

nationalgrid



# Delivering for 2035:

Upgrading the grid for  
a secure, clean and  
affordable energy future

# Executive summary

**The UK stands at a critical juncture. Significant progress has already been made towards transforming our power system, with a huge expansion in clean energy and substantial investment in our electricity networks.**

But the scale and pace of the transformation needed over the next decade and beyond is a fundamentally different challenge to what has been done to date. We need a far greater level of investment over a much shorter timeframe. This new infrastructure must also be delivered in a way that supports and empowers communities and consumers.

If we can get this right, the prize is significant. We will collectively be able to deliver greater energy security and lower bills for Britons, as well as generate jobs and economic growth in all parts of the UK.

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Fully decarbonising the power sector by 2035 will require decisive action from industry, government and Ofgem. This document sets out proposals to ensure that electricity networks can fully play their part in this transformation. It is structured across **five priority areas** where action is required:

Five priority areas	Key actions
<p><b>01</b>                      Reform the planning system, centred around a strategic clean energy vision</p>	<ul style="list-style-type: none"> <li>As an immediate step, finalise the National Policy Statements by the summer, ensuring they provide clarity and certainty to support urgent delivery of net zero infrastructure.</li> <li>Streamline the current consenting process for major energy projects, including through shortened decision timescales and alignment with the regulatory regime.</li> <li>Establish a ‘Strategic Spatial Energy Plan’ by 2025 that sets out what needs to be built, where, and when.</li> </ul>
<p><b>02</b>                      Ensure the regulatory and governance framework is set up for delivery</p>	<ul style="list-style-type: none"> <li>Review the current suite of regulators’ objectives and duties and clarify roles and responsibilities across the institutions accountable for the energy transition.</li> <li>Fully embed anticipatory investment and resilience into the regulatory framework, ensuring it attracts the private capital to deliver the scale of network investment required.</li> <li>Maintain pace in introducing a competitive market for major transmission network capacity.</li> </ul>
<p><b>03</b>                      Transform how clean energy connects to the grid, accelerating net zero projects</p>	<ul style="list-style-type: none"> <li>Shift from a ‘first come, first served’ to ‘connect or move’ connections process.</li> <li>Develop strategic ‘capacity hubs’, enabling a more coordinated and innovative approach to connections.</li> <li>Create a fast-track connection route for critical net zero projects, prioritising those areas where the economic value could be greatest.</li> </ul>
<p><b>04</b>                      Put communities and consumers at the forefront of the transition</p>	<ul style="list-style-type: none"> <li>Deliver a consistent community benefits framework that ensures local people secure real value for hosting critical net zero infrastructure.</li> <li>Progress the development of new Regional System Planners to unlock local net zero infrastructure.</li> <li>Drive forward demand flexibility through retail market reform, while ensuring vulnerable households are protected through the development of a social tariff.</li> </ul>
<p><b>05</b>                      Develop supply chain capacity and a skills pipeline across the country</p>	<ul style="list-style-type: none"> <li>Enable a shift towards a more collaborative and flexible approach to securing supply chain capacity needed to deliver clean energy projects.</li> <li>Deliver a targeted package of incentives to attract potential clean energy manufacturers and training providers to locate and expand sites in the UK.</li> <li>Publish an annual net zero energy workforce report and ensure the educational and training system is equipped to inspire a pipeline of future talent.</li> </ul>



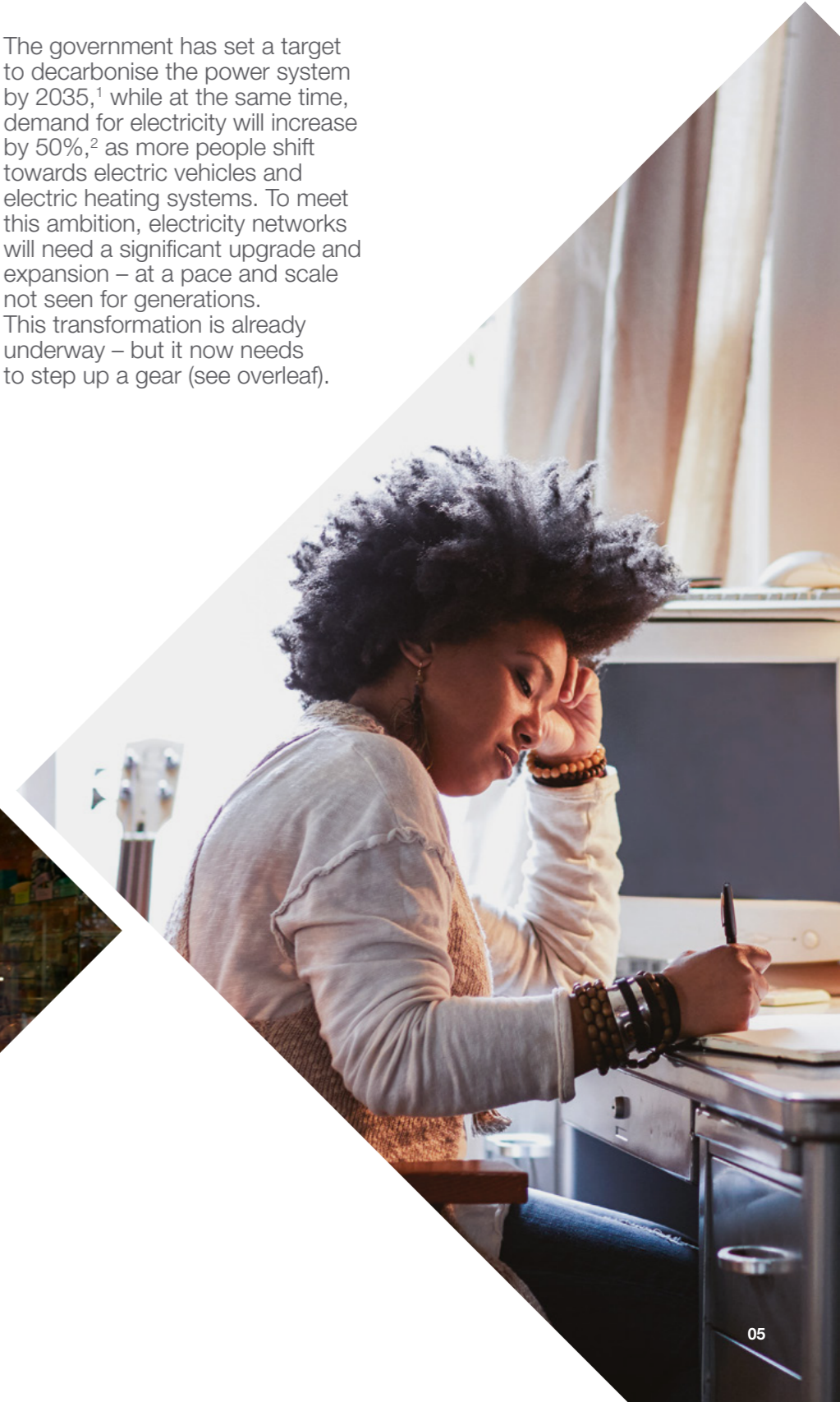
The government has set a target to decarbonise the power system by 2035,<sup>1</sup> while at the same time, demand for electricity will increase by 50%.<sup>2</sup>

## 2035 challenges and opportunities

### Delivering a zero carbon power system will require a fundamental upgrade of our electricity grid.

The UK has already made extraordinary progress in the shift to clean power. But the events of the last year – notably the war in Ukraine and the global gas crisis – have shown that we need to move faster, and push further, if we are to realise our goal of having a resilient, secure and affordable zero carbon power system.

The government has set a target to decarbonise the power system by 2035,<sup>1</sup> while at the same time, demand for electricity will increase by 50%,<sup>2</sup> as more people shift towards electric vehicles and electric heating systems. To meet this ambition, electricity networks will need a significant upgrade and expansion – at a pace and scale not seen for generations. This transformation is already underway – but it now needs to step up a gear (see overleaf).



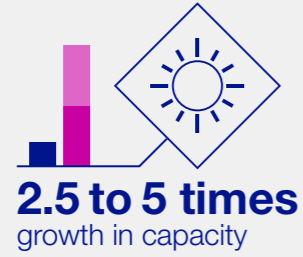
# The future electricity network

To achieve the UK's 2035 power sector decarbonisation target, the amount of electricity generation connected to GB's electricity network will need to treble.<sup>3</sup> Significant growth is expected in:<sup>4</sup>

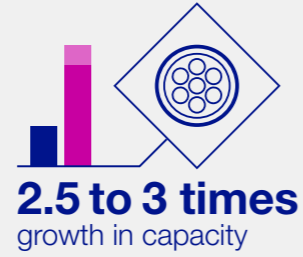
## Offshore wind



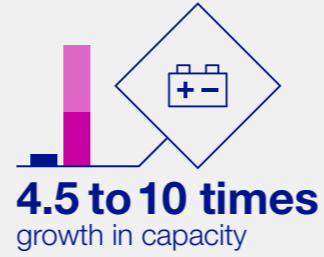
## Solar



## Interconnectors



## Battery storage



At the same time cross sector electrification is expected to increase total electricity demand by around 50%.<sup>5</sup>

Delivery of these changes requires significant upgrades and extensions to National Grid Electricity Transmission's networks. **By 2030**, this is expected to include:<sup>6</sup>

**Building over 5 times more**



transmission overhead or underground lines than we have built in the last 30 years.

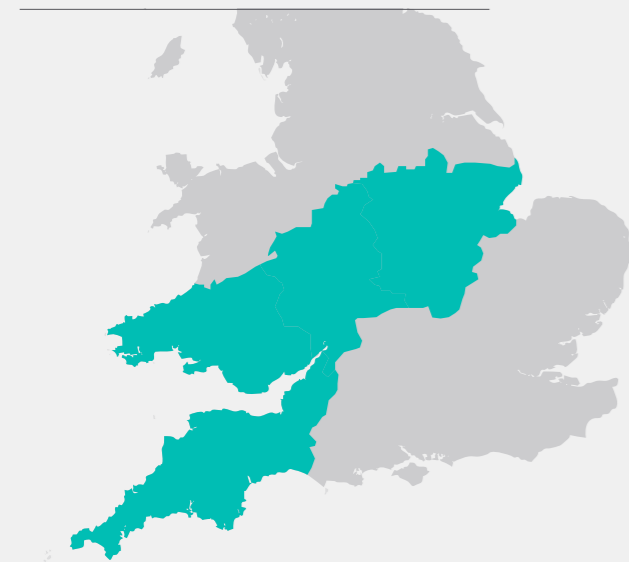
**Building around 4 times more**



transmission marine cables than our current offshore network.

## NGED Footprint

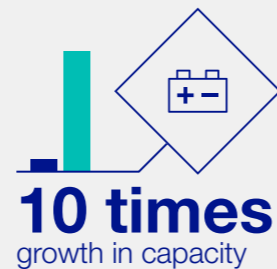
National Grid Electricity Distribution owns and operates electricity distribution networks in the Midlands, the South West and Wales. In these regions by 2035 we expect to see the following growth:<sup>7</sup>



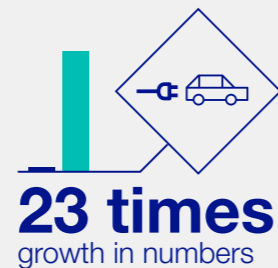
## Solar and onshore wind



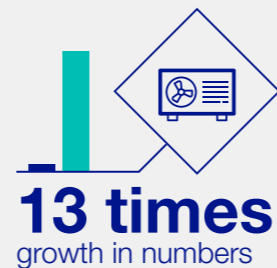
## Storage



## Electric vehicles



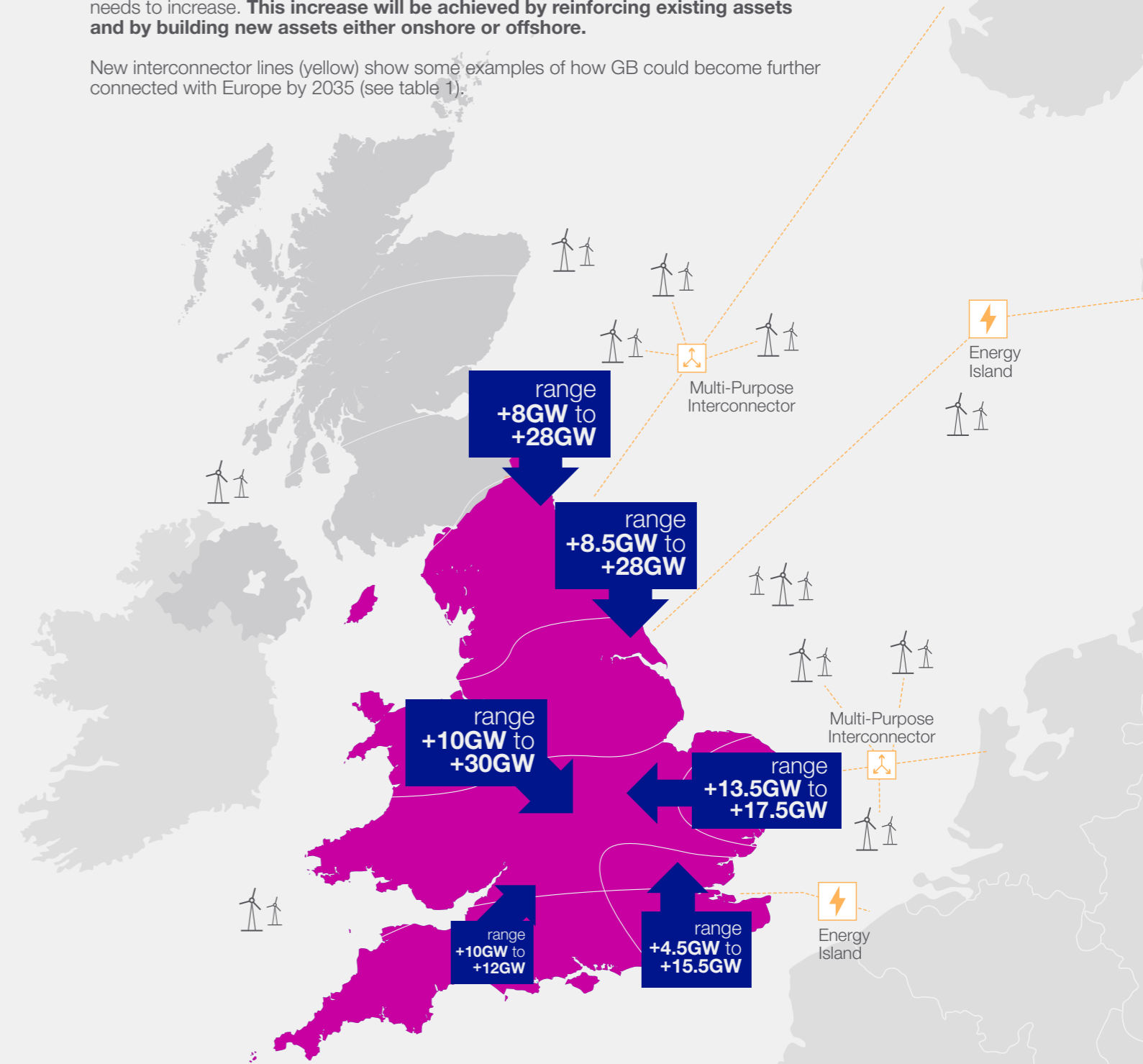
## Heat pumps



This map indicates the scale and location of growth required on the electricity transmission network in England and Wales to deliver a decarbonised power system by 2035.

The arrows show the general direction of electricity flow and where the capability<sup>8</sup> of different parts of the onshore network (the network boundaries, shown in white) needs to increase. **This increase will be achieved by reinforcing existing assets and by building new assets either onshore or offshore.**

New interconnector lines (yellow) show some examples of how GB could become further connected with Europe by 2035 (see table 1).



### Notes

For simplicity only selected boundaries with significant need for a growth in capability are shown. The arrow size is relative to the GW increase in network capability (from a 2022 baseline) required at that point on the network (the boundary). Numbers presented show the range in network capability requirements from [ETYS 2022](#) (as available in May 2023) assessment of the 2022 Future Energy Scenarios [Leading The Way](#) scenario and the [Climate Change Committee 2023 Central](#) scenario.

### Key

- Examples of potential new National Grid Interconnectors from / to GB
- Increase in network capability required at points on the network, and direction of electricity flow. The range indicates the change associated with the 2 scenarios considered to the nearest 0.5GW
- Network boundary
- National Grid Electricity Transmission footprint

### The right approach will unlock huge economic, social and environmental benefits

Reducing our reliance on global commodities will help to insulate households and businesses from future price shocks. Investment in our electricity networks could help up to 12.5m households move away from fossil fuel heating by 2035, saving them money and improving air quality.<sup>9</sup>

Connecting home-grown, clean energy sources will also reduce our reliance on imported gas and improve our energy security. Furthermore, greater interconnection with Europe will mean Britain's electricity exports could increase ten-fold by 2035,<sup>10</sup> supporting the government's ambition to be a net energy exporter.

And building a network fit for the future will turbo-charge our economy. Investments in Great Britain's electricity networks will contribute an average of £18.4bn to GDP and support over 220,000 jobs each year between 2024 and 2035.<sup>11</sup>

### To achieve this vision, we need a step-change in delivery

Transformation at this scale and pace will require everyone – industry, government and the regulator – to think and act differently.

While the UK has the talent and ambition, we are held back by several challenges. We have complex and outdated planning and regulatory structures. We lack capacity – both in skills and supply chain – to deliver at the pace and scale required. And, collectively, we need to better communicate the benefits and trade-offs of the clean energy transition with consumers and communities.

Critically, there is no time to waste. The UK is not alone in the clean energy race, with the Inflation Reduction Act driving action in the US, and the EU's Net Zero Industry Act having a similar effect. While the UK does not need to compete in a drive to provide scarce public resources to fund major infrastructure, it should look to maintain its

competitive advantage in designing and implementing policy and regulatory frameworks that attract and galvanise the private investment needed to deliver at an unprecedented scale and pace.

Much has already been done, including the government's recent Powering Up Britain strategy, as well as establishing a Networks Commissioner to accelerate grid investment. Achieving the 2035 target will require going beyond incremental improvements – we need a transformative change in approach.

The following sections set out the **five priority areas** where action is needed to transform the grid.

Investments in Great Britain's electricity networks will contribute an average of **£18.4bn** to GDP each year between 2024 and 2035.<sup>11</sup>

Table 1

#### Action in progress: Maximising the North Sea opportunity through Multi-Purpose Interconnectors

In addition to owning and operating electricity interconnectors between Great Britain and mainland Europe, National Grid Ventures is working with partners to deliver a new generation of Multi-Purpose Interconnectors which could link offshore wind farms via interconnectors between the UK and Belgium (Nautilus)<sup>12</sup> and the Netherlands (Lionlink).<sup>13</sup> This coordinated approach maximises the benefits of offshore wind and interconnection for UK consumers.

To build complex offshore infrastructure requires compatible regulation, cooperation on maritime spatial planning and the enabling of cross-border projects. We therefore welcome government's support for effective collaboration with European partners through the UK's Memorandum Of Understanding with the North Seas Energy Cooperation platform,<sup>14</sup> and the UK's signature of the Ostend declaration at the North Sea Summit.<sup>15</sup>

## 01

## Reform the planning system, centred around a strategic clean energy vision

**Securing planning permission is currently a major blocker to accelerating our clean energy transition. While action is already being taken to speed up planning decisions on major infrastructure projects, this needs to go further.**

Crucially, the planning framework must take a more strategic and holistic approach in order to balance the urgency with which investment is needed with the voice and interests of local communities.

### Key actions needed:

**1. As an immediate step, finalise the National Policy Statements by the summer, ensuring they provide clarity and certainty to support urgent delivery of net zero infrastructure**

Whilst we welcome the recent government consultation on the redraft of the National Policy Statements (NPS), a clearer, sharper approach is needed to deliver an effective suite of NPS. The NPS must provide greater clarity and authority on the need, pace and urgency of energy related Nationally Significant Infrastructure Projects (NSIPs). This must include explicit recognition of the critical urgency of enhancing, reinforcing, and extending the transmission network to connect new generation with a presumption in favour of the need for projects that enable the delivery of net zero targets. The NPS must also be clear on the tests which will be applied to individual projects, and must ensure that the consenting process is proportionate by removing unnecessary complexity.

**2. Streamline the current consenting process for major energy projects, including through shortened decision timescales and alignment with the regulatory regime**

The current Development Consent Order (DCO) process for NSIPs provides a robust route to approve major projects, however there are some opportunities for streamlining in the near-term. For example, the DCO examination, reporting and decision timescales could be shortened by providing guidance to focus examinations on pertinent issues and the intention for the preliminary meeting to start around three months following acceptance.

To support greater efficiency in approvals, opportunities also exist to align the regulatory and planning regime, which could include introducing Ofgem as an active consultee to the planning and consents process. There is also scope for more consents to be

‘wrapped up’ into a single DCO to save applying for them separately. In addition, an increase in resource and capability is required in planning bodies and statutory consultees, including through appointing specialist advisers, to improve the examination process.

**3. Establish a ‘Strategic Spatial Energy Plan’ by 2025 that sets out what needs to be built, where, and when**

While short-term improvements to the consenting process will be helpful, ultimately we need to move towards a much more strategic and holistic approach towards deciding what energy infrastructure the country needs, and embedding this within the planning framework.

Recent changes to plan network capacity in a more strategic way are welcome, notably the publication in July 2022 of a network ‘blueprint’ in the form of a Holistic Network Design (HND)<sup>16</sup> followed by

Ofgem’s approval in December 2022 of 17 of the projects within the HND as part of its Accelerated Strategic Transmission Investment (ASTI) programme.<sup>17</sup> It is critical that these projects are ‘locked in’ and progressed at pace.

However, a key limitation of the HND is that it has no formal role in the planning and consenting framework, and is relatively narrow in scope, focused on the network projects to support the government’s ambition to deliver 50GW of offshore wind by 2030. Looking towards the 2035 decarbonisation target and beyond, we need to evolve this approach through the creation of a ‘Strategic Spatial Energy Plan’, which provides an authoritative evidence base for the key clean

energy projects – both networks and beyond (for example the location of hydrogen and offshore wind) – that are needed to deliver our 2035 and 2050 targets.

A ‘Strategic Spatial Energy Plan’ would ultimately be owned by the government (with a Future System Operator<sup>18</sup> leading the technical work), have full weight in planning law, and be endorsed in national and local planning policy. As such, it should be established through a collaborative and consultative

process, including formalised input from industry and local and regional authorities through alignment with new Regional System Plans and Local Area Energy Plans (see section 4). Work should start now by agreeing scope, creating national consensus and building capabilities in key organisations to ensure the first plan can be in place by 2025.

**By 2030 we need to build over 5 times more new transmission lines (overhead or underground) than we’ve built in the last 30 years.<sup>6</sup>**



## 02

## Ensure the regulatory and governance framework is set up for delivery

**The way in which our energy system is governed and regulated was designed for a world of stability – where the main objective was to maintain our existing networks – not for a world in which such fundamental change is required.**

Ofgem and government have made a welcome move towards a more strategic approach to the governance and regulation of our energy networks, which we now need to build upon, looking at wider reform that will deliver the pace and scale required to hit net zero whilst creating and maintaining resilience for the long-term.

### Key actions needed:

#### 1. Review the current suite of regulators' objectives and duties and clarify roles and responsibilities across the institutions accountable for the energy transition

Introducing a new, independent Future System Operator to deliver a strategic planning function across the energy system is a welcome step, and represents an opportunity to ensure objectives, roles and responsibilities are clear – for individual institutions and how they should interact – and reflect the priority of delivering net zero.

Government has made an important commitment to reviewing regulators' duties and to publishing a Strategy and Policy Statement (SPS) for Ofgem and the Future System Operator. It is important that the SPS ensures alignment between the regulatory and

strategic planning framework and government's overall policy direction, including the delivery of the net zero transition whilst creating and maintaining resilience. Strengthening Ofgem's statutory duties to explicitly support the delivery of net zero and resilience would also help ensure that it gives full consideration to the need to serve both current and future consumers. In addition, given the increasing interfaces and co-dependencies between regulated and Critical National Infrastructure (CNI) sectors there is a growing need for cross-regulator collaboration, especially in the utilities sector, and consideration should be given to how this could best be achieved.

#### 2. Fully embed anticipatory investment and resilience into the regulatory framework, ensuring it attracts the private capital to deliver the scale of network investment required

The current approach to network regulation, which has focused on short-term costs and progressing investment only once a firm need is identified in periodic price control decisions, means delivery of network infrastructure trails behind connection requests. A new approach is needed where Ofgem approves the need for investment on a rolling basis and

in an agile way so networks can begin upgrading the system. This will ensure network capacity does not become an obstacle to timely connection of new generation and demand, minimising the cost to consumers from network constraints. In addition, the new regulatory framework needs to ensure investment can be made not just to meet immediate firm needs, but to support what we know will be needed in the future, where demand is expected to increase and the energy system must withstand the new extremes that climate change delivers. Ofgem's ASTI model (as noted above), which approved future-looking network expansion outside of the existing regulatory cycle, provides a good basis for developing these approaches in both transmission and distribution networks. Moreover, the framework will also need the right combination of risk and return to attract the unprecedented level of investment

required and ensure that strategic projects can be approved and funded in a programmatic way, allowing earlier supply chain engagement and commitment.

#### 3. Maintain pace in introducing a competitive market for major transmission network capacity

Given the significant levels of investment required in the UK's electricity network infrastructure in the coming decade and beyond, there is a real opportunity to

broaden the approach for delivering these new projects. The introduction of network competition through the Energy Bill is welcome and, where applied appropriately, can deliver real consumer benefits by driving innovation and downward pressure on costs. The government and Ofgem must continue to maintain pace in establishing the framework for competition in order to support the delivery of projects out to 2035 and beyond.

Importantly, once the need for a project has been established, providing early clarity on which projects or programmes will go out to competition will be critical to ensuring timely delivery and securing maximum consumer benefit, by enabling both early supply chain engagement and design innovation opportunities.



# 03

## Transform how clean energy connects to the grid, accelerating net zero projects

Connecting clean energy to the grid is critical to the net zero transition. However, due to the outdated connections framework and unprecedented growth in demand, the pipeline of future connections is heavily oversubscribed and the backlog is increasing.

Change is already underway. The Electricity System Operator (ESO) recently published a five-point plan for reform,<sup>19</sup> the Energy Networks Association has produced a connections action plan<sup>20</sup> and National Grid is taking action to improve the processes at a national and local level (see Table 2 and Table 3). But more fundamental reform is needed to deliver a quicker and more coordinated approach to connecting clean energy to the grid.

### Key actions needed:

#### 1. Shift from a 'first come, first served' to 'connect or move' connections process

Low barriers to entry, coupled with a 'first come, first served' process, mean there are incentives for projects to secure their place in the connections pipeline regardless of the maturity of their project – potentially delaying more viable projects from connecting at an earlier date. As we look towards an enduring regime for connecting to the grid, this could be addressed through creating tighter thresholds for those applying for connections, and ensuring that where a project cannot connect, they move out of the pipeline, so as not to block or delay other projects.

#### 2. Develop strategic 'capacity hubs', enabling a more coordinated and innovative approach to connections

Currently, the connections process is demand-led, meaning clean energy projects choose their connection location, while the regulatory framework ensures that the associated works to reinforce the grid only start when a specific customer need is contracted. However, there is an opportunity to take a more strategic approach, whereby capacity needs are identified through a spatial plan (as noted above) and new projects are required to connect in line with the available capacity within these zones, with infrastructure designed and delivered ahead of this need. Capacity hubs should also recognise the collective needs of communities and customers,

and allow these to be met with innovation and emerging products, business models or partnerships, rather than being limited by rules or codes.

#### 3. Create a fast-track connection route for critical net zero projects, prioritising those areas where the economic value could be greatest

A new connections framework should also recognise that some projects are strategically important to meeting net zero, or deliver broader economic value. A fast-track route should therefore be developed to ensure these can connect to the grid in a timely manner in order to maximise these benefits. This would require clear and transparent criteria, potentially aligned with the government's sector deals, for projects to qualify.

Table 2

Action in progress: Transmission connection reform
National Grid Electricity Transmission is delivering two major connection reforms with Ofgem and the ESO:
<p><b>1. Transmission Entry Capacity (TEC) Amnesty</b> encourages generation customers to retract their application to connect by reducing penalties they would typically receive.</p>
<p><b>2. Two-stage offer</b> gives NGET the window of opportunity to optimise the pipeline and tackle wider reform. It manages additional connection requests in a new way to avoid them being layered on top of a largely speculative pipeline of contracted connections.</p>

In addition, we are developing a new 'plug and play' product. This involves the development of a connection socket of the future that can be built in advance, added with less outage time, and flexibly used for developers seeking to connect.



By 2035 between 4.5 to 6 times growth in capacity is expected in offshore wind.<sup>4</sup>

Table 3

Action in progress: Distribution connection reform
National Grid Electricity Distribution has delivered changes to simplify connections for customers such as:
<p><b>1. Our new automated online process for EV connections</b> means that applications always get a response instantly (compared to 24-48 hours in 2021/22) with any remedial works taking place following the installation.</p>
<p><b>2. Our budget estimation tool, ConnectLite</b>, gives customers an instant estimate for their connection, providing the information upfront so they can get connected quicker.</p>
<p><b>3. For connections that require a site visit</b>, we are adopting an <b>innovative new 'virtual inspection' tool</b> which enables our engineers to assess sites remotely, at a time that suits the customer.</p>



# 04

## Put communities and consumers at the forefront of the transition

To maintain popular support for the net zero transition, and drive towards affordability over the longer-term, it is critical that consumers and communities understand the rationale for change, can engage in the process and see its benefits. At the same time, it is essential that the most vulnerable in society are protected.



National Grid Electricity Distribution is **working with 121 local authorities** to support the development of their Local Area Energy Plans.

### Key actions needed:

#### 1. Deliver a consistent community benefits framework that ensures local people secure real value for hosting critical net zero infrastructure

There is a need to establish an ambitious community benefit framework which is embedded into policy and regulation to bring greater clarity and consistency and ensure that communities can see the tangible benefit that infrastructure can bring. The government's consultation on community benefit packages is a welcome step.

It is important to ensure the framework provides flexibility and helps facilitate local decision making, ensuring community benefit offerings can be tailored and adapted to local need. It should allow developers to work in consultation with local communities and regional stakeholders to deliver enduring benefits, such as environmental enhancements, skills development initiatives or support for local projects.

#### 2. Progress the development of new Regional System Planners to unlock local net zero infrastructure

Local authorities play a crucial role in the planning and delivery of low carbon infrastructure that serves local communities, such as EV charging, heat networks and grid reinforcement. We need to ensure that local areas have the right resources and expert guidance available to help them define and deliver their Local Area Energy Plans (see Table 4 on how National Grid is supporting LAEPs).

We support the development of Regional System Planners (RSPs) which have an important role in the creation of a whole system energy plan. We think this should be achieved through a federated model with strong, well-resourced locally based RSPs sitting within the FSO. The RSPs should be able to develop regional plans across energy vectors through a collaborative and consultative process, including formalised input from industry and local and regional authorities. These plans should then form the basis of the local and regional investment plans underlining network price controls.

#### 3. Drive forward demand flexibility through retail market reform, while ensuring vulnerable households are protected through the development of a social tariff

Demand flexibility is a cheaper alternative to network reinforcement, helping to reduce costs and improve energy security at a system-wide level, while also supporting cost savings for individual households. Given its importance in a 2035 system (alongside other flexibility options), government should accelerate and prioritise retail market reforms to unlock this opportunity, including the building blocks underpinning this: such as completing the smart meter rollout and setting a backstop date for all suppliers to opt-in to half hourly settlement.

In addition, as government considers its long-term approach to the affordability of energy, it should ensure that the most vulnerable in society are protected. A social tariff is a sensible option to provide this targeted support, and should be developed at pace ahead of the coming winter.

By 2035 we expect to see **23 times more electric vehicles** and **13 times more heat pumps** on our distribution network than we have today.<sup>21</sup>

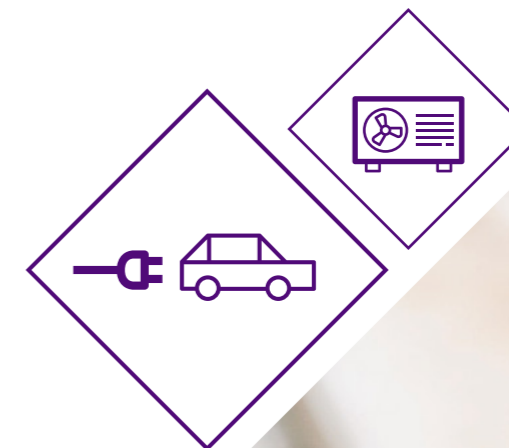


Table 4

#### Action in progress: National Grid's support for Local Area Energy Planning

With a network that spans 25% of the UK, National Grid Electricity Distribution is working with 121 local authorities across diverse rural and urban areas, providing bespoke support and guidance to regional stakeholder groups in the development of their Local Area Energy Plans (LAEP). Our approach incorporates forecasting and planning as well as local investment workshops, offering regional face-to-face surgeries for local authorities to discuss their plans in detail with the teams responsible for the planning, decision-making and delivery of our investment.

# 05

## Develop supply chain capacity and a skills pipeline across the country

**Demand and competition for net zero products and services – including the cables and transformers needed to expand the grid – has grown rapidly as countries push to meet their respective decarbonisation targets. This has intensified further with the introduction of the Inflation Reduction Act in the US and Net Zero Industry Act in the EU.**

This comes at the same time as the sector faces a significant skills challenge, with increasing demand, a loss of existing talent, competition with other sectors, a lack of diversity and a diminishing pipeline of people taking up STEM subjects. We now need to do things differently, creating a new approach to capturing more of the value of the clean energy transition domestically, and delivering a jobs and skills revolution up and down the country.

**Key actions needed:**

**1. Enable a shift towards a more collaborative and flexible approach to securing supply chain capacity needed to deliver clean energy projects**

Accelerating delivery of infrastructure requires a different approach to supply chain development and engagement, including a need to collaborate, cooperate and create greater standardisation to drive efficiency. Therefore, supply chain issues should form part of the North Seas Energy Co-operation platform<sup>22</sup> and procurement and technical standards should be standardised across UK and European networks (e.g. through inclusion of the UK in the InterOPERA project to define future interoperability standards for offshore electricity grids).

Flexibility is also needed within the UK procurement framework to ensure that it enables delivery at pace while driving value for money. We support the government's overarching procurement principles, however the current Utility Contract Regulations and proposals included in the Procurement Bill create additional and unnecessary bureaucracy for utilities that risk reducing both the value to energy bill payers and speed at which we are able to deliver much-needed network infrastructure. As such, action should be taken to ensure that network companies have the ability, where it involves net zero energy infrastructure and where they can demonstrate public interest, to directly award contracts outside of the procurement framework.



**2. Deliver a targeted package of incentives to attract potential clean energy manufacturers and training providers to locate and expand sites in the UK**

Given the volume of build needed in networks alone, there is a significant opportunity to develop some of the associated manufacturing capability in the UK. While the key factor in determining this will be long-term order book commitments, action could be taken to ensure the UK is an attractive place to invest.

Aligned to the Investment Zone programme announced in the Spring Budget, and building on the approach government has already taken with Special Economic Zones like Freeports and Development Corporation Areas, targeted measures such as Business Rates relief, Enhanced Capital Allowances, Enhanced Structures and Building Allowance, streamlined permitting and enhancements to permitted development rights would be a significant incentive for manufacturers and innovators to invest. Similar fiscal incentives could also apply to technical training centres equivalent to an Ofsted grade 1 or 2, to encourage quality providers to expand their facilities commercially, in support of greater cross-industry training for future needs.

**3. Publish an annual net zero energy workforce report and ensure the educational and training system is equipped to inspire a pipeline of future talent**

Inspiring talent from a diverse range of backgrounds will be critical to ensuring we will have the people power required to deliver the clean energy transition into the future, and National Grid is committed to playing its part (see Table 5).

In order to identify the most effective interventions in pursuit of creating green jobs, the joint-ministerial Green Jobs Delivery Group<sup>23</sup> should be tasked with producing an annual report into the state of the net zero energy workforce, which should include clear and transparent data on UK demand for and supply of energy roles, as well

as skills gaps. This report should build on the mapping work of Local Skills Improvement Plans (LSIPs), which have a mandate to consider climate and environmental targets, and should support the Delivery Group's promised Net Zero and Nature Workforce Plan, by helping to identify areas for action that need to be taken by government, businesses, and education/training providers, both nationally and locally.

Alongside this, the Department for Education should conduct an in-depth review of the curriculum to ensure net zero is embedded across relevant subjects at all ages, as well as taking action to upskill the teaching workforce through targeted Continual Professional Development (CPD) and grant funding for teachers, with a focus on net zero and STEM subjects.

**Table 5**

**Action in progress: Grid for Good**  
National Grid plays a vital role in training the engineers and technicians that will be on the front line of delivering the net zero infrastructure the UK requires.

Our Responsible Business Charter includes a commitment to developing skills for the future, with a focus on lower income communities, by providing access to skills development for 45,000 people by 2030 and achieving 500,000 employee volunteering hours by 2030.

To support this commitment, we established Grid for Good,<sup>24</sup> an energy industry community programme led by National Grid to support young people aged 16-25. The programme, which includes 12-week career mentoring, two weeks work experience, access to apprenticeships and internships at National Grid, work readiness training, networking and industry taster sessions, has already supported over 4,200 people.

Investments in Great Britain's electricity networks will support an average of over **220,000 jobs each year between 2024 and 2035**<sup>11</sup>.



# About National Grid

**National Grid is an energy company operating in the UK and US. We deliver electricity and gas safely, reliably and efficiently to the customers and communities we serve.**

National Grid Group's operations in the UK include: National Grid Electricity Transmission (NGET), which owns the high voltage transmission system in England and Wales; National Grid Electricity Distribution (formerly Western

Power Distribution), which owns and operates electricity distribution networks in the Midlands, the South West and Wales; National Grid Ventures (NGV), which owns and operates energy businesses in competitive markets, including sub-sea electricity interconnectors; and National Grid Electricity System Operator (NGESO), a legally separate business within National Grid Group which balances the supply and demand of electricity in real time across Great Britain.

## References and sources

- <sup>1</sup> As outlined in [Net Zero Strategy: Build Back Greener](#), October 2021, government committed to “fully decarbonise our power system by 2035, subject to security of supply”
- <sup>2</sup> Climate Change Committee [CCC's Balanced Pathway for the Sixth Carbon Budget](#)
- <sup>3</sup> [2022 Future Energy Scenarios Leading The Way scenario](#); Total capacity connected
- <sup>4</sup> Numbers presented show the range in connected capacity from the [2022 Future Energy Scenarios Leading The Way scenario](#) and the [Climate Change Committee 2023 Central scenario](#)
- <sup>5</sup> Climate Change Committee [CCC's Balanced Pathway for the Sixth Carbon Budget](#)
- <sup>6</sup> National Grid analysis based on an assessment of likely transmission asset installation required to deliver the projects in England and Wales identified in the Holistic Network Design under the Accelerated Strategic Transmission Investment (ASTI) framework
- <sup>7</sup> Best view' scenario from [DFES – Dataset](#) – National Grid's Connected Data Portal
- <sup>8</sup> Boundary capability: the maximum flow that can be transferred across a boundary while maintaining compliance with the National Electricity Transmission System Security and Quality of Supply Standard
- <sup>9</sup> National Grid analysis, Market Analytics Net Zero Scenario. The Market Analytics Net Zero scenario assumes economy wide carbon neutrality by 2050, and power sector decarbonisation by 2035. A hybrid approach to electricity and hydrogen is assumed, with a variety of solutions being advanced simultaneously.
- <sup>10</sup> National Grid analysis, Market Analytics Net Zero Scenario.
- <sup>11</sup> Oxford Economics, GB Networks Investment Impact Analysis, May 2023
- <sup>12</sup> About Nautilus | National Grid Group <https://www.nationalgrid.com/national-grid-ventures/interconnectors-connecting-cleaner-future/nautilus-interconnector>
- <sup>13</sup> LionLink | National Grid Group <https://www.nationalgrid.com/national-grid-ventures/future-developments/lionlink>
- <sup>14</sup> NSEC-UK Memorandum of Understanding (europa.eu), December 2022 [https://energy.ec.europa.eu/publications/nsec-uk-memorandum-understanding\\_en](https://energy.ec.europa.eu/publications/nsec-uk-memorandum-understanding_en)
- <sup>15</sup> North Sea Summit, April 2023 [ostend-declaration-energy-ministers-north-seas-europes-green-power-plant.pdf \(bmwk.de\)](#)
- <sup>16</sup> The Holistic Network Design provides a recommended onshore and offshore design for a 2030 network that can facilitate the UK government ambition for 50GW of offshore wind in Great Britain by 2030. [The Pathway to 2030 Holistic Network Design | ESO \(nationalgrideso.com\)](#), July 2022
- <sup>17</sup> [Decision on accelerating onshore electricity transmission investment | Ofgem](#)
- <sup>18</sup> The current [Energy Bill](#), which is before Parliament, sets out proposals for the Electricity System Operator, which is currently a legally separate entity owned by National Grid plc., to form the basis of an Independent System Operator and Planner or 'Future System Operator', which will involve a divestment process. [Energy Bill](#) - Parliamentary Bills - UK Parliament.
- <sup>19</sup> [Connections challenges: what are we doing now? | ESO \(nationalgrideso.com\)](#)
- <sup>20</sup> [Improving and accelerating customer connections – Energy Networks Association \(ENA\)](#)
- <sup>21</sup> Best view' scenario from [DFES – Dataset](#) – National Grid's Connected Data Portal
- <sup>22</sup> [The North Seas Energy Cooperation \(europa.eu\)](#) and [NSEC-UK Memorandum of Understanding \(europa.eu\)](#)
- <sup>23</sup> [Green jobs delivery steps up a gear - GOV.UK \(www.gov.uk\)](#)
- <sup>24</sup> [Grid for Good](#)

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