TUC
Changing the world of work for good

Public ownership of clean power: lower bills, climate action, decent jobs

Acknowledgements

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Summary

Soaring energy bills have pushed millions of households deeper into fuel poverty despite the Government's new Energy Price Guarantee. Many businesses are also struggling – from small high street restaurants to factories, threatening job security and quality. So are schools and local authorities, threatening the provision of public services. We need immediate help to ease the burden of the energy crisis on households and prevent job losses.

TUC analysis shows that the government is missing out on £63 billion - £122 billion of direct income over the coming two years, due to past decisions to privatise our power plants and the resulting lack of UK public ownership of electricity generation.[1] The revenues that the UK tax-payer is missing out on could have covered much of the cost of the UK government's Energy Price Guarantee.[2]

If the UK today had a public energy champion similar to EDF in France, EnBW in Baden-Württemberg (Germany), or Vattenfall in Sweden, a significant portion of the excess profits taken by privatised electricity generators due to soaring wholesale prices would be coming instead to the government. Government would be able to use these revenues - equivalent to £2,250-£4,400 per UK household - to reduce bills or accelerate home insulation roll-out.

There is also a real risk that the climate transition will leave working people behind. Climate action has the potential to create over a million good new jobs.3 However, green jobs have not yet materialised on the scale or quality that workers were promised, many green employers are hostile to unions, and there is a lack of sectoral 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 obstacles[4], and the UK has missed out on renewable manufacturing supply chains. This can and must change – delivering a Just Transition and taking working communities with is essential to achieving a zero carbon future.

It's clear that we need a major transformation of our energy system to guarantee affordable bills for households, decent jobs and rapid and just decarbonisation.

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[1] See Methodology in the report
[2] https://www.ft.com/content/984129f9-a133-468b-bc38-e8c4ec7386d6
[3] https://transitioneconomics.net/uk-covid-recovery-infrastructure-jobs-tuc
[4] MPs slammed for voting down plans for offshore training passport (energyvoice.com)

In July, the TUC published our vision for a transformation of the UK's energy retail sector.5 This new briefing advances proposals for energy generation and energy networks.

The TUC is 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.

Our analysis shows that a British public energy champion could build and control between 27 GW – 77 GW of new clean generation by 2040, if similar in scale to the roll-out of renewables by public energy companies in France, Baden-Württemberg (Germany), and Sweden, but delivering by 2040 rather than 2030.

This is equivalent to adding clean generation equivalent to between one and three times the UK's current renewable generation capacity.[6] This would see the public energy champion generating clean power representing between 9.5% and 27% of the UK's 2050 total electricity needs, as forecast by the Climate Change Committee in its Balanced Net Zero Pathway.[7]

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 and ensure that climate targets become a reality.

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.[8]

There is also a need to urgently address the high levels of profiteering alongside the limited investment into workforce and infrastructure resilience by the UK's distribution and transmission networks. This requires immediate-term action to expand the scope of and strengthen regulation to deliver a safe working environment, fair charges for households and businesses, and greater action on decarbonisation.

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[5] https://www.tuc.org.uk/research-analysis/reports/fairer-energy-system-families-and-climate

[6] Dukes 2022 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1094628/DUKES_2022_Chapter_5.pdf

[7] CCC, December 2020, Carbon Budget https://www.theccc.org.uk/wp-content/uploads/2020/12/The-Sixth-Carbon-Budget-The-UKs-path-to-Net-Zero.pdf

[8] Tussell, GMB - Renewable Energy Manufacturing Contract Analysis, April 2020

Alongside this, a public long-term strategic body should be set up to oversee the delivery of net zero and energy security fairly. This should expand on the Future System Operator's role, to plan the longer-term transformation of the energy infrastructure, including exploring the long-term potential, benefits and risks of expanding public ownership to the monopoly distribution and transmission networks.

Section One

Our failed energy system

The wholesale cost of gas and electricity has soared in recent months. This stems from a combination of skyrocketing global gas prices due to Russia's shrinking of exports, supply chain disruptions, and the energy trading system. The UK's inability to cushion the blow to households and businesses reveals a set of failures:

- to protect the most vulnerable,
- to lower bills through energy efficiency,
- to keep profiteering in check.

The high costs and failures of privatised energy generation

TUC analysis shows that the government is missing out on £63 billion - £122 billion of direct income over the coming two years, due to past decisions to privatise our power plants and the lack of UK public ownership of electricity generation.

The revenues that the UK tax-payer is missing out on could have covered much of the cost of the UK government's Energy Price Guarantee.[9]

If the UK today had a public energy champion similar to EDF in France, EnBW in Baden-Württemberg (Germany), or Vattenfall in Sweden, a significant portion of the excess profits taken by privatised electricity generators due to soaring wholesale prices would be coming instead to the government. Government would be able to use these revenues -- equivalent to £2,250-£4,400 per UK household, -- to reduce bills or accelerate home insulation roll-out.

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 are 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. [10]

Households – including the most vulnerable and low-income - are paying hundreds of pounds each to multinational corporations and state-owned companies from other countries. These vast profits are transformed into dividend payments to global shareholders or to public benefit in other countries. Privatisation and the lack of UK

[9] https://www.ft.com/content/984129f9-a133-468b-bc38-e8c4ec7386d6
[10] https://www.mirror.co.uk/money/edf-bills-france-less-half-27728887

publicly-owned generation companies – common elsewhere in Europe – has hamstrung government in its ability to act to protect households from the price shock.

The UK has also been unable to develop or build new technology at scale without relying on foreign energy companies - primarily state-owned companies. 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.[11]

Today, the UK's offshore wind – a common resource – is being privatised with little debate. Profits flow to private and foreign public entities that own the wind farms. Manufacturing has been offshored and the UK has missed out on industrial capability. Local supply chains are not developed and there is a lack of job creation and community benefit. Orders worth billions continue to be awarded overseas, often to providers where there are serious labour and human rights concerns.[12]

Job creation from offshore wind has fallen short of promises, despite reports that job numbers are increasing.[13] This is especially true of local jobs, where communities near wind farms have sometimes seen limited benefit.

Where jobs are created, there are concerns – e.g. workers paid below existing collective agreements, and there have been repeated reports of minimum wage laws being flouted by the offshore renewables sector.[14] Yet changes to UK legislation to protect maritime workers appear to only extend to oil & gas extraction, not renewables deployment. And oil & gas workers seeking to transition into renewables face obstacles around burdensome and expensive accreditation, and no coordinated pathways.[15]

UK ports and fabrication yards (and broader manufacturing and construction supply chains) have struggled to compete with those in the EU, the Gulf and South East Asia – many of which are publicly-owned or subsidised, like Spain's Navantia which has delivered floating structures for several UK windfarms developed by Spanish-owned ScottishPower.[16] Decades of underinvestment by private owners have left the UK's engineering and maritime support infrastructure (e.g sites like BiFab fabrication yards in Fife) with limited capacity and unable to scale up quickly.

Under Boris Johnson, the UK Government has recognised that market failure and under-investment into infrastructure creates a hard limit on local content – and hence launched its Offshore Wind Manufacturing Investment Scheme in 2021[17], and

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[11] https://transitioneconomics.net/wp-content/uploads/2022/02/who-owns-the-wind.pdf
[12] https://www.gmb.org.uk/news/uk-windfarm-contract-going-overseas-sickening
[13] https://www.renewableuk.com/news/608235/New-report-shows-jobs-in-UK-offshore-wind-industry-to-grow-to-100000.htm
[14] Union says minimum wage laws being flouted amid 'green rush' (energyvoice.com)
[15] MPs slammed for voting down plans for offshore training passport (energyvoice.com)
[16] https://www.navantia.es/en/news/press-releases/joint-venture-navantia-windar-are-awarded-the-construction-of-5-floating-foundations-for-offshore-wind-farm/
[17] https://www.gov.uk/government/publications/offshore-wind-manufacturing-investment-support-scheme-investment-programme

empowered the UK Infrastructure Bank to invest into port infrastructure for offshore wind.[18] But the government's actions remain piecemeal and too small-scale to achieve a step-change.

Current business models in the offshore wind supply chain mean that owners of ports or manufacturing sites will not invest into upgrades to support new renewables deployment until their partner offshore wind developer has won a Contract for Difference, and upgrade only in line with secured contracts – limiting economies of scale and the potential to pre-emptively capture market share.

Privatisation and a lack of a coherent industrial strategy has hollowed out the ability of the state to act and its redistributive capacity, and has hindered the development of a well-trained workforce large enough to rapidly roll out clean power at the scale needed.

Our run-down energy networks

Our energy distribution and transmission networks are failing to adapt to climate change, as witnessed when Storm Arwen caused widespread power outages in November 2021. Nor are the networks delivering the upgrades required to support the net zero transition at the pace required. Meanwhile the network companies have underinvested in their workers and skills, creating an energy staffing crisis where the workforce has been pushed to breaking point, with excessive workloads, high levels of fatigue and very low morale. A Prospect survey showed that 90% of networks staff felt staffing levels in their company were too low, and 70% said their team was not adequately staffed for safe work.[19]

Yet, gas and electricity distribution networks make the highest profit margins of any sector in the UK, posting profit margins of over 40%,[20] with transmission also extremely profitable. The UK is the only country in Europe with a fully privatised electricity transmission and distribution grid, beside Portugal which was forced to privatise its network under IMF loan conditions.[21]

Profit made by private network companies is channelled to tax havens, sovereign wealth funds, foreign pension funds, and some of the world's wealthiest individuals. A National Audit Office evaluation of the UK's energy distribution companies found that Ofgem (the regulator that sets the energy networks' profits and charges) set targets too low, and allowed for profits to be too high compared to what was needed to maintain a

[18] https://www.ukib.org.uk/news/first-ukib-investment-goes-green
[19] Prospect submission in response to Ofgem ED2 draft determinations - 2022
[20] https://www.common-wealth.co.uk/reports/profiting-amid-the-crisis
[21] https://www.epsu.org/sites/default/files/article/files/Going%20Public_EPSU-PSIRU%20Report%202019%20-%20EN.pdf

good service and spur investment in upgrades.[22] The regulatory contracting period for DNOs was set at eight years, which the NAO found was too long to incentivise companies to invest.

The NAO also found that, with the need to expand electricity networks' capacities to accommodate for electrification of transport and heat*, "If networks do not transform their businesses in an intelligent way, this expansion in the electricity system could add significantly to network costs. Strong pressure from government and Ofgem is needed to encourage this because these changes will not necessarily be in networks' financial interests."*[23]

Facilitating the installation of fast car charging points requires upgrades ranging between £60,000 and £2 million to the distribution grids locally, and network operator companies currently require customers to pay for such upgrades,[24] an unaffordable proposition for small business or public sector workplaces.

At the same time, the increased frequency of extreme weather events in the UK is putting increased repair costs on the networks and additional risks and workload to their employees. Ofgem's workforce renewal approach should be replaced with a level of workforce planning that provides greater long-term certainty and stability.

In the April 2022 British Energy Security Strategy, Government announced it will bring back into public ownership a part of National Grid – the Electricity System Operator – tasking it with strategic oversight over aligning the energy infrastructure as a whole with Net Zero.[25] This is positive, however the system operator alone will not be able to guarantee the necessary transformation of networks at the scale and pace required.

[22] https://www.nao.org.uk/press-release/electricity-networks/
[23] https://www.nao.org.uk/press-release/electricity-networks/
[24] https://www2.deloitte.com/uk/en/pages/energy-and-resources/articles/uk-ev-charging-infrastructure-update-show-me-the-money.html
[25] https://www.theguardian.com/business/2022/apr/06/national-grid-to-be-partially-nationalised-to-help-reach-net-zero-targets

Section Two

Fixing the UK's energy system to deliver affordable bills, climate action and decent jobs

The Potential: Public Ownership of New Clean Generation

The UK government should set up public energy ownership structures that take significant equity stakes in and develop new zero carbon generation such as offshore wind, zero-carbon hydrogen, tidal stream and nuclear.

This 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 bills[26] at times of crisis like we are seeing.

In France, Denmark, Germany, Sweden and Norway, majority publicly-owned companies invest in energy generation. 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 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.[27] 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.[28]

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[26] https://www.walesonline.co.uk/news/uk-news/edf-energy-prices-rise-4-23618682

[27] https://orsted.com/en/our-business/offshore-wind

[28] 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

Demonstrated benefits of publicly-owned generation companies (e.g. Denmark, France, Norway)	**Drawbacks of fully-privatised generation (e.g. 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

A practical solution to the climate crisis and cost of energy scandal

The UK should create a publicly-owned energy and industrial champion with a remit to co-invest alongside existing power companies, and develp new clean energy generation, and grow shorter supply chains and industrial capacity, akin to Ørsted,

Vattenfall or EDF. This specific proposal is not to nationalise existing generation, or take stakes that disrupt existing projects.

Had the UK not fully privatised its energy sector, instead retaining a publicly owned energy generation champion that took a similar approach to EnBW (Baden-Württemberg), EDF (France) or Vattenfall (Sweden), this UK public energy company could now control somewhere between 70 GW, 120 GW and 138 GW generation capacity in our estimate (scaled by population) .[29]

If the UK established a new publicly-owned energy generation company, and this company aimed to replicate the scale of the planned 2030 clean generation targets of its peers, it could build anywhere between 27 GW, 34 GW and 77 GW of generation capacity - equivalent to targets (scaled by population) of EDF (France), EnBW (Baden-Württemberg) or Vattenfall (Sweden). Due to the head start these public companies have, it is more realistic for this to be a 2040 rather than a 2030 target for a UK public company. See the tables below for the calculations.[30]

This would mean adding clean generation equivalent to between one and three times the UK's current renewable generation capacity.[31] This would see the public energy champion generating clean power representing 9.5% - 27% of the UK's 2050 total electricity needs, as forecast by the Climate Change Committee in its Balanced Net Zero Pathway.[32]

Public ownership could deliver good jobs, lower bills and reinvested and redistributed profits, ensuring the whole population benefits from the climate transition. Public ownership stakes in generation would give significant influence over procurement and industrial investments, allowing a prioritisation of local supply chains and job creation -

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[29] See tables below for the calculations. We have not included the potential generation capacity if the UK had public energy on a comparative scale to Norwegian companies Equinor or Statkraft or Danish company Ørsted. This is because the small populations of Norway and Denmark, combined with Norway's historical advantage due to a more appropriate and sensible North Sea oil taxation regime and Denmark's advantage due to first mover status in offshore wind on Ørsted's part lead to exceptionally high numbers when scaled to the UK. Eg Scaling from Statkraft, the UK could have a public energy company with 211 GW.

[30] See tables below for the calculations. We have not included the potential generation capacity if the UK had public energy on a comparative scale to Norwegian companies Equinor or Statkraft or Danish company Ørsted. This is because the small populations of Norway and Denmark, combined with Norway's historical advantage due to a more appropriate and sensible North Sea oil taxation regime and Denmark's advantage due to first mover status in offshore wind on Ørsted's part lead to exceptionally high numbers when scaled to the UK. Eg Scaling from Ørsted, a UK public energy company would be aiming for 576.5 GW of renewable capacity.

[31] Dukes 2022
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1094628/DUKES_2022_Chapter_5.pdf

[32] CCC, December 2020, Carbon Budget https://www.theccc.org.uk/wp-content/uploads/2020/12/The-Sixth-Carbon-Budget-The-UKs-path-to-Net-Zero.pdf

and ensuring that green jobs created are quality jobs. This would ensure that the economic benefits of new energy generation revive industrial jobs and local economies, instead of being extracted to shareholder profits. By investing into local communities, people experience that clean energy can deliver social benefit.

Public ownership of new clean power generation can accelerate the zero carbon transition, and allow the government to set higher GW 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.[33]

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, sscale-up and commercialise new clean technologies. Joining this effort brings both economic and environmental advantages to the UK.

Publicly ownership should drive forward priority clean energy technologies. Potential options to be considered, at different stages of maturity, include

- Fixed Offshore Wind
- Floating Offshore Wind
- Nuclear
- Zero carbon hydrogen
- Tidal stream
- Wave
- Tidal lagoons
- Minewater for district heating

It would be sensible for a public energy champion to 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). The balance will enable the public company to be more proactive in developing new technologies. Only going for the risky new technologies would lead to socialising the risks, while leaving proven profits to the private sector.

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

[33] Offshore Wind Skills Intelligence Report; Offshore Wind Industry Council; May 2022

These companies should be capitalised by central government and allowed to borrow, to compete fairly with their publicly-owned peers from other countries.

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 86 GW – eight times current operational capacity.[34] The Offshore Renewable Energy Catapult has modelled credible scenarios where 150 GW could be deployed by 2050.[35] This means that the UK has 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.[36] 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.[37] This highlights the choice facing all future governments - whether 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.

Case Studies of publicly-owned generation in nearby European countries

Company	Country /Region	Current GW capacity	New Renewables build-out target, 2030 (GW)	Owns offshore wind in UK?

[34] https://www.independent.co.uk/climate-change/news/offshore-wind-uk-renewables-ukraine-b2042145.html
[35] https://ore.catapult.org.uk/wp-content/uploads/2020/09/Solving-the-Integration-Challenge-ORE-Catapultr.pdf
[36] Offshore Wind Skills Intelligence Report; Offshore Wind Industry Council; May 2022
[37] https://www.bbc.co.uk/news/av/science-environment-57519392

EDF	France	120.5 GW[38]	26.7 GW[39]	Yes - operational
Ørsted	Denmark	12 GW (renewable)[40]	38 GW[41]	Yes - operational
Equinor	Norway	0.5 GW incld world's first floating wind farm[42]	15.5 GW[43]	Yes - operational
Statkraft	Norway	16.9 GW[44] Europe's largest renewable generator	30 GW[45]	No - divested from UK offshore wind
EnBW	Baden-Württemberg	11.6 GW[46]	5.6 GW[47]	Yes - licences

[38] Includes 33.3 GW of net renewable capacity
https://www.edf.fr/sites/default/files/contrib/groupe-edf/MVP/Publications-de-reference/edfgroup_presentation-2021_en.pdf
[39] 60 GW 2030 renewables target minus 33.3 GW existing net renewables capacity = 26.7 GW
https://www.edf.fr/sites/default/files/contrib/groupe-edf/MVP/Publications-de-reference/edfgroup_presentation-2021_en.pdf
[40] https://orsted.com/en/company-announcement-list/2021/06/2240135
[41] 50 GW renewable target by 2030, minus 12 GW existing renewable capacity
https://orsted.com/en/company-announcement-list/2021/06/2240135
[42]
https://cdn.sanity.io/files/h61q9gi9/global/a1c10cd37fe6ff1b9e1545f966cc2c5b204b001c.pdf?facts-about-our-renewable-assets-july-2022-equinor.pdf
[43] 16 GW renewable target by 2030 minus 0.5GW existing capacity = 15.5 GW
https://www.equinor.com/energy/offshore-wind
[44] https://www.statkraft.com/what-we-do/
[45] https://www.windpowermonthly.com/article/1791448/statkraft-raises-2030-renewables-goals-boost-energy-security-europe
[46] 7.2 GW fossil generation and 4.4 GW renewable
https://www.enbw.com/company/the-group/energy-production/fossil-fuel/
https://www.enbw.com/renewable-energy/renewable-energy.html
[47] 2025 wind & solar target of 5.2GW minus existing wind + other renewable energies (incld solar) of 2.6 GW = 2.6 GW new wind & solar by 2025
https://www.enbw.com/integrated-annual-report-2021/
https://www.enbw.com/company/the-group/about-us/group-strategy/
2030 new renewables target = 2.6 GW new renewables target by 2025 + 50% of 5.9GW of offshore wind under development in UK due to be completed after 2025 = 5.6 GW

Vattenfall	Sweden	21.2 GW[48]	11.8 GW[49]	Yes - operational

For comparison, the UK has close to zero publicly owned clean generation capacity, compared to 76.6 GW capacity overall in 2021.[50]

How much publicly-owned energy generation capacity would the UK have today if it had copied the approach of nearby European countries?

Company	Country/Region	Country population (million people)	Public energy generation capacity by population (GW / million people)	Capacity scaled to UK population (GW)
EDF	France	67.39	1.8	120.2
Ørsted	Denmark	5.83	2.1	138.4
Equinor	Norway	5.38	0.1	6.2
Statkraft	Norway	5.38	3.1	211.2
EnBW	Baden-Württemberg	11.07	1.0	70.4
Vattenfall	Sweden	10.35	2.0	137.7

[48] 11.5 GW hydro + 5.5 GW nuclear + 4.2 GW wind https://group.vattenfall.com/siteassets/corporate/investors/investor_presentations/corporate-factbook_2022.pdf

[49] Only wind & solar. 16 GW 2030 target minus 4.2 GW existing wind & solar = 11.8 GW https://group.vattenfall.com/siteassets/corporate/investors/investor_presentations/corporate-factbook_2022.pdf

[50] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1094628/DUKES_2022_Chapter_5.pdf

How much clean power capacity can UK publicly-owned energy generation companies achieve?

Company	Country/Region	Country population (million people)	New Renewables build-out target, 2030 (GW) by population (GW / million people)	2030 new renewables target scaled to UK population (GW)
EDF	France	67.39	0.4	26.6
Ørsted	Denmark	5.83	6.5	438.1
Equinor	Norway	5.38	2.9	193.7
Statkraft	Norway	5.38	5.6	374.8
EnBW	Baden-Württemberg	11.07	0.5	34
Vattenfall	Sweden	10.35	1.1	76.6

Public investment into supply chains and portside infrastructure

With so much of the UK's future power generation to be sited offshore, there is a need for more active public investment into upgrading and expanding portside infrastructure and deep water quays. Taking public stakes in exchange for investment can give the UK the baseline infrastructure to ensure offshore wind and marine renewables can be constructed, manufactured, deployed and maintained from UK harbours. Ports in other North Sea countries like Germany and Netherlands are better able to upgrade and compete for larger contracts in part because they are publicly-owned.[51]

Floating offshore wind especially will require far larger quaysides able to accommodate and stack large numbers of tall turbines.[52] As offshore renewables expand, UK infrastructure needs to enable mass scale rather than bespoke production.

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[51] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/277798/bis-14-578-offshore-wind-supply-chain-capabilities-and-opportunities.pdf

[52] https://gov.wales/sites/default/files/publications/2021-09/ports-report-non-technical-summary.pdf

In parallel, there is a need for greater public equity investment into factories and manufacturing sites serving the renewables supply chain. Scaling up public investments into fabrication yards and factories for nacelles, towers, foundations, cables, blades and substations can create a large manufacturing workforce in the offshore wind sector.

Government has begun to provide investment in the form of grants through the Offshore Wind Manufacturing Investment Scheme and the Floating Offshore Wind Manufacturing Investment Scheme. These were positive, and have increased the manufacturing base within the UK.

But there is potential to scale these up significantly over the coming years – and the public would be better served by these investments not being grants with no public return, but an investment in exchange for equity that leads to a return on investment, and that allows an active investor role, including introducing fair work practices over procurement.

Expanding this to new marine energy sectors like tidal stream, and to associated industries like gigafactories for green hydrogen electrolysers, could lay the foundation for a large-scale new export industry and over 100,000 new manufacturing jobs, according to the government-funded Offshore Renewable Energy Catapult.[53] Maintaining active equity stakes creates public sector levers to ensure that job quality remains high and procurement is supporting further local content from supplier industries.

This could be prioritised towards locations identified on the UK Assisted Areas map, to maximise social benefit and reduce challenges around subsidy policy.[54]

Reforming our Energy Networks

Because the potential cost of bringing energy distribution and transmission networks into public ownership at once is relatively large, this option should be explored over a longer period of time.

A public long-term strategic body should be set up to oversee the delivery of net zero and energy security fairly. This should expand on the Future System Operator's role, to plan the longer-term transformation of the energy infrastructure, including exploring the long-term potential, benefits and risks of expanding public ownership to the monopoly distribution and transmission networks.

In the short-term, more effective regulation of networks is needed to reduce excessive profiteering at the expense of households, to ensure networks create the resilient infrastructure and workforce needed to adapt to the extreme weather brought on by

[53] Solving-the-Integration-Challenge-ORE-Catapultr.pdf
[54] UK Assisted Areas Map

climate change, and to ensure networks play their role in aligning their infrastructure with the needs of Net Zero.

Ofgem should put tighter curbs on energy networks' profits, as recommended by the National Audit Office, and take a more stringent approach to

- Planning for Workforce resilience
    - Learning from recent extreme weather experiences, including storms and heatwaves, develop a workforce plan that ensures there are both sufficient and appropriately authorised staff to respond effectively to the more demanding work arising from distributed networks and to peak weather demands.
    - Produce workforce plans that reduce or remove the need for long hours working on standby.
    - Produce workforce plans to identify and substantiate the need for investment over the next 10 years.
- Workforce Satisfaction
    - Measure workforce satisfaction levels on an annual basis, using an appropriate workforce survey, and discuss survey outcomes with union representatives with a view to developing and implementing strategies for improvement.
- Workforce Development & Renewal
    - Create a workforce development and renewal funding pot, to support skills training, recruitment, and retention measures as well as other workforce development initiatives.
- Workforce Diversity & Equality
    - Increase the proportion of women and minority ethnic workers in the workforce to an agreed target. Diversity targets have been adopted in othe parts of the energy sector, such as renewables and nuclear.
    - Reduce gender pay gaps and ethnicity pay gaps progressively during the price control period
- Health and Safety
    - Measure and report annually on working hours lost due to work-related accidents or illness. An initial baseline target should be proposed and justified at the start of the price control period, with a progressive target for reduction
- Climate targets
    - Ofgem should set clearer and more stringent climate targets
    - Explore a programme rather than project approach;
    - Ensure stricter enforcement of networks' climate targets compliance, including responsibility for upgrades that are necessary for transport electrification;

- Stricter evaluation of networks' planning and spending in relation to extreme weather events.

Conclusion

This briefing builds on the proposals in our TUC's July 2022 briefing "A fairer energy system for families and the climate".[55]

A future successful public ownership model needs to achieve the following:

- Protect all low-income households with fairer bills and a social tariff
- Deliver a faster climate transition through the rapid rollout of home retrofits, the expansion of clean generation, and upgrades to our electricity networks
- Create a just transition by supporting and creating high quality jobs, expanding collective bargaining, and growing domestic supply chains
- Ensure that energy is a public good and that our energy system is both democratically accountable and transparent

The TUC is proposing a model of publicly owned energy to address these challenges, including

- Setting up a National Energy Agency and Regional Energy Agencies, democratically accountable to local government and combined authorities
- Establishing public ownership within the customer-oriented parts of the energy system
- Enabling National and Regional Energy Agencies to take significant stakes in new zero carbon generation, and create domestic industrial champions like EDF, Vattenfall or Ørsted. These companies should be capitalised by central government and allowed to borrow, to compete fairly with their publicly-owned peers from other countries.
- Expand public ownership and investment into factories, manufacturing sites and supply chains for clean generation, as well as portside infrastructure and deep-water quays.

[55] https://www.tuc.org.uk/research-analysis/reports/fairer-energy-system-families-and-climate

Methodology for estimating the Burden of Privatisation

UK Treasury analysis shows UK gas producers and electricity generators making excess profits totalling as much as £170 billion over the next two years. Excess profits are defined by the Treasury as the difference between the profits energy producers are predicted to make in the future, and the profits they could have expected to make based on the outlook for prices before Russia's invasion of Ukraine.56 The Treasury estimates suggests about two fifths of the £170 billion in excess profits would be attributable to power producers.[57]

Excess profits attributable to power producers would then be 40% of £170 billion, or £68 billion.

The excess profits are made by some electricity generators from some generation projects, and not from others – depending on the contract status and pricing system. For example, offshore wind farms with a Contract for Difference (CfD) effectively receive a fixed price, regardless of the wholesale price, while offshore wind farms with a Renewables Obligation contract receive the wholesale price plus a subsidy. This means that a wind farm with a Renewables Obligation will currently be making excess profits, while a CfD wind farm will not.

A small fraction of the excess profits identified here will be returned in public income in the form of corporation tax. Due to the complex ownership structures of energy generation companies and the ability to offset taxes paid, we have not forecast expected tax income from excess profits.

Rather than identify which generation projects or owners are making excess profits and which aren't, this modelling averages out the excess profits across the UK's current generation basis of 76.6 GW.[58] That is, we are assuming that publicly-owned generation would have the same average breakdown of contracts and pricing mechanisms, as the rest of the UK's generation capacity.

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[56] https://www.bloomberg.com/news/articles/2022-08-30/uk-predicts-up-to-170-billion-excess-profits-for-energy-firms

[57] https://www.bloomberg.com/news/articles/2022-08-30/uk-predicts-up-to-170-billion-excess-profits-for-energy-firms

[58] DUKES 2022 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1094628/DUKES_2022_Chapter_5.pdf

We identified the potential generation capacity of a UK publicly owned energy company, if it had developed power plants in line with publicly-owned companies from Sweden, Baden-Württemberg and France, but scaled by population.

We excluded Norwegian and Danish public companies from this analysis, due to their smaller population and outsize operations based on past policy-making (e.g. stronger taxation of oil in Norway since the 1970s and first mover status in offshore wind in Denmark since the 1980s).

We compared the potential publicly-owned generation capacity to the actual current UK generation capacity of 76.6 GW.

This comparison gave us a factor we could apply to the £68 billion in excess profits.

Applying this factor – the final column below – reveals the direct public revenues that the UK government is missing out on, compared to a situation where the UK had publicly-owned generation capacity on a scale of Baden Württemberg, France or Sweden – in which case the excess profits would have accrued to the public purse and could have been used to lower bills, increase domestic energy efficiency or reinvested otherwise. These numbers effectively represent the current 2-year opportunity cost of the past privatisation of the UK's power generation.

	GW in public-ownership	Potential UK GW in public ownership – scaled to UK poulation	Comparison factor to current UK generation capacity	Avoided excess profits / Greater public income (£ billion)
Baden-Württemberg	11.6	70.4	0.92	£62.5
France	120.5	120.2	1.57	£106.7
Sweden	21.2	137.7	1.80	£122.2

Notably, if scaled from France's EDF or Sweden's Vattenfall, the potential public income is larger than the £68 billion in excess profits to be made by electricity generators in the UK. This is because both EDF and Vattenfall have significant generation capacity outside France and Sweden – including in the UK. The profits made in other countries are repatriated to France and Sweden, and can be used domestically. In 2022, EDF's profits – including those made outside France in the UK – have been used to cap the increase in French household energy prices at 4%.[59]

[59] https://www.telegraph.co.uk/business/2022/08/11/british-edf-customers-pay-twice-much-french-energy/

A UK publicly-owned energy company could similarly operate generation capacity both in the UK and internationally, and achieve comparable benefits.

Such an approach should take into account international historical relationships of power and colonialism. It would be inappropriate for a UK publicly-owned company to use profits from energy generation in the Global South to lower bills in the UK.