

Collaborating for local net zero planning and delivery

How network operators can support local government to develop and deliver local net zero plans and projects



Executive Summary

We're putting customers first as we shape the energy system of the future, deliver outstanding service and facilitate net zero. We want local government to join us on the journey, sharing your net zero plans and having your say on how the energy system should evolve to meet local needs.

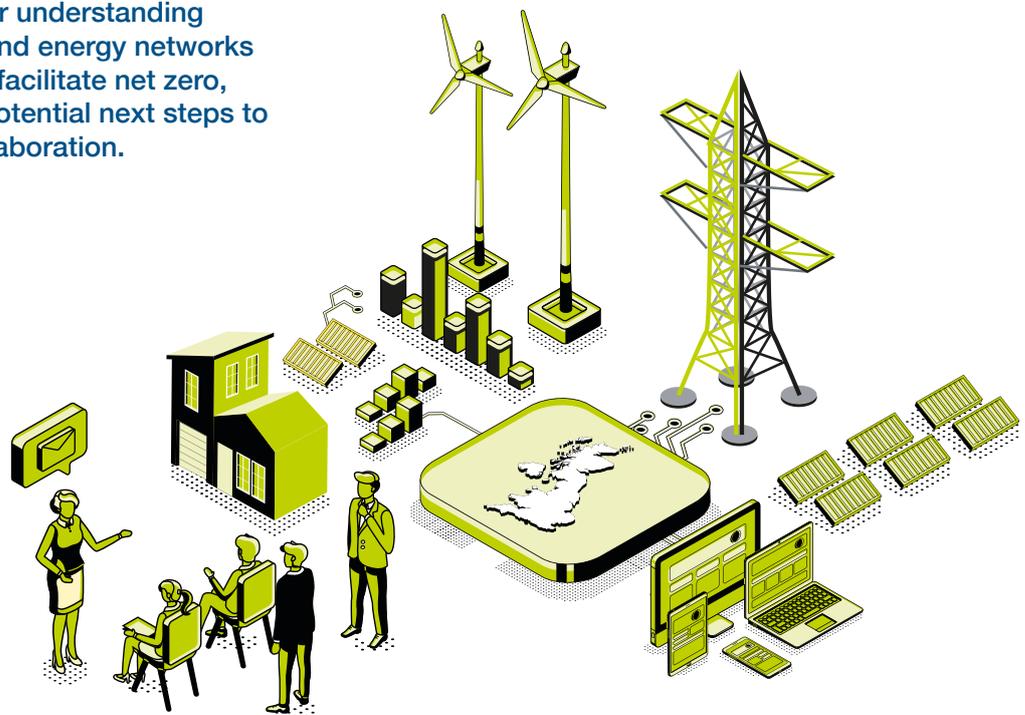
Our customers have told us that tackling the climate crisis is one of their highest priorities. As a result, facilitating the UK and Scotland's net zero carbon emissions targets by 2050 and 2045 is central to all utilities.

Energy networks are at the centre of the change. To transition the energy system itself and actively help move away from fossil fuels, we need to efficiently plan where and when to invest. We can only do this by forecasting future use of our networks and the changes driven by decarbonisation, including new demand connections and the roll out of low carbon technologies (LCTs), such as renewable generation, electric vehicles and low-carbon heating.

Local government, including county, district, borough and combined authorities, have a critical role to play in delivering net zero. Through planning, investment and leadership, these local authorities are supporting the roll out of the LCTs that will help meet decarbonisation targets, with many now developing local energy plans. As a result, collaboration between energy networks and local government is key to ensure robust forecasts about where, when and how to focus investment in energy infrastructure to support the deployment of LCTs.

To assist this collaboration, ENA members are establishing and building new processes and capabilities to support local authorities' net zero planning, and to understand what they mean for the future use of our networks.

This document sets out our understanding of how local government and energy networks currently work together to facilitate net zero, innovative practices and potential next steps to foster further effective collaboration.



Introduction

Role of Energy Networks Association (ENA)



Energy Networks Association is a not-for-profit industry body representing the companies which operate the electricity wires, gas pipes and energy system in the UK and Ireland.

Energy network operators across the UK recognise the strategic importance of local net zero energy plans in achieving national and local net zero ambitions. As the way we think about and use our energy is changing, ENA provides a platform for electricity and gas network operators to work closely to develop, innovate and align processes on how to support local authorities' net zero plans, including using a whole system approach.

This document is published by the Whole System Delivery Group, part of the ENA Whole System Strategy Group, to launch a process to develop, support and advance collaboration between networks and local authorities.

Role of network operators

Network operators are responsible for the energy infrastructure that underpins the net zero energy transition – the pipes and wires that deliver energy from generators to homes, businesses and communities across the country.

There are two types of network: transmission and distribution.

Transmission networks are like the motorways of the networks, moving energy efficiently over long distances. Distribution networks are like the A-roads of the networks, carrying gas and electricity into your home or business.

Distribution Network Operators (DNOs) and Gas Distribution Networks (GDNs) are responsible for managing, maintaining and investing in the distribution networks. Transmission network operators are responsible for managing, maintaining and investing in the transmission networks.

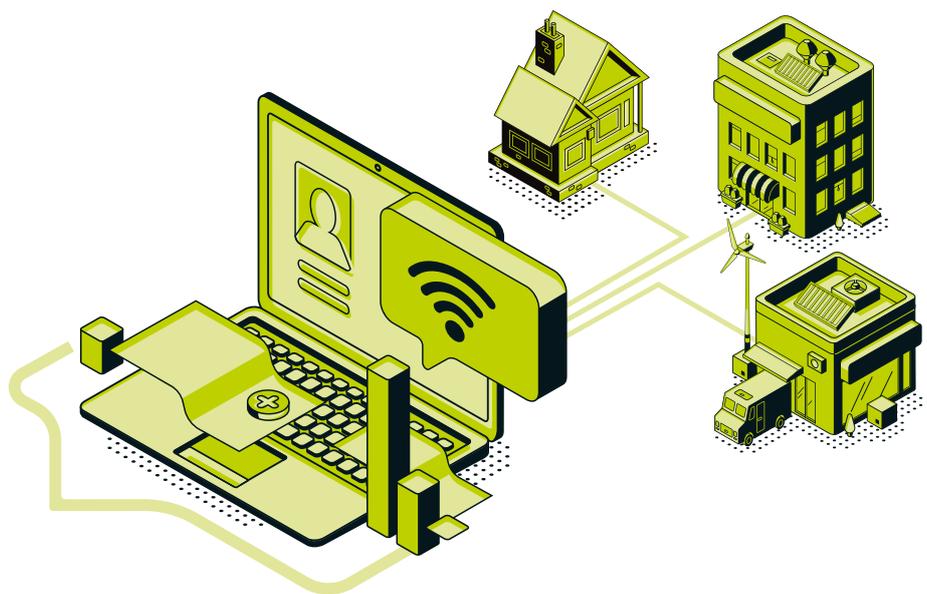
The Electricity System Operator (ESO) operates the electricity system and the Gas System Operator (GSO) operates the gas system. Their roles include balancing supply and demand in real time and looking forward to developing new

market frameworks and accommodating new technologies and ways of working.

Network operators are regulated by Ofgem, a government body that assesses their investment plans and how well they have delivered against these plans, amongst other responsibilities.

The net zero energy transition requires major transformative changes in how energy is generated, stored and used – and the infrastructure that moves energy around the country likewise needs to evolve. As network operators, we are committed to supporting the net zero transition – to facilitating the change that is needed through investment, innovation and collaboration.

Network operators are ready to support local authorities with their net zero plans, and the range of services and offerings available for local authorities have been growing at a fast pace in recent years. In this document, we set out what support we are already committed to providing and we are keen to hear how you would like that to evolve.



Role of local government

The UK Government and local authorities share a common goal of achieving net zero, with over three hundred local authorities having made climate emergency declarations[1]. As well as decarbonising their council operations, there are many levers for local authorities to deliver decarbonisation actions for their wider areas, for example through:

- planning for transport, buildings, regeneration;
- investing in energy projects and retrofitting buildings;
- supporting the low carbon supply chain;
- working in partnership with communities and local organisations;
- and supporting the economic and social wellbeing of communities.

Delivery of each of these roles will benefit from proactive and ongoing interaction with the area's network operators.

Many local authorities have started to take a more strategic approach, leading the process of developing local energy plans that bring together local and national datasets, knowledge and stakeholder engagement to explore potential decarbonisation pathways for their local area. Approaches include using the **Local Area Energy Plan methodology developed by Energy Systems Catapult, Local Heat and Energy Efficiency Strategies in Scotland**, other bespoke local energy plans and investment focused approaches, such as **Bristol City Leap**. **For these local energy plans to be effective, they need to both consider and inform network investment plans on an ongoing iterative basis.** There is a critical and evolving relationship between local energy planning and network investment planning.

Regional Energy System Planning

In April 2022 Ofgem launched a review into the effectiveness of institutional and governance arrangements at a regional level to support delivery of net zero at least cost. In part, this was in response to a lack of consistency and cross-energy vector approach in regional planning, potentially delaying or creating inefficiencies in delivering net-zero regional ambitions.

One aspect of this was Regional Energy System Planning and in November 2023 Ofgem published **their decision** following their consultation in May 2023. This set out their intention to create 10-13 Regional Energy Strategic Planning regions (RESP's) across Great Britain giving the FSO the role of delivery body.

RESPs will be responsible for the development of strategic energy plans at the regional level, providing critical planning assumptions to inform system and network needs. Regional plans will aggregate top-down national targets and scenarios with local and regional insights. The plans will consider the whole energy system in a region (electricity, gas, hydrogen, heat networks etc.). The RESPs will be responsible for enabling effective participation and oversight via democratically aligned governance mechanisms.

During 2024 the gas and electricity networks will be working closely with Ofgem, the FSO, local government and other stakeholders to develop a detailed design for the new RESP's. This will also include an implementation and transition plan to the new RESP's.



How can network operators and local authorities work together on net zero plans and delivery?

Whether a local authority is developing local planning policies, delivering individual energy projects, supporting vulnerable customers or developing a comprehensive local energy plan, an effective and collaborative relationship with its local energy networks will support efficient delivery of its plans. Similarly, as energy networks, we recognise that working in partnership with local authorities to deliver net zero, brings cost savings, efficiency and better outcomes.

The following table categorises the types of interactions between local authorities and energy networks and the different roles required – setting out what effective collaboration looks like from both sides.

Key:  Local authorities' role
 Network/System operators' role

1 Named contacts and relationship building

<p>Establish and build relationships with local network operators.</p> <p>Attend regional engagements and provide feedback to network operators where possible, e.g. on Distribution Future Energy Scenarios (DFES) (for DNOs).</p> <p style="text-align: right;"></p>	<p>Provide named contacts for local authorities at both:</p> <ol style="list-style-type: none"> 1. A local level (project by project). 2. A strategic level to inform on regional investment. <p style="text-align: right;"></p>
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2 Representing local communities

<p>Act as a broker between your local communities and the energy system, convening meetings and facilitating partnership working.</p> <p>Work with networks on the identification of customers needing the priority services register and vulnerable customer support.</p> <p style="text-align: right;"></p>	<p>Engage with the local authority proactively to ensure the relationships across the local area are supported.</p> <p style="text-align: right;"></p>
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3 Open data

<p>Use network data to understand current and future projections for decarbonisation and reflect these in your local decision-making.</p> <p style="text-align: right;"></p>	<p>Provide open data and enabling tools (e.g. visualisation tools) for local authorities to access and understand network information including DFES (for DNOs).</p> <p style="text-align: right;"></p>
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How can network operators and local authorities work together on net zero plans and delivery?

LA Local authorities' role

NO Network/System operators' role

4 Connecting local projects to the network

Share your short-term project plans with the network operator's connections team, providing details of projects that require additional energy infrastructure in the next one to three years. Speak to our connections team and provide specific information, e.g. volumes, location, commissioning dates, funding status, stakeholder support, governance structure.

LA

Be transparent about input requirements as well as outputs from network processes, including **materiality and confidence assessment**.

Work iteratively with local authorities to provide network that supports their needs.

NO

5 Network input into local planning

Engage early with the network operators on your plans for medium and longer term decarbonisation and development in your local area. Share your plans and involve network operators and whole system thinking in net zero planning, local plans or regional economic plans.

LA

Respond to local authorities' enquiries regarding energy planning.

Tailor resources and support to facilitate the development of net zero plans by different local authorities.

NO

6 Network input into local planning

Provide required input and work collaboratively with network operators to engage with Ofgem about network investment plans, including reopeners/uncertainly mechanisms and **business plans**.

LA

Provide accessible and relatable information to local authorities on network processes. Work iteratively with local authorities, Ofgem and the **Regional Energy Strategic Planners (RESPs)** to develop business and other investment plans.

NO

7 Innovating together

Working together with both local authorities and energy networks initiating and collaborating in innovation projects along with other local stakeholders and partners to trial new approaches and processes. These innovation projects build new relationships and skills as well as understanding of effective net zero planning and delivery at a local level.

LA NO

1



Named contacts and relationship building

- 1. Establish and build relationships with local network operators
- 2. Attend regional engagements and provide feedback to network operators where possible, e.g. on DFES (for DNOs)

LA

Provide named contacts for local authorities at both:

- 1. A local level (project by project)
- 2. A strategic level to inform on regional issues.

NO

There is significant benefit to all parties from early and continued engagement. The first step in closer collaboration between networks and local authorities is to identify named contacts that are available from both sides, with regular meetings and interactions.

Network operators are committed to ensuring it is clear to local authority stakeholders who these named contacts are and to establish regular meeting opportunities. If you do not already have a named contact, you can get in touch with your network operator using the details at the back of this document.

Local authorities likewise have widespread teams who often interact with network operators separately. Although dedicating resource to the role may be difficult, there are benefits to allocating a named contact from the local authority side too who can coordinate the local authority's interactions with the network operators around local energy planning. Local authorities could allocate a named contact for network operators to use as a primary point of contact and coordinator of interactions on local energy planning and longer term decarbonisation plans. (See Network input into local planning).

2



Representing local communities

Act as a broker between your local communities and the energy system, convening meetings and facilitating partnership working with energy networks.

Work with energy networks and local partners on the identification of customers needing the priority services register and vulnerable customer support.

LA

Engage with the local authority proactively as local area representatives for communities, wider public sector and businesses – developing partnership working to support local communities.

NO

Both local authorities and networks play a part in supporting local communities and wider stakeholders on decarbonisation plans and projects.

Local authorities, as local area representatives, have a role in brokering relationships in a local area, for example supporting community energy organisations or other public sector organisations to understand the energy system and decarbonisation plans, as well as their immediate needs to connect projects to the network. Where local organisations are developing medium and longer term plans for decarbonisation, local authorities are reflecting these in their local decarbonisation plans such as LAEPs. (See Network input into local planning).

Local authorities also work with network operators to identify customers who may need to be added to the **priority services register** and to receive vulnerable customer support.

Network operators are committed to engaging proactively with local authorities as area representatives to support their brokerage role, attending meetings arranged by the local authority and dedicating resources to working collaboratively on projects, such as developing the priority services register.

Local authorities can similarly be proactive in engaging network operators in their meetings with local stakeholders, facilitating and coordinating supportive local relationships.

3



Open data

Use network data to understand current and future projections for decarbonisation and reflect these in your local decision-making.	Provide open data and enabling tools (e.g. visualisation tools) for local authorities to access and understand network information including DFES (for DNOs).
LA	NO

Network operators hold or have access to many of the key datasets that local authorities can use to inform local energy planning, investment and policy decisions. Open data provision can support effective decision making and avoid duplication of effort in accessing and analysing data. Available datasets include:

- Current installed capacity of low carbon technologies
- Network constraints and investment plans

- Forecasts for future low carbon technology uptake, e.g. from the **Distribution Future Energy Scenarios (DFES)**
- Third party datasets, such as government datasets on social, economic and environmental indicators.

Network operators are committed to making their data available to local authorities in an accessible format that supports local decision making.

Local authorities can support the sharing of open data by dedicating resources to make use of the available data in local energy planning and decision making. You can see the links to the relevant open data portals for your local energy network [here](#).

Some network operators are working with local authorities and innovators to develop digital tools to support the sharing of open data. These include UK Power Networks' **Collaborative Local Energy Optimisation (CLEO)** project. CLEO has developed a self-serve net zero planning tool named **Your Local Net Zero Hub**, the first tool to be designed in partnership with local authorities and to be rolled out across UK Power Networks' entire licence area. Your Local Net Zero Hub enables local authorities to combine their decarbonisation strategies, local market trends, transport plans and social inclusion policies with network infrastructure data to develop options for their communities. Your Local Net Zero Hub is a collaborative effort shaped by invaluable input of local authorities from the early prototyping stages to today's beta program has been opened to all local authorities. The tool will go live in summer 2024, catering specifically to local authorities' needs and empowering decision-making that directly impacts their communities. You can find out more [here](#)

Scottish and Southern Electricity Networks (SSEN) through its Regional Energy System Optimisation Planning (RESOP) project developed the Local Energy Net Zero Accelerator (**LENZA**). This GB first tool collaboratively shares data between utilities and local authorities in order to assist with LAEPs. The tool is now being rolled out on a phased basis to local authorities across SSEN's licence areas. The team are interested in understanding more about how the tool can benefit local authorities to inform innovative enhancements. You can find out more [here](#).



4



Connecting local projects to the network

<p>Share your short-term project plans with the network operator's connections team, providing details of projects that require additional energy infrastructure in the next one to three years. Speak to our connections team and provide specific information, e.g. volumes, location, commissioning dates, funding status, stakeholder support, governance structure.</p> <p style="text-align: right;">LA</p>	<p>Be transparent about input requirements as well as outputs from network processes, including materiality and confidence assessment.</p> <p>Work iteratively with local authorities to provide network that supports their needs.</p> <p style="text-align: right;">NO</p>
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Local authorities looking to connect new demand, generation or storage projects need to contact their network operator's connection team and share detailed information about the planned project. Network operators offer connection surgeries to support local authorities and other customers to understand and work through their connection application process. ENA has developed FAQs about connecting to the electricity networks and for connecting to the gas network.

Local authorities often need to work collaboratively with network operators to understand the costs, impacts and timescales of connecting projects to the networks. Early engagement is critical, but feedback from local authorities tells us that key details of some projects can be unknown or uncertain in the early phases and could be altered depending on feedback from the network operators – for example, if a connection were to be significantly

less expensive with a slightly lower capacity. As a result, we recognise that an iterative, discursive process is needed to optimise outcomes. Network operators should be clear about what information they need from local authorities or other stakeholders and how different inputs will impact on connection offers.

Network operators are committed to working iteratively with local authorities to understand and develop optimal network solutions for connecting new projects.

Local authorities can support this approach by openly sharing as much detailed information as possible about potential projects and committing resources as early as possible to enable an iterative discussion with network operators.

ENA has a working group on improving and accelerating customer connections, with the action plan for change available [here](#).

5



Network input into local planning

<p>Engage early with the network operators on your plans for medium and longer term decarbonisation and development in your local area. Share your plans and involve network operators and whole system thinking in net zero planning, local plans or regional economic plans.</p> <p style="text-align: right;">LA</p>	<p>Respond to local authorities' enquiries regarding energy planning.</p> <p>Tailor resources and support to facilitate the development of net zero plans by different local authorities.</p> <p style="text-align: right;">NO</p>
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Local authorities are developing their decarbonisation programmes through the creation of place-based energy plans. Approaches include using the **Local Area Energy Plan methodology developed by Energy Systems Catapult, Local Heat and Energy Efficiency Strategies in Scotland**, other bespoke local energy plans and investment focused approaches, such as Bristol city LEAP. Whatever the approach taken, local energy and economic plans should be the output of collaborative planning between local authorities, utilities, energy consumers and other local stakeholders to support the development of a medium- and

long-term plan to reach net zero within a given geographical area.

A whole system approach is critical to create an effective local energy plan, considering all sectors – heat, electricity and transport – and how energy is generated, stored, transported and used. The plans will guide the local authority on how best to deploy low carbon technologies such as electric vehicles, heat pumps or hydrogen boilers. The local energy plan can provide robust evidence for local planning policy and for investment in net zero energy systems. This robust evidence can then be used to inform local network investment plans (see interaction 6).

Network input into local planning

continued

Network operators are committed to engaging with local authorities as they develop local energy and other economic plans, tailoring their resources and support to the needs of different local authorities.

Network operators hold key data about network capacity, existing resources, future network plans and decarbonisation trajectories that local authorities can use in local energy planning. Outputs from networks' Distribution Future Energy Scenarios (DFES) can be used to inform decarbonisation pathway planning. (See interaction 3, open data)

Local authorities can ensure that they engage early with network operators on their local energy plans. Engaging early with network operators will help to maximise the benefits of the engagement, facilitating access to relevant data and projections.

Benefits of local energy planning

A well evidenced plan with buy-in from stakeholders and network operators can justify network investment

A technically sound and deliverable local energy plan with stakeholders' buy-in can provide network operators with robust justification to target investment to deliver the right capacity, at the right place, at the right time and at the lowest cost. Input from network operators will help to manage expectations on getting the necessary infrastructure ready for project delivery. Customers will benefit from a coordinated approach to prioritising effort in areas where investment is most needed to reduce delays.

Sharing different local decarbonisation pathways helps to engage with stakeholders

During production of a local energy plan, modelling options are combined into different decarbonisation pathways for stakeholders' review and refinement. This allows local

stakeholders to understand the energy transition required to achieve net zero through accessible, technical insights and ensure stakeholders can make an informed choice for a just transition. Furthermore, visualisation processes help share knowledge across the communities and provide a valuable opportunity to understand public attitudes and preferences for the proposed solutions.

Whole system collaboration can lead to more robust delivery

The coordinated approach between electricity and gas network operators and local authorities in a local energy plan can ensure all parties working closely together to meet both local and national plans.

Stage 1

Identify and engage stakeholders, including your network operators



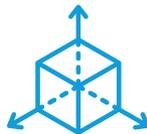
Stage 2

Baseline data analysis - understand current energy systems and data protections required



Stage 3

Scenario modelling for your future energy systems



Stage 4

Review and rank on your preferred decarbonisation pathways



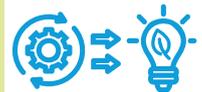
Stage 5

Consult wider stakeholders on the preferred decarbonisation pathways



Stage 6

Implement and monitor your local Net Zero energy plan



6 Network input into local planning

Provide required input and work collaboratively with network operators to engage with Ofgem about network investment plans, including reopeners/uncertainly mechanisms and business plans. LA	Provide accessible and relatable information to local authorities on network processes. Work iteratively with local authorities, Ofgem and the Regional Energy Strategic Planners (RESPs) to develop business and other investment plans, e.g. RIIO business plans. NO
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Interactions 5 and 6 are two sides of the same coin: local authorities will benefit from network input into their local energy and economic plans, and network operators will benefit from local authority input into their strategic network investment plans.

There needs to be a two-way iterative interaction between local authority and regional plans and network investment plans, made possible by local government and network operators taking a long-term approach to working together.

We have developed a diagram that describes how local net zero plans currently integrate and interact with the electricity and gas forecasts and investment plans at a regional and national level, helping networks develop investment programmes that align to local need and ambition.

We are committed to improving the transparency and visibility of this process.

The diagram shows the view of the industry on how this process currently works. To note, however, this may be subject to change with the results of the Ofgem consultations on future energy systems, and UK Government's strategic decisions on low carbon technologies, for example role of hydrogen for heat in 2026.

Network operators are committed to working collaboratively with local authorities to develop our business and network investment plans to deliver local net zero ambitions. We will provide accessible and relatable information to local authorities on network processes, upskilling local authorities on how the information they provide is used in network planning.

Local authorities can work collaboratively with network operators providing information requested and sharing views on network investment plans. Useful information to provide will include data on the status of projects, for example, information on funding secured, planning approvals and stakeholder support.

How your local decarbonisation plans facilitate – £ investment and MW capacity

- Whole systems consideration
- Output from Distribution Network Operators (DNOs)
- Output from Gas Distribution Networks (GDNs)



7 Innovating together

Working together with both local authorities and energy networks initiating and collaborating in innovation projects along with other local stakeholders and partners to trial new approaches and processes. These innovation projects build new relationships and skills as well as understanding of effective net zero planning and delivery at a local level.

LA NO

Net zero will require a transformational shift and in this changing world we recognise the importance of ‘learning by doing’.

Since 2010, network operators have been investing in innovation to support the net zero transition. The transition will see network operators mature and build Distribution System Operation (DSO) capabilities to take a more active role in managing their networks with new low carbon solutions and ensure the energy system as a whole is properly equipped to enable net zero. Networks have been relentless in their focus on innovation, and private investment has helped make Britain a superpower of renewable energy.

Network operators cannot deliver innovation alone. We want to work with innovators, creators and stakeholders, including local authorities, to help us achieve decarbonisation at scale. We have been innovating and learning with others to shape our capabilities in support of local net zero planning. The table in appendix 1 sets out some of the projects delivered to date under five innovation themes.

Network operators are committed to continuously striving to innovate, iterate and improve our approach to local net zero planning. We will work with partners to create tools, explore processes and build new relationships that build our understanding of effective net zero planning.

Local authorities can engage with network operators to trial new approaches in their area, helping shape the future of local net zero planning.

More information on innovation opportunities and existing projects can be found here:

Ofgem-funded innovation projects

ENA's Smarter Networks Portal is a central repository for regulation-funded innovation projects and associated outputs, data, knowledge, news and dissemination events. It focuses on all previous and current Ofgem-funded innovation projects.

smarter.energynetworks.org

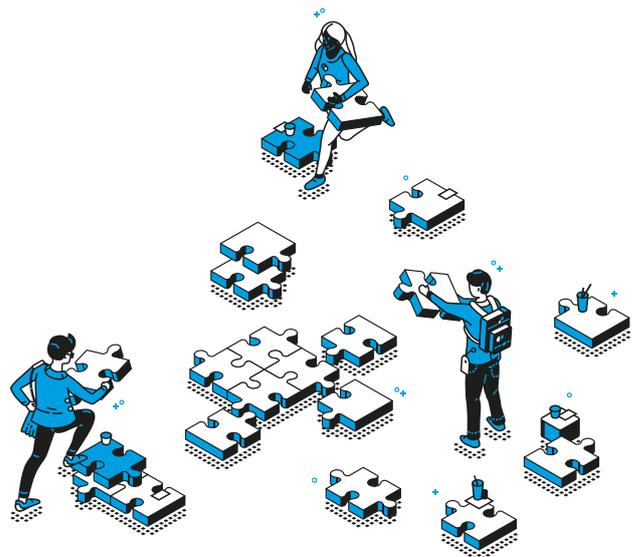
Strategic Innovation Fund

Delivered by a partnership between Ofgem and Innovate UK. The Strategic Innovation Fund (SIF) is designed to drive the innovation needed to transform gas and electricity networks for a low-carbon future. The fund also provides the opportunity for third-party innovators or local authorities to propose or pitch new and innovative ideas for Great Britain's energy network operators to consider.

Strategic Innovation Fund (SIF) | Ofgem

UK Research and Innovation (UKRI): Net Zero Living

Innovate UK is running a £60 million Net Zero Living programme. The programme is designed to help places and businesses to accelerate the delivery of the transition to net zero. **Projects to develop local net zero innovations – UKRI.**



Glossary

Future Energy Scenarios

The Distribution Future Energy Scenarios (DFES) is an annual forecasting activity undertaken by every DNO across They present long-term regional electricity trends for a range of scenarios that reflect local stakeholders and customers plans. DFES is used for distribution network planning and allows us to share insights with customers on transition to a net zero carbon future.

Future Energy Scenarios

The Future Energy Scenarios (FES) produced by the Electricity System Operator (ESO), outline four different pathways for the future of the whole energy system out to 2050. Each one considers how much energy we might need and where it could come from, to build a picture of the ways in which Great Britain could reach net zero. FES is used to underpin energy network investment, support financial investment decisions for net zero technologies, inform national and regional policy and carry out academic research and innovation.

Gas demand forecast / 10 year statement

The Gas Ten Year Statement is published annually and provides information on the next ten years' plan for Gas Transmission.

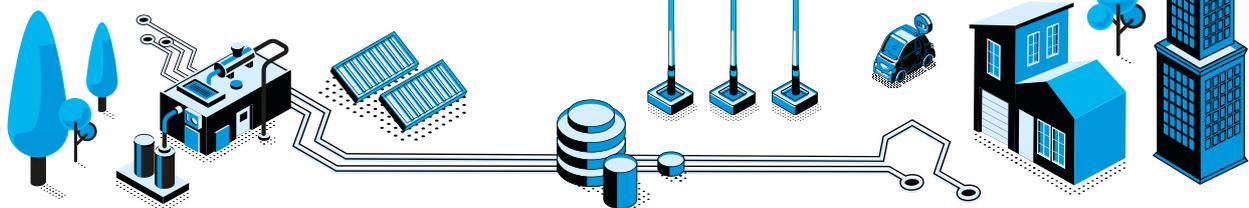
The Long Term Development Statement is an annual publication by GDNs and DNOs to inform investment and business decisions.

Materiality and confidence assessment

The materiality and confidence assessment is a process by network operators to compare local authorities' net zero plans with their investment plans and identify solutions to meet capacity requirements.

Network Development Plan and Report

The Network Development Plan (NDP) is published every two years and Network Headroom Report is updated on the annual basis. It details future distribution network requirements for one to ten years beyond publication. NDP shows future network capacity needs and where on network there will be network capacity to accommodate future connections. It also provides information on how network capacity will be created over the next ten years.



Network Price Controls/ Business Plans/ Price Control Periods

Network operators are regulated by Ofgem. Ofgem sets out in advance its expectations for network operators' income and expenditure and an agreed set of requirements on what it expects them to deliver. These requirements are currently agreed for a five year period, known as a Network Price Control Period. The current Price Control Period is referred to as R10-2. The network operators submit their planned activities in the form of a Business Plan. They are then assessed on these and rewarded or penalised on how well they have delivered against these plans.

Priority services register

A free UK wide service which provides extra advice and support to customers with extra communication, access or safety needs, including when there's an interruption to a customer's electricity, gas or water supply.

Regional Energy Strategic Planners

A Regional Energy Strategic Planners (RESPs) will be responsible for the development of strategic energy plans at a regional level. The RESP will aggregate top-down national planning information like the FES with local and regional insights to make critical planning decisions that inform and direct local energy strategy. The Future System Operator will be the delivery body for the RESP. Ofgem is currently consulting on the detail about how the RESP will operate.

Uncertainty mechanisms and Re-openers

Uncertainty Mechanisms and Re-openers enable network operators to increase or change investment plans if something changes over the Price Control period, like higher take up of a technology.

Looking to the future

The following actions have been proposed to support closer collaboration between energy networks and local authorities, enabling whole system energy planning.

Collaboration:

There is a growing sense of collaboration and strengthened ties between local authorities and network operators. We recognise that there's nothing more valuable than fostering these strong relationships and rapport – these discussions are shaping how local net zero planning and delivery develops. Network operators are committed to working in partnership with local authorities to develop strong collaborative long-term relationships.

Capacity and capability:

Skills in local energy planning and delivery are being developed across local authorities and network operators, but there is still a need to share and support new skills and capability.

Local knowledge and technical expertise are needed to enhance the capabilities of both networks and local authorities. This includes effectively handling data, both input and output, and improving spatial analysis and visualisation. Network operators are committed to supporting local authorities to develop their skills, providing training and guides where appropriate and working hand in hand to upskill teams.

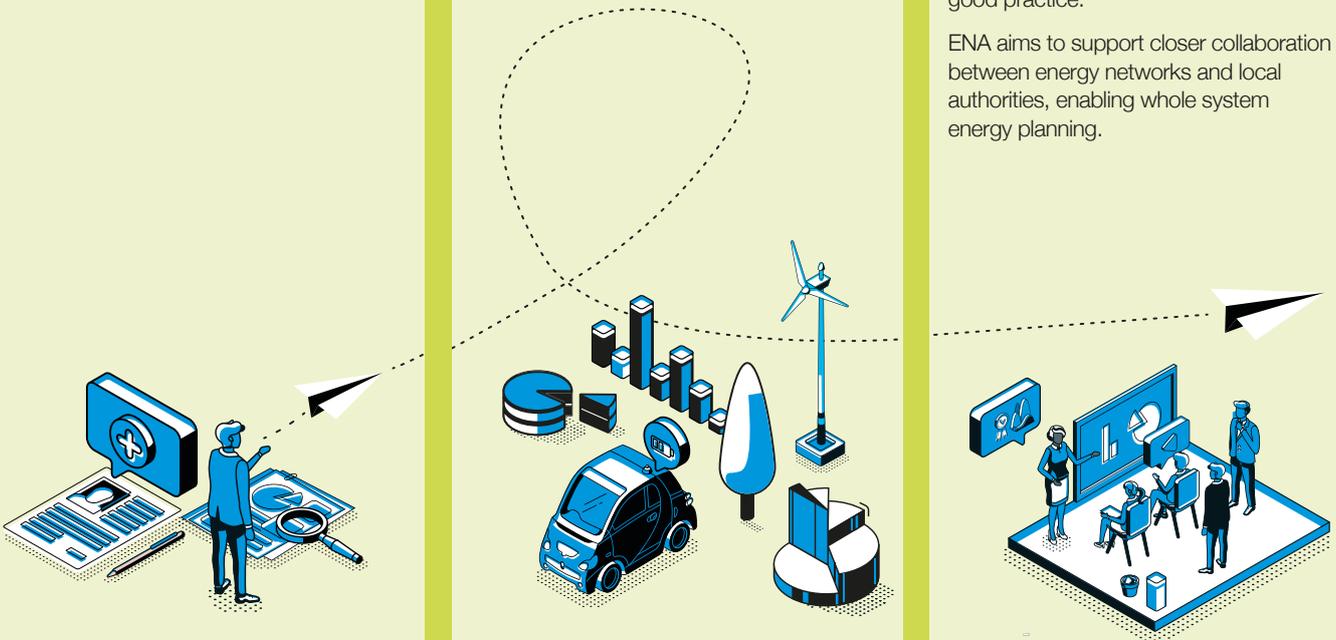
Change and innovation:

Networks and local authorities are evolving together, and plans are subject to change over time. Ongoing and dynamic conversations and shared language is critically important to engagement moving forwards.

Networks need to understand local authorities' decarbonisation plans for their local area as early as possible, including, for example, the volume over time of low carbon technology uptake and social housing development, and the confidence of those plans. It's equally important for local authorities to understand networks' planning processes, timescales and investment decisions. This understanding will enable better alignment of local plans with the necessary network investments to make them a reality.

Network operators are committed to working with local authorities and partners to innovate and evolve our processes, reflecting on lessons learned and highlighting good practice.

ENA aims to support closer collaboration between energy networks and local authorities, enabling whole system energy planning.



Proposed future work in this space

Collaboration:

1 Data sharing

Developing standard data sharing agreements and draft contracts to be used in energy planning and other processes between local authorities and electricity & gas networks, including at a low voltage level.

2 Standardisation

Bringing together/coordinating/standardising data provision across DNOs and GDNs so datasets can be accessed and collated nationally. This has potential links to future Regional Energy Strategic Planner (RESP) role.

Capacity and capability:

3 Signposting support and advice

Consider providing GIS expertise as a technical resource for local authorities, or providing tools that might replace the need to have GIS skills.

4 Training and guides

There is a need for basic guides or potentially in-person training for local authorities and other public sector organisations to facilitate network conversations. An easy access language guide, key questions to ask, how to find the answers with data etc.

5 Guides to regional investment

More detail on how local actors can influence network investment, building on the report's WHY, WHO and WHAT diagram and how LAEPs and other energy plans sit in these flows.

Change and innovation:

6 Visualisation and digital tools

Further innovation is needed in visualisation and ability to interrogate network data. This would need to build on existing innovation projects.

7 Inputting and integrating local information

Need to develop new processes around local authorities gathering and submitting local information to networks outside of connection requests, as well as networks receiving and integrating local data and information (also linked to RESP). (Linked to point 2 and 6 above.)



To stay up to date with the latest developments, local authority representatives can **sign up** to our newsletter to be notified of new stakeholder engagement focus groups and events.

Appendix 1: Innovation case studies

1. Digitalised tools

Collaborative Local Energy Optimisation (CLEO) (Mar 22 – Jul 24)

Network Operators: UK Power Networks
Key Partners: Local Authorities, Energy Systems Catapult, Community Energy South



CLEO is developing a self-serve net zero planning tool named Your Local Net Zero Hub, the first tool to be designed in partnership with local authorities and our gas network peers to facilitate our local stakeholders planning with a whole system perspective, and to be rolled out across UK Power Networks' entire licence area.

Your Local Net Zero Hub is an interactive one-stop-shop, designed for local authorities at various stages of their net zero journey to seamlessly integrate their local net zero plans with UK Power Networks' network data, making it easier to plan, visualise and present potential energy projects and scenarios to their communities.

Regional Energy System Optimisation Planning (RESOP)

(Jan 20 – June 23)

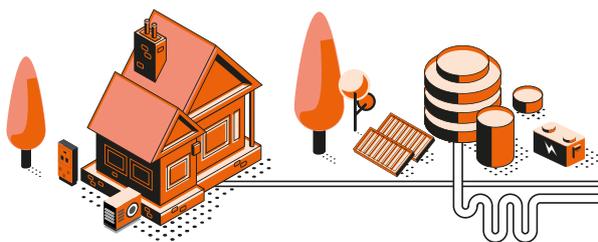
Network Operators: Scottish and Southern Electricity Networks (SSEN)
Key Partners: Local authorities, SGN and Scottish Water



RESOP (now branded Local Energy Net Zero Accelerator (LENZA)) is the first GB geospatial planning software that provides data on network constraints, empowering planners to make better informed decisions about where to install new energy assets in their local areas.

The tool collaboratively shares data between utilities and Local Authorities in order to assist with LAEPs.

The tool is now being rolled out into business as usual with enhancements being progressed through an associated innovation project. The underlying model has been taken up by other network organisations and local authorities facilitating co-ordination and co-operation.



2. Decarbonised heat

RetroMeter (Apr 23 – Jul 23)

Network Operators: ENWL
Key Partners: EnergyPro Ltd, Energy Systems Catapult, Carbon Co-op, Manchester City Council



Demonstrate a consistent methodology to accurately measure the energy and cost savings of retrofit energy efficiency measures, leading to reduced costs for consumers and additional flexible services for the DNO.

Re-Heat: Enabling Renewable Heat

(Jun 21 – Oct 24)

Network Operators: SPEN
Key Partners: SPD, SHEPD



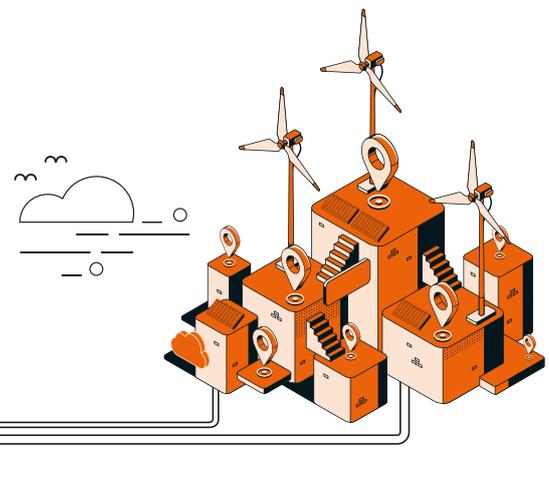
Re-Heat will trial innovative techniques to mitigate the effects of increased demand from domestic electrical heating on the distribution network and increase utilisation of presently curtailed renewable generation.

H100 Fife (Apr 2020 - Mar 2027)

Network Operators: SGN
Key Partners: NGN, WWU, Cadent, Fife Council, Scottish Government



A world-first hydrogen network in Buckhaven and Denbeath that will bring renewable hydrogen into homes in 2024, providing zero-carbon fuel for heating and cooking.



3. Decarbonised transport

Visualising the opportunity for pipeline hydrogen for mobility applications (Jan – Aug 23)

Network Operators: NGN
Key Partners: Northern LEPs



This project will model the hydrogen mobility and hydrogen gas grid networks with the key output being a dynamic visualisation tool which will support the co-development of the hydrogen gas grid and hydrogen heavy transport sectors.

Project Charge Collective (Aug 20 – Dec 22)

Network Operators: UK Power Networks
Key Partners: Local Authorities



Charge Collective developed a first-of-its-kind network solution working directly with local authorities to plan local, public charging networks in areas at risk of getting left behind in the transition to net zero. The project aimed to cut through the market, coordination, social and upfront connection cost challenges that lead to underinvestment in public charging infrastructure. The research developed through the project highlights the challenges and opportunities with public charging deployment and helps understand what the future of public charging flexibility might look like.

Local Electric Vehicle Energy Loop (LEVEL) (Apr 20 – Oct 21)

Network Operators: Scottish and Southern Electricity Networks (SSEN)
Key Partners: Local Authorities



This project developed a standard and specification of temporary and portable EV charging infrastructure devices to provide provisional capacity to meet short term demand in a location.

5. Others

Net Zero Terrance (Apr – Jul 23)

Network Operators: ENWL, NPG
Key Partners: Buro Happold, Rossendale Valley Energy, Rossendale Borough Council



Will demonstrate how to decarbonise an entire terraced street using a Smart Local Energy System which is integrated with the network, optimised, affordable to consumers and easily replicable across GB

4. Fuel switching to hydrogen

H2 Edinburgh and South East Scotland, H2 Tayside and Angus, H2 London, H2 Sussex

Network Operators: SGN
Key Partners: Key regional stakeholders, including Local Authorities



Fundamental regional studies to deliver a road map for the conversion of the network to 100% hydrogen, following a whole system view for the decarbonisation of energy. The study will provide evidence-based cases for early investments in the gas network and hydrogen infrastructure and provide the foundational structure for future pre-FEED and FEED studies.

Project Union, including East Coast Hydrogen

Network Operators: NGT
Key Partners: Cadent, NGN



The project is to develop a UK hydrogen backbone by repurposing around 2000km of existing assets. NGT are working with the GDNs across the UK on a number of regional projects, include East Coast Hydrogen and Hydrogen Valley.

Hydrogen Village Regulation Project (Feb – Jul 23)

Network Operators: WWU



WWU is working on the next phase of a project to develop Wales' first low carbon village. This will consider the potential for locally generated hydrogen to be blended into the low pressure gas distribution network to serve a village. This project will examine the commercial and regulatory requirements for this project.

Energy Planning Integrated with Councils (EPIC) (Feb 2021-Jan 2024)

Network Operators: NGED, WWU
Key Partners: West of England Combined Authority, Regen



Energy modelling focussed on the impact of the key building blocks within the Distribution Future Energy Scenarios (DFES). The project aimed to develop a replicable process that could be applied with the many local authorities that are present in licence areas operated by National Grid / WWU.

Appendix 2:

Net zero energy plans in action

We have been supporting local authorities with their net zero energy plans at different geographic scales. To share the insights and lessons learned from these projects, we have developed a series of case studies.

These case studies provide detailed information about the approach, challenges, and outcomes of the energy planning process in different contexts. We will continue to add case studies to showcase the diversity of experiences and solutions that can be found when implementing LAEPs or other energy planning approaches. These case studies will be a valuable resource for local authorities and other stakeholders who are interested in learning more about energy planning and how it can be applied in their own contexts.

PETERBOROUGH LOCAL AREA ENERGY PLAN

As part of the **Prospering from the Energy Revolution** programme, Innovate UK funded the production of a local area energy plan (LAEP) for the Peterborough local authority area. To produce the LAEP, key stakeholders, including UK Power Networks and National Grid Electricity Distribution, were actively involved in providing data and challenging assumptions.

In July 2019, Peterborough City Council (PCC) declared a climate emergency. To address this challenge, PCC committed to 'make the Council's activities net zero carbon by 2030, and to support the city to achieve the same'. The LAEP covered around 70% of the emissions from Peterborough.

LESSON LEARNT:

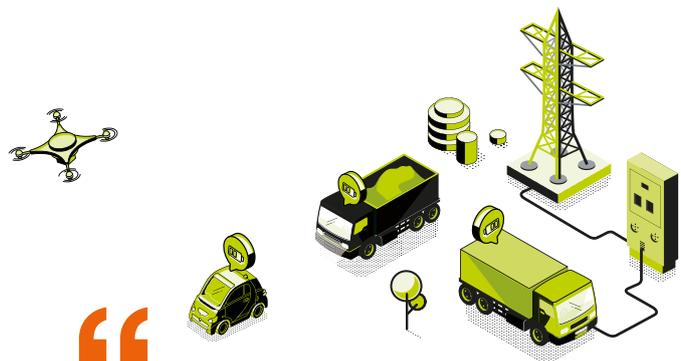
- Local authority net zero aspirations are often highly ambitious, so discussions are needed early in the LAEP process to ensure the practical realities of delivery at pace are understood, and a plan can be developed with credible rates of delivery.
- Early agreement of which scenario(s) to focus on and how to show multiple scenarios the plan is essential to allow production of the plan to progress to schedule.
- The routine costs of maintenance and replacements expected in a business-as-usual scenario (where no decarbonisation takes place) are significant and must be calculated and deduced to avoid overstating the additional cost of decarbonisation.

TOP TIPS

Careful consideration and early stakeholder engagement is needed to agree realistic land areas available for the development of large-scale renewable generation. The low-cost energy and carbon reductions from large-scale renewables means that they will be deployed in very large quantities in modelling unless constrained, which may not be socially acceptable or deliverable in practice.

Transport decarbonisation plans might be considered to be external and fixed inputs to modelling, though this can result in misalignment with the net zero target date.

An approach is needed to bring together the cost and carbon impacts of elements of the plan which are outside of modelling. In Peterborough's case this included fuel usage by cars and emissions savings from large-scale renewables.



The LAEP will act as a blueprint for positive and real change in our city that directly benefits existing residents and businesses, as well as future generations, and will direct the strategy to secure the volume of inward investment we will need to deliver this agenda.

Adrian Chapman
Executive Director: Place & Economy

NORTH YORKSHIRE & CITY OF YORK LOCAL AREA ENERGY PLANS

In Dec 2021, the York & North Yorkshire Local Enterprise Partnership (Y&NY LEP) launched a programme of activities funded by the UK Community Renewal Fund (CRF) and the City of York, entitled 'Delivering a Carbon-Negative energy system in North Yorkshire' - delivering several local area energy plans (LAEPs).

The development of the LAEPs has been supported with contributions to the Steering Group by local authorities, Northern Powergrid, Northern Gas Networks and national park authorities in the region.

The Y&NY LEP has set an ambitious target of achieving net zero by 2034 across the whole region, and to be England's first 'net negative' region by 2040. These ambitious targets put the Y&NY region well ahead of the national plan to achieve net zero by 2050.

The scope of the LAEP covers the current energy consumption and associated greenhouse gas emissions, as well as the projected consumption in a defined area to 2050, primarily focusing on the area's built-environment (all categories of domestic, non-domestic, commercial, and industrial buildings) and some aspects of energy used for transportation.

LESSON LEARNT:

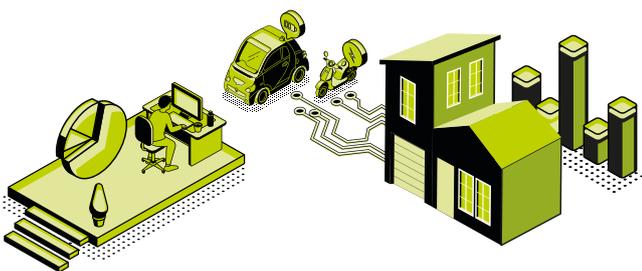
- Any actions identified as common across the three future scenarios, agreed by key stakeholders, were considered to be 'low regrets' and should be started as soon as possible.

High – a 2030 net zero target for the energy system.

Medium – a 2040 net zero target for the energy system.

Low – a 2050 net zero target in line with the UK.

- The local authorities and other regional bodies are likely to be best placed to convene experts including the network operators, community groups, investors, and delivery partners under a governance structure to take forward the recommendations in these LAEPs through to delivery.



TOP TIPS

Geographical mapping – May not be exact so don't try to make it.

Data sharing – Identify what data (including relevant protections) is required and get the confidentiality agreement in place as soon as possible.

Aligning data – Get data made available as open data allowing comparison against DFES scenarios for example.

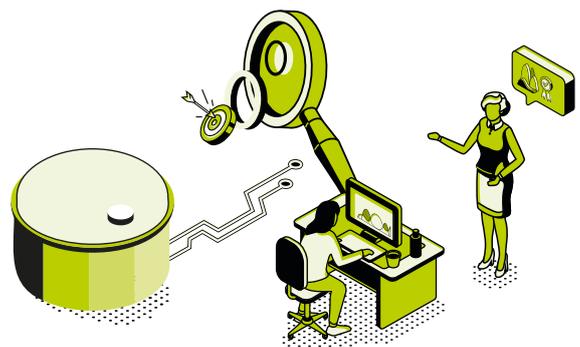
PEMBROKESHIRE LOCAL AREA ENERGY PLAN

Assisting Pembrokeshire County Council in developing a LAEP Strategy, Wales & West Utilities' Pathfinder 2050 Model explored opportunities for an energy kingdom in Milford Haven.

In May 2019, Pembrokeshire County Council declared a Climate Emergency, and committed to work towards net zero carbon by 2050.

LESSON LEARNT:

- Reducing the energy demand of buildings through retrofit reduces the requirement for the development of new generation assets.
- Scaling up of onshore renewables is essential to meet Pembrokeshire's future energy demand.
- Electrification of public transport and the use of hydrogen in heavy goods vehicles (HGVs).
- Pembrokeshire is rural therefore heat pumps should be prioritised for those off-gas network.
- There remains an uncertainty about hydrogen.
- Network upgrades to the electricity grid.
- Pilot electrolyser and hydrogen villages.



TOP TIPS

Although the process to reaching net zero is uncertain, there are immediate actions that can be taken now.

Some interventions will call for the council to act directly while others will require the council to be a facilitator. It is important to remember that it will take a range of stakeholders to reach the 2050 decarbonisation target.

GREATER MANCHESTER (GM) LOCAL AREA ENERGY PLAN

GM is one of the first local authorities in the UK to carry out studies to inform their Local Area Energy Plans (LAEPs).

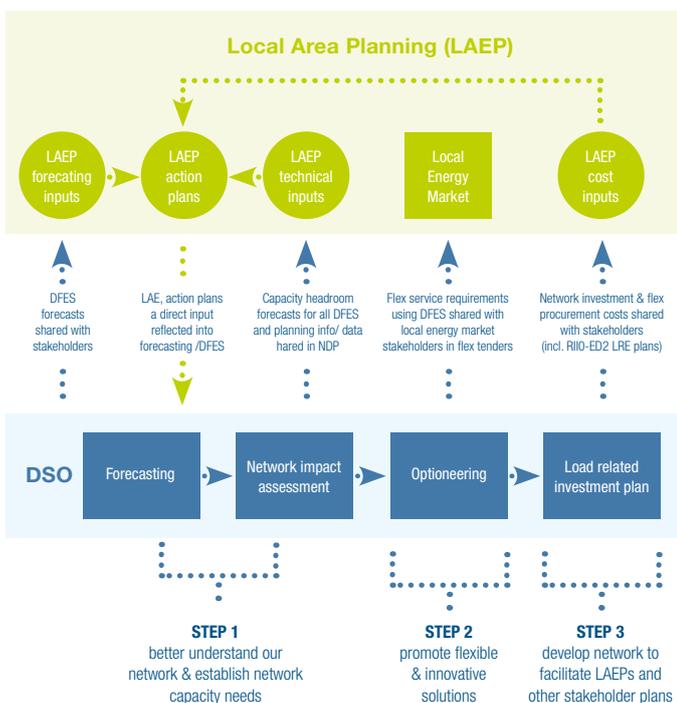
In July 2019, the Greater Manchester Combined Authority (GMCA) declared a climate emergency and defined its Net Zero 2038. GM's LAEP has set out plans to revolutionise the decarbonisation of transport, heating and wider energy usage across the Greater Manchester region, supporting a low carbon future with the goal of becoming carbon neutral by 2038.

As part of ENW support to Greater Manchester's LAEPs:

- ENW has provided data and reviewed the LAEPs (targets) produced by ES Catapult studies
- ENW and GMCA have established a coordinated protocol of data sharing and continuous engagement to facilitate LAEP action plans via flexibility services and network investment.

LESSON LEARNT:

- Developed the interactions of LAEP with DFES and DSO Planning.



TOP TIPS

Implementing the DSO load-related investment process flowchart.

Action plans from GMCA LAEPs – a direct input to DFES and ENW's annual load-related investment cycles.

Information on network investment costs, insights on available network capacity and local energy market opportunities – published by ENW DSO functions and explained to local councils and their developers to support LAEPs.

EDINBURGH AND SOUTH EAST OF SCOTLAND REGIONAL ENERGY MASTERPLAN

The Edinburgh and South East of Scotland City Region Deal partnership brings together the six local authorities (City of Edinburgh, East Lothian, Fife, Midlothian, Scottish Borders, and West Lothian), the regional Universities and Colleges, national agencies and the business sectors to drive productivity and growth while reducing inequalities and deprivation. The partners have a shared ambition to significantly improve performance through investment in innovation, skills, and infrastructure.

The partnership is working with SGN and Scottish Power Networks (SPEN) to develop a Regional Energy Masterplan. This masterplan will provide a strategic framework to progress the decarbonisation of the energy infrastructure in the city region by 2030 by engaging anchor institutions, consumers, and producers. The Masterplan will adopt a whole system approach, be data-driven, collaborative, cost effective and effective in accelerating the decarbonising of the region and its local places.

SEVERAL OBJECTIVES ARE PROPOSED FOR THIS REGIONAL APPROACH:

1. To establish a shared regional data asset to help deliver: climate and energy plans, Local Heat & Energy Efficiency Strategies, and energy infrastructure investment plans;
2. To create a clear, whole energy system assessment for reaching net zero.
3. To create resilience and competitive advantage for businesses and communities across the city region with smart local whole energy systems (not just energy systems supply chain);
4. To support inclusive growth, employment opportunities and a JUST transition to tackle fuel poverty through a focus on social housing stock and Community Energy, ensuring consumers wants and needs are met by the energy system transformation; and
5. To provide a timetable of actions that can drive the transition, including short-term, low/no regrets actions and investible opportunities.
6. For regional partners to share learnings on alternative energy sources and demonstrator pilots relevant to local energy systems.

TOP TIPS

Successful integration of local energy projects requires collaboration and partnerships with a wide range of stakeholders including local authorities, network owners and operators, technology developers, investors, community groups and the end users.

Effective digital, data and information management are key factors in achieving and demonstrating the benefits that these kinds of projects can offer to these stakeholders.

Data is critical to the success of a whole system approach. A regional data model is key to developing and supporting investment decisions and scenario modelling.

**GET IN TOUCH WITH YOUR NETWORK OPERATORS EARLY
TO GET THE MOST OUT OF THE SUPPORT AND SERVICES
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