prospect

A Just Transition Plan

for the UK Power Sector

Discussion paper, **October 2020**

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Prospect represents over 150,000 engineers, managers, professionals and specialists across the public and private sectors. We are the primary union for skilled specialists, engineers, and managers working in the UK energy supply industry, including the civil nuclear sector.
Our members work across the energy life-cycle including research, new build, generation, decommissioning and regulation, giving us a unique and valuable perspective on energy policy. We continue to campaign on behalf of our members for a sensible, informed approach to critical energy questions.

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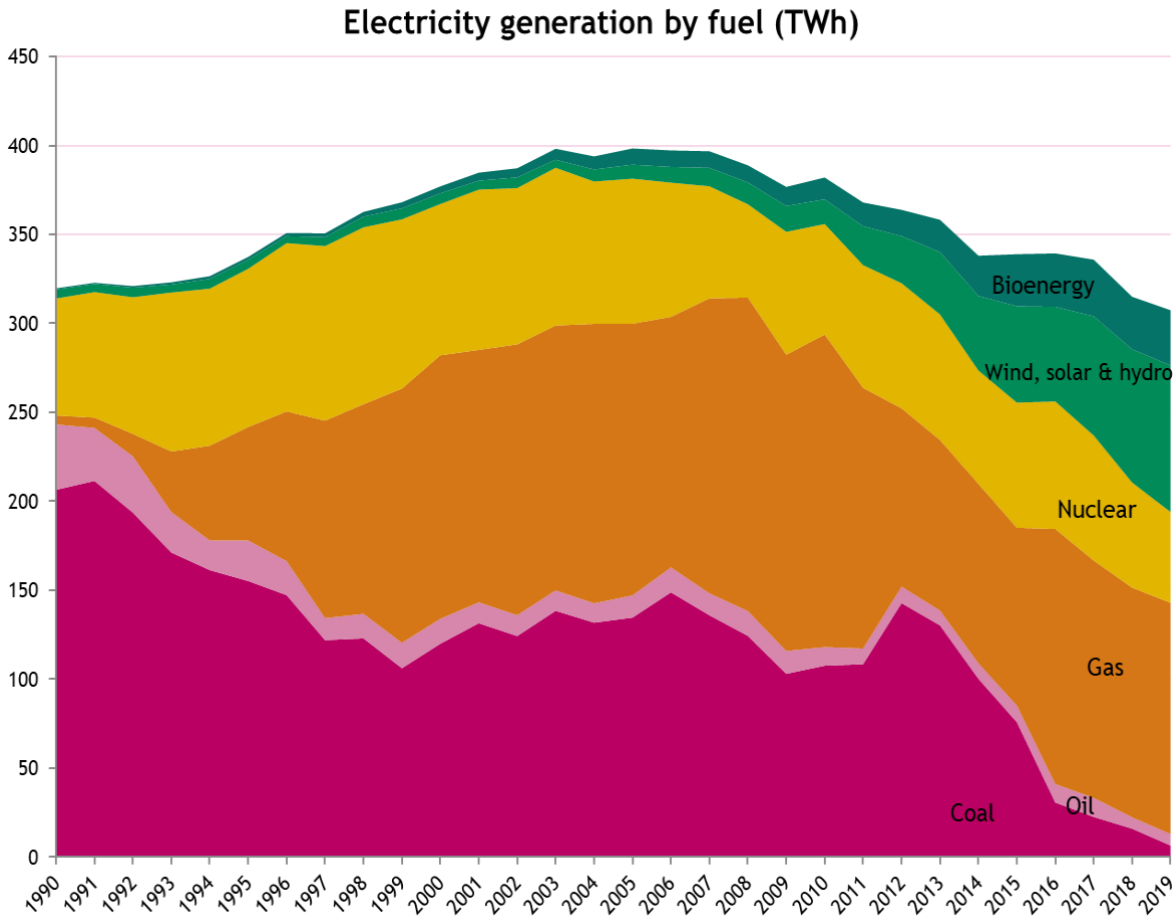
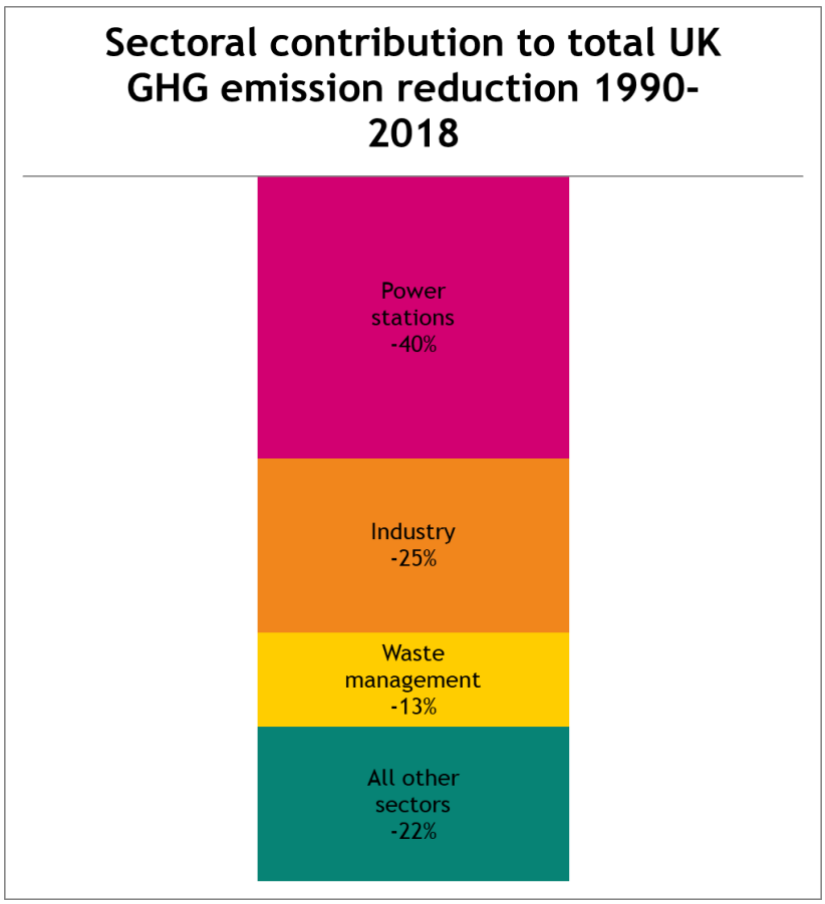
Introduction – the power sector's role in decarbonisation

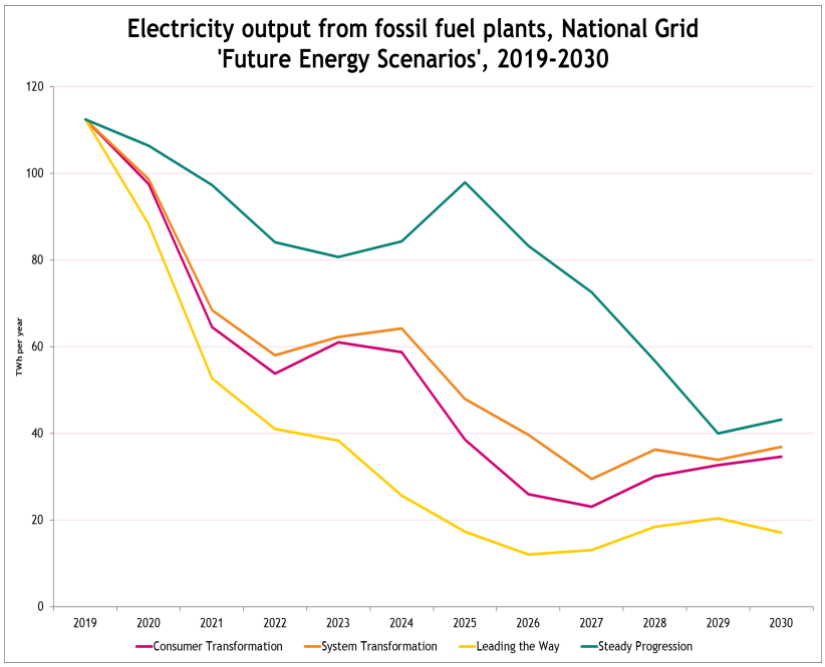
The climate emergency demands a rapid and radical response: fossil fuels must be dislodged from the heart of our energy systems and replaced with low-carbon alternatives if we are to achieve our legally binding target of net zero emissions by 2050. The UK has made some progress in this journey already; total territorial greenhouse gas emissions fell by 43% between 1990 and 2018.[1] And the power sector has led the way, accounting for around 40% of that reduction, largely because of the switch from coal to natural gas and renewables; in 1990, two-thirds of our electricity came from coal, but by 2019 that proportion had fallen to just 2%.[2]



But, there is still a long way to go. While low-carbon fuel sources like renewables and nuclear now supply a majority of our electricity, around 42% still comes from fossil fuelled power stations, primarily those using natural gas.[3] This will have to change significantly during the 2020s if we are to remain on track to meet our climate targets. Recent modelling by National Grid suggests, for example, that output from fossil fuel power stations will need to fall by up to 85% by 2030.[4]

[1] Dept. of Business, Energy & Industrial Strategy (2020) *Final UK Greenhouse Gas Emissions 1990-2018*
[2] Dept. of Business, Energy & Industrial Strategy (2020) *Digest of UK Energy Statistics*
[3] Ibid.
[4] National Grid (2020) *Future Energy Scenarios* (fes.nationalgrid.com). The Future Energy Scenarios modelling is published every year by National Grid, based on the latest technical assessment of the most plausible future pathways for the UK energy system. The chart shows the trajectory for fossil fuel power output in the four scenarios in the 2020 FES exercise.


Sectoral contribution to total UK GHG emission reduction 1990-2018
Power stations -40%
Industry -25%
Waste management -13%
All other sectors -22%


Electricity output from fossil fuel plants, National Grid 'Future Energy Scenarios', 2019-2030
TWh per year
120
100
80
60
40
20
0
2019
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
2030
Consumer Transformation
System Transformation
Leading the Way
Steady Progression

The exact trajectory for fully decarbonising the power sector is unclear, but what is clear is that the next decade is highly likely to see a major reduction in the remaining fossil fuelled power capacity. A substantial amount of fossil fuel plant has already been closed; since the end of 2010, around 21.6GW of coal and oil power plant capacity has been decommissioned in the UK.[5]

Coal & Oil Power Plant Closures in the UK since 2010					
Plant	**Owner**	**Fuel**	**Date of closure**	**Region**	**Capacity (MW)**
Kingsnorth A	E.On	Coal/Oil	2012	South East	1,940
Grain A	E.On	Oil	2012	South East	1,300
Cockenzie	Scottish Power	Coal	2013	Scotland	1,152
Tilbury B	RWE	Coal	2013	South East	750
Didcot A	RWE	Coal/Gas	2013	South East	1,958
Fawley	RWE	Oil	2013	South East	1,036
Uskmouth	SSE	Coal	2014	Wales	363
Ironbridge	E.On	Coal/Biomass	2015	West Midlands	1,000
Littlebrook D	RWE	Oil	2015	South East	1,370
Ferrybridge C	SSE	Coal	2016	Yorkshire & Humber	980
Longannet	Scottish Power	Coal	2016	Scotland	2,260
Rugeley	International Power	Coal	2016	West Midlands	448
Eggborough	Eggborough Power	Coal	2018	Yorkshire & Humber	1,960
Aberthaw B	RWE	Coal	2019	Wales	1,559
Cottam	EDF	Coal	2019	East Midlands	2,000
Fiddler's Ferry	SSE	Coal	2020	North West	1,510

Total capacity (MW)	21,586
Total estimated jobs supported	14,500
Total est. gross value added (GVA)	£3.9 billion

Prospect's own analysis suggests that collectively, these plants supported an estimated 14,500 direct and indirect jobs (i.e. directly in power stations as well as jobs in the supply chain) and contributed around £3.9 billion to UK GDP. In many cases these plants will have been a crucial source of local jobs in former industrial heartlands in Wales, Yorkshire, and the Midlands, as well as constituting a key pillar of the local economy and local tax base.[6]

[5] Dept. of Business, Energy & Industrial Strategy (2020) *Digest of UK Energy Statistics*. In addition to these figures, around 3GW of gas power plant capacity has been decommissioned since 2010. However, around 6GW was added to the electricity system over the same time period, so gas capacity has seen a net increase in the last decade.

[6] These figures are derived from Prospect's own analysis of the employment and economic impact of the coal and oil plants that have closed since 2010. See the methodology note at the end of this document for more details on how the figures were arrived at.

The four remaining coal power stations are set to close by 2025 at the latest, in line with government policy. The fate of the remaining gas plants is unclear, but by 2030 roughly 21GW of gas power capacity (around 67% of the total) will be more than 25 years old.[7] That would take them beyond the typical life-span of this type of power station, and substantial investment would likely be required to keep them running efficiently; the economic case for such investment would be highly questionable in a context where the sector is rapidly decarbonising.

At the same time, the decarbonisation of the power sector will require a big expansion of low carbon capacity to replace fossil fuel plants. Again, exactly what this will look like is unclear, in part because of the failure by successive governments to create a coherent policy and planning framework for net zero. But, Prospect has argued that renewables and nuclear need to be at the heart of a net zero energy system, with carbon capture and hydrogen also likely to play key roles.[8] This expansion of low carbon capacity, if supported by the right policy framework, will create tens of thousands of new jobs across the UK.

A key challenge we face is building an appropriate bridge between the jobs in fossil fuel plants that are disappearing and the new low carbon jobs that will be created: in other words, the challenge of ensuring a just transition.

[7] Dept. of Business, Energy & Industrial Strategy (2020) *Digest of UK Energy Statistics*
[8] Prospect (2020) *Green Recovery Plan for the UK Energy Sector*

The economic impact of remaining fossil power generation

If the forecasts for decarbonisation prove accurate, there will be a significant impact on jobs and on the local communities that are currently home to fossil fuelled power stations over the next decade. Prospect's own analysis suggests that these remaining power stations currently support more than 10,000 jobs across the UK. This includes workers directly employed in power stations, as well as contractors and workers in supply chain companies (indirect employment). In addition, thousands of additional jobs are supported through power station workers and those in the supply chain spending their wages in the local economy (this 'induced employment' is not included in the charts below).

At the same time, fossil fuel power plants contribute an estimated £2.8 billion to the UK economy. This includes both the direct impact of the power stations themselves, and the impact of spending in the supply chain. As with the employment impact, there is an additional substantial impact beyond this which results from power station and supply chain workers spending their wages (again, this proportion of 'induced' value added is not included in the charts below).

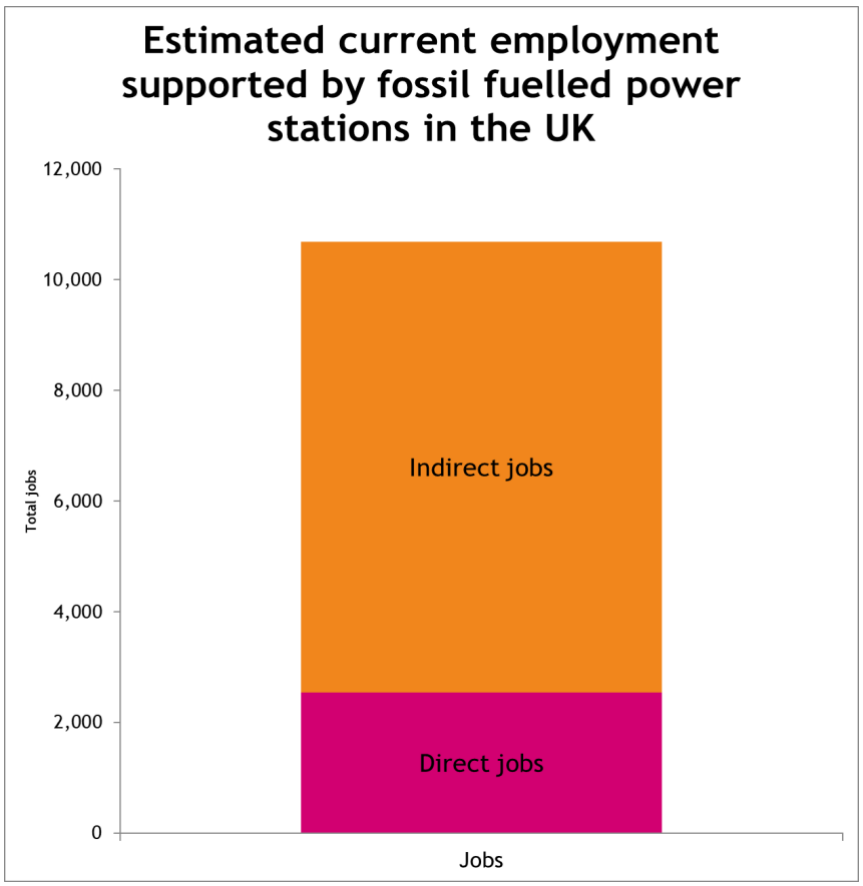
Much of this impact is concentrated in particular regions of the UK; around 45% of all fossil fuel generating capacity is located in either the East Midlands or Yorkshire and Humber regions.[9] Not all of the economic value created by these plants will be realised in their local areas, because supply chains are likely to be national and even international in scope. But a significant proportion of it will be, especially the value created by plant workers spending their wages, the impact of key local suppliers, and the importance of power plants to the local business tax base.

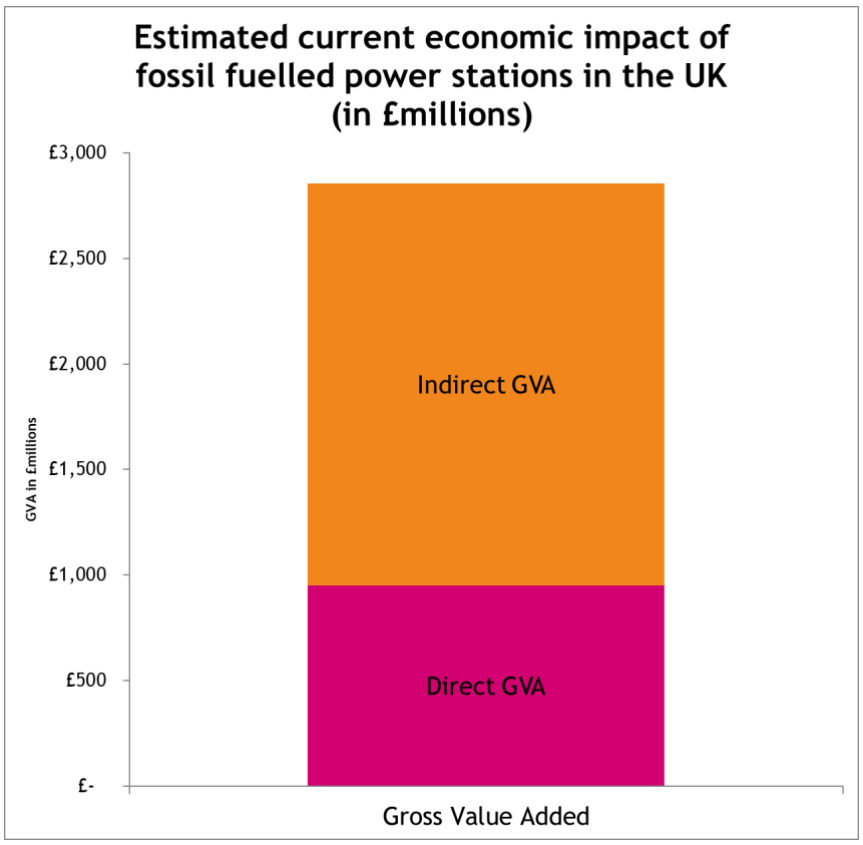
The table below provides a breakdown of the remaining coal and gas plant in the UK (as noted above, some of the employment and economic impact of these plants will be felt outside of the region in which they are located).[10]

Current Coal & Gas Power Plants in the UK (2020)

Region	Gas Plants	Coal Plants	Total Capacity (MW)	Estimated Total Jobs	Estimated Total GVA
East Midlands	6	2	9,661	3,847	£1,028,688,596
Yorkshire and Humber	8	1	6,677	2,012	£537,978,048
South East	7	0	5,895	1,238	£331,007,264
Wales	5	0	4,949	1,039	£277,888,880
Eastern	5	0	2,903	610	£163,004,934
Northern Ireland	2	1	1,588	592	£158,220,911
All other regions	15	0	5,918	1,243	£332,298,726
Total	**48**	**4**	**37,591**	**10,581**	**£2,829,087,358**

[9] These figures are derived from Prospect calculations of the current employment and economic impact of fossil fuelled power stations in the UK. See the methodology note at the end of this document for more details on how the figures were arrived at.
[10] Total jobs and GVA figures include direct and indirect impacts, but not induced impacts. In addition to the coal and gas plants listed, there are a number of small diesel and gas oil plants, which collectively comprise around 1.3GW of capacity. They have been excluded from this analysis.





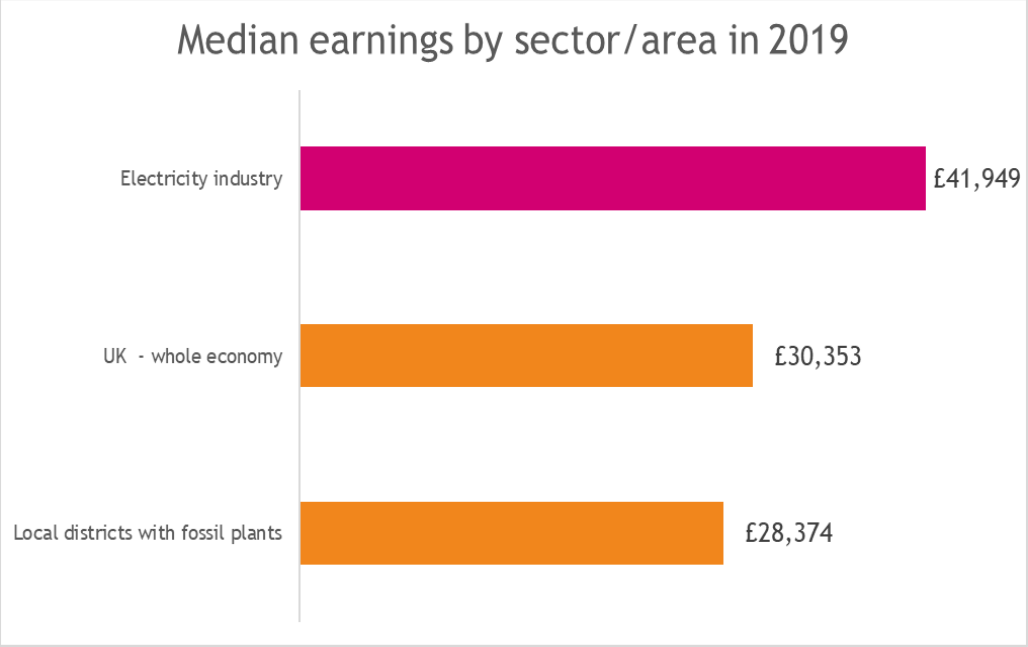
Fossil fuel power plants frequently play an outsized role in their local economies and many are located in marginalised local economies experiencing significant socioeconomic deprivation. For example, 56% of remaining fossil fuel capacity is located in areas with below average earnings, 58% in areas with above average levels of deprivation, and 62% in areas with below average

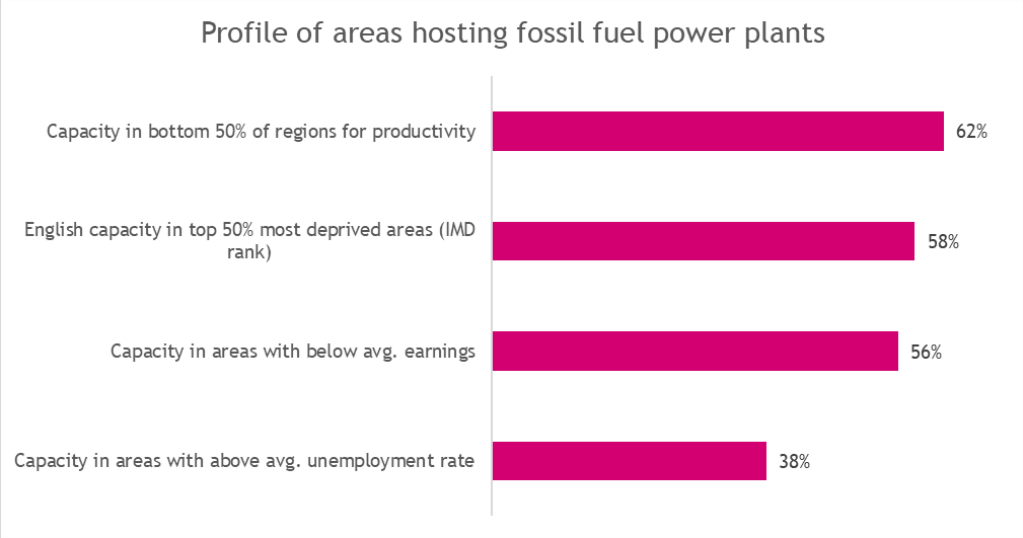
productivity levels. A significant proportion of capacity is also in areas with high unemployment and above-average levels of Universal Credit claimants.[11]

Fossil power plants are therefore likely to be important local sources of good, well-paid jobs and important drivers of local productivity. Median annual earnings in the electricity industry, which in 2019 were just under £42,000, are significantly above both the national average and local median earnings in the areas in which plants are located, and output per hour worked in the electricity industry is roughly three times higher than the national average.

Additionally, the clustering of multiple plants in the same area will amplify their economic and employment impact and increase the likelihood that local supply chains have developed to support them. Plants will also frequently be a major component of the local business tax base, and a crucial source of local public revenues.

The closure of these plants will therefore have a major impact on the local economy and on local employment, and a plan for mitigating this impact is essential.





[11] Data is drawn from Office for National Statistics figures for average earnings, productivity, and labour market indicators by local authority, as well as from the English Indices of Deprivation (2019) published by the Ministry of Housing, Communities, and Local Government.

Local economic role fossil plants play in communities

The following brief examples help to highlight the local economic role fossil plants play in their respective communities.

Bassetlaw

The area covered by Bassetlaw District Council in North Nottinghamshire is home to three major fossil fuel plants which together comprise around 3.8 GW of fossil fuelled capacity, or just over 10% of the UK total. These plants are West Burton A (owned by EDF, and one of the UK's four remaining coal power stations); West Burton B (a Combined Cycle Gas Turbine plant also owned by EDF) and the Cottam Development Centre (a CCGT plant owned by Uniper).

The local labour market is dominated by low wage, low skilled jobs and the median income in the district is 7.5% below the UK median. Bassetlaw is in the top 40% of English districts for socioeconomic deprivation, and in the top 25% of districts for employment and skills deprivation. The local fossil plants, where median earnings are 50% higher than the local average, are likely to be crucial source of higher paying, higher skilled jobs for local residents.

The plants also provide a key part of the local council's income; together they comprise an estimated 13% of the local business tax base.

Fossil Fuel Power Stations in Bassetlaw **(Note: only part of the employment/GVA impact will be felt in the immediate local area)**	
Fossil fuel plants	3
Capacity	3.8 GW (10.1% of UK total)
Estimated direct & indirect jobs supported	1,350
Est. direct & indirect GVA impact	£364 million
Est. share of local business tax base	13% (£6.2 million)
Median income in Bassetlaw (2019)	£28,065 (7.5% below UK median)
Median annual earnings in electricity industry (2019)	£41,949 (49% higher than local median income)
Bassetlaw ranking in English Index of Multiple Deprivation (out of 317; higher rank = more deprived)	106 (top 40% most deprived districts)

Pembrokeshire

Pembroke combined cycle gas turbine (CCGT) power station, which opened in 2012 and is owned by RWE, makes a major contribution to the local economy. The plant constitutes an estimated 16% of Pembrokeshire County Council's entire local business tax base and is an important source of high wage employment in a region characterised by low wage jobs in sectors like tourism and hospitality. Median earnings in Pembrokeshire in 2019 were only £24,134, 20% below the UK median and 42% below the median for the electricity industry.

Analysis commissioned by RWE suggests that around a fifth of the station's annual supply chain spend went to local companies, and the total average annual impact on the Welsh economy of the plant is estimated at around £20 million.[12]

Fossil Fuel Power Stations in Pembrokeshire **(Note: only part of the employment/GVA impact will be felt in the immediate local area)**	
Fossil fuel plants	1
Capacity	2.2 GW (5.8% of UK total)
Estimated direct & indirect jobs supported	462 (RWE estimate 227 in Wales)
Est. direct & indirect GVA impact	£123 million (RWE estimate £20 million in Wales)
Est. share of local business tax base	16% (£8.6 million)
Median income in Pembrokeshire (2019)	£24,134 (20% below UK median)
Median annual earnings in electricity industry (2019)	£41,949 (74% higher than local median income)

[12] RWE Generation UK (2015) *The economic impact of the Pembroke Power Station*

Ensuring a just transition for the power sector

As noted above, thousands of jobs have already been impacted by the closure of fossil fuel plants in the last decade, and thousands more are at risk over the next decade as decarbonisation efforts intensify. A just transition plan for the power sector is therefore essential to ensure these workers and their communities are treated fairly as the UK decarbonises. There is a pragmatic case for just transition too; workers in fossil fuel power stations have valuable engineering and craft skills that will be in high demand, especially given the ongoing skills shortages in the power sector.[13] Ensuring that the skills and experience of these workers is not lost is critical.

In addition, the local communities that currently house fossil fuel power stations face significant economic disruption when these stations close. Collectively these stations support billions of pounds of economic activity, and are important sources of local jobs, local spending, and local tax revenue. The changing geography of power production means that new low carbon power capacity will often have to be located in very different areas of the country (e.g. in coastal communities in the case of offshore wind). We cannot afford to repeat the mistakes of the past and leave local communities to face this economic disruption and dislocation without support.

For these reasons, we need a coherent and credible just transition framework for the UK power sector. Many other sectors of the economy, including other parts of the broader energy sector, will also face disruptive change as a result of the drive to net zero and the power sector, which is one of the first to be significantly impacted, offers us the opportunity to develop a blueprint of practical measures to make the transition fair for workers and their communities.

With this in mind, Prospect is proposing five key components for a just transition scheme for the power sector.

- **A Net Zero Plan for the Power Sector**: We urgently need much greater clarity around the pathway for decarbonisation in the power sector. This sector has already made a major contribution to reducing carbon emissions, but if binding emissions targets are to be met power sector decarbonisation will need to accelerate further during the 2020s. In order to plan for the impact of disruptive change on employment and local economies, the government needs to set out a clear timeline for deploying new low carbon capacity, such as renewables and new nuclear, and for decommissioning existing fossil fuel capacity.
- **A Just Transition Council for the Power Sector**: workers and their communities need to be given a strong voice in planning and coordinating a just transition for the power sector. The government should seek to establish, as a matter of urgency, a power sector just transition council that would include representatives from unions, employers, central government, and from local communities. Such a body would provide advice and oversight to the just transition process.
- **A new employment and training portal to support transition**: similar to talent retention measures introduced in other sectors, the government should work with employers, unions, and sector skills bodies like the National Skills Academy for Power, to help establish a sector jobs and training portal that would facilitate the retention and redeployment of skilled workers within the power sector. Such a portal would help workers easily identify and apply for relevant job opportunities (for example in renewables) and help them access training and reskilling opportunities where necessary.
- **A training and relocation fund for workers**: the government should establish a system of financial support for power sector workers whose jobs are displaced by decarbonisation, including access to grants for retraining and to help cover workers' relocation costs where appropriate. The Transition Training Fund, established by the Scottish Government to support workers in the oil and gas sector to transition to new jobs, could be a one model to look at, though the limitations of the TTF would need to be

[13] Energy & Utility Skills (2020) *Workforce Renewal and Skills Strategy 2020 – 2025: Response and Refresh*

addressed.[14] Based on the costs of the TTF, funding in the region of £10-15 million would potentially be needed for a similar power sector scheme.

- **A support fund for local communities**: the closure of fossil fuel power stations will have a significant impact on their host communities, and the government should establish a support fund that impacted local authorities can bid into to fund projects and economic initiatives aimed at mitigating the impact of plant closures. There will likely be opportunities to use such funding to support net zero projects, for example in areas like energy efficiency retrofitting, electric vehicle charging infrastructure, or supporting sustainable land management practices. Based on the impact of lost direct wage spending and lost business tax income, a funding pot of around £100 million could be appropriate.

[14] Skills Development Scotland, Transition Training Fund (www. transitiontrainingfund.co.uk)

Conclusion

Ensuring a just transition for power sector workers, and for those in other sectors of the economy that will be impacted by decarbonisation, must be a central policy goal as we tackle the climate emergency. The lessons of previous industrial transitions in the UK need to be learned – too often workers and their communities have been left behind to face disruptive change on their own, and the UK's former coalfields and industrial heartlands are still suffering the negative effects of rapid deindustrialisation.

Yet, with the right policy interventions we can create a supportive bridge between carbon-intensive activity that will be displaced during the journey to net zero, and the new opportunities that a greener economy will bring. There is a real opportunity to create a new blueprint for industrial change in the UK and ensure that the principles of just transition are at the heart of planning for net zero.

Methodology note

The figures for direct and indirect employment and Gross Value Added (GVA) supported by fossil fuel power plants have been derived partly from data published by the Office for National Statistics, and partly from Prospect analysis.

Estimates of direct jobs supported and direct GVA generated per job were derived from Prospect analysis of the published financial accounts of a sample of existing and recently closed fossil plants. Plant-level direct GVA was calculated as earnings before interest, taxes, depreciation, and amortisation (EBITDA) plus wage spending. Employment and GVA multipliers for the electricity industry published by ONS were then used to estimate indirect jobs and GVA.

Economic impact of fossil power plants – estimates and multipliers	
Direct jobs per MW installed (gas)	0.05
Direct jobs per MW installed (coal)	0.15
Direct GVA per job (fossil generation)	£372,969
ONS Type I FTE multiplier for electricity industry	4.2
ONS Type I GVA multiplier for electricity industry	3.01