

# Delivering clean power

A mission for the energy system

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A mission for the energy system

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Prospect is the leading UK union for engineers, managers, and specialists.

We represent more than 156,000 workers across the public and private sectors, including thousands of members working in energy generation, transmission, distribution, and research roles around the UK.

# Summary of recommendations

#### **Foundations** of a clean power system

- 1. Create a Net Zero Energy Agency to lead the energy transition
- 2. Set up a public energy generation company to invest in clean energy
- 3. Replace Ofgem with a new net zero energy regulator

#### **Pillar 2:** Driving a race to the top in **renewables**

- 7. Accelerate public and private investment in renewables
- 8. Reform planning and permitting to speed up construction
- 9. Scale up domestic renewables supply chains
- **10.** Support the deployment of flexibility and storage technologies

#### **Pillar 4:** Upgrading **networks** for the future

- **15.** Deliver a programme of energy network upgrades
- **16.** Establish the Future System Operator as a centre of technical expertise
- Accelerate the delivery of offshore networks

### **Pillar 1:** Creating good jobs with a voice for **workers**

- 4. Drive up working conditions by giving everyone a voice at work
- 5. Develop a net zero skills and training strategy
- 6. Establish a just transition fund for workers and communities

### **Pillar 3:** Building a new generation of **nuclear power**

- **11.** Back Great British Nuclear to deliver a nuclear programme
- **12.** Invest in a range of nuclear technologies
- **13.** Develop our nuclear expertise to export around the world
- **14.** Protect our national capability in nuclear fuels

#### **Pillar 5:** Guaranteeing a fair deal for **consumers**

- **18.** Introduce a social tariff for those most in need
- **19.** Fund a comprehensive retrofit programme to bring bills down
- **20.** Put fairness and affordability at the heart of market reform

### Introduction

The UK is suffering the consequences of years of failed energy policy. Over the last 18 months, rising energy bills have pushed millions into poverty and contributed to the worst inflation crisis in 40 years. Households and businesses have faced the genuine risk of energy blackouts as our over-reliance on global gas markets has become clear.

We are falling behind in the race for future green jobs, while energy workers confront the present reality of understaffing, overwork, and unsafe conditions. Meanwhile, the climate crisis continues to accelerate as we fail to cut emissions at the speed necessary.

Of course, our immediate challenges stem from a global energy crisis triggered by Russia's invasion of Ukraine. But they have deeper roots. Recent governments have lacked a clear vision or strategy for energy, favouring short-term fixes over meaningful reforms and failing to drive the investment needed to meet net zero and guarantee a secure energy supply.

In the power sector, the solution to these problems is clear. We need a national mission to roll out homegrown, low-carbon electricity from renewables and nuclear as quickly as possible. Both the government and opposition broadly recognise what is required, setting out ambitious targets to decarbonise the electricity system by 2035 and 2030 respectively.<sup>1</sup> But it is not clear that the transformation required to achieve these goals has yet sunk in. Over the next seven years we will need to deliver five times as much new electricity transmission infrastructure as we have in the last three decades, three times as much additional offshore wind capacity as we've ever built, and the first new nuclear reactors since the mid-1990s.<sup>2</sup> The scale of change ahead is truly staggering.

#### New ways of thinking

A national mission to deliver clean power will require new ways of thinking. For decades, energy policy has been governed by an outdated approach that puts too much faith in markets and fails to appreciate the role for an active government. The private sector will be central to mobilising the significant investment required over the coming years, but it cannot deliver a 21st century energy system on its own.

At the same time, energy workers cannot continue to be shut out of the conversation. We will not roll out

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Minimising risks

Unfairness and injustice

Detached decision-making

green infrastructure without people to plan, build, operate, and maintain it. That is an opportunity to create jobs, but those jobs must be secure and well-paid, which in turn requires giving workers a voice in their workplaces and in the policy debate.

Governments around the world acknowledge the need for a new approach to energy policy. In the US, the Inflation Reduction Act has recast the role of the state: offering hundreds of billions of dollars of subsidies and loans to build a clean energy economy that drives investment to communities left behind by globalisation. The EU has responded with a Green Deal Industrial Plan similarly ambitious in its goals for new green jobs and industries.

#### A mission-driven approach

This report sets out a mission-driven approach to decarbonising our power system. It is inspired by policies in the US, EU and elsewhere but goes further so Britain can lead the world in the green energy transition. Instead of short-term fixes, we need an ambitious plan that is led by government not left to the market. That does not mean a return to a nationalised industry run from Whitehall, but an energy strategy actively shaped by government and delivered in partnership with businesses, workers, and communities around the country.

Partnership with workers and communities

Fairness and a just transition

Fairness must be at the heart of every decision, ensuring all households have access to energy and no workers are left behind. While the climate crisis should be at the front of our minds, our ambitions cannot be limited to avoiding the risks of climate inaction: we should grasp opportunities to create good jobs, prosperous industries, and a better society in the process.

The rest of this report explores what this means in practice – outlining a new set of institutions and five pillars of action that can make a national mission to deliver clean power a success.

# Foundations of a clean power system

A successful energy strategy must support several goals: reaching net zero emissions; ensuring energy security in the face of geopolitical threats; guaranteeing fair and affordable access to energy; and creating good green jobs across the country.

We need a new set of institutions to drive these goals forward. The Prime Minister's decision to establish a Department of Energy Security and Net Zero is not enough. Mission-driven governments need better ways of addressing complex issues that require long-term thinking, collaboration between government departments, and action across all of society.



#### A new role for government

They also need a more nuanced approach to intervention in markets, as the US and EU have recognised. Successful decarbonisation requires rolling out infrastructure at speed, developing new technologies, and scaling up domestic supply chains – regardless of whether those actions deliver short-term profits in existing markets.

While the US Inflation Reduction Act relies on loans and subsidies to create and shape markets, more widely there is growing understanding that direct public investment can help guide private capital towards social goals.<sup>3</sup> By taking equity stakes in exchange for direct investment in energy, governments can ensure a return on public money spent. Over time, this means energy generated from our natural assets can help build up our national wealth.

This must be accompanied by better regulation of the private sector. The current crisis has demonstrated that Ofgem is not fit for purpose, failing to protect consumers from unfair practices, prevent suppliers going bust, or drive sufficient investment in net zero. After years of failure, a new system of regulation is desperately needed.

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# Prospect **recommends**:

**Create a Net Zero Energy Agency** with responsibility for coordinating a national energy strategy. This should take a 'whole system' approach, considering cross-cutting issues (such as on planning, investment, and the workforce) and looking beyond electricity to the decarbonisation of transport, buildings, and industry. The agency should work across departments and levels of government, advised by a board made up of businesses, trade unions, and technical experts. **Set up a public energy generation company** to accelerate the rollout of homegrown, low carbon energy and support green jobs around the country. The Labour Party's plan to establish a public energy generation company, Great British Energy, is welcome.<sup>4</sup> It should invest in a range of energy technologies, using its position between the state and the market to 'crowd in' private investment, promote decent work, and drive wider industrial policy goals.

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Replace Ofgem with a new net zero energy regulator tasked with delivering a resilient, affordable, and decarbonised energy system. The new body should focus on economic regulation and consumer protection. It should have a clear role in facilitating net zero investment, but responsibilities for strategic planning should be passed to the Net Zero Energy Agency and Future System Operator (see Recommendation 16).<sup>5</sup>

## **Pillar 1:** Creating good jobs with a voice for workers

Countries around the world understand that net zero offers a once-in-a-generation opportunity to rebuild their economies with new jobs and industries.<sup>6</sup> In the UK, hundreds of thousands of workers will be needed over the coming decades in the energy sector alone.<sup>7</sup>

But there is no guarantee that green jobs will be good jobs. To build a fairer economy, they must be well-paid and secure, with decent working hours, opportunities for progression, and high health and safety standards.

This won't happen on its own: experience shows that strong trade unions are vital to delivering higher wages and better working conditions.<sup>8</sup>

#### Investing in skills and a just transition

We will need to invest in the workforce to fill these jobs. There are several barriers to recruiting skilled

energy workers, from underfunded technical education to a failure to promote green careers in schools. The industry struggles from a workforce skewed towards older people approaching retirement and a lack of diversity that excludes a large talent pool of workers.<sup>9</sup>

Jobs in the energy sector require skills such as engineering, project management, and data science that are highly transferable and in demand across the economy.<sup>10</sup> Without a plan to attract, train, and retain a skilled energy workforce our wider goals are at risk.

In all of this, Britain's history of poorly managed economic transitions cannot be repeated. Trade unions have led the campaign for a 'just transition' for workers and communities most affected by the shift to a green economy.<sup>11</sup> Given the scale of change ahead, it is vital that net zero leaves no one behind.



# Prospect recommends:

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Drive up working conditions across the energy industry by giving everyone a voice at work. Trade union access and collective bargaining on pay and conditions should be promoted at every opportunity. A public energy generator should prioritise companies that engage with trade unions in its procurement decisions and non-price factors should be considered in the Contracts for Difference process. Every pound of public money spent should support well-paid, secure, unionised jobs. **Develop a net zero skills and training strategy**, building on the final report of the independent Green Jobs Taskforce.<sup>13</sup> This should include promoting high quality STEM (science, technology, engineering, and maths) teaching in schools, reforming the adult education system to meet the demands of net zero, and developing targeted skills strategies for each industry and local area.

**Establish a just transition fund** to support workers and communities dependent on high carbon industries. This should fund retraining costs and invest in local green industries. It could be capitalised with the significant windfall the Treasury will receive from offshore wind lease agreements – using the proceeds of the energy transition to ensure everyone benefits from it.<sup>14</sup>

## **Pillar 2:** Driving a race to the top in renewables

Renewables will form the backbone of our future energy system: providing a homegrown, zero carbon, and affordable supply of energy.

We've made good progress on the renewables rollout over the last decade, with the growth of offshore wind in particular contributing to falling emissions in the power sector.<sup>15</sup>

But with more than 40% of electricity still generated from fossil fuels – and demand expected to double by 2050 as we electrify transport and heating – we need to do much more to meet our net zero and energy security goals.<sup>16</sup>

#### Wasted opportunities

While going further and faster, we need to ensure the renewables rollout delivers tangible benefits for workers and communities. Successive governments have promised waves of green energy jobs, but employment in the industry has grown much slower than expected.<sup>17</sup>

Government-backed guarantees for renewables developers have successfully reduced risks for investors but also created incentives to drive down costs. This has left too much supply chain work going to cheaper overseas manufacturers and failed to boost British industry.<sup>18</sup>

Pressure to deliver ever-cheaper renewable energy now risks undermining the rollout itself. Developers warn that rising materials prices and interest rates, along with the race for investment spurred on by US and EU subsidies, are putting British renewables projects under threat.<sup>19</sup> The government needs a plan to speed up the renewables rollout, while driving a race to the top on jobs and standards in the industry.



# Prospect recommends:

Accelerate public and private investment in renewables. A public energy generation company should directly invest in renewables projects, prioritising technologies struggling to attract private investment – whether newer and riskier technologies like floating offshore wind and tidal or more established ones. Clear roadmaps for the deployment of each technology and a review of low carbon investment incentives can help unlock private capital alongside this.

**Reform planning and permitting** to get projects off the ground quicker. Renewables projects can take more than a decade to develop, but analysis shows this could be halved while maintaining high social and environmental standards.<sup>21</sup> The government should set clear targets for planning and permitting timelines for both renewables projects and network infrastructure and review regulations to meet them. In the short-term, the de facto ban on onshore wind must be reversed immediately. Scale up domestic supply chains to support British jobs and industry. A public energy company should actively engage in the projects it invests in to ensure parts and materials are bought from and made in the UK. Energy should be at the heart of a wider green industrial strategy that invests in our domestic manufacturing capacity.

Support the deployment of flexibility and storage technologies – from batteries and interconnectors to carbon capture and storage (CCS) and green hydrogen-fired turbines – that can deliver a reliable energy system with growing renewables. This should include investing in clean energy research and development and enabling the rapid rollout of new solutions.

## **Pillar 3:** Building a new generation of nuclear power

Greater use of renewables must be accompanied by technologies that can provide the energy we need whatever the weather. Energy storage and flexibility will play an important role in this, but nuclear is Britain's only proven technology offering a constant supply of low carbon energy at scale.

Most projections assume nuclear will be at the heart of our future energy mix, with the government targeting up to 24GW of capacity by 2050.<sup>22</sup> However, years of inconsistent policies have left us with a dwindling nuclear fleet.<sup>23</sup>

All but one of our existing reactors are due to retire by the end of the decade. Hinkley Point C and Sizewell C, the only two projects in the pipeline, will not make up for this shortfall alone so must be the start of a new generation of safe and secure nuclear power.

#### Government must lead the way

Nuclear power stations are complex infrastructure projects with upfront risks and long payback times that make private financing difficult. The UK government's reluctance to directly invest in nuclear has held projects back and, after repeated delays, Sizewell C is only moving forward with a 20% public stake.<sup>24</sup>

The government's decision to establish the Great British Nuclear body is a welcome acknowledgement that it must lead the way on nuclear development but needs to be supported with significant public investment to be a success.

Nuclear is already a vital industry for the UK, employing tens of thousands of highly skilled, well-paid workers and supporting local economies around the country.<sup>25</sup> A British nuclear renaissance could build a leading net zero industry with significant export opportunities.<sup>26</sup>



#### Falling nuclear capacity

Gigawatts of installed capacity at start of each decade

Source: WNA, EDF, DESNZ

### Prospect recommends:

**Back Great British Nuclear** to deliver a nuclear new-build programme. The most cost-effective way to develop nuclear is to build a fleet of reactors to the same design, benefitting from economies of scale and crowding in investment across the supply chain.<sup>27</sup> Great British Nuclear should be accompanied by substantial public investment in such a programme.

2 Invest in a range of nuclear technologies, ensuring Sizewell C gets to financial close and investing in further gigawatt-scale plants as well as new technologies such as small modular reactors (SMRs). A public energy generation company should provide early-stage funding for potential projects and take direct equity stakes in the most promising to bring private investors on board. **13 Develop the UK's nuclear expertise** as part of a green industrial strategy. Great British Nuclear should invest in skills to train the thousands of workers needed for a domestic new-build programme. It should also support our world-leading fission and fusion research, fuel fabrication, and nuclear decommissioning sectors to capture global export opportunities.

Protect our national capability in nuclear fuel fabrication at Springfields in Lancashire. The current model of private equity ownership is unsuitable for Springfields, a strategic national asset that is the UK's only nuclear fuel manufacturing plant. Bringing the plant into public ownership is the only way to safeguard our domestic supply of nuclear fuel.<sup>28</sup>

## **Pillar 4:** Upgrading networks for the future

Decarbonising the power system isn't just a case of building low carbon generation. Our energy networks also need extensive upgrades to ensure we can transport clean energy between where it is produced, stored, and used.

New grid connections need to be built to clean energy projects as infrastructure is rolled out. The transmission network – the high voltage lines that transport electricity across long distances – needs strengthening to carry electricity from renewables sites to the rest of the country, and all parts of the grid need to accommodate growing overall demand. National Grid says five times as much transmission infrastructure needs to be delivered in the next seven years as the last three decades.<sup>29</sup>



An upgrade programme must deliver climate-proof networks, ensuring extreme weather events such as heatwaves and flooding do not lead to power cuts or safety risks.<sup>30</sup> And it should include a new approach to offshore connections, currently built on a project-by-project basis that is disruptive to coastal communities and ultimately adds costs to consumer bills.<sup>31</sup>

#### Holding back the energy transition

The slow pace of network upgrades risks becoming a barrier to the rollout of low carbon technology. Renewables developers report waits of up to a decade to connect new sites to the grid.<sup>32</sup> Meanwhile, we could soon be paying more than £1 billion a year to electricity generators to constrain output that cannot be transported at peak times.<sup>33</sup>

Inadequate regulation means network companies have systematically underinvested in the upgrades needed. Workers are at the sharp end of a broken system, with years of cuts leaving teams understaffed, overworked, and experiencing low morale.<sup>34</sup> A rapid increase in network investment is needed to meet the challenges ahead.

### Prospect recommends:

### Deliver an energy network upgrade

**programme** with government, the energy regulator, and network companies working together on anticipatory investment in all parts of the grid. This should include strengthening both long-distance transmission and regional distribution networks to enable the rollout of renewables, electric vehicles, and heat pumps. A new net zero energy regulator (Recommendation 3) and planning reform (Recommendation 8) would help facilitate investment at the speed and scale necessary.

Establish the Future System Operator as 6 a centre of technical expertise, running the energy system in real-time and advising government on future electricity, hydrogen, and CO2 transport and storage needs. The government has set out its plans to transform the current Electricity System Operator into a publicly run body.<sup>35</sup> This must have sufficient resources to attract and retain the skilled talent it will rely on.

Accelerate the delivery of offshore networks, reducing costs and disruption by limiting the number of individual connections to the onshore grid. As the government conducts its Offshore Transmission Network Review, it is vital to continue supporting 'pathfinder' projects to coordinate investment in offshore connections while a full regime is established.

## **Pillar 5:** Guaranteeing a fair deal for consumers

Current policies are failing to deliver the fair and affordable access to energy we all need. Typical energy bills have nearly doubled over the last 18 months, squeezing household budgets and driving millions into fuel poverty.<sup>36</sup>

The government's Energy Price Guarantee has cushioned the impact of rising prices but failed to properly protect consumers or address the root causes of the energy crisis.

By stepping in, the government has implicitly acknowledged that the Ofgem price cap is insufficient. But while wholesale energy prices are expected to remain volatile for years, too little thought has gone into protecting households beyond the next 12 months.<sup>37</sup>

#### Greener, fairer, warmer

Energy efficiency has so far been a missed opportunity to bring bills down. Britain has some of the coldest and leakiest houses in Europe, millions of which need upgrading to meet net zero.<sup>38</sup>

Getting on with a proper national retrofit programme could cut bills and emissions, give people warmer homes, reduce our dependence on imported gas, and create hundreds of thousands of jobs in the process.<sup>39</sup> Yet inconsistent government support is holding us back.

With low carbon energy now significantly cheaper than fossil fuels, net zero power could bring bills down over time, but policy and regulation will determine how these benefits are distributed.<sup>40</sup> Reforms to electricity markets could reduce costs and incentivise low carbon generation but must be carefully designed to avoiding creating new sources of inequality. Fairness should be the cornerstone of reform.



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## Prospect recommends:

Introduce a social tariff to guarantee permanently lower energy costs for those most in need. This would offer a targeted discount for low income and vulnerable households, with their energy bills based on affordability rather than market rates. A new social tariff should be fairly funded through progressive taxation, offered by all energy suppliers, and designed to ensure everyone eligible receives it.<sup>41</sup>

**Fund a comprehensive retrofit programme** for homes and buildings across the country. This should provide a mix of loans, grants, and tax incentives for insulation and zero carbon heating. A government advice service should give people trusted information on the changes they can make to their homes and the financial support available. 20 Put fairness and affordability at the heart of market reform. The government's review of electricity markets arrangements (REMA) focuses on wholesale markets but should explicitly analyse the impact of changes on consumers to avoid any unintended consequences.<sup>42</sup> Progress is needed on the parallel review of the retail market, which should consider fundamental reform of the ownership and regulation of energy suppliers.<sup>43</sup>

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**Note:** DESNZ refers to both the Department for Energy Security and Net Zero and its predecessor the Department for Business, Energy and Industrial Strategy.

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A mission for the energy system

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