

Public Power: Turning it into Reality



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Summary

TUC-commissioned analysis shows that action to meet the UK's climate commitments has the potential to create over a million good new jobs.¹ However, there is also a real risk that the climate transition will fail to support quality jobs, and leave working people behind. Green jobs have not yet materialised on the scale or quality that workers were promised, many employers in net zero industries are hostile to unions and there is a lack of collective bargaining. Green sectors like offshore wind have seen repeated reports of pay below the minimum wage, workers seeking to transfer from high-carbon to green sectors face burdensome obstacles², and the UK has missed out on renewable manufacturing supply chains.

This can and must change. Delivering decent jobs and a safe climate future can and must go hand in hand. We need a major transformation of our energy system to guarantee affordable bills for households, decent jobs and rapid and just decarbonisation.

This report calls for the UK government to set up a public energy champion to build new clean power, accelerate decarbonisation, create the high-skilled quality green jobs of the future, and share the benefits of the climate transition with the population.

Several political parties have now committed to setting up publicly-owned energy companies, including Labour's Great British Energy. The Welsh government is creating a publicly-owned renewable energy developer to build large-scale solar and wind projects.³ These plans and commitments do not yet have specific investment levels allocated.

This briefing considers

- **what a public energy generation champion could deliver for the climate, the public and for workers**
- **how a public energy generation champion needs to be structured, funded and resourced to achieve these outcomes.**

Fixing the UK's broken energy system cannot end with increased public ownership of clean energy generation. The UK's electricity and gas distribution, transmission and supply sectors are not investing into their workforce, are contributing to excessive

¹ <https://transitioneconomics.net/uk-covid-recovery-infrastructure-jobs-tuc>

² [MPs slammed for voting down plans for offshore training passport \(energyvoice.com\)](https://www.energyvoice.com/MPs-slammed-for-voting-down-plans-for-offshore-training-passport)

³ <https://www.gov.wales/renewable-energy-developer-wales>

profiteering and soaring bills, and failing to deliver on climate action, while North Sea oil & gas companies have treated the British public as cash machines.

We need a whole system approach to transformation, if the UK is to deliver a rapid and just transition to net zero. This report only looks at electricity generation, and doesn't include how to achieve the broader transformation of the distribution, transmission, supply or offshore oil & gas sectors that we need to see, and the potential role of public ownership in this transformation. A future TUC briefing will examine the potential for a green industrial strategy.

A UK public energy champion could accelerate the deployment of new clean power – including developing new technologies where the private sector is slow to scale up, including floating offshore wind, tidal stream, zero carbon hydrogen, and new nuclear. Like public energy companies across Europe have done, it can innovate to create the clean power solutions we need for the future. It can make use of the state's ability to plan for the long-term, to encourage private sector investment and to ensure that climate targets become a reality. This paper does not explore non-generation energy technologies that the public energy champion could also invest into, such as storage and networks.

And public ownership could deliver good unionised jobs, lower bills and reinvested and redistributed profits, ensuring the whole population benefits from the climate transition. Evidence commissioned by GMB suggests that where public bodies invest in renewables directly, the orders are more likely to be placed through UK supply chains than under the private developer-led model.⁴

To ensure a new public energy champion delivers benefits at scale – including good jobs, energy independence, more affordable bills, and reinvestment of profits, government should:

1. Invest at the right scale: at least £40 billion in capitalisation early after 2025, with a further £21.4-£42.3 billion in 2030/2031 once the company has demonstrated its capacity to grow and expand.
2. Allow the public energy champion to borrow finance, akin to peer companies in other countries.
3. Update debt classification guidelines, so that future PSNB ex figures exclude both public sector banks and publicly-owned energy.
4. Make the public energy champion democratically accountable to the public, and include elected worker representatives on its board.
5. Use stringent procurement standards, to ensure the clean energy investments generate good work across its supply chain.

⁴ Tussell, GMB - Renewable Energy Manufacturing Contract Analysis, April 2020

6. Empower the public energy champion to collaborate: with private sector companies to co-invest in projects, and with public sector entities for public good projects.
7. Mandate the public energy company to invest across the full range of clean power generation technologies, potentially including onshore and offshore wind, other renewables, nuclear, zero carbon hydrogen, minewater for district heating, among others.

The potential of public power: quality jobs, cheaper energy and a safer climate future

This section explores what a public energy champion could deliver for the climate, the public and for workers.

The TUC has been calling for the UK government to set up a public energy champion to invest into new clean power, accelerate decarbonisation, create the high-skilled quality green jobs of the future, and share the benefits of the climate transition with the population.⁵ Individual unions have long called for public ownership of electricity generation, including energy unions like Unite⁶, Prospect⁷ and GMB⁸.

The Welsh government is already creating a publicly-owned renewable energy developer to develop large-scale solar and wind projects across Wales.⁹

And several UK-wide political parties have now committed to setting up publicly-owned energy companies.¹⁰ This includes Labour's pledge to set up Great British Energy – a new, publicly-owned clean generation company – with a mission to cut energy bills, create jobs and deliver energy independence.¹¹ Labour has said that GBE will join the ranks of public generating companies in Europe, Asia and America like EDF in France and Vattenfall in Sweden.¹²

Public ownership of new clean power could deliver good jobs, accelerated climate action, lower bills and reinvested and redistributed profits, ensuring the whole population benefits from the climate transition.

Ownership stakes in generation would give significant influence over procurement and industrial investments, allowing a prioritisation of local supply chains and job creation - and ensuring that green jobs created are quality jobs. This would ensure that the economic benefits of new energy generation can help revive industrial jobs and local economies, instead of being extracted to shareholder profits.

⁵ <https://www.tuc.org.uk/research-analysis/reports/public-ownership-clean-power-lower-bills-climate-action-decent-jobs>

⁶ <https://www.unitetheunion.org/unpluggingenergyprofiteers/>

⁷ <https://prospect.org.uk/news/new-net-zero-regulator-needed-to-replace-failing-ofgem>

⁸ <https://www.gmb.org.uk/sites/default/files/CECSpecialReport-Energy-Environment.pdf>

⁹ <https://www.gov.wales/renewable-energy-developer-wales>

¹⁰ <https://commonslibrary.parliament.uk/research-briefings/cdp-2022-0184/>

¹¹ <https://labour.org.uk/press/keir-starmer-calls-for-new-national-champion-in-clean-energy-great-british-energy-with-a-mission-to-cut-bills-create-jobs-and-deliver-energy-independence/>

¹² <https://labour.org.uk/press/keir-starmer-calls-for-new-national-champion-in-clean-energy-great-british-energy-with-a-mission-to-cut-bills-create-jobs-and-deliver-energy-independence/>

Public ownership of electricity generation in other European countries has made it easier to keep bills affordable, easing the cost-of-living squeeze and inflation. The French government was able to limit the 2022 increase in energy bills in France to 4%, as opposed to the UK's 54% hike in April 2022. French energy bills in 2022 were less than half those in the UK, with regulated tariffs with state-owned EDF of £803, compared to the UK energy price cap of £2,500.¹³

Public ownership of new clean power generation can accelerate the transition to a zero carbon economy, and allow the government to set higher build-out targets for 2030 and beyond - helping meet science-based climate targets.

All technologies currently face bottlenecks on delivery of new capacity - even offshore wind in the UK could be rolled out faster with greater levels of public investment and support for both infrastructure and skills.¹⁴

Public investment can play a key role in accelerated the development of new technologies where the private sector is slow to scale up, including floating offshore wind, tidal stream, green hydrogen, and new nuclear. The UK has relied heavily on state-owned companies from other countries to innovate, scale-up and commercialise new clean technologies. The deployment of offshore wind and new nuclear in the UK has been dependent on state-owned companies from China, France, Denmark, Sweden, Norway and elsewhere.¹⁵ Joining this effort brings both economic and environmental advantages to the UK.

Public ownership of energy generation is standard practice in many other European countries, where national or regional public energy companies have become industrial champions. Public companies have taken a lead role in inventing and developing new technology from offshore wind to nuclear power, provide hundreds of thousands of quality jobs, and have shown the ability to reduce household energy bills¹⁶ at times of crisis like we are seeing.

In France, Denmark, Germany, Sweden and Norway, majority publicly-owned companies invest in energy generation, playing an essential role in delivering a long-term sustainable industrial strategy. In the UK, these European public companies collaborate with private sector companies, co-investing and jointly developing new electricity generation.

In their home countries, publicly-owned developers in European countries play a central role in deploying active industrial strategies – through long term, patient support to grow domestic supply chains, ensuring that homegrown R&D leads to domestic manufacturing and nurturing partnerships with SMEs and large local employers. Securing the skilled and diverse workforce to understand and operate

¹³ <https://www.mirror.co.uk/money/edf-bills-france-less-half-27728887>

¹⁴ Offshore Wind Skills Intelligence Report; Offshore Wind Industry Council; May 2022

¹⁵ <https://transitioneconomics.net/wp-content/uploads/2022/02/who-owns-the-wind.pdf>

¹⁶ <https://www.walesonline.co.uk/news/uk-news/edf-energy-prices-rise-4-23618682>

increasingly complex systems is enabled by a long-term approach with active state intervention.

Denmark's Ørsted built up domestic capacity while partnering with communities to co-own some of the world's earliest wind farms, eventually growing to become the world's largest offshore wind company.¹⁷ France's EDF emphasises good industrial relations and job quality in its power plants, with best-practice agreements with unions on pay, inclusion, and skills – including in the UK.¹⁸

Table 1 summarises the benefits that publicly owned clean power can bring to the UK.

¹⁷ <https://orsted.com/en/our-business/offshore-wind>

¹⁸ Anna Markova (2022) 'How to build inclusive construction – some lessons from Hinkley Point C', TUC blog <https://www.tuc.org.uk/blogs/how-build-inclusive-construction-some-lessons-hinkley-point-c>

Table 1. The difference that publicly-owned industrial champion energy companies can make

Benefits of public ownership of energy, based on experienced of publicly-owned generation companies in Denmark, France, Norway	The current reality of fully-privatised generation in UK
Able to insulate the public from soaring and volatile energy prices by controlling prices and keeping bills down	Costs are passed on to households and businesses, while energy generators reap windfall profits
Reinvest profits into communities or return them to the public	Profits extracted for private gain - "the cost of privatisation"
Make long term commitments, growing domestic manufacturing, local supply chains and economies	Offshoring supply chains, hollowing out local infrastructure
Long term commitment to creating and maintaining quality jobs, collective bargaining	Job quality is eroded and workers stretched thin as numbers cut
Planning for skills - building up a skilled workforce in anticipation of need and pre-empting skills shortages and gaps	Skills shortages and gaps and an ageing workforce, as too few new skilled workers are trained up
Planning for and investing into the climate transition	Waiting for the market to set pricing signals, leading to stop-start process
Public bodies able to deliver both an industrial strategy and new energy infrastructure at pace	State struggles to turn industrial strategies into reality, as hollowed out by privatisation
Ability to invent and develop new technology	Dependence on foreign companies to create and import new technology
Self-sufficient - and able to negotiate a fair deal when in partnership	Dependence on foreign capital - both private and state
Able to export good, skills and intellectual property	Reliant on imports of goods, skills and intellectual property
Ensure public benefits from climate transition	Public benefits from transition are incidental

What does a public energy champion need: Scale of investment, borrowing powers, democratic governance

This section explores how a public energy generation champion could be structured, funded and resourced to achieve the benefits explored in the previous section.

The TUC's proposals apply to any UK national public energy champion, which could be set up by the current government or any future administration.

A public energy champion should take significant equity stakes in and develop new zero carbon generation such as offshore wind, zero-carbon hydrogen, tidal stream and nuclear. To become an energy and industrial champion, it needs a remit akin to Ørsted, Vattenfall or EDF, to

- Build new clean energy generation, co-investing with other partners,
- Innovate and improve "mature" and nascent clean power technologies
- Grow shorter supply chains and industrial capacity domestically, especially in held-back regions
- Create quality jobs, invest into skills development for the climate transition

A public energy generation champion's role should be explicitly aligned to a broader green industrial strategy. This broader strategy will be explored further in a future TUC briefing.

Note that this briefing does not include nationalising existing generation, or taking stakes that disrupt existing projects.

Scale of capital investment

Scale is key. If the British public are to see the fruits of a public energy champion, then the new entity needs to be a large enough enterprise to make a difference.

If it is comparable to its peers in similar European countries, the publicly-owned energy company can make a tangible difference and the public will recognise how it is improving their lives.

If on the other hand, it remains on the scale of a German municipal energy company, then it will be a hostage to fortune, it will struggle to make a difference to 67 million UK residents, and it won't deliver climate action at the pace required.

Scale is additionally important for delivering a Just Transition for workers. A large publicly owned energy champion would be able to deliver a solid pathway and

continued job security for workers from both the high-carbon electricity generation and oil & gas sectors in transitioning to working in clean power, as EDF has shown in France and Ørsted (previously Danish Oil & Natural Gas) in Denmark. It could also train up the workforce needed to deliver the climate transition at pace, identifying skills gaps and shortages and plugging them. A small public energy generator would not have the capacity to deliver a Just Transition or to deliver the green skills required.

Most proposals by political parties for publicly-owned generation don't include the target scale. However, Labour has identified EDF of France and Vattenfall of Sweden as relevant models for setting up Great British Energy as a domestic energy champion.¹⁹

We have focused on the potential to create a public company akin to EDF, given the similar scale of population and economies between France and the UK. Reaching the scale of Vattenfall (scaled by population from Sweden to the UK as the UK is much larger) would be more challenging.

The TUC has modelled a number of scenarios to assess what is necessary to achieve such a goal. It will take time to reach this scale, unless a future UK government decided to nationalise existing power assets. Assuming that the public energy champion grows instead by investing into new generation capacity, TUC analysis estimates that a 2040 goal to reach a comparative scale to EDF is ambitious, but just about possible.

Achieving this level by 2040 mean the public energy company will have invested £114.1 - £153.0 billion (see Appendix in this briefing for the Modelling Methodology) into accelerating climate action, growing the UK economy and creating domestic jobs, and leveraged vastly greater total investment figures including private sector co-financing of joint projects. We assume that a similar proportion of this investment will be sourced through debt financing as with existing renewables developers across Europe (both public and private).

To achieve this, in the first decade (2025-2035) the public energy champion would need public capital investment allocation of £61.4 - £82.3 billion. (See Appendix in this briefing for the Modelling Methodology.) Afterwards, once it has reached sufficient scale, it would require no further capital support from government. In our model, by the mid-2030s, the public energy company would²⁰issuing its own debt, and potentially farm-downs of existing projects.²¹

¹⁹ <https://www.theguardian.com/politics/2022/sep/27/labour-will-launch-publicly-owned-energy-firm-keir-starmer-vows>

²¹ This is the funding model that Orsted uses. See p65 of its 2021 Capital Markets Day document <https://orstedcdn.azureedge.net/-/media/www/docs/corp/capital-markets-day/orsted-cmd-2021.ashx?rev=da14b529197a41a38fa3240aaad5bb32&hash=072707830C747C681BC8514C01133442>

For a new public energy champion to operate successfully, this capital allocation should be frontloaded towards a new government's first term from 2025. We argue that at least £40 billion of capital investment should be allocated between 2025-2030.

To put £40 billion into perspective, it is less than double the £22 billion in public funds in the first five years allocated to the UK Infrastructure Bank in 2021 by the Johnson government.²² The Labour Party has committed to invest £28 billion *each* year for a decade through its Green Prosperity Plan.²³ £40 billion over five years is equivalent to 29% of this funding commitment – and a capital investment that is comparatively fast to action and process.

This will allow the public energy champion to launch and scale rapidly, to operate functionally as an independent commercial company similar to public energy companies like EDF and Vattenfall, and to contribute both to 2030 renewables deployment targets and to expanded 2035 deployment, key for decarbonising transport, heat and industry, and growing the UK's green hydrogen capacity.

Longterm and significant capitalisation early in its creation will enable the public energy champion to be taken seriously as a player in clean power, and enable partnership with

- The private sector. If the goal is for the public company to co-operate with the private sector in developing and building new clean power, then it needs the scale and independence to be taken seriously. Other companies (whether foreign public-owned or fully private) will hesitate to bid for licenses, co-finance and jointly develop projects, if they perceive the public company to be hamstrung by Treasury decisions or political restrictions on finance.
- Licensing authorities. The public energy champion will face similar hurdles with licensing authorities like the Crown Estate or supply chain partners, unless it has access to sufficient finance to build trust that it will be able to scale up.

This is especially important, given the past flip-flopping in UK energy policy, and due to the time required to deploy new clean power generation can be many years – especially with technologies like offshore wind and nuclear.

We therefore recommend that a new government set up a public energy generator in its first year, and allocate it at least £40 billion in capitalisation early in its creation. The remaining £21.4-£42.3 billion should be provided in 2030/2031, once the public company has demonstrated its capacity to scale up, but before it has fully invested its initial capital allocation, to allow a continued pipeline of projects and prevent a bottleneck in deployment.

²² <https://www.nao.org.uk/press-releases/the-creation-of-the-uk-infrastructure-bank/>

²³ <https://www.theguardian.com/politics/2021/sep/27/labour-promises-spend-28bn-year-tackling-climate-crisis>

Access to Finance: Borrowing Powers

A UK public energy champion must be allowed to borrow both corporate finance and project finance, to operate similarly to its publicly-owned peers from other countries.²⁴

If it is not able to borrow, it will

- Face significant obstacles in collaborating with private sector partners when developing new projects.
- Be dependent on government investment going forward, and as a result, unable to self-sustain in the future
- Struggle to achieve the required scale to achieve climate goals and social benefit
- Not be functionally independent, and subject to political whims and shifts

As a publicly-owned enterprise, it will be able to borrow cheaper than the private sector. Orsted regularly highlights its access to cheap capital as helping its global growth and dominance in offshore wind. Orsted is also clear that the scale of new offshore wind farms means that debt finance in addition to equity from partner investors is essential to developing new capacity.²⁵

Categorising debts

The debts of the public energy champion should be categorised in the same manner as debts of the banks nationalised during the financial crisis.

The government's official Public Sector Net Debt and Public Sector Net Borrowing figures explicitly exclude these "public sector banks" - e.g. the Public Sector Net Borrowing figures are abbreviated as "PSNB ex".²⁶ These numbers include the Bank of England.²⁷

This could also be achieved through a broader adaptation of UK rules on public sector debt to match the standardised Maastricht rules on public debt and deficit. The UK is an exception in that it includes the debts of all public sector trading companies within its national public debt statistics.

²⁴ <https://windeurope.org/intelligence-platform/product/financing-and-investment-trends-2022/>

²⁵ <https://orsted.co.uk/clean-growth/financing-the-biggest-offshore-wind-farms-in-the-world>

²⁶ <https://www.ons.gov.uk/economy/governmentpublicsectorandtaxes/publicsectorfinance>
<https://commonslibrary.parliament.uk/research-briefings/sn02812/>

²⁷

<https://www.ons.gov.uk/economy/governmentpublicsectorandtaxes/publicsectorfinance/bulletins/publicsectorfinances/february2023>

By comparison:

- Orsted's borrowing is not included in Denmark's national public sector net borrowing,
- Vattenfall's debt are not in Sweden's debts,
- Stadtwerke München's do not feature in Germany's, and
- neither Statkraft nor Equinor's do in Norway's.

This is because the standardised Maastricht definition explicitly doesn't include the debt and deficit of publicly-owned entities engaged in "corporate activity" or "market production" - e.g. liabilities of savings banks, public utilities and waste management.²⁸

The government should update classification guidelines, so that future PSNB ex figures exclude both public sector banks and publicly-owned energy.

Structures, collaboration & democratic governance

Governance

The public energy champion can play an important role in enabling workers, communities and the British public to truly take back control – returning power to people and communities in every village and neighbourhood.

It must have a clear mandate and mission to operate for the long-run, and independence to pursue this mandate without interference or being hobbled by Treasury inaction.

The public energy champion should be democratically accountable to the public, ensuring community buy-in to the climate transition and reducing the risks of future privatisation. It should demonstrate best practice in transparency, and a model of national energy democracy, This could also include Citizens Assemblies to gather input.

The new public company should have structures that allow for worker voice to play a role in shaping the organisation.

The TUC has laid out a series of recommendations for strengthening worker voice, including organising and access rights for unions and workers, individual rights to

²⁸ See page 3 of

<https://www.bundesbank.de/resource/blob/732992/1b6ec3e991c00a5229c2a8ad6a807dd6/mL/2018-04-maastricht-data.pdf>

Also see explanation here:

<https://www.ons.gov.uk/economy/governmentpublicsectorandtaxes/publicspending/bulletins/eugovernmentdeficitanddebtreturnincludingmaastrichtsupplementarydatatables/quarter3julytosep2015#international-comparability>

union representation, rights to bargaining in the workplace, and re-establishing sectoral bargaining.²⁹

Structures to build in worker voice should also include elected union representatives who are members of the Board.³⁰ This is standard practice in successful energy publicly-owned energy companies including Statkraft in Norway³¹, Vattenfall in Sweden³², EDF in France³³ and Orsted in Denmark³⁴.

Procurement

Stringent procurement standards should be used, as detailed above, to ensure this growth generates good work.

A public energy generator needs to use its influence to drive up working conditions across the whole energy industry and promote wider industrial policy goals. It should prioritise companies that engage with trade unions in its procurement decisions. Trade union access and collective bargaining on pay and conditions should be promoted at every opportunity. Every pound of public money spent should support well-paid, secure, unionised jobs.³⁵

Collaboration with private and public sector

The public energy champion should aim to build up an experienced workforce able to take a leadership role in deploying new generation. But initial investments could take the form of passive co-investment on a minority basis alongside foreign public companies or other private sector partners, to accumulate experience, build up skills and capacity.

The new public company could also pursue public-public partnerships with other public bodies – ranging from the NHS and Forestry England, to local authorities and municipal energy companies. This could include deploying solar on schools and other public building rooftops, or learning from the new Welsh state-owned energy developer

²⁹ <https://www.tuc.org.uk/sites/default/files/2019-09/Astrongervoiceforworkers.pdf>

³⁰ https://www.tuc.org.uk/sites/default/files/All_Aboard_2016.pdf

³¹ <https://www.statkraft.com/about-statkraft/organisation/board-of-directors/>

³² <https://group.vattenfall.com/who-we-are/corporate-governance/board-of-directors>

³³ <https://www.edf.fr/en/the-edf-group/edf-at-a-glance/governance/board-of-directors>

³⁴ <https://orsted.com/en/about-us/management/board-of-directors>

³⁵ <https://prospect.org.uk/news/new-net-zero-regulator-needed-to-replace-failing-ofgem>

which aims to “scale up renewable energy rollout, initially through the development of onshore wind projects on the Welsh Government woodland estate.”³⁶

Clean Power Technologies

A public energy champion needs to develop a broad range of clean power technologies, both mature and nascent.

Britain’s future energy wealth lies within the breadth of clean power technologies, including wind and solar. This wealth must not be handed over to private interests as the UK’s oil & gas was. The current government has not recognised this risk. However, Labour committed in 2022 that it “won’t make the mistake the Tories made with North Sea oil and gas back in the 1980s. Where they frittered away the wealth from our national resources.”³⁷ North Sea oil & gas in the 1980s was a mature energy technology, after more than a century of oil & gas extraction.

Instead, a future public energy champion should build up a portfolio of electricity generation projects based on proven technology with known profitability (e.g. fixed offshore wind), as well as more emergent and untested technologies (e.g. floating offshore wind and tidal stream).

If a new public generator only focuses on nascent, riskier new technologies, then it will be socialising the risks of technology development, while leaving proven profits to the private sector. This will also likely lead to it investing too cautiously, without safer investments to balance out the riskier new technologies.

While investing in mature technologies would allow a public energy champion to develop a broader portfolio, which will empower it to take greater risks and finance a greater volume of nascent technologies.

The range of energy generation technologies that should be explored for investment includes

- Fixed Offshore Wind
- Floating Offshore Wind
- Nuclear
- Zero carbon hydrogen
- Tidal stream
- Wave
- Tidal lagoons

³⁶ <https://www.gov.wales/wales-announces-publicly-owned-renewable-energy-developer>

³⁷ <https://labour.org.uk/press/keir-starmer-calls-for-new-national-champion-in-clean-energy-great-british-energy-with-a-mission-to-cut-bills-create-jobs-and-deliver-energy-independence/>

- Onshore Wind
- Large and medium-scale solar – including deploying solar on public building rooftops as public public partnerships
- Minewater for district heating

Beyond generation, resolving the challenges faced by the UK's energy networks and limited energy storage capacity in delivering a scale-up in electricity generation and the net zero transition is key. Billions of pounds of new renewables projects are on hold, because they cannot plug into the UK's electricity system.³⁸ This paper does not explore solutions for non-generation energy technologies such as storage and networks. Some union recommendations on how networks need to be transformed are contained in the TUC's 2022 report on generation and networks³⁹, and in recent publications by Prospect⁴⁰ and Unite⁴¹.

Offshore wind - the largest prize on the table

Offshore wind - both fixed and floating turbines - is the largest prize currently on the table, and the renewable technology where public ownership will make the biggest foreseeable difference to the UK public. The UK's current pipeline of offshore wind projects stands at 98 GW – seven times current operational capacity.⁴² The Offshore Renewable Energy Catapult has modelled credible scenarios where 150 GW could be deployed by 2050.⁴³ This means that the UK has definitively not yet missed the boat to achieve social and jobs benefits from offshore wind construction and manufacturing.

A growing proportion of the UK's offshore wind will consist of floating turbines – which are assembled and readied onshore before being towed out to sea. This requires more dockside work, and less work at sea (both engineering and vessel crewing / management). Floating offshore wind can be more labour intensive.⁴⁴ This creates both an opportunity for more UK-located jobs, and a risk that more jobs go to neighbouring North Sea countries.

The former Prime Minister referred to the potential for the UK to become the "Saudi Arabia" of wind.⁴⁵ This highlights the choice facing all future governments - whether

³⁸ <https://www.bbc.co.uk/news/science-environment-65500339>

³⁹ <https://www.tuc.org.uk/research-analysis/reports/public-ownership-clean-power-lower-bills-climate-action-decent-jobs>

⁴⁰ <https://prospect.org.uk/news/new-net-zero-regulator-needed-to-replace-failing-ofgem>

⁴¹ <https://www.unitetheunion.org/news-events/news/2023/may/profits-for-a-failing-national-grid-strengthens-the-case-for-energy-nationalisation/>

⁴² <https://www.renewableuk.com/news/643056/UK-Offshore-Wind-pipeline-nears-100GW-as-Global-pipeline-tops-1.23TW.htm>

⁴³ <https://ore.catapult.org.uk/wp-content/uploads/2020/09/Solving-the-Integration-Challenge-ORE-Catapult.pdf>

⁴⁴ Offshore Wind Skills Intelligence Report; Offshore Wind Industry Council; May 2022

⁴⁵ <https://www.bbc.co.uk/news/av/science-environment-57519392>

they will oversee the full-scale privatisation of our largest clean energy resource, or create the potential to emulate Norway's social and economic success from oil.

Conclusion and Recommendations

To ensure a public energy champion delivers benefits at scale – including good jobs, energy independence, more affordable bills, and reinvestment of profits, government should:

1. Invest at the right scale: at least £40 billion in capitalisation early after 2025, with a further £21.4 - £42.3 billion in 2030/2031 once the company has demonstrated its capacity to grow and expand.
2. Allow the public energy champion to borrow finance, akin to peer companies in other countries.
3. Update debt classification guidelines, so that future PSNB ex figures exclude both public sector banks and publicly-owned energy.
4. Make the public energy champion democratically accountable to the public, and include elected worker representatives on its board.
5. Use stringent procurement standards, to ensure the clean energy investments generate good work across its supply chain.
6. Empower the public energy champion to collaborate: with private sector companies to co-invest in projects, and with public sector entities for public good projects.
7. Mandate the public energy company to invest across the full range of clean power generation technologies, potentially including onshore and offshore wind, other renewables, nuclear, zero carbon hydrogen, minewater for district heating, among others.

Appendix: Investment modelling methodology

- 1) Our model explores the potential pathway for a public energy champion to play a comparable role in UK power generation in 2040 to that played by EDF in French power generation in 2021. EDF owns a significant proportion of French power generation, operating alongside other private and publicly-owned players.
- 2) We modelled a range of deployment curves for clean power generation for the public energy champion, assuming that by 2040 it reaches a similar proportion of UK generation capacity as EDF held of French generation capacity in 2021. Our three main curves build on average GW build rates and 2050 GW capacity numbers from
 - (a) the CCC's Balanced Pathway scenario
 - (b) the CCC's Tailwinds scenario
 - (c) combining Labour's 2030 goal for deployment with the CCC's Balanced Pathway scenario.
- 3) Average capex per GW of new capacity for each year is calculated from BEIS capex £/kw annual numbers for different technologies, combined with the estimated annual technology mix from the CCC's Balanced Pathway and Tailwinds scenarios.
- 4) The average capex per GW of new capacity for each year from 3) is multiplied with new GW of publicly-owned clean power capacity deployed in that year from 2) to assess the annual capex investment into new generation capacity estimated for the public energy champion.
- 5) Debt to equity ratios for new clean power generation in Europe vary dramatically between different technologies, including e.g. between onshore and offshore wind. Much of this depends on if new generation is financed through project finance or corporate finance. We estimate a 35%-65% ratio of debt to equity initially for the public energy champion, although as it proves itself as a reliable developer and investor, the ratio of debt can likely increase significantly (depending on technology).
- 6) We use the debt-to-equity ratio to assess the volume of debt and the annual volume of equity that the public energy champion will require for each year from 2025-2040.
- 7) The purpose of this methodology is to identify the scale of investment needed. Ultimately, the public energy champion's technology mix would result in more or less GW of clean power capacity deployed. Intermittent generators like offshore wind have lower initial capital costs than baseload generators like nuclear. If a public energy generation champion's energy mix were weighted more towards baseload generators than intermittent, then it should be allocated significantly greater investment.