



Demistifying employment in South Africa's Just Energy Transition: Exploring emerging decent work themes

Nthabiseng Mohlakoana, Alboricah Rathupetsane, Boitumelo Malope & Merin Jacob

To cite this article: Nthabiseng Mohlakoana, Alboricah Rathupetsane, Boitumelo Malope & Merin Jacob (20 May 2024): Demistifying employment in South Africa's Just Energy Transition: Exploring emerging decent work themes, Development Southern Africa, DOI: [10.1080/0376835X.2024.2352074](https://doi.org/10.1080/0376835X.2024.2352074)

To link to this article: <https://doi.org/10.1080/0376835X.2024.2352074>



© 2024 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group



Published online: 20 May 2024.



Submit your article to this journal [↗](#)



View related articles [↗](#)



View Crossmark data [↗](#)

Demistifying employment in South Africa's Just Energy Transition: Exploring emerging decent work themes

Nthabiseng Mohlakoana^a, Alboricah Rathupetsane^a, Boitumelo Malope^b and Merin Jacob^a

^aCentre for Sustainability Transitions, Stellenbosch University, Stellenbosch, South Africa; ^bDepartment of Sociology and Social Anthropology, Stellenbosch University, Stellenbosch, South Africa

ABSTRACT

The South African energy sector is faced with competing priorities concerned with ensuring environmental sustainability, energy security, and balancing its citizens' socio-economic needs. The decarbonisation agenda has put a spotlight on the quality of jobs in the energy sector, particularly those in the coal value chain. This paper aims to bring some focus to the subject of decent work as per the International Labour Organisation's definition and highlights the emerging themes in the South African energy sector. Our research shows that, although the country is on the path to decarbonisation, a clear definition of a job and decent work is needed. We show that if the country is to depend on the Renewable Energy industry, it is imperative to ensure that this industry has the capacity to provide the necessary skills and training to its new workforce and provide fair and just working conditions that would lead to decent work.

ARTICLE HISTORY

Received 21 July 2023
Accepted 30 April 2024

KEYWORDS

Decent work; employment;
just energy transition; jobs

1. Introduction

As the world places climate action at the forefront of the global agenda, South Africa stands as both one of the most carbon-intensive developing economies globally and the first nation to engage in the Just Energy Transition Partnership (JETP) aimed at decarbonising the economy in a socially just manner (BFT & CST 2022; The Presidency 2023). The country's energy transition also comes at a time when the electricity infrastructure is too old and under-maintained to reliably supply power to a constrained grid (BFT & CST 2023). Subsequently, the country is subjected to 'load shedding' which stunts economic activity. Therefore, the shift to a decarbonised power supply is not only borne from global sustainability agendas but South Africa's own domestic need to secure energy access that is reliable and affordable to all (BFT & CST 2022).

Extreme social disparities plague South Africa: it is the most unequal society in the world with a 68% Gini coefficient (World Bank 2022), it has extreme levels of poverty

CONTACT Nthabiseng Mohlakoana  nmkaxulu@gmail.com  Centre for Sustainability Transitions, Stellenbosch University, Stellenbosch, South Africa

© 2024 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group

This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivatives License (<http://creativecommons.org/licenses/by-nc-nd/4.0/>), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited, and is not altered, transformed, or built upon in any way. The terms on which this article has been published allow the posting of the Accepted Manuscript in a repository by the author(s) or with their consent.

(Francis & Webster 2019), and has one of the highest unemployment rates in the world at 32.9% (Stats SA 2023; World Population Review 2023). Therefore, in addition to transitioning to green energy, there is an emphasis on the transition being a 'just' transition. Presidential Climate Commission (2022) contextualises this accordingly by defining a just transition as one that:

... aims to achieve a quality life for all South Africans, in the context of increasing the ability to adapt to the adverse impacts of climate, fostering climate resilience, and reaching net-zero greenhouse gas emissions by 2050, in line with best available science. A just transition contributes to the goals of decent work for all, social inclusion, and the eradication of poverty ...

While the Just Energy Transition (JET) is a narrower definition of the Just Transition (JT), the JET is driven mainly by a desire to fuse together the environmental commitments to climate action (SDG 13) and affordable and clean energy (SDG 7) with the socio-economic commitments to end poverty (SDG 1) and reduce inequalities (SDG 10). Therefore, for the South African context, the path to decarbonisation must be connected to the social impact narrative of eradicating poverty and inequalities as well as creating employment opportunities for sustainable economic development. Chapter three of the National Development Plan (NDP) for 2030 calls for the realisation of decent work in the expanding economy, recognising that it is imperative to balance the expansion of employment with the protection of human rights (NDP 2012). The NDP (2012), as well as other government-related documents, express an intention by the South African constitution to promote a green pathway in which the creation of decent work plays a major role (IRP 2019; Presidential Climate Commission 2022; The Presidency 2023).

The subject of jobs has featured prominently in the South African energy transition agenda (DFFE 2020; The Presidency 2020; Presidential Climate Commission 2022), first as an issue of concern for potential job losses in the coal value chain as a result of decarbonisation efforts (Hermanus & Montmasson-Clair 2021; IEJ 2021), and second from the potential job gains from renewables (IASS & CSIR 2019; Ram et al. 2020; IRENA 2022). The Renewable Energy Independent Power Producers Procurement Programme (REIPPPP), which is the auction mechanism by which the state has procured power in South Africa, originally had significant localisation and equity requirements to make the energy transition a vehicle for not only green energy deployment but green supply chains, skills development, and employment creation (Eberhard & Naude 2016; Morris et al. 2020).

However, job creation and decent work are not synonymous with each other. Job creation is associated with the number of jobs, while decent work refers to job quality and working conditions (Ghai 2003). Even though South Africa has been involved in the building out of renewable energy projects for over a decade now, the quality and working conditions of employment created by the renewable energy industries still need to be explored.

This paper aims to apply the concept of decent work to the energy sector in South Africa, first by clarifying what the concept of decent work means within the South African context and second, by understanding the various expectations that different South Africans have for decent work in the transitioning energy sector. It acknowledges that green energy is not synonymous with equitable work. It exploratively assesses the

meaning of ‘decent work’ from different perspectives to contribute to a more informed understanding of decent work and job creation in the green economy.

What follows in this paper is = a literature review and knowledge gap section that explores the significance of the International Labour Organisation (ILO) in defining decent work. Next, we delve into the research objectives and questions, providing an overview of the study’s goals and the necessary inquiries to comprehend decent work within the context of the South African energy transition process. The methods section outlines the data collection process from various sources. This is followed by an analysis section, which focuses on discussions held with different South African energy sector stakeholders regarding the concept of decent work. Finally, we conclude by synthesising the main discussion points to assess whether the paper has achieved its objectives and addressed the research question.

2. The basis of decent work in South Africa

The South African government aims to reduce the country’s carbon emissions to ensure a sustainable future. South Africa is a signatory of the Paris Agreement of 2015 and in 2021 pledged to limit its Green House Gas (GHG) emissions to 398–510 MtCO₂e by 2025, and to 350–420 MtCO₂e by 2030 (WRI 2021). For the country, decarbonising the energy sector means less dependency on coal for generating electricity. Although projections show that coal use reduction sheds jobs in the coal value chain, there are potential new jobs in the renewable energy value chain (IASS & CSIR 2019; Roff et al. 2020). According to the Council for Scientific Research (CSIR), there should be an ambitious commitment to producing electricity through renewable energy in South Africa as this is needed to replace the ageing coal-fired power stations (Roff et al. 2020). An investment in building 5GW renewable energy would create up to 50,000 jobs per annum (Swilling et al. 2021).

According to the ILO, there are four pillars of decent work, namely: employment creation, social protection, workers’ rights, and social dialogue (ILO 2013). (Figure 1)

Employment creation	Social protection	Workers’ rights	Social dialogue
<ul style="list-style-type: none"> • Employment opportunities • Adequate earnings • Productive work 	<ul style="list-style-type: none"> • Decent working time • Combining work, family and personal time 	<ul style="list-style-type: none"> • Work that should be abolished • Stability and security of work • Equal opportunity and treatment in employment • Safe work environment 	<ul style="list-style-type: none"> • Social dialogue • Employers’ and workers’ representation

Figure 1. Decent work pillars and the substantive indicators and elements that match each pillar.

The first pillar of decent work, employment creation, refers to ‘adequate opportunities for work, remuneration (in cash and in-kind), and embraces safety at work and healthy working conditions’ (Ghai 2003, 113). Irrespective of the sector, any employment created must satisfy this first pillar. The second pillar refers to the social protection of workers, which entails protection at work and social protection ‘against contingencies such as unemployment, sickness, maternity, disability and destitution in old age’ (Ghai 2003, 122). The third pillar refers to workers’ rights, whereby workers have the ‘freedom of association, non-discrimination at work, and the absence of forced labour and child labour’ (Ghai 2003, 113). Social dialogue is the fourth and last pillar referring to the workers’ rights ‘to present their views, defend their interests and engage in discussions to negotiate work-related matters with employers and authorities’ (Ghai 2003, 113). Evidently, safety and security are key in ensuring decent work conditions throughout these pillars.

The total restructuring of South Africa’s labour relations following recommendations of the Wiehahn commission report of 1979 provided Black South African workers the same industrial rights as their white counterparts. The restructuring brought into sharp focus the four pillars of decent work before the concept was made mainstream by the ILO in 1999, setting the scene for debates on labour market regulation policy in democratic South Africa. The 1996 Labour Relations Act concretised gains from Wiehahn commission (SAF 1996). Employers and organised labour groups debated this Act, with contention points between the cost of labour and the flexibility of the labour market (SAF 1996; Bezuidenhout & Kenny 2000).

Tasked by the South African government with developing a framework to reduce decent work in informal employment, the Society, Work and Politics Institute (SWOP) at the University of the Witwatersrand developed the Decent Work Deficit Index (DWDI) in 2008. SWOP used Standing’s (1997) seven variables of security in the workplace to develop the index (Webster et al. 2008).

The seven variables are (Webster et al. 2008):

- (1) Labour market security: employment opportunities in the sector;
- (2) Employment security: protection against arbitrary dismissals;
- (3) Job security: opportunities to build a career and increase income;
- (4) Work security: protection against accidents and illness at work, and limits to working time;
- (5) Skills reproduction security: opportunities to gain and retain skills;
- (6) Representation security: protection of collective voice in the labour market through independent unions and employers’ associations; and
- (7) Income security: regular minimum income and comprehensive non-wage benefits.

After establishing an ‘informality continuum’ in the value chain on the basis of examining wages and work conditions at different points in the chain, the DWDI illustrates how employment security increases at the formal end and decreases at the informal end of the continuum (Webster et al. 2009). Webster et al. (2008) demonstrate this phenomenon through five case studies in the following formal and informal economic activities: (i) small clothing factories (manufacturing); (ii) sub-contractors in the platinum mine (mining); (iii) collectors in the scrap metal; (iv) collectors in waste papers

(recycling); and (v) workers in shebeens and taverns. The ‘informality continuum’ shows how with the advent of market liberalisation the formal economy can deformalise employment relations through various forms of employment flexibility (Webster et al. 2008). For example, outsourcing some parts of the production process and operations, using casual labour, sub-contracting or seasonal labour, can create an informal economy which is interdependent on the formal economy. The ‘informality continuum’ provides a useful framework for understanding the level of employment security that comes with direct, indirect and induced employment in the key sectors involved in the rollout of renewable energy (Benjamin & Mbaye 2012).

The ‘informality continuum’ has two key determinants: ‘the degree of representational security, and the location of the workers in the value chain’ (Webster et al. 2008, v). The higher the degree of representational security, the higher a worker is in the value chain, and vice versa. It is in the context of the ‘informality continuum’ that Webster et al. (2009) argue that decent work in South Africa should be an objective to aspire to, which can be incrementally achieved but is not immediately achievable under the prevailing labour market conditions characterised by a highly gendered and racialised unemployment rate. Gradín (2019) echoes this, showing that employment segregation by race has not improved working conditions for black people and women of colour, even in post-apartheid South Africa.

3. Objective and research questions

In light of global challenges and South Africa’s context, and as described in section 1, South Africa’s energy transition journey must be ‘just.’ For South Africa, a just energy transition should refer to the dual process of decarbonising the economy by transitioning to renewable energy while simultaneously achieving social justice by addressing socio-economic injustices of poverty, unemployment and inequality. Ensuring the availability of sustainable and decent work opportunities is one way the South African energy sector can ensure a just energy transition through various innovative ways where a sustainable energy mix is at the core of all economic growth activities.

This study’s main objective is to draw attention to how decent work is understood and described by various stakeholders in the South African energy sector that is undergoing a transition to fulfil goals that will enable the reduction of carbon emissions. We also draw knowledge from key sources on the meaning of decent work for different stakeholders in the South African energy sector and highlight critical aspects of decent work and job creation discourse as seen by these stakeholders. In exploring ‘meaningful employment’ or ‘decent work’ from different perspectives, we can gain a more refined understanding of these concepts and achieve greater consensus in South Africa’s just energy transition discourse. This, in turn, will better inform the key elements to be considered in discussions on jobs and decent work in the decarbonising energy sector in light of South Africa’s energy transition. To achieve this, we answer the following questions:

- How do different stakeholders in South Africa understand decent work and what aspects should be considered for the nation’s context?
- What are the potential tensions and challenges in integrating decent work principles into the energy transition process in South Africa?

The importance of answering these questions lies in South Africa's state of energy, its employment potential, and the fact that the country is entering a new dawn whereby the electricity sector is in the midst of a foundational shift. Decades of reliance on fossil fuels, particularly coal, are giving way to stakeholders' increased understanding that a greener electricity sector is needed (Hermanus & Montmasson-Clair 2021). At the same time, the damage caused by burning fossil fuels such as coal can no longer be ignored as stark evidence of climate change disasters in South Africa and the rest of the world become more visible (The Presidency 2023). Extreme weather conditions cause irreparable damage to the earth, and although everyone is at risk of being affected by these conditions, people with low incomes are most vulnerable and least resilient.

4. Method

We collected literature on decent work through academic and grey literature sources. We also sourced literature on the South African energy sector, its employment conditions and overall benefit to society. As our research and this article focus on decent work conditions, literature from the ILO, specifically referring to the pillars of decent work, was most relevant to draw from. However, this literature has to be understood within a South African context as set out by the work done by researchers and academics from SWOP. Coupled with the literature review, we also conducted interviews with workers in the coal mines and electricity generation power plants in South Africa. We conducted a series of stakeholder sessions with various South African energy sector groups.

4.1. Sample selection and interviews

We conducted a total of 51 interviews (which included 13 women and 38 men) with current and former coal mine workers and electricity power plants workers. Participants were all living in KwaGuqa Township, a low-income area of the Emalahleni municipality in the coal mining region of Mpumalanga province in South Africa. We selected this location because of its close proximity to the coal mines and power stations and, therefore, a preferred living area for those working in this local power sector. KwaGuqa Township is also affordable because rental and living costs are not as high as those in the 'formal' suburbs; this is attractive for workers who have come from other parts of the country to seek employment in the coal mines and power stations.

We used a snowball sampling method, as some respondents referred us to their co-workers and ex-colleagues, and a semi-structured interview.

We interviewed 51 low – and medium-skilled workers with some form of technical college diploma relevant to their job. These skills included coal cutters, machine operators, welders, electricians, boiler makers, underground water pumpers, drivers and coal conveyor belt operators. Some were employed as contract staff (instead of permanent staff), which means they did not qualify for employment benefits such as pensions, medical insurance and housing subsidy. Those working as permanent staff members were employed for more than ten years, with the longest serving employee in our sample having worked for more than 30 years as an underground water pumper.

A set of questions was documented on an interview schedule, which was divided into three sections. The first section consisted of questions inquiring about the respondent's

background information such as their age, place of residence and whether they are contract or permanent workers. The second section asked questions about the impacts of coal mining, climate change and health. This was to explore how these issues relate to the work of the respondents. The last section asked questions about issues of decent work and compensation for those working in the coal mines and electricity power plants. These questions helped to clarify the worker's perceptions about the working conditions and compensation in the coal sector and energy industry. The compensation questions were linked to the imminent closure of mines and power plants, and how workers would like to be compensated if they were to lose their jobs.

4.2. Stakeholder sessions

To complement information and data from the literature review and interviews, we also conducted stakeholder discussions with those we regarded as knowledgeable in the South African energy sector. To bring some balance to the different perspectives in the energy sector on decent work discourse, we conducted stakeholder discussions with those representing the (i) fossil fuels sector, (ii) renewable energy industries, (iii) researchers and practitioners, and (iv) trade union representatives in the energy sector. These stakeholder sessions were also a way to triangulate the information gathered from the literature review on decent work in the South African energy sector. The stakeholder sessions' participants were invited by email correspondence and were selected based on their active participation in the South African energy sector in their respective professions. The sessions lasted 60–90 minutes, depending on the participants' availability and intensity of the discussion. The sessions also assisted with identifying the research gaps and grounding our research in the reality of the South African energy sector.

4.3. Limitations of the sampling techniques

The sampling of our interviews with workers and former workers was limited to a single location: KwaGuqa. Due to time and resource constraints, the research team could not conduct interviews with workers in other locations. We therefore lack data to compare our findings and results to other areas within the Mpumalanga region of South Africa, where the energy transition is said to be affecting more workers in the coal and electricity industry.

5. Analysis and discussion

As expected, responses from the different stakeholders varied based on their experience and level of employment in the energy sector. Below we present views from the miners, power plant workers and their ex-colleagues based on the questions posed to them during the interviews. We then present views collected from stakeholder sessions with four energy sector groups.

5.1. Workers voices

The 51 respondents representing current and ex-workers were asked several questions relating to the South African energy transition, the influence of climate change on the

government's decisions regarding the energy transition and their opinions on coal mine closures.

In response to the question, '**In your opinion, what is a decent or a good job**', the following are the insights drawn from the responses given:

- 19 described a decent job with benefits such as pension payments, medical insurance and other benefits that would ensure comfortable living.
- 18 said that a decent job should provide fair payment for the work done.
- 16 said a decent job has a safe and healthy environment with no toxic emissions.
- For ten respondents, a decent job could only be achieved if one had a business.
- Other responses included a description of decent jobs as permanent work and where they could be 'happy' as employees.
- Only three people said there is nothing like decent work.

Our respondents said they did not regard jobs in the coal mines and power plants as decent work, as 80% stated they would not want their children to do the same jobs. However, they were concerned about the loss of jobs if the mines were to close due to decarbonisation efforts by the government.

In order to ascertain the workers' perceptions about the imminent closure of coal mines in the bid to decarbonise the energy supply sector, we asked the question '**South Africa is planning to close coal mines and power plants. Have you heard talk about it? How do you think it will affect you?**'

Forty-six percent of the respondents said that it would not be fair to close the coal mines with lower production because they would lose their jobs. Respondents expressed concerns such as:

- 'It is unfair because many people will lose jobs.'
- 'People will lose jobs and the economy will suffer.'
- 'It will not be fair to close coal mines because the country already suffers from high unemployment rates.'

Those in favour of coal mine closures and decommissioning of power plants were more concerned about community health issues rather than the loss of jobs. As mentioned above, the township settlement of KwaGuqa is in close proximity to the coal mines and electricity generation power plants. The emissions from mining and electricity generation activities have led to health concerns in the area where the community has reported a high number of cases of respiratory diseases. In 2022, the High Court found that the poor air quality in this area and those in the proximity of the coal mines across the Mpumalanga Highveld is in breach of residents' section 24(a) Constitutional right to an environment that is not harmful to their health and well-being (CER 2022).

5.2. Emerging themes in the decent work discourse

In the following section, we discuss the most prominent themes that emerged from the four stakeholder sessions and link them to the findings from the interviews conducted

with the community members in KwaGuqa. We allowed our dialogue with them to venture into considerations they felt were most important in the discourse on decent work and job creation in order to contextualise how different stakeholders understood the concept of decent work and what this meant for a decarbonising economy.

5.2.1. Decent now or later?

Different actors had diverging views on how to achieve decent work. One was to create as many jobs as possible and to instil principles of decent work later, and the other was to integrate decent work principles into the new jobs from the onset. This tension was borne from the concern that in the South African context of a very high unemployment rate, sustaining existing jobs and generating as many job opportunities as possible was more urgent than dictating what kind of jobs ought to be created. According to participant A from the labour stakeholder session (30 November 2022):

If we are pushing for decent work, then let's take what we currently have and let's fundamentally address the issues of what constitutes decent work within the coal sector and meet our SDGs. But to ask people to lose their jobs or to give up their jobs, and then have aspirations for decent jobs in sectors that don't exist, is morally wrong.

This stemmed from the observation that people would rather feed their families and take their children to school with money earned from coal-related activities rather than wait without clear knowledge of what opportunities the energy transition might (or might not) bring for them. Participants in the fossil fuel stakeholder session echoed this sentiment. They mentioned that first-line community members worried more about their daily needs (such as food) than a cleaner environment. Therefore, the conversation of what constitutes 'decent' seemed premature when there are few demonstrable jobs from renewables.

During the sessions with practitioners and research stakeholders, participants had opposing opinions, pointing out that it was easier to integrate decent work principles into new industries than to improve the working conditions for employees in already established industries. Participant C from the research and practitioner's stakeholder session (29 November 2022) stated:

Renewable energy jobs are not decent jobs. They are just jobs. Besides the point that we should aim for decent jobs, is that it [renewable energy] is a new industry and there is an opportunity to break the pattern of jobs that are not decent in other industries. We should be setting much higher standards and a much higher bar. We should aim for decent jobs from the onset.

Participants argued that the underlying goal for South Africa is not only to reduce unemployment but also to close the inequality gap. In doing so, the energy transition can be just.

According to Hermanus & Montmasson-Clair (2021), in the year 2020, the IPP Office reported that the REIPPPP had created 55 217 direct 'job-years' for South African citizens, but this was not clear if these were full-time or part-time jobs nor was it clear what wages would be paid in these jobs.

5.2.2. Demystifying jobs and skills in the low carbon economy

According to fossil fuel stakeholders, the lack of practical demonstrations of renewable energy jobs, especially in areas where coal mine closure would happen, has resulted in

a lot of fear, apprehension, and anxiety on the ground. This is because no one there had seen what these jobs look like and what skills they require. As a result, people do not know whether their skills or experience are suitable to the opportunities which may emerge from the renewable energy industries.

Stakeholders from the renewable energy industry pointed out that renewables created jobs in other sectors as well, and we should not only look at the jobs created at the project level itself. The RE stakeholders continued to say that ancillary services (such as power output control, power balancing and voltage support) at a wind farm, for example, can create decent jobs for people. These stakeholders regarded it important to support RE industries as they would lead to more decent work. More than just pointing out the jobs, clarity around the skills and qualifications required for these jobs is important.

The fossil fuel stakeholders echoed this point. They said that we need to be clear about what the exact jobs entail and the skills and qualifications required so that people would know how to access the opportunities in a greener economy. Additionally, the next pipeline of workers must be proactively prepared for the decarbonised economy by instilling sustainability – and industry-related skills in schools and higher education institutions.

These points illustrate the need for more empirical studies investigating the job types and conditions of employment for jobs in renewable energy industries. There was also the realisation that job discourse was too focused on the project development, construction, operation, and maintenance phases. The Renewable Energy Independent Power Producers Procurement Programme (REIPPPP) was responsible for approximately 109 444 jobs for South Africans across the four bid windows. Approximately 67% of these jobs are related to Operations and Maintenance (O&M) and can be sustained over the 20-year operational period. The rest of the jobs are allocated to work done during the development and construction phases of the project, and these jobs typically last 1.5–3 years (IASS & CSIR 2019). The latter are often jobs performed by low-skilled personnel.

Various other jobs that renewables support and their associated skills and qualifications need to be communicated more effectively so that people are aware of the wider opportunities that renewable energy industries support. Opportunities in renewable energy are often relegated to the Science, Technology, Engineering and Mathematics (STEM) fields. However, there are other viable career options, such as those in economic development management within the renewable energy sector (Swilling et al. 2021).

5.2.3. Setting the minimum requirements of decent work

Participant D, who was in the renewable energy industry stakeholder session (23 November 2022), suggested taking the monetary perspective as a starting point for looking at decent work.

From a monetary perspective, I think a very deep, very honest exercise (reflection process) needs to be done in South Africa today, to determine what as an adult with a family and kids, you need to be able to keep and maintain a household and progress yourself?

The renewable energy industry stakeholder participants also discussed that even though many people would not be able to meet all their needs with the jobs offered, the renewable energy industry, as an emerging sector of the future, should strive towards offering this. Another reflection made in this stakeholder session was that engineers in the fossil fuels industry, for example, earn a higher average salary than their counterparts.

Innovative remuneration models such as share schemes should be introduced to ensure that people do not feel that they are ‘settling for less’ in the renewable energy industry. This would ensure that workers also have an opportunity to have some ownership and share of the wealth created by the renewable energy sector.

Stakeholders stated that mining communities were aware of the health and environmental damage the coal industry has caused. In the fossil fuels stakeholder session, the participants relayed stories and experiences from the mining communities of how some community members had been forced to buy water they could barely afford because coal mining activities contaminated their water sources. However, even with these conditions, people were still accepting of the coal industry because it enables them to be part of the mainstream economy in terms of employment. Some others were also dependent on coal daily for fuel as they lacked affordable and clean alternative energy sources.

Practitioners and research stakeholders pointed out that the decent work concept was generally driven through employment standards at a national level rather than sectoral standards. While there might be charters for the different sectors, there was not one for the renewable energy industry. Moreover, the issue of sector boundaries needs to be considered to ensure clarity on what the RE sector entails and what governance mechanisms would apply to it.

5.2.4. Manufacturing must happen!

Upstream of coal-fired electricity generation, there is coal mining. However, unlike fossil fuels, wind and solar resources do not require labour-intensive extractive activities upstream. What lies upstream of deploying renewables includes manufacturing, which is associated with the knowledge-based industries that promote economic transformation (Aryeetey & Moyo 2012; McMillan et al. 2014). All stakeholders supported the development of domestic manufacturing capabilities. However, this would be challenging and would require innovative thinking. According to participant A in the renewable energy stakeholders’ session (23 November 2022):

In terms of job creation, there is a huge concentration on those three levels: operations, construction, maintenance. But we haven’t truly looked beyond the value chain. Innovatively, I think there are opportunities for us to use social economic development programs to create employment.

Participants in the fossil fuel sector emphasised that by setting up other industries that support renewables, especially the manufacturing of renewable energy components, there would be less contestation of the energy transition. Investment into the diversification of industries could enable job creation in the RE sector, potentially even more than through coal industries.

5.2.5. Understanding the role of renewable energy in low carbon economy

There was a clear concern that South Africans viewed the energy transition from different levels of understanding, often based on the intentions of the stakeholders supplying this information. There was the view that there is a lack of vital information and high levels of misinformation when it comes to the energy transition discourse in South Africa. This

has led to the lack of common ground for different stakeholders (especially within communities) in understanding the energy transition, its purpose, and its benefits.

Notably, participant B from the fossil fuels stakeholder session (1 December 2022) said: ‘There are power stations that are reaching their end of life. These are going to be closed whether there are renewables or not.’ He expanded on his point by asserting that the transition is not why coal power stations are closing. Rather, the transition is part of what directed the decisions for new power generation towards renewable energy technologies instead of building more coal power plants. The closure of certain power stations in the Mpumalanga province would have happened regardless of whether the replacement is a new coal plant in the Limpopo province or a renewable energy plant elsewhere. He acknowledged that the transition conversation at different levels in South Africa sometimes lacked these nuances, resulting in people talking across at each other purely because they understood the transition from different reference points.

Participant B, in the practitioners and researchers session (29 November 2022), pointed out that the South African private sector has made the renewable energy industry profit-driven and that there seemed to be naivety about the industry being morally better than other sectors.

The more accurate representation is that renewables are a different technology, that may be better than alternative or older technologies in some respects (like emissions and affordability), but the dynamics of the renewable energy industry are the same as that of any other capitalist market.

In recognising that transformation cannot naturally result from implementing renewables, policy can shape the market and socio-economic outcomes, including industrial policy. The practitioners and researchers stakeholder session participants pointed out that, it was unrealistic to expect private companies operating in the renewable energy market fostered by South Africa have to be driven by anything other than profit without adequate incentivisation. In a context of high unemployment where there is a need to create jobs, the renewable energy market cannot be allowed to operate solely in a capitalist model.

Creating a trajectory for renewable energy industries aligned with the developmental outcomes we want to see in South Africa would require us to change the parameters driving this sector going forward. Until we do that, renewable energy will not be a solution for decent employment creation, even though it is marketed as such.

5.2.6. Decarbonisation at a context-sensitive pace

Stakeholders from labour, fossil fuels and research emphasised the importance of crafting a decarbonisation plan suitable to South Africa’s reality and needs. The decarbonisation of the economy cannot be divorced from the country’s high poverty, inequality, and unemployment realities. As substantiated by literature (Swilling et al. 2021), South Africa’s decarbonisation plans cannot directly adopt the strategies used in the Global North. According to the stakeholders, there is a need to reflect deeply on aspects like just compensation for jobs lost, strategic thinking around reskilling and upskilling, as well as taking decisive measures that foster the development and growth of the wider value chain. The progress of these considerations needs to align with the pace of our decarbonisation if the energy transition is to be just, and therefore create decent work.

6. Conclusions and considerations for future research

The aim of this paper was to examine the concept of decent work in the South African energy sector and its implications for the transition to a greener and more sustainable economy. We gained valuable insights by synthesising literature, gathering community responses from interviews conducted in KwaGuqa township in Mpumalanga Province, South Africa, and listening to the perspectives of various energy sector stakeholders. Relating this research to the pillars of decent work, we have discussed how the different stakeholders in the South African energy sector are concerned with employment opportunities that may be gained and lost as a result of the energy transition. The analysis of workers' voices resulted in an illustration of concern relating to the second pillar of decent work, namely the social protection of workers. The workers were not fully aware of their employment future in the transitioned energy sector, which brought concerns about their future. The lack of opportunities to be part of the conversations with employers and government decision-makers also made it difficult for workers to voice their concerns about the planned energy transition and the lack of guarantee that it would provide decent work opportunities.

Our interviews with the coal mine and power station workers highlighted the importance of decent work conditions and articulated what decent work means to workers. Numerous respondents stressed the significance of benefits such as pensions, medical insurance, and a safe and healthy working environment. They also voiced apprehensions about the nature of their current jobs, with a significant majority stating that they would not want their children to pursue similar work in the coal sector. Nevertheless, there was a broader agreement that real alternative opportunities needed to be presented prior to phasing out coal jobs.

The stakeholder sessions consisted of representatives in the energy sector from the fossil fuel industry, the renewables industry, researchers and practitioners and labour. A notable theme that emerged was the tension between the immediate need to create jobs and the long-term goal of integrating decent work principles into the energy transition. Some stakeholders argued that addressing existing job opportunities within the coal sector and ensuring decent work conditions were fundamental before pushing for a transition to other industries. They highlighted the moral imperative of safeguarding livelihoods and meeting sustainable development goals. On the other hand, research and practitioner stakeholders emphasised the potential of the renewable energy sector to establish higher standards of decent work from its inception, aiming to break away from the patterns observed in other industries.

The stakeholder sessions also emphasised the need to demystify jobs and skills in the low-carbon economy. A lack of practical demonstrations and understanding of renewable energy jobs resulted in fear and apprehension among communities affected by coal mine closures. Clarity regarding the skills and qualifications required for jobs in the renewable energy sector is crucial for building confidence and facilitating a smoother transition, and this will be in line with the first pillar of decent work, which is concerned with adequate opportunities for work. All stakeholders agreed that manufacturing in renewable energy needed to be established in order to support the economic transformation agenda.

Policymakers, industry stakeholders, and civil society organisations must collaborate to develop strategies that promote decent work throughout the energy sector value chain. This process entails ensuring fair and safe working conditions, as well as exploring opportunities for skill development and job creation in the renewable energy industry and related sectors. By addressing the concerns and aspirations of workers and communities, it is possible to foster a just energy transition that simultaneously advances environmental sustainability and social well-being.

Based on the research conducted and the results presented on this paper, the following questions have been identified for future research.

1. What are the real alternative opportunities that exist in the renewables sector? What do these exact jobs entail and what skills and qualifications are required so that people know how to access the opportunities in a greener economy?
2. In understanding the tension that exists between job creation and ensuring those jobs are decent, is there a charter that can be drawn up for the Renewable Energy sector to set the minimum requirements?
3. In the context of South Africa's challenges, is there a way to incentivise the renewable energy market not to operate solely in a capitalist model? Is there a way to align renewable energy industries with the developmental outcomes we want to see in South Africa? How can we change the parameters driving this sector going forward?

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

Part of this work was supported by the European Climate Foundation under Grant number: G-2202-05208.

Ethics approval

Data used for this study was obtained from the research project conducted in collaboration with colleagues from the University of Washington. Due to time constraints, a decision was made by the research team to apply and obtain the ethics approval from the University of Washington's Human Subjects Division. The study was granted exempt status by this committee. Note that the University of Washington research team received no funding for this research. The study reference number is – IRB ID: STUDY00015042.

References

- Aryeetey, E & Moyo, N, 2012. Industrialisation for structural transformation in Africa: Appropriate roles for the state. *Journal of African Economies* 21(suppl_2), ii55–ii85.
- Benjamin, NC & Mbaye, AA, 2012. The informal sector, productivity, and enforcement in West Africa: A firm-level analysis. *Review of Development Economics* 16(4), 664–80.
- Bezuidenhout, A & Kenny, B, 2000. The language of flexibility and the flexibility of language: Post-apartheid South African labour market debates. *Sociology of Work Unit*. University of Witwatersrand, Johannesburg.

- BFT (Blended Finance Taskforce) & CST (Centre for Sustainability Transitions), 2022. Making climate capital work: Unlocking \$8.5 bn for South Africa's Just Energy Transition. Centre for Sustainability Transitions, Stellenbosch University and Blended Finance Taskforce, London. <https://www.blendedfinance.earth/making-climate-capital-work> Accessed 18 October 2022.
- BFT (Blended Finance Taskforce) & CST (Centre for Sustainability Transitions), 2023. Better finance, better grid. Centre for Sustainability Transitions, Stellenbosch University and Blended Finance Taskforce, London. <https://www.blendedfinance.earth/better-finance-better-grid> Accessed 18 March 2023.
- CER (Centre for Environmental Rights), 2022. Major court victory for communities fighting air pollution in Mpumalanga Highveld Centre for Environmental Rights. <https://cer.org.za/news/major-court-victory-for-communities-fighting-air-pollution-in-mpumalanga-highveld> Accessed 23 June 2023.
- DDFE (Department of Environment, Forestry and Fisheries), 2020. South Africa's Low Emission Development Strategy 2050. https://www.environment.gov.za/sites/default/files/docs/2020lowemission_developmentstrategy.pdf Accessed 23 June 2023.
- Eberhard, A & Naude, R, 2016. The South African renewable energy IPP procurement programme: Review, lessons learned & proposals to reduce transaction costs. University of Cape Town, Graduate School of Business, South Africa.
- Francis, D & Webster, E, 2019. Poverty and inequality in South Africa: Critical reflections. *Development Southern Africa* 36(6), 788–802.
- Ghai, D, 2003. Decent work: Concept and indicators. *International Labour Review* 142, 113–45.
- Gradín, C, 2019. Occupational segregation by race in South Africa after apartheid. *Review of Development Economics* 23(2), 553–76.
- Hermanus, L & Montmasson-Clair, G, 2021. Making sense of jobs in South Africa's just energy transition: Managing the impact of a coal transition on employment. Trade & Industrial Policy Strategies (TIPS) Policy Brief 3/2021.
- IASS (Institute for Advanced Sustainability Studies) & CSIR (Council for Scientific and Industrial Research), 2019. Future skills and job creation through renewable energy in South Africa. Assessing the co-benefits of decarbonising the power sector. IASS/CSIR, Potsdam/Pretoria. <https://www.cobenefits.info/wp-content/uploads/2019/03/COBENEFITS-Study-South-Africa-Employment.pdf>.
- IEJ (Institute for Economic Justice), 2021. Challenging Privatization, Centring Public Ownership and Decent Work. SAREM policy brief.
- ILO (International Labour Organisation), 2013. Decent work indicators: Guidelines for producers and users of statistical and legal framework indicators. International Labour Office, Geneva, Switzerland. https://www.ilo.org/wcmsp5/groups/public/-dgreports/-integration/documents/publication/wcms_229374.pdf.
- IRENA (International Renewable Energy Agency), 2022. Renewable energy and jobs annual review 2022. International Renewable Energy Agency, Abu Dhabi and International Labour Organization, Geneva, Switzerland. https://www.ilo.org/wcmsp5/groups/public/-dgreports/-dcomm/documents/publication/wcms_856649.pdf Accessed 13 January 2023.
- IRP (Integrated Resource Plan), 2019. Integrated Resource Plan 2019. Department of Energy, South Africa. <http://www.energy.gov.za/IRP/2019/IRP-2019.pdf> Accessed 23 June 2023.
- McMillan, M, Rodrik, D & Verduzco-Gallo, Í, 2014. Globalization, structural change, and productivity growth, with an update on Africa. *World Development* 63, 11–32.
- Morris, M, Robbins, G, Hansen, UE & Nygaard, I, 2020. Energy and industrial policy failure in the South African wind renewable energy global value chain: The political economy dynamics driving a stuttering localisation process. Prism Working Paper Series 2020-3. University of Cape Town, South Africa, Cape Town. https://webcms.uct.ac.za/sites/default/files/image_tool/images/524/Papers/PRISM%20Working%20Paper%202020-3%20-%20Mike%20Morris%20et%20al.pdf.
- NDP (National Development Plan), 2012. National Development Plan 2030. National Planning Commission, South Africa. <https://www.gov.za/issues/national-development-plan-2030> Accessed 20 June 2023.

- The Presidency, 2020. The South African Economic and Reconstruction and Recovery Plan. The Presidency, South Africa. https://www.gov.za/sites/default/files/gcis_document/202010/south-african-economic-reconstruction-and-recovery-plan.pdf Accessed 20 November 2022.
- The Presidency, 2023. South Africa's Just Energy Transition Investment Plan (JET IP). The Presidency, South Africa. <https://www.thepresidency.gov.za/content/south-africa%27s-just-energy-transition-investment-plan-jet-ip-2023-2027> Accessed 23 May 2023.
- Presidential Climate Commission, 2022. A Framework for a Just Transition in South Africa.
- Ram, M, Aghahosseini, A & Breyer, C, 2020. Job creation during the global energy transition towards 100% renewable power system by 2050. *Technological Forecasting and Social Change* 151, 1–19.
- Roff, A, Steyn, G, Tyler, E, Renaud, C, Brand, R & Burton, J, 2020. A vital ambition: Determining the cost of additional CO2 emission mitigation in the South African energy system. Meridian Economics, Cape Town.
- SAF (South Africa Foundation), 1996. Growth for all: An economic strategy for South Africa. South African Foundation, Johannesburg.
- Stats SA, 2023. Beyond unemployment – time-related underemployment in the SA labour market. Stats SA, South Africa. <https://www.statssa.gov.za/?p=16312> Accessed 20 June 2023.
- Swilling, M, Mohlakoana, N, Jacob, M, Mararakanye, N, Bekker, B & Vermeulen, H, 2021, June 20. Imagine no load shedding, it's easy if you try — no hell below us, above us only sky. *Daily Maverick*. <https://www.dailymaverick.co.za/article/2021-06-20-imagine-no-load-shedding-its-easy-if-you-try-no-hell-below-us-above-us-only-sky/>.
- Webster, E, Benya, A, Dilata, X, Joynt, C, Ngoepe, K & Tsoeu, M, 2008. Making visible the invisible. Confronting South Africa's Decent Work Deficit. Research Report prepared for the Department of Labour, Johannesburg.
- Webster, E, Phoskoko, D, Machaka, J, Bischoff, C, Chinguno, C, Guliwe, T & Metcalfe, A, 2009. A policy framework for the progressive realisation of the goal of decent work in Gauteng. SWOP Research Report for the Department of Economic Development, University of Witwatersrand, Gauteng.
- World Bank, 2022. Inequality in Southern Africa: An assessment of the Southern African customs union. 1–144. World Bank, Washington, DC. <https://documents1.worldbank.org/curated/en/099125303072236903/pdf/P1649270c02a1f06b0a3ae02e57eadd7a82.pdf> Accessed 23 April 2023.
- World Population Review, 2023. Unemployment by Country 2023. World Population Review, US. <https://worldpopulationreview.com/country-rankings/unemployment-by-country> Accessed 15 June 2023.
- WRI (World Resources Institute), 2021. 'Statement: South Africa's climate commitment much more ambitious than Before'. WRI, Washington. <https://www.wri.org/news/statement-south-africas-climate-commitment-much-more-ambitious> Accessed 26 March 2023.

Appendix

QUESTIONS FOR COAL MINERS & EX-MINERS

Background information:

1. Is the worker Male or Female? (This is for the interviewer to note. The information is important for gender disaggregated data analysis)
2. What is your age:
3. Are you originally from Mpumalanga province? If not, which province or country do you come from?

4. Please tell us about how you began working in the coal mines? How long have you been employed or were you employed in this sector? What is / was your position?
5. What do / did you like about working on the coal mines? Is / was it good money? Do people respect coal miners? Would you want your children to work in coal mines as well?

Impacts of coal mining.

6. What do you understand about the impact of coal mining on the environmental and human health?
7. Have you heard about climate change? How do you think coal contributes to it?
8. Do you think it is fair that coal mines are being closed to tackle climate change?
9. Are there any health issues you know of that are associated with coal mining?
10. Have you suffered from these health issues?

Coal mine closures and compensation:

11. South Africa is planning to close coal mines and power plants. Have you heard talk about it? How do you think it will affect you?
12. If you are not from Mpumalanga, will you return to your area of origin if you lose your job or if the mine were to close down?
13. Some people are talking about policies to help coal miners when mines are closed down. Have your employers or union leaders discussed this issue?
14. People are saying that if mines are closed the government should offer some form of 'compensation'. There are many ideas on how this compensation should be paid. Do you have any ideas on how this compensation should be given?
 - Would you prefer this to be spread out over a number of years, or as a once off package?
 - Do you think instead of compensation, the government should open up new colleges or schools to give you new skills? If so, what kind of skills would be helpful for you?
 - What kind of jobs would you like to see replace the mining jobs?
 - In your opinion, what is a decent or good job? (prompt conditions, pay package, duration, benefits etc)
 - Some say that instead of giving money, governments should create better roads, streets, and provide internet so that new businesses come to your community. This is how new jobs will get created. What is your opinion on this?
15. As an ex-miner, did you receive compensation? Was it from your employer or government? Was it money or other kind? Please explain if you received another form of compensation.
16. For ex-miners: What did you do with your compensation package?
17. For miners: What will you do with your compensation package?
18. As part of 'fixing' the Climate Change problem, governments are supposed to get money from international donors. Do you think the South African government will spend the money fairly? What do you think they should spend the money on? Do you think mining companies should get this money? Or the unions?
19. If the mines close, will you continue to live in this area? Where would you go? Remain in the same province, move to another province, move to another country?