Scottish Parliament Economy, Energy and Fair Work Committee

Energy Inquiry - Call for Views

Energy Networks Association (ENA)

Introduction

1. ENA represents the companies that operate and maintain the gas and electricity grid network in the UK and Ireland. Serving over 30 million customers, they are responsible for the transmission and distribution network of “wires and pipes” that keep our lights on, our homes warm and our businesses running.

2. Our energy network companies are recognised worldwide for their strong track record of safely, reliably and securely providing the UK with the gas and electricity it needs in three key areas:

   **Trusted performance** - The average gas customer will experience an unplanned interruption once every 140 years. For electricity customers, since 1990, there has been a 59% reduction in the number of customer interruptions, and an 84% reduction in length of customer interruptions\(^1\). The average GB premises experiences a power cut once every two years and the average length is now only 35 minutes\(^1\).

   **Reduced costs and increased investment** - Network costs are now 17% lower than they were at the time of privatisation\(^1\) and are projected to remain flat, and in some areas fall, into the next decade\(^2\). These costs are the same or cheaper than in other major economies. The UK’s energy networks have attracted some £100 billion of investment since 1990. They are forecasted to invest £45 billion between 2013 and 2023\(^3\).

   **Delivering innovation** - Network companies have spent a total of £99 million across 928 projects through the Network Innovation Allowance, and supported over 1,400 innovation projects since 2004. Independent research carried out by Pöyry has shown that innovation projects from the previous Low Carbon Networks Fund by local electricity Distribution Network Operators (DNOs) could deliver up to £1.7 billion of benefits by 2031\(^3\).

3. This track record of our energy network companies is key to understanding the role they play in helping the Scottish Government achieve its net zero target by 2045 and ensuring no-one is left behind. Energy network companies are playing a leading role in driving and supporting the transition toward this cleaner, smarter and more decentralised energy system. All this while continuing to deliver secure, reliable energy, record levels of customer satisfaction and keeping network costs low for the public.

4. As regulated monopolies, energy network companies are publicly and directly accountable to the energy regulator Ofgem, UK Government and Parliament through a price control system. Network companies pride themselves on being neutral facilitators.

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\(^1\) Ofgem: tougher price controls for energy networks
\(^2\) Ofgem: current network price controls (RIIO-1)
\(^3\) ENA: UK’s electricity networks set out new opportunities for energy innovators to help deliver £1.7 billion of benefits, 2018
They act as an important lever of public policy, helping to overcome barriers and opening up opportunities for all types of technologies and market participants. With stable, long-term and closely aligned policy and regulatory frameworks, they can continue to perform this important role.

5. ENA welcomes the opportunity to respond to this Committee’s Energy Inquiry Call for Views. In our submission we have focused on the areas where we believe we can contribute the greatest insights. As we are unable to include in this response all of the examples of support and value provided by energy network companies in Scotland and beyond, we encourage you to also refer to individual company submissions. Our submission is organised according to the areas of interest outlined by the Committee.

Scottish Government’s energy policy and progress

6. We applaud the Scottish Government for setting a range of ambitious climate and energy targets, outlining a strong Networks Vision and making the nation a leader in key policy areas such as the transition to electric vehicles. It has invested over £30 million in this area since 2012 to deliver over 1,000 publically-available charge points across Scotland\(^4\). The recently announced £7.5 million partnership between Transport Scotland, SP Energy Networks (SPEN) and Scottish and Southern Electricity Networks (SSEN) will supercharge this effort\(^5\). Together we must continue to step-up action in all areas and maximise opportunities from hosting the world’s top climate summit, COP26.

7. Policy action taken this year is critical in determining progress over the next decade. Especially as local electricity network companies, DNOs, are currently working with the regulator and stakeholders to develop business plans for the next price control period, ED2 (commencing in 2023). The plans are integral in ensuring networks do not act as a barrier but further enable these next vital steps toward net zero. Business plans for electricity and gas transmission and gas distribution (commencing in 2021) are also key in enabling the transition to net zero. Highly ambitious 2030 climate targets in both Glasgow and Edinburgh, some 20 years before the UK-wide net zero target, underline the case for more urgent policy action in Scotland.

8. In developing Scotland’s net zero energy system, a ‘whole system approach’ to policy, regulation and market design is vital. Our approach to decarbonisation will be most effective if it looks across electricity, heat, gas, transport, waste, water and even farming. There is no single technology or fuel which provides the solutions needed in every area of the economy. KPMG research commissioned by ENA found by evolving both our electricity and gas network infrastructure to decarbonise, the British public could save up £214 billion by 2050\(^6\). A separate report by Navigant, found the UK could save £13 billion a year by 2050 by pursuing a balanced pathway to decarbonisation comprising electrification, and low-carbon and renewable gases\(^7\).

Impact and opportunity of increasing numbers of electric vehicles

9. Energy network companies are committed to keeping pace with the transition and fully support the Scottish Government’s ambition to phase-out new diesel and petrol

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\(^4\) [Scottish Government climate change plan: monitoring report, 2019](#)
\(^5\) [Scottish Government: electric vehicle charging partnership announcement, 2019](#)
\(^6\) [KPMG: 2050 energy scenarios report, 2016](#)
\(^7\) [ENA: energy networks unveil plan to deliver the world’s first net zero emissions gas network, 2019](#)
vehicles by 2032. While network companies are delivering world-leading innovation (1,400+ innovation projects since 2004\(^8\)), more needs to be done to prepare the networks for the expected rapid take-up of electric vehicles and other green technologies. This is especially the case in Scotland given the ambitious timeline, with the UK-wide phase-out starting eight years later (from 2040).

10. To help manage the grid and underpin the integration of new technologies including electric vehicles, network companies are maximising modern solutions such as flexibility services from smart energy technologies. This highly innovative work is being led through ENA's industry-wide Open Networks Project and follows electricity network companies' commitment to flexibility (available online). Benefits are also being delivered across the UK through driving standardisation and alignment, while still fostering innovation; enabling easier and faster grid connections; and using more regional data in developing future energy scenarios which inform planning and investment.

11. As an example of innovation, valuable learnings have been gained from the My Electric Avenue project led by SSEN and partners. The project tested the impact of charging clusters of electric vehicles on local electricity networks at peak times, based on the driving and charging habits of over 200 electric vehicle drivers\(^9\). While it estimated that 32% of low-voltage networks across GB will need upgrading once at least 40% of customers have electric vehicles, smart techniques to manage demand on the grid could reduce this cost by around £2.2 billion by 2050. View the full report.

12. To complement smart solutions, the Committee on Climate Change\(^10\), National Infrastructure Commission\(^11\) and Electric Vehicle Energy Taskforce\(^12\) have recommended increasing investment in electricity grid infrastructure to support achieving net zero in cases where it is well justified. We ask the Scottish Government to work with the UK Government and the regulator to provide more direction on 'future proofing' energy networks so network companies can make transparent, timely and cost-efficient decisions to further support the roll-out of vital infrastructure such as electric vehicles charging points.

13. To further enable the use of innovative solutions to support the take-up of electric vehicles, the Scottish Government should also work with the UK Government to enable smart charging. By introducing electric vehicle smart charging tariffs, owners could save money from charging-up when prices are cheapest, while also potentially selling any excess battery power back to the grid (known as vehicle-to-grid technology). Similarly, the Scottish Government should look to implement learnings within Scotland from successful pilots, such as those being delivered through its electric vehicle partnership with SPEN and SSEN.

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\(^8\) ENA: electricity networks set out new opportunities for energy innovators to help deliver, 2017
\(^9\) SSEN: My Electric Avenue report, 2016
\(^10\) CCC: the UK's contribution to stopping global warming, 2019
\(^11\) NIC: strategic investment and public confidence, 2019
\(^12\) EV Energy Taskforce: energising our electric vehicle transition, 2020
Supporting community and locally-owned energy schemes

14. Collectively, we have already taken major steps toward a cleaner, smarter and more decentralised energy system. The public is gaining better access to secure and affordable low-carbon energy, as well as more control over how and when they use energy. Since 2007, over 30GW has been connected to local electricity networks in Great Britain, while around 100 green gas plants (biomethane) are connected to local gas networks. Since 2010, around 50 per cent of onshore wind connected in the north of Scotland has been connected at distribution level.

15. Energy network companies are working closer than ever with local and community energy groups – including Community Energy Scotland who are leaders in this area. SPEN has helped lead and launch the Zero Carbon Communities Initiative, the first of its kind to set out a detailed roadmap to help guide local communities toward Scotland’s net zero target. It is being rolled out to communities in Edinburgh, Glasgow, Dumfries, Galloway, East Ayrshire and Fife. View the full report. Network companies are also actively working with Scotland’s local authorities so that local energy plans, and in turn community needs, are fully reflected in their own plans.

16. We must collectively do more to empower local authorities and other key local players. This means working with them to build capacity, ensuring they have the right skills, experience and support to deliver sustainable energy projects. Examples of such activities already underway include SPEN’s Green Economy Fund. The £20 million fund supports local community projects such as the ambitious regeneration project in Dalmarnock which is introducing self-sufficient local energy supply. It is helping communities to invest in low-carbon technology, and develop the infrastructure and learnings needed for the next decade. Similarly, SSEN’s Scottish Hydro Electric Community Trust provides up to 75% of the cost of electricity connections for community projects faced with high charges, support which is particularly beneficial in rural and island communities.

17. The transition to net zero must be fair for everyone including bill-payers, workers and our most vulnerable people – only then can the economic and social benefits of a greener future be enjoyed by all. Scotland has an opportunity to lead in starting a UK-wide conversation about net zero with communities in cities, towns and villages to help ensure a fair transition for everyone. As the regulator’s role evolves, for instance with a new statutory duty as recommended by the National Infrastructure Commission, local and community energy groups, as well as other market participants, could stand to benefit and play an even bigger role in achieving net zero. Any new local or regional action must be underpinned by a strong national policy framework to ensure the best long-term value for the public.

The important role of smart, decentralised local energy systems

18. ENA believes flexibility from smart energy technologies such as battery storage and demand-side response will increasingly help to keep the costs of running the grid low for the public, enable more low-carbon energy to be integrated and create new

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13 Digest of UK Energy Statistics
14 SSEN: distribution future electricity scenarios, 2019
15 SSEN press release: Hydro Trust offers financial support for new electricity connections, 2019
opportunities for everyone. Research led by the National Infrastructure Commission shows such smart technologies could save the British public up to £8 billion annually by 2030\textsuperscript{16}. In a smarter energy system, we must also maximise the value from our gas networks – becoming greener through the integration of new low-carbon gases – which for instance provide flexibility to the whole energy system through significant storage capabilities.

19. There is evidence of our smarter energy system across the UK. It was projected that by the end of 2019 close to 950MW of flexibility would have been tendered by DNOs\textsuperscript{17}. In Scotland, the South West Scotland Regional Development Project, a partnership between SPEN and National Grid Electricity System Operator, has used technology known as active network management to help manage network constraints. This has enabled the integration of more distributed energy in the Dumfries and Galloway area, an area with among the UK’s highest proportion of connected renewable generation relative to its demand for energy.

20. In 2019, through the Open Networks Project industry and stakeholders agreed a shared vision for the pathway forward to establish Distribution System Operators (DSO) which actively manage local electricity networks and enable new opportunities to benefit local and community energy groups. In line with this, individual network operators are implementing their own DSO strategies and plans. To ensure everyone benefits from a smart energy system, it is vital that the UK and Scottish Governments maintain support for a smarter energy system and this shift to DSOs.

21. We must increasingly look at challenges and solutions from a whole system perspective by considering the links between local demand (including from electric vehicles), what flexibility is needed and how the right incentives can be offered to local and community energy projects to provide it. Not only can local and community energy projects be made more viable and sustainable by earning new revenue from providing such flexibility services to the grid, but this can also defer or reduce the need for upgrades in areas which may currently be constrained.

22. A new focus on the role and potential of data is also underpinning the move to a smarter and more decentralised energy system. Energy network companies have a key part in this. Such initiatives are being delivered through the Open Networks Project, with a focus on improving data sharing between electricity and gas networks, as well as wider industry collaboration and the launch of DNO digitalisation strategies. ENA has also recently established a new working group which is taking a lead industry role in the development of a digital systems map, a key recommendation of the UK Government’s Energy Data Taskforce\textsuperscript{18}.

\textsuperscript{16} NIC: smart power, 2016
\textsuperscript{17} ENA website: Flexibility in Great Britain
\textsuperscript{18} Energy Data Taskforce: A strategy for a modern digitalised energy system, 2019