

Introducing NESO

Our strategic priorities

October 2024



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This document has been created to introduce NESO to a broad audience of stakeholders, who may or may not have an existing understanding of Great Britain's energy landscape. Energy industry stakeholders who wish to see more technical detail regarding NESO's activities should go to the appendix titled ['Our commitments to 2026'](#).

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View our [glossary](#) for commonly used terms.

Foreword



Fintan Slye
Chief Executive
Officer

“Energy underpins every part of our society and transforming the energy system presents an unparalleled generational opportunity for progress and innovation.

“NESO lies at the heart of that system as an independent, public corporation responsible for planning Great Britain’s electricity and gas networks, operating the electricity system and creating insights and recommendations for the future whole energy system.

“The creation of NESO is driven by an urgent need to unify and optimise our approach to energy. Our current system, though effective in many ways, requires a more integrated and coordinated strategy to meet the unprecedented challenges of climate change, ensuring secure energy supply and making costs manageable for energy consumers.

“Our purpose is to forge the path to a sustainable future for everyone. We must deliver on this purpose while ensuring that our energy system remains secure and affordable.

“Building on the strong foundations of the Electricity System Operator (ESO), we’re already operating one of the world’s fastest decarbonising electricity systems and our ambition is to have periods of zero carbon operation by the end of 2025.

“NESO builds on this, bringing together critical roles and responsibilities that allow us to find synergies and gaps others would not, because we have that whole system view. Our independence means we’ll consider things from all perspectives not favouring one technology or stakeholder.

“At the forefront of our efforts will be delivering value for consumers. We’ll work with government, regulators and our customers to create an integrated future-proof system that works for people, communities, businesses and industry, where everyone has access to clean, reliable and affordable energy.”



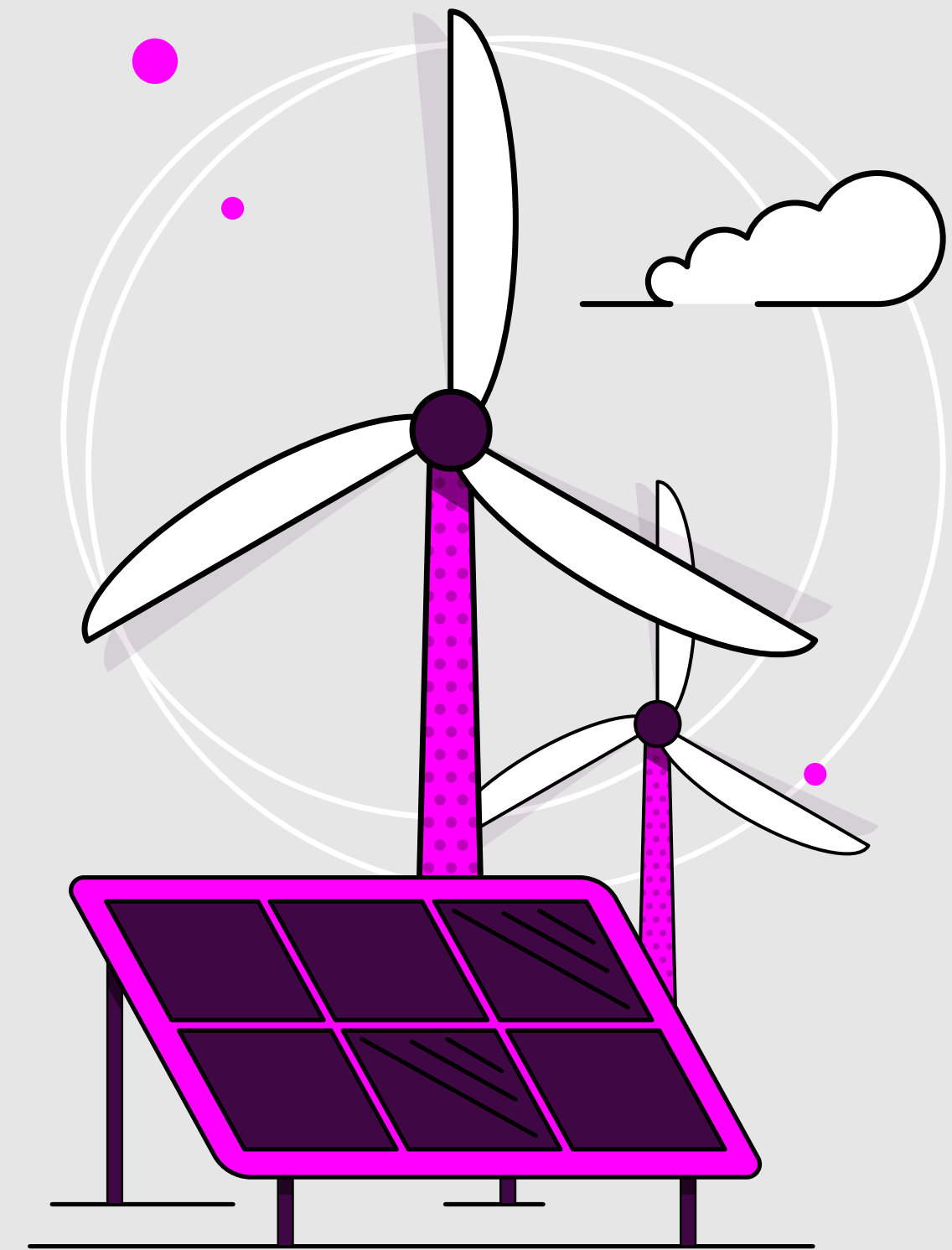
Paul Golby
Chair of the
NESO Board

“It’s a privilege to be the inaugural NESO Chair at such a critical juncture for the UK energy industry.

“The transition to a decarbonised energy system requires an independent and authoritative voice. I look forward to engaging with government, industry, Ofgem and community leaders as NESO provides that leadership and advice.

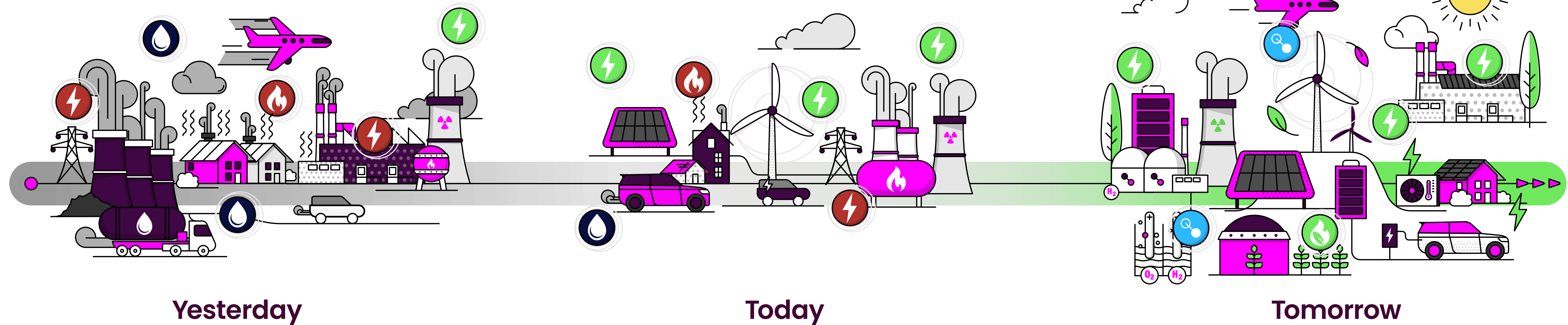
“Decarbonising the energy system at pace is an immense challenge whilst ensuring affordability and security of supply. We will need to push boundaries, challenge prior thinking and innovate to succeed.

“This is a remarkable opportunity that demands collective action. We can’t deliver this essential energy transition unless we bring people, communities and society with us. We will strive to deliver the partnerships needed to do so.”



A changing energy landscape

The energy system is critical to almost all aspects of our daily lives and fundamental to decarbonising the economy. The way we use, store and source energy is significantly changing. We have an opportunity in this period of change to shape an energy system that supports economic growth and prosperity for Great Britain, creating jobs and building skills. This valuable opportunity will help protect the environment for current and future generations and ensure energy is affordable for everyone.



Previously, most of our electricity was generated from fossil fuels at a handful of large power stations. Heat for our homes and businesses was provided by coal, oil and natural gas and our transport was fuelled mostly by oil.

This historic reliance on fossil fuels, nationally and internationally, has caused devastating impacts on our climate and environment.

The rate of change in our energy landscape today is unprecedented, but we continue to rely on fossil fuels, such as natural gas, to provide flexibility and energy security.

Continued reliance on fossil fuels effects our energy independence and exposes customers to rising energy bills when international fuel prices rise.

Our energy landscape will become increasingly complex as we rely more on domestic energy sources and less on imported natural gas.

Energy will be sourced from a wide range of low-carbon sources such as wind, solar, biogas, hydrogen, abated natural gas, nuclear, hydropower and more. As a result, our energy system will need to be smarter and more flexible.

We must work collectively at a local, regional and national scale to realise the benefits of the energy transition for Great Britain and the people who live here.

National Energy System Operator

The UK's 2023 Energy Act set the legislative framework for an independent system planner and operator to help accelerate Great Britain's energy transition, leading to the establishment of the National Energy System Operator (NESO).

NESO will take a whole system approach, looking across natural gas, electricity and other forms of energy to fulfil our primary and secondary duties as described in the Energy Act. We will engage participants in all parts of the energy ecosystem to deliver the plans, markets and operations of the energy system of today and the future. We refer to these participants as NESO's customers and they include industry, communities, consumers and other stakeholder groups.

NESO is built on our previous experience as the Electricity System Operator (ESO). The ESO had extensive expertise in balancing electricity supply and demand 24/7, while making sure network operations and the markets were prepared for the future. The transition to NESO requires a significant expansion in our capabilities and we are transforming our organisation to meet this challenge.

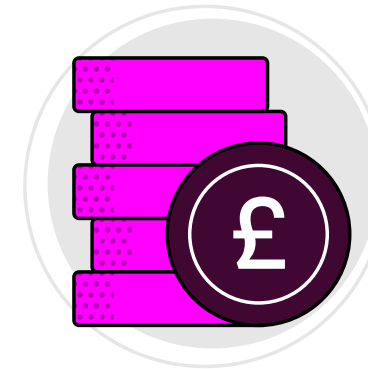
Our Primary Duties

NESO will promote the following three objectives:



Net Zero

Enabling the government to deliver on its legally binding emissions targets



Efficiency & Economy

Promoting efficient, coordinated and economical systems for electricity and gas



Security of Supply

Ensuring security of supply for current and future consumers of electricity and gases

Our Secondary Duties

NESO will also have regard to:



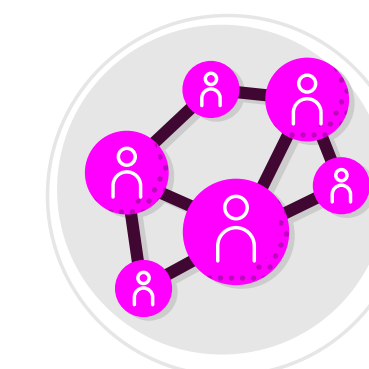
Facilitating Competition

Creating and maintaining competitive energy markets and networks



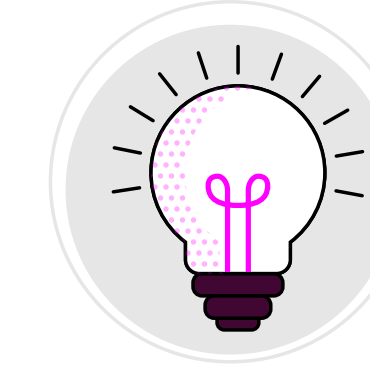
Consumer Impacts

Understanding what changes mean for consumers



Whole System Impacts

Understanding linkages across systems



Facilitating Innovation

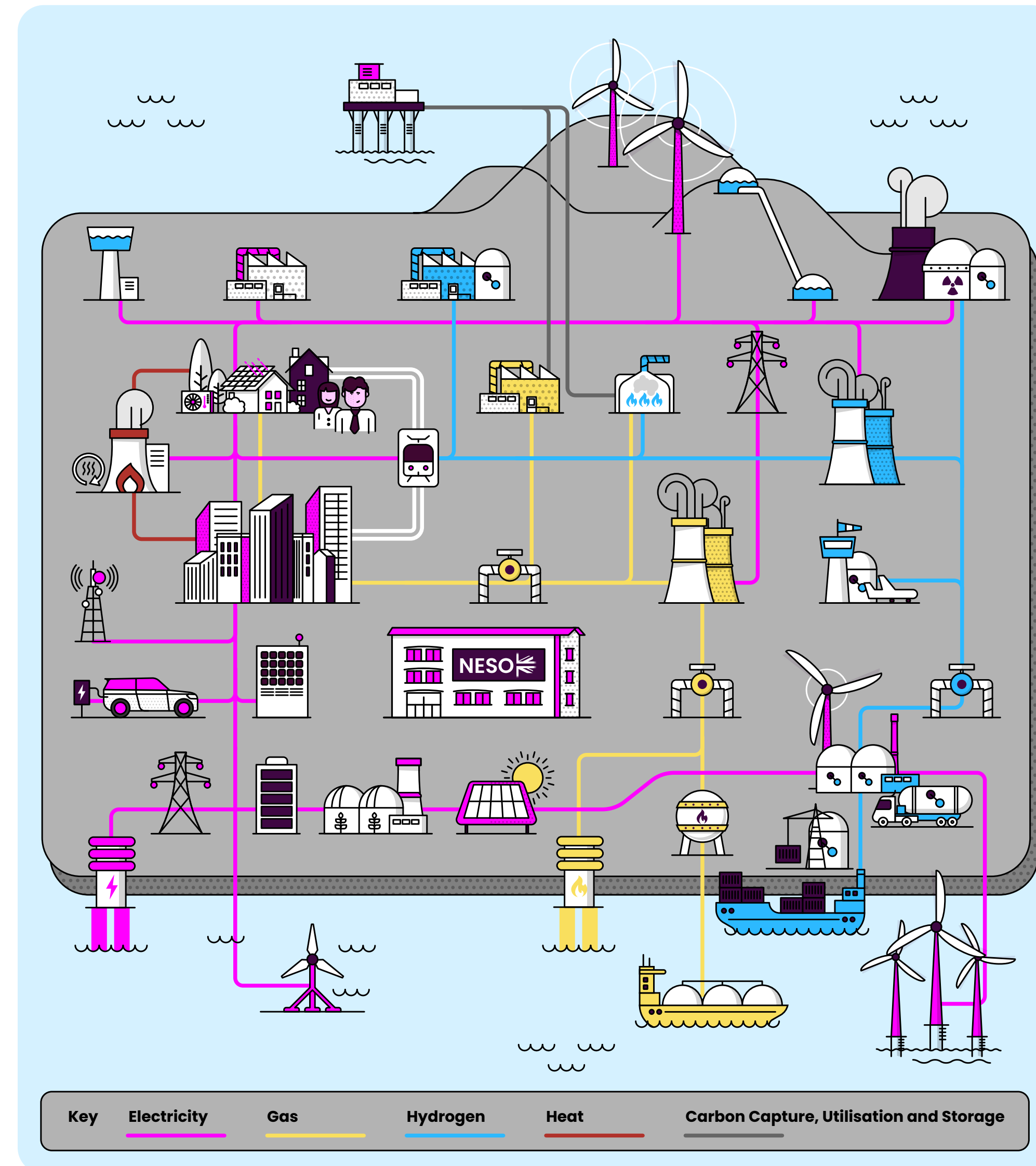
Creating an environment that enables others to help solve energy challenges

A whole system challenge

Achieving an energy transition that boosts the economy and encourages competition is a hugely complex challenge. It requires whole system thinking and collaboration across the energy sector, from homeowners and local businesses in their communities through to regional, national and international stakeholders.

With representation across England, Scotland and Wales, NESO will proactively and transparently engage across Great Britain, to jointly create an energy system where prices are affordable, supply is secure, and the sources are low carbon.

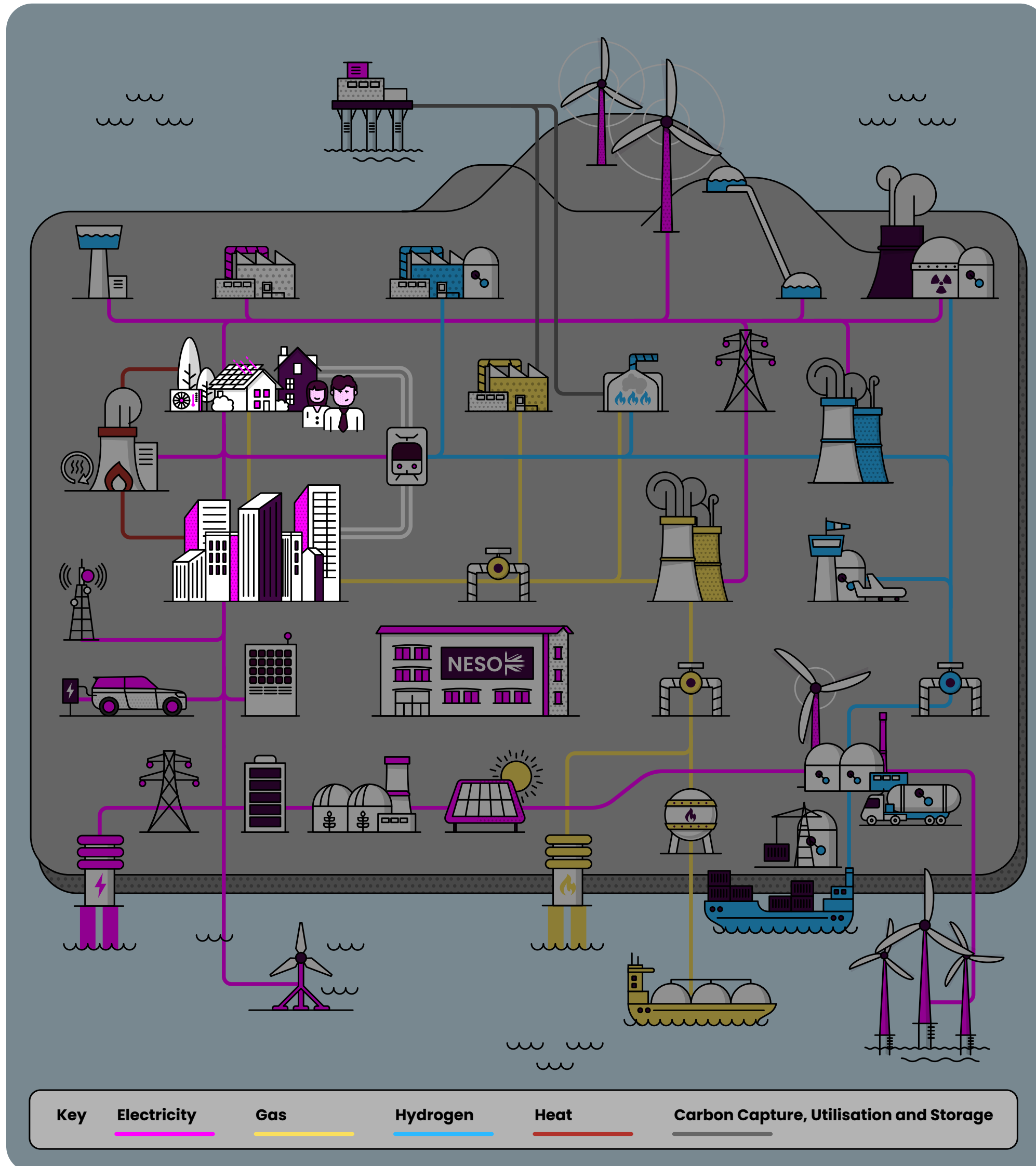
This visual is intended to tell an illustrative story of a hypothetical future energy system. It is not intended to be comprehensive, nor does it define NESO's view of the future energy system.



Why is energy important to you?

We rely upon our energy system, 24/7, 365 days a year. Our lives are intertwined with the flow of energy, regardless of the time, date or location. We all use energy in one form or another as part of our daily routines. In fact, we often take it for granted.

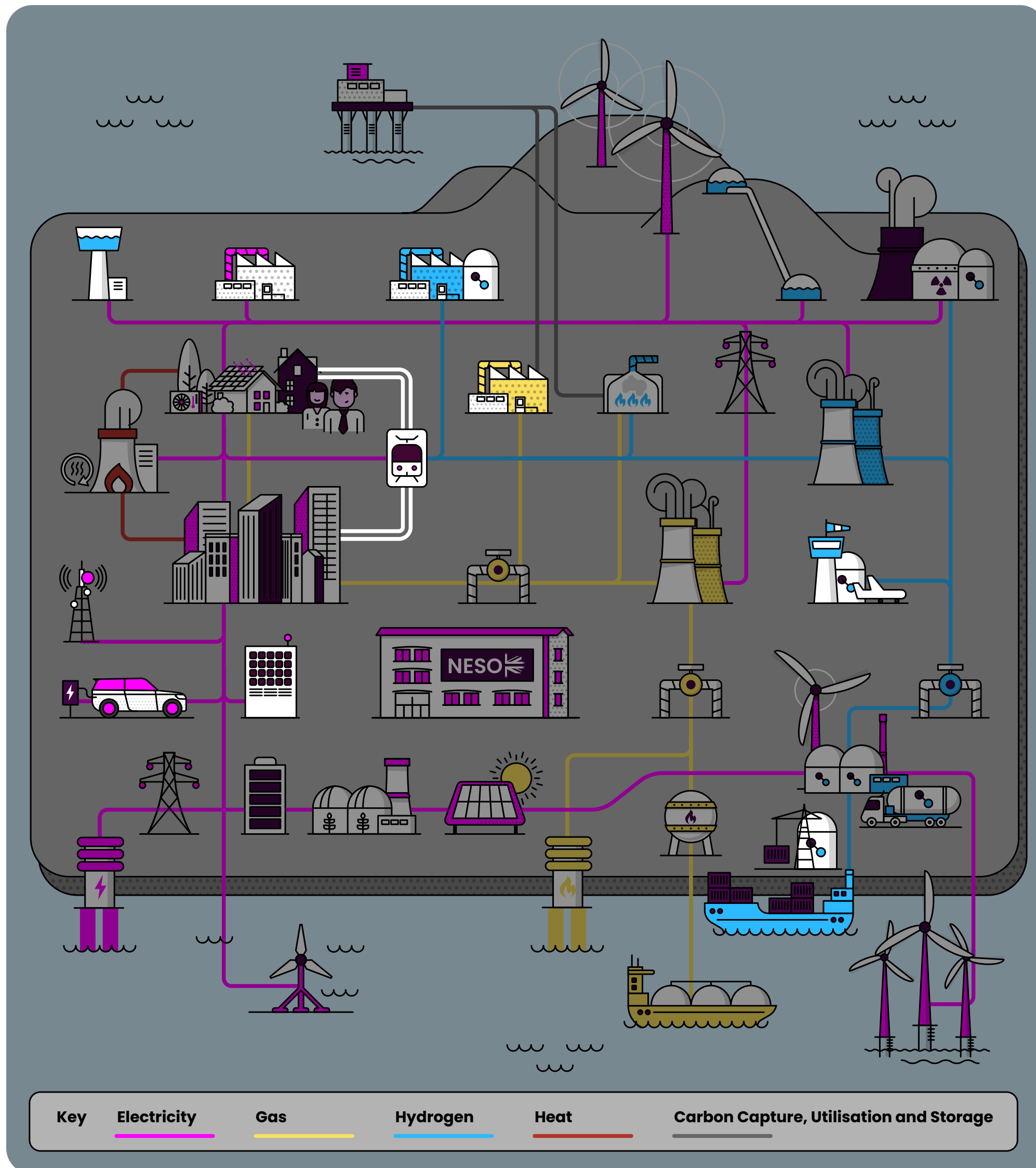
We need energy in our homes, at our workplaces and for travelling. Energy powers everything that's important to us – connecting us to each other both in person and virtually.

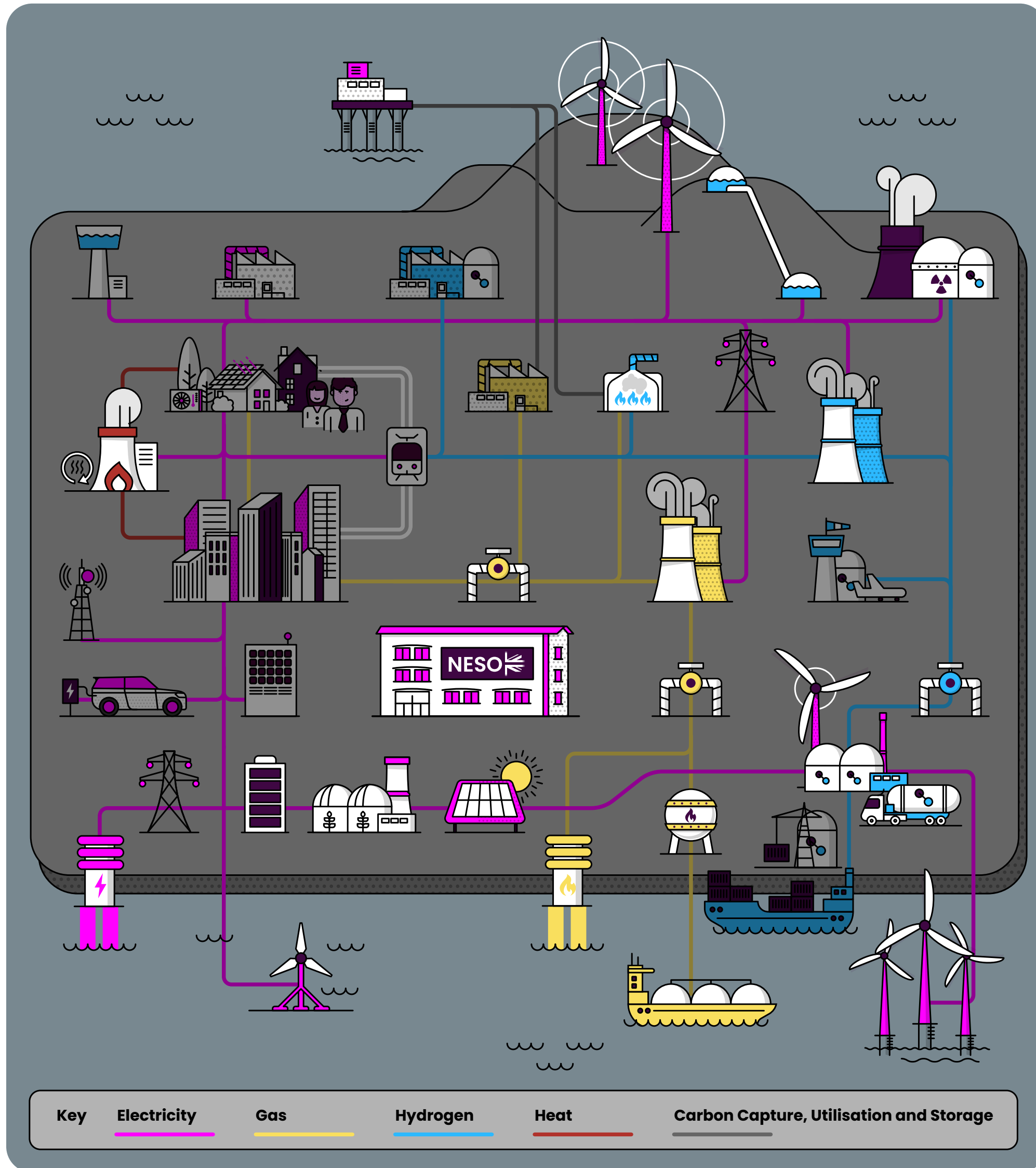


What does the energy system do for Great Britain?

Our energy system provides a strong, secure and dependable foundation for our society and economy. It powers vital services such as schools, hospitals and businesses, and is required for the operation of other utilities beyond natural gas and electricity, including water.

Energy is a driving force for growth, productivity and innovation across the economy in closely related sectors such as transport, agriculture, construction, financial services, information technology, telecommunications, waste, and many more. The transition to a cleaner energy system creates a significant opportunity for job creation and investment in green skills.





What are the parts of the energy system?

The current energy system encompasses everything from energy production to consumption. Our sources of energy include renewables, fossil fuels and nuclear, and using these sources, electricity is generated in power plants. Natural gas, a fossil fuel, is used directly for heat, cooking and industrial processes.

We currently have two networks which are fundamental to transporting our energy – overhead and underground cables transport electricity and underground pipes transport natural gas. Since gas-fired power stations use natural gas to generate electricity, they connect to both networks.

High-voltage electricity networks and high-pressure gas networks provide the bulk transport of our energy and are known as transmission networks. Most energy consumers, including households, are connected to the low-voltage and low-pressure distribution networks.

The role of electricity distribution networks is evolving as increasing numbers of small generators connect to them and consumers adopt low-carbon technologies, such as electric vehicles, heat pumps, domestic batteries and domestic solar panels.

Consumers, including households and industry, can offer flexibility in their demand for energy, and this will see them play a more active role in the future energy system. Flexibility in both supply and demand will become a fundamental part of energy system operation.

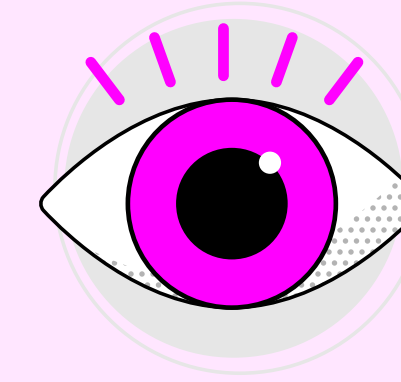
Hydrogen is an emerging form of energy, which offers opportunities for hard-to-decarbonise sectors, such as aviation and heavy industry, to lower their emissions and could provide flexibility for the electricity system. There are many ways to produce hydrogen and the process with the lowest emissions (electrolysis) requires large amounts of electricity from clean sources, such as renewables.



Our purpose, vision and values



Our purpose is to forge the path to a sustainable future for everyone.



Our vision is a future where everyone has access to reliable, clean and affordable energy; our work will be a catalyst for change across the global community.

Our values are what define us, setting the foundation for our purpose and guiding us as we move towards achieving our vision.



Accelerate Progress

We deliver better outcomes at pace when we take accountability, are courageous and progress the bigger picture.



Be Curious

We achieve more when we demonstrate a growth mindset, being curious, asking questions beyond and within our organisation to develop, learn and innovate.



Build Trust

We build trust when we listen to and understand the needs of our colleagues and customers, are transparent with our actions and deliver on our commitments.



Create Belonging

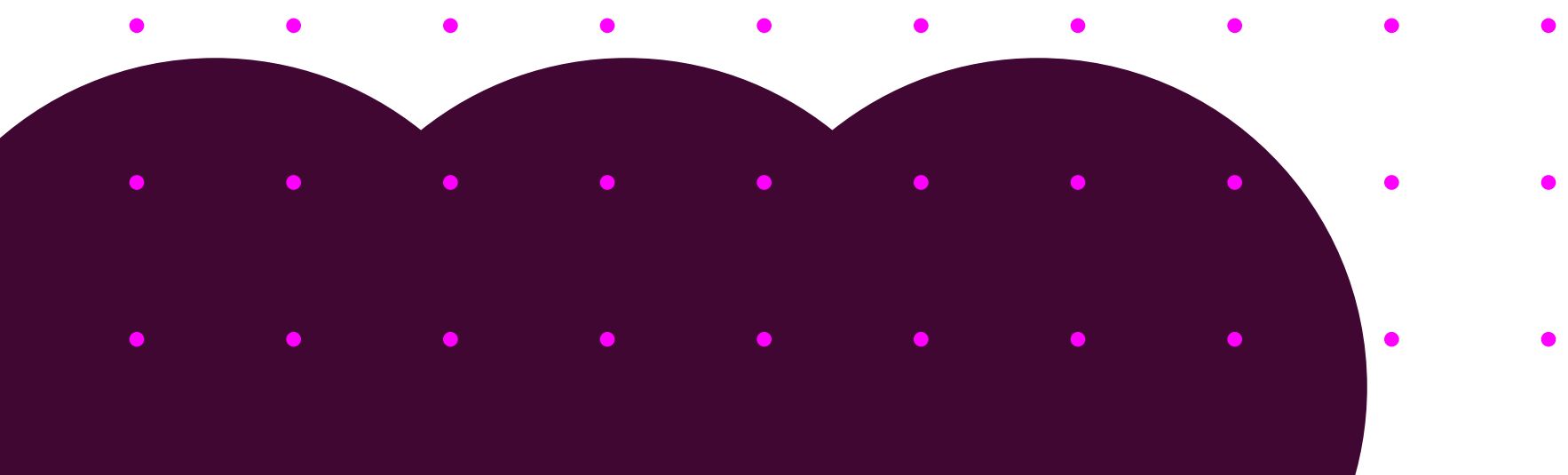
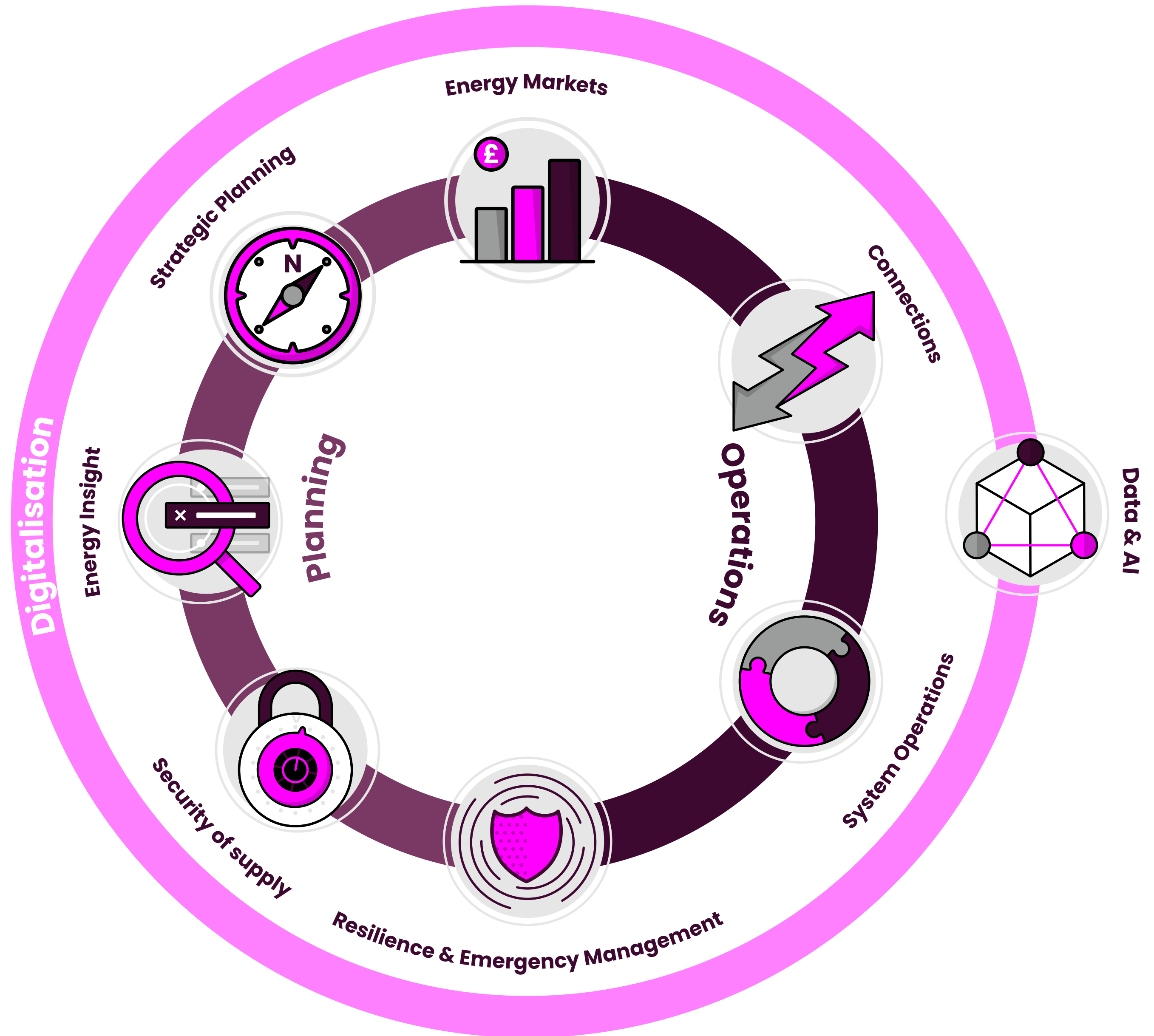
We perform at our best when we can be our true selves, embrace diversity and are truly inclusive.

What we do

Our increasingly complex energy system must be planned and operated in a way that considers the interactions across electricity, gas and other forms of energy. We also need to consider the interdependencies with other sectors, such as water, transport, telecommunications and industry.

Fundamental to NESO is the ability to bring an independent, impartial voice to energy system planning and operations that takes this whole system view. We'll consider all the interrelated challenges and trade-offs and ultimately work towards optimal outcomes for energy consumers.

We bring together eight activities required to deliver the plans, markets and operations of the energy system of today and the future. Bringing these activities together in one organisation encourages holistic thinking on the most cost-efficient and sustainable solutions to the needs of our customers.



Strategic Planning

We take a long-term approach to planning, which identifies whole energy system needs and ensures that the system can be designed and built accordingly.

Energy Insights

We use our whole system expertise to deliver independent insights to government, Ofgem and industry, backed by transparent evidence.

Security of Supply

We enable a stable, reliable and secure energy system through an integrated and coordinated approach to ensuring our energy supply needs can be securely met.

Energy Markets

We develop competitive and coordinated energy markets that result in a cost-efficient energy system and give us the tools for low-carbon operation.

Resilience and Emergency Management

We provide whole system coordination and analysis for system resilience and preparation for emergencies across Great Britain's energy industry.

Connections

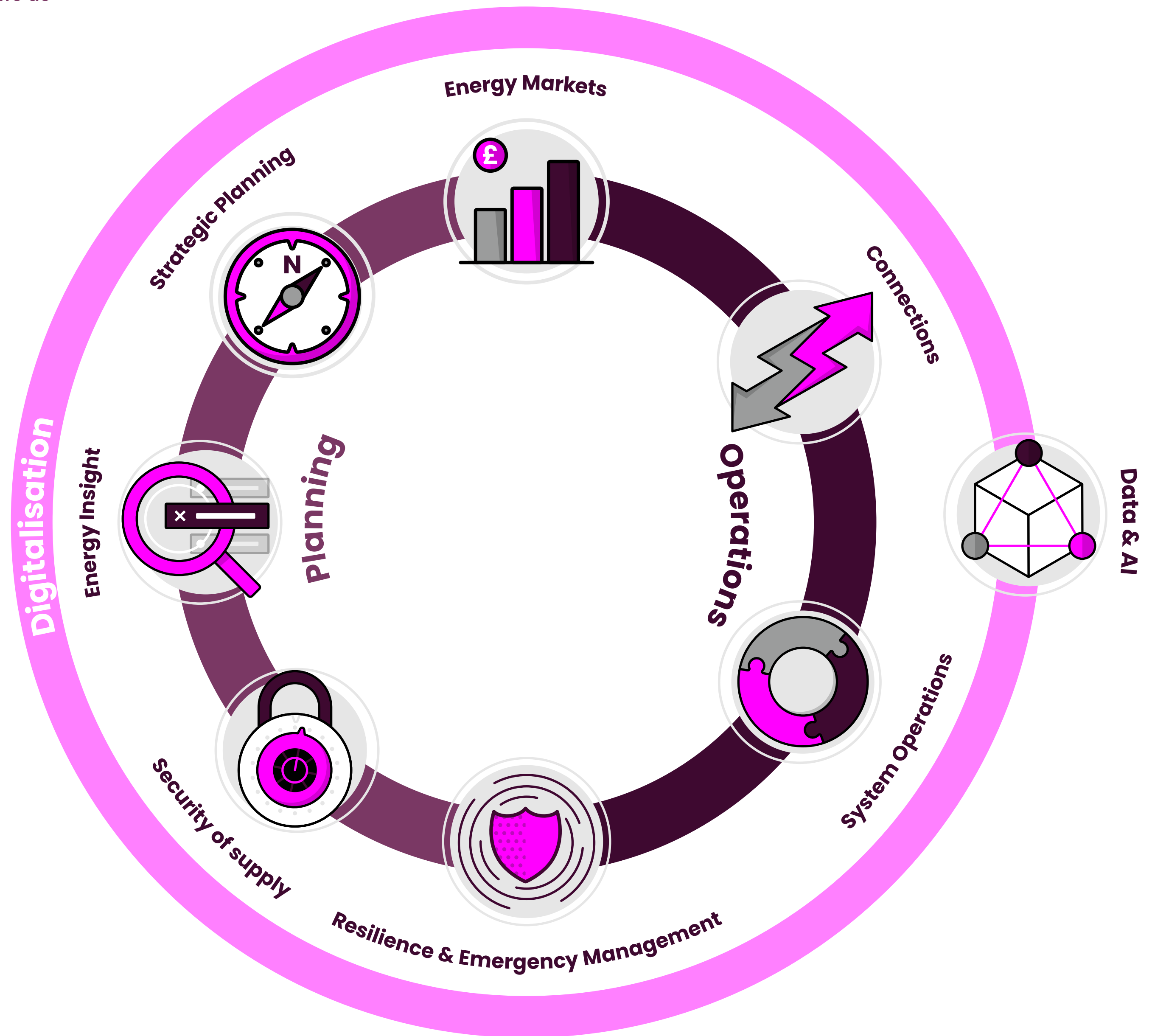
We deliver efficient system access for electricity generation and demand projects, so that those projects that are ready and aligned to Great Britain's clean power ambitions are prioritised.

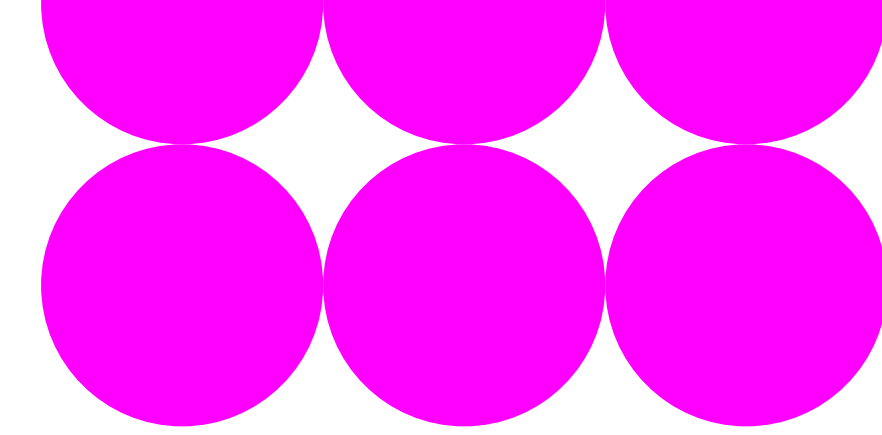
System Operations

We accelerate progress towards clean power by taking a whole system approach to operations.

Data & AI

We digitally advance Great Britain's whole energy system by collaborating with industry, enabling the exchange of data and driving value through artificial intelligence.





Our priorities

We have identified six priorities that will guide our efforts through to 2026, the end of our current regulatory period, ensuring we fulfil our duties and achieve our purpose and vision.

Our 'Clean Power', 'Decarbonised Energy' and 'Consumer Value' priorities describe what we will deliver and our commitments under these priorities will progress short-, medium- and long-term ambitions.

Our commitments are subject to consultation and finalisation later this year as part of our RIIO-2 Business Plan 3. RIIO which stands for 'Revenue = Incentives + Innovation + Outputs', is a regulatory framework that ensures we are funded to deliver what customers need. You can find out more on our [RIIO-2 Business Plan](#) webpage.

Our 'Customer Centricity', 'Digital Mindset' and 'People Value' priorities describe how we will deliver our commitments.



Clean Power

We will enable a zero-carbon electricity system by adopting a whole system approach, encouraging innovation and collaboration.



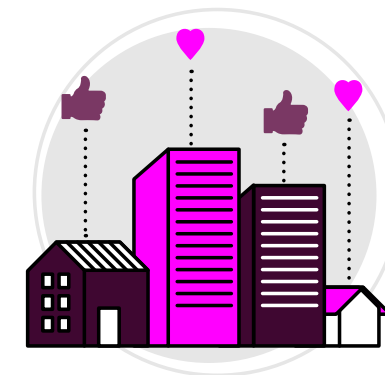
Decarbonised Energy

We will develop integrated plans for a decarbonised, efficient and flexible energy system fit for the future.



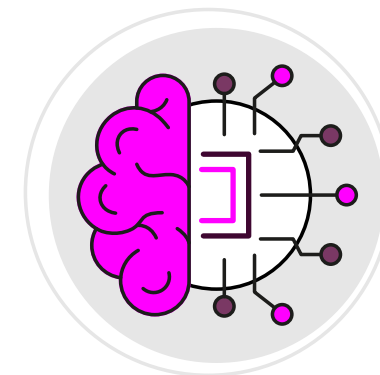
Consumer Value

We will have unlocked around £3 billion of consumer benefits by 2026 through delivery of our commitments.



Customer Centricity

We will understand and balance the different needs of our customers to form meaningful partnerships.



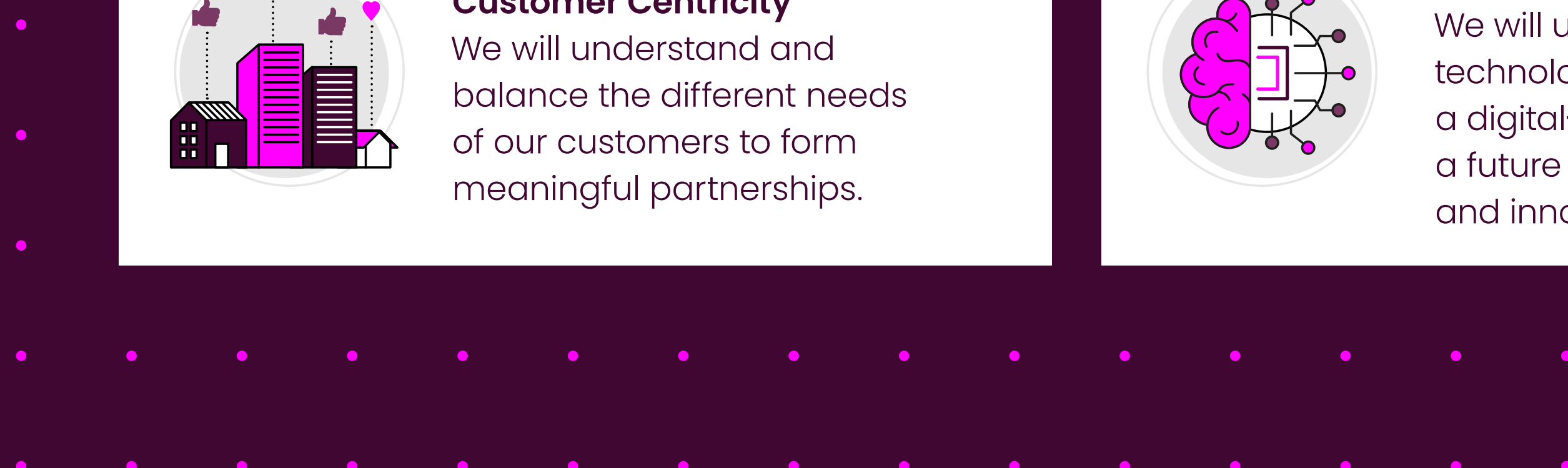
Digital Mindset

We will unlock the potential of technology and teamwork through a digital-first approach, enabling a future of seamless connectivity and innovation at pace.



People Value

We will invest in our people to ensure we're prepared and empowered to embrace the opportunities of the future.





Clean Power

We will enable a zero-carbon electricity system by adopting a whole system approach, encouraging innovation and collaboration.

The main NESO deliverables under this priority are the Clean Power 2030 pathways, balancing services reform, zero carbon operation and connections reform.

Our commitments

The technical detail of these commitments can be found in the [‘Introducing NESO’ appendix](#).



Our existing commitments:

1. We will work closely with the government, Ofgem and customers to develop final changes under the Review of Electricity Market Arrangements (REMA)
2. We will enhance our modelling and provide recommendations to facilitate the electricity Capacity Market
3. We will deliver the Early View for Winter and our Seasonal Outlook reports
4. We will raise awareness to ensure industry preparedness and compliance with the new restoration standard
5. We will enable operation of the system at zero carbon in 2025 and deliver on balancing services commitments
6. We will work with distribution system operators (DSO) to enable efficient operational coordination and planning
7. We will transform the customer experience to enhance the ease of doing business with us, including by delivering digital platforms that allow our customers to interface with us
8. We will support developers to energise their schemes and to meet generation compliance obligations

Our new commitments:

1. We will support the delivery of the Pathway to 2030 and Beyond 2030 network requirements and Clean Power to 2030
2. We will produce our next study to assess longer-term resource adequacy in the 2030s, which is critical in understanding the risks for a decarbonised power system, it will include a new gas supply security assessment
3. We will implement our reformed connection process and work with network owners to deliver enhanced connections dates for customers with net zero aligned projects



Decarbonised Energy

We will develop integrated plans for a decarbonised, efficient and flexible energy system fit for the future.

The main NESO deliverables under this priority are the Centralised Strategic Network Plan, the Regional Energy Strategic Plans, the Spatial Strategic Energy Plan and a flexibility strategy.

Our commitments

The technical detail of these commitments can be found in the [‘Introducing NESO’ appendix](#).



Our existing commitments:

1. We will provide a range of different, credible pathways to decarbonise our energy system by 2050
2. We will develop our Data & Analytics platform and capabilities to enable high quality insights, advanced analytics and AI
3. We will drive commonality and standardisation, and interoperability across network planning data

Our new commitments:

1. We will work with government and customers to ensure security of supply through the 2020s and into the 2030s
2. We will embed our new Resilience and Emergency Management roles to take a whole system perspective on system resilience and emergency response preparedness for Great Britain
3. We will embed our new strategic planning roles in Centralised Strategic Network Planning (CSNP) along with further development of our new roles in Strategic Spatial Energy Planning (SSEP) and Regional Energy Strategic Planning (RESP)

4. We will deliver the first NESO-led Gas Network Development Plan as part of CSNP
5. We will engage with a broad range of customers so they can understand, input into plans and become advocates
6. We will build a Geospatial Platform to enable location intelligence, eco-system and spatial modelling
7. We will provide impartial advice, analysis and information to the government and Ofgem upon request, across the whole energy value chain, including generation, transmission and consumption of energy
8. We will formally take on whole energy market strategy roles and drive action on gas market strategy
9. We will co-create a flexibility strategy, helping unlock distributed flexibility potential and creating coherent markets



Consumer Value

We will have unlocked around £3 billion of consumer benefits by 2026 through delivery of our commitments.

We estimate the consumer benefits of our RII0-2 activities at around £3 billion. You can find out more about our cost-benefit analyses in 'Annex 2' of our [RIIO-2 Business Plan](#). This estimate includes the benefits of the existing commitments listed under the 'Clean Power' and 'Decarbonised Energy' priorities.

The main NESO deliverables under this priority are a balancing costs strategy, initiatives to increase market participation and technology modernisation.

Our commitments

The technical detail of these commitments can be found in the ['Introducing NESO' appendix](#).

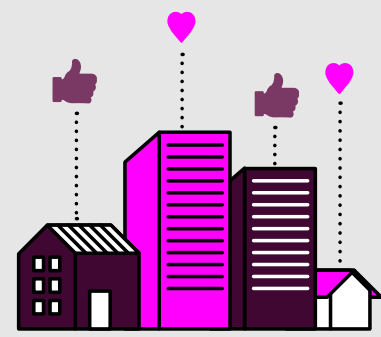


Our existing commitments:

1. We will remain focused on optimising balancing costs by implementing our Balancing Costs Strategy out to 2030 and beyond
2. We will open new opportunities and removing barriers for all market participants, reducing costs for consumers
3. We will make our data available and open through our data portal
4. We will create a Data Catalogue, which will provide visibility of Energy System Data across government, the regulator, and industry
5. We will deliver the technology modernisation needed to transform our control centre operations

Our new commitments:

1. We will proactively explore, model and produce energy insights on topics which will be of most value to consumers, government and industry in driving forward progress on decarbonisation
2. We will deliver a data sharing infrastructure pilot and minimum viable product
3. We will launch the first tender for early competition in onshore electricity transmission networks



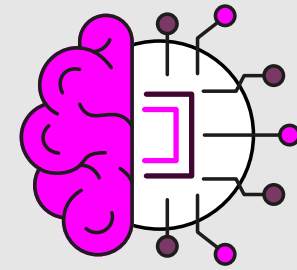
Customer Centricity

We will understand and balance the different needs of our customers to form meaningful partnerships.

We are committed to being a progressive and purpose-driven organisation, focused on delivering better, balanced outcomes at pace. We are proud of the central role we play in energy in Great Britain, knowing that by working alongside our customers, we can achieve more together.

We will focus on understanding the needs of our customers and our impact on them, recognising that our decisions have consequences both in real time and in the future. We will engage with customers to share ideas and innovate, working together to deliver for Great Britain. We will invest in our relationships and create simpler experiences for customers, supported by clear standards of service, communication and action.

As one connected organisation, we will show up openly and consistently, ensuring our actions and decisions are seen as informed, considered and balanced. We are committed to having the best interests of the whole system and the whole of Great Britain in mind.



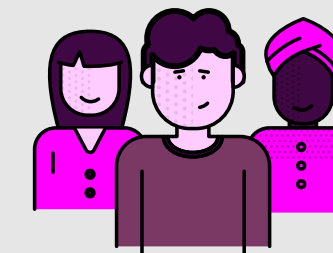
Digital Mindset

We will unlock the potential of technology and teamwork through a digital-first approach, enabling a future of seamless connectivity and innovation at pace.

Digitalisation across NESO and industry is crucial to our goals for a decarbonised energy system. We are building strong partnerships to create a unified digital ecosystem which encourages innovation. Our digital-first approach also allows us to adapt to evolving challenges. We are committed to continuous improvement and agility, and we will respond quickly to new developments and opportunities to integrate advanced technologies.

We are focused on accelerating the use of artificial intelligence (AI) and data sharing across industry for the benefit of energy consumers. This will enhance the efficiency of energy operations and ensure resilience against disruptions, helping secure our vision for clean, reliable and affordable energy.

By prioritising transparency and customer-focused solutions, we will empower consumers to actively participate in the energy transition. Our goal is to create an inclusive energy landscape where digitalisation benefits everyone.

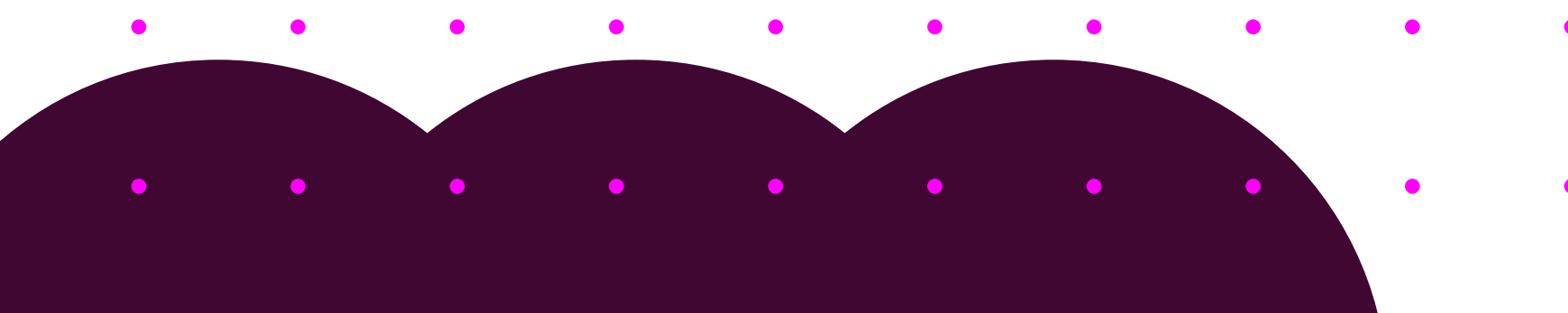


People Value

We will invest in our people to ensure we're prepared and empowered to embrace the opportunities of the future.

We are committed to attracting, retaining, and developing talented people with expertise across all energy sectors, ready to tackle the significant challenges that lie ahead. New technologies will accelerate progress and change, but it is our people who will lead us towards a sustainable future. They are at the centre of everything we do.

We will place a strong emphasis on the breadth of our skills. A comprehensive understanding of all parts of the energy system is crucial, including their interrelations and interactions. We will also ensure that our people build foundational skills in digital and data literacy, critical problem-solving, holistic thinking, and effective engagement. We are committed to being inclusive and nurturing talent from all backgrounds, creating a deep sense of belonging across the organisation.





Our governance

NESO is operationally independent of the government. Taking a whole system approach, we plan the electricity and gas systems and operate the electricity system to deliver the government's policy outcomes.

Being independent enables us to make fair and unbiased decisions based on evidence and data. This means we can give impartial recommendations to the government and the regulator.

Our shareholder



The Department for Energy Security and Net Zero is responsible for national policy and providing strategic direction and targets in relation to UK energy

Our regulator



Ofgem is the energy regulator for Great Britain

Independent NESO Board

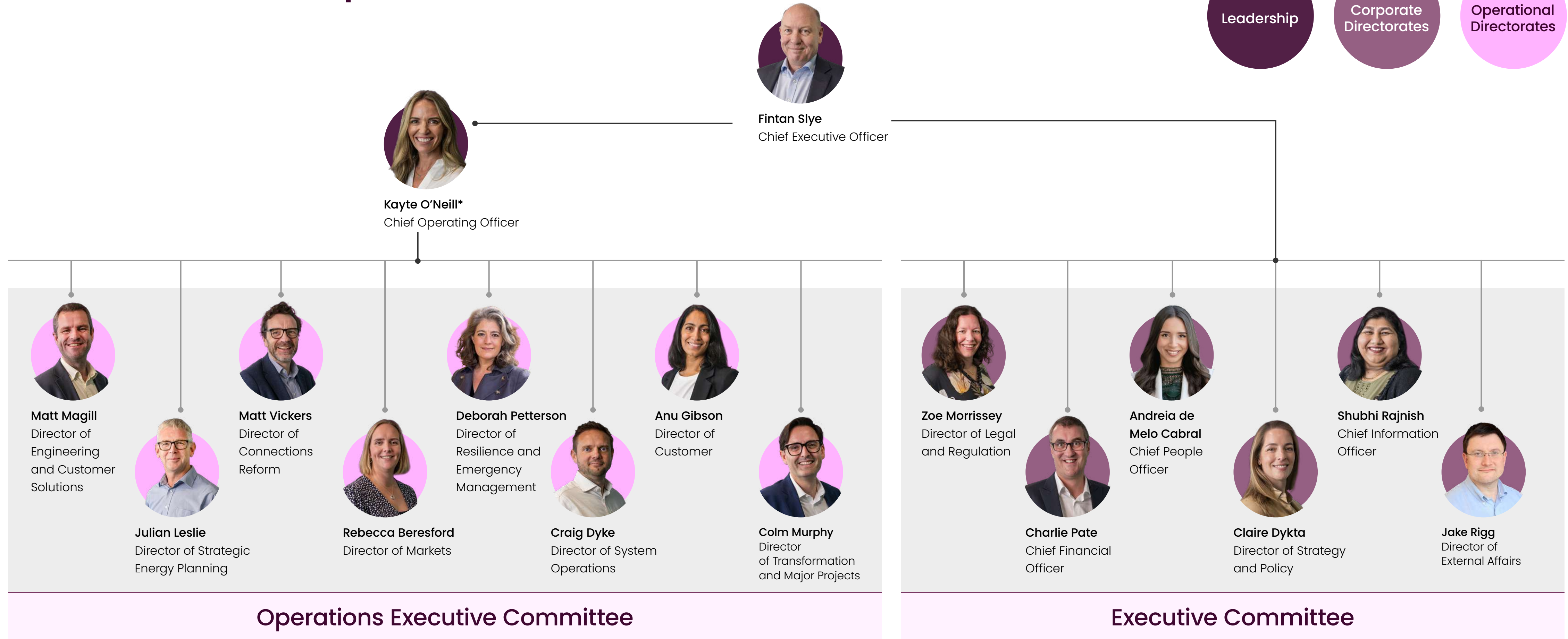
The NESO Board oversees our strategic direction, ensuring compliance with regulations and the mitigation of corporate risks. The Board ensures that we build strong relationships with customers and it evaluates performance, ultimately working to protect consumer interests and enable a reliable and secure, efficient, clean energy system.

Meet our Leadership Team



Leadership

Directorates



Led by the Chief Operating Officer, the Operations Executive Committee ensures successful delivery of commitments, business plans and operational transformation.

Led by the Chief Executive Officer, the Executive Committee sets the direction for the organisation, allocates resources and tracks performance.

*The COO also sits on the Executive Committee.

Closing remarks



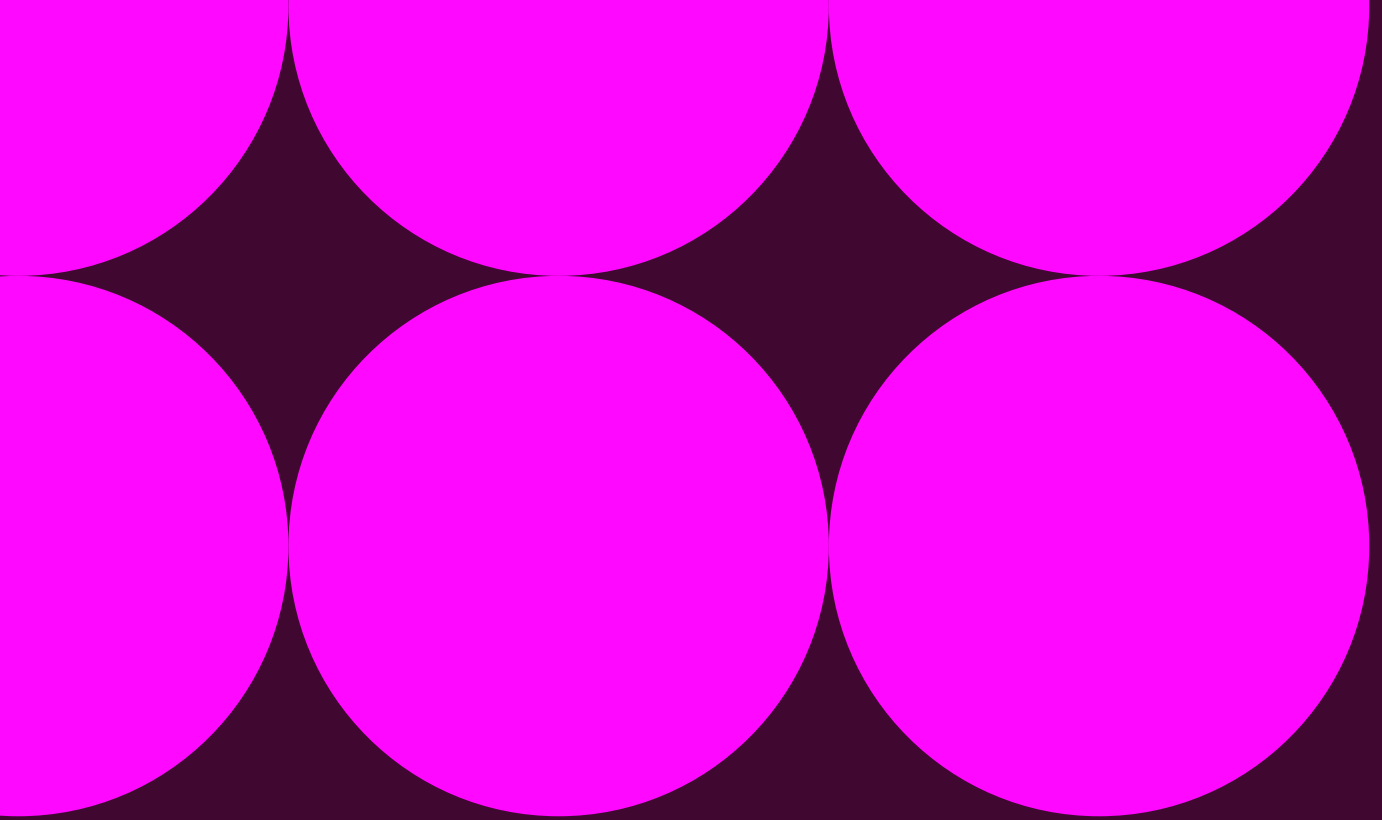
Kayte O'Neill
Chief Operating
Officer

“It has been a privilege to work closely with customers across the energy system to achieve this significant milestone of formally becoming NESO. To ensure we are set up to deliver on our whole system mandate, we’ve invested in developing our people, as well as recruiting hundreds of the brightest, most capable professionals from within and outside the energy sector to expand our capabilities. I’m immensely proud of all my colleagues for their vision and dedication, and grateful to our customers for their constructive feedback throughout the design process.

“NESO will embrace a strategic, holistic approach towards operating and planning the energy system. Our early priorities include working closely with the

government and Ofgem on the Clean Power 2030 goal, developing a spatial energy plan for Great Britain and facilitating competitive energy markets, all while continuing to encourage innovation and adopting a digital-first approach.

“What we’ve set out here today is just the start. We’re already thinking beyond our current regulatory period which runs to 2026, about what comes next. The scale of the challenge ahead of us is unprecedented, but I’m confident that we have the passion and breadth of expertise to play a pivotal role in accelerating Great Britain’s energy transition.”



NESO

National Energy
System Operator

