INFRASTRUCTURE FOR A GREEN RECOVERY

How NIE Networks can support delivery of infrastructure to enable a green recovery for Northern Ireland

Briefing to Infrastructure Committee
09/12/2020

CONTENTS

INTRODUCTION

Northern Ireland Electricity Networks (NIE Networks) owns and manages the electricity networks in Northern Ireland, transporting electricity to c. 895,000 customers. We directly employ over 1,200 people and support total employment of over 2,000 including our contractors, service providers and supply chains. We contribute over £150m each year to the Northern Ireland economy. NIE Networks is also one of the largest providers of infrastructure in Northern Ireland, investing over £100m p.a. in upgrading and expanding the electricity networks. This investment is a key enabler of infrastructure and development generally across the wider economy.

NIE Networks is regulated by the Northern Ireland Authority for Utility Regulation (UR) within the energy policy framework determined by the Department for the Economy (DfE). While NIE Networks is therefore not directly under the remit of the Minister or Department for Infrastructure (DfI), as a key provider and enabler of infrastructure development, we are very relevant to - and affected by - many of the areas that do come under the Infrastructure jurisdiction.

NIE Networks welcomes the interest that the Infrastructure Committee takes in matters relating to energy and the recognition that energy and infrastructure are inter-related issues that should not be looked at in isolation. This is evident in many of the topics which the Committee has examined this year including: North South Interconnector; Hydrogen Ambitions in Northern Ireland; Permitted Development Rights (including Electric Vehicle charge points); Electric Bikes; and Decarbonisation of Public Transport.

NIE Networks also welcomes the recent report by the Ministerial Advisory Panel on Infrastructure which recommends the establishment of an Infrastructure Commisson to advise Government on all elements of NI's economic infrastructure, including energy, roads, rail and bus, water and wastewater (drainage and sewerage), waste, flood risk management and digital communications. We believe this is a key step to enhancing the effectiveness of long term planning for, and delivery of, strategic infrastructure in Northern Ireland. We also believe it is critical that all the key areas of infrastructure as recommended by the Commission, including energy, are included within its scope. To establish a Commission with a scope limited to the areas of infrastructure that come under the remit of the Department for Infrastructure would, in our view, be a serious mistake and lead to sub-optimal outcomes. We look forward to the recommendations of the Advisory Panel being taken forward by the Minister, the wider Executive, and this Committee in due course.

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. DfI is leading the Policy Working Group on Transport, as one of the policy work streams within that overall process. 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 and medium term.

The Northern Ireland Executive's (NI Executive) Medium-Term Recovery Strategy[1] published by DfE in June of this year 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.

[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

In response to that Strategy, NIE Networks published a Paper in October setting out its views on how a green economic recovery can be progressed within the context of a developing energy strategy for Northern Ireland (NI), and also reiterated 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[2]. That Paper identified key policy areas where we believe progress can be made quickly to support both economic recovery and climate action, in advance of finalising longer term policy. It 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 digitisation of the Energy System to support the provision of data;
- Supporting energy efficiency through modernisation of building regulations;
- Optimising innovation for Northern Ireland.

It also sets out the impact the proposal will have on skills in the energy industry and wider economy, and some of the outcomes customers and society can expect.

In this Briefing Paper, we focus on the areas which are directly under the remit of the Infrastructure Minister, Department and Committee, i.e. Planning, Transport, and connecting to the electricity network which is relevant to almost all infrastructure delivery.

Section A of the Paper focuses on Low Carbon Transport and specifically electric vehicle charging infrastructure.

Section B identifies how we believe the Planning process could be enhanced.

Section C highlights issues in relation to connecting to the electricity network and why that is an important enabler of almost all infrastructure development.

NIE Networks does not have all of the answers to these issues, but is putting forward practical proposals that we believe will generate momentum in delivering against 2030 environmental targets, and could also contribute to creating higher paying jobs; developing a highly skilled and agile workforce; and delivering a more regionally balanced economy, as part of a Green Recovery. We believe a sense of urgency is needed to generate momentum in this area.

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

[2] https://www.nienetworks.co.uk/future-networks/external-engagement

Section A

Progressing Electric Vehicle Charging Infrastructure in Northern Ireland

Introduction

This Section of the paper discusses the barriers facing the development of an adequate EV charging infrastructure in Northern Ireland to support and encourage the transition from fossil fuel powered vehicles to battery powered vehicles, and how those barriers could be addressed.

Transport is the largest contributor to greenhouse gas (GHG) emissions in Northern Ireland, accounting for close to 30% of all GHG emissions. The decarbonisation of transport is therefore one of the most important areas of climate action for Northern Ireland. This will need to include policy measures across both public and private transport as well as measures to encourage societal and behavioural changes in relation to the need for and use of transport.

It is widely accepted that electrification, i.e. using renewable electricity to charge battery powered vehicles, will play a key role in the decarbonisation of transport. Hydrogen is also likely to play a role in certain areas. There is growing acceptance that hydrogen fuel cells would be utilised in sectors which cannot be easily electrified such as longer distance road transport (freight and buses), shipping and aviation. Electricity is considered the best option for cars, vans, bikes and shorter distance commercial and pubic transport.

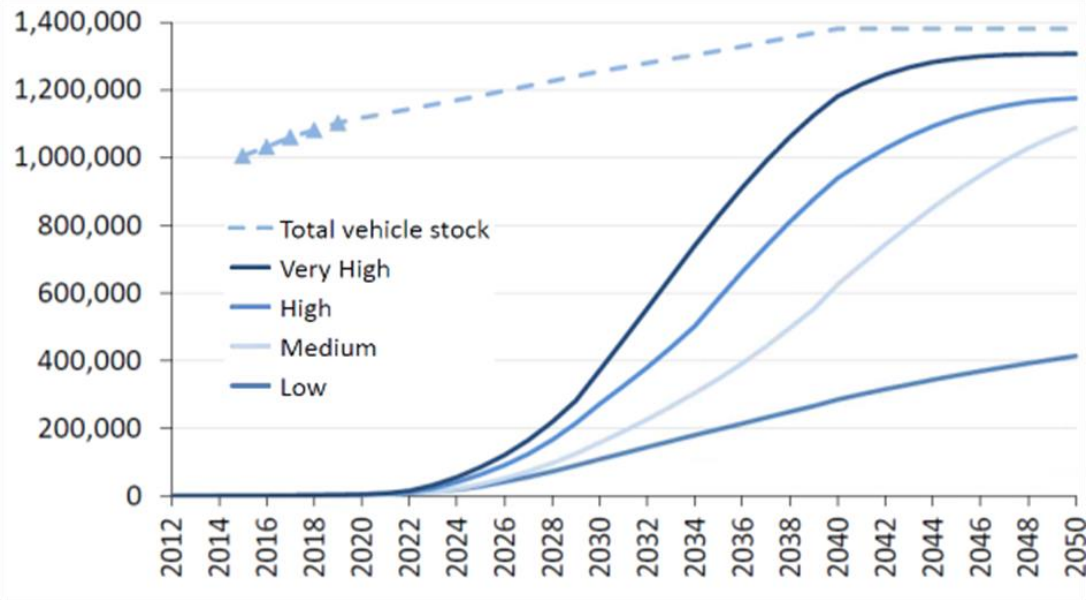
In relation to public transport, the recent announcement by Translink of its commitment to deploy at least 100 zero emission buses (80 battery electric and 20 hydrogen) over the next year or so is a very positive and tangible development. (This initiative is referred to again in Section C of this paper.)

The electrification of transport across the UK has been steadily gaining momentum for the past 10 years. As a result of the future ban on the internal combustion engine (ICE) car sales, which is now proposed to apply from 2030, it is expected to rapidly gain pace in the coming years. Vehicle manufacturers continue to develop and offer a growing choice of Electric Vehicles (EVs) with ever improving range performance at decreasing purchase costs. Recently introduced favourable tax incentives for the ownership of Ultra Low Emission Vehicles (ULEV) coupled with a developing fleet to choose from, will provide part of the commercial stimulus for motorists to transition from an ICE to an EV.

A consequential need to facilitate and support this transition in Northern Ireland requires a strategy to create a holistic EV charging infrastructure that will provide confidence to customers considering the purchase of an EV.

NIE Networks recently commissioned Element Energy to undertake analysis of the projected uptake of electric vehicles in Northern Ireland under various policy scenarios. This was undertaken to inform the assessment of the implications for the electricity network. The chart below shows the range of projections for the scenarios considered, which provide a range of between 400,000 and 1.3 million EVs in operation in Northern Ireland by 2050. This analysis pre-dated the recent announcement by the UK Government of its proposal to bring forward the date for banning the sale of new ICE vehicles to 2030. This new policy scenario equates to the "Very High" scenario shown in the graph, and would envisage of the order of 400,000 EVs (1 in 3 vehicles) in Northern Ireland by 2030.

The current EV charging infrastructure is totally inadequate to support even the more modest scenarios considered.



TOTAL NUMBER OF EVS (CARS & VANS) IN NORTHERN IRELAND BY SCENARIO

Background

The current network of EV Charge points in Northern Ireland was largely installed in the period 2012-2014 by a consortium including the Department for Regional Development (now Department for Infrastructure), local Councils, Donnelly Motors, ESB ecars, and NIE Networks. Most of the initial funding was provided through grants from the Office of Low Emission Vehicles ("Plugged in Places" Programme). The network installed consisted of 322 Standard AC charger points (c. 160 sites) and 17 Rapid chargers. These chargers are installed in a range of locations such as council car parks, on-street and service stations across all counties of Northern Ireland. These chargers are formally owned by NIE Networks, but are managed and operated by ESB ecars under a Managed Service Contract put in place in 2016. As ESB ecars operates an electric vehicle charging network across Ireland also, it allows for a seamless charging experience using a single access method for EV drivers across both jurisdictions.

Current Position

The network installed under the OLEV funded 'Plugged in Places' (PiP) scheme in 2012-14 , established an Electric Vehicle (EV) charging infrastructure in Northern Ireland that provided three times more charging points per head of population than the then UK average at that time. Since then, in the absence of any further investment, Northern Ireland's EV charge point infrastructure provision is currently half that of the UK average and rapidly falling further behind. This is now being reflected in the slower uptake of EVs in Northern Ireland due in part to 'range anxiety' and a lack of visible infrastructure investment promoting the adoption of EVs.

As well as being inadequate in terms of coverage, the existing charge point infrastructure is becoming outdated and has lower than optimal levels of reliability. It is badly in need of upgrade and extension. The significance of this as barrier to EV adoption was highlighted in a recent Report into the 'Attitudes to Electric Vehicles in Northern Ireland 2019/20' published by the Department for Infrastructure. This highlighted that the location and availability of the existing 337 charge points in Northern Ireland would discourage 34% of people from buying an electric vehicle.

The charging network in Northern Ireland has remained free to use since it was developed. During this time, ESB ecars has absorbed all costs associated with providing charging services, including the cost of electricity, and maintaining the network in Northern Ireland. The current commercial model is not sustainable and will not encourage further investment in the network.

The provision of electric vehicle charging infrastructure requires high up-front capital investment and significant fixed operational costs to be incurred in expectation of (and to promote) growth at scale of electric vehicles. This makes the business case very difficult and the requirement for government intervention is essential – particularly in relatively smaller markets. There are still only c. 3,300 electric vehicles in Northern Ireland and more than half of these are plug in hybrid electric vehicles which are likely to use the public charge point network on a limited basis.

In the longer term, public EV charging infrastructure should be a commercial activity where users pay for the service and the revenues generated from usage enable private sector investment. This would mean that the charging infrastructure would be commercially separate from the electricity network operator. This is the model envisaged by the EU Directive 2019/433, which prohibits electricity network operators (such as NIE Networks) from developing, owning, managing or operating recharging points for electric vehicles. However, the Directive does provide a derogation that allows Member States to permit electricity network operators to own, develop, manage or operate recharging points for electric vehicles in circumstances where other parties are not prepared to enter the market. This Directive does not yet apply in Northern Ireland. There is a current process being led by the DfE to transpose some aspects of the Directive into NI Law by the end of this year. DfE has indicated that other Articles, including the relevant one on Electro-mobility (Article 33), require further policy development and will be considered at a later stage as part of the new energy strategy.

Development Needs and Barriers to Progress

It is important that a holistic approach is taken to planning EV charging needs for Northern Ireland. A locally led approach is likely to lead to a patchwork network of inconsistent coverage across NI and will be sub-optimal for the users. It is also important to have alignment with the infrastructure in ROI to cater for the very many cross-border journeys that motorists make.

An effective EV charging infrastructure for Northern Ireland is likely to consist of:

1. Home Charging - individual 7kW chargers connected to the home installation of the EV owner;
2. Public Charging - individual 7 to 50kW chargers located in public spaces (similar to the current infrastructure);
3. Rapid Charging Hubs - grouped 50kw (Rapid) to 350kW (Ultra Rapid) Chargers – the EV equivalent of a fuel filling station; and
4. Destination Charging – individual or grouped 3.5 to 7kW – These chargers would be provided by business for the sole use of their customers and/or staff

Home charging and destination charging are likely to be funded privately, with grant assistance where available. They may require additional investment in the electricity network to cater for the additional load. NIE Networks can undertake that investment, subject to appropriate regulatory support, and recover the cost through connection charges or through the electricity bills of the broader customer base. This area is addressed again in Section C of this paper.

Apart from funding issues, other barriers to progressing EV charging infrastructure previously identified included the cap on the retail price that could be charged for electricity at charge points, and planning issues in relation to permitted development. Significant progress has been made on both of these issues with recent decisions by the Utility Regulator (in respect of the price cap) and the Department for Infrastructure (in respect of planning issues). The key barrier that remains is funding.

In that context, the recent announcement of €6.4m/£5.8m EU InterReg funding for a network of 73 rapid charging points across Northern Ireland, Republic of Ireland and Scotland is a very positive and welcome development. While the detail of this investment and how and when it will be applied in Northern Ireland is not yet clear, it has the potential to make a very positive difference. It is important that this project provides appropriate coverage and access to rapid charging across all of Northern Ireland, and that these new charging stations can operate seamlessly with the existing charging network from the users perspective. Consideration may also need to be given to complementing these with a smaller number of Ultra Rapid charge points. In May 2020 the UK Government released a Vision for high powered (150-350kW), open access EV charging infrastructure at motorway services across England under the Project Rapid programme. The purpose of this programme is to ensure that there is a rapid-charging network ready to meet the long-term consumer demand for electric vehicle charge points ahead of need.

If progress can be made in the Rapid Charging sector as outlined above, the remaining immediate gap to be addressed in Northern Ireland relates to upgrading and extending the existing Public Charging infrastructure. As outlined above, the current commercial model is not sustainable and does not enable further investment in that charging infrastructure network.

To make progress on this, it is recommended that a Northern Ireland Cross-Departmental Government EV Taskforce is convened with representatives from key industry stakeholders such as Motor Distributors, Infrastructure providers and a representative of the Northern Ireland Local Authorities (similar to the 'Plugged in Places' Programme) to explore how best to set and move forward with Northern Ireland's EV ambitions including charging infrastructure. This should ideally be convened by the Department for Infrastructure and involve the Department for the Economy.

Options to be explored in respect of infrastructure funding might include:

1. Public/Private co-funding whereby matching funding from UK or NI Government was made available to enable a commercial investment by ecars or other private sector players.

2. Electricity Customer funding – whereby NIE Networks provides initial funding and recovers the cost from the general body of electricity consumers through electricity bills (as per the Derogation in the EU Directive).

3. Or a combination of the above two, where the NIE Networks/electricity customer funding is used instead of Government funding if that is not available, to partner with private sector funding.

Any solution will require the agreement of DfI, and any funding solution involving NIE Networks and/or the wider electricity customers will require the agreement of the DfE and the UR. The views of the motor industry, EV users, and other potential market participants should also be considered.

NIE Networks primary role in this area is to make sure the electricity network can support the expected growth in electric vehicles and to connect EV charging infrastructure to the electricity network. In addition to that, NIE Networks is willing to finance and deliver public EV charging infrastructure itself (or in partnership with others), if that is the optimal policy option identified to support the delivery of an effective EV charging infrastructure for Northern Ireland, and subject to a regulatory recovery mechanism.

Whichever funding options are adopted, NIE Networks will work proactively to enable and support the delivery of an effective EV charging infrastructure for Northern Ireland.

Section B

Planning Process

NIE Networks welcomes some recent positive developments in the planning process relevant to the electricity sector. These include the Ministers decision to grant planning permission for the North South Interconnector; the provision of Permitted Development Rights for Electric Vehicle charge points; the publication of the Ministerial Advisory Panel on Infrastructure Report recommending the establishment of an Infrastructure Commission; and the confirmation of a forthcoming review of the 2011 Planning Act.

We also note and welcome the recent report published by the CBI "An opportunity to level up planning: A review of major planning applications in Northern Ireland"[3], and recent analysis published by the Construction Employers Federation[4], both of which highlight the need for reform of the planning system. We believe reform is needed if Northern Ireland is to achieve its ambitious targets in relation to renewable energy, net zero carbon and indeed economic recovery.

Strategic grid infrastructure projects and renewable grid connections can face lengthy timelines for delivery due to delays in the planning process. In Northern Ireland, the average planning timeline for major applications is 55 weeks, against the DfI's target of 30 weeks. In England and Scotland, the target for decisions on major planning applications is 13 weeks[5] and 4 months[6], respectively. Within a 24 month period to the end of June 2020, 88% of major applications at district level and 91% of major applications at County level were decided on time in England[7]. In 2019-20 decisions on major planning applications Scotland were made in 33 weeks[8]. While this demonstrates the difficulties that all planning authorities face, timelines in NI are significantly longer than in other jurisdictions.

The North South Interconnector is a prominent example of how the planning process in NI can be subject to significant delay, having been in the planning process since the 2000's before being approved in 2020. Our experience of other current and recent projects, such as our Grid Cluster projects which enable connection of 90MW of renewable generation (3-4 wind/solar farms), also demonstrates how the network infrastructure, which is critical path to realising the green energy and economic benefits of these generation schemes, can also be subject to significant delay in the planning process.

Figure 32 sets out an indicative timeline from project inception to go live for major electricity infrastructure projects in NI under current processes. It illustrates the challenges that are ahead for NI as it seeks to meet ambitious new energy targets by 2030, which will require new infrastructure in all cases. The figure shows that major projects can take between 5.5-7 years to become a reality, with over half of this time dedicated to project design (through environmental impact assessment) and planning processes. It is important to note that these timelines do not take account of any additional delays through legal challenge or requests for further information. This underscores the need to consider where planning processes may be streamlined, without compromising environmental or planning standards.

[3] https://www.cbi.org.uk/media/5803/an-opportunity-to-level-up-planning.pdf
[4] https://www.cefni.co.uk/news/delivering-a-planning-system-that-is-fit-for-purpose
[5] https://www.gov.uk/guidance/determining-a-planning-application
[6] https://www.mygov.scot/planning-permission/what-happens-next/
[7] Table P151: district and 'county matters' planning authorities' performance - speed of major development decisions. Available at https://www.gov.uk/government/statistical-data-sets/live-tables-on-planning-application-statistics
[8] https://www.gov.scot/publications/planning-performance-statistics-2019-20-annual/

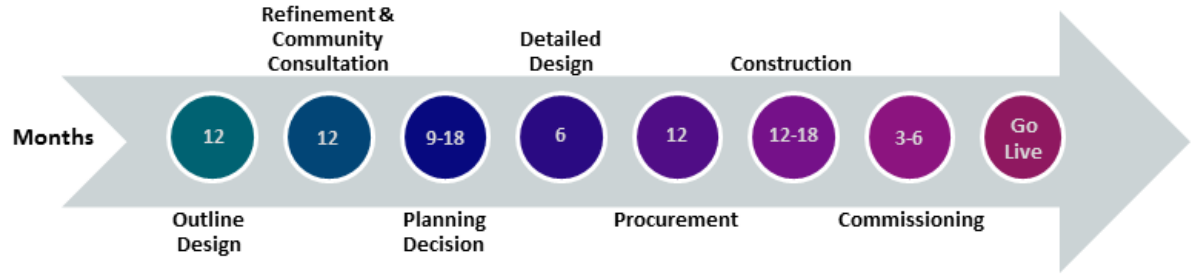


Figure 32: Indicative timeline for a Major Infrastructure Project from commencement of Design to Go Live in Northern Ireland. It excludes additional delays to the timeline that the submission of further environmental information or a legal challenge may bring about.

It is anticipated that the new DfE energy strategy will set a target of minimum 70% Renewable Energy Sources for Electricity (RES-E) by 2030. This is a significant uplift from current levels of RES-E and to achieve this, Northern Ireland will need to make significant progress in a short space of time. As a result, it is important to consider the planning process in Northern Ireland and to assess its suitability in light of the ambitious target likely to emerge.

In addition to the planning process and associated timelines, consideration should also be given as to whether a more robust spatial planning strategy is required to promote and support the realisation of the objectives of the energy strategy. Examples in other jurisdictions, such as Scotland's National Planning Framework[9], show how energy infrastructure could be strategically planned for as part of spatial planning strategy. As another example, New Zealand has recognised how vital the planning system is as an economical enabler and introduced temporary fast track planning legislation and processes for key projects to help with the COVID recovery[10].

Further consideration should be given to this comprehensive strategic approach to planning strategy for energy infrastructure and the potential benefits that it could bring; namely in facilitating anticipatory network development, optimising locations of renewable generation with consideration to network capability and fast-tracking delivery timescales for bringing renewable generation capacity on line. These benefits not only help towards achieving new ambitious targets on time, but would also serve to increase investor confidence in the NI renewable industry which ultimately brings benefit to consumers.

While potential for failure in achieving energy strategy targets is the obvious outcome of delays in the planning process, stakeholders should also be cognisant of renewable investor confidence and NI being able to compete with other jurisdictions for the significant private investment that will be needed to realise energy strategy targets. The added risk and delay through the current planning process can add significant cost and uncertainty for renewable investors and also acts as a disincentive to investors choosing NI over other jurisdictions which have faster planning process. Ultimately, this could lead to NI having to offer an increased level of renewable incentive in order to counteract the disincentive of the slower planning system in NI in order to attract the investment required to achieve energy strategy objectives. We would note that this issue is not within NIE Networks remit, we believe that it is something that all stakeholders key to facilitating renewable investment, such as ourselves and planning authorities, should be cognisant of in the interests of NI electricity consumers.

[9] https://www.gov.scot/publications/national-planning-framework-3/pages/2/
[10] www.mfe.govt.nz/rma/act-to-fast-track-projects

New investors seek assurance that there is an effective and efficient route to market. To give this assurance, a planned, strategic approach should be adopted for projects supporting renewable energy and the wider energy transition, which fast tracks the planning process for these investments. A more strategic approach would bring together the separate and sometimes competing elements that enable the delivery of ambitious renewable targets. A new strategic planning policy for Northern Ireland, with a more centralised co-ordination is likely to be needed to meet 2030 targets. It can help drive investment in the optimal locations for connection, taking grid capacity and grid connection timelines and targets into consideration.

We welcome the Ministerial Advisory Panel on Infrastructure's recent recommendation for the establishment of an Infrastructure Commission in Northern and we would suggest that such a panel could add significant value in the strategic approach to the spatial planning of energy infrastructure to enable realisation of new energy strategy targets.

Community support will be vital for the delivery of the electricity infrastructure required to realise any forthcoming ambitions of the new Energy Strategy. NIE Networks is fully committed to best practice community consultation and recognise that without community support, the delivery of new infrastructure projects becomes challenging. While we believe that the planning system can be more efficient, we also believe that these efficiencies could and should be gained without any detriment to continued high levels of community engagement and environmental standards.

In summary:

- Ambitious renewable energy targets are unlikely to be achievable with currently planning timelines and we must review how the planning system can support and facilitate energy strategy objectives;
- A new Strategic Spatial Planning Strategy for energy infrastructure could present multiple potential benefits and should be explored in parallel with Energy Strategy;
- An Infrastructure Commission could play a significant role in facilitating Energy Strategy targets through the strategic approach to spatial planning of energy infrastructure.

Section C

Challenges in Connecting to the Electricity Network

Almost all development in a modern economy requires access to a reliable electricity service. Providing access to the network for new development is one of the key roles which NIE Networks undertakes. This includes development to support infrastructure in areas such as transport, water and waste water, and other public services. The move to decarbonise our economy increases the dependency of these sectors on access to the electricity network.

For example, in recent weeks there have been very positive new initiatives announced by both NI Water (a 1MW electrolyser demonstrator project to produce oxygen and hydrogen at one of its wastewater treatment sites) and Translink (commitment to 100 zero emission buses – 80 battery electric and 20 hydrogen). Both of these initiatives rely on the electricity network and NIE Networks is supporting both organisations in progressing their decarbonisation ambitions. The scale of these initial developments is manageable in terms of electricity network capacity. However, as these initiatives are extended further, it is likely that additional network capacity will be needed and this could create challenges in terms of both cost and timescale for delivery. This will also be an issue in terms of the roll-out of Electric Vehicle charging infrastructure as outlined in Section 2 of this paper. The cost of connecting EV charging infrastructure to the electricity network is one of the barriers to progress in that area.

NIE Networks wants the electricity network to be an enabler of green infrastructure development rather than a constraint. However, there are current policy issues which impact on that which we believe requires change. These relate to the cost of connections and the provision of increased network capacity.

Connection Costs

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 renewable generation, low carbon technologies such as electric vehicles or hydrogen electrolysers, or new economic development.

For example, 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 of this disconnect between NI and neighbouring regions, we run the very serious risk of inward economic investment, including in low carbon technologies, being directed to GB and ROI, due to relatively higher connection costs in NI.

The overall costs of the network across the jurisdictions are broadly comparable, but the choice is between what the connecting party pays up front, versus what the general body of customers pay over the life of the asset. NI policy needs to be revised to more closely align with GB and ROI practice.

By way of example, enquiries made to NIE Networks from providers of rapid chargers for electric vehicles have so far been abandoned as a result of the high costs for providing the necessary connection assets when considered against the current scale of the EV market in Northern Ireland. This will have to be addressed to facilitate greater uptake of EV's within Northern Ireland.

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. A suitable connections charging framework will ensure that Northern Ireland is as attractive for investment as neighbouring jurisdictions. It will also facilitate the connection of renewable generation, battery storage and other low carbon technologies (including EV charging infrastructure and electrical heating networks).

Provision of Increased Capacity

Like any infrastructure, the electricity network has finite capacity and design capability and requires continued investment to add capacity to cater for growth and connection of new technologies. NIE Networks has increased the utilisation of the existing network through a range of solutions including traditional investment and policy changes to accommodate the high level of renewable generation to our network. NIE Networks currently invests over £100m in maintaining and developing the network but we have capability to do much more.

All of this investment is financed initially by NIE Networks through borrowings on capital markets, and is then paid for by electricity customers through their bills over the life of the assets (typically 40 years). This funding model allows for significant investment to be made without any public funding and with only modest impact on bills. For example, an additional £100m investment in the electricity network would add 0.5% to the bill of an average residential customer and 0.1% for a large energy user. If the additional investment drives growth in demand (such as from the electrification of transport and heat) then that extra demand will help offset the cost of investment and may potentially avoid any increase in underlying prices.

The policy choice is whether it is appropriate to invest in the electricity network in advance to anticipate future capacity needs or to wait until that need materialises in the form of an application for a new or increased connection capacity. The latter approach is currently the one favoured in NI. This has the benefit of avoiding the risk of unutilised capacity and minimising short term electricity prices. However, it does mean that more has to be done when the need does materialise which can result in higher cost and delays for the connecting party. NIE Networks believes that consideration should be given to allowing for a greater level of anticipatory investment in the electricity network. Being able to make anticipatory investment ahead of need would help 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[11].

A more strategic approach to anticipatory investment would also enable a more joined up approach with other authorities and infrastructure providers, e.g. if a new road is being built, NIE Networks could use it as an opportunity to put in ducting systems for use in future projects. More strategic anticipatory investment would align fully with a properly planned strategic infrastructure investment approach.

An example of where anticipatory investment could be applied is in the provison of an electricity connection to new homes. Currently a standard connection design does not make provision for low carbon technologies such as an electric vehicle to be charged in the house. NIE Networks believes there is a need to future proof new

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

connections by making provision for demand for EV charging and other low carbon technologies in houses. Otherwise there could be a requirement to reinforce the network at a later stage and this incremental cost will become a barrier to their adoption. We need to provide the capacity now to cater for the anticipated future demands from residential customers.

Being permitted to build ahead of need would allow NIE Networks to 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.

The issues highlighted in this Section in relation to connections to the electricity network are ultimately matters for energy policy and the regulatory framework.

However, we believe that they are important considerations for infrastructure development in key relevant areas (e.g. deploying low carbon technologies in transport and water) and well as the wider decarbonisation of the economy and society. In that context we seek support and endorsement for the requirement for a policy and regulatory model that brings connection charges in line with our neighbouring jurisdictions and enables anticipatory investment in the electricity network that facilitates accelerated development of low carbon technologies and attracts investment to Northern Ireland.