



(EM)POWERING THE FUTURE

**OPPORTUNITIES FOR YOUTH IN A
JUST TRANSITION IN AFRICA**

(EM)POWERING THE FUTURE
OPPORTUNITIES FOR YOUTH IN A JUST
TRANSITION IN AFRICA



Lead author: Siri Lijfering

**Contributing authors: Agnieszka Kazimierczuk, Olaoluwa Abagun,
Victoria Many, Beth Vale, Yvonne Karanja, Precious Bikitsha**

Supervisor: Anika Altaf

Table of Contents

Executive summary	2
1. Introduction	5
2. Methodology	6
2.1 Research methods and findings	6
3. Existing and emerging knowledge on LCT	8
3.1 Conceptualising the low carbon transition in Africa	8
3.2 An overview of Africa's energy landscape	9
3.3 African energy sector labour market	11
3.4 Job creation in LCT: main opportunities	12
3.5 Decent work in LCT	13
3.6 Job creation in LCT: main challenges	13
3.7 Gender justice and meaningful youth engagement	15
3.8 At a geopolitical crossroad: African Green Deal or a new scramble for Africa	16
4. Insights from South Africa and Nigeria	17
4.1 A just transition in South Africa	17
4.2. A just low carbon transition in Nigeria	25
4.3. Facilitating exchange through multi-stakeholder dialogues	28
4.4. Main findings and lessons learned	30
5. Recommendations & research agenda	32
5.1 Recommendations for policy & programming	32
5.2 An Inclusive research agenda	34
6. Conclusion	36
Annex 1: The advisory committee	38
Annex 2: The LCT Ecosystem	39
Notes	41

Executive summary

Climate change is one of the most pressing issues of our time and is seen as a ‘threat multiplier’ that exacerbates existing inequalities, especially those of vulnerable communities in the Global South. Despite having contributed the least to global warming, Africa remains the most vulnerable continent to climate change impacts. Africa is also the youngest continent, and it is estimated that by 2040 the continent will have the largest youth workforce in the world. A shortage of decent employment opportunities for Africa’s youth comes with great risks for stability and inclusive development and approaches to stimulate youth employment have as such become a priority in policy and practice. The “greening” of economies through a process of low carbon transition (LCT) is seen as a hopeful solution to the multiplex challenges of climate change, poverty and inequality, while also enabling countries to create decent jobs and accomplish an inclusive economic transformation.

At the same time, it is increasingly recognised that a low carbon transition will be disruptive as it will destroy jobs even as it creates new ones. Consequently, the concept of a *just* transition, which entails greening the economy in a way that is as inclusive as possible by creating decent work opportunities and leaving no one behind, is gaining traction in policy and programming circles as it promotes sustainability on both environmental and social dimensions. Despite the widespread optimism associated with the just transition discourse, however, the evidence linking the green economy to improved youth employment in Africa is still thin and increasingly critical voices are heard that question whether the ‘just transition’ is just at all.

This publication explores this question by sharing insights from the project ‘A Green and Just Future for Youth in Africa’, a collaborative research programme between the International Development Research Centre (IDRC) and INCLUDE. Presenting the latest insights from research and practice, this project aims to strengthen the evidence base on LCT in Africa by looking at the African energy sector and its complexities in order to understand where opportunities for youth employment are most pronounced and what systemic barriers need to be addressed to create an enabling environment for youth to thrive and drive a truly just transition in Africa.

Applying an inclusive development lens, the research presents an important contribution to the debate, shedding light on both supply and demand sides of the labour market, as well as the often less visible aspects of the low carbon transition in the Global South, such as opportunities for youth in the informal economy. The applied just transition framework considers the three core elements of justice: distributive, procedural and recognition justice, which also include political economy dimensions and meaningful participation of youth in decision-making processes. The research recognises youth heterogeneity and intersectionality as important dimensions to youth employment research and in this regard specifically also focuses on spatial and gender disparities in the analysis.

Building on a review of academic and grey literature, coupled with case studies and stakeholder engagements in South Africa and Nigeria, this publication highlights the main insights and knowledge gaps regarding youth employment in LCT in Africa. These insights will serve as a basis for an inclusive research agenda on low carbon transition pathways in the Global South. It also serves as a call for urgent action to ensure that the process of low-carbon transition is just and inclusive, especially for youth, women and other marginalised groups on the African continent.

Key messages

A low carbon transition in Africa should be contextualised

The discourse on low carbon transitions has been mainly focused on high-income countries in the Global North which are predominantly geared towards changes in energy production, redesigning grids and increased efficiency of consumption towards net-zero goals. However, Africa's energy supply landscape differs substantially from the rest of the world. Over 50 percent of the continent's population - around 600 million people - do not have access to electricity. Moreover, although Africa is often characterised as a continent already in a state of carbon neutrality, the reality paints a different picture. African energy supply is the result of a complicated mix of formal on-grid and off-grid-energy coupled with 'traditional' and informal energy sources. There is also a high dependence on (unsustainable) biomass burning, mainly used for cooking, and only a very small share of other 'modern' renewable energy (RE) sources in the mix.

Consequently, rather than focusing on net-zero goals, an LCT in Africa is about developing transition pathways that are grounded in contextual-realities and are based on different structures within industries, workforce composition, social and political economy factors. Importantly, considering the loosely defined state of carbon neutrality on the African continent, as well as current energy supply and demand landscape, an LCT will have to focus on the cleanest electricity generation possible, the sustainable use of biomass and providing equitable access to clean energy without adding to energy poverty. In this regard, a phased approach will be needed to balance the goals of reducing emissions and a more sustainable energy mix, while at the same time increasing access to electricity, especially for marginalised communities.

To support these conversations, this report proposes an alternative conceptualisation of a low carbon transition, one that is rooted in African realities and focuses on justice, addressing systemic barriers and taking advantage of Africa's potential:

“A just low-carbon transition in Africa provides pathways for scaling up clean energy supply and creating decent employment opportunities for youth and women, while at the same time improving access to affordable and reliable electricity and ensuring that no-one is left behind.”

A low carbon transition in Africa should be inclusive

The second key observation is that there is a lack of attention to inclusive development in both processes and outcomes of LCT. The lack of representation of women and youth in decision-making processes in Africa leads to male-dominated and non-youth-specific energy transition policies and projects. And while there is an observed positive trend in engaging youth in the climate discourse within multilateral organisations like the United Nations and the African Union, it is unclear what the effectiveness of this involvement is.

Increased effort must be made to promote meaningful engagement at the multilateral, continental, and national levels to address the exclusion of women and youth in decision-making processes related to energy transition policies and programmes. Specifically, a just energy transition agenda should promote intergenerational and gender justice by acknowledging the diversity and intersectionality of women and youth, giving them the opportunity to contribute to the transition in their own way.

A low carbon transition in Africa should be mindful of political economy dynamics

Thirdly, low carbon transitions do not take place in a social and political vacuum and it is increasingly recognized that the pathway to low carbon development is disruptive by nature, transforming the materiality of energy production and land-use systems while undermining entrenched economic interests and political institutions along the way. While African

countries embark on an ambitious and transformative transition agenda, many energy projects classified as “clean” have economic, environmental, and social implications that jeopardise the wellbeing of those already vulnerable to the impacts of climate change. Impact of new (especially large-scale) RE investments and energy infrastructure have the capacity to disrupt communities and generate conflict, while jobs created are often not benefiting local communities directly and sustainably due the temporary nature of the work and a mismatch in skills.

In addition, political economy dimensions, interest structures and power dynamics on a national and international level are at play and influence the way LCT pathways take shape and the extent to which LCT policies and programmes can be successfully implemented. The need for strong domestic, continental and international partnerships is key, which requires a careful balancing act for African governments between investment and exploitation. If not managed properly, international LCT policies and practice could turn into another scramble for Africa’s resources.

A low carbon transition in Africa should focus on job decency

One of the main premises of a just low-carbon transition is that it can provide employment opportunities for Africa’s youth. However, the evidence about the energy job market is still very thin and even where data is available, it does not pay enough attention to the diversity of impacts according to different social groups and contextual realities, nor does it take the blurred lines between formal and informal jobs into account. What is known is that an LCT will bring new opportunities for youth and women that can be direct, indirect and induced.

The informal sector, although often ignored in discussions on LCT, is an important part of the puzzle, as it drives the realities of Africa’s economies. A significant part of job creation in LCT is envisioned to be in the informal economy, particularly in sectors that require low-skilled labour. Due to their temporary nature, however, there is concern about job quality and sustainability. Job decency should therefore be at the centre of a just LCT in Africa.

A low carbon transition in Africa should address the skills mismatch

Hampering opportunities for youth in the green economy is the skills mismatch that exists between the needs of the private sector in a changing labour market, and the educational background and skill-set of youth and women. Providing access to training opportunities for youth and women and ‘greening’ TVET curricula by combining more technical, green skills with foundational and digital skills will be crucial to equip youth with the skills and knowledge for the future of work.

A low carbon transition in Africa should address the gender divide

Another key intervention area lies in the aspect of gender justice as part of an inclusive LCT in Africa. While women are well-positioned to take up green jobs in many sectors, they are currently concentrated in sectors that create more low-end jobs and the majority of projected new employment opportunities are in male-dominated sectors. Moreover, social norms and child care responsibilities often put women at a disadvantage in the labour market. Having a gender-responsive approach and providing access to skills development and funding will therefore be crucial in ensuring a gender just LCT.

A low carbon transition in Africa needs the support of an inclusive research agenda

Although there is an increasingly growing body of literature on low carbon and just transitions, the integration of youth employment analysis into climate research is still largely missing and the empirical evidence - particularly from African contexts - is particularly thin. A knowledge agenda that contextualises and addresses questions around intergenerational and gender justice in low carbon transitions in Africa will be key to provide the foundation for inclusive LCT policies and programmes. This publication aims to support this conversation and the development of an inclusive research agenda that is grounded in the realities of those part and parcel of a low carbon transition in Africa.

1. Introduction

Climate change is one of the most pressing issues of our time and is seen as a ‘threat multiplier’ that exacerbates existing inequalities, especially those of vulnerable communities in the Global South. Despite having contributed the least to global warming, Africa remains the most vulnerable continent to climate change impacts. In 2022, more than 110 million people on the continent were directly affected by weather, climate and water-related hazards, causing more than US\$ 8.5 billion in economic damages.¹

Africa is also the continent with the youngest population, and it is estimated that by 2040 the continent will have the largest youth workforce in the world. Africa has been struggling with creating sufficient jobs for its growing workforce, especially jobs that can be labelled ‘decent’¹. The situation has worsened as a result of the Covid-19 pandemic and disruptions to economic activities, with around 30 million job losses in 2020.² Currently, more than 72 million – around a quarter of the continent’s population– are not in employment, education or training (NEET). Two-thirds of them are young women.³ This shortage of employment opportunities comes with great risks for development and stability and approaches to stimulate youth employment in Africa have become a priority in policy and programming.

The “greening” of economies through a process of low carbon transition (LCT) is seen as a promising avenue to address challenges of climate change while enabling African countries to create much needed employment. It is estimated that the renewable energy (RE) sector has the potential to create vast employment opportunities across the value chain, from 300.000 jobs today to 8 million jobs by 2050, providing a promising prospect for Africa’s future generations.⁴ At the same time, it is increasingly recognised that a low carbon transition will be disruptive as it will destroy jobs even as it creates new ones. Consequently, the concept of a *just* transition, which entails greening the economy in a way that is as inclusive as possible by creating decent work opportunities and leaving no one behind is gaining traction in policy and programming circles as it promotes sustainability on both environmental and social dimensions. There is broad agreement that spurring a just transition is key to achieving global goals including the Sustainable Development Goals (SDGs), African Union’s Agenda 2063, and mitigate the threat of climate change.⁵ Despite this widespread optimism about the potential of a just transition, however, the evidence linking the green economy to youth employment in Africa is still thin,⁶ and critical voices are increasingly expressing doubt whether the low carbon transition in Africa is in fact just at all.

Combining the latest insights from research and practice, this report aims to provide a holistic understanding of the African energy landscape and its complexities, providing insight into where opportunities for youth employment are most pronounced and what systemic barriers need to be addressed to create an enabling environment for youth to thrive in and drive a just low carbon transition. As such, this publication presents an important contribution to the debate, shedding light on the often less visible aspects of the low carbon transition in the Global South. For instance, it will be one of the first publication that will bring together both formal and informal energy supply and demand, as well as ‘blurred lines’ that exist between the formal and informal economy in the construction of young people’s livelihoods.⁷

Bringing these insights together, this publication presents the main lessons learned, knowledge gaps and recommendations for policy and practice, thereby laying the foundation for an inclusive knowledge agenda and avenues for future research on opportunities for youth employment in low carbon transitions in Africa.

¹ According to the ILO, work is considered decent when (i) it pays a fair income; (ii) it guarantees a secure form of employment and safe working conditions; (iii) it ensures equal opportunities and treatment for all; (iv) it includes social protection for the workers and their families; (v) it offers prospects for personal development and encourages social integration (vi) workers are free to express their concerns and to organise (ILO, n.d.).

2. Methodology

The research underpinning this publication took place between June and December 2023 in the context of the programme ‘A Green and Inclusive Future for Youth in Africa’, a collaborative research project between the International Development Research Centre (IDRC) and the INCLUDE knowledge platform. The research has been guided by an action-oriented research approach that combines knowledge from existing studies with findings from new and emerging insights. The research centred around the question: *What opportunities and challenges does the low carbon transition provide for youth employment in Africa?*

To explore this question, the research has applied an inclusive development lens as the main theoretical frame. Inclusive development is about ensuring that more people benefit from economic growth and development and ensuring that “no-one is left behind”. Its aim is to reduce poverty and inequality, in both income and non-income dimensions, assuring meaningful participation of and benefits for vulnerable groups in development processes. Inclusive development is as such key to advancing the SDG Agenda and nationally formulated development agendas. Decent jobs for youth and women, meaningful youth engagement, social protection, environmental justice, local context, as well as political economy aspects are considered key pillars of inclusive development.⁸ Moreover, a distinction between inclusive development processes (how decisions are made and who is included) and outcomes (how prosperity is distributed and shared among a population) must be made.⁹

Moreover, recognising the heterogeneity of youth, in particular acknowledging gender-specific barriers to accessing employment opportunities, the research has taken an intersectional approach as a critical dimension of the low carbon transition, thereby considering questions of inter-generational and gender justice.

2.1 Research methods and findings

The findings presented in this publication are rooted in both academic and empirical data which has emerged from a literature review, case studies, stakeholder engagements and a stakeholder mapping. For the literature review,¹⁰ a convenient sampling technique was used, which involved selecting readily available sources based on their accessibility, ease of retrieval, and relevance. The sources were identified by using search engines, academic databases, and citation networks. As the objective was to review the latest evidence, the years 2013-2024 were chosen as cut-off dates for the search. The literature review applied the inclusive development lens, meaning that in the review of identified publications, particular attention was paid to the inclusive development indicators and perspectives focused on the distribution of development outcomes (social and geographical inequalities) and the participation in development processes, or inclusive governance.¹¹

For the case studies, two external consultants² with a good understanding of the local (policy) context were commissioned to conduct the studies to ensure the findings are grounded in contextual realities and the latest policy developments. Interviews, snowball sampling, and key informant approaches guided the case studies, involving participants from

² Percept is a transdisciplinary social impact advisory, with a history of work in multi-dimensional inequality, youth unemployment, as well as gender and the care economy – and a rich toolkit of methodological and facilitation skills. Through radical collaboration, rigour, and a deliberate transgression of industry and disciplinary boundaries, Percept aims to nurture a healthier, more resilient world, and strengthen ecosystems of care. Trained as a lawyer, Victoria Manyá holds a masters in governance and development policies and is currently enrolled as a PhD candidate at the African Studies Center at Leiden University, where she focuses on technology-enabled startup ecosystems in Nigeria and Ghana.

various sectors including government, NGOs, youth and women groups, labour unions, and entrepreneurs. Building on the insights from the literature review, a general analytical framework and research questions were formulated to enable a comparing and contrasting of findings and as such extrapolate insights from the case studies into broader lessons on youth in LCT in Africa.

Recognising the limited scope of the research and a selection bias in the case study research, the research team sought out active engagement from key system actors in the youth employment and clean energy field on the African national, regional and global levels to validate and further substantiate the findings. A project Advisory Committee (Annex 1) was established to support an iterative research process. The Advisory Committee consisted of a diverse group of representatives, including the private sector, civil society and multinational organisations, policy makers, youth networks and youth-led organisations working on issues of youth employment and climate change in Africa. Validation meetings were organised to share emerging insights and provide opportunity for questions and reflection, creating a double feedback loop and a more inclusive research process. In addition, in-country (hybrid) multi-stakeholder dialogues were organised in Nigeria and South Africa to discuss policy and programming pathways for youth in LCT.

Finally, for the stakeholder mapping (see Annex 2), a co-creation approach was used whereby the members of the Advisory Committee collectively identified the main stakeholders and key system players in the field of the low carbon transition in Africa and beyond. The Alignment, Interest and Influence Matrix (AIIM) was used to guide the process and inform the analysis to enable the translation to recommendations for policy and programming.

3. Existing and emerging knowledge on LCT

There is broad agreement that a low-carbon transition is key to achieving global goals including the Sustainable Development Goals (SDGs), realise the objectives of the African Union Agenda 2063, and mitigating the threat of climate change.¹² Thereby providing opportunities for Africa's youth not only in the current economy, but also in regards to the future of work. However, the discussion about LCT is dominated by quantitative energy supply predictions and perspectives from the Global North, while Africa's energy supply landscape differs substantially from the rest of the world. The objective of this section is therefore to introduce the concept of LCT in Africa, as well as holistically present the African energy sector and its complexities in order to understand where opportunities for youth employment are most pronounced and what systemic barriers need to be addressed to create an enabling environment for youth to thrive and drive a green just transition.

3.1 Conceptualising the low carbon transition in Africa

'Low Carbon Transition' (LCT) is most commonly defined as a process by which a country changes from using both high carbon and low carbon energy to just using low carbon energy.¹³ LCT necessitates a fundamental redesign of our energy supply systems, economies and societies towards more sustainable ways of production and life that are not dependent on fossil fuels. Fundamentally, this means moving away from unsustainable energy sources while increasing the share of renewable energy³ (RE) in the energy mix. This conceptualization of LCT, while comprehensive, is heavily informed by high-income countries in the Global North which are predominantly geared towards changes in power production, redesigning grids and increased efficiency of consumption towards net-zero pathways. However, Africa's energy supply landscape differs substantially from the rest of the world. While (traditional) renewable energy sources dominate Africa's energy supply, the core challenge lies in ensuring access to clean, reliable and affordable energy for 50 per cent of the continent's population (about 600 million people) that currently has no access to electricity¹⁴ and creating job opportunities for its growing youth workforce.

In this regard, the concept of a 'just transition' has gained traction over the last decade and has taken root in Africa's policy and programming discourse. A just transition involves equitable distribution of costs and benefits, procedural justice in decision-making, recognition of different perspectives, and ensuring decent work for all.¹⁵ In the literature, there are three dimensions of justice central to the low carbon transition.¹⁶

1. Distributive justice—equal access to energy systems, which can take three forms:
 - a. A spatial dimension—where people's location determines the gravity of the benefits;
 - b. A temporal dimension – ensuring energy systems not only enable people to access energy now, but also in the future;
 - c. A social dimension – where access to energy services depend on the class or group individuals find themselves belonging to. For instance, economically privileged communities tend to have a lot more access to energy services than marginalised and economically deprived households.

³ According to the official definition, renewable energy (RE) is energy derived from natural sources that are replenished at a higher rate than they are consumed. It includes hydropower, wind, solar (panels and thermal plants), geothermal as well as biofuels (firewood, charcoal, biogas, agro-residues and waste and other biomass).¹⁷ Although biofuels are considered as RE, they have negative environmental and health impacts, which render them unsustainable. They generate greenhouse gas emissions (although at lower levels than burning fossil fuels like coal, oil or gas), indoor pollution that affects mostly women and children, as well as lead to deforestation and land-use change.¹⁸ In Africa, 22 countries depend mostly on RE (out of which, five depend nearly uniquely on RE) in their energy consumption.¹⁹

2. Procedural justice—equal voice in the decision-making process, including meaningful participation of youth and women.
3. Recognition justice—fair representation of different perspectives in the energy discourse.

Assuring decent work for all (i.e. social dialogue, social protection, rights at work and employment)²⁰ constitutes another core element of a just low-carbon transition, ensuring that both the process and outcomes are more inclusive.²¹ This ambition of promoting a just low-carbon transition has been consolidated by the African Union Commission (AUC) in a common African political vision on energy access and LCT,²² which includes a phased approach to the energy transition that combines the continued exploitation of fossil fuels with an increase of clean energy sources to align Africa's energy policy with its development objectives.

3.2 An overview of Africa's energy landscape⁴

Africa has abundant renewable energy (RE) resources, including solar, hydro, wind, and geothermal energy. However, its energy supply landscape is complex, with a mix of formal on-grid and off-grid energy, as well as traditional and informal energy sources. Fossil fuels account for half of Africa's energy supply, while the other half comes from various renewable energy sources.²³ Considering this energy mix, it is often presented that Africa is already in a state of carbon neutrality, however with a high dependency on (renewable, yet unsustainable) biomass burning, mainly used for cooking, and a very small share of other modern RE energy sources in the mix, the reality paints a more complicated picture.

3.2.1 On-grid power systems and formal energy supply

Energy poverty is still a major challenge in Africa, with over 50% of the continent's population lacking access to electricity.²⁴ Moreover, even when there is access, it is often intermittent and not enough for everyone.²⁵ There are significant spatial and social inequalities in electricity access, with North Africa having a much higher electrification rate than other regions, and rural areas having lower access compared to their urban counterparts. The lack of generation capacity and poor infrastructure are major impediments to energy supply in Africa and the installed power capacity on the continent is still very low.⁵ It is estimated that on the current trajectory, it will take until 2080 to reach universal access to electricity across the African continent.²⁶

Moreover, while Africa has 40 percent of the world's solar potential, it has just one percent of installed solar photovoltaic (PV) capacity.²⁷ Off-grid solutions, including off-grid solar and mini-grids, are widely used in rural and remote areas. Significant on-grid solar is on the way, with the current pipeline of projects set to triple capacity across the African continent over the next decade. However, with only 0.6 percent of global renewable energy investment flowing to Africa, this increase is far below what is required to provide electricity access to all, let alone power new industrial growth.²⁸

There are also major challenges on the demand-side. The share of households that live near the electric grid but are not connected to it, is high ($\pm 60\%$) and varies across and within

⁴ It should be noted that there is a general lack of complete and credible data on energy use in Africa, which remains one of the key challenges hampering the development and transformation of Africa's energy sector. The information in this section is based on available data and other resources.

⁵ In 2020, the total power capacity in Africa amounts to 239.2 GW, with Sub-Saharan Africa (excluding South Africa) estimated at 69 GW, South Africa alone with an installed capacity of 63 GW and North Africa with a capacity of 107.2 GW. To put it in perspective, at the end of 2021, Germany's installed capacity was 228 GW.²⁹

countries. The urban-rural divide is particularly deep. In most countries, connecting another household to the grid is not financially viable or technically impossible. The tariff and connection charges in Africa are among the highest in the world. This makes electricity unaffordable to some segments of the population, especially those from poor communities in urban areas, rural households and small businesses. Low energy supply, complete with shortages, high costs and poor access, provide space for alternative (informal) grid access channels (especially in urban settings) and off-grid systems (in both urban and rural settings).

3.2.2 Off-grid power systems and informal energy supply

To make up for the lack of access to the grid, decentralised energy sources are already widely used on the continent and are growing in popularity. Among the most popular sources are stand-alone fossil-fuelled (diesel) generators that are used to either generate energy in energy-poor rural and remote areas or complement the energy supply in case of power cuts, which is more often the case in urban settings. Researchers estimate that there are roughly 100 GW of operational diesel power across 39 African countries, with 6.5 million generators deployed in Sub-Saharan Africa alone. About 3 million of those are in Nigeria, which has the highest total electricity generated by back-up generators in Africa. Spending on generator fuel in Africa is higher than on the entire power grid, highlighting the dependence of African communities on back-up power.³⁰ The continuous use of diesel generators also contributes adversely to environmental impacts such as global warming and resource depletion.³¹ There is an opportunity for these generators to be replaced by off-grid hybrid power systems (OGPS) with renewable energy as the primary resource (the off-grid solar and mini-grids⁶). However, this process, led by the private sector, necessitates more time and resources. In the meantime, people continue to use alternative, at times informal, sources of energy supply.

Informal energy supply, such as unauthorised grid connections, also exists, providing access to electricity mostly (yet not exclusively) to residents of informal communities. These types of connections are causing safety concerns as they present a fire hazard for the residents of the household and its surroundings.³² There are also serious economic issues. Informal grid connections put a strain on the grid, which causes huge losses in revenues to the national Electricity Distribution Companies and to local businesses, which lose 8 percent of their annual sales due to electrical outages.³³ Important public sectors, especially hospitals and health facilities are equally affected.³⁴ Although informal connections provide only marginal levels of access to the grid, for a part of the population this informal access provides a lifeline in the context of two main challenges: rapid urbanisation and social exclusion.

The rapid urbanisation in Africa and the increasing number of people living in informal communities pose challenges to grid infrastructure and push the need for alternative energy solutions. There is also a poor understanding of how and why people connect to the grid, which leads to social exclusion of marginalised communities. In urban settings, the grid tends to be associated with formal and usually more wealthy parts of cities, while informality is linked to off-grid energy infrastructures. However, in practice these lines are more blurred. Actors use and draw on all sorts of available solutions to meet their energy needs, creating a complex energy supply mix that is insufficiently understood. This makes the planning and expansion of electricity infrastructure difficult, especially in informal settings, leading to both

⁶ The off-grid solar system is usually a stand-alone 'home system', consisting of a rooftop mounted solar panel, battery, controller and light bulbs. The financing model used include an initial down payment on a system, followed by regular payments over a period of years (often using a mobile payment system), after which the customer owns the system outright. The solar-powered microgrids are in practice decentralised power plants that generate electricity off-grid but distribute power to households and businesses via lines and cables. Customers pay only for the electricity they use through smart metres connected to mobile payment systems.³⁶

spatial and social exclusion of specific urban zones and population groups.³⁵ As the above shows, off-grid power systems and informal energy supply secure access beyond conventional grids but can also produce adverse social, environmental, and economic outcomes affecting sustainable energy transition efforts.³⁷

3.3 African energy sector labour market

As the above analysis shows, there is a great need for a more sustainable energy mix and inclusive access to resources. In addition to addressing energy deficits, the low carbon transition in Africa is seen as having the potential to create new employment opportunities in the form of green jobs for the continent's growing youth population.³⁸ The employment effects of this transition can be categorised as direct, indirect, and induced. Direct employment refers to jobs created in the energy sector. Indirect employment is created in the supply chain of energy technologies and induced employment occurs when workers spend their income on related goods and services, creating additional employment.³⁹

In Africa, the formal direct jobs potential in the energy sector is estimated at about 3.9 million people in 2019, with the majority of jobs generated on the supply-side of energy such as oil and gas.⁴⁰ Although the fossil fuel industry historically provided steady employment opportunities on the continent, many of these jobs are held by foreign nationals working for multinational companies.^{7 41} The clean energy sector is already creating direct employment opportunities, with an estimated 322,000 jobs in Africa and the sector is expected to grow up to 8 million jobs by 2050.⁴² The clean energy sector in Africa has generated direct employment, in sales, installations, and related services. The decentralised renewable energy sector has been a source of stable employment for communities far from urban centres.

There are also many informal energy-related direct jobs, particularly in sectors requiring low-skilled labour. The charcoal and firewood sector, which is the major source of energy in Africa, employs a significant number of workers, mostly in the informal economy.⁴³ A number of these jobs may be performed by youth and women, however, a granular understanding of the profile of these workers is missing. The circular economy is another important employer in Africa and a growth market for LCT employment. Most of the circular economy jobs are in the informal economy however and are driven by poverty rather than green thinking. An example of such jobs are informal waste collectors – also known as waste pickers or waste reclaimers. Rapid urbanisation and increased economic activity make the need for recycling and waste-to-energy activities an important growth market for job creation, and the sector is projected to grow at an annual rate of 8.5 per cent.⁴⁴ However, weak support structures and social stigmatisation of waste pickers hinder job decency and economic prospects and would need to be addressed in order to secure a high potential growth market.⁴⁵

Energy-related employment varies widely by region and level of formality. For instance, thermal power generation companies are important formal employers in North Africa, while mining and connected jobs make up a relatively high share in South Africa (\pm 90 per cent of all jobs in the energy sector).^{8 46} In Central Africa, the most employment opportunities are created in the mining of critical minerals, where the total employment could be four- to eight-times higher than projected if informal workers in artisanal and small-scale mines are

⁷ According to some estimates, fossil fuel industries employ less than 1 percent of the African workforce directly.⁴⁷ Indirect energy jobs tied to oil, natural gas and coal – local suppliers, downstream distributors, etc. – are difficult to estimate, but there is a general sense that the fossil fuel industry in Africa is largely dissociated from African communities.

⁸ In 2019, 39 per cent of South African miners were employed in the platinum group metals sector, 21 per cent in the coal sector and 20 per cent in the gold sector. The rest were absorbed by the iron ore sector and smaller operations, such as the production of other minerals, lime works and stone quarrying.⁴⁸

included. In the Democratic Republic of the Congo, for example, the formal mining sector employs 120.000 people, while estimates of informal employment range from 500.000 to 1 million. In Nigeria, of the estimated 49.600 people working in the country's distributive renewable energy sector, 31 percent are working in the informal economy. The prevalence of part-time, temporary, and informal work creates 'blurred lines' on the African energy labour market, making it impossible to obtain reliable statistics and discuss the decency of many of these jobs.⁴⁹

3.4 Job creation in LCT: main opportunities

Direct job creation potential in energy production and supply, including operations and maintenance, grid connections, mini-grid connections, and manufacturing and installation of solar home systems is estimated to be about 2.8 million people by 2030.⁵⁰ In many countries where fossil fuels are not dominant, or countries with an immense energy backlog, renewable energy can create jobs that didn't exist before. Green hydrogen production, storage, e-mobility, digitalization of transmission and distribution grids are other exciting developments in a number of African countries.⁵¹ The localisation of renewable energy manufacturing will be important to consider. Spacing projects out equally along different locations may allow for steadier skills demand and the creation of permanent jobs.⁵²

In addition to the jobs that result from expanded energy access, 1.3 million additional jobs may be created by 2030, related to power generation, grids and energy efficiency.⁵³ These jobs are likely to continue growing beyond 2030 due to rising energy demand. Achieving universal access to clean cooking facilities and fuels is expected to create fewer jobs than access to electricity, but across a wider range of occupations. Standardisation, compliance and safety of workers and companies investing in RE operations and constructions have a potential to generate new white- and blue-collar jobs.⁵⁴

Among the indirect jobs in energy usage, occupations such as plant and machine operators, assemblers, electricians, and labourers are expected to have a significant increase in job demand. Renewable energy-related jobs like solar technicians, energy assessors, and clean-energy auto manufacturing line workers could also expect increased demand.⁵⁵ Moreover, the increased digitalisation as part of the Fourth Industrial Revolution brings opportunities in processes for the improved use of critical minerals, as well as development of clean energy technology supply chains and manufacturing.⁵⁶ The biomass sector also has the potential to provide employment in the decarbonization of the charcoal industry. The increase in local manufacturing capabilities of renewable energy materials could also provide employment opportunities.⁵⁷ Finally, the development of micro, small, and medium-size enterprises (MSMEs) in the renewable energy sector is seen as a priority as they account for a large share of new employment opportunities, especially for youth.

Increased energy supply can have a ripple effect on job creation, specifically through the creation of induced jobs.⁵⁸ Access to electricity is correlated with increased productivity, competitiveness, and labour demand in various sectors.⁵⁹ Power shortages negatively impact employment in many African countries, with frequent power problems reducing the likelihood of individuals being employed. On the other hand, increased access to electricity is associated with increased labour market participation.⁶⁰ The job potential associated with renewable energies extends across various sectors, with a focus on basic manufacturing, agriculture, engineering, transport, utilities, construction, and their supply chains. In agriculture, lack of electricity hinders the adoption of machinery and irrigation systems, leading to avoidable losses. The opportunities in the hydrogen sector can also translate into local green fertiliser production, which can increase food security of the local population. Minor investments in climate-smart agriculture and agro-processing could create millions of additional jobs in rural areas.⁶¹ The transportation sector also plays a significant role, with the potential for improved efficiency through the restriction of inefficient vehicles and the use

of electric two- and three-wheelers. The services sector, including healthcare, sanitation, (sustainable) tourism, and hospitality, is also affected by unreliable power supply, impacting productivity and income. Overall, addressing energy access and reliability is crucial for job creation and entrepreneurship in the low carbon transition. Nevertheless, access to energy, including off-grid electricity, remains a major challenge, particularly for the poor youth and women from rural areas due to high costs of exploitation, availability and skills needed to productively use it.⁶²

The informal sector, although often ignored in discussions on LCT, is an important part of the puzzle, as it is this sector that drives the realities of most African economies. A significant part of the job creation in the LCT is also envisioned to be in the informal economy, particularly in sectors that require low-skilled labour such as the commercial collection and sale of biomass.

3.5 Decent work in LCT

As the above section shows, there are many employment opportunities associated with a low carbon transition. However, due to the often informal and temporary nature of these jobs, there is an important question about their quality and sustainability. In addition, there are increasing concerns about the impact of the Fourth Industrial Revolution (4IR). The African Development Bank has identified renewable energy and related technologies as one of the main drivers of the (4IR), meaning that increased energy supply will be an important enabler of innovation, as well as economic and social development beyond the energy sector.⁶³ The envisioned will lead to changes in the type and location of jobs in the energy sector and beyond, creating new employment opportunities, but also losses as some jobs may be replaced due to automation. The predictions are, however, optimistic and assume that the jobs that will be created through the growth of the local RE sector will eventually surpass 4IR job losses, limiting the impact on employment locally.

Studies by the International Labour Organisation⁶⁴ and other institutions have pointed to four types of possible impacts of the twin (green and digital) transition on labour markets. Firstly, the expansion of greener products, services, and infrastructure will lead to higher labour demand and the creation of new jobs, particularly in renewable energy, energy efficiency, manufacturing, transportation, and construction sectors.⁶⁵ Indirect employment opportunities will also arise along the renewable energy supply chains.⁶⁶ Secondly, some existing jobs will be substituted as the economy shifts towards more efficient, low-carbon, and less polluting technologies, processes, and products. Examples include the transition from internal combustion engines to electric vehicles and from truck transport to rail. Thirdly, certain jobs may be eliminated or greatly reduced in number without direct replacements, particularly in polluting and energy-intensive industries like coal mining. However, it is uncertain whether employment in renewable energy will compensate for the job losses.⁶⁷ Lastly, many existing jobs will be transformed and redefined as workplace practices, skill sets, work methods, and job profiles become greener. For instance, plumbers and electricians can adapt to working with solar water heating or photovoltaic systems. Each of the above-mentioned impacts can be positive or negative, depending on numerous factors in the specific national energy context and the level of job informality and security.

3.6 Job creation in LCT: main challenges

Electrification plays a crucial role in creating opportunities for income-generating activities, but the overwhelming majority of the continent's population cannot afford meaningful energy usage, perpetuating a vicious circle of poverty and exclusion. An expansion of the grid needs to go hand in hand with training, job creation and income generation in the transmission sub-sector and beyond. Off-grid systems would provide an opportunity for many African countries to leapfrog energy supply development, particularly in rural areas. However,

despite a number of more flexible, pay-as-you-go solutions that are available, a large share of the population still cannot afford to connect or use a reasonable amount of electricity, let alone purchase appliances that can help generate income.⁶⁸

The second major barrier is the skills mismatch that exists between the needs of the private sector in a changing labour market, and the educational background and skill-set of youth and women.⁶⁹ There are existing skills gaps, particularly in technical and engineering positions, which may worsen as the renewable energy sector expands. Additionally, there is a lack of skills necessary to benefit from new technologies.⁷⁰ Re- and up-skilling efforts are crucial, especially for communities heavily reliant on coal, oil, or gas. Skills gaps can result in project delays, cost overruns, and faulty installations. Further risk exists of creating a new level of exclusion of youth and women and other vulnerable groups who do not have access to quality education or (up- and re-) skilling programmes. To address this, efforts are needed to develop renewable energy curricula, integrating green modules into vocational training, supporting apprenticeships, and setting common quality standards.

Combining technical and vocational training (TVET) with entrepreneurship training has shown advantages in promoting job creation in clean energies. However, identifying, integrating, and implementing green competencies in TVET systems in Africa is still weak. Only a small percentage of African TVET institutions regularly conduct skills forecasts that consider low carbon economy requirements.⁷¹

Accessibility to education and skills training in technical and engineering fields is unevenly distributed across Africa, with some countries like South Africa having stronger infrastructure for technical education. Other countries, like Kenya, rely on skilled migrant labour and importing clean technology products. Female-led initiatives in Nigeria provide training and job opportunities within the solar sector for women entrepreneurs in rural areas with low incomes.⁷² These women receive comprehensive business and technical training, marketing support, and ongoing assistance to build their businesses

In order to fulfil the employment potential for youth and women in MSMEs, challenges like access to finance, lack of technical knowledge, and limited business management experience need to be addressed. Without proper entrepreneurship support, many young entrepreneurs remain in the informal economy or in a hybrid of formal and informal sectors.⁷³

Finally, while the low carbon transition threatens jobs in the extractive sector, it also creates opportunities in mining for minerals needed for renewable energy. The extractive industries are among the traditional pillars of the African economy, and although the number of direct jobs created by the mining sector is minimal, ranging from 1 per cent and 4 per cent, at most, the extractive industries in Africa have a significant impact on the economy through indirect employment.⁷⁴ However, there is a pressing question about the decency in the mining sector, and the sector has a history of labour and human rights violations. To address this, many African countries have implemented policies for local employment, development support, and regulation of artisanal mining. Automation and the shift to clean energy threaten jobs in the sector, especially in oil and coal⁷⁵ and re-skilling programs and alternative employment opportunities are needed to support affected workers. The development of and investment in clean energy sectors can help absorb workers who have lost their jobs through a process of transition. This is relevant for both the energy and technological transition, including smart grid, battery- and electric vehicle technology,⁷⁶ as well as agriculture, waste management, construction, forestry and carbon finance. On the other hand, the low carbon transition will increase demand for minerals and metals,⁷⁷ benefiting countries rich in these resources.⁷⁸ National policies should prioritise decent jobs and community benefits. However, evidence suggests that profit-driven private sector stakeholders can negatively impact workers and communities even in renewable energy projects.⁷⁹

3.7 Gender justice and meaningful youth engagement

Women and youth continue to face a number of obstacles in relation to the low carbon transition that need to be addressed. These barriers include a mismatch in skills, a lack of access to financial resources, information and communication technologies, discriminatory social norms, and limited inclusion of youth voices in decision-making processes.⁸⁰ These barriers are not exclusive to the energy transition process but are persistent challenges faced by women and youth in the African labour market.

The evidence reveals that while women are well-positioned to access green jobs in many sectors, they are currently overwhelmingly concentrated in sectors that are likely to create more low-end types of job opportunities.⁸¹ The majority of projected job opportunities in the LCT are in male-dominated manufacturing, construction and energy sectors.⁸² Women in Sub-Saharan African countries are more likely to work in the informal sector, which offers less stable jobs and lower wages.⁸³ This is primarily due to their limited access to education, household and childcare responsibilities, and safety concerns during the commute to work. Socio-cultural norms and unequal access to economic assets, such as land and credit, further hinder women's full participation in economic life. Additionally, gender stereotypes, biases, and a lack of training, mentorship, and networking opportunities act as barriers for women attempting to enter the workforce, including the energy sector. However, improved energy access and the use of clean energy can support gender parity by reducing health risks, providing more time for other activities, and enhancing safety.⁸⁴

Despite challenges in gender representation in certain sectors, positive developments have been noted in green construction, renovations, and energy efficiency. Women are accessing opportunities in large-scale renewable energy utilities and jobs related to the construction and services of renewable energy infrastructure.⁸⁵ There is also potential to elevate traditionally female-dominated "pink-collar" jobs, such as childcare and teaching, in the new low-carbon economy.⁸⁶ There are examples of changing social norms through the engagement of young women in technical work in the energy sector, leading to shifts in perspectives and the empowerment of women.⁸⁷ Various initiatives in Africa aim to increase female empowerment in the energy sector through networking, training, and apprenticeship programs. Companies are recruiting and supporting female entrepreneurs and workers in the clean energy industry, recognizing their ability to reach communities and promote clean energy solutions.⁸⁸ Nevertheless, more efforts are needed to tip the scale.

The literature review also indicates a lack of gender analysis and exclusion of women and youth in decision-making processes related to energy transition policies and projects across Africa.⁸⁹ This leads to the development of national energy transition plans that are gender-blind and not youth-relevant. Some positive trends in enabling youth to participate in the climate discourse have been noted on the multilateral level of the United Nations and the African Union.⁹⁰ However, despite these efforts, there is limited knowledge about the effectiveness of African youth and women's involvement in discussions and processes related to low-carbon transition. More efforts must be made by various women- and youth-engagement mechanisms at the multilateral, continental, and national levels to address the lack of gender analysis and exclusion of women and youth in decision-making processes related to energy transition policies and projects, and their effectiveness. Specifically, a just energy transition agenda should therefore address the issue of inter-generational and gender justice by acknowledging the diversity and intersectionality of women and youth and giving them the opportunity to contribute to the transition in their own way.

3.8 At a geopolitical crossroad: African Green Deal or a new scramble for Africa

Finally, low carbon transitions in Africa are not just technological changes, but also involve significant social and political dynamics.⁹¹ The pathway to low carbon development disrupts existing economic interests and political institutions, requiring the participation of diverse actors and institutions. According to Hochstetler (2020)⁹² “an” energy transition is as such actually a series of political economy transitions, with different interest structures that should generate the participation of diverse actors and institutions of state and society. It therefore becomes increasingly important to understand whether and how energy transitions in Africa might be enabled or frustrated by the new global geography of power.⁹³

In some ways, Africa has become a geopolitical and geo-economic playground for powerful countries and regional blocks, who are looking to access African resources to secure their national energy security needs. This includes the European Union's REPowerEU strategy, which explores energy export potential of countries like Nigeria, Senegal, and Angola to reduce its dependence on Russian gas rapidly (also commonly referred to as the ‘dash for gas’).⁹⁴ In addition, the MENA region has become of particular strategic value for EU's objectives to shift to “green” hydrogen by 2050 by establishing a steady supply from North-Africa. While some see green hydrogen as an opportunity for African exporters to benefit from the EU's industrial transition⁹⁵, others point to the risks of ‘green neocolonialism’ through the plunder of local resources, dispossession of communities, environmental damage and entrenchment of corrupt elites.⁹⁶

There is also increasing posturing around Africa's critical mineral base, particularly for battery technology for electric vehicles. Battery technology relies heavily on resources like lithium and cobalt. Much like PV panels, the production of Lithium-Ion batteries is dominated by China, which also controls a sizable portion of mineral production (particularly lithium and graphite), and the majority of mineral processing. As this processing mainly takes place abroad, there is a risk that the role of African countries would be limited (again) to the extraction stage of green technology value chains rather than investing in productive local employment.⁹⁷ While there is potential for cooperation between European, American and Chinese actors in Africa's energy infrastructure, careful monitoring is needed to ensure mutual benefits and Africa-led partnerships.

Finally, policy coherence and harmonisation across international, continental, and national levels are crucial for achieving Africa's low carbon transition objectives. African initiatives must not be captured or diverted to serve the interests of foreign actors and a just transition requires addressing geopolitical power imbalances.⁹⁸ Realising Africa's LCT objectives, necessitates the development of strong partnerships, which requires a careful balancing act for African governments between investment and exploitation. If not managed properly, international LCT policies and practice could turn into another scramble for Africa's resources.

4. Insights from South Africa and Nigeria

This section presents the main insights from the case study research into opportunities and barriers for youth in low carbon transitions in South Africa and Nigeria.⁹ What makes these countries particularly interesting cases is that while they both experience significant challenges and systemic barriers towards a just low carbon transition process, they also present tremendous opportunity at policy and programming level. Unlike many other African nations, Nigeria's and South Africa's carbon emissions warrant an urgent energy transition as both countries have a strong path dependency on fossil fuels. In Nigeria, oil and gas generates over 80% of the nation's total income,⁹⁹ while coal has long dominated the South African economy and energy landscape. Carbon emissions in South Africa (7.3t per person) are significantly above the global average (4.7t), and more than seven times the average for the African continent (1t).

In addition, both countries face significant challenges in terms of access to electricity. Nigeria has one of the highest rates of energy poverty in the world. The electricity access rate stands at 25 percent for rural populations for whom biomass and waste are the primary source of energy for cooking. Conversely, Nigeria has one of the highest costs of electricity in the world at an average of \$0.52/kWh.¹⁰⁰ Stand-alone fossil-fuelled (diesel) generators are used to either generate energy in rural and remote areas or complement the energy supply in case of power cuts. With about 3 million generators, Nigeria has the highest total electricity generated by back-up generators in Sub-Saharan Africa.¹⁰¹ In South Africa, a deepening electricity crisis, which has been characterised by extended blackouts and rising tariffs, is forcing the country to consider new strategies to diversify and sustain energy supply. The economic impact of the energy crisis has been severe, affecting economic (GDP) growth, company closures, job losses, and reduced international investment,¹⁰² along with an increase in the national cost of living.¹⁰³ Finally, despite being two of the biggest economies in Africa, both countries also have the highest inequality and youth unemployment rates on the continent.

These above factors combined makes Nigeria and South Africa compelling case studies that warrant a closer look at the role of youth and women in the LCT. In the next section, we will look at the energy landscape in both countries, opportunities and barriers for employment creation and the political economy, leading to lessons learned and recommendations for policy and programming.

4.1 A just transition in South Africa

4.1.1 The energy landscape

The South African energy landscape stands at a critical juncture, shaped by historical legacies, economic dependencies, and power dynamics that have profound implications for the country's energy transition. At the core of this complex tapestry is a historical reliance on coal, which accounts for a substantial 80% of the energy mix with renewable energy technologies (wind, solar and hydro) contributing 13.7%, and nuclear contributing 4.6%.¹⁰⁴ Of this generation mix, Eskom, a monopolised state-owned company, generates 95% of South Africa's electricity, giving the government a significant stake in coal interests. In addition, Eskom is responsible for 100% of electricity transmission through its ownership of the entire electricity grid, and accounts for 45% of all electricity distribution to end users.¹⁰⁵ Eskom's reach and control, which spans the generation, transmission and distribution of

⁹ This chapter is a summarised version of the case studies prepared by Percept (South Africa) and Victoria Manyá (Nigeria). The full case study reports can be found [here](#).

electricity in South Africa, illustrates its power in the energy transition dialogue. This centralised control through Eskom positions the government as a significant stakeholder in coal interests, adding complexity to the ongoing discourse surrounding the transition to cleaner energy sources. Another influential actor, Sasol, a once state-owned petrochemical giant, holds the second-highest carbon emissions in the country. Its future trajectory intricately tied to the shifting energy landscape, particularly as the global push away from fossil fuels gains momentum.¹⁰⁶

The historical intertwining of South Africa's economy with the mining industry has deep roots in the exploitation of black, migrant labour in service of colonial and apartheid-era industrialisation. A small number of large conglomerates, involved in mining, minerals beneficiation and crude oil among other sectors, have had privileged access to cheap electricity, infrastructure, and tax breaks, and have held significant power over the state and the economy. This has not only produced vested interests in a coal-dependent economy, but also grave inequities in access to affordable energy supply, with energy poverty concentrated in poor, black settlements on the outskirts of cities or in rural areas. A severe energy crisis, characterised by persistent blackouts and rising tariffs, has only deepened misgivings about the current energy policy. As South Africa navigates the imperative of a low carbon transition, it must confront historical dependencies, vested interests, and social inequities inherent in its energy landscape.

Nearly 30 years after democracy, South Africa also remains the most unequal country on earth and among the hardest places to find a quality job. Youth are particularly disadvantaged in the South African labour market. Over 45% of young people (aged 15-34) are unemployed, making them twice as likely as their adult counterparts to be jobless (35-64 years). A third of young people in South Africa are not in education, training or employment (NEET), a number that exceeds that of any other nation. Among the young people that are NEET, the overwhelming majority are black, and more than half are women, reflecting and reproducing patterns of historical, systemic inequity. 40% of these have not completed matric and are therefore entering the labour market with no formal qualifications. More than a third are looking for their first job. While being less likely to be employed, young people also have poorer job security and social protection than their adult counterparts.

The impetus for an energy transition in South Africa consequently not only comes from the imperative to ameliorate its climate impact, but arguably even more so from an urgent need to secure and diversify energy supply, alleviate inequality and provide opportunities for its young workforce. Yet, policies directed at low carbon transition and those directed at youth employment continue to operate largely distinctly from one another, which has given rise to an urgent call for a more coherent energy transition approach that is focused on a more equitable and just low carbon transition.

4.1.2. Political economy dimensions

Between 2010 and 2020, policy development in relation to the energy transition was starkly siloed – addressing climate mitigation and adaptation, the renewable energy program, and the impacts of climate change, as largely separate issues. In recent years, energy policy frameworks have increasingly been cast in the language of a ‘just transition’, recognising the connectedness of social and environmental sustainability dimensions. The 2020 formation of a Presidential Climate Commission (PCC) to guide an equitable, inclusive energy transition in South Africa has been particularly pivotal to this, culminating in the publication of the South Africa Just Transition Framework.

Also internationally, South Africa has been promoting itself as a frontrunner in the battle against climate change. At COP26 (2021), South Africa entered into an agreement with the UK, the EU, France, Germany and the US, known as the Just Transition Partnership. International partners committed to mobilising \$8.5 billion (primarily in loans) to facilitate the

decarbonisation of South Africa's energy transition and develop new economic opportunities in the green economy.¹⁰⁷ Borne out of this was The Just Energy Transition Investment Plan (JET IP).¹⁰⁸ JET IP details the kind of investment needed to adhere to the decarbonisation agreements laid out in the Nationally Determined Contribution (NDC).¹⁰⁹

Despite the language of the just transition having gained increasing prominence in the policy landscape, and broad consensus about the need for inclusivity in the process, there are diverging ideological positions about the meaning of justice in the context of an energy transition. Broadly, commentators¹¹⁰ have identified a dominant, minimalist view that emphasises the social protection of vulnerable workers and advocates to reform and re-skill towards 'green jobs' and 'green growth'. This view is common among political and private sector elites, who have an interest in maintaining the current order, while 'greening' it.¹¹¹ But there is also a more radical view held largely by some activist and civil society groups. Here, a just transition demands different ways of producing and consuming that fundamentally reshape power towards greater public ownership and democratic control of key resources.¹¹² Different labour unions align with different sides of this ideological rift, but have settled on a mandate to protect existing jobs.¹¹³

In addition to ideological tensions, the just energy transition in South Africa faces several other challenges, which have been categorised as techno-economic, socio-political, and socio-technical constraints.¹¹⁴ Techno-economic constraints revolve around interactions between its economic dependence on coal, lack of energy infrastructure, and high investment risks due to lack of funding for renewable energy projects. The socio-political constraints rest primarily on a lack of policy support for renewables, insufficient institutional capacity, corruption, as well as lack of transparency, and poor monitoring, in the implementation of the Renewable Independent Power Producer Programme (REI4P). Finally, the socio-technical constraints include employment insecurity, lack of community engagement and social resistance, and a skills and manufacturing capabilities shortage.¹¹⁵

Woven into South Africa's unfolding energy transition is an emerging political fault-line between coal-based, state-owned Eskom and the privately-driven (mostly foreign-owned) renewable energy sector.¹¹⁶ Included in this is a shift from 'big state negotiating with big capital' to a rescaled, fragmented state negotiating with dispersed global capital. Facilitated by government and international finance, these parties jostle for access to the grid. While the generation mix might be changing, consumption remains dominated by the country's energy-intensive users.¹¹⁷ This means that, despite evident competition between a coal-based energy regime and a renewable 'niche', a core set of interests around big industry and energy are arguably still perpetuated.¹¹⁸ Consequently, while converting all the power generated by Eskom to renewable energy may result in an energy transition, it may still result in an energy regime that is led by state policy and private investment with little to no input from the citizens. In other words, "widespread efforts to privatise the energy sector are potentially driving a disorderly market transition rather than a just energy transition."¹¹⁹

As South Africa navigates the shift towards a low-carbon economy, there is a concern that colonial structures within the fossil fuel industry may be replicated through undemocratic, non-participatory practices such as land occupation, displacement, and labour. Reports of the privatisation or occupation of land to advance a 'green agenda' at the expense of local people (also known as 'green grabbing') are not uncommon.¹²⁰ More so, the rate of foreign ownership in the renewable energy system and the reliance on foreign loans to drive the just transition agenda pose threats to an inclusive energy future owned and shaped by South Africans, especially the youth. At the heart of South Africa's energy transition, therefore lies a question of intergenerational justice; How can we approach and enact the energy transition to change the labour market odds for young people who bear the weight of historical inequality?

4.1.3. Opportunities and barriers for youth employment

Youth unemployment in South Africa has historically been framed in terms of supply (i.e. the readiness of young people for the labour market) and demand (i.e. the ability of the labour market to absorb them). As such, responses to youth unemployment are centred on how to create, and prepare young people for waged work in the formal sector. These have included supply-side responses that have sought to skill and prepare youth to enter the workforce, demand-side responses that have sought to ‘create jobs’ for youth and stimulate employment in key sectors, and to a lesser extent, ‘matching solutions’ that aim to better link employers to appropriately skilled young people, and vice versa. Diminishing formal sector wage work has resulted in increased attention being paid to the informal economy as a potential source of youth livelihoods. Here, supporting ‘entrepreneurship’ (often through formalisation) has served as the dominant frame, but strategies to drive self-employment, informal livelihoods and micro-enterprise often fall outside of entrepreneurship programmes.

Supply: the skills question

The JET-IP describes a R2.7 billion reskilling strategy to support the transition to renewables across the country. But details on when and how these large-scale training operations will get underway remain scarce, and the PCC has criticised the JET-IP for severely under-prioritising skills development. Thus far, just transition policy has been accompanied by few substantive skills development programmes, with even fewer focusing on the needs of vulnerable people, and a lack of systematic monitoring mechanisms to track the skills needed for green jobs. This results in jobs being identified on an ad-hoc basis, and weak inter-ministerial coordination which hampers the effective design, planning, implementation, and evaluation of policies on skills development in the just transition.

Demand: ‘job creation’ and the just transition

In 2019, the coal value chain was estimated to employ around 150.000 formal workers, amounting to 1% of national employment. Across the country, rates of employment in mining and manufacturing are declining, particularly for youth, who are most likely to be employed in the service industry.¹²¹ However, although the contribution of coal to inclusive and sustainable job growth is severely limited,¹²² job losses in the coal sector pose a unique set of employment challenges. First, employment is highly localised to four municipalities in Mpumalanga supporting workers and their families through direct and indirect job creation. Therefore, there is a major concern about the spatial inequities a LCT may bring as jobs created in the renewable energy sector will not necessarily be created in the same geographies where jobs in the coal value chain will be lost. The Northern Cape, for example, is emerging as an RE epicentre, while coal is decommissioned in Mpumalanga. Second, 80% of the coal labour force do not have any formal qualifications beyond schooling. The coal industry has not only been able to absorb these vulnerable workers more effectively than other sectors, it also offers higher wages than other ‘unskilled’ positions, largely because of the collective bargaining power of labour unions.¹²³ Those who lose jobs in coal may not find similarly paid or secure positions easily. Finally, fifteen percent of those employed in the coal value chain are women, while half are 38 years old or younger,¹²⁴ who may find it difficult to find alternative employment in the still largely male-dominated green job sectors.

The Department of Environmental Affairs (DEA) has identified four areas for green jobs: 1). development and growth of new green sectors and industries; 2). retrofitting of industrial efficiency processes and clean production technologies in existing sectors and industries; 3). growth of existing green energy sectors such as renewable energy and waste recycling; and 4). incentivisation and acceleration of private and public sector investment in restoring critical ecosystems especially after power plants are decommissioned. Informal actors, like street vendors and itinerant workers, who are close to communities are also instrumental in

providing employment through delivering environmentally sustainable goods (like organic vegetables) and services (like repairs).

In 2018, RES4Africa projected the relative job losses and gains that would be associated with a transition to wind and solar power between 2020 and 2030, and anticipated a net gain in jobs. However, most of these jobs are expected in the construction phase, with fewer in the operation and maintenance phase. Moreover, since most components for renewable energy are not produced domestically, the scope for local jobs in construction is limited. Timing is also a challenge; while most coal-related jobs will be lost by 2030 when coal-fired power plants are decommissioned and Sasol closes, the surge in new job opportunities is anticipated to occur only from 2037.

The job creation capacity of the renewable energy sector in South Africa has limits. As such, prioritising job creation in other non-energy related economic sectors (like manufacturing, waste management, or community and social services) might be more advantageous, especially in the short term, than focusing on renewable energy employment, particularly in coal-dependent regions. More so, one cannot only think about replacing existing jobs. Livelihoods need to be expanded, or else half of South Africa's youth will remain unemployed. Indeed, the deployment of renewable energy and the changes it creates in the economy (including lower electricity prices), hold potential to boost livelihoods.

Informal economy

While South Africa's informal sector is small relative to other African countries, it has produced steadily, and significantly higher, growth in employment than the formal economy in recent years,¹²⁵ particularly for youth.¹²⁶ Between 2017 and 2022, the proportion of young people employed in the formal sector shrunk by 16%, while employment prospects for young people working in the informal economy (including contracted in agriculture and private households), was the only sector in which young people experienced a growth in employment.¹²⁷

Current monopolies and barriers to entry in the energy sector are a challenge to the creation of informal economies around community-owned energy hubs. Nevertheless, there are many communities across South Africa with informal, commodified energy economies, in which skilled on-the-ground informal technicians are operating illicitly to rewire electricity connections for a fee.¹²⁸

In creating opportunities for youth in a low carbon economy, there is an imperative to think about quality and stable jobs beyond traditional wage labour. This includes stimulating local economies through the provision of affordable, decentralised, and community-governed energy supply. This is particularly important for women. Women are disproportionately affected by energy poverty, as the primary carers of households, and those who often hold responsibilities for cooking, cleaning, and child care.¹²⁹ By amplifying the burden of care, energy poverty can reduce the likelihood of women entering or staying in the labour market. As in the fossil fuel economy, where underlying structural failures have had women underrepresented in the mainstream formal labour,¹³⁰ the green economy is mirroring similar trends with only 32% of the global workforce in renewable energy being female.¹³¹ While South Africa's just transition discourse has centred on the rights of workers, these conversations should include consideration of paid and unpaid labour in the informal sector where the majority of women in poor and low-income communities are active.

Social protection

Finding a job is not only difficult, it is also costly, which often leaves young people indebted and disheartened. There is strong evidence that social protection, through programmes like the SRD, can alleviate poverty and unlock participation in the labour market (including the green economy).¹³² This is arguably even more pressing for those entering the green economy, where there is limited precedent of major public employment initiatives, and as

yet, no national programme operating at scale to skill young people for the energy transition. In addition to financial support, youth also need psychosocial support a transition into the labour market.¹³³ Currently, a multistakeholder consortium is piloting a Basic Package of Support (BPS) basic package of support for young people (15-24) outside of education, training and employment. The BPS acknowledges that young people have multidimensional vulnerabilities, including limited qualifications, low income, poor access to transport, restricted access to social protection, poor mental health and limited social networks. The programme offers referrals to social services, pathways back into education and training, and links them to earning opportunities. Programmes like this hold enormous potential for young people as they grapple with a shifting energy economy, and consequently, a shifting labour market.

Public employment

In addition to social protection, public works programmes can offer employment subsidies for young people, facilitating experience and entry in the labour market, while also building valuable local assets. However, public employment programmes must also build transferable skills and exploitable networks to avoid being piecemeal. Phase II of South Africa's Presidential Employment Stimulus holds some promise in building communities of social solidarity and driving local low-carbon livelihoods. It includes a National Youth Service programme that will create jobs in waste value chains, and a Social Employment Fund to support work in community and social services.

4.1.4. Conclusion

The 'minerals-energy-complex'¹³⁴ that has characterised South Africa's development trajectory thus far, has been based on 'cheap coal, cheap labour and dangerous air pollution', making it both economically and socially unsustainable.¹³⁵ It has also systematically excluded young, black, income-poor South Africans (women particularly), such that the future chances of young people remain largely tied to those of their parents. By the time they enter the labour market, the vast majority of South Africa's youth have the odds stacked against them: they often have no formal qualifications or work experience, no capital, and few social ties to the formal economy. For young people to achieve social mobility, and break intergenerational cycles of inequality and poverty, they need sustainable, quality livelihoods.

For the just transition to be truly youth-centred, and be a vehicle of intergenerational justice; it needs skilling, job creation, social protection and support programmes that meet young people where they are. This will include a) sustaining and reimagining livelihoods for young people in historically fossil-fuel dependent economies, b) expanding low-carbon livelihoods across the country, particularly social and environmental services that restore community ownership and relationships to the land, c) alleviating energy poverty so that young people have access to information and opportunity, and 4) committing to substantive (rather than tokenistic) youth participation in policy and decision-making.

Three case illustrations of LCT projects in South Africa

In addition to a broader analysis of the energy, labour and political landscape, the case study dives deeper into three case illustrations of how South Africa's energy transition is unfolding in local settings. The first case study examines the decommissioning of Komati, the nation's oldest coal power station, and the extent to which this transition might be perceived as 'just'. The second case illustration explores the challenges faced by local communities in Loeriesfontein in their engagement with wind farms established under the Renewable Energy Independent Power Producer Programme (REI4P). The final case illustration focuses on community-based renewable energy hubs in KwaZakhele and the hurdles they encounter in delivering equitable benefits.

The experiences borne out of the decommissioning of Komati signal the potential consequences of tackling *climate* change without *system* change. By de-prioritising skilling programmes, bypassing local employment, failing to safeguard workers, and sidestepping public consultation; the energy transition at Komati runs the risk of entrenching historical patterns of inequity, in which the interests of public and private elites come at the expense of local people, and inevitably, local youth.

Like many of South Africa's most vulnerable communities, Loeriesfontein has a young population, who, in theory, stood to benefit from the promise of the employment of local people in the newly developed wind farms. But most of the local workers that were hired were employed in unskilled roles, on short-term contracts, and only during the construction phase of the project, repeating a pattern of high churn in the South African job market, particularly for young people. Experiences in Loeriesfontein illustrates that there is the risk that producers 'window-dress' local employment to meet REI4P targets, without investing in substantive, transferable skills for young workers, which are essential to their social mobility.

The findings from the KwaZakhele Township Transition project show that, despite the potential benefits of expanding community-owned energy systems, very few communities have the financial capabilities to develop and use them.¹³⁶ Renewable energy entrepreneurship comes with significant cost, presenting barriers to entry, particularly for young people, the urban and rural poor and the working class. Partly because of this, community-driven job creation in the renewable energy sector has remained at a relatively small scale, with powerful interests poised to oppose localised and diversified energy production.¹³⁷ While there is buy-in, resilience, and innovation within the community, policies still work against the historically disadvantaged in society. This is a missed opportunity, particularly for the country's youth.

These illustrations serve as microcosms of the broader challenges South Africa faces in transitioning to a low-carbon economy and lessons to be learned and show that a just transition in South Africa demands a systematic approach that includes youth (black youth and women in particular), who experience the highest rates of unemployment, precariousness, and income insecurity in the country. These studies collectively underscore the complexities and opportunities in South Africa's journey toward a sustainable energy future emphasising the importance of local communities, workforce development, and transparent governance.

4.2. A just low carbon transition in Nigeria

4.2.2. The energy landscape

In broad terms, Nigeria's traditional energy consumption, primarily relies on traditional biomass and waste, representing a significant share of 73.5% of the nation's primary energy consumption, with fossil fuels contributing to 26.4% of the energy consumed and hydropower accounting for the remaining 1%.¹³⁸ In 2022, renewable energy became a part of the mix, reducing the other sources by contributing 16.4% of the total electricity capacity.¹³⁹ A low carbon transition in Nigeria consequently mandates significant alterations in current production and consumption practices, requiring cleaner technologies and reduced greenhouse gas emissions,¹⁴⁰ all while ensuring equal distribution of both the costs and benefits across society.¹⁴¹

Currently, just over half of the Nigerian population has access to electricity, with stark urban-rural disparities.¹⁴² Urban areas, benefiting from infrastructural privileges, exhibit an electrification rate hovering around 85%, in sharp contrast to the rural areas lagging at nearly 40%. Beyond these statistics, even areas with electrification face the issue of reliability, compelling over 60% of businesses and households to generate power independently, often resorting to fossil-fuelled generators.¹⁴³

Although the low carbon transition implies inclusivity,¹⁴⁴ in Nigeria, the LCT fails to deliver on this promise as the energy poverty that once plagued traditional systems has found a new home in the distribution of renewable energy. Just as marginalised communities bear the brunt of inadequate access to traditional energy sources, the shift to renewable energy has replicated this injustice, leaving many disadvantaged groups, especially youth and women, on the fringes of the clean energy revolution. Factors fuelling these disparities encompass a mix of affordability and infrastructural challenges, and a lack of proximity to key power installations. ¹⁴⁵

The paradox of renewable energy poverty and distribution is further highlighted by insufficient generation capacity to meet the demand for energy, which has direct implications for job creation. Moreover, there is an important spatial dimension to these injustices where the allocation of resources and funding for renewable energy projects often favours urban and wealthier areas, leaving marginalised and rural communities underfunded, thereby limiting access to energy and job prospects for youth and women in these areas.

4.2.3. Political economy dimensions

In recent years, the LCT has gained traction in Nigeria's policy circles, influencing discussions on technology regulations and governance. The country's commitment to clean energy development is showcased through a suite of initiatives, comprising policy, regulatory frameworks, and targeted action plans aimed at reducing emissions and advocating renewable energy sources. The updated Nationally Determined Contribution (NDC) embodies Nigeria's heightened ambition in addressing climate action beyond 2020. Specifically addressing the oil and gas sector, Nigeria's revised NDC signals significant progress, committing to end flaring by 2030 and pledging a 60% reduction in fugitive methane emissions from oil and gas operations by 2031. As a commitment to this pledge, the year 2020 witnessed the introduction of the "decade of gas" by the federal government to bolster domestic gas consumption.¹⁴⁶ The recently developed Nigeria Climate Change Act also specifically highlights the involvement of youth and women in climate advocacy and education.

Despite these concerted efforts, current policies and strategies have primarily focused on energy conservation and decarbonisation efforts, lacking a specific emphasis on

labour-based incentives and job creation. This imbalance places a disproportionate burden on the younger generation, subjecting them to adverse consequences of the prevailing conflict between environmental preservation and employment generation. Labour unions in Nigeria have expressed concern regarding this clash and advocates for a more inclusive policy framework.

In addition, disadvantaged groups, especially women and youth, face exclusion in decision-making processes, limiting their access to opportunities in the low-carbon transition. The perpetuation of these traditional power structures keeps youth and women from actively participating in shaping transition, leading to alleged destructive actions by rural communities, such as destruction and theft of the great green wall trees and vandalism of solar panels and mini-grids that exclude them.

4.2.4. Opportunities and barriers for youth employment

Despite the optimistic prospects outlined in Nigeria's Renewable Energy Master Plan¹⁴⁷ and the ILO's endorsement of the LCT journey to address unemployment, job creation within the clean energy sector in Nigeria has been sluggish at best.¹⁴⁸ Additionally, the likelihood of job displacement that comes with a shift to alternative fuels pose a considerable challenge to the LCT agenda.

The global shift toward clean energy sources has deeply impacted Nigeria's economy, primarily due to the fluctuating and often escalating prices of crude oil, as well as the substantial costs of fuel imports. This has affected multiple industries, leading to substantial job losses. Another major source of potential job loss is in the charcoal industry. The pivotal role of biomass in Nigeria, especially in forms like charcoal, wood chips, and agricultural residues, in supplying over 80% of energy needs in Nigerian rural communities and as a job provider and income sustainer cannot be overstated. The shift toward renewable energy sources presents a threat to the livelihoods of those working within the charcoal supply chain, affecting various roles like harvesters, producers, and distributors.

These considerations put the country at a critical juncture, where it must reconcile the imperatives of low carbon transition with the preservation of domestic industries and the labour force, all while navigating the intricate global energy landscape.

Opportunities for youth employment

Despite these challenges, the LCT in Nigeria also presents opportunities for job growth in a number of promising sectors. The renewable energy sector, albeit in the early stages of growth, offers diverse opportunities encompassing direct, indirect, and induced employment. Micro, small and medium-sized enterprises (MSMEs), particularly those engaged in solar appliances and clean cooking solutions, play a significant role as job creators within the renewable energy sector and as a catalyst for technological innovation.

The solar power market in Nigeria has witnessed significant participation from the country's youth and female demographic, who have been actively engaged in providing solar installation and maintenance services. This involves a huge participation in Pico-solar appliances and Solar Home System¹⁰.

Waste-to-energy projects stand as pivotal solutions addressing environmental sustainability challenges while catering to the increasing energy demands. Innovative projects,

¹⁰ Pico-solar appliances and Solar Home System are the most popular avenues for youth participation in small-scale solar energy devices designed to power individual appliances or small electronics. These devices are typically portable and have a low energy output, often used for charging small electronics, lighting, or running basic appliances' (Solar Home System) companies are enterprises that provide solar power solutions designed for individual households. These systems are intended to power a home's basic energy needs, such as lighting, mobile phone charging, or operating small appliances.

spearheaded by MSMEs and startups, play a dual role in creating jobs and advancing sustainable energy initiatives.

The development and manufacturing of electric vehicles also present a range of employment prospects. These positions span vehicle assembly, engineering, design, and technical roles, contributing to job creation within the manufacturing segment. Furthermore, the establishment of the infrastructure essential for electric vehicles, particularly the installation, maintenance, and operation of EV charging stations, brings about a need for skilled workers to manage these stations, constituting another segment of direct job creation in the sector.

Systemic barriers for youth employment

In addition to these potential opportunities there are also systemic barriers preventing youth from taking advantage of the employment potential in the green economy. The first is related to elite capture, a key issue in the Nigerian labour market that distorts resource allocation, directing funds away from initiatives that could generate jobs for the broader community. The skewed distribution of resources and hiring practices perpetuate inequality and, in turn, hamper economic growth and job creation.

In addition, the interplay of an overdependence on imports, currency fluctuations, and local infrastructure deficits also pose a huge barrier to entrepreneurs in starting and growing their business. Another related barrier is brought up by tax-related challenges, which not only impact financial stability, but also lead to indirect job losses as businesses grapple with high capital costs. Inefficiencies in taxation due to multiple tax regimes at local, state and national levels force entrepreneurs to downsize or cut costs by limiting employment.

A third major challenge is the limited access to quality education and technical training opportunities that engenders a skills mismatch. The significant shortage of qualified professionals with the requisite expertise to meet the growing demand for skilled employees, has led to a reliance on foreign expertise in the renewable energy sector which put local job seekers at a disadvantage. This knowledge gap is further deepened by the lack of encouragement and guidance directing women toward science, technology, engineering and math (STEM) education and training, exacerbating gender disparities within the sector.

The persistence of deeply ingrained cultural beliefs and gender norms also affect the LCT in more ways than one. This is exemplified by the central role played by women in procuring firewood for household cooking, a practice passed down through generations and justified by the belief that it imparts a unique flavour to food. As a result, women in communities have become primary custodians of this tradition, safeguarding it as an integral part of their daily lives. While this cultural practice preserves cultural heritage, it prevents many women from entering the labour market and exploring new employment opportunities.

The renewable energy sector in Nigeria, also employs a notable number of workers through informal jobs and productive use jobs, particularly women. While this serves as a potential growth sector in the new green economy, those in informal employment often work fewer hours and receive lower wages.¹⁴⁹ Industries with smokestacks in the oil and gas sector often have the advantage of large numbers and strong trade unions advocating for fair labour practices and industry standards, leading to more benefits, stability, and training opportunities, thereby contributing to job quality. Within the smaller clean energy sectors, the current lack of economies of scale limits the negotiating power on the decency of green jobs.

4.2.5. Conclusion

The clash between environmental conservation and decent job creation in Nigeria has led to a prioritisation of environmental over employment concerns, echoing patterns of inequality from the fossil fuel era. This conflict creates a scenario where the concept of a just transition becomes entangled in perpetuating fossil fuel structures thereby creating a new generation of unintended victims. Existing policies and strategies towards energy transition in Nigeria

lack a specific emphasis on labour-based incentives and job creation, sidelining the role of creating decent jobs within the transition process. This imbalance places a disproportionate burden on the younger generation. Without a focus on inclusion and justice, the LCT risks repeating the same patterns as the fossil fuel industry, such as expat and elite-capture, unequal access to energy, exclusion from decision-making processes, top-down, one size-fits all policy implementation

4.3. Facilitating exchange through multi-stakeholder dialogues

To ensure the findings of the case studies align with the lived experiences of stakeholders in the clean energy space, two multi-stakeholder dialogues (MSD) were organised in South Africa and Nigeria respectively. The main ambition of these dialogues was to reflect on the case study findings and further contextualise these by developing policy and programming pathways for creating an enabling environment for youth in the low carbon transition.

4.3.1. The multi-stakeholder dialogue in South Africa: challenging narratives

The focus of the multi-stakeholder dialogue in South Africa was on unsettling dominant narratives about youth and the low carbon transition. Participants felt a discernible disconnect between those telling the story of the transition and those affected by it. There was widespread agreement that the language in which stories of the low-carbon transition are told are highly technical and alienating to the general South African population. The policies and proposed solutions are commonly presented in English, which is not a language that is accessible to everyone. There is also a failure to connect climate questions with 'bread and butter issues' in a way that makes the narrative tangible to citizens.

In addition, there was broad agreement that narratives of the low carbon transition often tokenize young people and youth are often only included in engagements as an afterthought or a 'tick the box exercise'. Where they do appear, they are paradoxically positioned as both passive victims and saviours of the current crisis; both as vulnerable populations and as future leaders. This paradox is commonplace in popular understandings of young employment in South Africa, where youth are both seen as the "greatest threat to social stability" and as a "demographic dividend".¹⁵⁰ This has led to feelings of frustration and, in some instances, youth have considered seeking employment abroad where they feel their opinions will be valued and they will be able to earn more at the same time. In other cases, the youth are left to bear all the weight of the crisis which was created by the generation before.

In addition to the tokenistic and paradoxical positioning of young people, participants noted other key silences in the LCT narrative, most notably the perspectives of women and voices of communities outside of urban centres. Participants also felt it important to acknowledge that the interests of local communities may be opposite or divergent from the interests of climate activists. Moreover, particularly relevant to the South African context are the realities of systemic racism and land dispossession, which have significant bearing on the justice elements of the LCT, which are often underplayed in dominant narratives. Finally, indigenous approaches and local knowledges related to the energy transition and the green economy are under-explored which could provide novel ways of looking at the LCT that can promote justice and inclusion of diverse perspectives and realities.

To challenge the dominant and largely exclusive narratives, participants argued that knowledge regarding the energy transition, and its implications, need to be shared more widely. This would entail translating (technical) research into accessible language and relevant messaging, including a translation into local languages where necessary. Participants underscored the importance of community-based workshops and information sessions in schools as vehicles to raise awareness about the process and implications of a transition. Another identified key priority area was the need to increase participation in and

enhance the inclusivity of policy and decision-making processes. This involves making a deliberate effort to engage affected communities and incentivise youth and women to actively participate in these discussions. To achieve these objectives, participants signalled the importance of building meaningful partnerships and coalitions across sectors and stakeholder groups. As one participant shared:

“Working in silos and a lack of accountability is what got us here in the first place, only together we can find a different way out”.

4.3.2. The multi-stakeholder dialogue in Nigeria: bringing in a localised perspective

In Nigeria, the multi-stakeholder dialogue was primarily focused on facilitating an exchange between high-level policy makers and youth groups to inform national action plans and co-create low carbon transition roadmaps. In this regard, a number of key intervention areas were highlighted by participants as crucial for a just transition process.

Participants emphasised the need for hands-on formal training on renewable energy techniques, recommending the standardisation of green skills in both formal and non-formal education. They advocated for certifications, recognizing their significance in the Nigerian socio-economic context. Beyond technical training, the focus should extend to developing soft and foundational skills, with a call for comprehensive 'green curricula' in technical and vocational training institutes (TVET) and universities. In addition, special attention should be paid to existing barriers in accessing information and training opportunities among young people, including internet access and transportation costs. Active and localised communication, beyond the internet and social media should be employed to reach all cadres of young people. They also recommended a more intentional outlook to include marginalised groups of young people, such as young people living with disabilities. Overall, participants noted that training opportunities need to reflect the heterogeneous nature of Nigerian youth.

Participants also urged a gender-transformative approach to the energy transition, focusing on addressing gender norms and creating equitable opportunities for women in the new, green labour market. Recommendations included addressing childcare and unpaid domestic work, investing in mentorship programmes for women and ensuring equity in the informal economy. Access to land is a critical issue that needs to be centred in Nigeria's energy transition, as the majority of food in the country is produced by smallholder women farmers.

Localisation of policy and programming interventions and fostering community ownership were also put forward as important driving factors of a just LCT in Nigeria. Suggestions included creating a private-sector-driven ecosystem, localising skill sets, and investing in business development for local youth. Recognizing indigenous knowledge and engaging civil society were also highlighted as important policy pathways.

The importance of a conducive business climate and enabling policy environment was highlighted by participants as an important precondition for stimulating green entrepreneurship, with specific recommendations for financial incentives and strategic awareness. Specific recommendations include: introducing incentives for renewable energy production - e.g. tax rebates for imports, carbon credits (where helpful), increasing access to financial credit especially for the informal sector, and public sector investment in the security and safety of renewable energy infrastructure.

Finally, as one participant remarked, a just transition is not about taking affirmative action on only one of these aspects, but it is about harmonising policy and programming efforts to facilitate an inclusive transition that leaves no one behind. This entails not just a transition to renewable energy sources, but more importantly a change in mindset that moves from a focus on economic growth to wellbeing: In the words of one high-level ranking policy maker:

Low-carbon transition is not just about creating a job, it's about creating sustainable livelihoods. It is about enhancing the capacity of our youth and giving them a place in our economy not just now but also in the future. This entails changing how we see work and how we see growth as a nation. We should not just aim at economic growth, but grow in a sustainable way.'

4.4. Main findings and lessons learned

While both countries face their own unique, contextual challenges when it comes to promoting youth employment in low carbon transitions, they also share important features that provide an insight into what youth-centred just transition pathways in the Global South could look like. Based on these insights, this section shares the main lessons learned on how to support youth in just LCT in Africa.

The most important shared conclusion is that without proper safeguards and checks and balances, the proposed green economic transformation risks repeating the patterns of exclusion and dispossession that are commonplace in the fossil-fuel industry. Concerted effort and political will is needed to mitigate this risk and include the following:

Champion and protect local ownership. The renewable energy industries in both South Africa and Nigeria are currently dominated by large foreign-owned private companies. While the Renewable Energy Independent Producer Programme (REI4P) in South Africa sets conditions for local shareholding and black economic empowerment¹¹; labour unions, civil society and a mounting body of research¹⁵¹ suggest that the REI4P is not translating into meaningful local job creation or social upliftment. In Nigeria we see a similar pattern emerging, where elite capture is of grave concern as it distorts resource allocation, directing funds away from initiatives that could generate jobs for the broader community. The skewed distribution of resources and hiring practices perpetuate inequality and, in turn, hamper economic growth and job creation. Without regulation to curtail big industry, and policy to support community-owned micro-enterprises, there is a high risk that the renewable energy sector will continue to be monopolised by foreign-owned companies and political elites.

Take skilling seriously. This applies both to the higher education and training sector and to (public and private) green employers supporting workplace-based training opportunities. Despite repeated policy references to the need for young people to be skilled, reskilled and upskilled for the energy transition, there are currently no government-led skilling programmes operating at scale in both countries.

For Africa's youth to have a meaningful stake in the just transition, employers in the renewable energy sector must prioritise skills-building for locally-hired employees. There is the risk that renewable energy independent power producers 'window-dress' local employment to meet externally enforced targets, without investing in substantive, transferable skills for young workers, which are essential to their social mobility. A concerted skills-building strategy, that begins well before the construction phase, is essential if Africa's green economy is to absorb young entry-level workers that are without formal qualifications or prior work experience.

Technical and vocational training colleges (TVETs) have a critical role to play in realising a just transition for youth as post-school qualifications are able to dramatically improve young people's chances in a changing labour market. The challenge for TVET is to remain attuned to the skills needs of the green economy, build substantive partnerships with the green energy sector and low-carbon industry, and support a pipeline of youth to fill the emerging needs of employers. Programmes aimed at reskilling and upskilling youth for a new energy

¹¹ Black Economic Empowerment (BEE) policies in South Africa are a set of affirmative action measures aimed at redressing historical economic disparities and promoting the economic inclusion of previously disadvantaged black South Africans in the country's economy.

economy must offer certified, transferable skills that create demonstrable experience and career ladders for youth. In this respect, curricula that combine more technical green skills with foundational and digital skills will be key to equip Africa's youth for the future of work. In addition, workplace-based training can also offer young people essential links to employers and mentors.¹⁵²

Meet young people where they are. Once they leave school, young people need to gain a foothold in the labour market, but without formal qualifications, no prior work experience, and few social links to the labour market, many have the odds stacked against them.¹⁵³ Young people are generally also excluded from social welfare, unless they have children or a disability, thereby lacking a social safety net. Moreover, job-seeking is expensive and long-term unemployment can take both a psychological and a financial toll on young people.¹⁵⁴ In sum, if we are to support young people's labour market participation in the green economy, both the public and private sectors have a role to play in easing the financial and psychosocial toll of young people's experience and helping them get a foot in the door.

Promote gender justice in LCT. Promoting gender responsive interventions is crucial for ensuring women's active participation and benefit from the transition to renewable and sustainable energy. This involves providing access to finance, land, affordable childcare, and social services, while addressing gender norms and stereotypes that hinder women's engagement. One of the challenges is that many women primarily engage in the informal sector, further complicating efforts to achieve a just transition in climate initiatives that predominantly focus on formal settings with greater male representation. Supporting green entrepreneurship and encouraging skills development and access to STEM education can remove some of the barriers that women in particular experience in accessing green jobs.

Moreover, women's exclusion from political roles intersects with cultural and gender dynamics, perpetuating traditional norms and prejudices that hinder their active involvement in policy discussions. Promoting meaningful engagement of women in the development of just transition pathways will be crucial in ensuring that no-one is left behind.

Reframing the message. Narratives about the low-carbon transition in Africa tend to be dominated by powerful actors in the Global North, including politicians, multilateral organisations and development donors. In national African contexts, it is often governments, media, labour unions and large companies that are the main storytellers. While these narratives commonly involve local communities, youth are often excluded in these stories. Where they do appear, they are positioned, paradoxically, as both passive victims and solvers of the current crisis; both as vulnerable populations and as future leaders. The ability to tell one's own story is a critical aspect of a just low carbon transition as it allows youth to shape their own narrative and as such exact agency in their position in the transition.

5. Recommendations and research agenda

In order to capitalise on the opportunities a just transition brings for youth in Africa, key systemic barriers in the LCT ecosystem need to be addressed. Emerging from the evidence synthesis and case studies are a number of key policy and programming recommendations. This section outlines the main pathways for change for different stakeholders in the low-carbon transition ecosystem.

5.1 Recommendations for policy & programming

Policy makers

Drive equity in affordable energy supply. At present, access to energy in Africa is starkly unequal, both in terms of affordability and supply. This has knock-on effects for micro-, small and medium enterprises, particularly in informal settlements and rural areas; for young people's digital inclusion and access to information; and for women whose caregiving burden is often amplified by energy poverty. A just low carbon transition should therefore not only focus on greener energy and employment; but should also ensure more equitable and sustainable access to energy, especially for marginalised groups and communities.

Support public employment programmes. To address the current limited scale of direct jobs in the renewable energy sector, public employment programmes can create work in potentially high-absorbing, low-carbon sectors like the care sector or circular waste economy. Public employment programmes can as such offer young people critical experience and entry into the labour market, while also strengthening infrastructure and social services in local communities. To be piecemeal, public employment programmes must also build transferable skills and exploitable networks. Promising public-private partnerships (PPPs) are emerging to link young people to quality green jobs at scale and should be expanded to facilitate labour market absorption of the growing youth workforce.

Expanded social protection. Comprehensive social protection measures should be set up to help alleviate the financial and psychosocial costs of the job search. These could include cash transfers to support job-seeking, improved access to affordable transport, or programmatic interventions like mentorship and psychological services. Extending social protection to young job-seekers, especially those most marginalised, can prevent young people from giving up the search for work and thereby reduce the number of NEET in Africa.

Support the informal economy. In many African countries, the informal sector has produced steadily, and significantly higher growth in employment in recent years than the formal economy, particularly for youth. With the right support and investment, especially for micro, small and medium-size enterprises operating in the informal sector, Africa can stimulate vibrant local economies, powered by locally-owned and maintained renewable energy hubs. This will be especially important for youth and women who are disproportionately represented in the informal economy.

Enforce local ownership. If regulation does not enforce a substantive commitment to local ownership, and skilling programmes that target local youth, patterns of exclusion and dispossession will be reinforced in the low-carbon transition. As the case studies have shown; without regulation to curtail big industry and policy to support and incentivise micro-enterprises, there is a high risk that the renewable energy sector will be monopolised by a small group of elites and repeat the mistakes and inequities common in traditional fossil fuel-based economies.

Encourage equitable representation and meaningful participation in policy processes.

Low representation of women and youth in decision-making across Africa has led to male-dominated and non-youth specific conversations around the LCT. Although there is a positive trend in enabling youth to participate in the climate discourse, the effectiveness and influence of these approaches appears to be limited and there is a high risk of tokenism of youth engagement. In addition, the credibility of these efforts can be put into question as they typically do not include a representative cohort of youth in terms of identity markers. Taking youth heterogeneity into account in policy engagement will be key in ensuring that policy frameworks and interventions are based on contextualised social realities.

Building coalitions and strategic partnerships. To ensure the LCT will be Africa-centred, there is a need for strong domestic, continental and international partnerships which requires a careful balancing act for African governments between investment and exploitation. Addressing competing interests by employing inclusive development and justice as the main policy frames will be crucial in preventing another scramble for Africa's resources.

Higher education and training institutions

Bridging the skills mismatch. TVETs are foreseen to play a critical role in realising a just transition for youth. Currently however, very few African TVET institutions regularly conduct national skills forecasts and these forecasts rarely pay explicit attention to the new skills required in a green economy.¹⁵⁵ To equip youth with the right skills for the future of work, it is essential that TVET and other training institutes develop curricula that match the standards and requirements of the new, green labour market. Partnerships with the green energy sector, and wider low-carbon industry will in this regard be key in supporting a pipeline of youth to meet the emerging needs of employers.

Build linkages to employers. While investing in young people's education and skills is important, training programmes for a new green economy must offer certified, transferable skills that create demonstrable experience and career ladders for youth. Workplace-based placement can in this regard offer young people essential links to employers and mentors. Especially for those experiencing a distance to the labour market, mentorship programmes, on-the-job training and network development can help reduce the rate of churn for young people in the labour market, who regularly cycle in and out of disconnected, short-term jobs.

Private sector actors

Create sustainable decent jobs. While creating new, green jobs for young people in Africa, the private sector must assure – rather than assume – that these are quality, decent jobs. Employment initiatives in the green economy are all-too-often piecemeal and short-term and have not translated into sustainable livelihoods. Concerted efforts need to be made to enhance the quality of existing jobs and secure job decency of new green employment.

Recognise young people's aptitudes and circumstances. To curb youth unemployment, employers must find alternative ways of assessing and recognising young people's competencies and experience beyond formal qualifications. Recent research¹⁵⁶ shows the impact of providing an unemployed young person with a documented evaluation of their full skill set: not just their educational qualifications, but also their soft skills, capabilities, experience and learning potential. In light of the costs involved in travelling to work; young people may also need financial support to keep their first quality job.

Supporting green entrepreneurship. To support the growth of the green economy, the private sector can also offer young entrepreneurs (including self-employed youth or

micro-enterprises) seed capital and professional networks to help them tackle high barriers to entry.

Civil society organisations

Amplify voices of marginalised communities. Given their embeddedness in local communities, CSOs are well placed to support locally-led climate advocacy and amplify the voices of those that make a difference in their communities. By collaborating with youth networks and grassroots movements, CSOs can influence policy and programming, ensuring that these are connected to local realities and rooted in social accountability, rather than supporting a tokenistic participation of youth in these processes. In this role, CSOs become knowledge brokers, mobilising knowledge for climate action and actively engaging in shaping decision-making, governance, cultural, and political contexts of a just transition in Africa.

Supporting gender-responsive interventions. To support a gender just transition, LCT policies and programmes should focus on providing access to finance, land, affordable childcare and social services, as strategies to boost and sustain women's labour participation. CSOs can in this regard play a crucial role in advancing women's economic and political empowerment by elevating their message on important policy fora and facilitating engagement with key system players. In addition, integrating an ecofeminist¹² perspective into discussions about just transition pathways is a way to promote gender awareness in the LCT.

5.2 An Inclusive research agenda

Presenting the latest insights from research and practice, this publication highlights the barriers and opportunities, but most of all, the need for a youth-centred just transition in Africa. However, much is still unknown and more research into the implications and pathways for a just transition in Africa is needed. Therefore, this final chapter of the paper presents the main knowledge gaps that the research uncovered, thereby laying the foundation for an inclusive research agenda on opportunities for youth employment in low carbon transitions in Africa.

Localisation of climate research

The first potential avenue of future exploration is in the localisation of LCT research to promote the development of just transition pathways that are based on different structures within industries, workforce composition, social and dynamic political economy factors. Most studies on LCT take place at a national or continental level, however, what became evident in the research, is that there is a strong spatial dimension to the low carbon transition and the related challenges youth face. Youth living in rural communities that are far removed from urban centres have radically different experiences than youth living in major cities. In addition, while there is increasing consideration for youth dimensions in energy and climate policy, the implementation of these policies at a local community level is mostly lacking.

Contextualisation through case study research into the implications of the LCT on local communities is as such an important avenue for research as this enables a deeper understanding of the challenges and opportunities that are experienced at different levels. Bringing these insights subsequently together by connecting the 'local' with the 'global' in a way that builds mutuality through both South-South and South-North exchange and multi-stakeholder dialogues can provide important insights and pathways for change.

¹² Ecofeminism is a feminist political movement and a theoretical lens that focuses on the women–nature–nexus and integrates ecological, economic and feminist concerns in discussions around climate.

Youth heterogeneity and engagement in policy, practice and research

Quantitative approaches, especially energy models, dominate the LCT literature, with research focusing on resources, energy demands, and production of energy using RE technologies. The social processes that influence the underlying dynamics of inclusion and exclusion of youth and women, so critical to a sustainable energy transition, are still under-researched. Unpacking the interrelated and multidimensional complexities among the category of youth is therefore important to inform policy and programming interventions and effectively foster active youth participation in policies and programmes. To promote a deeper understanding of opportunities for youth in low carbon transitions, research should take the vantage point of youth heterogeneity and intersectionality and pay specific attention to barriers and opportunities for marginalised groups, e.g. NEETS (not in employment, education or training), young women, rural communities, refugees, youth with a disability.

Research on gender disparities and pathways for a gender just transition

Gender is a critical dimension of the distributional impacts of energy transitions and as this research has shown, women face structural barriers and inequalities that excludes them from the labour market and decision-making processes around LCT in Africa. LCT policies and programmes that neglect to consider these disparities can inadvertently exclude women from reaping the benefits of a low carbon transition. A deeper understanding of women's specific position in the LCT is needed to support a gender just transition. Moreover, while existing research predominantly focuses on the challenges faced by women, there is also a need for an alternative analytical framework that explores themes of women's empowerment and the potential of women's role as change agents in just low carbon transitions.

Bridging the skills gap: the role of TVET and other training programmes

As research shows, there is a skills mismatch between what the labour market requires and the skills that young people have. Research suggests that TVET could play a major role in bridging this gap by 'greening' their curricula and offering future proof training courses. However, systems for identifying, integrating and implementing new green competencies in TVET in Africa are still weak. More research into what types of skills are needed in the low carbon transition and how curricula can be developed that combine more technical, green skills with foundational and digital skills can help strengthen TVET and other training institutes and equip youth with the skills and knowledge for the future of work.

Entrepreneurship support

While it is widely acknowledged that the private sector, in particular SMEs, has a crucial role to play as a catalyst of technological and social innovation and as a provider of employment, a more detailed understanding is missing about what is needed to incentivise youth-led and youth employment intensive businesses. Understanding how to create an enabling environment for green enterprises to flourish, will be crucial in contributing to the generation of more high-quality jobs for youth during the transition. Moreover, considering the general lack of reliable data and employment statistics, there is a clear need for more research into high job potential sectors for green jobs for youth; such as agriculture, waste recycling, solar industries. Attention to spatial dimensions, in particular the rural-urban divide, will be key as there is an important geographical disparity connected to the low-carbon transition in Africa.

Pay attention to both the formal and informal economy

One of the key insights emerging from this research is that the lines between formality and informality are often far blurrier than imagined, with connections and overlaps between these two sides of the economy more pronounced than often conceptualised in YE programmes

and policies. The dominance of waged or salaried work in social policies and political visions of the future leads to an exclusion of unwaged workers, and education programmes which prioritise skills for jobs that might not exist or become less relevant in the future of work.

While formalisation of employment including establishing a living wage, social protection and job security is still a priority, it is increasingly recognised that young workers in the green economy operate on the intersection of formal and informal labour, sometimes combining multiple jobs in both spheres. It is therefore crucial to understand the drivers and consequences of alternative livelihoods at the interface of the formal and informal sector, and how this should be operationalized in policy and practice to promote decent jobs for youth.

Developing inclusive M&E systems to measure what counts

Oftentimes evaluations of employment programmes and policies fall into the trap of ‘bean counting’; reporting only the number of new jobs created without assessing the quality of those jobs and the possible negative externalities that were caused by an intervention. As this report has shown, a lot of the new jobs that are created in the low carbon transition for local workers are in unskilled roles, on short-term contracts, and only during the construction phase of the project, repeating a pattern of high churn and job precarity in the African labour market, particularly for young people. Also, the informal and ‘blurred’ livelihood strategies of youth are not adequately captured by these methods, presenting a skewed version of reality.

Facilitating a just transition requires a rethinking of how we measure employment success. Indicators that focus on job decency and sustainability are critical to support sustainable livelihoods for young people in the low carbon transition. Moreover, tracking youth-specific outcomes (e.g. absorption, skilling, retention) in the renewable energy sector and wider low-carbon economies and a continuous monitoring of youth specific outcomes will enable a deeper understanding of the effects of transition strategies and identify areas for intervention. Finally, recognising that youth livelihood strategies are diverse and often take place on the interstices of the formal and informal economy, will enable better assessment of employment generation and allow for more informed policy and programme interventions.

Political economy dimension and negative externalities

As the evidence synthesis presented in this publication highlights, international political economy dimensions will play a key role in Africa’s LCT and include the exploration of new energy sources and mineral extraction. To avoid another ‘scramble for Africa’, it will be essential to integrate political economy dimensions into LCT research to support a youth-centred African vision on the low carbon transition.

Finally, while the LCT provides opportunities for employment creation, it will also inevitably involve the destruction of other jobs and rather than a smooth process, this is bound to be disruptive. In the coming years, individuals employed in mining, or energy-intensive heavy industries, along with the communities reliant on these sectors, will experience consequences of the market- and policy-induced transitions. Centring the perspective of local communities in low carbon transition research by unpacking the (potential) negative externalities of the LCT will enable the development of pathways for an inclusive and just transition.

6. Conclusion

The call for a greening of economies by a process of low carbon transition (LCT) has grown increasingly louder in both climate change and development discourse. The LCT is viewed as a means to foster climate-resilient economies and a promising avenue for generating employment in the future of work. Many African countries are rethinking their energy policies and have formulated policy and development plans to support their LCT ambitions. However, as this publication shows, an economy powered by renewable energy is not automatically more inclusive or equitable; nor is it guaranteed to produce decent jobs for Africa's growing youth workforce. Consequently, the concept of a *just* transition, which entails greening the economy in a way that is as inclusive as possible by creating decent work opportunities and leaving no one behind, has taken root in policy and programming circles as it promotes sustainability on both environmental and social dimensions.

While the language of a just transition has become commonplace in policy discourse, there is however still no consensus about what 'justice' actually looks like in the context of a low-carbon transition in Africa, for whom this justice should be realised, and how it should be enacted. The research presented here tackles these questions from the vantage point of youth and women who are regularly referenced by policymakers, but whose stake in the just transition is yet to be meaningfully realised. Young people are critical stakeholders in Africa's energy transition, as they both bear the brunt of historical and intergenerational injustices and are the custodians of the continent's future. Despite their prominence, however, they are still disproportionately excluded from economic opportunities and policy discourse.

Presenting emerging insights from literature and contextualising these findings through case studies in South Africa and Nigeria, this publication shows that the low carbon transition in Africa presents at the same time both tremendous opportunities and major challenges. The extent to which these barriers can be addressed and the opportunities capitalised upon depends on the level of inclusion facilitated within the transition. Recognizing the inherent inequities and injustices in the establishment of the fossil fuel-based economy, there is a pressing need not only to decarbonise the economy but to restructure it in ways that meaningfully include those on the margins. A just transition needs to go beyond a change from unsustainable to clean energy sources to a transition from extractive and exclusive economies to inclusive societies that focus on the wellbeing of their citizens. Fundamentally, this requires a rethinking of power, ownership and leadership. Failing to do so will reduce the low carbon transition to a repackaging of old wine in new bottles and an unfulfilled promise for a better life to future generations. Promoting a truly just transition starts by recognising that tackling climate change without system change is fighting a losing battle.

It also entails recognising the just transition as a process, rather than an outcome in itself. Especially in Africa, where half of the population has no access to reliable energy, the low carbon transition requires a careful balancing act between the reduction of emissions and a more sustainable energy mix, while at the same time increasing access to electricity, especially for marginalised communities. When it comes to supporting a just transition in Africa it is therefore critical that we do not confuse pace with progress. Rather than speaking about a low-carbon transition, it is therefore more appropriate to speak about just transition pathways. These pathways, while similar in nature across countries, need to be localised to support meaningful change as the contextual realities and lived-experiences of different communities are highly diverse. At the same time, there is a great need for a sharing of knowledge and lessons learned across contexts, aiming to both inspire and facilitate learning. Such exchanges can lead to new insights and strategic partnerships both crucial in facilitating a more equitable transition.

Finally, promoting just transition pathways is about engaging youth and women not as an afterthought in policy and programming decisions, but as the driving forces of a greener and more inclusive future in Africa.

Annex 1: The Advisory Committee

To ensure the research benefits from different sectoral and country perspectives, the project appointed an Advisory Committee made up of a diverse group of representatives of the private sector, civil society and multinational organisations, policy makers, youth networks and youth-led organisations working on issues of youth employment and climate change in Africa. The members of the Advisory Committee are listed below.



Désiré Asogbavi –Francophone Africa Director The ONE Campaign

An advocate and international development expert, Désiré Asogbavi has been successively the Resident Representative to the African Union and Director of the Liaison Offices of Oxfam International, Plan International, and the United Nations Population Fund (UNFPA) and Francophone Director of ONE and has worked on a wide range of issues including social and economic justice, humanitarian diplomacy, gender justice and youth.



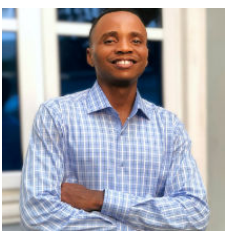
Sonia Onovughakpo Fajusigbe- Economic, Trade & Investment Affairs Adviser, Consulate General of the Kingdom of the Netherlands - Lagos

Sonia Onovughakpo (Odiye) Fajusigbe has over a decade of experience in policy advising, private sector development, entrepreneurship, youth employment, and international trade facilitation. Within the Dutch Embassy she is responsible for the business development and strategic growth of the Healthcare and the Circular Economy portfolio in Nigeria.



Maggie Kigozi- United Nations Industrial Development Organization

Maggie Kigozi is a consultant at the United Nations Industrial Development Organization and a fellow of the African Leadership Initiative of the Aspen Institute. Maggie moved to the private sector in 1994 and was appointed Executive Director of the Uganda Investment Authority. She is the founder of the UIA Women Entrepreneurs network and set up skills training in Uganda.



Aniebiet Obot- program and policy manager of Surge Africa

As a member of Nigeria Green Academy, Aniebiet Obot engages with communities and organisations to champion climate policies that drive environmental conservation and community resilience to climate change. Aniebiet also volunteers with SustyVibes to implement community-centred projects and youth-themed events to inspire community actions to combat climate change.



Chiara Curcio - Associate Professional Officer in Youth Employment Promotion, International Labour Organisation (ILO)

Located within the Employment, Labour Markets and Youth Branch, Chiara Curcio works at the Youth Employment Accelerator Group promoting and positioning ILO's work on youth employment in the international context, including in connection to the 2030 Agenda. She leads the Global Initiative on Decent Jobs for Youth and serves as the focal point for youth development partnerships and projects.

Annex 2: The LCT Ecosystem

Stakeholder mapping

The transition to a low carbon economy across African countries is not without implications for individuals, communities, organisations and institutions. Due to competing socio-economic and political interests, several stakeholder groups remain affected by the energy transition in diverse ways. The major stakeholder groups include: Government Representatives/Policy Actors; Researchers & Academic Institutions (including training institutions); Youth Groups & Networks; Civil Society Organisations & Development Partners; Labour & Advocacy Groups; Private Sector Actors; and the Media. Based on their unique interests and perceptions of the energy transition, these stakeholders continue to demonstrate different levels of interest in the process and outcomes of LCT efforts. In the same vein, the stakeholders also wield varying levels of power, capable of influencing policies, programmes, financial and non-financial investments and the discourse around the energy transition. For this reason, it is important to map the existing players in the space - both local, regional and global, acknowledging their corresponding levels of interest and power and tailoring multi-sectoral engagement strategies for a just transition, accordingly.

Main Regional and Global Stakeholders

At the regional and global level, critical actors include multilateral and international agencies such as the African Union, the African Development Bank Group (AfDB) the European Commission, UNECA, the IPCC — Intergovernmental Panel on Climate Change, International Renewable Energy Agency, Africa Energy Commission, ILO Regional Office for Africa, IFAD, International Energy Agency (IEA), ECDPM, IRENA, The NDC Partnership and GIZ. At various levels, these agencies and institutions contribute their global/regional convening power and resources (in partnership with local actors) towards shaping national policy, while investing in socio-economic infrastructure and capacity strengthening to power the low-carbon transition. Similarly, several Africa-focused and international foundations/nonprofits also implement and actively support local efforts towards a just transition - especially within their climate justice portfolios. These include: Mo Ibrahim Foundation, ONE Campaign, Porticus, IKEA Foundation, Health of Mother Earth Foundation, The Pan African Climate Justice Alliance (PACJA), and Akina Mama wa Afrika. Furthermore, global and regional think tanks and research institutes like ACET Africa, Energy for Growth Hub, Clean Energy 4 Africa, Rocky Mountain Institute, The Brookings Institute, and Stockholm Environment Institute - Africa Centre, continue to champion research and evidence-based policies (in partnership with local actors). In addition to these multilaterals, foundations and think tanks, youth groups like the SDG7 Youth Constituency, Youth Connekt Africa, and Youth Go Green also engage in regional and global advocacy for a low-carbon transition that positions youth voices at its centre and ensures that youth in all their diversity are equipped to leverage the economic opportunities in a low carbon economy.

Key Stakeholders from the LCT process in South Africa & Nigeria

Zooming in on the insights shared during the multi stakeholder engagements in Nigeria and South Africa, over 150 key local stakeholders have been identified across all stakeholder groups in both countries. Based on their perceived level of power and interest, these stakeholders can be broadly categorised into 4 levels: High Power-High Interest; High Power-Low Interest; Low Power -High Interest; and Low Power-Low Interest. These broad categories are discussed below:

High Power - High Interest: Government stakeholders and policy actors are majorly identified as having high power and high interest in the low carbon transition. This is as a result of their evident proximity to decision making and ability to determine the political climate within which the transition process exists. In Nigeria these include the Ministries of Minerals and Energy, Digital Economy & Communications and Power as well as credible foundations and private sector actors like Co-Creation Hub Africa and Tony Elumelu Foundation. In South Africa, this category includes policy actors like the Public Affairs Research Institute and Bulungula Incubator, as well as credible CSOs like South Africa Climate Change Action Network (SACCAN). These stakeholders are key allies and are either at the core of decision making or highly influential within the context of Nigeria and South Africa's energy transition. Hence, other stakeholders need to actively seek out collaboration with them and ensure that they remain actively involved and committed to LCT efforts.

High power - Low Interest: This category includes fossil fuel companies as well as government ministries/agencies which do not directly work on youth employment. Due to the financial capacity of the fossil fuel companies (in a transitioning fossil fuel-reliant economy) and the decision-making power of these government ministries, these stakeholders are regarded as wielding a significant level of economic and political power, even though they do not show enormous interest in the potential opportunities being created by the transition. Examples of such stakeholders in Nigeria include oil companies like Shell and Exxon Mobil, and in South Africa: automotive and industrial fuels and oils manufacturer and marketer - Sasol, and energy company Eskom. Given their level of power, it is important to actively engage, consult and involve this group of stakeholders in order to nurture their interest in the energy transition and possibly convert them to "High Power-High Interest" stakeholders. This is especially critical to prevent them from utilising their power in undesirable ways.

Low power – High interest: Youth groups, civil society organisations, advocacy groups and researchers are mainly classified as "Low-power-High Interest" stakeholders in the low carbon transition. This is due to their lack of proximity to decision making processes, despite their strong awareness of and sustained interest in the LCT process. In both Nigeria and South Africa, these youth-led groups and CSOs (including women's rights organisations) continue to advocate strongly for a just transition which caters to women and young people's socio-economic realities. Also, young people continue to express their keen interest to invest in the requisite reskilling and capacity strengthening, to enable them take up the opportunities presented by the transition. Examples of relevant youth networks and CSOs in Nigeria are Sustyvibes, Surge Africa Organisation, The Shehu Musa Yar'adua Foundation and Women Environmental Programme. In South Africa, youth networks such as SAlIA Youth Forum, South Africa Youth Climate Change Coalition, and Youth Capital, as well as advocacy group - Support Centre for Land Change, are key players. It is important to meaningfully engage this category of stakeholders in order to sustain and support their interest in the energy transition, while leveraging on their rich insights and experience in the field.

Low power - Low interest: A few youth networks have also been categorised as Low Power - Low Interest stakeholders, especially as they have not demonstrated significant interest in the discourse and decision making around the energy transition. Some effort needs to be invested in monitoring the activities of these stakeholders. These stakeholders also have to remain minimally informed, in order to avoid their likelihood of becoming resistant or disruptive stakeholders in the energy transition, if neglected.

Notes

1. World Meteorological Organization (2023) *State of the Climate in Africa 2022* (WMO 1330). Geneva.
2. IEA. (2022). *Africa Energy Outlook 2022: World Energy Outlook Special Report*. Paris. Retrieved from www.iea.org/t&c/
3. ILOSTAT (2023) *African Youth Face Pressing Challenges in the Transition from School to Work*. Retrieved from: <https://ilostat.ilo.org/african-youth-face-pressing-challenges-in-the-transition-from-school-to-work/>
4. RES4AFRICA Foundation. (2023). *Africa's Energy Future is Renewable*. Rome.
5. Chapman, A., Shigetomi, Y., Ohno, H., McLellan, B., & Shinozaki, A. (2021). Evaluating the global impact of low-carbon energy transitions on social equity. *Environmental Innovation and Societal Transitions*, 40(February), 332–347. <https://doi.org/10.1016/j.eist.2021.09.002>
6. Mwaura, G., & Glover, D. (2021). Green jobs for young people in Africa: work in progress. *Include Knowledge Platform: Leiden, The Netherlands*.
7. Vale, B., Finestone, E., Magadla, S., & Strugnell, D. (2022). *Boosting Decent Employment For Africa's Youth* (Evidence Synthesis Paper Series No. 13/2022). Retrieved from https://includeplatform.net/wp-content/uploads/2022/12/12_12_Boosting-3.pdf
8. Aworti, N. & Pouw, N. (2023) Concept Note Phase III (2023-2026) Towards Just Economies and Political Empowerment in Africa. Retrieved from: <https://includeplatform.net/publications/concept-note-2023-2026/>
9. INCLUDE. (2013). Strategic actors for the implementation of inclusive development policies (Draft Concept Note for Discussion during the Platform Meeting Accra (3 And 4 April 2013)). Leiden. Retrieved from <http://includeplatform.net/wp-content/uploads/2014/10/Concept-note-Strategic-Actors-Knowledge-Platform-on-Development-Policies.pdf> ; Islam, R. (2019). Growth, Disparities and Inclusive Development in India. *India Studies in Business and Economics*. <https://doi.org/10.1007/978-981-13-6443-3> ; Rocha Menocal, A. (2017). Political Settlements and the Politics of Transformation: Where Do 'Inclusive Institutions' Come From? *Journal of International Development*, 29(5), 559–575. <https://doi.org/10.1002/jid.3284>
10. Kazimierzuk, A., Lijfering, S. Abagun, O. (2024); *Youth in Low-Carbon Transitions in Africa. An evidence review*. Leiden: INCLUDE. Retrieved from: <https://includeplatform.net/theme/green-inclusive-future/>
11. Dekker, M., & Pouw, N. (2022). Introduction to the Special Issue: Policies for Inclusive Development in Africa. *European Journal of Development Research*, 34(5), 2137–2155.

12. Chapman A, Shigetomi Y, Ohno H, McLellan B, Shinozaki A. Evaluating the global impact of low-carbon energy transitions on social equity. *Environ Innov Soc Transitions* 2021;40:332–47. doi:10.1016/j.eist.2021.09.002.
13. Wu X, Cao J, Jiang C, Lou Y, Zhao S, Madani H, et al. Low carbon transition in climate policy linked distributed energy system. *Glob Transitions Proc* 2020;1:1–6. doi:10.1016/j.gltp.2020.03.002.
14. IEA. *Africa Energy Outlook 2022: World Energy Outlook Special Report*. Paris: 2022.
15. Boateng D, Bloomer J, Morrissey J. Where the power lies: Developing a political ecology framework for just energy transition. *Geogr Compass* 2023;17:e12689. ;ILO. Decent work n.d. <https://www.ilo.org/global/topics/decent-work/lang-en/index.htm> (accessed August 29, 2023).
16. Boateng D, Bloomer J, Morrissey J. Where the power lies: Developing a political ecology framework for just energy transition. *Geogr Compass* 2023;17:e12689. doi:10.1111/gec3.12689.
17. IEA. *Africa – Countries & Regions 2023*. <https://www.iea.org/regions/africa> (accessed August 27, 2023).
18. IEA. *Africa – Countries & Regions 2023*. <https://www.iea.org/regions/africa> (accessed August 27, 2023).; IEA. *Africa Energy Outlook 2022: World Energy Outlook Special Report*. Paris: 2022. ; Rowe M. Africa’s unclear path to renewable energy. *Geographical* 2022. <https://geographical.co.uk/climate-change/african-energy> (accessed August 27, 2023).
19. Chandler B. Research Spotlight: Renewable Energy in Africa. Mo Ibrahim Found 2022. <https://mo.ibrahim.foundation/research-spotlight-17-covid-19-and-africas-governance> (accessed July 24, 2023).
20. ILO. Decent work n.d. <https://www.ilo.org/global/topics/decent-work/lang-en/index.htm> (accessed August 29, 2023).
21. Awortwi N, Dietz T. *Knowledge Platform on Inclusive Development Policies (INCLUDE): Concept note for phase II (2019-2022)*. Leiden: 2019.
22. African Union. *Africa Speaks with Unified Voice as AU Executive Council Adopts African Common Position on Energy Access and Just Energy Transition*. African Union 2022. <https://au.int/en/pressreleases/20220722/africa-speaks-unified-voice-au-executive-council-adopts-african-common> (accessed July 24, 2023).
23. IEA. *Africa – Countries & Regions 2023*. <https://www.iea.org/regions/africa> (accessed August 27, 2023).
24. IEA. *Africa Energy Outlook 2022: World Energy Outlook Special Report*. Paris: 2022. ; SEforALL. *The recovery better with sustainable energy guide for African countries*. Vienna: 2020.
25. UNCTAD. *Commodities at a Glance: Special issue on access to energy in sub-Saharan Africa*. New York: 2023.
26. Winkler H. *Reducing inequality and carbon emissions: Innovation of developmental*

- pathways. *S Afr J Sci* 2018;114:1–7. doi:10.17159/sajs.2018/a0294.
27. Ghantous N. Covid-19: Sub-Saharan Africa has yet to realise its renewable potential 2022. <https://www.energymonitor.ai/tech/electrification/covid-19-sub-saharan-africa-has-yet-to-realise-its-renewable-potential/> (accessed August 27, 2023).
 28. RES4AFRICA Foundation. *Africa's Energy Future is Renewable*. Rome: 2023.
 29. UNCTAD. *Commodities at a Glance: Special issue on access to energy in sub-Saharan Africa*. New York: 2023 ; Enerdata. *Germany plans to multiply its renewable capacity by 5 over 2021-45* 2022. <https://www.enerdata.net/publications/daily-energy-news/germany-plans-multiply-its-renewable-capacity-5-over-2021-45.html> (accessed August 27, 2023).
 30. IFC. *The Dirty Footprint of the Broken Grid: The Impacts of Fossil Fuel Back-up Generators in Developing Countries*. Washington DC: 2019.
 31. Ibid
 32. Kersey J. *Recognizing the energy access challenges of informal urban communities in Africa*. Berkley: 2022.
 33. RES4AFRICA Foundation. *Africa's Energy Future is Renewable*. Rome: 2023.
 34. Adair-Rohani H, Zukor K, Bonjour S, Wilburn S, Kuesel AC, Hebert R, et al. Limited electricity access in health facilities of sub-Saharan Africa: a systematic review of data on electricity access, sources, and reliability. ; *Glob Heal Sci Pract* 2013;1:249–61. Shen W, Ayele S. COVID-19 and the African energy sector *Energy Insight*. 2020.
 35. Bobbins K, Caprotti F, Pailman W, Schloemann H, Densmore A, Finlay K, et al. *Beyond the Grid: The Micropolitics of Off-Grid Energy in Qandu-Qandu , South Africa* 2023;0:1–23. doi:10.1111/anti.12963.
 36. Cross J, Neumark T. *Solar Power and its Discontents: Critiquing Off-grid Infrastructures of Inclusion in East Africa*. *Dev Change* 2021;52:902–26. doi:10.1111/dech.12668.
 37. Chapman A, Shigetomi Y, Ohno H, McLellan B, Shinozaki A. Evaluating the global impact of low-carbon energy transitions on social equity. *Environ Innov Soc Transitions* 2021;40:332–47. doi:10.1016/j.eist.2021.09.002.
 38. Lijfering S, Lacey N. *Green Jobs for Youth in Africa*. Leiden: INCLUDE. Retrieved from: <https://includeplatform.net/publications/green-jobs-for-youth-in-africa/>.
 39. ILO. *A just transition to climate-resilient economies and societies: Issues and perspectives for the world of work*. Geneva: 2016.
 40. IEA. *Overview – World Energy Employment – Analysis*. *World Energy Employ* 2020. <https://www.iea.org/reports/world-energy-employment/overview> (accessed August 29, 2023).
 41. Lenhardt A. *National and local factors in just transitions for low-and middle-income*

countries 2020.

42. RES4AFRICA Foundation. Africa's Energy Future is Renewable. Rome: 2023. ; IRENA, ILO. Renewable energy and jobs: Annual review 2022. Geneva.
43. Nalule VR. Transitioning to a low carbon economy: Is Africa ready to bid farewell to fossil fuels? In: Wood G, Baker K, editors. Palgrave Handb. Manag. Foss. Fuels Energy Transitions, Springer International Publishing; 2019, p. 261–86. doi:10.1007/978-3-030-28076-5_10.
44. Lijfering S, Lacey N. (2022) Green Jobs for Youth in Africa. Leiden: INCLUDE. Retrieved from: <https://includeplatform.net/publications/green-jobs-for-youth-in-africa/>.
45. Van der Veen, R. & Betke, J. (2024). Green Jobs for Youth in Africa's Plastic Waste Recycling Sector. Leiden: INCLUDE. Retrieved from: <https://includeplatform.net/theme/green-jobs/>
46. Statistics South Africa. Four facts about the mining industry (2019). Retrieved from: <https://www.statssa.gov.za/?p=14682> (accessed August 29, 2023).
47. Lenhardt A. (2020) National and local factors in just transitions for low-and middle-income countries. Retrieved from <https://opendocs.ids.ac.uk/opendocs/handle/20.500.12413/15629>
48. Statistics South Africa. Four facts about the mining industry (2019) Retrieved from: <https://www.statssa.gov.za/?p=14682> (accessed August 29, 2023).
49. IEA. Africa Energy Outlook (2022) World Energy Outlook Special Report. Paris: 2022. ; IRENA, ILO. Renewable energy and jobs: Annual review 2022. Geneva: 2022. ; Daniel M. Defining a Just Transition for Sub-Saharan Energy Workers. 2020.
50. IEA. Africa Energy Outlook (2022) World Energy Outlook Special Report. Paris: 2022.
51. RES4AFRICA Foundation (2023) Africa's Energy Future is Renewable. Rome: 2023.
52. Daniel M. (2020) Defining a Just Transition for Sub-Saharan Energy Workers..
53. IEA. Africa Energy Outlook 2022: World Energy Outlook Special Report. Paris: 2022.
54. Ibid.
55. EEP Africa. Profiles of change: Youth opportunities in the clean energy sector. Pretoria: 2019. ; IRENA. The Renewable Energy Transition in Africa. Powering Access, Resilience and Prosperity. Frankfurt Am Main, Eschborn, Abu Dhabi: 2020.
56. RES4AFRICA Foundation. Africa's Energy Future is Renewable. Rome: 2023.
57. Oyewo AS, Aghahosseini A, Ram M, Breyer C. Transition towards decarbonised power systems and its socio-economic impacts in West Africa. Renew Energy 2020;154:1092–112. doi:10.1016/j.renene.2020.03.085.
58. IEA. Africa Energy Outlook 2022: World Energy Outlook Special Report. Paris: 2022.

59. Sichone YM, Mulenga P, Phiri C, Kapena S, Fandamu H. Electricity load shedding. An econometric analysis of the productivity of firms in the manufacturing sector in Lusaka. *Int J Commer Manag Res* 2016;2:151–7.
60. Tagliapietra S, Occhiali G, Nano E, Kalcik R. The impact of electrification on labour market outcomes in Nigeria. vol. 37. Springer Science and Business Media Deutschland GmbH; 2020. doi:10.1007/s40888-020-00189-2.
61. ILO. Effective climate policies can create 12 million jobs in Nigeria. *Clim Action Jobs* n.d. <https://www.climateaction4jobs.org/new-findings-from-nigeria-reveal-that-effective-climate-policies-can-boost-the-economy-creating-12-million-jobs/> (accessed August 29, 2023).
62. Soumare S, Ushie V, Abril ER. *Green jobs for women?* Addis Ababa; New York: 2021. doi:10.1353/iur.2010.0041.
63. IRENA, ILO. *Renewable energy and jobs: Annual review 2022*. Geneva: 2022.
64. ILO. *A just transition to climate-resilient economies and societies: Issues and perspectives for the world of work*. Geneva: 2016.
65. Ibid
66. Renner M. *Rural renewable energy investments and their impact on employment*. Geneva: 2017.
67. Hanto J, Krawielicki L, Krumm A, Moskalenko N, Löffler K, Hauenstein C, et al. Effects of decarbonization on the energy system and related employment effects in South Africa. *Environ Sci Policy* 2021;124:73–84. doi:10.1016/j.envsci.2021.06.001.
68. Blimpo MP, Cosgrove-Davies M. *Electricity Access in Sub-Saharan Africa. Uptake, Reliability, and Complementary Factors for Economic Impact*. Washington DC: International Bank for Reconstruction and Development / The World Bank; 2019.
69. IRENA; The European Commission; and ILO. *Policy Brief #13: Interlinkages Between Energy And Jobs*. Abu Dhabi, Brussels, Geneva: 2018.
70. Howard C. *Digital Skills for Youth Employment. Fostering Digital Transformation for Social*. Leiden, Amsterdam, Nairobi: 2023.
71. Regt W de, Gianchandani P. *UNESCO-UNEVOC study on the trends shaping the Future of TVET teaching*. Geneva: 2020.
72. Solar Sister. *About Us - Solar Sister* n.d. <https://solarsister.org/about-us/> (accessed 12 August 29, 2023).
73. Vale B, Finestone E, Magadla S, Strugnell D. *Boosting Decent Employment For Africa's Youth*. 2022.
74. Signé L, Johnson C. *Africa's Mining Potential: Trends, Opportunities, Challenges and Strategies*. Policy Cent New South 2021.
75. ILO. *World Employment and Social Outlook: Greening with jobs*. Geneva: 2018.

76. COBENEFITS. Economic prosperity for marginalised communities through renewable energy in South Africa. Assessing the co-benefits of decarbonising the power sector. Pretoria: 2019.
77. Cust J, Zeufack A (eds. . Africa's Resource Future: Harnessing Natural Resources for Economic Transformation during the Low-Carbon Transition. Washington: International Bank for Reconstruction and Development / The World Bank; 2023. doi:10.1596/978-1-4648-1743-4.
78. ILO. World Employment and Social Outlook: Greening with jobs. Geneva: 2018.
79. Kazimierczuk AH. Tracing inclusivity: Contribution of the Dutch private sector to inclusive development in Kenya. Case study of Unilever Tea Kenya Ltd., the flower sector and Lake Turkana Wind Power project. Leiden University, 2020. ;Lomax J, Mirumachi N, Hautsch M. Does renewable energy affect violent conflict? Exploring social opposition and injustice in the struggle over the Lake Turkana Wind Farm, Kenya. Energy Res Soc Sci 2023;100:103089. doi:10.1016/j.erss.2023.103089.
80. Soumare S, Ushie V, Abril ER. Green jobs for women? Addis Ababa; New York: 2021. doi:10.1353/iur.2010.0041.
81. Ibid.
82. Grantham K. Mapping the intersection of women's economic empowerment, care work and clean energy 2022:1–39.
83. Chakma T, Rigg S, Ramsay A. Women Confronting Loss and Damage in Africa. Feminist climate justice research from Kenya, Nigeria, Rwanda and Zambia. London: 2022.
84. IEA. Africa Energy Outlook 2022: World Energy Outlook Special Report. Paris: 2022. ; Burney J, Alaofè H, Naylor R, Taren D. Impact of a rural solar electrification project on the level and structure of women's empowerment. Environ Res Lett 2017;12:95007.
85. Nelson S, Kuriakose AT. Gender and Renewable Energy: Entry Points for Women's Livelihoods and Employment. 2017.
86. Bell SE, Daggett C, Labuski C. Toward feminist energy systems: Why adding women and solar panels is not enough. Energy Res Soc Sci 2020;68:101557. doi:10.1016/j.erss.2020.101557.
87. Winther T, Ulsrud K, Saini A. Solar powered electricity access: Implications for women's empowerment in rural Kenya. Energy Res Soc Sci 2018;44:61–74. doi:10.1016/j.erss.2018.04.017.
88. IEA. Africa Energy Outlook 2022: World Energy Outlook Special Report. Paris: 2022.
89. Bell SE, Daggett C, Labuski C. Toward feminist energy systems: Why adding women and solar panels is not enough. Energy Res Soc Sci 2020;68:101557. doi:10.1016/j.erss.2020.101557.
90. Strzelecki B. Youth Engagement in the Multilateral Energy Space in 2019–2021. Dev

- 2022;65:48–53. doi:10.1057/s41301-022-00328-1. ; Ighobor K. Jobs and climate action are top priorities of young people in Africa. *Africa Renew* 2022. <https://www.un.org/africarenewal/magazine/july-2022/jobs-and-climate-action-are-top-priorities-young-people-africa> (accessed July 24, 2023).
91. Langevin MS. Book review: “Political economies of energy transition: wind and solar power in Brazil and South Africa” by Kathryn Hochstetler, Cambridge, UK, Cambridge University Press, 2020. *Env Polit* 2022;31.
 92. Hochstetler K. *Political economies of energy transition: wind and solar power in Brazil and South Africa*. Cambridge University Press; 2020.
 93. Power M, Newell P, Baker L, Bulkeley H, Kirshner J, Smith A. The political economy of energy transitions in Mozambique and South Africa: The role of the Rising Powers. *Energy Res Soc Sci* 2016;17:10–9.
 94. Cohen, A. (2022). A Scramble For African Energy. Retrieved August 29, 2023, from <https://www.forbes.com/sites/arielcohen/2022/06/30/a-scramble-for-african-energy/?sh=efc51eb208e4>
 95. Usman Z, Abimbola O, Ituen I. *What does the European green deal mean for Africa?* Washington: CEIP: Carnegie Endowment for International Peace; 2021.
 96. Hamouchene H. *Green Hydrogen: The new scramble for North Africa*. Doha: 2021.
 97. Medinilla A, Sergejeff K, Domingo E. *The geopolitics of African renewable energy european and chinese investments in a global green transition*. Maastricht and Brussels: ECDPM Discussion Paper; 2022.
 98. Sokona Y, Mulugetta Y, Tesfamichael M, Kaboub F, Hällström N, Stilwell M, et al. *Just Transition. A Climate, Energy, and Development Vision for Africa*. www.justtransitionafrica.org; 2023.
 99. Osunmuyiwa, O., Biermann, F., & Kalfagianni, A. (2018). Applying the multi-level perspective on socio-technical transitions to frontier states: the case of renewable energy transitions in Nigeria. *Journal of Environmental Policy & Planning*, 20(2), 143-156. <https://doi.org/10.1080/1523908X.2017.1343134>
 100. World Economic Forum (2023) *Fostering Effective Energy Transition*. 2023 Edition. Insight report. June 2023. Retrieved from: <https://www.weforum.org/publications/fostering-effective-energy-transition-2023/in-full/nigeria/#:~:text=Nigeria%20currently%20has%20one%20of.an%20average%20of%20%240.52%2FkWh>
 101. IFC. (2019). *The Dirty Footprint of the Broken Grid: The Impacts of Fossil Fuel Back-up Generators in Developing Countries*. Washington DC.
 102. United Nations. Economic Commission for Africa (2018-12). *Energy crisis in Southern Africa: future prospects*. Addis Ababa.
 103. Sustainable Energy Africa, “A Feasibility Study Exploring Energy through Community-Led Socially Owned Renewable Energy Development in South Africa,” 2022.

104. Council for Scientific and Industrial Research, "Statistics on Power Generation for South Africa for 2022," Accessed via: <https://www.csir.co.za/csir-releases-statistics-on-power-generation-south-africa-2022#:~:text=Coal%20still%20dominates%20the%20South,of%20the%20total%20energy%20mix>.
105. Project90x2030, 'The Role of Ownership in the Just Energy Transition'.
106. de Jong, Sophie. (2022) Powering Justice: Redefining a Just Energy Transition through a South African lens
107. Ibid
108. The Presidency of South Africa, 'South Africa's Just Energy Transition Investment Plan (JET IP): 2023-2027' (The Presidency, 2022), <https://www.thepresidency.gov.za/content/south-africa%27s-just-energy-transition-investment-plan-jet-ip-2023-2027>.
109. Ibid.
110. Cock, J. (2019) 'Resistance to Coal Inequalities and the Possibilities of a Just Transition in South Africa'. *Development Southern Africa*, 36:6, 860-873, DOI: 10.1080/0376835X.2019.1660859
111. Ibid
112. Ibid
113. Cock; Hanto et al., 'South Africa's Energy Transition – Unravelling Its Political Economy'.
114. Mirzania, Pegah, Joel A. Gordon, Nazmiye Balta-Ozkan, Ramazan Caner Sayan, and Lochner Marais. "Barriers to powering past coal: Implications for a just energy transition in South Africa." *Energy Research & Social Science* 101 (2023): <https://doi.org/10.1016/j.erss.2023.103122>.
115. Ibid.
116. Greenpeace, 'Case Studies from Transition Processes in Coal Dependent Communities' (Institute for Sustainable Futures, 2019).
117. Baker, L. (2015) Renewable energy in South Africa's minerals-energy complex: a 'low carbon' transition?, *Review of African Political Economy*, 42:144, 245-261, DOI: 10.1080/03056244.2014.953471
118. Ibid
119. Climate Justice Coalition, "JET Dialogue on Socially Owned Renewable Energy: Concept Note," 2023.
120. N Andrew et al., 'Land Consolidation and the Expansion of Game Farming in South Africa: Impacts on Farm Dwellers' Livelihoods and Right to Land in the Eastern Cape', in *Africa for Sale: Positioning the State, Land and Society in Foreign Land Claims and Acquisition* (Brill, 2013), 97–130.

121. Vale, B., Finestone, E., Magadla, S., & Strugnell, D. (2022). *Boosting Decent Employment For Africa's Youth* (Evidence Synthesis Paper Series No. 13/2022). Retrieved from https://includeplatform.net/wp-content/uploads/2022/12/12_12_Boosting-3.pdf
122. Maseko, 'Unemployment and Sustainable Livelihoods: Just Transition Interventions in the Face of Inequality'.
123. TIPS (2020) 'Sector Jobs Resilience Plan: Coal Value Chain'.
124. Ibid.
125. Vale et al., 'A Transdisciplinary Analysis of the Shape and Implications of Unemployment in South Africa'.
126. Percept, 'Understanding Youth Inequality'.
127. Ibid.
128. Dawson, "“Making Plans through Other People”": The Social Embeddedness of Informal Entrepreneurship in South Africa'.
129. Department of Women (2015) "The Status of Women in the South African Economy," 2015.
130. TIPS, "Just transition in South Africa: The case of a gender just approach", 2021.
131. Irena, 'Renewable Energy: A Gender Perspective', 2019, https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2019/Jan/IRENA_Gender_perspective_2019.pdf?rev=bed1c40882e54e4da21002e3e1939e3d.
132. T Kohler and H Bhorat, 'Can Cash Transfers Aid Labour Market Recovery? Evidence from South Africa's Special Covid-19 Grant', Working Papers (Cape Town: University of Cape Town, 2021); T
133. Lauren Graham et al., "Siyakha Youth Assets Study: Developing Youth Assets for Employability" (Centre for Social Development in Africa, University of Johannesburg, 2019).
134. Cock, 'Resistance to Coal Inequalities and the Possibilities of a Just Transition in South Africa'.
135. Ibid.
136. Jonathan Hanto et al., 'South Africa's Energy Transition – Unravelling Its Political Economy', *Energy for Sustainable Development* 69 (August 2022): 164–78, <https://doi.org/10.1016/j.esd.2022.06.006>.
137. Sustainable Energy Africa, "A Feasibility Study Exploring Energy through Community-Led Socially Owned Renewable Energy Development in South Africa."
138. Bamgbopa, M., Musbaudeen, O., Dindi, A., Alabi, A., Sodiq, A., Yusuf, A., ... & Sanusi, W. (2019). A review of Nigerian energy policy: Implementation and impact. Research Gate.
139. Statista (2023) Energy sector in Nigeria - statistics & facts

140. Ojo, A. K., Mustapha, R. A., & Ismaila, A. (2022). Impact of Financial Sector Development on Agricultural Productivity in Nigeria. *Lapai Journal of Economics*, 6(1), 12-23.
141. Carley, S., & Konisky, D. M. (2020). The justice and equity implications of the clean energy transition. *Nature Energy*, 5(8), 569-577.
142. World Health Organization. (2021). Tracking SDG 7: The Energy Progress Report 2021
143. IFC. (2019). *The Dirty Footprint of the Broken Grid: The Impacts of Fossil Fuel Back-up Generators in Developing Countries*. Washington DC. ; Ayodele, O. (2021). *Recommendations for solar photovoltaic system policies in Nigeria: a comparative policy analysis* (Doctoral dissertation, Northern Arizona University).
144. McNally, B., 2018. Mapping Press Narratives of Decarbonisation: Insights on Communication of Climate Responses. *The International Journal of Climate Change: Impacts and Responses*, 10(1), pp.39-57.
145. Iwayemi, A., & Fowowe, B. (2011). Impact of oil price shocks on selected macroeconomic variables in Nigeria. *Energy policy*, 39(2), 603-612. ; Sesan, T. A. (2011). *What's cooking?: participatory and market approaches to stove development in Nigeria and Kenya* (Doctoral dissertation, University of Nottingham).
146. Nweke-Eze, C. (2022). Just energy transitions and partnerships in Africa: a Nigeria case study.
147. Elavarasan, R.M., Pugazhendhi, R., Jamal, T., Dyduch, J., Arif, M.T., Kumar, N.M., Shafiullah, G.M., Chopra, S.S., & Nadarajah, M. (2021). Envisioning the UN Sustainable Development Goals (SDGs) through the lens of energy sustainability (SDG 7) in the post-COVID-19 world. *Applied Energy*, 292, 116665
148. Powerforall (2019) Powering Jobs Census 2019: The Energy Access Workforce. Retrieved from: <https://www.powerforall.org/resources/reports/powering-jobs-census-2019-energy-access-workforce>
149. Ibid
150. Lefko-Everett K. (2012) Ticking time bomb or demographic dividend? Youth and reconciliation in South Africa.
151. Boitumelo Malope, 'Power Struggles: An Exploration of the Contribution of Renewable Energy to Sustainable Development, Decent Work and the "just Transition" through a Case Study of Wind Farm Development Outside Loeriesfontein, Northern Cape Province (2011-2020)' (PhD Dissertation, University of Stellenbosch, 2022); groundWork, 'Contested Transition: State and Capital against Community'; Project90x2030, 'The Role of Ownership in the Just Energy Transition', Retrieved from: <https://90by2030.org.za/wp-content/uploads/2018/04/Just-Energy-Transition-The-Role-of-Ownership-in-a-Just-Energy-Transition.compressed.pdf>.
152. Youth Capital (2022) 'Linked in: Rising through Social and Economic Connections', Retrieved from: <https://youthcapital.co.za/linked-in-werise-socialconnections-brief/>.
153. Percept, 'Understanding Youth Inequality'.

154. Youth Capital, 'Beyond the Cost: What Does It Really Cost Young People to Look for Work?', 2022, <https://youthcapital.co.za/beyond-the-cost-research-report/>.
155. UNESCO-UNEVOC (2020) Skills development for renewable energy and energy efficient jobs Discussion paper on solar energy demands. Retrieved from: <https://unevoc.unesco.org/home/UNEVOC+Publications/lang=en/akt=detail/qs=6378>
156. Harambee, 'It's All about Employability', 2019, <https://harambee.co.za/its-all-about-employability/>.

Disclaimer: This content has been released by the INCLUDE Knowledge Platform as a contribution to a project, insight area, or interaction. The insights, interpretations, and conclusions presented in this document are outcomes of a collaborative process facilitated and supported by the INCLUDE Knowledge Platform. However, it should be noted that these results do not necessarily reflect the perspectives of the INCLUDE Knowledge Platform as a whole or those of its Members, Partners, or other stakeholders.

© 2024 INCLUDE Knowledge Platform. All rights reserved. Reproduction or transmission of any part of this publication, including photocopying, recording, or any information storage and retrieval system, is prohibited without explicit permission.

INCLUDE is an independent knowledge platform initiated by the Netherlands Ministry of Foreign Affairs in 2012, to bridge the gap between academic knowledge and effective policies. The platform is made up of researchers, development practitioners and policymakers, promoting evidence-based policymaking on inclusive development, with a focus on Africa. This project is a part of the collaborative research project "A Green and Inclusive Future for Youth in the Global South" in collaboration with IDRC. The research focuses on how the transition to low-carbon economies can address Africa's employment and climate change challenges, in a just and sustainable manner.

INCLUDE Secretariat
Wassenaarseweg 52, 2333 AK, Leiden, The Netherlands
+31(0)71 527 6602
includeplatform.net / info@includeplatform.net

INCLUDE

KNOWLEDGE PLATFORM ON INCLUSIVE DEVELOPMENT POLICIES