



Fair Transition Unit

SKILLS MATTER

**SHAPING A JUST TRANSITION FOR
WORKERS IN THE ENERGY SECTOR**

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and Teresa Farinha**

May 2024

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IPPR's **Fair Transition Unit (FTU)** was established in June 2022 as a new landmark initiative to carry forward the work of IPPR's cross-party Environmental Justice Commission and award-winning work on environmental breakdown.

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The Environmental Justice Commission drew on views and recommendations from citizens from across the country in a way that has genuinely shaped policy thinking and had tangible policy and media impact. Building on this legacy, the FTU puts the public at the heart of its work through extensive public deliberation.

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SUMMARY

The transition to a net zero economy is both a necessity and an opportunity for the UK. The significant reduction in gas demand required to meet our legally binding net zero targets can, for example, help improve our energy security by reducing gas imports, lower our energy bills, and create new jobs. However, this shift will also bring about profound changes to our energy system and our daily lives, as well as challenges for workers.

TWO KEY ARGUMENTS

- 1. The transition is too slow**, which inter alia risks limiting career options for gas sector workers. In addition, slow progress risks creating stranded assets and a cliff-edge scenario for oil and gas sector workers where either net zero targets are missed or, in order to meet them, the transition is much more sudden and disruptive.
- 2. The policy support currently in place to deliver a fair transition for workers in gas sectors is insufficient.** First, the existing commitments to deliver a fair transition are either inadequate or omit key sectors. Second, the lack of involvement of trade unions risks eroding the quality of jobs available to workers affected by the transition. Finally, the current system of training provision, skills support and careers advice is not well equipped to support this kind of workforce transition.

It is the challenges workers face in the transition away from gas to which we turn our focus in this report. We undertake a detailed analysis of the transferability of skills and future career options for approximately 115,000 workers spanning a range of gas sectors including oil and gas production, gas power stations, gas networks, and boilermakers.

We argue that delivering a fair and well managed transition must include developing an understanding of future career options for these workers well in advance of those industries decarbonising, as well as a strategy for supporting them in the transition. Having a plan to reduce gas demand in our energy system, without a plan to support workers, is likely to repeat the mistakes of the past, and doomed for failure.

The reduction in gas consumption will have a significant impact on workforces across the gas supply chain as oil and gas production decreases, gas power stations are phased out or converted, and the gas grid shrinks in size. We assess the degree of training and support required for workers that need to shift or change jobs by measuring similarities between occupations, measured by the number of work tasks shared between them. We build a network of occupations based on those similarities and calculate the number of steps between each pair of occupations. The fewer the steps between two jobs, the more tasks they have in common.

THREE KEY FINDINGS

1. **What does 'normal' job movement look like?** For just over 40 per cent of people changing job in 2021, their new jobs shared on average just over 50 per cent of the work tasks with their previous job.
2. **From gas work to green work:** Relatively few workers in gas sectors could move into green jobs (defined as jobs in low-carbon industries) with only modest retraining. Only around 5 per cent of workers in gas sectors could move to a green occupation that shares on average 40 per cent or more work tasks with their current role. If gas sector workers were *only* moving into green occupations, many would likely need to receive significant retraining support.
3. **From gas work to green and blue work:** Far more workers in gas sectors could retrain quickly when looking at both climate compatible (blue)¹ and green occupations as potential career options. 93 per cent of the occupations in gas sectors on average share more than 50 per cent of their work tasks with green or blue occupations. However, green or blue occupations may not always be located in the same place where workers live.

THREE KEY RECOMMENDATIONS

To deliver a genuinely fair transition that supports gas sector workers into new careers we recommend that the government should **deliver**:

1. **A green industrial strategy:** Set out a comprehensive green industrial strategy that, inter alia, ends licensing of new oil and gas fields, clarifies the role of gas capacity in the future energy mix, introduces strict capture rate standards for CCS, and sets out a plan for decommissioning gas grid including heat zones that set out the future shape of the gas grid and the few locations where hydrogen may be appropriate for home heating.
2. **A fair transition approach involving workers and their unions:** Set up Fair Transition Bodies comprised of national and local government representatives, industry representatives, trade unions, representatives of non-union workers and local community stakeholders. These bodies should commit to delivering a workforce plan that negotiates with stakeholders over a range of fair transition commitments such as a funded right to retrain, a right to interview and travel assistance if new jobs are located far away. Guarantee trade unions a right to access all current and future green industries to make the case for membership to employees as well as requiring industries to commit to high-quality job standards that include criteria such as decent pay, safe working conditions and clear opportunities for career progression.
3. **A reformed skills system:** Reform and expand the current skills system by introducing an annual £1.1 billion Green Training Fund to provide free training to workers in gas sectors (and other industries that are decarbonising) that may need to change occupation. This fund should be complemented by introducing a high-quality Public Employment Service which would see the capacity and role of JobCentre Plus expanded and reformed to provide tailored advice and support to all workers, at any point in their working lives.

1 We define climate compatible or 'blue' jobs as those that are not part of a green sector but will still be needed in a net zero economy.

1. THE IMPORTANCE OF THE TRANSITION TO THE UK ECONOMY

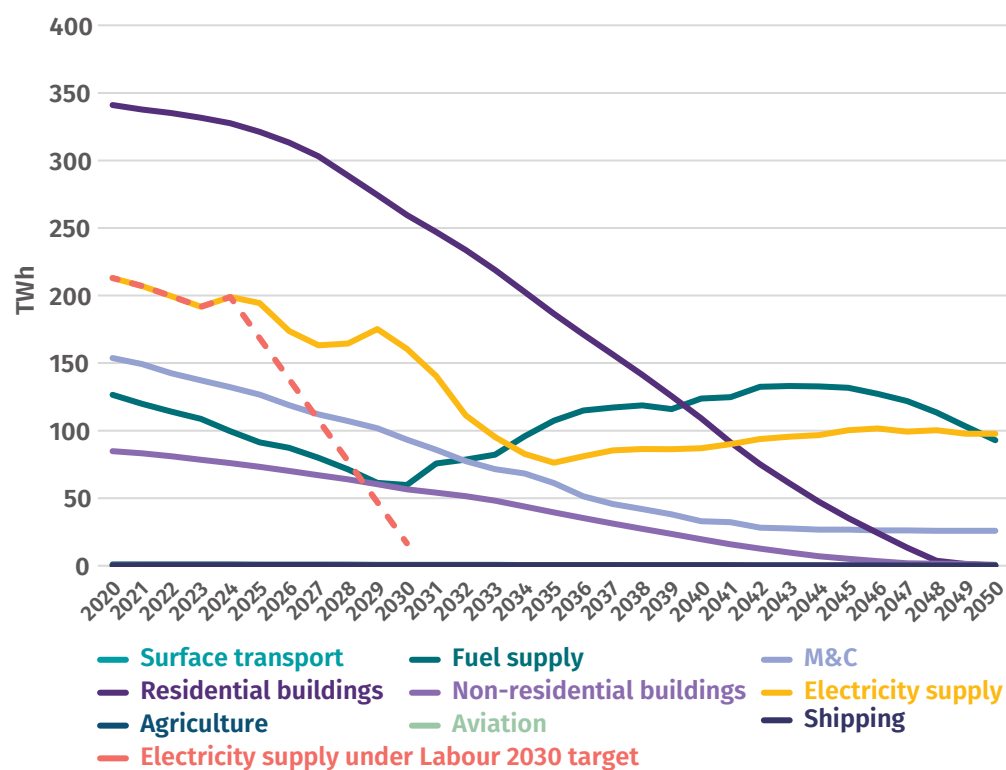
The transition to a net zero economy is a huge opportunity for the UK but will also bring about profound changes to our energy system. In this chapter, we set out the scale of change set out primarily by the Climate Change Committee's sixth carbon budget before highlighting some of the opportunities of transitioning away from gas and towards a net zero economy from increasing energy security and lower energy bills.

HOW THE UK'S CONSUMPTION OF GAS WILL NEED TO CHANGE IN FUTURE

To meet our net zero targets, the CCC has suggested the UK will need to reduce the amount of gas it uses to heat and power our homes, businesses, and the economy by just over 75 per cent by 2050² (CCC 2021) (figure 1.1).

FIGURE 1.1: UK GAS CONSUMPTION WILL REDUCE SUBSTANTIALLY TO MEET NET ZERO TARGETS PARTICULARLY IN HOMES AND ELECTRICITY SUPPLY

UK gas consumption by sector based on CCC net zero balanced pathway



Sources: CCC 2021 and MacDonald and Lytton 2021, adapted by IPPR

2 From 2020 levels of consumption.

At a sectoral level this will involve the following.

- Domestic oil and gas production decreasing by 80 per cent and 94 per cent respectively between 2024 and 2050 (NSTA 2024) – this represents a minimum ambition with many groups and academics calling for a complete phase-out. In addition, production emissions from oil and gas extraction will need to fall by at least 68 per cent (CCC 2022).
- Unabated gas generation decreasing from around 32 per cent of power generated in 2023 to at most two per cent by 2035 (National Grid ESO 2023; CCC 2023). If the Labour party formed the next government and enacted their commitment to decarbonise the power sector by 2030, power generated from gas would decrease to less than one per cent of total electricity by 2030 (MacDonald and Lytton 2021).
- Gas demand for home heating decreasing by around 45 per cent by 2035 and to virtually nothing by 2050.
- Gas networks seeing widespread decommissioning though the exact scale and location will depend on the kinds of technologies which industrial clusters will use to decarbonise their process emissions and the few zones where hydrogen for home heating may be appropriate (NIC 2023).

THE BENEFITS OF A TRANSITION AWAY FROM GAS TOWARDS A NET ZERO ECONOMY

Providing a liveable climate for future generations is the prime motivation for moving away from gas, but there are other opportunities and benefits.

Improving energy security by reducing gas imports

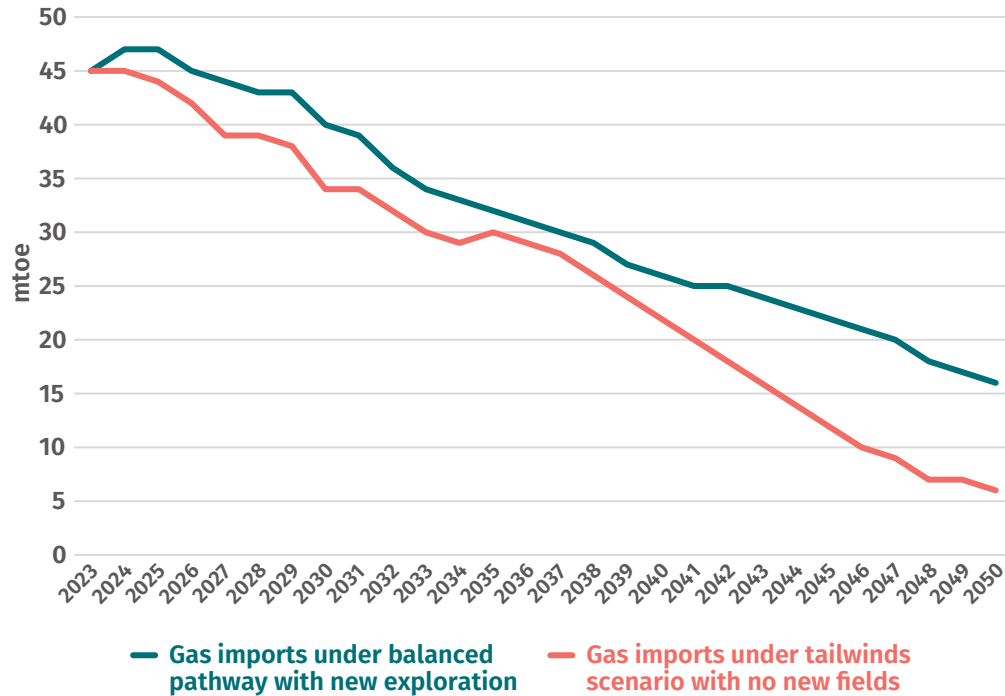
The UK imported approximately 50 per cent of the gas it consumed in 2022 (ONS 2022). With 85 per cent of the UK's homes using gas boilers, when Russia invaded Ukraine and international gas prices soared, average household bills shot up by nearly £1,000 at their peak in October 2022³ compared to pre-invasion prices (Bolton and Stewart 2024). As of 2023, it is estimated that the number of households in fuel poverty has doubled since October 2021, to as many as nine million homes, just under a third of the country (Hinson et al 2024). Transitioning away from gas boilers is therefore essential to reduce the UK's exposure to international gas prices. Importantly too, as previous IPPR analysis shows, ambitious decarbonisation⁴ will have a bigger impact on reducing gas imports than any proposed increase in UK-based oil and gas extraction (figure 1.2).

3 Even with the Energy Price Guarantee and £400 from the Energy Bill Support Scheme.

4 Our analysis for a 'more ambitious scenario' broadly follows the CCC's Tailwind scenario in its sixth carbon budget.

FIGURE 1.2: MORE AMBITIOUS DEPLOYMENT OF RENEWABLES WITH NO NEW FIELDS IS MORE EFFECTIVE AT REDUCING GAS IMPORTS THAN DEVELOPING NEW FIELDS

Comparison of gas imports under two scenarios based on CCC net zero scenarios



Source: NSTA 2023, adapted by IPPR

Lower energy bills

Transitioning away from gas towards electrified heating is also an opportunity to permanently lower energy bills, even with gas prices now falling (Bolton and Stewart 2024). IPPR analysis shows that heat pumps with a Seasonal Coefficient of Performance (SCOP)⁵ of 3.3 would break even with running a gas boiler under the April 2024 price cap (Ofgem 2024). However, both the efficiency of heat pumps and the industry’s understanding of good quality installation is improving, with some of the best installers achieving average SCOPs for heat pumps as high as 4.48 irrespective of property age (Heat Geek 2023). At this SCOP, our analysis suggests heat pumps would be £188 cheaper to run than gas boilers.⁶ Furthermore, as electricity prices decrease in line with increasing cheap renewable generation being deployed, heat pump running costs will fall further, increasing bill savings.

Developing competitive advantages for businesses

With the introduction of the Inflation Reduction Act in USA and the NZIA in the EU there is a serious risk that businesses no longer see the UK as an attractive market for investment in low-carbon technologies (Emden et al 2023). On the other hand, recent IPPR analysis shows that with a clear industrial strategy supported by substantive and targeted policy, the UK has the opportunity to develop comparative advantages in the manufacturing of wind turbine components, heat pumps and green transport (Narayanan et al 2024).

5 The ratio of how much useful thermal energy is generated from each unit of electricity, eg a SCOP of 3 would mean three units of heat for every unit of electricity.

6 IPPR analysis of modelling originally developed by Carbon Brief (Evans 2022).

Creating jobs

IPPR has previously estimated that approximately 1.6 million jobs could be created in the low-carbon economy over the current decade (Jung and Murphy 2020), of which 134,000 could be created in Scotland. In addition, previous IPPR analysis shows that green jobs could command both comparable salaries to similar roles in gas sectors (Emden et al 2020) and higher salaries in regions where renewable industries could be set to grow, such as wind manufacturing in port towns (Gasperin et al 2024).

THE IMPORTANCE OF UNDERSTANDING JOB TRANSFERABILITY

While the green transition will create jobs, the impact on existing workers, particularly those in gas sectors, is less certain. Having a more detailed understanding of the impact of the green transition on existing workers and the career options available to them in future is essential to ensuring a fair transition.

IPPR's cross-party Environmental Justice Commission warned in 2021 that if the transition to a net zero economy is not delivered, or seen to be delivered, fairly, there will be substantial public and political resistance that could derail progress. Setting out the potential impacts and future career options for workers is a critical component to planning out the kind of support government will need to deliver and the agreements it will need to make with workers and unions to ensure the transition is managed fairly.

In this report, we undertake a detailed analysis of the transferability of skills and future career options for approximately 115,000 workers spanning a range of gas sectors including oil and gas production, gas power stations, gas networks and boilermakers. We then detail the barriers holding back the UK from supporting workers in gas sectors to upskill or change careers and conclude with a series of policy recommendations to address these bottlenecks.

2. UNDERSTANDING FUTURE CAREER OPTIONS FOR GAS SECTOR WORKERS

The reduction in gas consumption set out in chapter 1 will have a significant impact on workforces across the gas supply chain as oil and gas production decreases, gas power stations are phased out or converted, and the gas grid shrinks in size as heating is electrified.

In chapter 4, we discuss how the government's current plans to support workers have been piecemeal at best. However, one of the main barriers to tailoring support for workers is a lack of understanding of the career options for those workers who may need to change jobs and the specific skills support they require.

While industry organisations like OPITO are undertaking detailed analysis of existing skills and future skills needs in green sector for the upstream oil and gas industry as part of the North Sea Transition Deal (OPITO 2024), this kind of mapping exercise is absent from other parts of the gas supply chain. Even for the North Sea Transition Deal, the skills analysis is limited to understanding transferability to future green jobs, rather than providing a range of career options for oil and gas workers that are compatible with a net zero economy, even if they are not explicitly part of a low-carbon industry.

This is the knowledge gap we seek to fill in this chapter, by exploring the range of future career options for workers in gas sectors. Crucially, our analysis does not suggest that every worker in gas sectors will necessarily be at risk, but instead examines future career options if they did have to, or chose to, change jobs.

METHODOLOGICAL APPROACH TO UNDERSTAND CAREER OPTIONS FOR GAS SECTOR WORKERS

To understand the future career options for approximately 115,000 gas sector workers in the UK, our analysis identifies those occupations which perform the most similar roles to gas sector workers. To do this, we use the methodology in Farinha et al (2019) to compute and analyse similarities between occupations. This involved first undertaking an analysis of all the work tasks associated with all major occupation categories listed in the USA (since there is no such data available for the UK). Secondly, we examined the similarities between all possible pairs of occupations. And finally, we used crosswalk data, from USA to UK occupations, to identify similarities between UK occupations.

The result is a large network of occupations (figure 2.1) where the number of steps between occupations shows how closely related they are (ie how many tasks they have in common with each other). We also categorise these occupations according to whether they are found in the gas supply chain (brown), are part of a low-carbon sector (green), compatible with a net zero economy (blue), or other occupations currently incompatible with a net zero economy (grey).

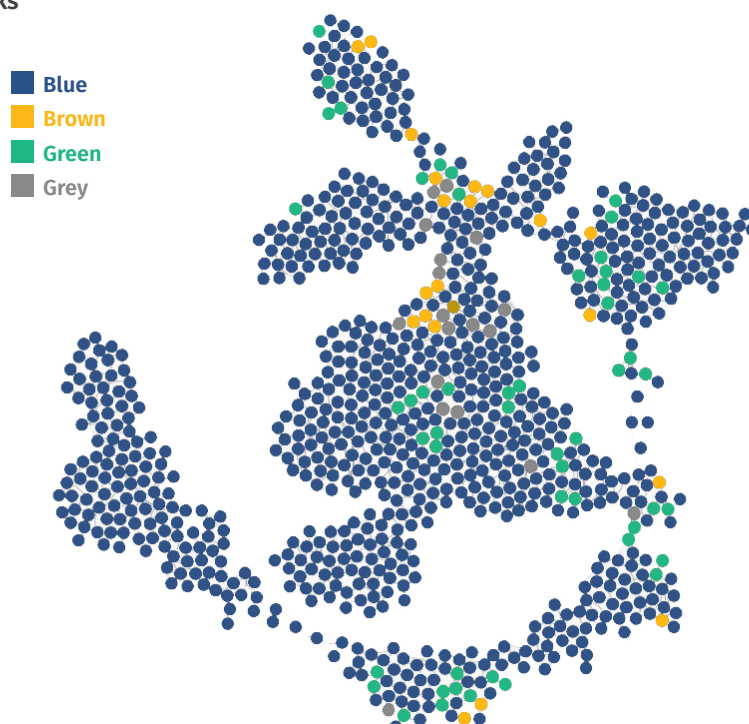
How we define green, blue, grey and brown jobs

We define these categories in the following way⁷:

- **Green jobs:** defined as occupations that require either skills specific to a low-carbon sector or more transferable skills that are in high-demand in green industries. Importantly, some high-carbon occupations may already be considered green occupations because their skills are essential to the equivalent low-carbon technologies in question. The classic example is heating installers, whose skills are in demand from companies wishing to sell heat pumps and they would need relatively minimal retraining to undertake these installations.
- **Blue jobs:** ‘climate compatible’ jobs which are not specific to green industries, but will nevertheless be needed in a future low-carbon economy. Examples here could include occupations like accountants, IT technicians and civil engineers.
- **Brown jobs:** occupations that fall into one of four areas of the gas supply chain: oil and gas extraction, gas power stations, gas networks and boiler manufacturing and operation.
- **Grey jobs:** occupations that do not feature in any of the four areas of the gas supply chain but are nevertheless incompatible with a future low-carbon economy, or will need to undergo substantial structural change in order to meet net zero targets. Examples could include coal mining, animal agriculture and biofuels.⁸

FIGURE 2.1: LOOKING AT THE GREEN AND BLUE OCCUPATIONS THAT ARE MOST SIMILAR TO GAS SECTOR OCCUPATIONS PRODUCES A LARGE NETWORK WHERE PROXIMITY INDICATES GREATER RELATEDNESS

Network of occupations organised by job type (green, blue, grey, brown) and relatedness of work tasks



Source: IPPR and contributing authors' own analysis

7 The full list of the 350 UK occupations reviewed and categorisation is available at: www.ippr.org/articles/skills-matter.

8 These occupations are largely omitted from our analysis as our focus is on gas supply chain jobs and we do not propose workers undertake retraining into occupations incompatible with a future net zero economy. For the purposes of this analysis we do not consider bioenergy based jobs to be 'green' due to concerns over the sustainability of feedstocks in the supply chain (NAO 2024a)

What do we mean by 'steps'?

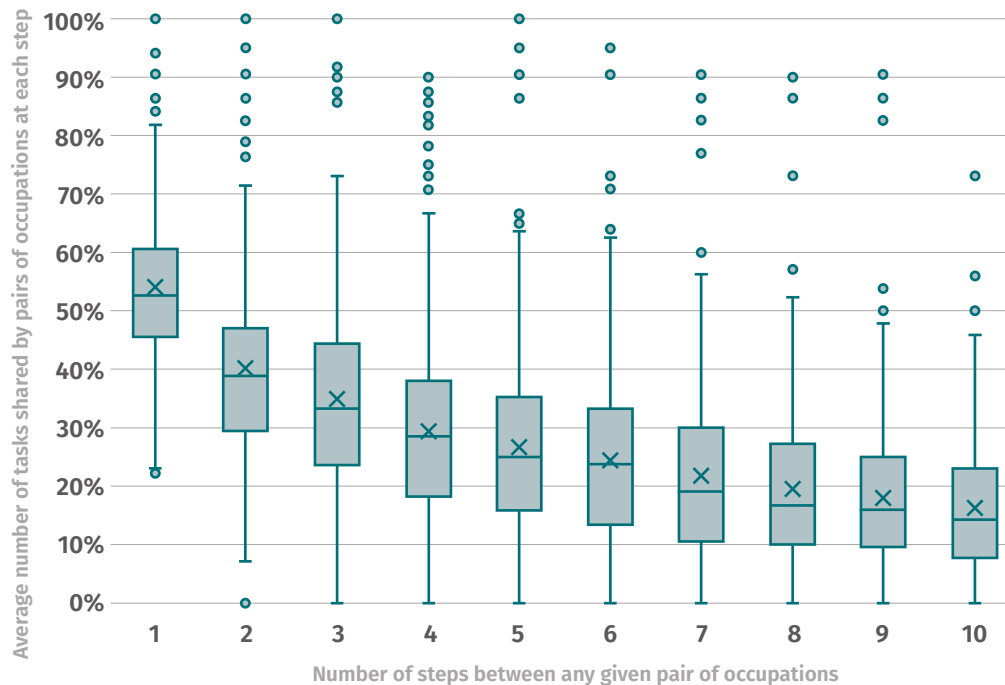
The number of 'steps' is the number of links between any two jobs in the network. It represents the reskilling effort required for a worker to change between any two occupations in the network. In general, the fewer the steps between two jobs, the more skills and competencies they have in common.⁹

This can be demonstrated quantitatively in figure 2.2 below, which sets out the average percentage of work tasks that are shared between a sample of 5,000 pairs of occupations. For example, a given pair of occupations that are one step away from each other will share on average around 54 per cent of work tasks, compared to approximately 30 per cent of tasks and skills shared on average for occupations that are four steps away from each other.

An important caveat is that the usefulness of these averages decreases beyond three steps both because results are far more widely distributed, and there are a higher number of pairs of occupations that have almost no similar tasks shared between them. This means that, from a policy perspective, our analysis provides a useful overview of how closely related occupations in gas sectors are to green or blue occupations, but when looking at a specific occupation or set of occupations, it is more reliable to refer directly to the network underpinning this analysis.

FIGURE 2.2: OCCUPATIONS THAT HAVE FEWER STEPS BETWEEN THEM TEND TO HAVE A HIGHER PROPORTION OF SHARED TASKS

Average percentage of tasks shared between any given pair of occupations at each step (where dots represents outliers)



Source: IPPR and contributing authors' own analysis

⁹ Information on the relatedness of specific pairs of occupations is available at: www.ippr.org/articles/skills-matter.

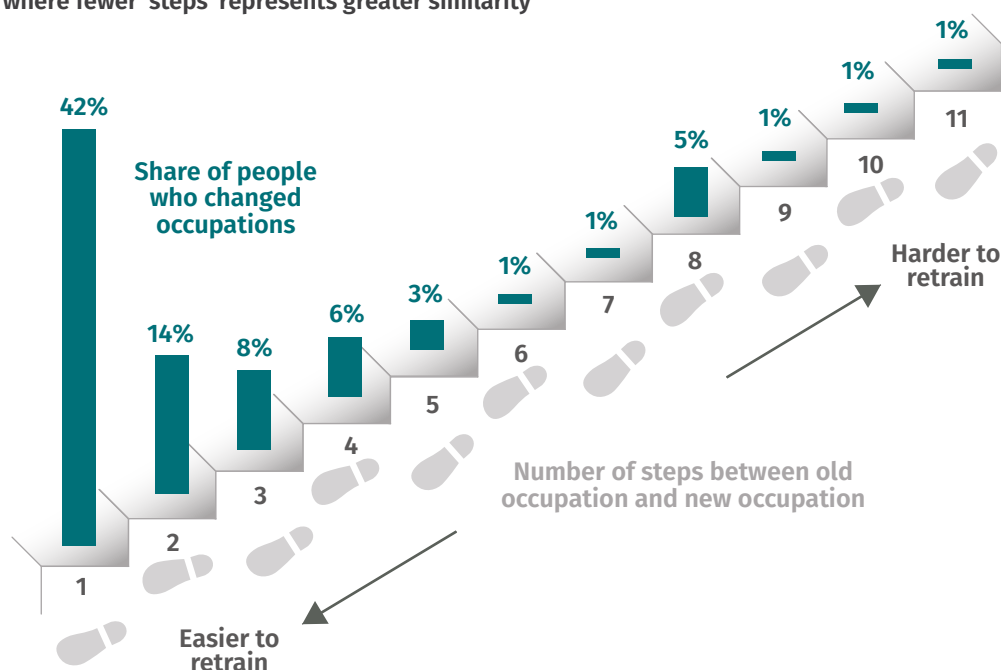
What does 'normal' job movement look like?

When looking at the extent of the similarity between gas sector occupations and blue-or-green occupations, we also establish a baseline of the number of steps involved in changing jobs as part of everyday economic activity (figure 2.3). This baseline is critical because if the transition from brown to green or blue occupations requires moving a greater number of steps between jobs than normal job changing behaviour, this suggests more significant training support will be required and vice versa.

Our baseline shows that in 2021, approximately 2 per cent of the working population, or approximately 600,000 workers, found a new job each quarter. Just over half, or 390,000 workers, moved to new occupations. When they did so, as figure 2.3 shows below, their new roles were often very similar to their previous ones. For just over 40 per cent of people changing job, their new job was only one step away from their previous job.

FIGURE 2.3: WHEN INDIVIDUALS CHANGE OCCUPATIONS MOST MOVE INTO ROLES THAT ARE VERY SIMILAR TO THEIR PREVIOUS WORK

Histogram showing how related new occupations are to roles people previously worked in where fewer 'steps' represents greater similarity



Source: IPPR and contributing authors' own analysis

This provides an important baseline when trying to understand the training needs and level of disruption required to decarbonise.

KEY FINDINGS FROM OUR ANALYSIS

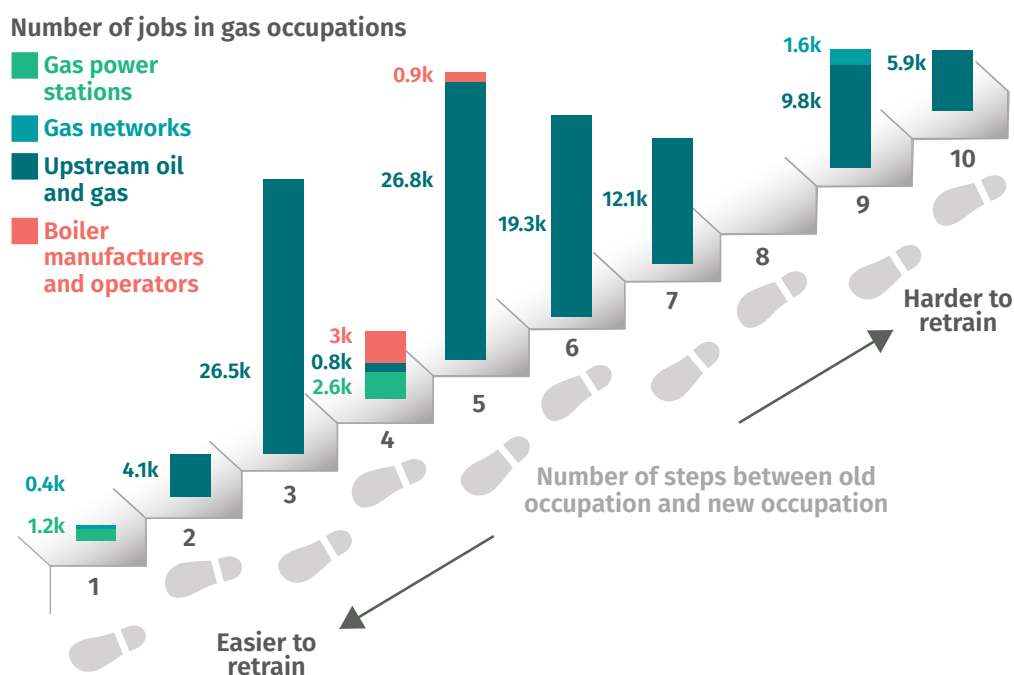
Here we set out our key results including looking at occupations categorised by where they sit in the gas supply chain (ie upstream oil and gas, gas power stations, gas networks and boilermakers), and how many workers currently work in each role as of 2021. Importantly, while we set out general trends below, as we mention above, the network developed for this analysis can be used as a resource to understand the most closely related green or blue occupations for individual gas sector occupations.

Future career options for workers in gas sectors: brown to green

If gas sector workers were only moving into green occupations, our analysis suggests that many would likely need to receive significant retraining support. In figure 2.4 below, we show how only around 5 per cent of workers in gas sectors could move to a green occupation that is two or fewer steps away from their current role.

FIGURE 2.4: RELATIVELY FEW WORKERS IN GAS SECTORS COULD MOVE INTO GREEN JOBS WITH ONLY MODEST RETRAINING

Histogram showing how related the closest green occupations are to roles gas workers previously worked in where fewer 'steps' represents greater similarity



Source: IPPR and contributing authors' own analysis

Comparing our baseline figure 2.3 above with figure 2.4 we can also see that, for most gas workers, the most similar green occupations to their current roles are more than one step away and would therefore likely require more retraining than people normally undergo when they change jobs. We can also see that there is a wide range when looking at the transferability of occupations in oil and gas compared to relatively simpler retraining needs that may exist for workers in gas power stations.

However, importantly, just because the nearest green occupation may be several steps away from a given gas occupation, they may still prove to be viable career options in certain cases. This is largely because many green sectors are likely to grow in future, with average job vacancies in green industries from 2012-2021 over 17 times higher than high-carbon jobs in 2021 (Sato et al 2023). Furthermore, many low-carbon businesses are already reporting skills shortages and demand for future skills (ibid). Consequently, even if only a small proportion of skills are shared between gas sector occupations and prospective green ones, it may be easier for these businesses to build on existing skills than start from scratch.

Ultimately, some industries like construction will have enough vacancies to take on both existing workers and new labour market entrants (Oswald et al 2021) and further research is needed to project the growth in skills shortages across the full range of green industries. Nevertheless, this analysis could be used as the basis for

negotiations over workforce planning between government, unions and workers themselves to decide how many may want or need to move into green industries and the resulting training support that would be required.

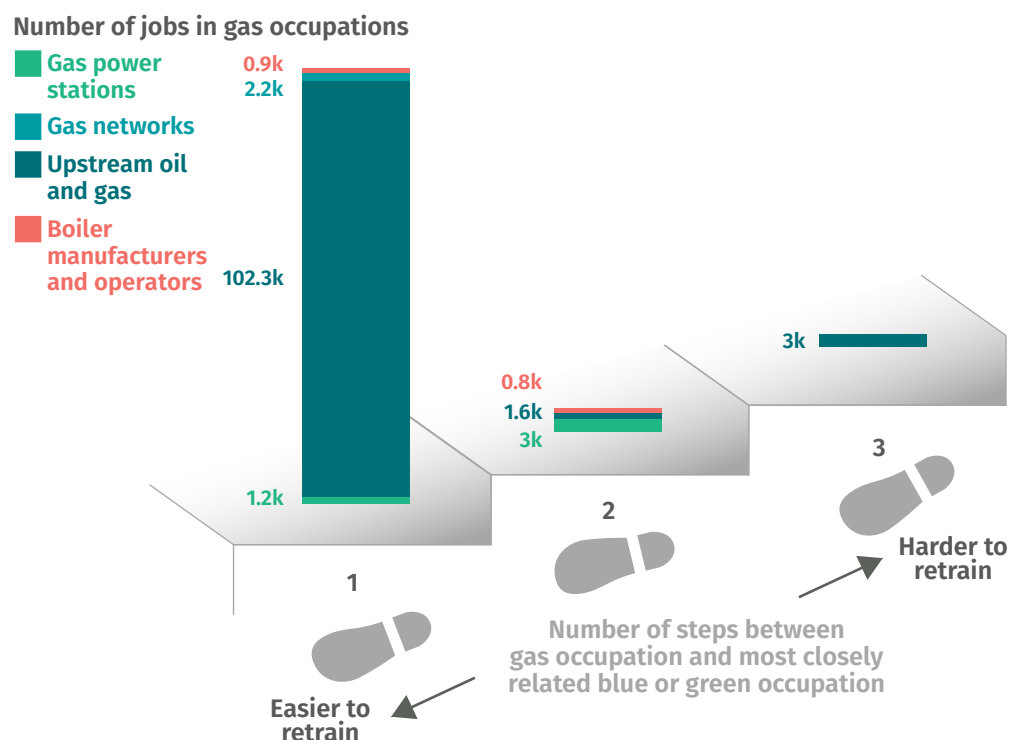
Future career options for workers in gas sectors: brown to blue and green

While only a small proportion of jobs in gas sectors are easily transferable to green jobs, many more workers in gas sectors will still be able to move into jobs that are ‘climate compatible’ (‘blue jobs’). In figure 2.5 below, our analysis shows that when taking both green *and* blue jobs into account, 93 per cent of the occupations in gas sectors are only one step away from a blue or green occupation.

In this sense, the transition away from gas sectors much more closely matches more ‘normal’ job changing patterns shown in our baseline figure 2.3 above. If anything, the skills shared between gas sector workers and climate compatible occupations tend to be *more similar* to each other than the skills being carried into new occupations as part of normal job-changing activity.

FIGURE 2.5: FAR MORE WORKERS IN GAS SECTORS COULD RETRAIN QUICKLY WHEN LOOKING AT BOTH BLUE AND GREEN OCCUPATIONS AS POTENTIAL CAREER OPTIONS

Histogram showing how related the closest blue or green occupations are to roles gas workers previously worked in where fewer ‘steps’ represents greater similarity



Source: IPPR and contributing authors' own analysis

Looking again into the different parts of the gas supply chain reveals how, compared to the most closely related green jobs alone (figure 2.4), climate compatible (blue) occupations are much more closely related to all gas occupations, particularly for workers in oil and gas.

These findings should be relatively encouraging to policymakers, industry and unions. While decarbonisation may increase the overall number of workers changing jobs, our analysis suggests there are a wide range of climate compatible occupations into which workers in gas sectors could move relatively quickly.

At the same time, this is not a cause for complacency. Just because the retraining requirements may be relatively modest, as IPPR has previously argued, support will still need to be provided, both in terms of financial support for retraining itself and clear communication and co-development of transition plans with unions and workers themselves (IPPR 2021). We discuss the challenges with the current approach to a fair transition and our recommendations to address them in the following chapters.

Regional analysis

Another challenge to consider when supporting workers to move away from gas sectors is to look at the location of jobs. On the hand, as with figure 2.5 above, our analysis finds that 93 per cent of all green or blue occupations in each region of the UK are likewise only one step away from a gas occupation. On the other hand, there is considerable variation by region in the number of people employed in each of these green or blue occupations. While not a perfect proxy for vacancies, if there are more of the most closely related green or blue occupations than gas-based occupations, there is a greater chance of finding a job. However, as figure 2.6 shows below, looking at a sample of three regions – Scotland, London and Yorkshire and Humber – this is certainly not always the case.

Consequently, even if an occupation is easy to transition to, if there are limited opportunities in the same region where a worker is currently employed, it may be challenging for them to move to this occupation without also moving to another part of the UK. This is an important factor to consider for policymakers as it suggests that support for workers will either need to help them find the next most closely related occupations in their local area, or potentially provide support or incentives to travel or move to the most closely related occupations.

FIGURE 2.6: AT A REGIONAL LEVEL, IT IS NOT ALWAYS THE CASE THAT THERE ARE MORE OF THE MOST CLOSELY RELATED GREEN OR BLUE OCCUPATIONS THAN GAS-BASED ONES

Graph showing how many more or fewer of the most closely related green or blue occupations there are than gas occupations across three regions



Source: IPPR and contributing authors' own analysis

3.

NOT FAST ENOUGH

Our analysis of green career pathways for gas sector workers in the previous chapter is predicated on the UK ramping up deployment on a range of different low-carbon technologies. Currently however, the transition is too slow, which inter alia risks limiting career options for gas sector workers. In addition, slow progress risks creating stranded assets and a cliff-edge scenario for oil and gas sector workers where either net zero targets are missed or, in order to meet them, the transition is much more sudden and disruptive. In this chapter, we focus on slow progress in upstream oil and gas, gas in the power sector and gas networks.

OIL AND GAS EXTRACTION AND PROCESS EMISSIONS

In response to the invasion of Ukraine and rising global gas prices, the government has recently committed to annual granting of new licenses for oil and gas extraction in the North Sea (Nevett and Seddon 2023). Its rationale has been that increasing domestic production of oil and gas will improve energy security, cut energy bills, remain compatible with the UK's net zero commitments and will create jobs in the UK (Lawson 2022; DESNZ 2023). Below we discuss why each of these justifications are flawed in turn.

First, the impact on energy security from increasing domestic production in the short-term will be minimal. This is fundamentally because once the UK gives companies the license to explore and extract from these fields, they have no power to require all the oil and gas produced to be sold into the UK market (Kwarteng 2022). Our own analysis confirms that granting new licenses would only decrease dependency on oil and gas imports by 4 and 2 per cent respectively (Emden 2023). By comparison, as figure 1.2 in chapter 1 shows, deploying renewables at a more ambitious pace would reduce oil and gas imports by 12 and 17 per cent respectively (ibid).

Second, the energy bill crisis is a current issue which new oil and gas production will do next to nothing to address. If Cambo and Jackdaw go ahead, first production is unlikely to begin until 2025 at the earliest (Hamer 2023; Offshore Technology 2022; Roger 2021), by which point average annual energy bills are projected to significantly decrease (Lowrey 2023). If Rosebank goes ahead, first production is not expected until 2027 (Equinor 2023), by which point energy bills are expected to nearly return to pre-crisis levels (Fry and Smith 2023). In short, the worst effects of the energy bill crisis are projected to have come and gone before any oil and gas is produced from new fields.

Third, looking at compatibility with net zero targets, the UK government's North Sea Transition Deal to decarbonise the sector and wind down production has already been deemed unambitious by the CCC. It suggests the industry's target to reduce process emissions (i.e. emissions from the process of extracting oil and gas) by 50 per cent by 2030 falls "well short" of the 68 per cent reduction which should be achievable in that time (CCC 2022). Indeed, recent analysis from Uplift has shown how the process emissions from going ahead with the Rosebank alone would blow the entire carbon budget for all oil and gas process emissions from 2028 onwards (Harvey 2023a).

In addition, the CCC criticises the transition deal's overall projection for reducing production as it is based on perceived natural economic decline rather than any efforts to decarbonise that are backed by legislative force (CCC 2022). From an international fairness perspective, analysis from Uplift also shows how the emissions produced from consuming new barrels of oil and gas extracted in the UK will exceed the combined total annual emissions from the 28 poorest countries in the world (Emden 2023). In short, a path to net zero that reduces territorial production emissions from oil and gas extraction in the UK but encourages increases elsewhere can never be considered a fair transition.

Finally, from a worker perspective, the oil and gas sector is notorious for insecure work and a history of volatile hiring and firing. For example, in 2009, the sector supported 300,000 workers in the UK. Over just five years the sector saw increases of over 50 per cent with a peak of 470,000 supported in 2014. But by 2019, as a result of the oil price crash in 2014/15, all these gains were lost with employment levels returning back to around 300,000 jobs (OGUK 2019). By failing to commit to a long-term, managed decline of oil and gas production, the government is not only prolonging this tradition of insecure work but increases the risk of mass lay-offs when oil and gas majors are no longer able to continue production due to stricter climate policy.

GAS POWER STATIONS

Most of the UK's progress in reducing emissions comes from decarbonising the power sector. However, while the UK has all but phased out coal power generation and become the second largest installer of offshore wind turbines in the world, the next phase of decommissioning or converting gas power stations is proving more challenging.

To reach a near fully decarbonised grid by 2035, the CCC anticipates the current unabated gas fleet will need to shrink from 35GW to 29GW, of which 14GW will need to be converted or newly built hydrogen plants and 3GW will be gas with carbon capture and storage (CCS) (CCC 2023). This is roughly equivalent to 30 out of the UK's 45 gas power stations being either converted or decommissioned. If the Labour party were to form the next government and commit to power sector decarbonisation by 2030, this would see a steeper phase-out of gas power plants with approximately 35 gas power plants decommissioned or converted (Brown et al 2022).

However, based on current government plans, it is unclear if the UK will reach the CCC's projected role for gas power in time, let alone Labour's more ambitious scenario. In its most recent consultation on the future of the energy market, the government has proposed a target of 25-27 GW of unabated gas compared to 12GW envisaged by the CCC (CCC 2023; DESNZ 2024a). Furthermore, although the government has committed to invest £20 billion into CCS infrastructure, it is only providing public funding for industrial CCS and is still only consulting on a CfD style mechanism for using CCS for gas power stations (DESNZ 2024b). At the same time, DESNZ estimates that the government may need as much as 10GW of gas power fitted with CCS by 2035, far higher than estimates provided by National Grid, Ember or the CCC (NAO 2023).

A lack of clarity over the role of unabated gas and CCS in the future energy mix in once again creates uncertainty for workers. For example, companies like SSE have set out detailed plans to support their workforce to retrain but also base these plans on having 7-9 GW of gas power fitted with CCS, again two to three times higher than the CCC's central scenario (SSE 2024; SSE Thermal 2023).

More fundamentally, neither CCS for gas power stations, nor industrially produced hydrogen that could be used in converted gas power stations, are truly low-carbon. While CCS projects aim for a 90 per cent carbon capture rate or higher, current techniques only capture around 60 per cent of emissions due to venting of flue gases during the process (CCC 2018). Furthermore, while capture rates of 98-99 per cent may be technically feasible with CCS fitted onto industrial sites or power stations, both costs and energy input (and hence overall emissions) increase substantially beyond 90 per cent capture based on current available technology (Moseman 2021). Finally, studies have shown that even if CCS technologies are able to achieve carbon capture rates of 90 per cent and above, there is a serious risk of methane leakage during the extraction and transportation of natural gas, particularly for blue hydrogen manufacturing, which could, in the worst cases, more than cancel out the CO₂ being captured (Howarth and Jacobson 2021; Hamburg and Ocko 2022).

GAS NETWORKS AND HOME HEATING

A lack of clarity and slow pace of delivery around the government's plans to decarbonise home heating creates uncertainty for workers in gas networks and gas boiler installation, and risks squandering the benefits of lower running costs and greater energy security mentioned in chapter 1.

On the one hand, recent reports from government affiliated bodies like the National Infrastructure Commission and National Audit Office are starting to recognise the need to decommission a significant proportion of the gas network (NIC 2023; NAO 2024) as home heating will need to be largely electrified in future. At least 19 million homes will need to have heat pumps that use electricity installed, five million will need to have heat networks (hot water pipes from a central source pumped directly into a home), and the remaining four million will use a combination of other technologies, very few of which will include a gas boiler, whether hydrogen or otherwise (CCC 2020).

By contrast, the government is largely carrying on with business-as-usual plans for the gas network rather than recognising the need for long-term, managed decommissioning of large parts of the grid. For example, it is continuing with the Iron Mains Risk Replacement Programme, whose aim is to upgrade iron gas pipes with polyethylene plastic (SGN 2020). Due to the government's ambiguity over the future role of hydrogen in home heating, some stakeholders including trade unions hope that these gas grid upgrades will be able to transport hydrogen, facilitate the widespread uptake of hydrogen boilers, and deliver a minimally disruptive transition for their workforce. This expectation also extends to investors with National Gas recently receiving multi-billion pound investment from a Canadian public pension group on the basis of the role hydrogen will play in home heating (Beer 2023).

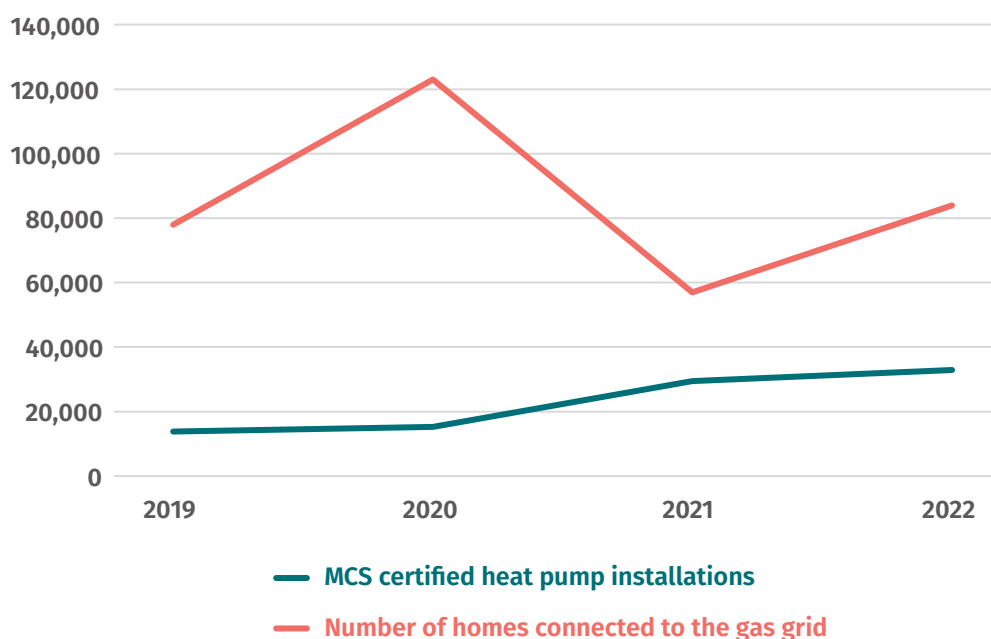
However, not only is the replacement programme not due to be completed until 2032, but mounting evidence suggests that even newly upgraded pipes will not be appropriate for transporting any quantity of hydrogen – whether blended or pure – due to the likelihood of leakage (Parkes 2023). More significantly, there is considerable evidence suggesting hydrogen will only have a minimal role in home heating at best (Harvey 2023b; Collins 2023), which is even accepted by ministers (Heap 2023) but not yet reflected in the government's policy plans for home heating.

This lack of clarity over the future of home heating also extends to the slow rollout of the heat pumps that are supposed to replace gas boilers. In its Heat and Buildings Strategy from 2021, the government's main focus is on delivering heat pumps for properties that are not connected to the gas grid and, while it has consulted on ending new connections to the gas grid, no policy has yet been delivered (BEIS 2021). Indeed, as figure 3.1 shows, between 2019 and 2022 (the most

recent data for gas grid connections) there have been more homes connected to the gas grid every year than certified heat pumps being installed to take homes off it. Furthermore, a recent NAO report found that in 18 months from May 2022 to December 2023, the government's main grant scheme for heat pumps, the Boiler Upgrade Scheme, had only installed 18,900 heat pumps (NAO 2024b). By comparison, in 2022, over 600,000 heat pumps were installed in France (Harvey 2023c), more than three times the number of certified heat pump installations that have ever existed in the UK (MCS Foundation 2023).

FIGURE 3.1: FEWER HOMES ARE BEING INSTALLED WITH HEAT PUMPS THAN BEING CONNECTED TO THE GAS GRID

Comparison of heat pump installations versus homes receiving a grid connection by year



Sources: MCS Data Dashboard 2024 and DESNZ 2024c, adapted by IPPR

THE IMPACT ON WORKERS

As we have suggested throughout this chapter, slow progress and ambiguity over future plans is ultimately an issue of fairness as it creates considerable uncertainty for workers in gas sectors. Without greater clarity, the risks in future range from a cliff-edge scenario involving sizeable and sudden job losses as the government of the day tries to correct course to meet net zero targets, or public and political resistance that means these targets are missed altogether. Neither outcome delivers a fair transition to a green economy.

4. NOT FAIR ENOUGH

Even if the government was keeping pace with meeting net zero targets, the policy support currently in place to deliver a fair transition for workers in gas sectors is insufficient in three key areas. First, the existing commitments to deliver a fair transition are either inadequate or omit key sectors. Second, the lack of involvement of trade unions risks eroding the quality of jobs available to workers affected by the transition. Finally, the current system of training provision, skills support and careers advice is not well equipped to support this kind of workforce transition. We discuss each of these challenges in this chapter.

PIECEMEAL COMMITMENTS TO A FAIR TRANSITION

In chapter 2, our analysis sets out the range of career options which workers in different gas sector occupations could reasonably move into, but facilitating that transition requires commitment from government to support those workers.

However, the UK does not have a good track record of supporting workers through economic transitions, most notably during de-industrialisation and the closure of coal mines in the 70s and 80s. In this latest transition, the UK government's commitment to support workers and communities has been piecemeal at best, absent altogether in many sectors and, in the instances where policy initiatives do exist (largely in devolved administrations), they are relatively limited in what they can meaningfully achieve. We review these commitments below.

Starting with examples of existing policy commitments, in each devolved administration there is some legal recognition for delivering a fair transition. This ranges from a commitment to 'decent jobs' and the establishment of a Just Transition Commission in Scotland, commitment to support the agricultural sector, gender quality and future generations in Northern Ireland, and the creation of a Future Generations Commissioner in Wales and a requirement for Welsh public bodies to consider the impact of policy on future generations (Grub and Wentworth 2023).

Most of these commitments do not address the specific challenge of supporting workers changing jobs¹⁰. Perhaps the only exception is Scotland's Just Transition Commission which brought together industry, union, and community stakeholders to discuss how to support a fair transition to net zero for workers and communities in Scotland. However, they had minimal funding themselves to move from discussion to meaningful and coordinated support.

At a national level, the UK government has agreed a North Sea transition deal with the oil and gas industry which makes some positive commitments, particularly around efforts to understand the complex range and transferability of skills between oil and gas industry and green sectors like offshore wind (OPITO 2024). However, these activities, while crucial for data gathering, are not complemented with concrete support for workers. For example, where countries like the USA have attempted to link green investment with local job creation by making tax credits

10 While there is a support scheme being set up for farmers in Northern Ireland, it encourages greater sustainability within farming rather than a change in occupation (DAERA 2023)

conditional on investing in local supply chains, the North Sea transition deal only contains a voluntary industry-set target for 50 per cent of investment into UK content and 30 per cent of technology requirements to be provided locally (DESNZ 2022).

Alongside these relatively weak commitments, there are also high-profile examples of failure to commit to a fair transition. In particular, while policy arrangements for offshore wind have generated a strong project pipeline, they have failed to generate a local manufacturing supply chain in Scotland for these projects (JTC 2020). This is perhaps best highlighted by the snub of the Scottish manufacturing company BiFab as a provider for new offshore wind projects in favour of an international provider (Fraser 2019).

Similarly, in 2020 the government introduced a Green Jobs Taskforce comprised of government, industry, academic and trade union stakeholders. This was a useful group with a clear remit to understand the skills needed to meet net zero targets, boost economic growth as the UK recovered from the pandemic and determine how to support workers that would need to transition from high-carbon jobs. However, after publishing a report in 2021 making recommendations to government on these themes (GJT 2021), the taskforce was largely concluded and many of the recommendations have not found their way into government policy.

Perhaps the only exception to the relatively weak commitments to a fair transition was the nuclear sector deal agreed between government and industry in 2018. This deal has a relatively strong focus on skills development and job creation and a commitment to working closely with trade unions (HM Government 2018).

However, even for this deal, there are caveats. Firstly, the nuclear sector is a rare example of an industry that still has a relatively strong trade union membership. Secondly, as with the future role of gas and CCS mentioned in chapter 3, there is uncertainty over how many new plants will actually be built, with the government setting a target of 24 GW but the CCC suggesting only 8 GW will be needed. Finally, elements of the sector deal have now been superseded by an industry-led 'Nuclear Skills Enabling Forum' which advises on nuclear skills need but does not have trade union representation

FAILURE TO INCLUDE TRADE UNIONS

Delivering a fair transition will require greater involvement of trade unions as social partners in the transition. Through collective bargaining, trade unions are uniquely placed to boost wages and negotiate improved working conditions, including greater access to training opportunities and career progression. This is borne out across the economy: trade union members earned 3.5 per cent more last year than non-members (DBT 2023), and there is evidence that collective bargaining increases the wages of non-members too (Dromey 2018).

However, there are also long-term trends that suggest a weak commitment to advancing worker power in the UK. Trade union membership has been in slow decline in the private sector since 1995 (DBT 2023). This has largely been driven by new workplaces failing to recognise and give their workers access to trade unions, which in some cases has included new green industries (Altunbuken et al 2022). This is supported anecdotally by some trade union stakeholders who have pointed out that many renewable energy companies that invest in the UK have a much better track record of working with unions in the countries in which they are headquartered.

This lack of recognition for trade unions is a particular challenge for workers in gas sectors, which tend to have relatively high union membership. For example, in the high-level SIC code 'electricity, gas, steam and air conditioning supply' (the

category that includes workers in gas power stations and gas networks), union membership is just under 29 per cent compared to the national average of 22 per cent (DBT 2023). Without commitments to union access, there is a risk that workers in oil and gas sectors move into less secure work and lower pay (RMT 2023).

CHALLENGES WITH THE EXISTING SKILLS SYSTEM

While our analysis of future career pathways in chapter 2 shows that there are many closely related occupations which gas sector workers could move into, policy to support retraining is still essential to facilitate the transition. However, the current skills system is not well-equipped to manage a transition away from gas in several ways.

First, investment into skills for adults has seen sustained underfunding. Even with an increase in funding for adult education and apprenticeships for 2024/25, total adult skills spending will still have been cut by 22 per cent compared to 2009/10 and 40 per cent for classroom-based adult education (Bolton et al 2023). This underfunding has also had a knock-on impact in reducing the number of courses being provided by further education institutions (Staufenberg 2022). While the government has recently been introducing new schemes, some of which may be useful to gas sector workers, as we set out in box 4.1 below, they are largely piecemeal, small-scale or have seen delays.

BOX 4.1: UK SKILLS TRAINING INITIATIVES

The government has introduced Skills Bootcamps which offer intensive training courses for up to 16 weeks across the country on a range of occupations including some skills that may be relevant for gas sector workers (DfE 2024). However, the funding is relatively small scale at £34 million for 2024-25 (DfE 2023) compared to an annual £1.1 billion Green Training Fund which IPPR has previously estimated as the need for retraining workers in high-carbon industries (IPPR 2021).

Additionally, many industry organisations have been working with the Scottish government to develop an Offshore Energy Skills Passport, which would allow workers in oil and gas industries with highly transferable skills to move into other offshore occupations such as offshore wind without having to undertake unnecessary retraining and certification for skills they largely already have. However, this initiative has been continuously delayed, with the introduction originally planned for 2022 but still yet to be confirmed (Bol 2023).

Finally, in 2025, the government will introduce a Lifelong Learning Entitlement, having originally been announced as the Lifetime Skills Guarantee back in 2020, which will provide loans of up to £37,000 for adults up to 60 to undertake a range of training courses (Lewis and Bolton 2024). While stakeholders have been generally supportive of its introduction, it has been criticised by some for only focusing on retraining between levels 4-6, excluding people over 60, and providing loans rather than offering grants (ibid; FE News 2023).

Second, existing careers advice and support is not suitable for workers in gas sectors. Sector Based Worker Academies currently help people move into sectors that may offer green or blue job opportunities for gas sector workers, but they are focused on new labour market entrants not existing workers. Additionally, services like JobCentre Plus are focused on getting people into 'any job', regardless of skill

level, career progression opportunities, or relevance to previous work (Wilkes et al 2023). This practice is unlikely to be appropriate for workers in gas sectors.

IPPR research has previously noted the lack of a cohesive skills strategy that brings together government plans for decarbonisation, funding for training, training providers, and industry demands for skills (Ambrose et al 2023; Wilkes et al 2023). The result is a patchwork of training provision that is confusing for both employers and employees to navigate (ibid).

For individuals, a lack of long-term strategy creates uncertainty over whether workers can expect to be trained by their existing companies or if they will have to attempt to undertake retraining by themselves. For businesses, the absence of industry-wide skills planning reduces the incentive to offer training to their workforce because of uncertainty over future demand and the risk of poaching. Organisations like the Engineering Construction Industry Training Board are designed to try and correct this problem by pooling levy funding from multiple businesses and offer training courses to all members. Recently for example, it has committed to offering £87 million of training support in the engineering construction industry between 2023-2025 (ECITB 2023). However, as above, both the coverage of its membership and the total funding committed are too small-scale to provide all training necessary for the transition.

5.

POLICY RECOMMENDATIONS

In chapter 2, our analysis suggests that if workers in oil and gas sectors do need to change occupations as part of the transition to a net zero economy, the vast majority are likely to have options that are closely related to their current line of work. However, support with both retraining and finding new work is still likely to be needed, particularly if the most closely related opportunities are not in the same regions where workers live. As we discuss in chapters 4 and 5, the current policy environment is not well equipped to support workers in this transition.

In this chapter, we recommend a set of policies to support a genuinely fair transition for workers in gas sectors, divided into four key areas: a commitment to a clear, long-term green industrial strategy, tangible policy commitments to a fair transition, involving unions and workers as critical stakeholders, and reforming and expanding existing skills support to facilitate a fair transition.

A CLEAR, LONG-TERM GREEN INDUSTRIAL STRATEGY

Long-term policy certainty is crucial to the success of decarbonisation across the world. For example, the Inflation Reduction Act in the USA and the Green Deal Industrial Plan in the EU have embedded long-term investment measures within a 10-year framework (Satchell 2023), signalling policy stability for developers and investors. Most of the tax credits included within the IRA are available until 2032, providing certainty and predictability and coincides with the critical decade for climate action. In addition, the provisions in the act are in place on both the demand and the supply-side with, for example, incentives available for energy efficiency, heat pumps and electric vehicles (Credit Suisse 2022).

The UK does not yet have the kind of policy programme to match either of these examples. As previous IPPR research has argued, to respond to these global economic shifts the UK should develop comprehensive industrial policy with four main dimensions:

1. **Industrial strategy:** this should set an objective, such as reaching net zero emissions, how government intends to achieve it through a set of coordinated industrial policies, and the ongoing governance of that plan.
2. **Production:** interventions that affect how goods and services arrive in the market; these include rules like product standards or costs like low-cost financing.
3. **Purchasing:** interventions that affect how goods and services are bought or leave the market, again including rules like procurement conditions or costs like tariffs.
4. **Economic conditions:** the underlying aspects of an economy such as its workforce, infrastructure, or level of innovation – all of which can be targeted to support specific sectors as well as economy wide.

In the context of phasing out demand for gas across the UK economy, this industrial policy approach should include the following key commitments to provide clarity both to industry and to workers. Most of these recommendations fall under the ‘industrial strategy’ component of the framework above as they

ultimately involve providing clear objectives about the future technology mix in a net zero economy.

1. As IPPR and many other organisations have already called for, the government should reverse its plans for licensing new oil and gas fields and commit to an end to new licensing. As we set out in chapter 3, none of the government's current arguments to issue licenses stand up to scrutiny and, apart from failing to lead on an international stage, the policy will continue a history of job insecurity and increase the risk of mass lay-offs.
2. The government should clarify the gas capacity it expects to remain in 2035 as well as the number of power stations it expects to be decommissioned, converted to hydrogen, or fitted with CCS. In addition, as IPPR has previously recommended, the government should set a strict 95 percent capture rate requirement for all CCS and set out alternative technology pathways if this proves to be technically impossible (Webb et al 2023).
3. Update the heat and buildings strategy to clarify how hydrogen will not play any major role in home heating. This strategy should include heat zoning studies to establish the few areas where hydrogen may be appropriate (such as around industrial clusters). This heat zoning should also set clear targets for decommissioning parts of the gas grid and determining in which areas the grid will still need to be maintained. We also echo recommendations from the National Infrastructure Commission to halt connecting homes to the gas grid by 2025 (NIC 2023).

SUBSTANTIVE COMMITMENTS TO DELIVERING A FAIR TRANSITION

In chapter 4, we detail hitherto piecemeal commitments and initiatives to deliver a fair transition for workers impacted by decarbonising the economy. To provide a more comprehensive package, we build on previous analysis set out by IPPR's cross-party Environmental Justice Commission to recommend the following policies to support workers.

First, **the government should set out Fair Transition Bodies for each industry that needs to decarbonise**. These fair transition bodies should comprise of both central and local government representatives and invite all relevant industry representatives, trade unions, non-union worker representation and local community stakeholders. The purpose of these bodies should be to negotiate with unions and industry stakeholders to **set out a comprehensive workforce plan** that understands how the government's industrial strategy plans could impact workers how they should be supported. The outcomes of these negotiations should then be used to inform and shape the final policy support delivered within the overarching industrial strategy.

Second, the government should set out a series of commitments to workers that become the key terms over which Fair Transition Bodies and stakeholders can negotiate when establishing a workforce plan. These should include:

1. Developing a clear understanding of how many workers are likely to keep their existing jobs during the net zero transition in each sector undergoing decarbonisation; how many can retrain within the same company or at least the same industry; how many will need to leave the sector to find new work; and how many will have skills that are transferable and needed in green industries. The kind of network analysis of related occupations set out in chapter 2 could also support with this information gathering.
2. Guaranteeing existing workers a **funded right to retrain**. For workers moving to different occupations within the same industry, options for paying for this right to retrain could involve copying or even expanding the ECITB model and levying the industries that are most closely related to each other, again using network

analysis to help identify clusters of related industries. This would ensure that industries with similar skills demands were collectively meeting the objective of upskilling the workforce and filling skills gaps without fear of training up individuals only to see them poached by other businesses. For workers moving into different sectors, as IPPR has previously recommended, these individuals should have access to free training funded by an annual £1.1 billion Green Training Fund. We discuss how this fund might operate in practice below.

3. Guaranteeing existing workers a **right to interview** in green industries in which there are vacancies and for which they have transferable skills. A key factor for implementing this commitment in practice will be determining what level of skills transferability qualifies workers for this right to interview. The kind of network analysis we set out in chapter 2 which assesses the tasks and skills shared by any given pair of occupations could be useful in establishing this threshold.
4. Providing workers with clear communication about the changes that will take place in their industry, with **at least two years' notice** of changes to their particular occupation. This advanced notice is critical to help workers plan for their future and give them time to undertake retraining if needed.
5. Proposing **paid skills sabbaticals** for workers to give them time and headspace to retrain while still being paid a salary. Who pays for the sabbaticals would depend on whether or not workers in question were staying within the same company, industry or leaving to a new sector altogether and could follow the same proposals for the funded right to retrain above.
6. Providing **travel assistance to workers who may have to commute longer distances** to reach their new job. Further research which builds on our initial regional analysis set out in chapter 2 could help to establish a more granular picture of where the most closely related job opportunities are for workers in a given gas sector relative to where they live.
7. Requiring all industries to set out specific and measurable plans to **improve diversity in both their recruitment and promotion practices**.

TREATING TRADE UNIONS AS KEY STAKEHOLDERS

As part of negotiations held by Fair Transition Bodies to establish a workforce plan, the government should move beyond its historic and current antagonism towards trade unions and treat them as key social partners in the net zero transition. This should include the following specific commitments to unions:

1. Guaranteeing trade unions the right to access workers that move into green sectors and make the case for membership to them.
2. Requiring industry stakeholders – both high-carbon and green industries – to **commit to high quality job standards** that include union-backed commitments to decent pay, safe working conditions, and other worker benefits such as career progression opportunities.
3. Requiring all investment or subsidy support going to industries that need to decarbonise to be **conditional on companies investing into local supply chains and hiring locally**. A publicly owned institution, whether an investment fund or a public energy company, could also lead the way on this commitment by taking public stakes in relevant industries to ensure these commitments were delivered (Markova and Minio-Paluello 2023; Gasperin and Dibb 2023). Policies like Labour's £2.5 billion British Jobs Bonus could also be a key method of incentivising this local investment.

REFORMING AND EXPANDING THE SKILLS SYSTEM TO FACILITATE A FAIR TRANSITION

As we discussed in chapter 4, the current skills system is not well-equipped to support workers in gas sectors to retrain. To address this, we set out a series of recommendation below.

Our headline recommendation, as IPPR has previously argued, should be an **annual £1.1 billion Green Training Fund until 2030**, with a comparative commitment by devolved nations (IPPR 2021). This funding would be accessible to workers who are leaving a particular sector and are therefore unlikely to receive training from within their industry. This fund could also potentially be accessed by employers undertaking retraining of their own workforce. However, this would not be needed if an expansion of the ECITB-style levy model discussed above was introduced for sectors with similar skills demands and, consequently, the annual spending requirement for the fund would be lower. Finally, this fund could either be introduced as a separate initiative, or the government could reform and expand the Lifelong Learning Entitlement by removing the 60 year old age limit and providing free training, rather than loans, for workers in gas sectors and other industries undertaking decarbonisation.

To complement this funding and help workers to navigate training available to them, as IPPR has previously recommended, **the government should create a new, high-quality public employment service** (Wilkes et al 2023). This service, inter alia, should expand JobCentre Plus provision to offer a service for anyone, at any stage in their working life. This could be delivered by increasing capacity and reforming the role of work coaches within JobCentre Plus, so that rather than following an ‘any job will do’ model, they offer professional advice and support to support people to access good work, and appropriate training or progression opportunities – including in green or blue industries. This service could be supported by the kind of network analysis conducted in chapter 2, which could help them to advise workers on jobs with similar skills or tasks in green or blue occupations that they may be interested in, in the area they live in. In addition, the service and the work coaches should also have a comprehensive awareness and knowledge of the current patchwork of initiatives and support schemes, including local provision, so that it can direct workers to the kinds of accredited, high-quality training schemes best suited to their individual circumstances.

The public employment service should also be explicitly linked with fair transition bodies that negotiate future workforce plans for the government’s overarching industrial strategy by **requiring industries to engage with the service** as a condition for public investment or subsidy. This engagement could involve businesses referring their employees to the service as part of planned retraining or employers seeking advice themselves on the kinds of training they could provide to their workforce.

Finally, the **Scottish government should confirm the introduction of the Offshore Energy Skills Passports** and the UK government should work with devolved administrations and local government stakeholders to **explore how skills passports can be replicated for other sectors**. To support these efforts, the kinds of network analysis conducted in chapter 2 could help to identify similarities between different occupations and help to shape which skills and tasks future passports could recognise.

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