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RECEIVED 18 September 2024

ACCEPTED 18 November 2024

PUBLISHED 29 November 2024

## CITATION

Reay D (2024) The uneven foundations of a  
just transition for workers: a UK perspective.  
*Front. Clim.* 6:1498156.  
doi: 10.3389/fclim.2024.1498156

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# The uneven foundations of a just transition for workers: a UK perspective

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Assessments of the workforce impacts of net zero transitions have largely focussed on job losses, gains and net changes for a particular industry, sector or state. While improved projections of quantitative changes are important, understanding the impacts of these changes on the diversity of the future workforce is arguably even more crucial in ensuring employment policy delivers a just transition for all workers. Using the example of the UK we illustrate the risk that new job creation in the transition to net zero by 2030 will perpetuate and further magnify workforce inequalities. We then discuss how national and international initiatives are attempting to mitigate these risks, with particular reference to the United Nations Framework Convention on Climate Change work programme on Just Transition Pathways and its potentially pivotal role in informing and supporting national workforce strategies for climate action that have equality, diversity and inclusion at their heart.

## KEYWORDS

just transition, workers, gender, ethnicity, disability

## 1 Introduction

The transition to net zero presents a host of opportunities and risks for workers around the world, from extensive new job creation and the chance for governments to improve labour accessibility and protections, to abrupt and potentially very damaging job losses in high emissions sectors and greater exposure to climate risks.

At a global scale, actions to meet the Paris Climate Goal of keeping global temperature increase well below 2°C are projected to result in a large net increase in job opportunities, with measures taken in energy production and use, for example, expected to create 24 million new jobs by 2030, set against job losses of around 6 million (ILO, 2018). Large net increases in job opportunities resulting from climate-related plans and policies are likewise projected for the world's leading economies. In the US, the Inflation Reduction Act (IRA) is forecast to create 900,000 net jobs by 2035 (WRI, 2022) with the net zero transition more widely supporting around 3 million direct energy jobs a year during the 2020s (Mayfield et al., 2023). Likewise in China accelerated domestic action to decarbonise the energy sector by 2030 could yield 3.6 million new jobs in clean energy supply, against a loss of around 2.3 million jobs in fossil fuel supply and power generation (IEA, 2021).

In an assessment of the potential workforce impacts of the EU's Green Deal, such increased job opportunities (~2.5 million additional jobs by 2030 in the EU) were again flagged. Crucially, so too was the risk that this expansion could differentially impact workers due to existing gender imbalances in the workforce—the most marked changes were projected in net zero-related sectors where men currently dominate the workforce, such as construction (increased employment) and mining (decreased employment; CEDEFOP, 2021). More recently, this risk of further erosion of diversity in the workforce due to climate action was highlighted at a global scale, where, of a projected 25 million new jobs by 2030 only 6 million

would be women and, of the approximately 7 million job losses, 5 million would be men (ILO, 2024).

As part of their climate commitments, many nations have at least some form of skills and workforce planning aimed at meeting the changing skills and workforce demands of the transition to net zero. Increased granularity in terms of assessments of spatial, temporal and sectoral needs is an important facet of this planning (Scottish Government, 2021; Reay, 2023), but we argue here that this must include overt assessment of impacts on diversity in the workforce, and so consideration of how change (whether it be growth or decline) in a workforce can best be managed to deliver greater equality, diversity and inclusion in the transition to net zero.

## 2 Quantity vs. diversity: the UK case

While much of the discourse on ‘green jobs’ has to date been focussed on the overall quantity of jobs created or lost in the net zero transition, the extent to which these changes do or do not reflect the diversity of wider society is also crucial (ILO, 2022a; Close the Gap, 2024). This is central not only in terms of realising a just transition for all, but also to meeting the very large workforce demands projected in many nations for sectors such as energy and construction, and in enhancing the success and profitability of many businesses operating within these sectors (Lorenzo et al., 2017; Green Jobs Taskforce, 2021; National Grid, 2024).

To illustrate the risks to workforce diversity both within specific economic sectors and economy-wide we here examine the case of the UK, using recent net zero-related employment projections by sector to 2030 (CCC, 2023) and the combination of these projections with current within-sector employment data for proportions of those identifying as women, those from ethnic minorities, and those classed as disabled (Figure 1, blue bars).

As well as these direct projections of net new jobs by sector for each of the three selected demographic categories based on existing representation rates, we also include sectoral projections assuming representation rates in 2030 that instead reflect those currently seen at the economy-wide level (Figure 1, orange bars).

Using an upper range estimate of 725,000 net new jobs resulting from the net zero transition by 2030<sup>6</sup> we find the UK faces a clear risk of perpetuating and further enhancing gender, ethnicity and disability biases in the workforce. These risks were apparent in all three of the selected demographic categories, and for every sector (Figures 1A–C; with the exception of workers from ethnic minorities in the ‘Transport’ sector; Figure 1C) when existing within-sector representation rates were used (blue bars). Application of average economy-wide representation rates (orange bars) resulted in much higher numbers of women, ethnic minority and disabled workers in all sectors considered (again, with the exception of workers from ethnic minorities in the ‘Transport’ sector). Numbers of women employed in ‘energy’ and ‘construction’ net zero jobs more than doubled under this alternative scenario, with numbers of workers classed as disabled rising by around 20% in both these sectors, and numbers of workers from ethnic minorities rising by over 50% in all sectors other than ‘transport’.

Considering all the ‘net zero sectors’ considered here together (Figure 2), existing within-sector under representation rates meant that men made up the overwhelming majority of workers in net new

jobs by 2030 (Figure 2A). Normalising representation within these sectors to average economy-wide rates (notwithstanding that these rates still constitute overall under representation in the workforce) saw the number of women in these new jobs by 2030 increasing more than two-fold, and the number of workers classed as disabled or from ethnic minorities increasing by around 15 and 40%, respectively, (Figure 2B).

The assessment of net zero-related job creation and associated workforce diversity provided here underlines the risk that existing inequalities could be perpetuated and magnified still further by the actions many nations are taking to decarbonise their economies. Clearly, the inequality of representation of minority groups in key net zero sectors varies from nation to nation – as exemplified by a gender employment gap<sup>1</sup> in ‘energy generation and distribution’ in France in 2018 of 55%, compared to 65% in Germany, 73% in the US, and 78% in Australia (IEA, 2024a).<sup>2</sup> However, any such under representation of minority groups within the workforce should be a cause for concern for governments and employers that are serious about meeting their net zero commitments.

For the UK example, a failure to properly address workforce diversity issues domestically carries the very real risk that it will exacerbate the significant skills and workforce gaps already identified for the net zero transition (Green Jobs Taskforce, 2021). Put simply, without concerted action to address inequalities in employment access and participation, many of the 700,000+ net new jobs required by 2030 (CCC, 2023) for the UK’s transition to net zero will be vacant.

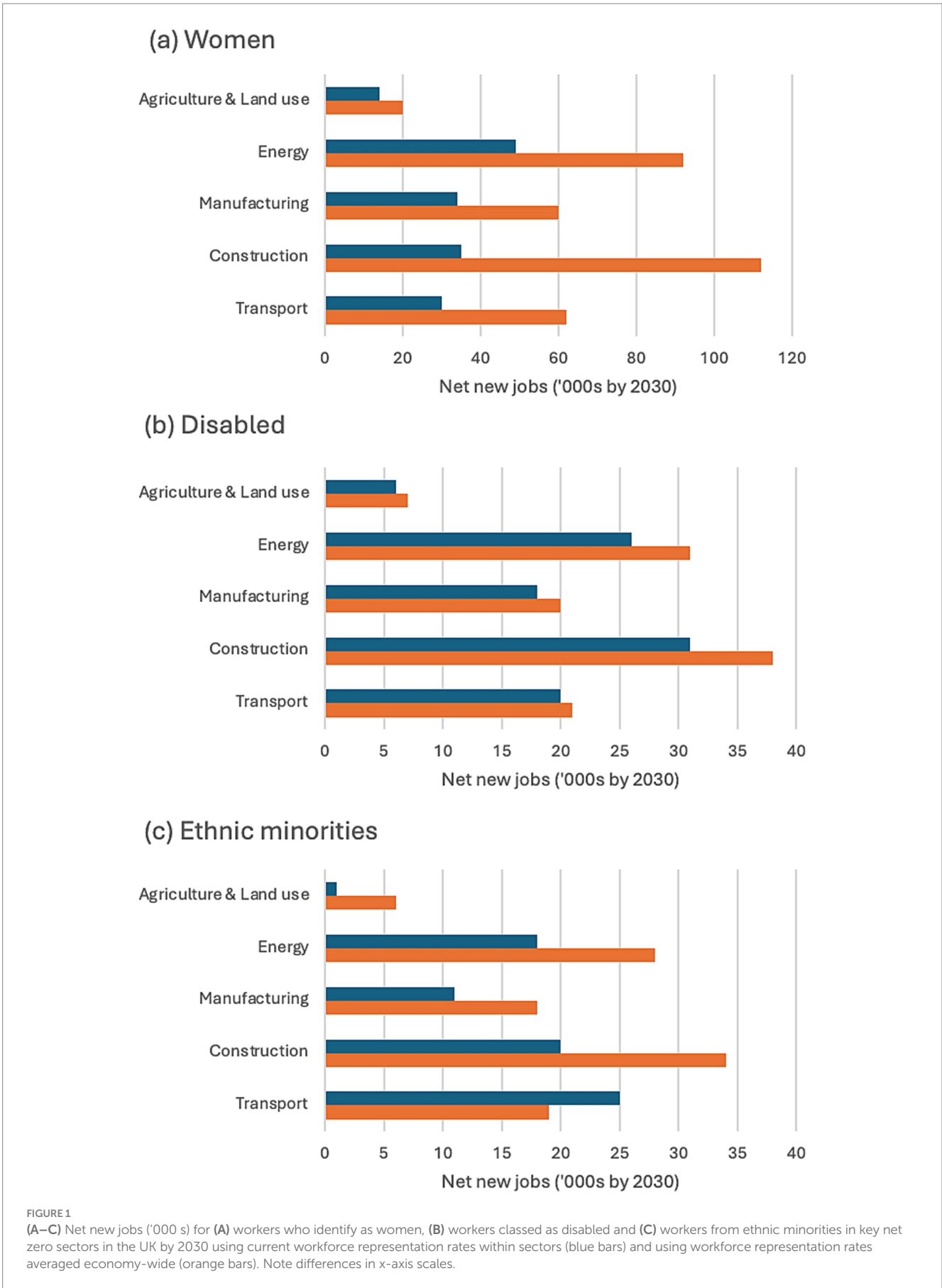
## 3 Discussion

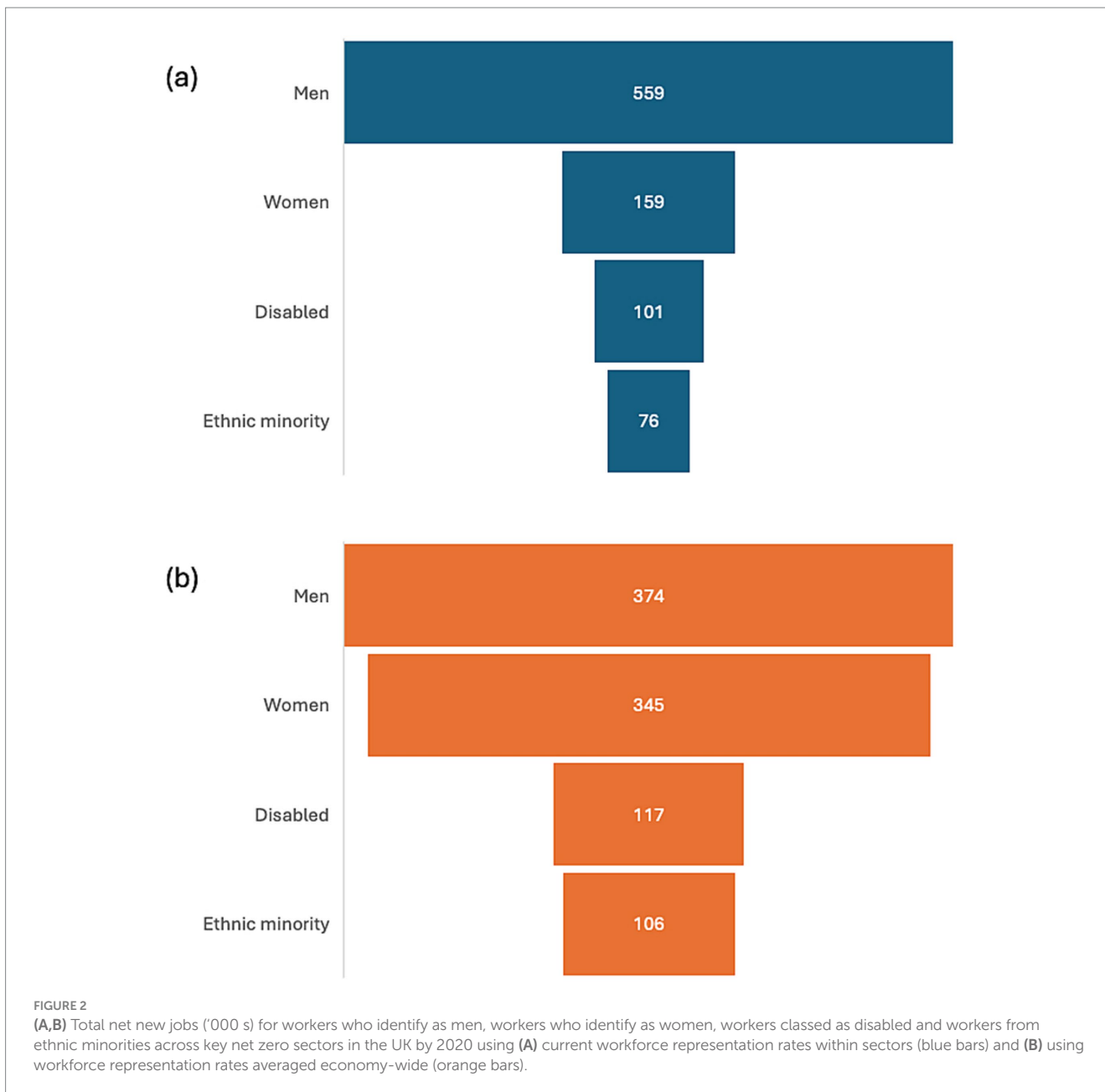
The performance risks posed by inequalities in the workforce are well established for businesses, economies and societies globally (ILO, 2022b). Avoiding the magnification of these risks through the transition to net zero should therefore be something that can, at least to some extent, build on measures already in place to enhance equality, diversity and inclusion. In the energy sector, for example, there are a swathe of industry, national and international initiatives and programmes aimed at addressing existing workforce inequalities.

At the global scale, the ‘Equality in Energy Transitions Initiative’ dates back to 2010 and is focussed on ‘*accelerating gender equality and diversity in clean energy transitions*’. The initiative includes data collection, sharing of best practice, and collaborations across the more than 6,000 energy experts participating the International Energy Agency (IEA) energy technology network (IEA, 2024b). Aligned national and industry-led programmes also include commitments from employers to inclusivity in the energy workforce, such as that of the Energy & Utility Skills Partnership (EUSP) in the UK which commits member institutions to actions such as targeted sector action to increase gender, ethnic minority and disability workforce

1 The gender employment gap is the percent of women compared to men working in the given sector/year/country among the employed workforce of working age:  $[\text{Employed Women} - \text{Employed Men}] / [\text{Employed Men}]$ .

2 For reference, the gender employment gap in UK ‘energy generation and distribution’ in 2014 was 68%; comparable UK data for 2018 were unavailable.





representation and to measurement and transparency on progress as individual organisations and as a sector (EUSP, 2019).

Despite such progressive approaches, the available data indicate very limited sector-wide improvements at national scales over the last decade or so. On gender equality for instance, the 2019 International Renewable Energy Agency (IRENA) survey of workers and employers in the renewable energy sector found women accounted for only 32% of the full-time workforce. The survey also highlighted a series of perceived barriers to women’s entry and advancement in the renewable energy sector, including perception of gender roles, cultural and social norms, prevailing hiring practices and a lack of gender diversity targets (IRENA, 2019).

Likewise, the IEA’s ‘Employment Gender and Energy’ data provided for 29 countries on the gap between male and female workers in ‘energy generation and distribution’ show scant improvement for the US, Canada and most EU states between 2010

and 2018—on average, for the nations where data were available, there were still 76% fewer women than men employed in the energy sector in 2018, compared to the average gap of 8% for the workforce as a whole (IEA, 2024a).

Such under representation in the energy sector is also apparent for some ethnic minority groups, such as in the US where Black or African American workers hold just 9% of energy jobs while representing 13% of the US workforce (US DoE, 2024). These most recent US data also reaffirmed the under representation of women in the energy sector, with women holding just 26% of energy jobs while representing 47% of the overall US workforce.

The routes by which progress on workforce diversity within and across all nations can be accelerated are likely to require the kinds of trusted global organisations, like the IEA and ILO, that have a proven track record in international collaboration, monitoring and knowledge exchange. For the transition to net zero and the stark risks it poses

around perpetuation of workforce inequalities, the United Nations Framework Convention on Climate Change (UNFCCC) will likewise need to be a leading institutional light through which all parties to the convention can access support, resources and advice on realising a just transition for workers.

Encouragingly, the UN's Just Transition work programme instigated in 2022 (UNFCCC, 2022a) has the potential to develop exactly this kind of comprehensive global provision geared to climate action. The platform provided by the Just Transition work programme could provide for sharing good practice, inform negotiating positions of party groupings and, ultimately, lead to an overt strengthening and widening of commitments within Nationally Determined Contributions (NDC) submissions around enhanced workforce equality, diversity and inclusion. Analogous to this is the increased recognition by parties of 'gender integration as a means to enhance the ambition and effectiveness of their climate action' that has arisen, at least in part, due to the enhanced Lima work programme and its gender action plan (UNFCCC, 2020). As of 2022, 75% of Parties provided information related to gender in their NDCs, with 39% affirming that they will take gender into account when implementing them. One fifth of the Parties that referenced gender in previous NDCs also elaborated on their approach in their new or updated NDCs (UNFCCC, 2022b).

At COP28 in 2023 its scope and ways of working were agreed (UNFCCC, 2023), with the work programme including elements on: FCCC/PA/CMA/2023/L.14.

(b) '*Just and equitable transition, which encompasses pathways that include energy, socioeconomic, workforce and other dimensions, all of which must be based on nationally defined development priorities and include social protection so as to mitigate potential impacts associated with the transition.*'

(e) '*Just transition of the workforce and the creation of decent work and quality jobs in accordance with nationally defined development priorities, including through social dialogue, social protection and the recognition of labour rights.*'

(f) '*Inclusive and participatory approaches to just transitions that leave no one behind.*'

The International Labour Organisation (ILO) has been a prominent contributor to the development of the Just Transition work programme and has set out a series of informed guidelines for its work and aims. These include specifying the roles of key stakeholders in formulation and delivery, covering governments, employers, workers' organisations, and the ILO itself (ILO, 2023). Many of the recommendations go right to the heart of addressing existing workforce inequalities as part of climate action. They include a call for integration of measures into NDCs; the use of active labour market policies to ensure adequate protection of all workers and to pay due attention to youth, women and person in vulnerable situations; and to anticipate skills needs and gaps, provide equitable access to skills, and monitor and evaluate progress.

## 4 Recommendations for government

Reflecting on the ILO guidelines for the Just Transition work programme, together with relevant net zero-related workforce initiatives at a national (Green Jobs Taskforce, 2021) and sub-national (Scottish Government, 2021) scale here in the UK, we here present 7 high level recommendations for governments on workforce diversity:

- 1 Plan for a diverse workforce of climate action:** develop a climate action workforce plan that has addressing equality, diversity and inclusion at its heart. This should take overt account of worker attraction and retention policies, including that for overseas workers
- 2 Improve data quality to inform the just transition for workers:** assess, and where necessary improve, data collection, granularity and provision on workforce diversity by employment type. For example, going beyond Standard Industry Classification (SIC) codes to determine representation rates of ethnic minorities in net zero-related roles (Green Jobs Taskforce, 2021)
- 3 Set workforce diversity targets:** based on more comprehensive data collection and provision, set statutory workforce diversity targets within key net zero sectors that will deliver, at the very least, economy-wide average representation rates by 2030
- 4 Monitor and Evaluate:** Develop and implement a monitoring and evaluation system for workforce diversity targets, including annual reporting of progress by sector and publication of plans to address any underperformance
- 5 Integrate into national climate commitments:** Overtly integrate workforce diversity plans and policies into Nationally Determined Contribution (NDC) submissions
- 6 Take a whole climate-economy approach:** Climate action workforce diversity plans must go beyond the energy sector and encompass all sectors that are core to delivery of climate action in a country
- 7 Engage and collaborate internationally:** The Just Transition work programme and other multilateral mechanisms have the potential to deliver a step change in knowledge exchange whereby good practice, tools and resources in one nation can quickly benefit scores of nations

While we have here focussed on workforce diversity, climate change and the actions taken to address it also represent very substantial risks to wider labour standards and practices. As highlighted by the International Labour Organisation, many of the changes in jobs resulting from climate action may present 'decent work deficits'—such as inadequate social protection, workers' rights and representation—in addition to inequalities around access to employment itself (ILO, 2024). As such, addressing workforce diversity within climate action is only one facet of safeguarding a just transition for workers.

In the case of the UK energy sector, for example, simply increasing representation rates of female, ethnic minority or disabled workers will not by itself deliver improved rights, protections and conditions—any proactive reduction of workforce inequalities around gender, ethnicity and disability would need to be in tandem with the provision of decent work for all.

## 5 Conclusion

In all nations where the transition to net zero is projected to generate substantial changes in employment, as is shown here for the case of the UK, there is a clear risk that existing distortions and under-representations in the workforce will be perpetuated and magnified even further. In the context of rapid and sustained climate action,

workforce policies and planning around the world must put equality, diversity and inclusion at their core if a just transition for all workers is to be realised and the aims of the Paris Climate Agreement are not to be severely undermined.

As stated by the International Labour Organisation: ‘*mitigation and adaptation policies need to be part of an integrated effort to deliver a gender-responsive and inclusive just transition for all.*’ (ILO, 2024). The UNFCCC Just Transition work programme is not the only game in town when it comes to addressing workforce inequalities, but in addressing the climate emergency it could be just the game changer the world needs.

## Data availability statement

The original contributions presented in the study are included in the article/[Supplementary material](#), further inquiries can be directed to the corresponding author.

## Author contributions

DR: Writing – original draft, Writing – review & editing.

## Funding

The author(s) declare that financial support was received for the research, authorship, and/or publication of this article. DR was funded by the UK Natural Environment Research Council (NERC) as part of SANH (NE/S009019/1), supported through UKRI Global Challenges Research Fund.

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## Acknowledgments

This work heavily informed by the work of the International Labour Organisation (ILO), the UK Climate Change Committee (CCC) and Scotland’s Just Transition Commission (JTC). All views expressed here are the author’s own.

## Conflict of interest

The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest. The author is co-chair of the Just Transition Commission, was a member of the UK Green Jobs Taskforce, and was chair of Scotland’s Climate Emergency Skills Action Plan (CESAP).

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## Supplementary material

The Supplementary material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/fclim.2024.1498156/full#supplementary-material>

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