The Voice of the Networks

General Election 2015:

The Agenda for Energy Networks

Introduction

The UK's energy networks play a central role in all of our lives. The wires and pipes that deliver electricity and gas around the country and into our homes and businesses are a fundamental part of everyday life in a modern, advanced society.

Our energy system is entering a period of profound change as we move towards a low carbon future and new technology revolutionises the sector. Whilst there is no certainty over the precise nature of this transformation, it is clear that the decisions taken over the course of the next Parliament will determine what our energy system looks like in 2030 and beyond.

Our gas and electricity networks will be crucial in facilitating the UK's low carbon transition. *"The Agenda for Energy Networks"* sets out the key areas of consideration for Parliamentarians and Government during what will be an extremely influential five year period.

I believe the journey we are embarking on is extremely exciting and that the UK's energy future is bright. I hope that this document demonstrates the enormous potential which exists within our energy networks sector and ENA will work with Government to ensure that this potential is realised.

David Smith
Chief Executive, Energy Networks Association

About ENA

Energy Networks Association is the voice of the networks, representing the gas and electricity transmission and distribution companies in the UK and Ireland. Our members are the vital wires and pipes of the UK's energy system.

Our aim is to provide a conduit for information sharing and policy development between the networks and industry stakeholders, including the Government and regulatory bodies. ENA is the respected voice of the industry at the heart of policy making.

www.energynetworks.org

If you have any questions about the networks or if you would like ENA to help arrange a meeting or a site visit with the networks operating in your constituency please contact:

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The Agenda for Energy Networks

We need the new Government to:

1. Stability of Regulatory Environment

Maintain a stable regulatory regime for energy networks, as a vital prerequisite to meeting a significant investment challenge.

2. Skills

Support science, technology, engineering and maths (STEM) education and high quality apprenticeships to bridge a skills gap which has the potential to be the biggest barrier to innovation in energy networks.

3. Connections

Work with network operators to guarantee a healthy and competitive market in electricity connections whilst ensuring the interests of current and future users of the network are protected.

4. Smart Meters and Smarter Networks

Continue to champion innovation in energy networks and ensure that the smart meter roll-out meets the needs of energy network companies.

5. Future of Gas

Recognise the importance of gas, and our gas network both in an affordable, secure, low carbon transition and as part of a long term sustainable energy mix.

6. Heat Networks

Work with the gas networks to explore the appropriate development of heat networks in the most suitable areas.

7. Fuel Poverty and Vulnerable Customers

Support energy networks in continuing to play a crucial role in combating fuel poverty and meeting the needs of vulnerable customers.

8. Street Works

Ensure that the regulation of street works does not act as a barrier to proper maintenance of vital infrastructure.

9. Interconnectors

Facilitate the doubling of UK interconnector capacity in the interests of customers.

10. A Long Term Infrastructure Investment Plan

Create the right conditions to deliver an effective and affordable, long term infrastructure investment plan.

1. Stability of Regulatory Environment

The scale of investment required in our energy networks is unprecedented. According to a 2015 report from the Department of Energy and Climate Change (DECC) £34 billion of investment will be required in electricity networks by 2020 and £7.6 billion in gas networks by 2021[1]. This funding will be crucial to ensuring that UK consumers have access to secure, sustainable and affordable energy now and in the future.

The networks require a long term commitment of investment based on a reasonable rate of return. By minimising risk, operating efficiently and having clarity from policy makers and regulators, the networks are able to draw finance into the country for much of the required infrastructure at a low cost to consumers.

We need the new Government to maintain a stable regulatory regime as a vital prerequisite to meeting this significant investment challenge.

As regional monopoly companies, energy networks operate under a regulatory framework put in place by Ofgem. The groundbreaking RIIO (Revenue = Incentives + Innovation + Outputs) framework has been established in recent years and is already recognised as a world leader in the field for its incentives based approach to delivering efficient, secure and innovative networks at the lowest possible cost to consumers.

Whilst the energy sector faces the potential for significant upheaval in the coming years, it is imperative that the framework of regulation for energy networks is not impacted. Any instability in the regulation of this vital sector would risk driving away investment at a time of greatest need.

£34 billion of investment will be required in electricity networks by 2020

+ £7.6 billion of investment will be required in gas networks by 2021

[1] Department of Energy and Climate Change, "Delivering UK Energy Investment: Networks" (2014)

2. Skills

Our energy networks need the new Government to make serious investment in science, technology, engineering and maths (STEM) education as well as high quality apprenticeships for the next generation of engineers.

Our networks are facing a skills gap which has the potential to be the biggest barrier to innovation and smart grid development over the coming years. We need the new Government to help facilitate a skills revolution.

With an ageing workforce we are going to see a huge amount of experience leaving the industry over the next decade, with a peak year of retirement in 2024. In electricity networks alone we will need to employ over 15,000 people by 2023, which represents 74% of current workforce levels[2]. We expect 4,277 Full Time Equivalents to retire from the gas networks between 2011 and 2025. Nearly 1000 of these are expected to be amongst those working at highly qualified, experienced manager levels[3]. This demonstrates the scale of the challenge we face.

Networks are working to meet the skills challenge through their high quality apprenticeship programmes, which are offering thousands of young people an excellent career in delivering the UK's energy future.

The electricity industry will recruit 600 new apprentices next year. Trailblazer apprenticeships for power and gas have seen networks develop common standards to encourage more young people into the industry over the coming years[4].

The energy networks are not alone in needing Government to promote STEM subjects and high quality apprenticeships, and we consider this to be a priority concern for the Government.

The electricity industry will recruit over

600

new apprentices next year

2. National Skills Academy for Power, "Transmission and Distribution" (2014)
3. Energy & Utility Skills Workforce Planning Model
4. National Skills Academy for Power, (2014)

3. Connections

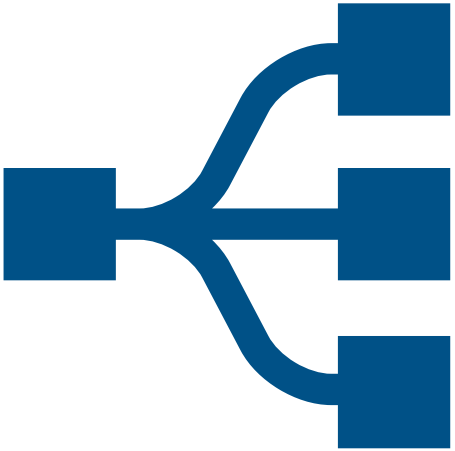
Connecting new homes, businesses and generators to the networks is vital to the UK economy and a key function of our energy networks.

In recent years Government policy has seen an increase in the number of electricity generators wanting to connect wind farms, combined heat and power, hydroelectric energy and other smaller technologies to the distribution network. The growth in this area has seen increased focus on the connections process, and in particular the amount of competition in the connections market.

Some of the work required to build a new connection to the distribution network must be carried out by Distribution Network Operators (DNOs) in order to maintain the integrity of the network for all customers. However, there are elements of connections work which can be carried out by Independent Connections Providers (ICPs).

There is already a high level of competition in gas connections, and there has been significant progress in addressing barriers to competition in electricity connections in recent years, with an increase in the market share of ICPs. DNOs are working to build on this progress, and have outlined proposals in their RIIO-ED1 business plans to that end.

Following the election, network operators want to work with the new Government and the regulator Ofgem to guarantee a healthy and competitive market in connections whilst ensuring the interests of current and future users of the network are protected.



4. Smart Meters and Smarter Networks

As we move towards a low carbon economy the wires and pipes of our transmission and distribution infrastructure will need to accommodate a rapid increase in intermittent generation from renewables, alongside increased demand from the electrification of heat and transport. Our gas networks will have to evolve to accommodate more 'green gas' like biomethane being injected into the grid in a low carbon future. If we are to adapt to these changes in a way that is affordable for customers, then innovation and new technology will be crucial.

Networks are already delivering the innovative projects and smart grid solutions which will be so important to overcoming future energy challenges. Since the introduction of dedicated funding streams in 2010 there has been remarkable progress in the field of low carbon network innovation, as evidenced by the projects showcased on ENA's Smarter Networks Portal.

ena energynetworks association / smarternetworks portal

This online portal acts as a repository for all innovation projects, across gas and electricity, associated with helping the networks adapt to the challenges of climate change whilst providing security of supply and value for money to customers.

ENA and its member companies work with Government and the regulator Ofgem through the Smart Grid Forum, which is considering how electricity network companies will address significant new challenges as they play their role in the decarbonisation of electricity supply.

Any Government formed after the next election must recognise the need for continued collaboration with networks and support for innovation in the energy sector. This must be at the heart of DECC's strategic priorities to ensure continued progress towards a smart grid.

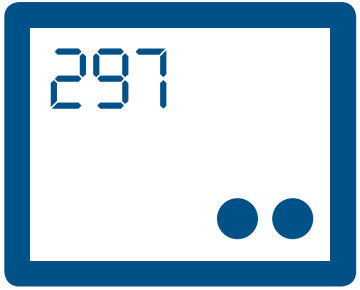
We need the new Government to continue to champion innovation alongside investment in skills, which will be vital to achieving the UK's wider energy objectives over the coming years.

www.smarternetworks.org

Smart Meters

Smart meters are an integral part of achieving a smarter network. They will bring more intelligence to the grid and allow network operators to plan more efficient investment in infrastructure. The network benefits from smart meters are where the greatest long term cost savings come from as well as having the potential to deliver significant improvements in customer service.

While the network companies are not rolling out the meters themselves, they are critical to the success of the programme.



Close working between the suppliers and the networks will be crucial to delivering the smart meter roll-out efficiently, as addressing network issues in a co-ordinated way will ensure the best experience for customers. Network operators are looking forward to receiving reliable roll-out plans from each supplier. The supplier roll-out plans will be used by network operators to prepare for their resources to be in the right place at the right time to resolve any issues arising with the network during smart meter installations.

It is intended that the smart metering system will offer various functionalities to network operators which will allow them to deliver real benefits to customers, including improved service and lower costs. These functionalities will be vital if customers are to derive the full benefits from smart meters. Network operators will need to continue working closely with the Data Communications Company (DCC) and DECC to ensure that the smart system functionality that is intended for network operators is implemented as designed, without degradation of these customer benefits.

The new Government must ensure that the smart meter roll-out meets the needs of energy network companies if the full benefits of the programme are to be realised for consumers. ENA and its members will continue to work with the new Government, suppliers, Ofgem, the DCC and others so that key stakeholders have the expertise of the networks sector and fully understand its part in the smart meter roll-out.

5. Future of Gas

Both our gas and electricity networks would face a threat from future policy decisions taken over the course of the next Parliament and beyond, if they fail to recognise the importance of gas in an affordable and secure decarbonisation process.

Gas is the fuel of choice for UK consumers meeting the heating needs of almost 85% of domestic properties[5] and the cooking needs of around 50% of residential and service sector buildings[6]. Whilst our usage will gradually change as we decarbonise, gas is set to remain dominant for some time. It will also play an important role in electricity generation by 2050, as Carbon Capture and Storage technology continues to advance.

The UK's gas network is an extremely valuable asset and a feat of engineering which has helped industry to grow and has provided an affordable way to heat our homes over many decades. A future for gas in the UK's energy mix will ensure that we continue to benefit from this vital asset over the coming decades and provide security at a lower cost for consumers.

Our gas network will also be crucial to managing the increasing demands on our electricity network from decarbonisation. The electrification of heat and transport will significantly increase the load on the electricity network, which will also need to cope with higher peaks in winter.

We need the new Government to recognise that without a role for gas in the energy mix the cost of reinforcing the electricity network to meet the challenges of decarbonisation will cost between £16-28 billion by 2050. If gas plays a role in a balanced transition to a low carbon future it will reduce the cost of investment in the electricity distribution network by £8 billion[7].

Gas is the fuel of choice for UK consumers meeting the heating needs of almost

85%

of domestic properties

5. Delta EE, "2050 Pathways for Domestic Heat" (2012)
6. Carbon Connect, "Pathways for Heat: Low Carbon Heat for Buildings" (2014)
7. Delta EE, (2012)

Green Gas and Shale

Our gas network will not only play an important role in an affordable decarbonisation process, but also has a long term future in a low carbon energy mix through the injection of biomethane into the grid.

With heat demand accounting for a third of UK carbon emissions, the use of carbon neutral biomethane has the potential to make a significant contribution to the UK's climate change targets. Unlike other low carbon heat options, the use of biomethane requires no expansion of gas or electricity networks or the installation of new domestic appliances, saving money for consumers.

Biomethane capacity has grown every year since 2011 and more than quadrupled in 2014 due to support from the Government through the Renewable Heat Incentive (RHI).

With continued Government backing and technical support from ENA's Biomethane Campaign Working Group, biomethane has the potential to meet over 10% of the UK's domestic heat demand by 2020[8].

The new Government should commit to extending RHI beyond April 2016, and encourage biomethane injection into the gas grid to make more efficient use of biogas and provide a level playing field between the use of biomethane for injection and electricity generation.

Green gas can also play a role in reducing the carbon intensity of the UK's transportation network. The Department for Transport must include gas firmly in its road map for low carbon vehicles.

Shale gas has the potential to play a role in the UK's energy mix, and would help diversify supply, lower costs, reduce reliance on imports and cut carbon emissions. If policy makers decide to pursue this source of gas following the election then our networks will be on hand to play a central role in facilitating shale gas and connecting it to the grid.

8. Anaerobic Digestion and Bioresources Association, (2014)

Iron Mains Replacement Programme

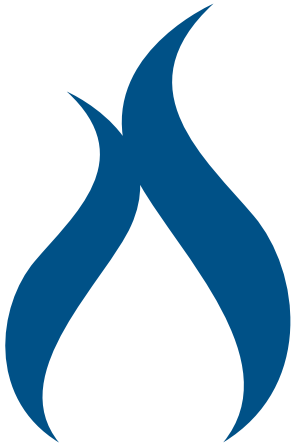
The 30:30 Iron Mains Replacement Programme (IMRP), introduced by the Health and Safety Executive in 2002, requires the replacement of all iron pipes within 30 metres of a building within 30 years (by April 2032) due to the potential safety risks associated with iron mains in gas networks.

A reduction in the IMRP could pose a threat to public safety from dangerous gas leaks.

The cost basis for a reduction in the IMRP would prove counterproductive as it would require significant changes to agreed RIIO price controls, undermining investor confidence, increasing the future cost of capital and resulting in an unwelcome increase in the cost of energy for customers.

Finally, the IMRP is in the overwhelming interest of the UK economy supporting thousands of jobs across all regions during the RIIO price control period.

In February 2015 the Government reaffirmed its commitment to the IMRP. It is important for the new Government to recognise the importance of the IMRP to public safety, cost to consumers and the UK economy. Networks will work with the new Government to ensure that these benefits are delivered effectively and efficiently to ensure value for money.

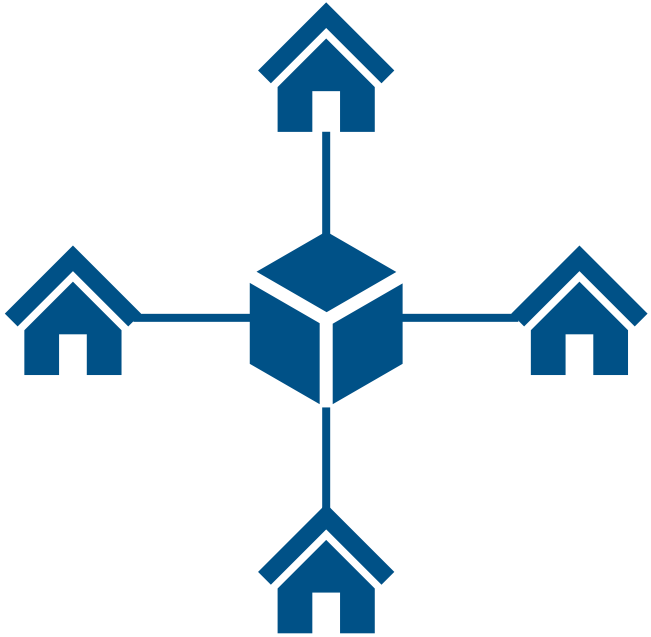


6. Heat Networks

Heat networks deliver heat from a variety of sources, such as industrial plants, directly into people's homes and businesses via hot water pipes. Heat networks currently provide less than 2% of UK heat, but have the potential to deliver a significantly larger percentage of heat demand by 2050[9].

Gas Distribution Networks (GDNs) currently assist in delivering heat networks, working with a range of stakeholders to provide heating solutions in areas where this technology is suitable, namely high density urban populations in close proximity to a heat source. The new Government should work with GDNs, Local Authorities and others on the appropriate development of low carbon heat networks in heavily populated areas.

We need the new Government to work with networks in exploring the appropriate development of heat networks in the most suitable areas.



9. Carbon Connect, (2014)

7. Fuel Poverty and Vulnerable Customers

The network operators have an important role to play in addressing fuel poverty and will work with Government to bring down the number of fuel poor households over the course of the next Parliament.

The gas network will be central to this effort as gas remains the fuel of choice for addressing fuel poverty. Connecting people in fuel poverty to the gas network offers them an affordable and reliable source of heat that is also more environmentally friendly than oil, which is used in many cases.

Through Ofgem's Fuel Poor Gas Extension Scheme, ENA member companies are extending the gas network to fuel poor communities. In 2013/14, gas network companies achieved 14,764 gas connections as part of addressing fuel poverty. The GB target up to 2021 is for over 77,450 new fuel poor connections[10].

The new Government must continue to support the work of the networks in combating fuel poverty and adopt policy positions in relation to gas, which consider the interests of fuel poor customers.

Gas and electricity network companies have comprehensive arrangements in place to provide support to vulnerable customers, identified through the Priority Service Register. Working with local authorities, Local Resilience Forums (LRFs), organisations like the British Red Cross, and other service providers, networks are able to provide a range of support for those customers most at risk during a loss of energy supplies.

Following the winter storms of 2013/14 these arrangements have been reviewed and enhanced to ensure that our networks can provide assistance and advice to vulnerable customers whenever they need it.

ENA is also leading a project to launch a national three digit number for electricity network companies, providing further support for vulnerable customers who will have an easy to remember number to call when they lose power. The 105 number for DNOs is on course to launch in April 2016.

The GB target up to 2021 is for over

77,450

new fuel poor connections

[10] Ofgem, "RIIO-GD1 Final Proposals" (2012)

8. Street Works

The maintenance of gas and electricity infrastructure underneath roads and pavements is essential for secure energy supplies. In carrying out this maintenance, network operators are committed to minimising the amount of time they occupy roads and reducing the impact of street works wherever possible.

To ensure that street works can be carried out efficiently and to a high standard, collaboration with the Department for Transport is important, particularly over lane rental and permit scheme regulation.

With the increasing population and expansion of our energy networks over the coming years it will be more important than ever for the new Government to ensure that the regulation of street works does not act as a barrier to proper maintenance of vital infrastructure.

Through the ENA Streetworks Forum and the National Joint Utilities Group, our network operators will look to work with the new Government to build on the strong performance of gas and electricity network companies in carrying out street works.

9. Interconnectors

ENA supports the doubling of current UK interconnector capacity to 8-9GW. Not only would this put us closer to the European benchmark of 10% of capacity from interconnectors, it could also save UK consumers up to £1 billion a year.

GB has four operational interconnectors (4GW) representing 5% of existing generation capacity in 2014. Independent analysis shows a failure to double existing interconnector capacity to nearer the 10% proposed by the European Commission could be equivalent to foregoing a wholesale electricity price reduction of nearly £3 million every day. Depending on the extent to which this is passed through to the retail market, households could experience savings of up to £13 per household per annum, as long as the price difference remains between GB and mainland Europe[11].

We need the new Government to facilitate this increase in interconnector capacity in the interests of customers.

Doubling of current UK interconnector capacity could make an annual saving of

£1 billion

[11] National Grid, "Getting More Connected" (2014)

10. A Long Term Infrastructure Investment Plan

Investment in energy networks often requires a balance to be struck between national need and local impact.

Investment in the energy networks over the coming years will be crucial to ensuring secure and affordable supplies of gas and electricity, and will therefore be in the interest of everyone in the UK. However, it is important that people have a say in their local area and on the infrastructure that may need to be built in it.

ENA welcomes the National Infrastructure Plan that the Coalition has established. In the next Parliament it is essential that we begin to establish a broader public understanding of the benefits and trade-offs associated with infrastructure investment and delivery in the UK. This will help build greater "public consensus", which is needed to deliver long term political stability for energy policy.

ENA supports calls for a more structured national infrastructure planning process to help co-ordinate, unblock and explain investment. The regional element of this planning process is crucial to securing stability and acceptability. A national plan should be rooted in the regions with regional investment strategies and compelling regional narratives developed through real engagement with communities.

These ideas build on proposals from National Grid, Lord Heseltine, Labour's Sir John Armitt, the Local Government Organisation and Cities for Growth. ENA will play a role alongside Government and other stakeholders to form a coherent energy narrative, so that the public fully understand the need for and implications of energy infrastructure investment.

We need the new Government to create the right conditions to deliver an effective and affordable, long term infrastructure investment plan.

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