

Investing in our future

**A plan for the next
government's clean
infrastructure investment**



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Summary

It's time we invested into our future.

The UK is being left behind in the race towards a clean jobs future. Other large economies – the US, China and the EU – have vastly larger investment programmes that are setting their industry and energy systems up for a Net Zero carbon world.

We desperately need to upgrade UK infrastructure to future-proof industries, maintain public services, and meet energy needs and climate goals. We need to build new railways, factories and clean power. We need to upgrade our existing buildings, heat systems, and energy networks.

If we don't invest in our future, we will lose jobs, the UK will become poorer, and we will fall further and further behind our international peers.

In this briefing TUC sets out the "Invest in our Future" programme, composed of existing trade union proposals for clean infrastructure investments. The briefing analyses what the next government could realistically deliver in a first term. The majority of the capital investment projects (worth 55-60% of the whole programme) can begin at scale early in the term, whereas the remainder (worth 40-45% of the programme) requires longer lead-in and has to ramp up through a government's term. We have costed the capital investment for this programme, and identified a range.

Successful implementation of these proposals would require investment of between £136-£161 billion over five years by the next government, alongside existing funding from the UK Infrastructure Bank, as well as other investment mobilised. This is equivalent to £27.2 billion - £32.2 billion per year during the next government's term.

We estimate that government investment of £74-£78 billion in energy and industrial projects would mobilise additional investment of £75-£118 billion from other sources.

The "Invest in our Future" programme, if accompanied by conditions on investment that guarantee job creation and job quality, would:

- Protect hundreds of thousands of jobs in keystone manufacturing industries by decarbonising them
- Create new, secure, quality jobs in Britain's industrial heartlands: opportunities for communities denied them for too long
- Provide a pathway towards strengthening UK competitiveness and economic growth, as our peers in Europe and North America surge ahead
- Generate long-term returns for the UK public purse

Macroeconomic analysis by IPPR¹ shows that a programme of this scale, based on borrowing to invest, is also likely to grow the economy sufficiently to shrink the UK's debt/GDP ratio – even without considering wider benefits like those above.

A further TUC briefing will explore how to ensure that clean investments create local, quality jobs, including learning from Biden's Inflation Reduction Act and applying conditionalities to public investment.

The TUC calls on all political parties and the Treasury to begin a process of costing and planning rapid delivery of a clean infrastructure programme on this scale. This must begin now, to enable the next government to rapidly invest to grow the economy in line with the needs of workers as well as the needs of the climate transition.

Why do we need a public “Invest into our future” programme?

Governments in the US and the European Union have realised what recent UK governments have been unwilling to accept: that to successfully navigate both recent economic crises and the climate transition, states need to invest.

Public investment in energy is what drove Denmark's wind industry to become a world technological leader. It is also what made sure that France's public energy company was able to keep energy bill rises to 4% when UK bills surged twofold in 2022.²

Public investment in infrastructure such as railways is the backbone of any successful economic recovery plan according to the World Bank.³

Public investment in industry is a pathway to attract private capital into new industries, as Biden's IRA programme has already successfully shown.⁴ It is also a way to safeguard the quality of jobs. Conditions on public investment can cover decent pay, safety at work, security of contracts, worker voice, skills provision and more.

Public investment in home and public sector building upgrades will ensure that both households and public services are better protected both against economic and climate shocks.⁵

What is the “Invest in our future” clean infrastructure programme?

¹ Carsten Jung (2023) “Return to investment”, IPPR. https://www.ippr.org/files/2023-07/1688486918_return-to-investment-july23.pdf

² <https://www.bbc.co.uk/news/61522123>

³ <https://blogs.worldbank.org/voices/infrastructure-recovery>

⁴ <https://heatmap.news/politics/inflation-reduction-act-updates-biden>

⁵ <https://www.sciencedirect.com/science/article/pii/S0140988323001469>

This briefing collates existing TUC proposals for capital investments across a range of clean infrastructure sectors, in line with the trade union movement's priorities on jobs and the climate transition.

New governments sometimes struggle to take the rapid action that is needed. The TUC has therefore identified and costed clean infrastructure projects that could be delivered at pace, where the next government could allocate investment, rapidly deploy and get projects over the line – with the associated jobs, socio-economic, health and construction benefits.

These investments range from future-proofing heavy industries like steel and ceramics to retrofit upgrades for our schools and homes, from expanding bus and rail services to rolling out electric vehicle chargers and building battery gigafactories, from publicly-owned new clean power to expanding our electricity grid.

The capital investment proposed here is based on existing TUC-backed calls for clean infrastructure. This briefing pulls together several assessments of the investments needed to meet climate challenges and reflecting the trade union movement's priorities.⁶

Additionally for this briefing the TUC has estimated:

- The likely scale of capital needed in the first five years (i.e. over the course of the next parliament) for each project;
- The projects that could be in part funded through government-backed interest-free loans, reducing the amount of capital needed from central government;
- The likely scale of additional investment generated through private co-investment or 'crowding-in' effect.

What are the long-term economic effects of investing into our future?

The investment programme outlined in this briefing is needed to deliver the trade union movement's priorities of good work, good public services, and a rapid and just transition.

⁶ The quantitative sources used for this briefing include
<https://www.tuc.org.uk/research-analysis/reports/public-transport-fit-climate-emergency>
https://www.tuc.org.uk/sites/default/files/TUC%20Jobs%20Recovery%20Plan_2020-06-17_proofed.pdf
<https://www.tuc.org.uk/research-analysis/reports/schools-built-future>
https://www.tuc.org.uk/sites/default/files/2023-08/TUC_PublicPowerPotential_Aug2023.pdf
<https://transitioneconomics.net/unison-launches-blueprint-for-climate-friendly-public-services>
<https://www.tuc.org.uk/research-analysis/reports/fairer-energy-system-families-and-climate>

Economic modelling by IPPR considers the macroeconomic effects of a similar scale of borrowing to invest to that explored in this briefing, and concludes that “a government could borrow to invest [on this scale], and thereby grow the economy more than the associated rise in debt”, and that the impacts on inflation are likely to be limited.⁷

There are other economic effects beyond boosting national growth that are also very significant:

- Increased productivity and competitiveness of UK industry
- Unlocking industries of the future and spurring technological advances
- Job creation and economic growth in former industrial heartlands;
- Both mitigate climate change and increase resilience of society, the economy and infrastructure to climate change;⁸
- Increased resilience of the energy system and increased ability to control energy price shocks (and inflation as a result – for example, inflation in France in 2022 was limited to 5.9%, significantly lower than the UK’s 9.1%).⁹
- A richer UK, with long-term dividends to the public purse from energy and industrial investments.

Broader public benefits of the “Invest into our Future” clean infrastructure programme

- Protect hundreds of thousands of jobs in keystone manufacturing industries by decarbonising them
- Create new, secure, quality jobs in Britain’s industrial heartlands, including up to 65,000 in coastal communities and industrial heartlands through greater local job creation in renewable energy supply chains¹⁰
- Upgrade and insulate almost 10 million homes, reducing energy wastage and cutting household bills by up to £1,000 per unit – slashing fuel poverty and ensuring that families can stay warm in winter.¹¹

⁷ Carsten Jung (2023) “Return to investment”, IPPR. https://www.ippr.org/files/2023-07/1688486918_return-to-investment-july23.pdf

⁸ Office for Budget Responsibility [OBR] (2021) Fiscal Risks Report https://obr.uk/docs/dlm_uploads/Fiscal_risks_report_July_2021.pdf

⁹ <https://www.imf.org/external/datamapper/PCPIPCH@WEO/OEMDC/ADVEC/WEOWORLD?year=2022>

¹⁰ <https://transitioneconomics.net/labours-british-industry-bonus-potential-increased-job-creation-and-local-investment-in-industrial-heartlands>

¹¹ <https://labour.org.uk/wp-content/uploads/2023/06/Mission-Climate.pdf>

- Ensuring UK schools and public buildings are fit for the future, energy efficient and safe working environments, creating 42,000 jobs for the duration of the programme.
- Boosting health and clean air, by enabling people to shift from petrol and diesel vehicles to electric vehicles with easier access to charging facilities, alongside safer walking and cycling infrastructure.
- Cheaper, faster and cleaner public transport with more bus routes, light rail expansion and train upgrades, making it much easier for people to move around without a private vehicle in rural and urban areas.
- Improved access to nature for all, with new and expanded national forests
- Improved flood defences in line with Environment Agency needs
- Improving climate resilience and reducing the impact of weather emergencies
- Plastic recycling infrastructure enables an end to plastic exports

Public investment into clean infrastructure will catalyse and crowd in further investment

Central government capital investment does not need to cover the entirety of the actual capital investment for every project. In fact, it will catalyse and drive in billions in private investment, independent borrowing, and other forms of additional investment.

Private co-financing

For many clean infrastructure projects, including energy and industrial upgrades, public investment will attract private co-financing.

Multiple studies demonstrate that public investment in industrial projects such as energy generation, research and development, or industrial upgrades results in greater private investment in these industries. For example:

- Germany committed €8bn in public financing to green hydrogen projects, generating just under €20bn in private investment.
- The increased federal climate investment by the US Government under the Inflation Reduction Act programme, estimated at \$800 billion, is expected to generate an additional \$900 billion in other investment, according to forecasts by the investment bank Credit Suisse.¹²
- According to empirical IMF analysis, every \$1 in government investment in clean energy projects results in \$1.1 to \$1.5 times increased economic activity within a year.¹³
- Empirical analysis by Cambridge University economist Zeina Hasna, “\$1 of green spending by [the US Department of Energy] crowds in \$38.7 in total green spending contemporaneously, \$37.8 in 1-year and \$39.3 in 2-years”.¹⁴ The relatively high multiplier may be explained by the fact that public investment from the federal Department of Energy is supplemented with public investment by state governments as well as private investment. Similarly to IMF findings, Hasna also finds that “that a \$1 increase in green investment increases state-level output by \$1.1 contemporaneously, and up to \$4.2 within two years of implementation”.¹⁵

¹² <https://www.credit-suisse.com/treeprintusinflationreductionact>

¹³ <https://www.imf.org/-/media/Files/Publications/WP/2021/English/wpia2021087-print-pdf.ashx>

¹⁴ https://zeinahasna.github.io/Hasna_JMP.pdf

¹⁵ Ibid.

- Analysis by UCL economists demonstrates that direct public investment in energy projects results in greater increases in private investment, than other alternative policies to encourage firms to build energy projects.¹⁶

Our analysis applies the multipliers from these case studies to estimate the additional private investment generated with the proposed investments in industry and energy infrastructure.

In our estimate, the energy projects as part of the Invest in Our Future programme, worth £62 - £67 billion, would generate £60 - £102 billion in additional investment. This level of additional financing will be generated partly through a public energy company collaborating with other public or private energy developers on specific Joint Venture projects, and partly through driving additional debt finance into clean power.¹⁷

The industry projects (including steel furnace upgrades, gigafactories for electric vehicle batteries, and other industrial upgrades), worth £11.3 billion, would generate £15 - 16 billion in additional investment.

Note that these estimates do not take into account the benefits of industrial clustering (where strengthening one part of a value chain attracts other parts), nor the protection of existing industries, nor wider economic effects by boosting growth and productivity, which are all likely to be greater.

Table 1. The multiplier effect: estimates of other investment enabled by public investment in energy and industry.

	MIN Govt capex	MAX Govt capex	MIN other investment generated	MAX other investment generated
Energy projects	62.4	66.8	60.3	102.0
Industry projects	11.3	11.3	14.6	15.9

¹⁶ https://www.ucl.ac.uk/bartlett/public-purpose/sites/public-purpose/files/final_neither_crowding_in_nor_out_deleidi_mazzucato_semieniuk_web_0.pdf

¹⁷ To do this most effectively, a public energy company should be enabled to borrow independently, in line with its European peers. See: https://www.tuc.org.uk/sites/default/files/2023-08/TUC_PublicPowerPotential_Aug2023.pdf

Interest-free loans

For some projects that generate a return or saving (e.g. some energy efficiency projects), government-backed interest-free loans could be used.

Zero-interest loans for energy efficiency measures in the public sector have been provided since 2009 through Salix Finance,¹⁸ a non-departmental public body under the Department for Energy Security and Net Zero. Devolved Authorities also have the capacity to manage loan schemes, for example the Mayor of London's Energy Efficiency Fund, financed through £51.2 million from EU funding alongside £456 million from private investors.¹⁹

The central government also provided over £200 billion of loans, guarantees and insurance during the coronavirus pandemic. These were managed through a variety of bodies including the Bank of England and the British Business Bank.²⁰

Government-backed interest-free loans could be used to part-fund home and public building upgrade schemes, as well as electric vehicle charging point schemes. These schemes should be designed with care to ensure that the recipient organisation (e.g. a local council) is able to generate sufficient revenues or savings from the project. Schemes should include a grant component. Table 2 below demonstrates the total capital investment, the proportion of capital investment financed through external capital, and the modelled cost to government, if using a high proportion of interest-free loans (90%) and a low proportion of interest-free loans (50%) in financing public building upgrades and electric car charging points. Table 3 below demonstrates the same metrics for home upgrades, where the upgrades for the vast majority of homes are funded through grants, but between 10% and 20% well-off households are awarded interest free loans instead.

Table 2. Projects that could be part-financed through interest-free loans: public building upgrades and electric vehicle chargers

Project	Total capital investment over 5 years, £bn	Cost to government over 5 years (grant component + cost of loan interest and guarantees), £bn	Other investment enabled
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¹⁸

https://www.bre.co.uk/filelibrary/events/Green%20futures%20presentations/Salix_Loans_Overview.pdf

¹⁹ <https://www.london.gov.uk/programmes-strategies/environment-and-climate-change/climate-change/zero-carbon-london/london-climate-finance-facility/mayor-londons-energy-efficiency-fund>

²⁰ <https://lordslibrary.parliament.uk/coronavirus-business-loans-and-the-public-finances/>

		<i>Min (at 10% grants to 90% loans)</i>	<i>Max (at 50% grants to 50% loans)</i>	<i>Max</i>	<i>Min</i>
Retrofit schools	6.00	1.69	3.60	5.40	3.00
Retrofit public buildings and offices	10.59	2.98	6.36	9.54	5.30
On-street electric vehicle chargers (including rural)	5.87	1.57	3.48	5.28	2.93
Electric vehicle chargers in public services buildings	0.45	0.12	0.27	0.41	0.23

Table 3. Investment in home upgrades if part-financed through interest-free loans.

Project	Total capital investment over 5 years, £bn	Cost to government over 5 years (grant component + cost of loan interest and guarantees), £bn	Other investment enabled		
		<i>Min (at 80% grants to 20% loans)</i>	<i>Max (at 90% grants to 10% loans)</i>	<i>Max</i>	<i>Min</i>
Retrofit homes	30	25.28	27.64	6.00	3

The UK Infrastructure Bank

The UK Infrastructure Bank has £22bn in financing capacity, which it aims to fully deploy by 2030²¹. Given the bank's stated mission to tackle climate change and regional inequalities, including identifying infrastructure investment opportunities like electric vehicle charging, building retrofit and zero emission buses, some of UKIB's existing revolving capital can be assumed to support projects included in the TUC's

²¹ <https://www.ukib.org.uk/news/UKIB-launches-its-first-strategy>

'Invest in Our Future' programme. Our estimate below suggests a contribution of £10 - £15 billion from UKIB financing capacity.

Invest in our future: estimating the capital investments

Table 1 outlines our estimates for the levels of public investment needed by project.

'Shovel-readiness' indicates the project's capacity to start at pace, where A denotes a project where government can capitalise or allocate finance rapidly and/or an appropriate manufacturer exists and/or appropriate contractors exists and where there are limited planning restrictions to initial work, and B denotes some level of restrictions that mean the government investment would have to ramp up through the government's term. All project investment identified is intended to take place in the 2025-2030 period.

We estimate that projects representing the majority of the capital investment (£89 – £95 billion) can begin at close to target scale within the first year of a new government term. The remainder of the projects (worth £62 – £76 billion) require more significant preparation time for planning or supply chain, and so have to ramp up over time.

The estimates below represent the minimum level of public investment we assess as required to successfully deliver our priorities of good work, good public services, and a rapid and just climate transition at scale.

Table 4. Invest in our future: estimates of government capital investment need by project

Sector	Measure	Shovel-readiness	MIN Govt capital 2025-2030 (£bn)	MAX Govt capital 2025-2030 (£bn)	Source
Energy	Capitalisation for public energy generation industrial champion company	A	40.00	40.00	²²
Energy	British Jobs Bonus - local content in CfDs	A	2.50	2.50	²³

²² https://www.tuc.org.uk/sites/default/files/2023-08/TUC_PublicPowerPotential_Aug2023.pdf

²³ <https://labour.org.uk/wp-content/uploads/2023/06/Mission-Climate.pdf>

Energy	Local power / community energy	A	3.50	3.50 ²⁴
	Public ownership of energy retail companies	A	2.50	2.50 ²⁵
Energy	Energy grid upgrades	B	13.90	18.35 ²⁶
Education	Centres of Excellence for Net Zero transition skills	A	0.30	0.50 ²⁷
Industry	Steel furnace upgrades	B	3.00	3.00 ²⁸
Industry	Gigafactories	B	2.00	2.00 ²⁹
Industry/Energy	Port upgrades for offshore energy	B	1.80	1.80 ³⁰
Industry	Industrial clusters decarbonisation	B	1.00	1.00 ³¹
Industry	Industrial upgrades (e.g. fuel switching in ceramics, glass)	B	3.00	3.00 ³²
Industry	Public investment in green hydrogen manufacturing	B	0.50	0.50 ³³
Buildings	Home retrofits	A	25.28	27.64 ³⁴
Buildings	Heat networks	B	2.48	2.48 ³⁵
Public services	Retrofit schools	A	1.69	3.60 ³⁶
Public services	Retrofit public buildings and offices	A	2.98	6.36 ³⁷

²⁴ <https://labour.org.uk/wp-content/uploads/2023/06/Mission-Climate.pdf>

²⁵ <https://www.tuc.org.uk/research-analysis/reports/fairer-energy-system-families-and-climate>

²⁶ <https://www.tuc.org.uk/research-analysis/reports/public-ownership-clean-power-lower-bills-climate-action-decent-jobs>, TUC investment need estimates based on <https://www.beama.org.uk/static/d3e0bb5b-1374-4c41-b10a3818ff81e5fe/growing-the-supply-chain%20for-net-zero-energy-system%20.pdf>

²⁷ TUC submission to Green Jobs Taskforce.

²⁸ <https://labour.org.uk/wp-content/uploads/2023/06/Mission-Climate.pdf>

²⁹ <https://labour.org.uk/wp-content/uploads/2023/06/Mission-Climate.pdf>

³⁰ <https://labour.org.uk/wp-content/uploads/2023/06/Mission-Climate.pdf>

³¹ <https://labour.org.uk/wp-content/uploads/2023/06/Mission-Climate.pdf>

³² TUC estimate for present paper.

³³ <https://labour.org.uk/wp-content/uploads/2023/06/Mission-Climate.pdf>

³⁴ <https://www.independent.co.uk/news/uk/politics/labour-home-insulation-policy-starmer-b1929178.html>

<https://labour.org.uk/wp-content/uploads/2023/06/Mission-Climate.pdf>

³⁵ <https://congress.tuc.org.uk/motion-16-decarbonising-public-services/>

<https://www.unison.org.uk/content/uploads/2021/11/26609.pdf>

³⁶ <https://www.tuc.org.uk/research-analysis/reports/schools-built-future>

³⁷ <https://congress.tuc.org.uk/motion-16-decarbonising-public-services/>

<https://www.unison.org.uk/content/uploads/2021/11/26609.pdf>

Public services	Replace street lighting with LEDs	A	0.25	0.25 ³⁸
Public services	Landfill management	A	0.50	0.50 ³⁹
Public services	Wastewater treatment decarbonisation	A	0.33	0.33 ⁴⁰
Public services	Public tool and equipment libraries	A	0.03	0.03 ⁴¹
Transport	Fully electric fleet renewal (where appropriate)	A	0.46	0.46 ⁴²
Transport	On street electric vehicle chargers	A	1.57	3.48 ⁴³
Transport	Electric vehicle chargers in public services buildings	A	0.12	0.27 ⁴⁴
Transport	Public service electric bike commute subsidy	A	0.03	0.03 ⁴⁵
Transport	Improve pedestrian & cycling infrastructure	B	3.16	3.16 ⁴⁶
Transport	Additional buses and electrification	A	3.08	4.05 ⁴⁷
Transport	Bus priority measures	B	5.68	5.68 ⁴⁸
Transport	Light rail / tram expansion	B	1.63	1.63 ⁴⁹

³⁸ <https://congress.tuc.org.uk/motion-16-decarbonising-public-services/>
<https://www.unison.org.uk/content/uploads/2021/11/26609.pdf>

³⁹ <https://congress.tuc.org.uk/motion-16-decarbonising-public-services/>
<https://www.unison.org.uk/content/uploads/2021/11/26609.pdf>

⁴⁰ <https://congress.tuc.org.uk/motion-16-decarbonising-public-services/>
<https://www.unison.org.uk/content/uploads/2021/11/26609.pdf>

⁴¹ <https://congress.tuc.org.uk/motion-16-decarbonising-public-services/>
<https://www.unison.org.uk/content/uploads/2021/11/26609.pdf>

⁴² <https://congress.tuc.org.uk/motion-16-decarbonising-public-services/>
<https://www.unison.org.uk/content/uploads/2021/11/26609.pdf>

⁴³ <https://congress.tuc.org.uk/motion-16-decarbonising-public-services/>
<https://www.unison.org.uk/content/uploads/2021/11/26609.pdf>

⁴⁴ <https://congress.tuc.org.uk/motion-16-decarbonising-public-services/>
<https://www.unison.org.uk/content/uploads/2021/11/26609.pdf>

⁴⁵ <https://congress.tuc.org.uk/motion-16-decarbonising-public-services/>
<https://www.unison.org.uk/content/uploads/2021/11/26609.pdf>

⁴⁶ <https://congress.tuc.org.uk/motion-16-decarbonising-public-services/>
<https://www.unison.org.uk/content/uploads/2021/11/26609.pdf>

⁴⁷ <https://www.tuc.org.uk/research-analysis/reports/public-transport-fit-climate-emergency>

⁴⁸ <https://www.tuc.org.uk/research-analysis/reports/public-transport-fit-climate-emergency>

⁴⁹ <https://www.tuc.org.uk/research-analysis/reports/public-transport-fit-climate-emergency>

Transport	Rail upgrades	B	22.35	26.82 ⁵⁰
Transport/ Industry	Shipbuilding upgrades and new electric ferries	B	0.20	0.20 ⁵¹
Waste	Plastics recycling plants	B	0.25	0.25 ⁵²
Land	Land restoration and Reforestation schemes	A	5.00	5.00 ⁵³
Agriculture	Support to climate-friendly farming	B	0.38	0.38 ⁵⁴
Agriculture	Organic conversion for county farms	A	0.03	0.03 ⁵⁵
Subtotal			151.47	171.28
Less UKIB financing			15.00	10.00
Total Govt capital need			136.47	161.28

Conclusion

The TUC calls on all political parties and the Treasury to begin a process of costing and planning public investment for a rapid and just climate transition and a richer Britain.

Our proposal to an “Invest In Our Future” clean infrastructure plan for the next government would see investment of between £136-£161 billion over five years. This is equivalent to £27.2 billion - £32.2 billion per year during the next government’s term.

⁵⁰ <https://www.tuc.org.uk/research-analysis/reports/public-transport-fit-climate-emergency>

⁵¹ <https://www.tuc.org.uk/research-analysis/reports/rebuilding-after-recession-plan-jobs>

⁵² <https://www.tuc.org.uk/research-analysis/reports/rebuilding-after-recession-plan-jobs>

⁵³ <https://www.tuc.org.uk/research-analysis/reports/rebuilding-after-recession-plan-jobs>

⁵⁴ <https://www.tuc.org.uk/research-analysis/reports/rebuilding-after-recession-plan-jobs>

⁵⁵ <https://congress.tuc.org.uk/motion-16-decarbonising-public-services/>

<https://www.unison.org.uk/content/uploads/2021/11/26609.pdf>

Annex: Example clean infrastructure investment projects

Public Energy Champion company

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 could innovate to create the clean power solutions we need for the future. It could 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. And public ownership could deliver good unionised jobs, lower bills and reinvested and redistributed profits, ensuring the whole population benefits from the climate transition.

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:

- 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.
- Allow the public energy champion to borrow finance, akin to peer companies in other countries.
- Update debt classification guidelines, so that future PSNB ex figures exclude both public sector banks and publicly-owned energy.
- Make the public energy champion democratically accountable to the public, and include elected worker representatives on its board.
- Use stringent procurement standards, to ensure the clean energy investments generate good work across its supply chain.
- 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.
- 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.

This proposal is outlined in more detail in the TUC briefing ‘*Public Power: Turning It Into Reality*’.⁵⁶

⁵⁶ https://www.tuc.org.uk/sites/default/files/2023-08/TUC_PublicPowerPotential_Aug2023.pdf

Steel works upgrades

UK steel is at a major crossroads. The coal-based blast furnaces that produce the majority of the country's output of primary steel are due for upgrades in the 2020s. Faced with internationally uncompetitive energy prices and competition from cheaper imported steel, the industry is struggling to stay afloat. And while governments in the US, Germany, Sweden are co-investing with business in new models for hydrogen-based, emissions-free "green steel" production, the UK is lagging behind. If we are to continue building the steel grades required for automotive manufacturing and infrastructure projects, we urgently need government and business investment in DRI process for steel production.⁵⁷ The public investment proposed as part of the Invest in Our Future plan – alongside private investment – would future-proof tens of thousands of existing, quality jobs in the steel industry and its value chain.

School retrofits

Making sure the UK's school buildings are fit for the future and energy efficient is a win-win.

It's good for ensuring a safe climate future for our children, cutting approximately 1.2 million tonnes of CO2 equivalent emissions.

It's good for construction jobs, with the potential to create 42,000 quality green jobs over a ten-year programme.

It's good for reducing energy bills and costs for cash-strapped schools in the long term.

And it's good for ensuring comfortable, safe working conditions for school staff and students.

Funding for school building retrofits is woefully inadequate, with existing government schemes providing only one fortieth of the funding needed.

The trade union movement calls on the UK government to resource a nationwide school buildings retrofit programme with at least £12 billion in funding over ten years, to create 42,000 good construction jobs and ensure all our children are learning in school buildings fit for the future.

A schools retrofit programme should:

- Be delivered by Local Authorities, to maximise economies of scale.
- Engage school staff and students in the design of individual retrofit projects.
- Use the opportunity to remove asbestos from buildings.
- Maximise the use of directly-employed labour in construction, to ensure the scheme provides good jobs for construction workers, and to secure the skills needed for quality retrofits.

⁵⁷ <https://community-tu.org/the-future-of-steel/>

- Employ a Good Jobs Charter for procurement standards, to ensure good employment across the supply chain.

This proposal is outlined in more detail in the TUC briefing *'Schools built for the future'*.⁵⁸ In the Invest In Our Future programme we propose part-funding such a programme through interest-free loans, but this should only be used where the building upgrades generate sufficient savings.

Public transport upgrades: rail, bus, and light rail / tram

To address the climate emergency, we need significant modal shift as well as a zero emission fleet. TUC-commissioned estimates show that, across Wales and England (not including London) we need:

- Over 47 billion car driver and car passenger kilometres per year to shift to public transport by 2030.
- Around 120% more bus/tram passenger kilometres and 80% more rail passenger kilometres than pre-Covid levels by 2030.
- Additional operating expenditure by 2030 of around £7.5bn per year for buses, £0.5bn per year for trams and £10.9bn per year for trains, to provide public transport services good enough to attract the necessary extra passengers.
- An annualised total additional capital expenditure on buses, trams and rail of around £10bn a year up to 2035.

In addition to giving us public transport fit to tackle the climate emergency these investments would bring major economic and social benefits:

- Around 140,000 direct jobs in bus, tram and rail operation created by the uplift in public transport services (a new job for every two existing jobs).
- Around 52,000 jobs⁵⁹ created through the proposed bus manufacture and construction of bus priority infrastructure up to 2035.
- Around 10,000 jobs⁶⁰ associated with tram construction up to 2035.

Up to 150 thousand jobs⁶¹ supported indirectly in association with the additional rail investment up to 2035, although not all of these would be 'new' jobs.

This investment is estimated to be sufficient to deliver an increase in GDP in England (not including London) and in Wales of over £50bn a year through the agglomeration effects of the much improved and more rapid public transport connections. This is

⁵⁸ TUC (2022) *'Schools Built for the Future'* <https://www.tuc.org.uk/research-analysis/reports/schools-built-future>

⁵⁹ 620,000 job-years.

⁶⁰ 110,000 job-years.

⁶¹ 1.8 million job-years.

based on research that suggests if agglomeration benefits in the UK are as significant as in France, this would lead to an increase in GDP/capita of 7%.

These proposals are outlined in more detail in the report '*Public transport fit for the climate emergency*'.⁶²

⁶² <https://www.tuc.org.uk/research-analysis/reports/public-transport-fit-climate-emergency>