the proposal and any others that might be put forward for consideration.

We believe a sense of urgency is needed to generate momentum in this area. While the Energy Strategy process will determine the long term direction and the policy mechanisms to achieve that, there are many decisions that could be made now to help make progress pending conclusion of that process. We focus on low risk and least regrets options – tangible areas of opportunity to support the economy by unlocking investment in low carbon infrastructure and fast-tracking decarbonisation of heat and transport.

INTRODUCTION

NIE Networks supports the steps taken by the UK Government and NI Executive to create financial stimuli to drive a green recovery for the benefit of the economy, the environment and the public.

We welcome the focus on Clean Energy in the NI Executive's Medium-Term Recovery Strategy, published by the Department for the Economy, recognising the "*substantial economic recovery opportunity … to build a more competitive, inclusive and greener economy*". This aligns with Britain's 'New Deal' announced by the Prime Minister and is anticipated to ignite post-COVID-19 economic recovery.

We are encouraged by the UK Government's commitment to use this opportunity to 'level up' the economy, investing in the industries and jobs of the future. The New Deal commits £3.5 billion this year for a range of local growth projects to improve transport and jobs across all major towns in England. The Prime Minister's aspiration to "build back better and build back greener" has triggered BEIS to instigate a Select Committee Super Inquiry to support this work with positive progress already. It is critical that we ensure this green economic drive extends appropriately to NI and that, in the absence of an energy policy or climate change legislation, NI is not left lagging behind other regions.

Energy impacts all aspects of our daily lives, underpins all sectors of the NI economy and is a key part of national infrastructure. NIE Networks already works with a range of companies, industry, local councils, education sector, government departments and of course the Utility Regulator for Northern Ireland (UR) to support growth and development of the economy. As such, we are well placed to take a 'facilitator' role as the NI Executive makes policy and legislative decisions which ultimately will act as a catalyst to drive forward economic and green opportunities in NI to the benefit of all citizens.

NIE Networks is fully supportive of DfE's Energy Strategy process and are committed to working collaboratively with UR, SONI and other stakeholders as part of that. We set out our thoughts on opportunities for the development of energy policy in response to both DfE's Call for Evidence and the subsequent Economy Committee's Micro Enquiry.

We understand that development of a new energy strategy is progressing well and this will provide a long term policy context for future investment, but that won't conclude until at least autumn 2021. However, there are opportunities to accelerate investment in advance of concluding the new energy strategy and we welcome discussion on these. With the right decisions taken this year we could see a substantial increase in investment in this sector next year and beyond.

ABOUT NIE NETWORKS

NIE Networks is the owner of the electricity transmission network and owner/operator of the distribution network in NI, transporting electricity to over 880,000 customers including homes, businesses and farms.

NIE Networks is owned by ESB Group but operates within the NI jurisdiction as an independent organisation with its own Board and management teams and separate regulation via the UR.

Our role is to maintain and develop the electricity infrastructure across NI, connect customers to the network and ensure that the network remains safe and reliable. We also provide electricity meters and metering data to suppliers and market operators.

Through employment, taxes and supplier contributions, we contribute over £150 million annually to the NI economy. We provide direct employment to 1,200 highly skilled individuals and sustain many hundreds of jobs through our contracts and supply chain.

NIE Networks has played an important role in supporting delivery of NI's current Strategic Energy Framework target of 40% power consumption from renewable sources by 2020, with 48% now achieved. This has included providing the network connections and upgrading existing infrastructure to renewable sources, underpinned by an investment of almost £400 million on the network to facilitate renewable generation.

Continued investment in the network is crucial to ensuring the delivery of electricity throughout NI. We invest £100 million annually in maintaining and upgrading the electricity transmission and distribution infrastructure for demand, generation and low carbon technology customers e.g. solar photo-voltaic (PV) and electric vehicle (EV) customers. We have the potential to deliver a further £50 million of investment every year for the next three years which undoubtedly would create a significant positive impact in many sectors, particularly local construction.

At NIE Networks, we realise that as we develop our own future network strategy we must ensure that the needs of customers, particularly the most vulnerable, are considered and reflected upon. Customers need to "be in the room" as we make decisions that will continue to impact on them for decades. To that end, we welcome feedback and discussion with customers and their representatives to ensure that no one is left behind as we move forward to a cleaner, greener economy.

SUPPORTING OUR CUSTOMERS

It is vitally important that whatever steps are taken to support a green economic recovery and the energy transition, the needs of customers are met – both now and in the future. To do so, there is an urgent need to advance initiatives for greater engagement with and involvement of communities and customers. Simple, impartial advice mechanisms for information sharing and support for community energy projects are all needed.

Measures are also required to support the most vulnerable in society, including financial support mechanisms. Studies have indicated that most people are happy to make changes needed to move towards a net zero carbon economy but they need help and advice on how to do so.

We are mindful too of the need for downward pressure on electricity costs for both commercial and domestic customers and that all policy must consider price impact. This document therefore sets out options that minimise the impact of costs whilst contributing positively to the economy.

CLIMATE CHANGE AND DECARBONISATION

Approximately 68% of NI's greenhouse gas emissions (GHG) come from energy – including power generation, transport, residential and industrial demand such as heating. The continued decarbonisation of power generation through the increased use of renewables, together with using that clean electricity to replace fossil fuels in heat and transport, can play a major role in addressing that 68% segment of GHG emissions.

However, other solutions will be required also and collaborative working across energy sectors is needed to develop complementary energy strategies. The hydrogen economy for example presents a huge opportunity for the UK to take a global lead on a key zero carbon technology. Hydrogen is not yet a market-ready solution of scale, but it has the potential to play a major role in decarbonisation the longer term. However, hydrogen should not be perceived as an alternative to, or in competition with, renewable electricity as a low carbon solution. Rather, both can be inter-dependent elements of an overall integrated clean energy strategy.

Renewable electricity, in which NI has an abundance of potential, is likely to be the major source for producing 'green' hydrogen in the future. Equally, hydrogen can play a major role in providing the storage and flexibility capability that a renewable power generation system will need in the longer term.

NIE Networks is working collaboratively with the Department for the Economy (DfE), Department for Infrastructure (DfI) and other stakeholders to shape NI's new Energy Strategy, ensuring that NI is well placed to support a UK target for a 2050 net zero carbon emissions economy. Given that the new Energy Strategy will set the direction for the next three decades, we welcome the robust approach DfE is taking as the strategy is developed. However, it could be autumn 2021 before the strategy is approved and the NI economy should not wait for this before critical enabling steps are implemented. It should be noted that although the rest of the UK has reduced emissions since 2008 by 27%, NI has only achieved 9%. As such, the urgency of the situation can not be understated.

The urgency has only been heightened by the COVID-19 pandemic, which has left NI facing a deep and prolonged economic downturn and resulted in behavioural changes that provide an opportunity for sustained carbon reduction.

DfE has advised that we need to develop a plan to respond and take action to rebuild a more competitive, inclusive and greener economy in the short and medium term. The Department also recognises that clean energy is an area where investment is likely to increase globally in the short and medium term, stating: "*We have a strong low carbon and renewable energy sector. There is a substantial economic recovery opportunity in decarbonising energy as part of growing the green economy across Northern Ireland. Growing this sector is also a vital part of responding to climate change and building a better environment for the people of Northern Ireland*"[2]

Taking into consideration all of the above, we have set out below the eight areas in which we believe significant progress can be achieved in the short and medium term, if acted on immediately.

[2] Rebuilding a Stronger Economy, Department for the Economy, 17th June 2020: https://www.economy-ni.gov.uk/publications/rebuilding-stronger-economy-medium-term-recovery (cl 24)

1. Joining up policy and regulation to encourage investment

The principal objective of the UR in NI focuses on protections for the electricity customer but does not mandate specific consideration of environmental and economic issues relating to the electricity sector. This is not just an issue for NI - across Europe there are steps underway to foster flexible regulation to support least-cost decarbonisation. The concept also features prominently in the Council of European Energy Regulators 2019– 2021 strategy[3].

Energy experts (through The Rocky Mountain Institute) advocate that utilities and their regulators should be leaders in reducing the greenhouse gas intensity, and should accelerate the speed of the clean energy transition while establishing a profitable market structure and improving customer value. They state that the utility role should be to support a marketplace that delivers societal and environmental goals[4].

Broadening the mandate of the UR to consider decarbonisation and economic development would provide an opportunity to create a regulatory framework in NI that supports innovation and strategic investment, and one that enables us to strengthen the electricity networks in anticipation of need. This will provide an economic stimulus today that ensures infrastructure is ready to enable accommodation of low carbon technologies, paid for over the lifetime of the asset, and does not necessarily require government funding. This approach is supported by the Committee on Climate Change[5].

On the contrary, the restrictions of the current regulatory mandate could hinder capital investment into NI. It is vital that NIE Networks is able to make anticipatory investments ahead of need to ensure that the capability of the electricity network does not become a barrier in the medium term to the transition to a low carbon economy. This model of anticipatory investment is advocated by the University of Cambridge Energy Policy Research Group[6].

If the regulatory mandate permitted building ahead of need we could make 'least regrets' investments necessary for the UK's long-term net zero goals whilst creating green jobs in the short-term. New green jobs and supply chain opportunities will help energise cities, towns and villages across Northern Ireland and ultimately having the infrastructure in place will attract development. If not, we risk investors taking their projects to other regions.

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[3] Council of European Energy Regulators. (2018). *Incentives schemes for regulating distribution system operators, including for innovation: A CEER conclusions paper*. Brussels, Belgium: Author. Retrieved from https://www.ceer.eu/documents/104400/-/-/1128ea3e-cadc-ed43-dcf7-6dd40f9e446b and Council of European Energy Regulators. (2019). *CEER's 3D strategy (2019-2021) digitalisation, decarbonisation, dynamic regulation: CEER's 3D strategy to foster European energy markets and empower consumers*. Brussels, Belgium: Author. Retrieved from https://www.ceer.eu/documents/104400/-/-/483aa2de-7785-f5bb-87fb-4b0398fcfeob See also https://www.raponline.org/wp-content/uploads/2019/06/rap-zp-pb-jr-performance-based-regulation-2019-june2.pdf

[4] Cross-Call, Dan, Rachel Gold, Leia Guccione, Mike Henchen, and Virginia Lacy. Reimagining the Utility: Evolving the Functions and Business Model of Utilities to Achieve a Low-Carbon Grid. Rocky Mountain Institute, January 2018. https://rmi.org/wp-content/uploads/2018/01/reimagining_the_utility_report.pdf

[5] Hear CCC discussion on Energy UK webinar: https://www.energy-uk.org.uk/media-and-campaigns/videos/7525-powering-the-nation-how-clean-energy-can-support-the-economic-recovery-audio-webinar.html

[6] https://nic.org.uk/app/uploads/Delivering-future-proof-energy-infrastructure-Goran-Strbac-et-al-4.pdf

It is important to note that the regulatory model to date has delivered significant benefits and any broadening of its mandate should not change the ability of the regulator to protect customers' interests. Instead it is about the regulator having the vires to work collaboratively with regulated utilities to ensure they continue to deliver high quality services, accelerate net benefits to customers through decarbonisation of the energy system whilst also playing a full part in the green economic recovery.

Changes are also required to electricity connection charging methodology and regulations which are proving to be prohibitive to investment. The cost of connecting to the electricity network in NI is higher than neighbouring regions, by virtue of the method of allocating costs between the party seeking connection and the wider NI customer base through the socialised charge.

In NI, all network reinforcement costs are paid for by the connecting party up to and including the next voltage level. This methodology, whilst keeping electricity costs marginally lower for the existing wider customer base, can be a significant disincentive for new investment e.g. for generation and large energy use investments.

In GB, the reinforcement costs are apportioned on the basis of how much of the additional capacity will be utilised through the new connection. In ROI, a fixed proportion of the reinforcement costs are subsidised by the wider customer base to allow for infrastructure to be developed. As a result, we run the very serious risk of inward economic investment being directed to GB and ROI, given the challenging renewables targets in these jurisdictions due to relatively higher connection costs in NI and, in turn, a negative impact on the NI economic recovery post COVID-19. We consider the current connections charging regime in NI as a potential blocker to achieving our contribution to the UK's net zero targets by 2050 but by addressing this we can support economic competitiveness.

In addition, current regulations require NIE Networks to issue Connections Offers to applicants within 90 days. For larger renewable connections, it may be appropriate to have a 'gated' process which allows applications to come in during a specific period of each year and for NIE Networks to assess the overall landscape, and develop more efficient and holistic solutions to cater for these large connections. This is the process adopted in ROI and would allow greater clarity for NIE Networks on where strategic reinforcement should be made.

What NIE Networks can do:

- *Work with the UR to highlight opportunities for change in the current regulatory model to enable NIE Networks and other regulated utilities to make anticipatory investments in the network with align with net zero objectives and bring wider economic and environmental benefits to customers;*

- *Work with the UR to highlight opportunities to adjust current connection charging policies to introduce alternative charging and flexible connection options that are consistent with GB to make Northern Ireland a more attractive place to invest bringing wider benefits for NI customers;*

- *Identify areas of anticipatory 'least regrets' investment in both the electricity grid and also in the necessary supporting communications, IT and data infrastructure and work with the UR and relevant Departments to develop the appropriate funding options;*

- *Work with Government and the UR to explore the optimum means of funding such investment through a combination of government funding and electricity tariffs in order to minimise its cost impacts on vulnerable electricity customers.*

What the NI Executive can do:

- *Expand the mandate of the UR to allow it to consider environmental (net-zero) and wider economic benefits for NI customers , in tandem with protecting customers' interests;*

- *Endorse the requirement for a regulatory model that enables anticipatory investment that facilitates accelerated development of low carbon technologies and attracts investors; while delivering best value for consumers;*

- *Commence a review of connection charging policies and regulations to align NI with other regions, making it competitive and an attractive place to invest.*

2. Accelerating investment in renewables

NI is a world leader in terms of renewable electricity generation. 48% of all electricity consumed in NI now comes from renewable sources. This is a particular area of strength for the NI energy sector and economy and one we can build on. Over £3billion of investment was undertaken over the last decade or so to achieve this, with very significant economic and environmental benefits.

However, this investment pipeline has largely dried up as the 2020 target has been achieved and the policy supports are no longer in place. A new target for 2030 is needed as well as a route to market for new renewable generation. We welcome the Minister's recent statement supporting a minimum target of 70% by 2030, which provides some clarity in terms of intentions for the renewable sector. Many renewable technologies such as onshore wind are now main-stream and no longer need very substantial subsidies. However, they do need mechanisms to provide some certainty on market access and income streams to enable the investments to be bankable.

NIE Networks has made significant inroads in enabling the energy transition, delivering upgrades to network infrastructure, facilitating the connection of low-carbon technologies and renewable generation, and taking the first steps to implement innovative and flexible approaches to investment and network connections. Over the past decade we have delivered infrastructure projects to facilitate renewable connections worth circa £400 million across NI, each with significant economic and environmental benefits.

There is still capacity to facilitate more "onshore" renewables and changes to the planning process and connections policies will support that. However, these onshore wind projects are immediate term priorities. From a longer-term perspective, Government must seriously consider offshore wind as a viable option for NI. It is positive that the cost of both onshore and offshore wind has fallen radically – now at less than half the cost it was a decade ago and the lowest-cost forms of generation in UK.

NIE Networks considers connecting offshore generation as an important consideration in achieving future renewables targets - particularly for a target of 70% or more. This is particularly attractive since it has a lesser impact on the onshore environment. However, onshore infrastructure will be required to connect this capacity to the grid at transmission level requiring us to make plans today to support off-shore renewables in the future.

There is a need for The Crown Estate to review its current position regarding offshore generation licencing and development in the NI context. As such, we would encourage immediate dialogue with The Crown Estate to review these arrangements so that offshore development can be a reality for NI within the required timescales for 2030 renewable targets.

What NIE Networks can do:

- *Work with the UR to introduce a new non-firm offer process to enable connection offers to c400MW of generation 5MW and above currently in planning pipeline (as of October 2020 there are 24 projects currently in pipeline, of which, 10 already have planning permission along with any additional projects that enter the planning pipeline);*

- *Increase our capability to monitor our low voltage network to improve visibility of the impact of renewables;*
- *Work with local communities, authorities and developers to bring forward investment proposals to future proof the network - for example building the connection opportunities for both onshore and off-shore renewables;*
- *More widely share information regarding current capacity and impact of changes in future demand;*
- *Use established forums such as the Connection Innovation Working Group to identify opportunities and blockers.*

What the NI Executive can do:

- *Formally adopt the Minister's proposed target of at least 70% renewable electricity by 2030 (pending the final Energy Strategy);*
- *Accelerate consideration of route to market solutions for renewable energy as part of the Energy Strategy development process;*
- *Be proactive in facilitating enduring legislation/licence changes to ensure connections process in NI enables achieving 2030 (and future) targets;*
- *Work with other devolved administrations to establish a forum with Offshore Wind Industry Council to develop rules needed for offshore options.*

3. Bringing Forward Network Infrastructure Investment

There is a substantial amount of investment still to be undertaken within NIE Networks' existing regulatory price control (RP6). This includes some ongoing investment programmes already approved (around £210m) and some larger individual projects that require specific approvals as they arise. With NIE Networks, SONI, the UR and the NI Executive working collectively and proactively to accelerate this investment in the context of the need for economic stimulus, we could make a substantial difference in the amount undertaken over the next 18 months. NIE Networks could scale up to deliver an additional £50m of work annually whilst maintaining a safe and secure network which will support a significant local supply chain. In GB, BEIS and Ofgem are working proactively with the energy network companies and requested proposals for how they can accelerate investment. A similar approach here could make a significant difference.

As part of DfE's consideration around future renewables energy policy, the department contracted Cornwall Insight, in partnership with Ionic Consulting, to conduct research on renewable electricity and possible future policy in Northern Ireland. Cornwall Insight's report recommends that *"strong consideration should be given to formally identifying and advancing key strategic grid projects at transmission and distribution network levels to ensure that there is sufficient capacity available for projects to connect in a timely manner to meet the chosen 2030 targets"*[7]. The suggested approach would also help long term zero carbon goals as well as creating a financial stimulus.

What NIE Networks can do:

- *Identify those projects which may be suitable to bring forward and work with SONI and UR to develop short-term priority roadmap of key investment options and decisions;*
- *Collaborate with UR and SONI to improve our processes to fast track approvals for investments especially those that support network resilience and accommodate low carbon technologies;*
- *Consult with stakeholders on proposals to upgrade the standard connection capacity of supply for new homes to future proof for low carbon technologies such as electric vehicles (EVs).*

What the NI Executive can do:

- *Establish 2030 targets for a low carbon economy to drive the right behaviours across consumers, generators and business;*
- *Facilitate policy and process changes that will stimulate investment in the market;*
- *Endorse regulatory actions to accelerate forward investment in the network.*

[7] https://www.economy-ni.gov.uk/publications/future-renewables-northern-ireland

4. Improving the Planning process

There are a number of consented renewables projects which could support local jobs and the construction sector across NI[8]. Obtaining planning for the projects' grid connections however is needed before these projects can move into construction.

The average planning timeline for major applications is 55 weeks, against the DfI's target of 30 weeks. This compares to just 13 weeks in England for similar projects.

Even a small network infrastructure project with investment in the region of £5 million can unlock private capital projects in the region of £60 million investment – so any delay has a significant, consequential economic impact.

In our experience, delays are largely caused by (i) statutory consultees failing to respond and (ii) a lack of community support (as local councils perceive they are not reaping the actual benefit of the infrastructure in their area). COVID-19 restrictions have naturally slowed work in many government departments, including planning, which has left a backlog. These delays naturally impact cost but, more importantly, can have a substantial negative impact on renewable investor confidence.

To address this, we propose that solutions adopted in other jurisdictions (e.g. Scotland[9] and New Zealand[10]) should be considered such as a fast track planning process for 'green development' such as renewable projects, low carbon technology connections and associated infrastructure.

There is also a need for a new Northern Ireland Strategic Planning policy which takes account of targets, timelines, grid capacity, grid connection process and optimal locations for renewable production. This could be coordinated by a centralised body to oversee planning approach across Council areas. In the interim, it would be helpful if the Infrastructure Minister or Chief Planner issued instructions to local planning departments and statutory consultees stating that green projects are to be given priority consideration. The list of projects is limited but the financial impact of these projects is significant.

What NIE Networks can do:

- *Identify projects which should be prioritised over the next 18months to accelerate delivery of key objectives;*

[8] A typical "cluster" project along with three associated renewables projects would typically provide:

- Low cost, low carbon power equivalent to c80,000 homes
- Rates contributions of c£500-700k per annum for 25 years (or more)
- Approx. £30M direct investment in Northern Ireland supply chain including local construction contractors and suppliers (out of an approx. total capital expenditure in the region of £100M, the majority of which is private investment- often Foreign Direct Investment)
- Approx. 90MW addition to Northern Ireland renewable power generation capacity helping to reduce NI's carbon footprint and meet targets.

[9] https://www.gov.scot/publications/national-planning-framework-3/pages/4/

[10] https://www.mfe.govt.nz/rma/act-to-fast-track-projects

- *Collaborate with UR and SONI to improve our own processes and fast track projects needing planning support;*

- *Work with stakeholders (RenewableNI, Connections Innovation Working Group, developers) to understand what projects are in the planning process to develop plans for clusters and other connections infrastructure;*

- *Work with developers to facilitate progress of their build plans.*

What the NI Executive can do:

- *Develop a consistent, coordinated and fast-tracked planning process outlined in a new NI strategic planning policy which prioritises the efficient delivery of low carbon and renewable projects with appropriate targets, timeframes and accountabilities. Ensure the existing Department led forum has a renewable focus and considers best practice models from around the world (e.g. Scotland and New Zealand);*

- *Provide clearer guidance to local planning authorities on the efficient application of current planning regulations including setting binding timescales and increased accountability for statutory consultees.*

5. Accelerating low carbon transport with initial emphasis on delivery of EV charging infrastructure

Decarbonising transport will open NI to economic growth, create jobs and help revitalise areas which have suffered from poor transport infrastructure. In the immediate term, developing an ultra-rapid charging hub infrastructure across NI would arguably have the biggest impact in terms of economic stimulus, due to the high investment costs and promotion of the EV sector. Rapid charging hubs are effectively the 'filling station' for EVs and are an important and necessary element of a decarbonised transport sector.

As a consortium member of the 'Plugged in Places' (PiP) scheme (operated by OLEV in 2012 and 2013), NIE Networks installed the first public EV charge points in NI. The purpose of the PiP scheme was to stimulate the EV market and, at completion of the scheme in 2013, NI was at the forefront within the UK in terms of the EV public charging points per head of population.

However, no further investment has been made since then and NI now lags far behind the rest of the UK. Due to the relatively small size of NI, the market has been open for some time without charge point operators entering. The existing charging Infrastructure is now outdated and needs to be upgraded and extended, as well as providing for faster charging capabaility and rapid charging hubs.

The UR has provided an exemption to the maximum resale price (MRP) for the resale of electricity where it relates to electric vehicles, hoping this would entice charge point operators to come into the market. In addition the DfI has recently announced an easing of planning conditions on recharging infrastructure. These steps are welcomed, however, the high cost of this infrastructure development, together with the cost of connection and low returns in the short term appear prohibitive to private investment, resulting in this stagnated position.

In the longer term, public EV charging Infrastructure and ultra-rapid charging hubs may provide an asset that could be attractive as a commercial opportunity that will come with a maturing EV market. However, it is unlikely this will happen without a kick-start.

There is a provision in the EU Directives 2019/944[11] for Electricity Network Operators to step in to deliver this service in the absence of market take-up. Whilst NIE Networks does not have a long term strategic or commercial interest in this activity, we do have the capacity and the expertise to finance and support initial delivery since it aligns with our zero-carbon agenda. We would then divest the infrastructure assets at an appropriate time when the market matures and entrants emerge.

Regardless of who delivers the infrastructure, the UK Government's proposed ban on the sale of combustion engine vehicles from 2035 (and possibly as early as 2030) means that clear funding streams must be made available to support investment in EV enablers – such as residential, public and rapid/ultra-rapid charge points.

[11] Ref Article 33 (3) and (4) http://www.legislation.gov.uk/eudr/2019/944/article/33

The UK Secretary for Transport recently published the Government's Vision for EV Charging across England and laid out specific infrastructure targets for 2023, 2030 and 2035. In this year's UK budget, £500 million was allocated to incentives for ultra-low emission vehicles, including Project Rapid. The £500 million is a UK wide fund and will be administered by OLEV with the bidding process opening up in 2021. We are unaware of any attempts by the NI Executive to secure a portion of this funding or indeed how it would be treated under the Barnett Consequentials. In contrast, there is already active industry engagement in GB through BEIS.

What NIE Networks can do:

- *Work with the DfI and other relevant authorities to identify any current policy barriers to the delivery of EV charging infrastructure;*

- *Work with any third parties who are interested in providing public EV infrastructure to ensure that timely connections can be provided;*

- *In the absence of other players NIE Networks is prepared to kick start the provision of EV charging infrastructure and finance the investment if there is no viable market alternative. This would require approval from DfI and agreement with UR on funding mechanisms.*

What the NI Executive can do:

- *Leverage the Energy Strategy Transport Working Group to propose interim policy changes to Government that will help grow electric vehicle uptake in NI and remove barriers to EV infrastructure roll out. The group should also determine optimal strategy for modernisation of the existing assets;*

- *Engage with the UK Government to seek to create an EV Infrastructure Investment fund specifically for NI to ensure that UK funding is apportioned equally between the regions. Funding must also be ring fenced so that when allocated to NI, it serves its purpose – to support the transition to a low carbon economy.*

6. Accelerating the digitalisation of the energy-system to support the provision of data

The digitalisation of the energy industry is a fundamental foundation to a net-zero future. The data generated by digitalisation is key to supporting climate change ambitions. Data helps network owners manage the systems more efficiently and helps customers make more informed choices about their consumption. Smart (or intelligent) meters and the associated telecommunications infrastructure gives access to this data, providing information on energy usage helping customers be energy efficient and save money.

Smart meters have already been rolled out across Europe, with Italy, Sweden, Finland and the Netherlands all expecting 95% penetration by 2020. France, Spain, Greece and Denmark rollouts are proceeding at a steady pace and are expected to reach the 80% target by 2020[12]. Despite initial teething problems experienced in GB, BEIS is supportive of a continued roll-out, citing potential savings of £40 billion between now and 2050.

In January 2019, the first phase of a £1.1billion national electricity meter replacement programme to introduce smart meters to homes and businesses was announced in RoI. This follows positive trials in RoI demonstrating a 2.5% reduction in overall demand and an eight per cent reduction in energy in peak-time demand[13]. These results are broadly in line with experiences in other European countries, where total energy savings were in the region of two to three per cent.

Modern, smart-ready technology is a key part of the drive to combat climate change. The information provided by smart meters will help consumers to make more informed choices about their consumption, provide accurate and regular information on their energy usage, and ensure no more estimated bills. Smart meters are an essential foundation to maximise the benefit of renewable generation capability and low carbon technologies, and offer consumers information and choice such as availing of cheaper energy at off-peak periods.

These smart meters have the functionality to generate "big-data" - data that not only helps consumers manage usage but also provides utilities with better information to manage system resilience and development, cost-efficiency and will act as a key enabler to future smart-cities and communities. This is currently not an option for NI domestic consumers, who have meters with much more limited functionality. The blue-tooth unit for keypad meters currently available in NI does provide additional information for customers and is a positive step in that regard, but it does not provide the full capability or benefits of smart meters.

From an economic perspective, the development of supporting technical infrastructure and engagement of installers (which represents a great re-skilling opportunity) will all have an immediate and long-term positive impact on the NI economy[14]. But the local economy also benefits in broader terms, since correct, real time network information from smart meters will help NIE Networks coordinate and dispatch flexibility services that will be necessary if we are to manage the increase in renewable generation to meet future targets. They will also enhance competition and improve the customer experience, customer choice and the range of products and services available.

[12] IoT Analytics Smart Meter Report 2019- 2024
[13] Irish Social Science Data Archive – CER Smart Metering Project
[14] Installation contracts were awarded to TLI Group, KN Network Services and MD Electrical Installations in RoI

NIE Networks is ready to assist in a cost benefit analysis for a smart meter roll-out in conjunction with the DfE, the UR, industry and stakeholders. We are in the favourable position of being able to take learning from other jurisdictions' experience. Should the cost benefit proposal yield a positive result, we could extend trials already underway.

Options regarding a smart meter roll-out will be considered through the energy strategy process, which is unlikely to complete before autumn 2021. It is prudent to use the interim time period to deploy a pilot scheme now for customers already availing of low carbon technologies. That will enable a better understanding of how these technologies can be best integrated and give better choices for customers, which could in turn form part of the energy strategy decision making process.

What NIE Networks can do:

- *Work with the UR to scope and commence a robust smart/intelligent meter trial, focussed on customers availing of Low Carbon Technologies already;*

- *Liaise with the DfE as they update their smart meter business case taking account of both customer and network operator benefits;*

- *Work with the UR to identify least regrets decisions that could be progressed at this time, including commissioning a scoping study to look at options for a NI smart-metering model.*

What the NI Executive can do:

- *DfE to update – as a matter of urgency- the business case to consider implementation of smart/ intelligent metering for NI, focussed firstly on LCT customers and then on the broader customer base.*

- *Initiate a trial of significant scale for smart meters as part of an integrated solutions for customers using low carbon technologies*

7. Supporting energy efficiency through modernisation of building regulations

The ways in which we heat our homes at present contribute significantly to the UK's carbon emissions. By addressing future low carbon heating provision for NI, we will not only meet our climate targets but also create jobs, stimulate growth and drive innovation.

Energy efficiency of buildings as a high economic multiplier and carbon impact is supported by the Oxford SSEE[15] report, the Northern Ireland Programme for Government[16] and is recommended by the Committee on Climate Change report for Northern Ireland (Feb 2019)[17].

Significant benefits can be realised for our society through the building of advanced, sustainable and resilient housing infrastructure. Both GB and RoI building standards already reflect a direction of travel to ensure near zero carbon dwellings for the future. Aligning NI building regulations closer with GB and RoI, will result in the creation of low carbon buildings now, thus avoiding the need to retrofit these properties in the years to come.

However, improving the energy efficiency of existing housing stock will also save the consumer and government money. The Energy Savings Trust (EST) recommends that all homes in GB are retrofitted to at least EPC rating of 'C' by 2030 (the economic activity involved in just getting to "C" would increase tax revenue by 51.1 billion in ten years)[18]. It says that ensuring households can access sufficient low-cost finance to deliver a low carbon retrofit, such as a heat pump or hybrid solution, will grow the market and boost innovation at a lower cost to the state. EST's research also shows that the potential cost saving of not having to treat people with conditions exacerbated by cold damp homes is between £1.4 and £2 billion each year in England alone.[19]

In their response to DfE's Energy Strategy Call for Evidence, EST calls for a deeper energy retrofit in NI than planned for the rest of the UK, describing it as a no regrets option. From an economic perspective, the real benefit of a retrofit programme is that it is labour intensive utilising existing NI workforce skills – therefore supporting local employment in every town and county across NI.

One of the most cost-effective interventions government could make in this area is the provision of low-cost financing for the 'able to pay', while continuing to provide additional support for vulnerable customers through industry schemes. To encourage take-up, finance support should also be coupled with other incentives to drive demand.

What NIE Networks can do:

- *Contribute to the work of the Department of Finance in their review of the regulations by sharing data and if appropriate assigning subject matter experts to support their inquiries;*

- *Assist in the development of electrical standards to enable most effective retrofit solutions to be deployed;*

[15] https://www.smithschool.ox.ac.uk/publications/wpapers/workingpaper20-02.pdf
[16] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/856998/2020-01-08_a_new_decade__a_new_approach.pdf
[17] https://www.theccc.org.uk/wp-content/uploads/2019/02/Reducing-emissions-in-Northern-Ireland-CCC.pdf
[18] Energy Saving Trust: Our View to 2030 for England, December 2019
[19] Royes et al. (2016) The full cost of poor housing

- *Facilitate deployment of supportive low carbon technologies alongside retrofit (heat pumps etc.);*

- *Undertake a review of Low Voltage electrical design standards for new homes and developments to future proof the network.*

What the NI Executive can do:

- *Set an end date for use of fossil fuel boilers in new homes, however this is only realistic alongside an update to the Building Regulations;*

- *Implement a date for changes to building regulations in line with GB and RoI to trigger an immediate industry response and in so doing, set a standard for insulation so that buildings are sufficiently insulated for low-carbon heating options;*

- *Explore funding streams options for retrofitting existing buildings for those able to pay and further support available to those less able to pay.*

8. Optimising innovation for Northern Ireland

NI faces significant challenges and choices in terms of its long-term energy strategy. The Energy Strategy process should determine the optimal route to follow. However, it is immediately clear that new solutions need to be developed in certain areas, e.g. low carbon heating options for homes (particularly those that do not have access to the gas grid), integrating storage and PV, Hydrogen etc. Such solutions will require innovation, not just in the technologies themselves, but in the business models, regulatory processes and funding arrangements required to successfully integrate those new technologies. Progressing this innovation does not need to await the outcome of the new Energy Strategy.

To close the innovation gaps between NI, GB and RoI, it is essential that we build on existing innovation in low carbon energy by investing in areas such as large-scale trials of heat pumps, hybrid heating schemes, hydrogen from electrolysis, intelligent metering and energy storage. In particular, the undertaking of real-world trials is crucial to ensure that supply chains can develop; that the appropriate skills training is in place; that the public is better informed and engaged on the steps ahead; and that deployment can happen at scale.

There are already projects underway that support net zero ambitions but importantly also support the most vulnerable in our society. For example, the Energy Cloud[20] project is considering how excess wind energy could be given for free to fuel-poor households by using smart controls to switch on immersion heaters. Energy Cloud's objective is to reduce or eliminate the risk of low-income households being left behind in the transition to smart, integrated energy systems[21]. Under the RULET project, Ulster University and the Northern Ireland Housing Executive has received modest funding to consider how domestic heating systems, combined with thermal storage and smart controls, operated at scale have the potential to manage high levels of wind penetration[22]. The aim is to reduce "curtailment" - the waste of energy. In 2019, 10.7% of NI's available wind energy, with a retail value of close to £50M, was not capable of being utilised - a large portion of this was due to curtailment.

Projects like RULET aim to address this waste but also consider how we can expand our use of home-grown electricity, reducing our dependence on imports of fossil fuel. It is crucial that we understand how we can make better use of the clean electricity that we're wasting for example by rapid electrification of heat and transport.
The Scottish government has a programme like this underway as part of its green recovery linking electrification of heat with energy efficiency which is positive. However, although trials such as RULET and Energy Cloud are already underway in NI, increased levels of funding will enable solutions to be progressed at pace.

[20] https://www.energycloud.org/

[21] Energy Cloud exists first and foremost to reduce the environmental, social and economic impact of energy waste. They do this by redistributing surplus energy from wind and solar renewable generators to fuel poverty citizens via partnerships between Local Authorities, housing associations & charity partners. Their solutions focus on using surplus energy as a tool to increase social inclusion. They develop innovative and practical solutions that can be activated at a small scale in communities but scaled nationally and globally. They are a social enterprise and aim to create solutions that are financially sustainable.

[22] Ulster University along with Northern Ireland Housing Executive's RULET project aims to reduce or eliminate the risk of low-income households being left behind in the transition to smart, integrated energy systems. The project will quantify the system value which could be created by significant uptake of flexible electric heating in Northern Ireland social housing.

It's important to note that in order to turn any of these research projects into products with proper funding, we also need changes in markets, digital infrastructure (including smart meters) and regulation as set out earlier. NIREV (an independent body which is focussed on empowering customers and creating the markets and regulatory frameworks needed to deliver the transition to a clean, smart energy system) has looked at international best practice in delivering clean, decentralised, consumer-focused energy. These topics are critical and hopefully will be reflected on as the Energy Strategy is developed[23].

Increased investment to find solutions to these issues and could save consumers and government money but it is crucial that there is a step change in the funding allocated to Northern Ireland to enable these innovation projects to develop at pace.

What NIE Networks can do:

- *Further collaborate with stakeholders such as universities, local councils and the Northern Ireland Housing Executive to provide data and expertise into projects (we have invested £6.3m in innovation trials to support our development of a future network - we will build on this work);*

- *Develop a whole systems approach to enable technologies for other stakeholders. This will require continued collaboration with SONI and Connections Innovation Working Group and others..*

What the NI Executive can do:

- *Increase funding levels for projects particularly those already underway and those underpinned by well-advanced technologies;*

- *Support decarbonisation trials at scale – this could include low-carbon heating solutions and smart meter amongst others;*

- *Encourage innovation across the supply chain including leveraging opportunities in clean energy;*

- *Target new market opportunities for businesses involved in the development and delivery of low carbon technologies.*

- *Seek opportunities to expand our use of home grown electricity, and to reduce or dependence on imports of fossil fuel.*

[23] https://ukerc.ac.uk/news/northern-ireland-reforming-the-energy-vision/

FUNDING THE PROPOSAL AND EXPECTED OUTCOMES

It is absolutely essential that NI retains a competitive electricity price and all policy measures must consider the impact on price. This proposal focuses on opportunities that can be financed in a way which require little or no government funding. Additional investment will be mainly funded by the industry itself including NIE Networks and funded by customers through their electricity bills. An additional £100m investment in the electricity network would add less than 0.5% to the average electricity bill which represents £2.95 a year to the average domestic customer.[24] For large industrial customers the increase would be less than 0.2%. But there is an opportunity to create a virtuous cycle: investment in clean energy will create economic stimulus, but it will also increase demand for electricity and displace fossil fuels. That growth in electricity demand will help to mitigate the price impact, because fixed infrastructure costs are spread over a larger volume.

We also need to think more in terms of a circular economy - thinking about where money goes, not just costs. Money invested in the network and decarbonisation of heat and transport increases uptake of home grown energy and goes back in to the NI economy. Money spent on fossil fuel ultimately goes to other economies. Although the initial capex costs of internal investment may be higher than doing nothing, longer term it will support the ambition to save the NI customer money whilst improving health outcomes and addressing fuel poverty.

Finally, we must also ensure that we are gaining full access to UK Government funding. For example, significant funding allocations have already been made in GB for EV charging and home energy efficiency retrofits as mentioned earlier. NI as a region must have equal access to this important income stream.

OUTCOMES

The potential outcomes of the proposal outlined in this paper include:

- Bringing forward investment that might otherwise happen in 2024-26 to 2021-23 which could be of the order of > £250m, including additional investment by wind developers, and the providers of other low carbon technologies as well as additional investment by NIE Networks. Much of this investment will be regionally focused and will have a significant positive economic stimulus across all council areas in NI;

- It will also help to develop a pipeline of future investment that will flow beyond the next three years;;

- It will increase the availability and reduce the cost of access to the electricity network which will benefit all new development;

- It will help to position NI as a greener, smarter and more innovative economy and more attractive for foreign direct investment across other sectors;

- It will provide for a positive engagement with consumers on the broader decarbonisation journey and encourage people to invest more in that;

[24] In 2019, the average annual electricity bill cost around £591.00 – Consumer Council

- It will accelerate the creation of jobs and enable skills development and reskilling opportunities in both existing and new aspects of Clean Energy - opportunities for indigenous businesses and for the education sector to reposition to meet those needs. This is expanded on below.

IMPACT ON JOBS AND SKILLS

Prior to COVID-19, DfE engaged extensively across NI in partnership with the OECD and published their research into skills and future job needs[25]. At that time the number one issue for business was access to talent and labour. Since then the context has changed fundamentally and the statistics published recently show individuals claiming unemployment benefit now exceeding 62k and proposed redundancies of over 9k, double the number recorded in the previous twelve months[26].

The systemic issues that we need to address within our economy remain unchanged. OECD recognise that we still have too many in our workforce with no or low skills (16%), low levels of productivity (lowest in UK and ROI), low levels of in work progression and high levels of economic inactivity (25%).

The proposal outlined in this paper, if implemented, will help to create new services, drive efficiencies and create opportunities for consumers such as vehicle-to-grid charging and domestic aggregation. Industry will require the creation of new roles to take full advantage of new technologies, such as those using artificial intelligence or digital skills, which will require different combinations of competencies within the workforce.

The Energy Networks Association[27] predict that for the UK energy industry alone we can expect to see new job opportunities in a range of areas including:

- **Operational:** A green economic recovery will require more people employed on the frontline, operational activities – installing smart meters, new low carbon/ hydrogen boilers, EV charge points and associated infrastructure alongside a much bigger province wide energy efficiency programme;

- **Engineering:** New roles will be necessary in every form of engineering including mechanical, electrical, structural, civil etc. along with requirements for more surveyors. Traditional craft skills will still be essential;

- **Surveyors:** As is the case with engineers, there will be a need for a full spectrum of surveyors, quantity and structural, capable of assessing the needs of both homes and infrastructure;

- **Customer service**: Following an acceleration of new products and services (such as electric vehicle infrastructure and heat pumps) there will be an increase in customer service opportunities to manage consumer experience. We will also likely see an increase in the number of staff required to support vulnerable customers;

[25] OECD (2020), *OECD Skills Strategy Northern Ireland (United Kingdom): Assessment and Recommendations*, OECD Skills Studies, OECD Publishing, Paris, *https://doi.org/10.1787/1857c8af-en*.

[26] NISRA statistics at 16th September 2020

[27] The Energy Networks Association is the industry body for the companies that run the gas and electricity networks in the UK.

- **Environmental:** Infrastructure build-out at the scale needed will necessitate more environmental and ecological scientists as well as engineers and surveyors;

- **Digital:** To help us manage a future 'Internet of Energy' we will need staff with competencies in managing new data, cyber and artificial intelligence;

- **Specialist (back office):** As a result of new technologies and services, network companies, supply chain and new businesses will require staff with competencies in legal, compliance/regulation and supporting vulnerable customers.

It will be important to focus on maintaining sector attractiveness, recruitment and workforce diversity. Both industry and the NI Executive must maximise investment in skills and support re-skilling initiatives to help us deliver the jobs needed while building public recognition of the careers available in the sector.

NEXT STEPS

NIE Networks as owner of the electricity networks in NI is well placed to be able to play a role in supporting the UK's and the NI Executive's objectives to work towards net-zero emissions and deliver a strong, speedy, green economic recovery. There is a window of opportunity now to immediately address climate issues whilst creating economic opportunity and new jobs.

NIE Networks will work with all stakeholders to help make progress on this ambition, and progress the actions identified that we can take forward. We ask that the NI Executive and relevant Government Departments give consideration to the proposal outlined in this paper and provide the policy direction needed to take this forward.