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Defining a Just Transition for Sub-Saharan Energy Workers

A DISCUSSION PAPER OF THE SUB-SAHARA
AFRICA ENERGY NETWORK (SSAEN)

Conducted by the Labour Research Service

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Abbreviations

4IR	Fourth Industrial Revolution
AIDC	Alternative Information and Development Centre
APP	African Progress Panel
AREI	African Renewable Energy Initiative
AU	African Union
COSATU	Congress of South African Trade Unions
CSP	Concentrated solar power
DRC	Democratic Republic of the Congo
EAPP	Eastern Africa Power Pool
GLU	Global Labour University
GSI	Global Subsidies Initiative
GTPCWU	General Transport, Petroleum and Chemical Workers' Union
GUF	Global Union Federation
IEA	International Energy Agency
IISD	International Institute for Sustainable Development
ILO	International Labour Organisation
IPP	Independent Power Producer
IRP	Integrated Resource Plan
IWEA	International Federation of Workers Education Association
LRS	Labour Research Service
MNC	Multinational Corporations
MSP	Mining Social Package
NEPAD	New Partnership for Africa's Development
NUEE	National Union of Electricity Employees of Nigeria
NUMSA	National Union of Metalworkers of South Africa
NUPENG	National Union of Petroleum & Natural Gas Workers
PIDA	Programme for Infrastructure Development in Africa
PV	Photovoltaic system
RECS	Regional Economic Communities
RERA	Energy Regulators' Association of Southern Africa
SADC	Southern African Development Community
SAEN	South African Energy Network
SAPP	Southern Africa Power Pool
SDGs	Sustainable Development Goals
SME	Small and Medium-Sized Companies
SSA	Sub-Saharan Africa
SSAEN	Sub-Saharan Africa Energy Network
TOR	Terms of Reference
TUED	Trade Union for Energy Democracy
UN	United Nations
UNEP	UN Environment Programme
UNRISD	United Nations Research Institute for Social Development
WAPP	West African Power Pool



Introduction

The notion of a just transition is increasingly used in the energy sector across the continent. IndustriALL describes the objective of a Just Transition as follows: “to provide a hopeful and optimistic future for all workers, especially for those in industries that may be impacted by efforts to limit greenhouse gases or by the introduction of new technologies.” (IndustriALL, 2019A: 2).

A just transition is a response to the need for a global shift from fossil fuels to renewable energies. If unmanaged, this shift could result in job losses and poor access to energy for communities. On the other hand, it is believed that if such a move is well managed, it could contribute to decent work for all; social inclusion, eradication of poverty and thus correcting the wrongs of existing neoliberal capitalism. It is, however, important that the cost and benefits of an energy transition are equally shared between all. Within the Sub-Saharan Africa (SSA) context, many countries already have a low-carbon or clean energy mix. This is partly due to the high levels of hydropower in the region and the general lack of energy. From an energy perspective, a just transition in SSA will thus not only be a transition from fossil-fuels but also a diversification of the existing renewable energy mix. Climate change is changing the availability of renewable resources such as water and an over-reliance on one energy source could be disastrous for a country. While the energy mix between countries will subsequently differ, energy as a basic need and publicly owned good must not. The extraction, production, transmission and distribution of energy must be publicly governed with public policies in the public interest.

A just transition is a very broad term, and it is thus often confusing as to what exactly the role of unions in this process should be. A just transition in SSA will also look different from a just transition in the Global North. The Sub-Saharan Africa Energy Network (SSAEN) creates the ideal platform through which such context-dependent

dynamics and questions can be explored. SSAEN is an energy network that facilitates cross-sub-regional information sharing and solidarity support among unions. The aim is to formulate labour perspective to engage policymakers at regional, sub-regional and national level on issues pertaining to a just transition and achieving the necessary energy mix. SSAEN is an expansion of the South African Energy Network (SAEN) and includes 18 energy unions across 16 SSA countries. The unions from both Southern and West Africa are brought together as affiliates of the Global Union Federation (GUF) IndustriALL. It is within this context that IndustriALL Sub-Saharan Africa, as part of SSAEN, has appointed the Labour Research Service (LRS) to assist affiliates in defining and contextualising a just transition in Sub-Saharan Africa.

To meet this objective, the opening section of the report takes the first step towards defining a just transition for energy unions in SSA. Just transition definitions can range from reformist in which jobs are protected but the broader status quo remains the same, to transformative in which the root causes of inequalities are challenged. It is argued that in the SSA context with its high levels of income poverty and energy poverty, a transformative approach to an energy transition is the only way to ensure a just transition. In addition, a transformative approach creates the opportunity for a just gender and technological transition. The second section provides unions with ten overarching arguments they can use for a justification of a just transition in SSA. Many will argue that the region has contributed the least to global

carbon emissions and have an abundance of fossil fuels available. There is thus not a justification for a transition to low-carbon energies. At first, this comes across as a strong argument, but the arguments we put forward prove that there is a bigger case to be made for a just energy transition. The arguments we put forward extend beyond the urgent climate crises we are faced with. SSA has a unique context characterised by unprecedented levels of poverty and people living without access to energy. If approached correctly, a just transition provides an opportunity to address these challenges while creating employment in clean energies. These arguments were deliberately developed with an optimistic view to be used as building blocks in any advocacy campaign. The following section subsequently takes these arguments as advocacy building blocks and guides unions on how to develop a successful communication strategy. Prior case studies and the unique regional context builds a case that the socio-economic potential of a just transition will be the factor that will secure buy-in and support rather than environmental considerations.

Section four focuses on the importance of social dialogue within a just transition. Trade unions have an important role to play in both stimulating social dialogue and representing the voice of the people. This section provides guidelines on stakeholder mapping and identification to guide unions. Section five locates jobs and union demands within a just transition context. In its simplest form, a just energy transition will see no worker left without a decent job or affected community without a sustainable economy. Jobs are thus central to a just energy transition. Unions should have clarity regarding both the opportunities and threats within a just energy transition. This section considers the type of jobs, the role of technology, geographical location, new job creation opportunities and gender competency of a just energy transition. It also addresses the broader demands such as protection of the vulnerable, industrial policy development and the protection of vulnerable workers across the renewable energy value chain. We illustrate how informal workers, such as cobalt miners, are being exploited in SSA. Unions as just transition champions will have to build their campaign to not only focus on energy workers but also the workers and communities negatively impacted by the race for renewable resources.

The following section reflects on the democratic ownership of energy. IndustriALL and this research strongly support democratic ownership through public tenure. Energy is a basic need and a publicly owned good which needs to be governed by the authorities. Given the geographical nature of energy poverty in SSA and existing governance challenges, decentralised community or worker-owned energy systems, however, also becomes an important component of energy democracy. The idea behind community and social ownership is, however, not yet well known and received. This section thus provides insights into the opportunities as well as the immense challenges of worker and community-owned energy. Valuable case studies are used to support an argument that public-community ownership models with union involvement deserve urgent further attention towards meeting transformative just transition objectives. Subsequently, the final section reflects on further research areas, the development of possible just transition indicators development and continuous training and research within unions.

RESEARCH APPROACH

The research was guided by the IndustriALL-SSA Terms of Reference (TOR) titled “Defining a Just Transition for workers in the Energy Sector in Sub-Saharan Africa”. In line with the TOR, the research was primarily based on desktop research focused on international just transition literature and lessons learned in other countries. To ensure the research reflected union voices, they were invited to participate at three intervals during the research. The first opportunity was through a “Defining a Just Transition Survey” that was launched among the IndustriALL-SSA affiliates. The survey was conducted on an online platform. The survey was sent to 18 unions located across 15 SSA countries. A maximum of three members per union could respond to the survey. A total of 20 responses were received. Those that responded indicated their position in the union as follows:

- Worker member - 5%
- Shop steward (elected) - 10%
- Official (employed by the union) - 25%
- National office-bearer (elected) - 45%
- Regional office-bearer (elected) - 10%

The survey was done anonymously for unions to feel comfortable indicating their existing level of knowledge. A limitation associated with this approach was that the responses could not be linked to a particular country. The survey was developed mindful of this limitation and valued a true reflection of unions current level of knowledge more than country-specific overviews. It is suggested that similar surveys are launched on a country level upon completion of this overarching study.

The unions that responded indicated the dominant energy source in their country to be the following:

- Oil/petroleum - 21%
- Natural gas - 5%
- Coal - 21%
- Hydropower - 53%

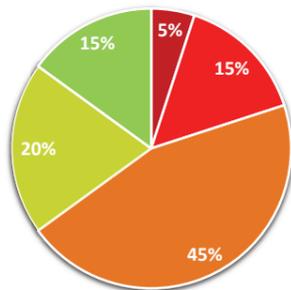
The survey results are incorporated throughout the research report in the relevant sections. The second engagement opportunity was through the circulation of the draft report - “Defining a Just Transition for Sub-Saharan Energy Workers”. Feedback to the draft report was incorporated into the research and presented at the third participatory platform; the virtual SSAEN Network Meeting held on 10 July 2020. During this time, final inputs were received and the research validated by SSAEN.

IMPORTANT NOTE: This report represents one of two studies conducted simultaneously. This report focuses on developing a just transition framework in which unions can define and justify a just transition as well as shaping just transition approaches and advocacy programmes. The second study provides more concrete recommendations on the actual energy mix that will have to be considered within a just transition, as well as the relevant policy environment.

HOW DO WE DEFINE A JUST TRANSITION FOR ENERGY UNIONS IN SUB-SAHARA AFRICA?

The concept of a just transition originated in Northern America during the 1990s. The initial objective of a just transition was to soften the impact of job losses in fossil-fuel sectors as a result of environmental protection policies. Since then, the term has developed to encapsulate sustainable jobs, sectors and economies (Smith, 2017). A just transition has subsequently become an important part of climate change debates. As this section reveals, a range of approaches can be classified under a just transition. It becomes easy to lose oneself as to exactly what it means, especially in a context as unique as SSA.

As part of the Defining a Just Transition Survey (2019), affiliates were asked to rate their general understanding of a just transition and to which extent they are currently engaging the term. The figure below illustrates the results. It can be seen that unions want to engage the topic and view it as relevant, but that the necessary knowledge and confidence are lacking. Towards developing a better understanding of the term this section thus provides an overview of the different just transition definitions.



Are you familiar with the term a Just Transition?

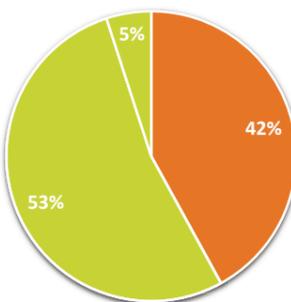
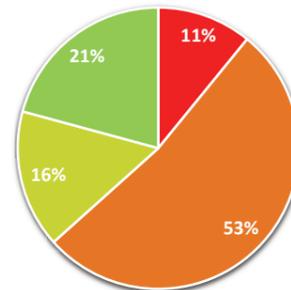
- No, not at all, this is the first time I have come across the term
- Yes, I have heard it before, but I have no idea what it means
- Yes, I have heard it before and have some idea of what it means
- Yes, I have heard it before many times and know exactly what and who it involves
- Yes, I know exactly what it means and use the term myself

Only 35% of participants are comfortable with the term.

Would you be able to explain a Just Transition to your members/affiliates?

- No, not at all
- Yes, I would be able to give a short explanation
- Yes, I would be able to tell them exactly what it means
- Yes, I have already engaged members/affiliates about a Just Transition

11% unions do not at all know what a Just Transition is while 53% will only be able to give you a shorty explanation
21% are already engaging members on this topic



Given what you know of a Just Transition, do you think it is important and should form part of the work that your union does?

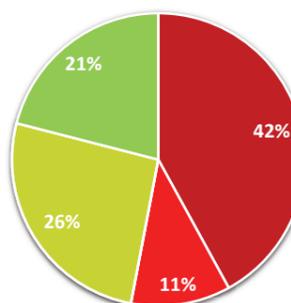
- Yes, I would like to be a part of what we do but I do not know where to start
- Yes, I think it is very important and should form part of what we do
- Yes, we are already incorporating it into our work

All participants feel that a Just Transition should be a part of what they do.

Have you ever had an internal discussion (with leadership members or union members) regarding a Just Transition?

- No
- Yes, but they were not interested because they did not understand what we were talking about
- Yes, they were interested but do not know what to do
- Yes, they feel it should form a central part of what we do

42% of unions have never had an internal discussion on a Just Transition
47% already have



FROM A REFORMIST TO A TRANSFORMATIVE TRANSITION

There exists a range of approaches to and definitions of a just transition. These can vary from simply creating jobs in the green economy and leaving market forces to continue as they are, to a critique of the capitalistic systems responsible for the current climate crisis and social injustice.

Given the range of just transition approaches and arguments, the UNRISD (2018) developed four overarching categories. Each of the four categories builds on each other. The first is referred to as the "Status Quo Approaches to Just Transition". In this context, the existing market system is left to continue. Nature is seen as a form of capital and energy as a commodity. Within this approach, the predominant focus is on jobs. Retraining programmes, early retirement, compensation, relocation assistance and labour adjustment programmes are all located within the status quo approach. The market system is, however, left to solve the climate crisis through green capital investments and innovations. This approach will subsequently allow for another form of capitalism, disguised as "green capitalism", in which multinationals continue to exploit others in pursuit of profit. Profit will continue to be prioritised above social justice.

Moving a step further than the status quo approach, the second phase is referred to as the "Managerial Reform Approaches to Just Transition". The key difference between this approach and the previous is that social dialogue and tripartite negotiations become key. Unions play a more active role, but the status quo is still not challenged. Access to energy is provided, but not any form of ownership. Energy thus remains a commodity within a market system (ibid.).

Within the third category, the "Structural Reform Approaches to Just Transition" there is for the first time a move away from a dependency on market forces. In this scenario, democratic decision-making and ownership play an essential role. Energy is collectively owned, and decision-making power is more widely dispersed. Decentralised co-operative or community ownership becomes relevant. This approach and the previous two adds value to technical knowledge. In this scenario, there is a move towards the protection of the vulnerable in a welfare manner (Halsley, 2018 & UNRISD, 2018).

The "Transformative Approaches to Just Transition" is the final approach in which the objective is a holistic change of society. This approach will not be market-driven but rely on a circular system of production and consumption. Energy becomes a social good owned by all (Halsley, 2018). All the elements of the previous approaches will be relevant, but in addition, this step will "involve the dismantling of interlinked systems of oppression—such as racism, patriarchy and classicism—that are deeply rooted in contemporary societies" (UNRISD, 2018: 14). There will subsequently be an inclusion of marginalised groups such as women, and indigenous people. Communities and vulnerable groups will form part of planning processes to ensure energy is tailored to suit their needs. The transformative approach will focus on the prosperity and well-being of all citizens and challenge existing systems of exclusion. The AIDC (2017) provides a very striking description of where a truly transformative just transition will lead society:

"All this is possible. The great majority of the devastation will happen not simply because of climate change, but because climate change will happen in a greedy, cruel, market-driven social and economic system. We do not have to live that way. Every step of the way, we can campaign for sharing and kindness. Climate jobs are a solution that shares work and shares money so we can take care of each other. They are a step in building a different society" (AICD, 2017: 3).

The TUED (2016) emphasizes that the private sector does not have the legal right to the natural resources on which human's common existence depends. Energy must be publicly governed and socially owned. Given the existing capitalistic system, it is important to realise that unless communities and workers advocate for a just transition, it will not happen. Private companies will not willingly change their business models and governments thus need to be pressurised to change the broader approach to energy (Groundwork, 2018).

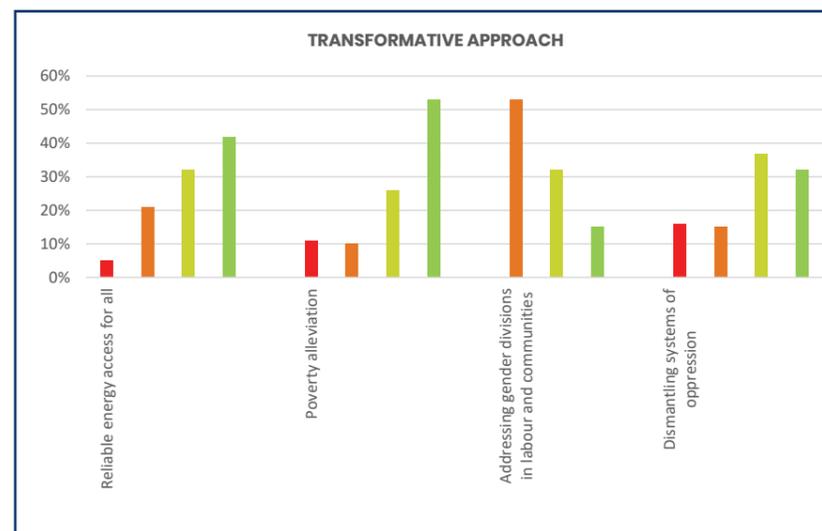
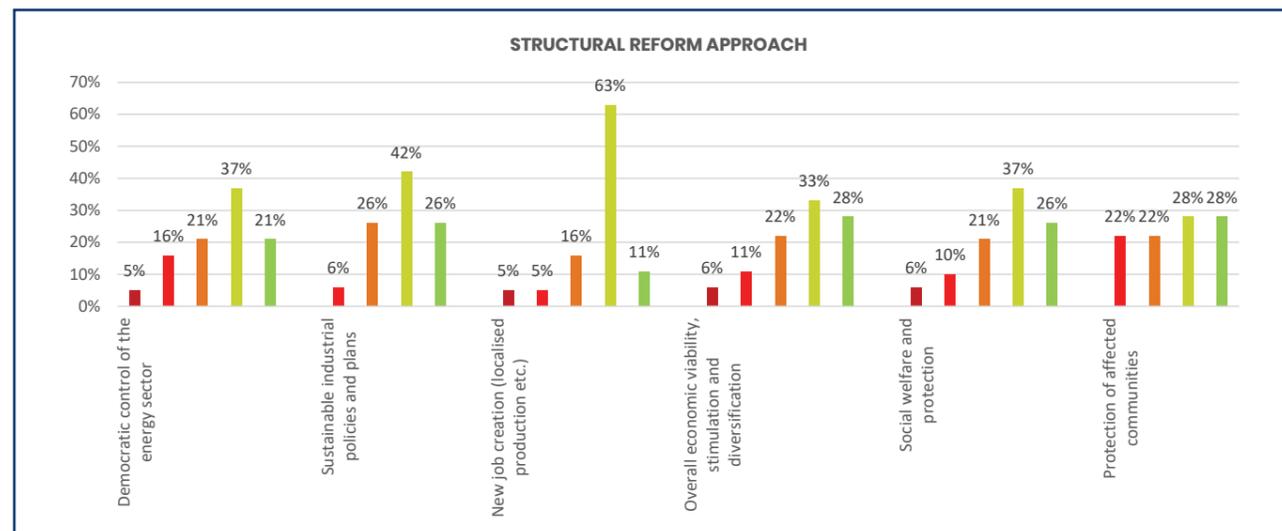
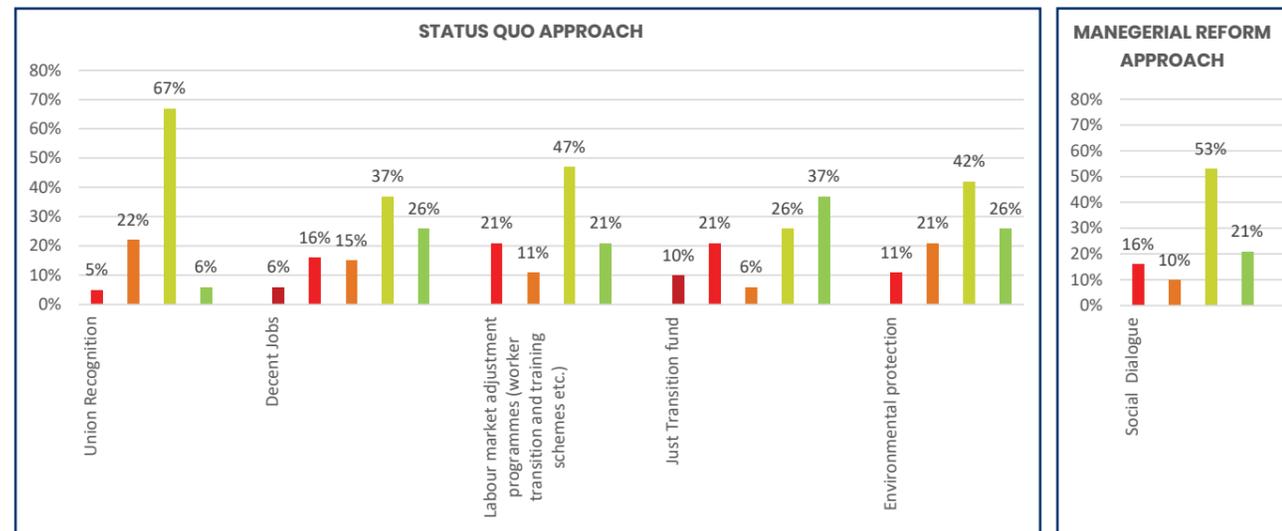
As part of the Defining a Just Transition Survey, SSAEN affiliates were asked to rate certain factors relating to the four just transition approaches identified above. The results are illustrated below combined with a "Just Transition Approach Scale" based on the work of Halsley (2018) and the UNRISD (2018).

IN SUB-SAHARAN AFRICA A TRANSFORMATIVE APPROACH TO A JUST TRANSITION IS NECESSARY

JUST TRANSITION APPROACH SCALE

Status quo Approach	Managerial reform approach	Structural reform approach	Transformative approach
<ul style="list-style-type: none"> • CLAIM FOR JOBS: Retraining programmes, pension schemes, compensation of affected workers etc. • NATURE IS SEEN AS A COMMODITY • RELY ON MARKET FORCES 	<ul style="list-style-type: none"> • SOCIAL DIALOGUE AND TRIPARTITE NEGOTIATIONS • ACCESS TO ENERGY BUT NOT OWNERSHIP • ENERGY IS STILL A COMMODITY 	<ul style="list-style-type: none"> • DEMOCRATIC OWNERSHIP • A STEP BEYOND SOCIAL DIALOGUE • NOT ONLY MARKET FORCES • GREEN JOBS AND WELFARE APPROACH 	<ul style="list-style-type: none"> • A CHANGE OF THE ECONOMIC AND POLITICAL SYSTEMS THAT CREATED THE CLIMATE CRISIS • NOT MARKET DRIVEN • DISMANTLING OF INTERLINKED SYSTEMS OF OPPRESSION • REMOVING GENDER DIVISION

WHAT DO SSAEN AFFILIATES RATE AS IMPORTANT



Affiliates were asked to rate the various just transition factors to determine where they currently locate themselves. This represents an important step towards developing a just transition definition for SSA. A just transition definition must be owned by unions and represent what they believe in. As can be seen from the results, it is evident that most unions regard all elements of a holistic just transition as important. Some elements were rated as not important, but these are in the minority. Unions do not view worker issues as more important than other topics. Poverty alleviation (53%) and reliable energy access for all (42%) were identified as the most important element. This shows that affiliates are set on a transformative approach towards a just transition rather than reformist. The ten just transition arguments provided in the following section provides further support for this position.

■ I do not know ■ Not important ■ Important ■ Very important ■ Most important

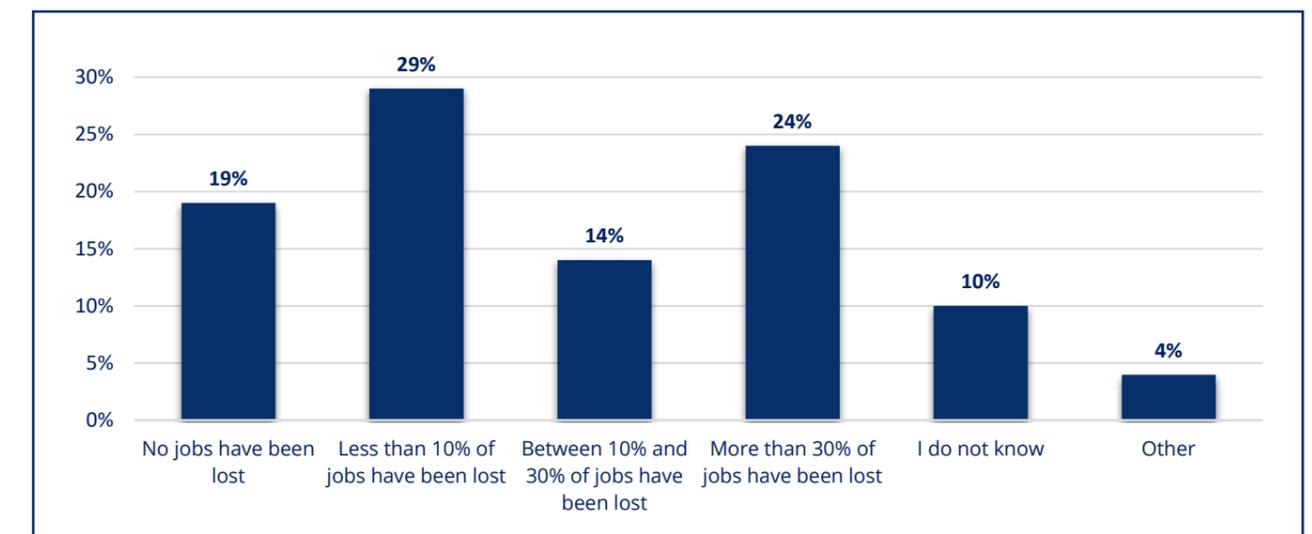
A JUST ENERGY TRANSITION ALSO CREATES AN OPPORTUNITY FOR A JUST GENDER AND TECHNOLOGICAL TRANSITION

For a just energy transition to reach its goals in SSA, two factors need to be emphasised outside of the traditional definitions. The first relates to addressing entrenched gender divisions within society. Existing economic systems have created deep gender divisions of labour. Women's unpaid or low-paid work is sustaining the system. This includes housework, care work, agricultural work and informal jobs. A just transition will have to recognise that such tasks as forms of employment are sustaining the status quo. There needs to be a demand for decent jobs for women as well as the redistribution of unpaid home and care work (Asia Pacific Forum on Women, 2017). Examples of interventions that can achieve this objective are gender quotas, capacity building, childcare services and social protection (Rodriguez Acha, 2016). Given the democratic nature of a transformative approach to a just transition, it will lead to a recognition of the varying energy needs between men and women. Women need to play a more active role in the planning

and design of energy systems and products to ensure the end product meets their needs (ENERGIA, 2019).

The second factor is often referred to as Industry 4.0 or the Fourth Industrial Revolution. Across all sectors of any economy, technological innovation is changing the way we work. Artificial intelligence, robotics and automation are but a few examples of technology types that can replace humans while at the same time function more productively. Technology replacing jobs will become progressively more present across all energy sectors. Unions themselves have experienced job losses across various sectors. One of the questions in the Defining a Just Transition Survey (2019) asked affiliates to what level technology has impacted employment in the energy sector in their countries. As illustrated below, 67% of respondents indicated that jobs are being lost due to technology, of which 24% said more than 30% of jobs have been lost. Only 19% of respondents indicated that no jobs had been lost.

Figure 1: To what level has technology (machines replacing the jobs of humans) impacted employment in the energy sector in your country?



Source: LRS Defining a Just Transition Survey (2019)

While technology can be an immense threat, it also creates an opportunity within the world of work. Authors such as Mbirimi (2017) and the AIDC (2017) bring our attention to the fact that, although technology will lead to job losses, it will simultaneously create economic growth and opportunities in new areas. In unison with a just energy transition, Industry 4.0 thus creates an opportunity to "create quality work with reduced working time and improved occupational health and safety" (IndustriALL, 2019:4). Time is a resource that very few people have the luxury of. Time enables people to improve their standard of living. It also provides an opportunity to challenge the gender division of work. Unpaid work can be shared more equally between men and women should time be made available. The loss of paid working hours must, however, be compensated for. Community and worker ownership energy models will enable workers, and not the bosses, to benefit from the increased profits technology offers a company. A just energy transition thus also creates an opportunity to create a just gender and technological transition.

DEFINING A JUST TRANSITION FOR ENERGY UNIONS IN SUB-SAHARA AFRICA

To develop and understand a suitable definition of a just transition within the SSA context, it is necessary to first take the reader through the findings of this report. The report concludes with a working Just Transition Definition for Sub-Saharan Energy Workers, taking into consideration all the relevant contextual factors and inputs from worker's representative IndustriALL affiliated unions.



WHY SHOULD A JUST ENERGY TRANSITION MATTER TO US?

SSA is a region rich in fossil-fuel reserves such as oil, coal and gas. At the same time, it is the region that has globally contributed the least to carbon emissions (Avila, Carvallo, Kammen & Shaw, 2017). Given that it is also one of the poorest regions in the world, with little resources to dedicate to new energy production, it can on face value be difficult to understand why the region should transition to renewable energies. The truth, however, is that the impact of climate change is without prejudice and will impact the least polluting countries as much as the polluted, if not more. It is the poor that are the most vulnerable and will carry the heaviest burden. This, in itself, provides a strong argument for a transition to a low-carbon economy. The reality, however, is that priorities in the Global South are different from the Global North. Given the levels of poverty, there are more pressing immediate needs, such as employment creation and economic growth. It is exactly within this context that a just transition becomes justifiable. A just transition does not only stand to meet environmental concerns but if approached right, also economic and social challenges.

For trade unions on their path towards a just energy transition, it thus becomes a case of finding an argument that convinces both themselves and others. This section provides ten key arguments unions can use in any just transition discussion. What makes these arguments relevant is that they are based on the unique sub-Saharan context. During the Defining a Just Transition Survey (2019) unions were asked if they will require any assistance or training in understanding the local energy context. 68% Indicated they would need a lot of assistance while another 26% said they would require some assistance. This section contributes towards such knowledge by focusing on the unique socio-economic context within which the justification for a just transition is located.

JUST TRANSITION ARGUMENT 1: SUB-SAHARA AFRICA CONTRIBUTED THE LEAST TO CLIMATE CHANGE BUT STANDS TO BE AFFECTED THE MOST

Although the African continent is responsible for only 3.3% of global energy consumption, it stands to be impacted the most by the effects of climate change (UNEP, 2017). On average per capita, energy consumption on the continent is 590 kWh compared to 2970 kWh in the north (AREI, 2016). Avila et al. (2017) calculate per capita consumption in SSA to be 5% of the American equivalent. The reality is that climate change is by no means just an environmental issue but has profound economic and social dimensions. High levels of energy poverty decrease people's ability to protect themselves or their resources during natural disasters. A lack of mitigation will exacerbate poverty and inequality across the continent. In addition, the climate change crisis is an urgent crisis. Without swift action, there can be no

prospect of a transition advancing social justice for the vast majority in SSA. In contrast to the Global North, millions of people still live off the land where there is an urgent need for social protection systems that could help absorb the impact of climate change. When considering a sector such as agriculture, it is evident that millions of lives are already starting to be impacted by droughts and reduced yields. Mali is an example of a country in which the impact of climate change is having severe effects on the country's economic backbone, agriculture. More than 80% of the population depend on agriculture for their livelihood, and it contributes to 40% of the national GDP (Strietska-Illina, Hofmann, Haro & Jeon, 2011). The case study example below illustrates the detrimental effect of climate change on the sector.

"The area of Mali is estimated at 1.2 million km², of which 14 per cent is suitable for agriculture, with the rest being mostly desert. The area of cultivated land has increased – between 1970 and 1995 alone the area increased from 1,967,000ha to 3,472,000ha, 143 which represents an increase of 15 per cent in forest clearance. However, this increase in area of cultivated land has not been accompanied by an increase in food crop yields, which have remained low. The costs of soil degradation to the Malian economy are between 20.9 per cent and 26.5 per cent of GDP, or twice Mali's foreign debt (National Adaptation Plan for Action – NAPA).

Climate change, together with desertification, has already had serious impacts on life and farming practices in Mali's Sahel area. Due to demographic pressure and poor soil productivity, the cultivated area has doubled in the past 10-20 years, with limited increase in yield. Many species and varieties cultivated in the past no longer thrive, and have been replaced by other species and short-cycle crop varieties. Farming as a principal livelihood no longer provides enough food and income for families, and therefore many have been obliged to adapt to the situation in different ways, most importantly by migration – particularly of young people to other parts of Africa or Europe. Transhumance causes conflicts between local southern people; and numbers of people moving with their herds from the north are also steadily increasing" (Strietska-Illina et al. 2011: 349).

In the absence of policies to mitigate these impacts, communities and workers vulnerability will increase daily. As agricultural yields decrease, working conditions for paid labourers also decrease (Avila et al. 2017). Currently, 80% of the energy used to prepare land is still human muscle

power (UNEP, 2017). Should reliable and affordable energy sources be available agricultural machinery, irrigation systems, pumps, agro-processing, transport, and cold storage could make farmers more resilient to natural disasters such as droughts (AREI, 2016).

JUST TRANSITION ARGUMENT 1

Through globalisation, the Global North has benefited at the expense of the Global South. It is in regions such as SSA that high levels of poverty, unemployment and unacceptable conditions of employment exist. Although SSA has contributed the least to global energy consumption, it is now one of the most vulnerable regions to the effects of climate change.

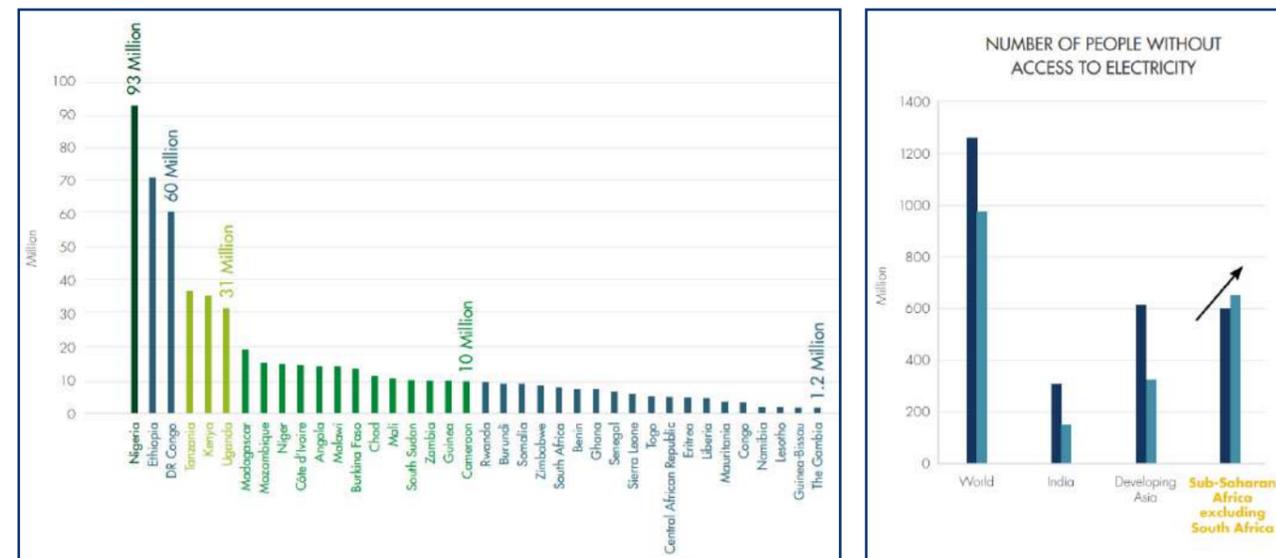
A just transition creates an opportunity to protect communities and livelihoods from natural disasters through diversified clean energy provision. It must, however, be realised that the climate change crisis is an urgent crisis. Without swift action, there can be no prospect of a transition advancing social justice for the vast majority in SSA.

JUST TRANSITION ARGUMENT 2: THERE IS AN ENERGY CRISIS IN SUB-SAHARAN AFRICA

Sub-Saharan Africa faces an immense energy crisis. Although nearly 13% of the world's population lives in the region, 60% of the population lacks access to reliable energy. That accounts for more than 645 million people without access to energy (UNEP, 2017). Avila et al. (2017) describe how at the current pace of electrification, combined with population growth, more than half a billion people will not have access to electricity by 2040. Figure 1 illustrates how,

within each SSA country, the actual number of people without access to energy ranges in the millions (Figure 2). Nigeria, which has the highest population number, also has the highest number of people without access to electricity. It can also be seen that across the globe and in developing countries such as India and parts of Asia, the number of people without access to electricity has been decreasing. It is only in SSA that these numbers are increasing.

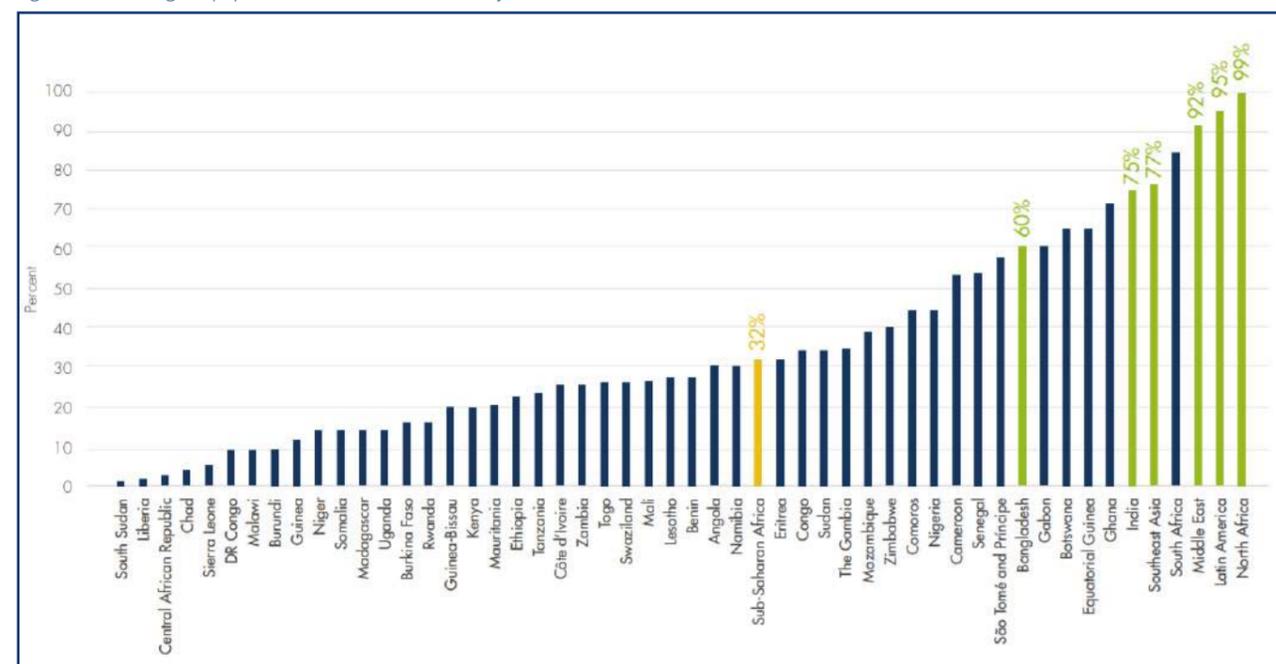
Figure 2: Number of people without access to electricity, in 2012, across different African countries and regions



Source: African Progress Panel (APP), 2015

When considering the population percentage, it can be seen in the figure below that the average percentage of the population with access to electricity in SSA is 32% ranging between South Africa as the highest (just above 80%) and South Sudan as the lowest (less than 5%).

Figure 3: Percentage of population with access to electricity in 2012



Source: African Progress Panel (APP), 2015

The figure illustrates the staggering truth that the majority of SSA countries have access below the regional average of 32%. The large disparity in energy access between SSA and regions such as North America (99%), Latin America (95%) and the Middle East (92%) reveals the unique and harsh SSA context. The energy situation distinguishes SSA from not only the developed North but also other developing regions. Confronted with the largest

energy gap in the world, the needs of people will be different from those in the global North and other developing regions. The motivations for a just transition will thus also be different as one of its primary objectives will have to be to bridge the energy crisis. As the following sub-sections explain, without bridging the divide a decent standard of living for all will not be possible and thus also not a just energy transition.

JUST TRANSITION ARGUMENT 2

There is an energy crisis of immense scale in SSA. More than 60% of the population does not have access to reliable energy, and this number is set to increase to more than half a billion people by 2040. This creates a unique energy context with different energy needs than the Global North or other developing regions.

JUST TRANSITION ARGUMENT 3: EXISTING ENERGY SYSTEMS ARE NOT ADDRESSING THE ENERGY CRISIS

The SSA energy context is unique in the way that it holds an abundance of both renewable and fossil fuel energy resources but at the same time faces an energy crisis. The current energy consumption profile of the African continent relies heavily on oil, gas and coal. Oil stands at about 42% of consumption, followed by gas with 28%, coal at

22%, hydro with 6% and modern renewable energy at only 1%. It is estimated that SSA still holds 115.34 billion barrels of undiscovered oil and 21.05 trillion cubic metres of recoverable gas. South Africa alone accounts for 94% of the continent's coal production and is seventh on the world ranking in terms of production (UNEP, 2017).

A supply and demand mismatch and complete lack of access in off-grid areas

Energy supply in the SSA region has historically been governed by centralised public entities. Energy planning was initially targeted at industry and urban populations. As a result, many rural communities have no access to energy. Such provision gaps are multidimensional. The one component represents the supply and demand mismatch in grid-connected regions. The other part is the complete lack of access in off-grid areas which normally represents rural areas.

Avila et al. (2017: 8) identifies the following main reasons for the supply and demand mismatch.

- “lack of generation capacity to supply power to grid-connected regions,
- absence of proper grid infrastructure to deliver this power,
- regulatory impediments to providing steady revenue to maintain and invest in new generation capacity,
- and dispersy of population in remote areas”.

Systematic energy planning is lacking, which has resulted in a shortage of infrastructure and where available a lack of well-maintained infrastructure.

An over dependency on hydropower could be disastrous given the impact of climate change on water sources

Hydropower is one of the renewable energy sources with immense regional potential. An over reliance on hydropower could, however, have serious negative implications. Climate change related droughts could render water as an unreliable energy source. Many countries in SSA have hydropower as the dominant energy source. Zambia is such an example. The country is currently experiencing an energy crisis due to severe drought conditions related to climate change (Ranjan, 2019). It is thus necessary to develop hydropower in unison with other energy sources to ensure a diverse climate-resilient renewable energy mix. A just transition in such countries will subsequently not only entail a transition to renewable energy sources, but also the diversification of the existing renewable energy mix.

The availability of fossil fuel energies has done little to increase energy access

There are countries in SSA with an abundance of fossil fuels. In 2014 it was estimated that in the preceding 5 years, nearly 30% of the world's oil and gas discoveries were made in the region (IEA, 2014). The unfortunate reality is that these discoveries and the availability of resources have not addressed the energy crisis nor has the relevant revenues been transformed into public benefits. Avila et al. (2017) are convinced that decades of experience with fossil fuel energy in the region has done little to address the energy gap and has been at the expense of developing renewable energies. The author moreover explains how fossil fuel dependency comes at a high cost for consumers:

It is further said that the overall cost of subsidising oil is becoming too expensive for countries. The volatile oil price has a direct impact on energy prices in countries, especially land-locked importers. The opportunity cost, fiscal cost, and even generating cost are considered too high. There is thus a move to cheaper alternative fuels (IEA, 2014). Nigeria is a very relevant case study where vast oil resources have not led to substantial socio-economic benefits (IEA, 2014). In addition to the oligarchies that have developed in the country, theft has led to billions of dollars' worth of losses each year.

CASE STUDY 2: Oil theft in the Niger delta amounting to billions of dollars annually

“Angola is set to temporarily overtake Nigeria as the largest sub-Saharan Africa producer of crude oil, as regulatory uncertainty in Nigeria, militant activity and oil theft in the Niger Delta impact production there. Oil theft is estimated at 150 kb/d today, leads to oil spills and represents lost revenue of more than \$5 billion per year, an amount that would be sufficient to fund universal access to electricity for all Nigerians by 2030” (IEA, 2014:121).

Such losses will further hamper the state's ability to maintain existing infrastructure and expand where necessary. Avila et al. (2017) write how, despite the development of petroleum-producing infrastructure, reliable connections to the energy grid have not increased. As a result, across SSA, consumers have to rely on expensive on-site self-generation. This includes

industrial, commercial and residential consumers who can pay the expensive price associated with such usages. It is said that on-site self-generation can cost as much as four times more than electricity from the grid. 85% of businesses in Nigeria make use of on-site generation. The case study below explains in more detail the regional reliance on diesel generators.

CASE STUDY 3: The cost of power shortages through on-site self-generation alternatives

“In the commercial, industrial, and residential sectors, many individuals and businesses own their own generators to make up for the lack of access to and supply of energy. In Kenya, 57 per cent of businesses own generators, with numbers reaching 42 per cent for Tanzania and 41 per cent for Ethiopia. On average, generator power is four times the price of grid power and would still be two to three times as expensive if grid power reflected actual costs (rather than benefiting from subsidies). For many businesses, however, grid power is intermittently or entirely unavailable, making the additional price for generator power a necessary and acceptable cost of doing business. Nonetheless, the widespread use of generators in sub-Saharan Africa distorts the cost of doing business. For a heavy industry such as smelters, energy is expected to be a significant proportion of a company's cost base. However, in Nigeria, diesel fuel is also a major expense for banks to ensure their branches have electricity. Similarly, diesel fuel is often a leading expense for the major African mobile-phone companies, representing up to 60 per cent of operators' network costs. As a result, businesses that do operate in sub-Saharan Africa have much higher relative energy expenses than their counterparts in other countries. In addition, many enterprises that do business in other parts of the world never succeed in sub-Saharan Africa, because local energy costs make them uncompetitive” (UNEP, 2017: 40).

What these examples undeniably illustrates is that there is a large demand for energy and that the current energy supply system is not meeting this demand.

JUST TRANSITION ARGUMENT 3

SSA is one of the most energy-poor regions in the world. Existing energy systems are not addressing the energy crisis:

1. Lack of generation capacity, absence of grid infrastructure, regulatory obstacles, revenue shortfalls and population dispersity all contribute to the current centralised system's failure to address the energy gap.
2. Many of the SSA countries rely on hydropower as their main energy source. Increasing droughts related to climate change could threaten the stability of hydropower as an energy source. Diversifying the range of renewable energies available will avoid situations where countries are left in an absolute energy crisis.
3. Decades of fossil-fuel energy development have not done much towards universal energy provision for all. Consumers are paying the highest price for fossil-fuel dependencies; governments cannot afford to subsidise fossil fuels any longer, revenues have not led to tangible socio-economic benefits and consumers are paying three times more for on-site self-generation. The latter has led to many businesses failing as they cannot afford the energy cost associated with the region.

JUST TRANSITION ARGUMENT 4: THE POOR ARE PAYING THE HIGHEST PRICE

"A kettle boiled twice a day by a family in Britain uses five times as much electricity as a Malian uses per year. A Tanzanian takes 8 years to consume as much electricity as an American in one month" (APP, 2015: 41).

The term energy poverty is generally used to describe households without physical access to energy, who cannot afford energy or who do not have access to modern energy services such as clean cooking facilities. Poverty is directly linked to energy because it increases productivity. The poor have the least time, but must spend the most time on tasks that require access to energy and appliances can decrease. Women are particularly vulnerable in these instances as they are often the ones responsible for domestic tasks. Something as simple as an electric kettle can free up time for a woman to focus on other activities. In the absence of grid electricity and modern appliances, poor households need to

make use of energy resources such as charcoal, firewood, candles and kerosene. As a result, they pay 20 times more per unit of electricity than a household connected to the grid (UNEP, 2017:35). These costs are in addition to the time it takes to perform basic household tasks.

In the context described above, energy poverty also becomes a poverty trap. If you are living in a rural area, using all your spare money and time to perform basic household tasks, you will have no remaining physical or economic resources to dedicate towards improving your situation. Unless the environment in which you function changes, a person's existence will continue within such a poverty cycle. Given that a just transition will focus on the wellbeing of all, it creates an opportunity to provide disadvantaged communities with new opportunities and the availability of time.

JUST TRANSITION ARGUMENT 4

Within the existing energy crisis, it is the poor who are paying the highest price and carrying the heaviest burden. Women, in particular, are very vulnerable as they are the ones responsible for household tasks which a lack of energy and modern appliances makes very demanding.

JUST TRANSITION ARGUMENT 5: THE LACK OF CLEAN ENERGY IS KILLING MILLIONS OF PEOPLE

Pollution from energy sources is a serious and dangerous reality. Although under-researched, it is known that the oil and gas industries are responsible for a number of deaths through occupational health hazards and pollution. Coal-fired power stations are further responsible for the deaths of thousands, if not millions of people worldwide. On a household level, harmful

biomass cooking is responsible for a similar level of deaths among underprivileged communities and in these cases, women and children are especially vulnerable. While pollution through the oil, gas and coal sectors is a worldwide phenomenon, death through biomass cooking is higher in SSA than anywhere else in the world.

Dirty energy sources such as oil, gas and coal are responsible for millions of deaths

Across the globe, there are examples of gas, oil and coal-related pollution, causing death and diseases to both workers and surrounding communities; premature deaths, increased infant mortality, asthma and bronchitis are but to name a few examples.

In India coal, and coal power plants, are held responsible for as many as 1.3 million deaths per year. Civil society and citizens have been actively protesting against pollution generating coal plants (IISD, 2018A). In Canada, the health consequences of coal-fired plants became one of the main motivations for a coal transition. It is estimated that the coal transition will save the government in the region of 1.2 billion Canadian Dollars or 13.6 billion South African Rands in health costs (IISD, 2018A). In South Africa, air pollution associated

with the main energy supplier, Eskom's, coal-fired power stations, is reported to cause as many as 2 239 deaths per year. It results in a loss of nearly one million working days a year and amounts to a cost of more than 2.3 billion Dollars or 26 billion South African Rands (GroundWork, 2018).

In oil and gas producing countries such as Nigeria, oil spillages, destruction of fresh water sources, heat radiation from gas flaring, rising acidity levels of rainwater and increasing cases of earth tremors are all negatively contributing to the health of communities and workers (Mustapha, 2019). Between January 2005 and July 2014, the Nigerian oil spill monitor recorded nearly 5 300 oil spills (Pelz & Bello, 2017). Such oil spills have serious health ramifications as described below:

"When crude oil or other petroleum products leak into the environment, the different compounds (depending on their physical properties) evaporate into the air, are absorbed by the soil, or enter ground and surface water. Oil spills also often lead to fires, which release respirable particulate matter (PM) into the air. Hazards to human health may result from dermal contact with soil and water; ingestion of contaminated drinking water, crops, or fish; or inhalation of vaporized product or PM and partly burned hydrocarbons produced by fires. In addition, onshore oil spills may have indirect health effects via damage of livelihood resources, such as diminished yields from degraded agricultural land and fishing grounds" (Bruederle & Hodler, 2019:5467)

A 2017 study further found that oil spills lead to increased newborn mortalities, as shown in the case study below.

CASE STUDY 4: Nigeria: Oil spills lead to increased newborn mortality in the Niger Delta

"Oil spills also increase infant mortality after the first months of life and continue to have negative effects on the health of surviving children," Hodler said. The study also claims that children who survive the neonatal period still have a high chance of suffering health problems during their first year of life, including a low weight-to-height ratio. Hodler and his colleagues based these findings on 2,744 mothers living in oil spill-affected areas.

....

Militants and oil thieves have repeatedly attacked pipelines. Maintenance issues account for approximately 15 percent of all oil spills. Environmental campaigners have long accused companies in the area of neglecting to maintain pipes and other important installations properly. No causes have been listed for the remaining 10 percent of spills." (Pelz & Bello, 2017).

The cost connected to pollution-related diseases is not always transparent or easy to calculate. What these examples do show us, is that in addition to the lives lost, the associated health costs are extremely high. A move to less polluting forms of energy will thus not only save lives but also save resources that could be utilised for other purposes.

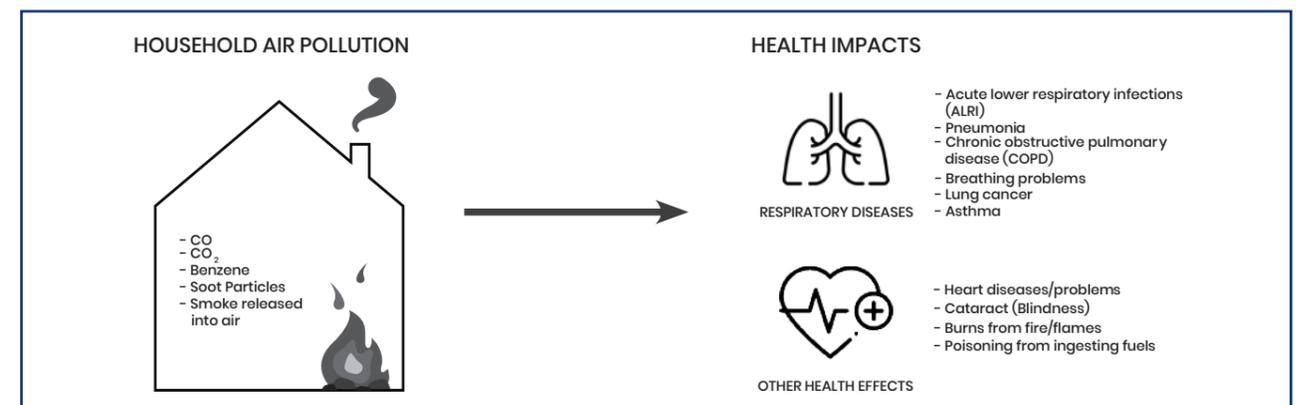
JUST TRANSITION ARGUMENT 5A

The coal, gas and oil industries are responsible for millions of deaths every year. Related health costs amount to billions of dollars. A move to clean energies will free up these resources to be used towards social protection or other areas.

Traditional biomass cooking methods are becoming one of the leading causes of death in sub-Saharan Africa

In the absence of reliable energy sources, households and vulnerable communities, especially women, must make use of open fire methods such as open-fire cooking to perform household tasks. Such methods are reliant on what is referred to as biomass. Biomass can range from wood, animal material or even crops. Because these resources will not run out in the short term, they are regarded as renewable energy. In 2010 it was estimated that 80% of the SSA population relies on biomass for tasks such as cooking (World Bank, 2010). Such traditional energy forms have dire health implications for those exposed to it. Figure 4 provides a visual explanation of the health effects.

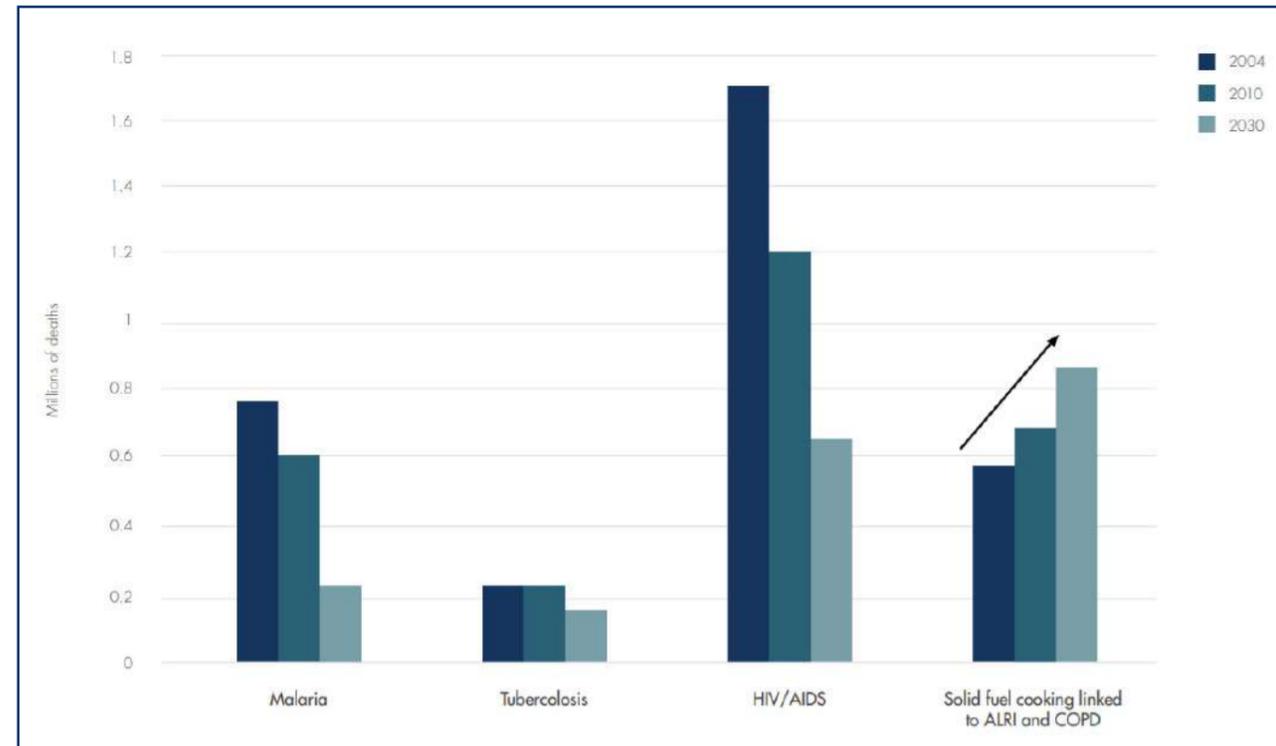
Figure 4: Health and pollution impacts of traditional biomass



Source: UNEP, 2017

Women and children are more vulnerable to biomass related pollution than men. Women in the region most often take responsibility for domestic tasks such as cooking while the children are in the house with them. AREI (2016) reports that 600,000 women and children die annually from exposure to indoor pollution in Africa. It is further estimated that such indoor pollution soon stands to kill more people than malaria, HIV or tuberculosis (UNEP, 2017) (Figure 5).

Figure 5: Number of people dying as a result of different diseases



Source: African Progress Panel (APP), 2015

Biomass energy usage varies across the region. In countries such as DRC and Tanzania, more than 90% of people make use of wood as an energy source. In wealthier countries such as Botswana, Namibia and South Africa, these percentages are lower (Mbirimi, 2017). Regardless of the percentage, the number of preventable deaths associated with biomass pollution puts forward a strong argument for a transition to clean energy.

JUST TRANSITION ARGUMENT 5B

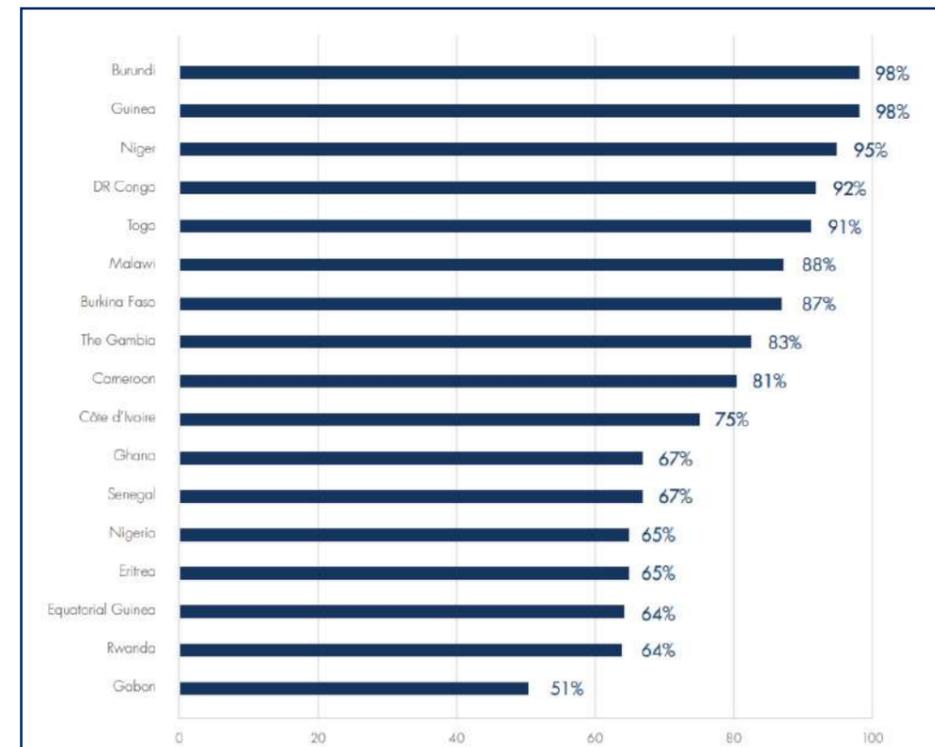
Due to the high levels of energy poverty in SSA, 80% of the regional population make use of open fire cooking and other traditional biomass forms of energy. It is mainly women and children who are exposed to the high levels of pollution associated with such tasks. 600 000 women and children die every year as a result, and the number of deaths caused by biomass pollution is set to overtake malaria, HIV and tuberculosis as a cause of death.

JUST TRANSITION ARGUMENT 6: THE LACK OF ENERGY IS NEGATIVELY IMPACTING ON SERVICE DELIVERY

Without reliable energy supply, health facilities, educational facilities and other services cannot operate optimally. It is estimated that only 34% of hospitals and 28% of other health facilities in SSA have reliable energy access. Up to 58% of health care facilities in the region have no electricity supply (UNEP, 2017). In the absence of reliable energy supplies, the storage of vaccines, for example, is jeopardised and so also the lives

of people. It is estimated that every day 550 women die from preventable causes related to pregnancy (ibid.). That does not include other preventable deaths. In addition to health services, a lack of reliable energy also has a direct bearing on reaching educational goals. Figure 5 shows how in countries such as Burundi, Guinea, Niger, DRC and Togo more than 90% of schools do not have access to electricity.

Figure 6: Share of primary schools without access to electricity (2012)



Source: African Progress Panel (APP), 2015

Something as basic as lighting can improve a student's academic outcomes as it enables them to study in the evenings. Enough pumped water and sanitation facilities at schools make it easier for girls to attend and contributes to a greater gender balance. These are just examples of two services that are hampered by the absence of reliable energy sources. Waste management, water supply and community services are other examples that could benefit from energy security.

JUST TRANSITION ARGUMENT 6

Service delivery, such as health and education, cannot be done optimally without reliable energy sources. With adequate access to energy, thousands of deaths can be prevented, students' academic outcomes can be improved, and greater gender balances can be achieved in schools.

JUST TRANSITION ARGUMENT 7: ENERGY POVERTY IS GENDER UNJUST

In the face of energy poverty and climate change, women are more vulnerable than men. SAEN already identified this challenge in their 2013 report:

"Southern African societies are dominated by female-headed households. Therefore, limited access to energy and the energy crisis affects women the most. Interventions in the energy discourse to overcome the prevailing energy poverty and ensure energy security, are therefore expected to benefit women the most" (SAEN, 2013).

The main reason for the divide is linked to the 'gender division of labour'. In most societies, women are expected to conduct unpaid care work and household duties (WoMin, 2016). In the absence of electricity, a task as simple as preparing boiling

water becomes complicated and even dangerous:

- Water and biomass for cooking need to be collected for which women sometimes must walk for hours. This can easily take up most of a woman or girls' day. On average, a person will spend two to ten hours per week on the collection of biomass energy sources. Climate change disasters such as drought and climate change will affect the availability of such resources and require them to spend even more time collecting materials.
- During these long journeys, women are more exposed to physical (including sexual) attacks or violence.
- Carrying heavy loads of wood and water is physically taxing and can damage the vertebrae, neck muscles and the lower back.
- Cooking over open fires or other forms of traditional biomass cooking can lead to serious health implications and early death (COSATU, 2011., UNEP, 2017 & WoMin, 2016).

The lack of time women have available to perform tasks other than household tasks is referred to as time poverty. Energy poverty has serious negative ramifications as women do not have time to dedicate to wage work, education, public participation or relaxation. For every 100 boys enrolling into a primary school in SSA, only 85 girls will have the opportunity. These numbers decrease even further for secondary and tertiary education (UNEP, 2017). As a result, women are more involved in informal and precarious work. The informal sector is not covered by labour regulations and limited social protection, which make women vulnerable and likely to be exploited. Women further have less access to credit or loans while working in the informal sector, which limits their opportunities to expand or improve their businesses (Rodriguez Acha, 2016).

The difference reliable energy can make in the lives of women is phenomenal. In 2019, the International Network on Gender and Sustainable Energy (ENERGIA) conducted an in-depth study of gender in the transition to sustainable energy in the Global South. Something as basic as good-quality lighting was identified as the energy service that provides women with the most flexibility. Lighting offers women more time to perform household tasks after dark and as a result, provides them with the opportunity to participate in some form of paid labour. Despite the increased physical demands of household work and

paid work, women stated that the option to spread out work over longer hours reduced stress significantly. Cellphones and the ability to charge them at home also contributed considerably to the lives of women in Kenya. Mobile money transfers, online banking services and the ability to stay in contact with family members were said to contribute to their daily lives (ibid.).

In cases where women have been able to start their own businesses, the availability of reliable energy contributes greatly to their productivity and income:

“A woman tailor in Bwisya described how, after purchasing an electric sewing machine and being trained to use it, she was able to offer more sewing styles and types of embroidery than her competitors. This allowed her to increase her income from 80,000 TZS, which she made selling children’s clothes, to 200,000TZS with her new products” (ENERGIA, 2019: 45).

Renewable energy sources can be installed on smaller decentralised community or worker-owned projects. Solar energy is one example of renewable energy that can be found in abundance in SSA. Appliances such as solar pumps and geysers can thus easily provide much-needed energy and resources, as illustrated in the case study below.

CASE STUDY 5: The difference a member-based organisation made to the lives of informal salt workers in India through the supply of solar pumps

“India is the third largest producer of salt in the world, and in the Little Runn of Kutch (LRK) in Gujarat, salt farmers produce 76% of India’s salt. Currently, there are 43,000 salt farmers – called Agariyas – in LRK, out of which 17,000 are members of SEWA, a member-based organisation of poor, self-employed women workers in the unorganised sector economy. These workers do not have a safety net of a regular income, health/life/accident insurance or pension and largely live on a day-to-day income. An average Agariya borrows money from the salt trader to buy diesel and meet her costs of living; diesel is used to pump brine out of ground water, which is spread over the salt pans specially prepared to enable evaporation of water, and lead to formation of salt crystals. SEWA launched the Hariyali campaign to deliver to its poor members access to modern energy, in an affordable way, improve productivity to increase incomes and empower its women members. Like her parents, Devuben Rathod is a salt farmer (Agariya) and is a member of SEWA since 2002. Since she has been a member of SEWA, in 2013 she agreed to use a pilot solar pump on her salt pan. In the next season, she was surprised that her diesel consumption was reduced by 50% since she ran the solar pump during the day (and continued to run her diesel pump in the night). Further, the higher efficiencies of the solar pump and longer production time increased her production by 140 tons. At the end of season, when she calculated her costs and revenues with SEWA, she could not believe that even with a reduced market price in that year, she was able to save more” (Smith, 2017:14).

JUST TRANSITION ARGUMENT 7



Within an energy poverty context, women shoulder a heavier load than men:

- They must spend most of their time conducting basic household tasks.
- They are more vulnerable to violence and attacks while collecting resources such as water and wood.
- They are exposed to physical health risks (carrying heavy loads and cooking over open fires) that could lead to an early death.
- The household work and care work women are responsible for are both unpaid.
- Time poverty unfairly disadvantage women as they cannot equally participate in paid employment, education opportunities or recreational activities
- Women are more dependent on informal work characterised by poor working condition and limited social protection.

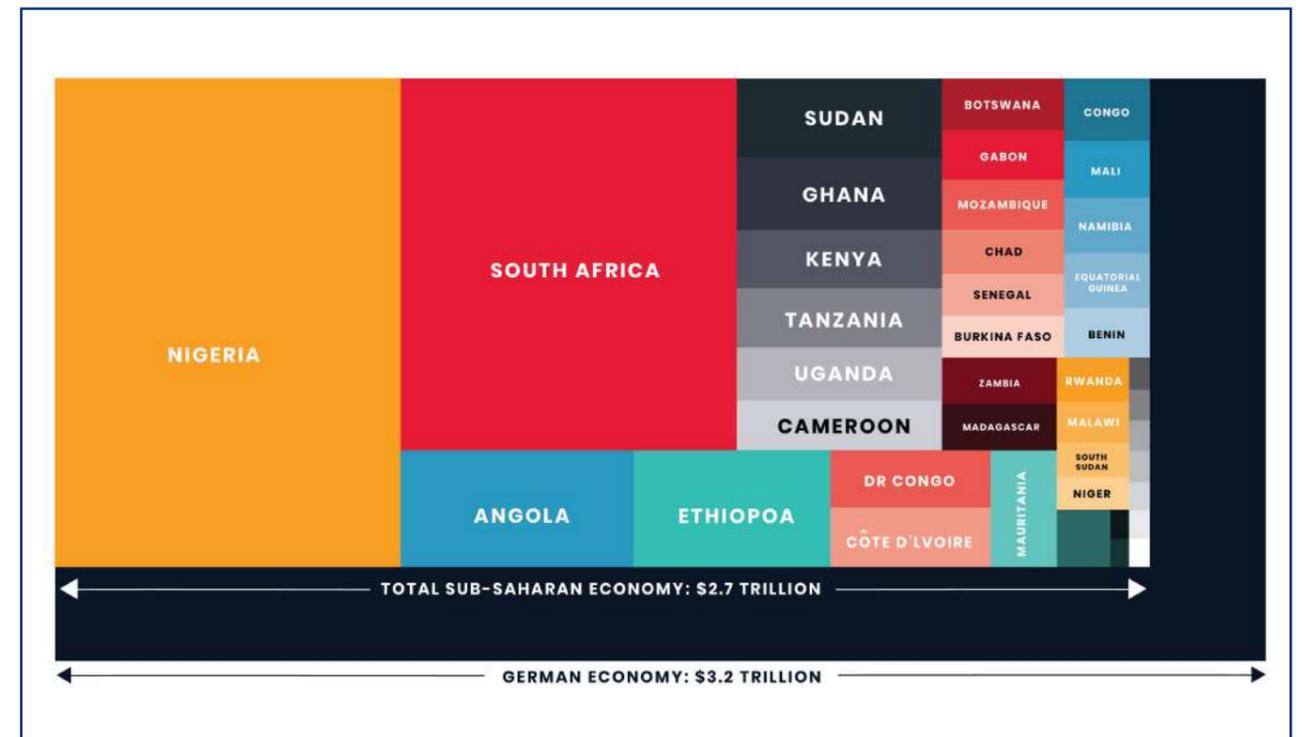
Reliable, clean energy provides women with more time and resources to improve their situation and address gender inequalities.

JUST TRANSITION ARGUMENT 8: THERE IS A CONVINCING ECONOMIC CASE FOR A JUST ENERGY TRANSITION

The economic argument set out in this subsection is of critical importance within the SSA context. SSA is unique given its high levels of income poverty, energy poverty, resource gaps, population dispersity, unemployment, limited social protection and governance challenges. According to UNEP (2017), 70% of businesses have identified energy supply as a major obstacle. The previous section illustrated how such businesses have to rely on expensive on-site self-generating energy. It is further estimated that SSA sacrifices two to four percent of its annual GDP to power shortages (APP, 2015).

The GDP of most SSA countries is relatively small compared to countries from the Global North. The figure below illustrated the GDP of Sub-Saharan African countries compared to the German GDP in 2013. The whole of the region’s GDP (\$ 2.7 trillion) was less than that of Germany (\$ 3.2 trillion).

Figure 7: The GDP of Sub-Saharan African countries compared to the German GDP (2013)



Source: IEA, 2014

Such figures are essential to illustrate the budget gap between rich, developed countries and SSA countries. A country such as Niger will, despite their energy shortfall, have little resources to dedicate to an environmental cause. Investing in something that could boost economic growth and job creation will, however, carry much more weight. The arguments that justify a just transition in the developed Global North could consequently have less relevance in the SSA context. A country such as Canada justified its coal transition through environmental and health concerns (IISD, 2018A). The same approach will not necessarily have the same impact in SSA, where economic stimulation and jobs are high on governments’ development agendas. Guided by this view, this section illustrates how there is a convincing economic case for a just transition, one union can utilise when engaging the authorities.

There is an abundance of renewable energy sources in the region

There is an abundance of renewable energy resources available across SSA. Mbirimi (2017) explains how the highest hydro potential is located in the northern part of the region. Angola, DRC, Madagascar, Mozambique and Zambia all have large hydro potential while the southern regions have higher coal-based generation opportunities. Modern renewable energy is currently estimated at 1% of production, but the region has an abundance of resources. Solar potential is the highest at 10TW followed by abundant hydro (350 GW), wind (110 GW) and geothermal energy sources (15 GW) (Avila et al. 2017 & UNEP, 2017).

Renewable energies are becoming cheaper

It is estimated that the availability of renewable energy in SSA should increase eightfold by 2030. Second to hydropower, solar and wind powers are expected to be the largest modern renewable sources (AREI, 2016). The main difference between fossil fuel and renewable costing is that the latter has very high capital costs, but minimal operational costs as the “fuel” it uses is free. Initially, these capital costs were exorbitantly high, but as the availability of renewable technologies increased, their overall cost has dramatically decreased. India is an excellent example of such a decrease in cost:

“The surge in renewable energy has reduced cost so that coal is increasingly becoming uncompetitive for power generation. Adaptation of innovative technologies in the renewable energy sector is also helping improve the quality of power supply and making renewable energy more dependable” (IISD, 2018A:21).

Renewable energy projects in Africa are considered to be some of the most competitive worldwide. In 2016 the cost of solar PV was calculated at 7.5 US cents per kWh compared to 7-8 US cents per kWh for coal (AREI, 2016). Wind in Egypt came in exceptionally low at 4.1 US cents per kWh. It is further estimated that the overall cost of solar installation will decrease by 20% by 2040 (from USD 2,500/kWh in 2011 to USD 870/kWh in 2040) (ibid.). The cost of battery storage is also said to have decreased (General Electricity Company, 2019).

JUST TRANSITION ARGUMENT 8A

Initially, renewable energies were expensive, but as technologies improved, their overall cost has decreased. There is thus a strong business case for renewable energies based on their lifetime costs and the abundance of resources in SAA. The main difference between fossil fuel and renewable costing is that the latter has very high capital costs, but very little operational costs as the fuel it uses is for free.

Renewable energies can contribute to energy security

One of the main arguments against renewable energy is that its intermittency requires back-up from baseload power. There are accordingly concerns regarding its ability to contribute to energy security in a country. Rennkamp, Haunss, Wongsu, Ortega & Casamadrid (2017) reason that the more renewable energy is generated, the less the need for baseload power will become. In the SSA context where fossil fuels are in abundance, this provides an opportunity to develop an energy mix that provides baseload power until renewable energy can contribute more towards energy security.

JUST TRANSITION ARGUMENT 8B

The more renewable energy is generated, the less the need is for baseload power and the greater its potential to contribute to energy security.

Sub-Saharan Africa has a unique opportunity to turn its energy backlog into a springboard to modern, diverse renewable energy systems

The high levels of energy poverty in the region can partially be prescribed to the lack of distribution and transmission infrastructure. It has been said that SSA has a clean slate or open canvas to work from. In their approach towards addressing the energy gap, there is an opportunity for countries to overhaul their existing approaches, develop industrial policies that reduce energy consumption and pollution while jumping directly to modern and diverse renewable energy systems (AREI, 2016 & Mbirimi, 2017).

Mbirimi (2017) explains how the opportunity to start afresh can achieve a much broader goal than only the decarbonisation of the economy:

“The answer to this is that shifting to a low carbon economy is much more than about just reducing the carbon intensity of energy production. It is also about the opportunities and potential benefits (including reducing costs of continued reliance on fossil fuels) likely to flow from such an economy. For these countries, it is these benefits that should be the focus of their attention; benefits that include the provision of climate-friendly modern energy services to the poor, increased energy security, improved environmental qualities, increased community participation and contributions to capacity building” (Mbirimi, 2017: 10).

The level of energy poverty in the region represents a crisis situation. Mbirimi (2017) writes extensively how crisis situations open policy spaces for change. The current energy crisis across SSA creates such an opportunity to shape and influence policy development.

JUST TRANSITION ARGUMENT 8C

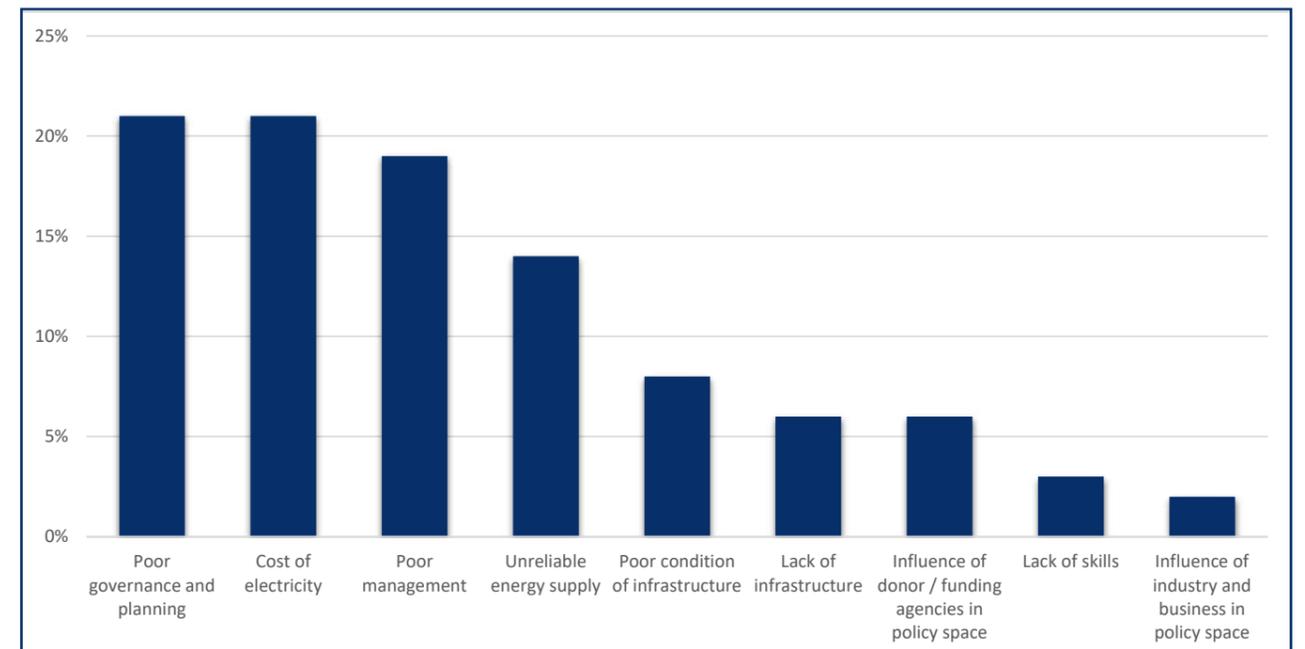
The energy crisis has provided SSA with a clean slate to work from. There is an opportunity for countries to overhaul their existing approaches, develop industrial policies that reduce energy consumption and pollution while jumping directly to modern and diverse renewable energy systems.

Crisis creates policy openings and opportunity for change. Unions and other civil society organisations can utilise such openings to assert their influence.

There is a case for the integration of off-grid, mini-grid, and large utility-scale power systems to close the energy gap

The unique energy context will demand solutions beyond traditional centralised energy. During the Defining a Just Transition Survey, unions were asked, in terms of equal energy provision in their respective countries, what they regard as their biggest challenges. In the figure below, it can be seen that poor governance, planning and management are considered as some of the key contributing factors.

Figure 8: In terms of equal energy provision to everyone in your country, what would you say are the biggest challenges?



Source: LRS Defining a Just Transition Survey (2019)

Although energy should at all times remain a publicly owned good, public authorities should allow for the integration of off-grid systems. Such diversified energy systems can overcome certain governance challenges while making energy accessible in unconnected areas through worker or community ownership and management. Creating an enabling environment for such decentralised socially owned

systems will entail, among others micro-credit, risk guarantees and small installation grants (Mbirimi, 2017). The global reduction in renewable installation costs will further contribute to the feasibility of such approaches. Based on the unique context in each country, policymakers will have to find a suitable balance between on-grid and off-grid power systems and their associated risks and advantages.

JUST TRANSITION ARGUMENT 8D

Although energy should at all times remain a publicly owned good, public authorities should allow for the integration of off-grid systems. Such diversified energy systems can overcome certain governance challenges while making energy accessible in unconnected areas through worker or community management or ownership.

JUST TRANSITION ARGUMENT 9: RENEWABLE ENERGIES PROVIDE AN OPPORTUNITY TO CREATE CLEAN JOBS WITH BETTER PROTECTION

Declining global demand and technology are contributing to a decline in fossil-fuel industries employment

With regards to jobs in the fossil-fuel energy sector, there are a broad range of projections as to how employment in the sector is set to decrease. COBENEFITS (2019B) uses the projections that coal power generation will decrease from 30% of the global mix to 5% by 2050. Employment is set to decline between 35% – 40% between now and 2050. Technology and the decline in global demand are cited as some of the reasons. The TUED (2012) share this sentiment and further adds that the decline in jobs correlates with a decline in workers' rights:

“Greater production of fossil fuels has not resulted in concomitant gains in employment in the sector either; new technologies allow companies to produce the same

amounts of fossil fuel with fewer workers. Repression of worker organising in this sector also appears to be on the rise” TUED (2012:i).

In South Africa, for example, 70,000 jobs were lost between 1980 and 2000, but at the same time, energy production increased by 60%. The United States has a similar scenario, with one-third of jobs lost with a 50% increase in energy production (TUED, 2012). These job losses are located across the value chain, including mining, manufacturing, operations and maintenance (Creamer, 2019).

There is a strong argument that renewable energies can create a lot of clean jobs, even more than in fossil fuels

Globally, renewable energy jobs are on the increase. In 2017, 10.3 million jobs were created in the sector. This represents a 5.3% increase from the previous year (IRENA,2018). These numbers are set to increase to an additional 18 million jobs by 2030 (ILO, 2018, cited in IISD, 2018A). These jobs are predominantly concentrated in China, Brazil, the United States, India, Germany and Japan at present (IRENA,2018). Various studies have been done on the net employment effect of renewable energies in comparison to fossil-fuel based energies. The evidence from these studies overwhelmingly indicates that renewable energies have a higher employment impact than fossil-fuel-based energies (Bacon & Kojima, 2011., Bischof-Niemz,2019A., COBENEFITS,2019B., IISD,2018A. & TUED,2016). Such net employment numbers compare across different renewable energy types (Bischof-Niemz,2019A).

The TUED(2016)shows that for each one-million US dollars invested in renewable energies, 292 jobs can be created compared to 129 in the fossil fuel sectors. In the COBENEFITS (2019B) report, a similar scenario is predicted for the Integrated Resource Plan (IRP) 2018 in South Africa. It is estimated that, including the jobs that stand to be lost in the coal sector, more than 150 000 additional jobs will be created by 2050. Bischof-Niemz (2019A) estimates that 30% more jobs can be created in solar PV and wind farms compared to coal fleets. Any job created within a just transition must be a decent job. While the employment numbers provided here provide an economic rationale for governments, much still needs to be done to ensure all these jobs translate to decent employment. The type of jobs associated with a just transition and ways of ensuring these are decent jobs are discussed in detail further in the report.

Sub-Saharan Africa, in particular, could experience an increase in employment through an energy transition

The ILO (2017) describes four possible impacts on the current employment profile globally. The first way in which employment can be created is by adding additional jobs to the status quo. This will be through increasing energy needs, the development of renewables to complement existing fossil fuel energy sources and the creation of

new jobs. The second entails job substitution. Such job replacement will take place when there is a move to more efficient low-carbon technologies. An example is changing from truck transport to rail. The third represents the complete elimination of certain jobs. The example of a coal energy phase-out is relevant here. The jobs will not

be substituted but lost if there is no form of intervention. The fourth relates more to the overall greening of the economy and the jobs that will evolve naturally with this. Jobs in car manufacturing will, for example, simply be transformed to produce more fuel-efficient cars. It represents a redefinition of existing jobs (ibid.).

The unique energy context in the region will experience a combination of these impacts. In many countries where fossil fuels are not dominant or with an immense energy backlog, renewable energy can create new jobs that did not exist before. In such scenarios, the employment impact will be the highest. New jobs will be created, and the transition cost will be the lowest. In countries where hydropower is dominant, the diversification of the energy mix can also lead to additional job creation. In coal-producing countries such as South Africa, jobs will be lost without intervention. The challenge in the region is thus twofold.

JUST TRANSITION ARGUMENT 9

Employment in fossil fuel industries has been decreasing as a result of a decline in global demand and the impact of technology. Across the globe, the decrease in job numbers has also meant a decline in workers rights. While jobs in these industries have been decreasing, there is a strong argument that renewable energies could create the same number of jobs if not more. Jobs within the renewable energy sector have the advantage of being “clean”, with fewer health implications, and create an opportunity to establish workers rights in new industries.

The overall energy backlog in the region further creates an opportunity to leapfrog to renewable energies and thus create new jobs rather than replace existing jobs.

Without the presence of unions, a just energy and technological transition will not be possible. The type of jobs, location of jobs and local economic stimulation are all questions that will need to be debated and considered through open, transparent social dialogue platforms.

JUST TRANSITION ARGUMENT 10: WITHOUT A JUST TRANSITION, A CAPITALIST VERSION OF MITIGATING CLIMATE CHANGE WILL CONTINUE TO EXPLOIT WORKERS WHILE FAILING TO REACH SUSTAINABILITY GOALS

Given the urgency and size of the climate change crisis, renewable energy presents a very lucrative business opportunity. The more demand there is for renewable energy, the more producers and producing countries stand to benefit. The TUED (2016) adequately explains how the move to green energies opens a new area for profit and subsequently, the exploitation of workers:

“...the commodification of nature opens new areas of economic growth, exploitation, and privatisation, and the green transition is nothing but an expansion of big capital into new areas.” TUED (2016: 11)

The case study set in India below reveals how the shift to renewable energies also becomes a global competition for profits.

CASE STUDY 6: An Indian example of how the shift to renewables is not environmentally motivated but that there is a battle for access to trade and investment in the sector

“BHEL had begun producing solar components as early as the 1980s and by the 1990s were exporting them to most of Europe and the United States. In February 2016, based on appeals by the United States at the World Trade Organisation, the WTO dispute settlement board ruled that India's policy with regard to solar panel procurement breached trade rules. This was an interesting development, considering it was a complaint that simultaneously occurred while the United States was lauding India's efforts towards expanding solar power. There is an increasing shift of global energy towards renewable energy, and international finance appears to view this as a major investment opportunity. Further, it is becoming evident that this makes global energy transformation a contested terrain. In the contemporary capitalist framework, the real issue is not just the promotion of renewable energy but more importantly, open market access to renewable energy trade and investment. This market access has already become a point of contention. Since 2010, when renewable-energy-related disputes emerged in the WTO, they have already reached eight percent of all new disputes” (TUED, 2016: 10).

The same governments or organisations advocating for a shift to renewable energy could be the one blocking local production in favour of imported goods. It is thus critical that energy remains a publicly owned good, protected by policies that promote the rights of all citizens, prioritise the localisation of the renewable energy value chain and work in unison with other countries to ensure the fairness to all promulgated within a just transition. As discussed further in this report, cross border alliances are especially important to ensure fair

labour practices across the whole renewable energy value chain and different countries. A just transition must ensure Africa does not once again become exploited for its renewable energy-related resources.

Furthermore, a just transition should at all times be synonym to sustainability and related practices. Within the existing capitalist systems the Sustainability Development Goals (SDG) to which SSA countries are signatories to will not be achieved.

JUST TRANSITION ARGUMENT 10

Given the urgency and size of the climate change crisis, renewable energy presents a very lucrative business opportunity within a market-based economy. The competition for profits reaches across national borders.

It is critical that energy remains a publicly owned good, protected by policies that promote the rights of all citizens, prioritise the localisation of the renewable energy value chain and work in unison with other countries to ensure the fairness to all promulgated within a just transition. Cross border alliances are important to ensure fair labour practices across the whole renewable energy value chain and different countries. A just transition must ensure Africa does not once again become exploited for its renewable energy-related resources and that the region achieves sustainability across all sectors.

Having formulated ten arguments unions can use as a justification of just transition in the SSA context, the following section considers how these arguments should best be presented to build a convincing advocacy campaign.

HOW DO WE PACKAGE OUR JUST TRANSITION ADVOCACY CAMPAIGN TO ENSURE BUY-IN FROM OTHER STAKEHOLDERS?

The previous section provided ten key arguments unions can use when advocating for a just transition. All these arguments took into consideration the unique SSA context. It is, however, necessary to note that for different stakeholders, different arguments will be more relevant. For unions on their quest to advocate for a just transition among governments, businesses, members and communities there are three key focus areas that we believe will determine the success of their campaigns.

The first is to focus their approach on what those in power believe is needed most; economic growth. If unions could

convince them that a just transition is to the advantage of the economy, half the battle will be won. The second is to use current examples illustrating how the lack of reliable energy sources or climate change is negatively affecting people. Such examples will assist citizens in realising that climate change is also their problem and that change is something they also urgently need to consider. The third approach is to advocate for broader socio-economic concerns in addition to jobs. This is not only an integral part of a transformative just transition but will also attract more (and much needed) attention and stronger support.

ADVOCACY FOCUS AREA 1: IF APPROACHED RIGHT A JUST TRANSITION CAN CONTRIBUTE TO MUCH NEEDED ECONOMIC GROWTH, POVERTY ALLEVIATION, JOB CREATION, IMPROVED SERVICE DELIVERY AND ENERGY PROVISION

Energy decision-making and policy development are currently the responsibility of governments. Given the high levels of poverty within Sub-Saharan Africa, these role-players value economic growth above all other factors. If a union should approach government and demand that a large percentage of their GDP should be channeled towards a just transition, based on environmental concerns, the argument will carry far less weight than one based on socio-economic concerns. Furthermore, the existing low-carbon-footprint associated with the region necessitates building a just transition argument around poverty reduction, job creation, increased access to

energy, health and education (Mbirimi, 2017). The ten main arguments we developed will assist unions in achieving this goal.

Rennkamp et al. (2017) conducted very relevant and important studies on the process of renewable energy policy development in South Africa, Thailand and Mexico. Interestingly, all three countries have both abundant fossil fuel and renewable energy sources. In all three of these countries, renewable energy programmes were developed based on socio-economic considerations. These arguments carried so much weight that the decisions to implement renewable programmes were made

without any international influence or pressure. The determining factor was rather that a coalition of powerful political actors was convinced of the programmes merits based on socio-economic convictions:

“The nuances of the political discourse in all three countries vary. In sum, the developmental-environmental discourse is much stronger than findings have shown for the environmental discourse in Europe. Developmental priorities are more pressing in these countries, so this finding can be expected.”

“Poverty does not explicitly appear as a concern but falls under the broader developmental concerns and arguments for job creation and general welfare. Ethical-normative discourse regarding punishing polluters or requesting international support from industrialized countries is largely absent in all three countries.”

“In conclusion, this study has found that significant coalitions of political support in the government, industries, civil society and international organisations have enabled the implementation of renewable energy policies. The structure of the discourse network analysis shows that the economic concern over the distribution of incentives to renewable energy dominates the debate over these policies in Mexico, South Africa and Thailand” (Rennkamp et al. 2017:222).

These examples illustrate the weight economic considerations carry in the developing world, and the success advocacy strategies could have should it be developed accordingly. To secure buy-in into the just transition agenda unions should use the socio-economic potential associated with an energy transition as their starting point. The reality is that governments are one of the most powerful role-players in the policy arena, and their focus is on economic growth and prosperity. A just transition should thus be packaged accordingly to secure their much-needed support.

ADVOCACY FOCUS AREA 2: MAKE A JUST TRANSITION A CURRENT ISSUE THROUGH USING EXISTING EXAMPLES

Research has shown that advocacy campaigns have a greater impact if the targeted audience can link the issue to direct results around them. The appeal to people’s empathy makes them more likely to adhere to the need for change (IISD, 2018A). An example will be the negative health implications innocent people suffer as a result of energy poverty. The fact that every year 600 000 women and children die from exposure to indoor pollution makes it a problem that few people can ignore. Unions can use such, and other shocking statistics, provided in the ten just transition arguments to illustrate to people the reality and seriousness of the matter.

Additionally, it is necessary to let stakeholders visualise the improved future a just transition can result in. People need

to imagine a future where energy is owned by all; workers and unions are respected, employees work within clean, safe environments, there is reliable energy for all, decent jobs are created, children and women are not exposed to high levels of pollution in their own homes, health and education services are improved, and social protection measures are in place. Although such a picture might be regarded as optimistic, it is an important advocacy tool. In Egypt, for example, the government had to bring in fossil fuel subsidy reforms. The tangible positive results of the reforms were used to appeal to people and secure their buy-in with great success (IISD, 2018A). If people could imagine themselves in the positive change, they are more likely to support it.

ADVOCACY FOCUS AREA 3: A BROADER CAMPAIGN TO INCLUDE COMMUNITIES AND WOMEN WILL GET MORE SUPPORT THAN ONLY FOCUSING ON WORKERS

The impact of climate change, energy poverty and Industry 4.0 will impact not only workers but also communities and vulnerable groups such as the poor, women and children. Unions need to develop their just transition campaign to include the needs of the vulnerable. This will equip them with an argument that nobody can ignore (Mbirimi, 2017). Unions should become the voice of the marginalised and vulnerable who stand to be impacted the most. This will strengthen their voices in give them a more prominent role in the policymaking arena. A narrow focus on only worker issues will keep them marginalised in meaningful discussions (ibid.).

A good example of a broader cause that unions can advocate for as part of their campaign is the development of “clean-cooking

strategies”. Corfee-Morlot, Parks, Ogunleye & Ayeni (2018) explain that where these strategies do exist, implementation and funding is weak. Given the thousands of women and children whose lives are impacted by the lack of such strategies, it deserves more attention.

Unions can develop broad-based alliances with other role-players such as NGO’s, civil society organisations and academic institutions. Such networks and alliances will enable them to challenge dominant narratives, such as pro-fossil fuel (Mbirimi, 2017). It will also assist them in exploring and developing national and sectoral emission pathways. The following sections introduce the importance of social dialogue, and steps unions can take to stimulate such.

SOCIAL DIALOGUE IS WORLDWIDE THE CORNERSTONE TO ANY JUST TRANSITION

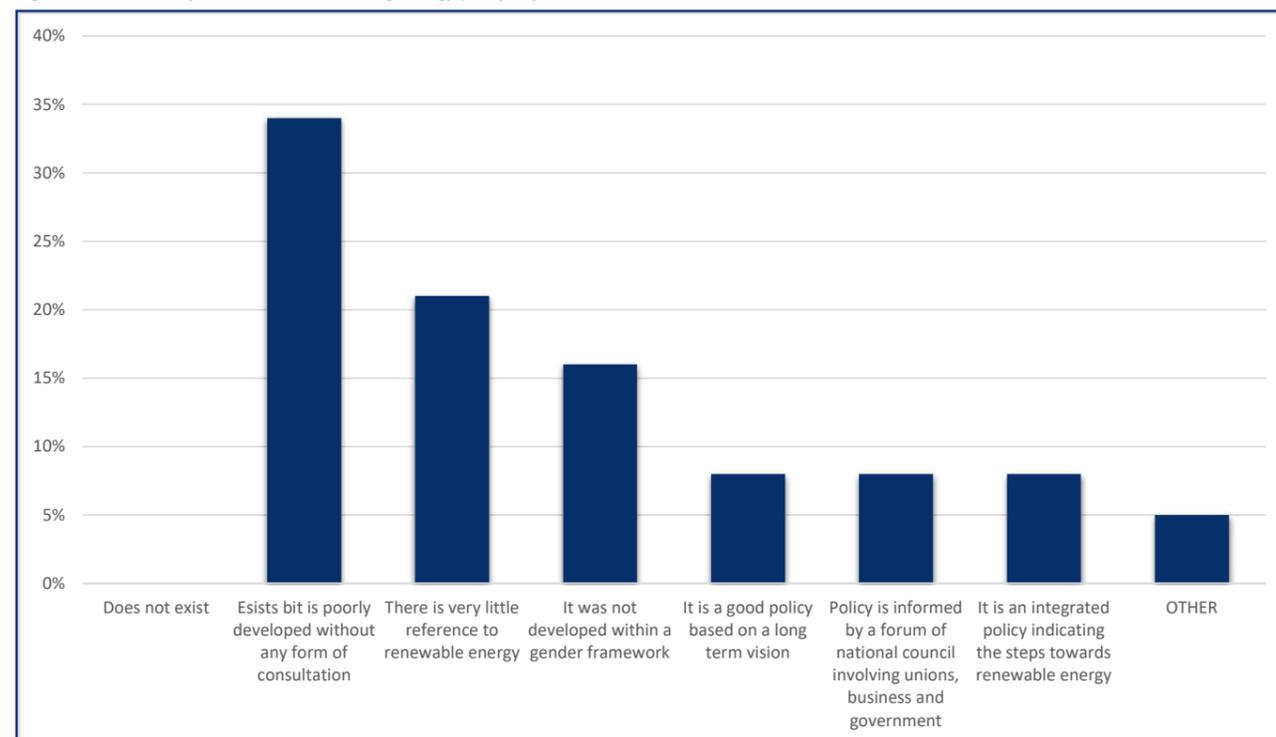
Across the just transition literature and case studies, social dialogue is identified as one of its cornerstones. Social dialogue entails a seat at the discussion table for all those involved or who stand to be affected by the transition process. It is intended to assist workers and communities in managing the transition in a way that does not threaten to worsen their “socio-economic fragilities” (Energy Research Centre, UCT, 2019).

Social dialogue will ensure everyone affected knows what will happen during the transition. This includes both the positive and negative processes. Social dialogue will thus ensure a transparent transition. Historically transition processes have

not been transparent, which results in distrust between those at the receiving end and the implementers (IISD, 2018A). The latter is normally government or companies while the former is workers and civil society or regional branches of companies and government. Any change is threatening, and communication is the only tool through which such fears can be overcome (ibid.).

Within social dialogue and participatory processes, unions and civil society organisations play a vital role as the voices of the people. During the Defining a Just Transition Survey, IndustriALL affiliates were asked to describe the existing energy policy in their country. The results are shown in Figure 9.

Figure 9: How would you describe the existing energy policy in your COUNTRY?



Source: LRS Defining a Just Transition Survey (2019)

Participation in policy processes is just one form of social dialogue, but it is a significant one. The survey results show that thus far policy development has taken place with very little participation from other stakeholders. 34% of unions indicated that their policy was developed without any form of participation, and only 8% could state that their policy was developed in consultation with a national forum of representatives.

International case studies reveal that just transition negotiations do not represent an easy task. These negotiations are complex and involve a diverse range of stakeholders. Elliot (2019) describes how coal-phase out discussions in Germany did not please either environmental groups or labour groups. The former felt interventions were too slow while labour groups argued change is being brought on too quickly. Despite this disagreement, conversations like these are pivotal as the German

states still made billions available for employment restructuring programmes. Mbirimi (2017) also refers to the different priorities of those involved in just transition discussion. He argues that trade unions, environmental organisations and governments have all been slow in realising the impact of climate change on employment. Environmentalists and governments feel that union's only interest is that of workers at the cost of the environment. There is an urgent need for a change of perception by all parties involved. Unions need to show that they are asking for a just transition and not only the protection of workers. The protection of the broader communities affected by energy poverty and climate change is also their concern. Environmental organisations and governments on their part need to incorporate the interest of workers as part of any move to sustainability. Without social dialogue and confronting these complexities, neither parties will understand each other's point of view and be willing to compromise for the greater good.

The example of the coal transition in Canada is repeatedly used to illustrate the impact social dialogue can have. Unions played a crucial role in demanding that the government must establish a Just Transition Task Force (Smith, 2017). The task team traveled across the

country to consult communities on what interventions they will need to make the transition easier (Gass, undated). What was critical to the success of this intervention is that there was high-level support from the Prime Minister and Minister of Environment (IISD, 2018A).

CASE STUDY 7: Unions in Canada convinced government to establish a just transition task force

“Coal in energy generation was already on the decline when the phase-out was decided. Coal has been an important part of Canada’s electricity history, but has not been a dominant force, rivalled by hydroelectricity and nuclear power for decades...”

The economics of the electricity sector in Canada indicated that a shift away from coal was likely coming, particularly due to cost-competitive natural gas, and there was little to no new coal-fired generation expansion planned... On February 16, 2018, Canada committed to phase out coal-fired electricity by 2030...

The Government of Canada shifted to a Just Transition approach, launching a Task Force on Just Transition for Canadian Coal Power Workers and Communities (Government of Canada, 2018b). This task force made up of labour, private sector, NGO, academic and local government representatives are mandated to engage with relevant stakeholders, notably the local workers and communities that will be most affected. The task force is intended to collect information on impacts and identify opportunities and funding streams to support workers and communities through the transition.” (IISD, 2018A:23).

When we reflect on the different just transition definitions, the Canadian example can be classified as reformist. Social dialogue exists, but the existing market structures are not confronted. The status quo is thus protected, but adjustment programmes are developed through consultation.

In comparison, unions in Brazil combined their efforts with relevant NGO's and social movements to confront the status quo. The stakeholders developed a social dialogue platform that led to the inclusion of non-market driven demands in policy documents.

CASE STUDY 8: Brazil - Labour and civil society demands for public control and an end to energy poverty through engagements on an energy platform

“When one looks at civil society organisations in Brazil, the most representative network of NGOs, trade unions and social movements gathered around the energy issue is the Labour and Peasant Water and Energy Platform (Energy Platform, 2018). Due to the recent energy sector boom in Brazil, and current struggles against dam building and the privatisation of oil and electricity companies, the Platform engages in the energy debate by advocating for energy sovereignty, public control and an end to energy poverty (both high cost and lack of access). Although there are debates on a future phase-out of oil within Energy Platform, Just Transition and climate change are not to be found in the policy document presented to the 2018 presidential candidates (Energy Platform, 2018). Nevertheless, as several of the sovereignty demands are for a non-market-driven energy sector, they add up to an anti-neoliberal agenda that favours the policy space for decent work, social protection and labour rights initiatives that are key to a Just Transition. Despite not being put into practice as fast as would be needed, the Just Transition narrative has been used as a tool for reclaiming public ownership against privatisation of energy and natural resources, for rebuilding the role of state-lead investment against austerity, and for promoting rights and social protections (Labor Network for Sustainability and Strategic Practice: Grassroots Policy Project 2016)” (UNRISD, 2018: 18).

The Canadian and Brazilian examples illustrate how social dialogue can be utilised to make reformist or transformational demands. In Canada, where energy poverty is not a pressing matter as in Brazil, they are more likely to focus on reformist demands. In a region such as SSA, transformative demands will have to be made if the energy gap is to be bridged and broader socio-economic goals reached. Unions must play an active role in initiating and stimulating social

dialogue. These discussions will not necessarily be easy, but without them, the status quo will remain the same. International case studies illustrate to us that buy-in from those in powerful positions will give any just transition campaign a greater chance of succeeding. The following section will assist unions in identifying the various stakeholders involved and the different potential roles in identifying possible allies and champions.

What do we promote, initiate or demand?

Trade unions need to demand:

- A seat at the dialogue table for themselves and all affected parties.
- The establishment of a permanent multi-stakeholder just transition body (councils, committees, forums, etc.).
- Discussions should take place across all levels from a local level to a global level.
- The development of a social compact with targets or explicit plans for a managed decline of fossil fuel use and investment.

All stakeholders involved in participation processes, including ourselves, need to:

- Ensure social dialogue platforms are properly funded and enough time allowed for consultation processes.
- Make special efforts to reach and include rural communities.
- Design social dialogue platforms in such a way that women can participate easily. The time of the meeting, transport and childcare options are examples of interventions that should be considered.

SOCIAL DIALOGUE IS WORLDWIDE THE CORNERSTONE TO ANY JUST TRANSITION

When thinking of stakeholders with influence in the energy sector, government, donors, private sector role-players, and industrialised countries spring to mind. The level of policy influence and interest each stakeholder might have will differ across countries. In South Africa, environmental NGO's, trade unions and churches have played a significant role in renewable energy policy support (Rennkamp et

al. 2017). In Ukraine, for example, the primary advocates for a coal phase-out have been an NGO working group and renewable energy associations (IISD, 2018A). The profile of influential stakeholders will consequently differ according to each country's stakeholder profile. Unions need to identify those with influence in the energy space to form alliances and strengthen their advocacy approaches.

A. Governments

Governments, as the custodians of energy, hold the responsibility to govern its production and use with public policies in the public interest. This includes the extraction, production, transmission and distribution of energy. They are the key role players in policy development and need to ensure their country's development trajectory stays on track. An energy transition will be a long, complex process in which success will rely on coordination between different government departments and levels of government. Egypt, for example, had to reform USD 21 billion annual worth of energy subsidies. The implementation of such reforms relied on the coordination between various government departments, such as social development and communication. Social protection measures had to be brought in to protect the vulnerable from the reforms, and these measures had to be communicated to citizens to avoid an uprising (IISD, 2018A).

The key government departments that would be responsible for a just energy transition and policy development will typically range from Parliament, the Ministry of Energy & Power, the Ministry of Finance to the Ministry of Environment/Climate Change. Additionally, state-owned electricity companies or parastatals, play a dominating role in energy planning and decision making. The dominance of these role-players makes it difficult for the voices of other partners, such as trade unions to be heard (Mbirimi, 2017).

Government as the central role player in the energy sector face a complex task. Firstly, for a just transition to take place, government needs to be sure of what their objectives are and align all policies accordingly. This will require a comprehensive review of existing policies and approaches (Overy, 2018). There will be a need for discussions across the various departments and levels of government. Similar to how unions have to learn to grapple with a just transition, government entities across various sectors will have to first develop an understanding of the concept and then align their approaches. In consultation with unions and businesses, governments will need to conduct employment and vulnerability assessments (ibid.). It is not possible to plan for the unknown, and there is an urgent need for employment, community and energy baseline studies across countries. Once such baselines have been developed can strategies such as long-term national, regional and sectoral emissions pathways be developed.

B. Regional and continental energy bodies

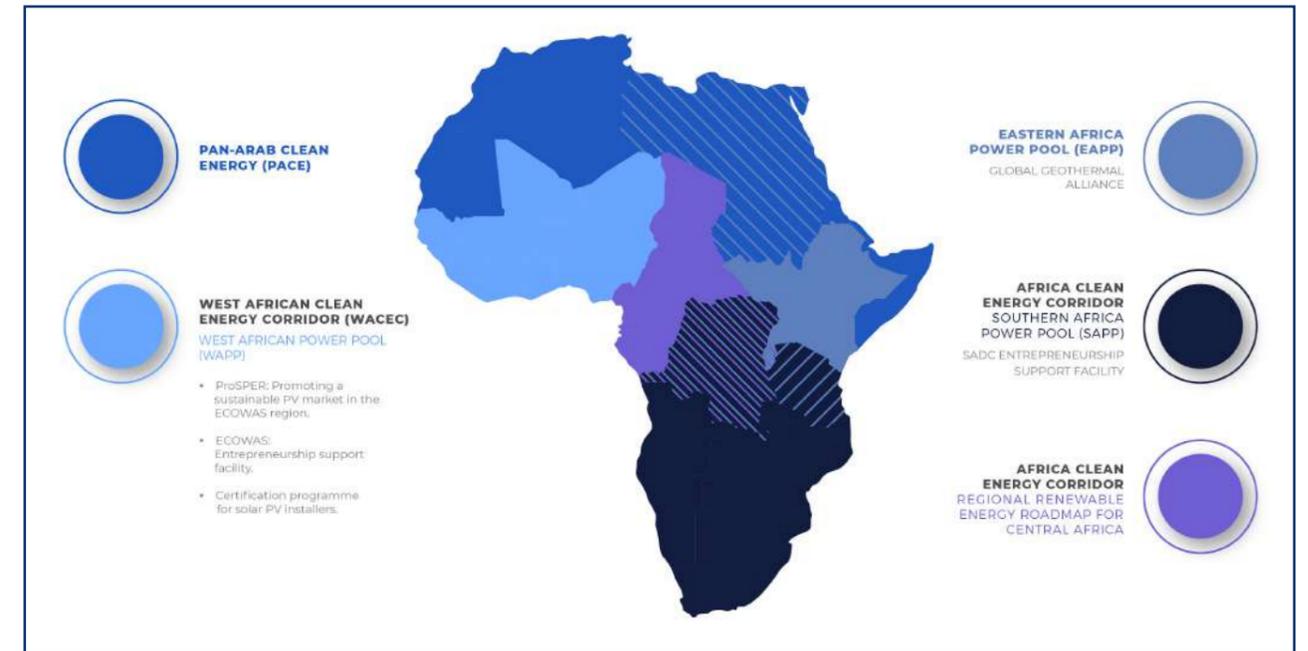
The unique context in SSA has necessitated the need for regional power pools. Economies are too small to afford the expensive costs associated with energy products, and the endowments are not equally shared between countries (AREI, 2016 & UN ENVIRONMENT, 2017). Botswana, for example, has immense solar potential where a forested country such as the DRC have less. A country, like Nigeria, rich in fossil fuels, will not necessarily enjoy the same richness in the form of renewable energy resources (APP, 2015). Although some countries might have vast hydro potential, they also need to be adequate demand for the energy produced. The recent discovery of natural gas in the offshore waters of Mozambique and Tanzania pose such a challenge. As much as the discovery could mean economic growth and stimulation, an off-set market is needed (IEA, 2014). The renewable energy mix in each country will thus differ and must be planned according to their endowments. The same applies to the physical format thereof. Smaller, decentralised systems might be more appropriated in some countries and more centralised systems in other. However, regional power pools will make it possible to share energy between those with an abundance and those with less.

Three regional power pools can be found in SSA:

1. West African Power Pool (WAPP)
2. Eastern Africa Power Pool (EAPP)
3. Southern Africa Power Pool (SAPP)

The figure on the next page illustrates the three regional energy pools already active in SSA. Mbirimi (2017) also refers to these regions as Regional Economic Communities (RECS).

Figure 10: Regional Energy Pools present in sub-Saharan Africa



Source: IRENA, 2018

The most active of the four regional pools is the SAPP. Only 7% of electricity is currently traded, and the majority of that is through the SAPP (Avila et al. 2017). While this may be true, only 24% of the rural population in the SAPP region have access to electricity compared to 36% in the East Africa Power Pool (EAPP) and 44% in the West Africa Power Pool (WAPP) (Mbirimi, 2017).

Avila et al. (2017) argue that, should alignment and usage increase between the four regional power pools present, more than USD 50 billion in capital investments can be saved. It could also lead to further economies of scale, reducing the cost of doing business, attracting more investment and offering a more diverse energy mix (APP, 2015., AREI, 2016 & UN ENVIRONMENT, 2017).

While regional power pools hold such advantages, there are also some concerns raised. Mbirimi (2017) acknowledges how, for example, the SAPP has been a positive initiative towards a regional energy framework but that the entity did not succeed in addressing the twin challenges of energy poverty and climate change. In such a context, the current power crisis and renewable energy opportunities have the potential to work against regional energy cooperation. Governments might want to focus more on domestic self-sufficiency than regional energy security (Mbirimi, 2017).

The IPPs in Namibia, as an example, recently invested more than USD 100 million to increase capacity to the national grid. This will reduce the country's dependence on energy imports from the SAPP. Given such arguments, what unions need to remember is the objective of a just energy transition in SSA. Given the low carbon footprint in the region, the transition is much more about addressing energy poverty. In this context, regional power pools could play an important role as they "can speed progress on meeting the joint goals of national and regional energy sufficiency, as well as full energy access across Africa" (Avila et al., 2017:11).

Consultation during the development of regional policies must extend beyond government bodies to include the labour movement, civil society and consumer associations. Mbirimi (2017) explains how, at a regional level, much of the focus is

on transnational infrastructure development and that the main role-players in Southern Africa are the following:

"At the regional level, three organisations have a defined role in policymaking. The SADC [Southern African Development Community] Secretariat has a standing committee on energy, environment and transport which meets once a year... The Regional Energy Regulators' Association of Southern Africa (RERA) provides a platform for cooperation between independent regulators in the SADC region. It is involved in facilitating smooth trade in cross-border electricity transfers through harmonisation of regulations and the creation of cross-border frameworks and regional systems. Southern African Power Pool (SAPP) has day-to-day responsibility for coordinating, planning, monitoring and operation of the electricity system between member utilities, and this includes operating a short-term electricity market. The key point to note is that it is the national utilities such as Eskom (South Africa), EDM (Mozambique), NAMPOWER (Namibia) that drive policy and planning in the electricity sector, due to their involvement in formulation and implementation of energy plans at the national level, and their interest in developments in the regional market. It is notable that the idea of social partnership between governments (represented by SADC), business (represented by utilities, albeit state-owned), and labour (not represented), which most governments embrace at least in theory, has not been carried forward to the regional level. There are also no consumer associations represented at this level. This is a serious shortcoming that needs to be redressed in order to achieve some balance in the representation of different social and economic groups" (Mbirimi, 2017: 52).

This quote clearly illustrates that there is a need for regional electricity pools to include labour. In addition to the three regional power pools, the IEA (2014) identifies some of the role-players involved in continental policy development.

Policy development and co-ordination at a continental and regional level are undertaken by the African Union (AU) and the New Partnership for Africa's Development (NEPAD), which have

¹The Just Transition Energy Mix research study accompanying this research will unpack these initiatives in greater detail.

formulated the AU/NEPAD African Action Plan, and, with the African Development Bank, the Programme for Infrastructure Development in Africa (PIDA) Priority Action Plan (IEA, 2014: 73).

Under these continental bodies, different energy initiatives are being initiated, such as the African Renewable Energy Initiative

(AREI)¹. Energy trade outside of SSA also deserves attention given that global clean energy demand could see an increase in demand from African states. It is important for unions to have a presence within regional and continental bodies to ensure regional and continental policies embrace a just energy transition.

C. Private Sector

Private sector stakeholders who operate for profit will always try to influence energy policy to be developed according to their needs. Companies often use their position of influence and power to delay the transition to clean renewable energy systems (TUED, 2012). Such approaches to policy development come at the expense of workers and communities. SSAEN affiliates have over the years given various first-hand examples of the extent to which private-sector employers disregard workers. An example was given at an SSAEN Meeting in 2019:

“The number of unionised workers has declined since the privatisation of the electricity company in Nigeria. It also resulted in an increased number of casual workers – increasing employment insecurities” (NUEE, Nigeria, 2019).

Carbon intensive companies and fossil-fuel operations are some of the wealthiest, most powerful and influential global corporations. The following case study in the Ivory Coast shows how government-conducted dialogues towards achieving their renewable energy goals with the private sector included as their main alliance. Reference is made to trade groups, but the main focus was on the private sector and development partners.

CASE STUDY 9: Ivory Coast public-private renewable energy dialogues with little to no mention of trade unions, workers and communities

“Through a series of structured public-private dialogues over the past 12 months, IFC and the Ministry of Petroleum, Energy and Renewable Energy Development have worked with stakeholders to identify key constraints and solutions that will help achieve Côte d'Ivoire's NDC target of 42 percent renewable energy by 2030. The dialogues included international and local stakeholders, including government departments, banks, trade groups, civil society, and private businesses. Development partners included IFC, the World Bank, the AfDB, the Centre for Renewable Energy and Energy Efficiency, the European Investment Bank, the European Union (EU), the French Development Agency, GIZ, the Japan International Cooperation Agency, KfW (German development bank), the United States Agency for International Development (USAID), the United States Trade and Development Agency, and the West African Development Bank.

To date, IFC and the Ministry of Petroleum, Energy and Renewable Energy Development have engaged in three main activities as part of the Roadmap process.

- A launch event from December 14–15, 2017 in Abidjan, attended by over 100 participants from electricity companies, regulators, government agencies, development partners, project developers, distributors, banks, investors, and other private companies.
- A Working Group Workshop from February 27 to March 2, 2018, hosted by IFC, to get input from renewable energy stakeholders. Involved direct consultations on potential actions to be included in the Roadmap. Preliminary key solutions were identified in roundtables at that workshop. These solutions were verified in bilateral discussions with stakeholders before and after the workshop.
- From May 7–9, 2018, IFC hosted a second Working Group Workshop to validate the identified solutions, structure them effectively, and seek champions to drive them forward.”

(International Finance Corporation, 2018).

No mention is made of any form of community or worker engagement platforms. Unions as representatives of workers need to take up the dominant seat of the private sector in such dialogue platforms. Unions will have to utilise or create their own leverage points to counterbalance the influence the private sector holds. Forming alliances guided by stakeholder mapping exercises is one such example. As the Ivory Coast example shows us, international donors are still regarded highly in such discussions and could form an entry point for unions.

D. International donors

International donors are one of the stakeholder groupings with whom alliances can be built. Given the level of international funding on the continent, ministries such as the Ministry of Finance will have a strong relationship with international donors. Donors, in turn, will indirectly have a strong influence over policy development. Given that climate change presents a global challenge, donors will be placing increasing pressure on governments to transition towards cleaner renewable energies. This provides a leverage point for unions, but their policies mustn't become the dominant policy direction.

Mbirimi (2017) explains that many policies designed with the assistance of international organisations will place a lot of emphasis on carbon emissions which is, to a lesser extent, a challenge in the region. Should such policies be developed through joint decision-making, including labour, the focus could adequately be moved to the real challenge of poverty and inequality. The IEA (2014) identifies several multilateral and bilateral initiatives that exist on the continent:

A number of multilateral and bilateral initiatives interplay with national plans, such as the US PowerAfrica initiative; Sustainable Energy for All Initiative; Energising Development initiative (European Union); Energy+ (Norway, United Kingdom and others); EnDev programme (Germany, Norway and others). An example of policy co-operation is the Africa-EU Energy Partnership 2020 targets and its related programme to develop renewable energy markets (the Africa-EU Renewable Energy Co-operation Programme). In addition, there is a broad range of civil society-led initiatives that are often in line with national energy objectives while not necessarily linked to them explicitly (IEA, 2014: 73).

Gender is also a pressing matter within the donor community. This provides another vital leverage point through which unions can pressurise governments. It is said that Tanzania, for example, would not have developed a gender action plan if it was not for the insistence of the World Bank (ENERGIA, 2019). The development of such policies should be approached no different to regional intergovernmental policies. Civil society, labour and consumer associations should form part of the development process.

E. Solidarity Networks

Should unions, civil society organisations and academia come together and align their efforts, the just transition movement can gain considerable weight. It will create an opportunity to deepen debates, learn from workers and communities own experiences and conduct much-needed research. Solidarity networks between local and international organisations and unions create much-needed opportunities for information and sharing and learning.

Nigeria boasts of a excellent local solidarity network between the Nigerian Labour Congress and the social movement organization, the Environment Rights Action. The project is even said to be the first in a developing country and is described below.

CASE STUDY 10: Strengthened partnerships between labour organisations and social movements in Nigeria

“The Nigerian Labour Congress is working to develop concepts and frameworks for Just Transition in the petroleum and agricultural sectors in Nigeria. One of their main objectives is also to strengthen the partnership between labour organisations and social movements. The most important part of this project is that it gives us an opportunity to see where the knowledge base of workers, the community, and policymakers is on the issue of Just Transition, Hauwa Mustapha explains. Hauwa Mustapha is the Climate Change Coordinator for the Nigerian Labour Congress (NLC). Together with social movement organization Environment Rights Action (ERA) they are the two implementing partners in a new Just Transition project in Nigeria. The project is supported by the Just Transition Centre, the Dutch union FNV's solidarity fund, and Friends of the Earth Netherlands.

Across Africa and especially in Nigeria, land-grabbing, destruction of livelihoods, and the introduction of GMOs by transnational corporations are displacing tens of thousands of small-scale farmers with implications for farm workers and impacted communities. In particular, deforestation, livelihood destruction, and impacts on communities from the extractive activities of transnational oil and gas corporations contribute to environmental degradation and human rights violations. Hence, defending communities' rights and climate justice struggles have some resonance with labour struggles for the rights of workers to a decent job and decent conditions of work. – We can talk about Just Transition, but we cannot assume that the necessary stakeholders even understand the concept of Just Transition as we in the trade unions think about it, Mustapha says.

The project is the first of its kind in Nigeria and in a developing country. This collaboration between civil society and labour aims to ultimately lead to both a just outcome for workers and communities in the transition away from fossil fuels and for the transition to happen more quickly. – It definitely differs, Huawa says, when we ask how working with Just Transition in a developing country differs from the process in industrialized countries. – The concept will remain the same. The goal that we want to achieve will remain the same. In fact, even the road or how we want to get there will basically be the same. But one thing that is essentially different is the pace at which we move. Because the resources and capacity to require a successful transition are not the same. I mean, we're far apart in terms of the capacity and the resources that are available to get us towards a low carbon economy through Just Transition...

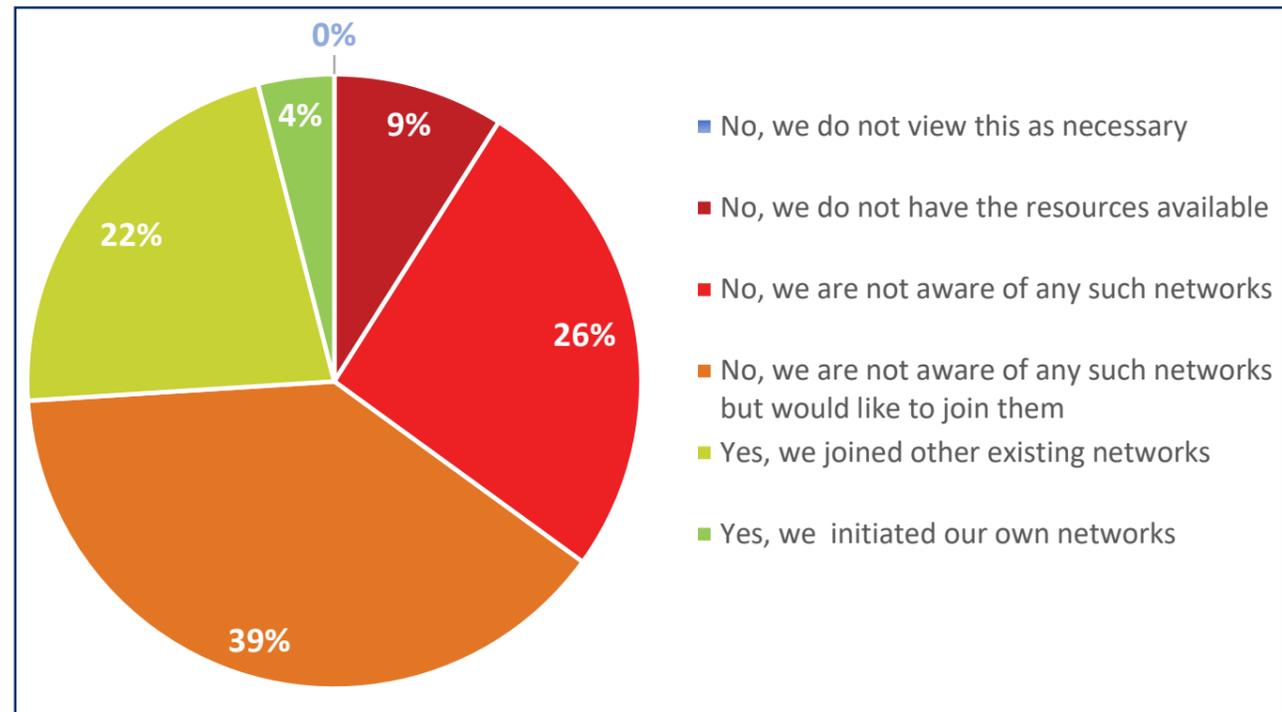
Mustapha points out that social dialogue is fundamental to Just Transition, but it hasn't yet really started: – We have not reached the required level of social dialogue between the trade unions, the communities and the policymakers...

The government has invited the NLC to “...develop a national roadmap outlining action plans for domesticating the international Silesia Declaration on Just Transition to chart a new low carbon economy and build workers' perspective on the implementation of the NDC and related domestic policy instruments”, Mustapha says. – But this recognition of NLC's work did not come without struggle, Mustapha points out” (Just Transition Centre, 2019: 9-10).

As can be seen, the network provides support from international development partners which illustrates the way stakeholders outside of the private sector can join their efforts and resources. This is especially important given the acknowledgement that resource and capacity are limited in the African context. It must always be remembered that the climate crisis is urgent, and everything possible should be done to address it as such. Building alliances and pooling resources provides a very important opportunity.

As part of the Defining a Just Transition Survey, unions were asked if, in addition to IndustriALL, they were part of any other information-sharing networks. Only 26% indicated that they were part of any other networks, while 39% said they would like to form part of such networks but were not aware of any (Figure 11).

Figure 11: In addition to IndustriALL, are you currently part of any other information-sharing networks that are a source of information for you on a Just Transition?



Source: IRENA, 2018

Those who indicated they are already part of other information-sharing networks were mostly from South Africa through government or union-led programmes. Mbirimi (2017) indicates that some of the immediate knowledge unions can obtain include:

- The economics and politics of low carbon development
- Costs and benefits of transitioning to low carbon energy systems and how costs of the adjustment might be fairly shared
- The pros and cons of renewable energy technologies, and how trade union members might take advantage of opportunities in renewable technologies...
- Challenges of climate change and policy responses to it; for example, the likely increase in trade protectionism.
- Measures to tackle energy poverty (Mbirimi, 2017: 52).

Although this research topic tackles some of these subjects, it is on a much broader scale. The discussions brought forward in this document needs to be brought down to a local level within each country. It is subsequently beneficial for unions to locate the civil society organisations, academic institutions or unions that have already conducted work in their context. Efforts can be combined to exert more pressure. On a regional level, continuous and active participation in SSAEN will ensure irreplaceable regional solidarity.

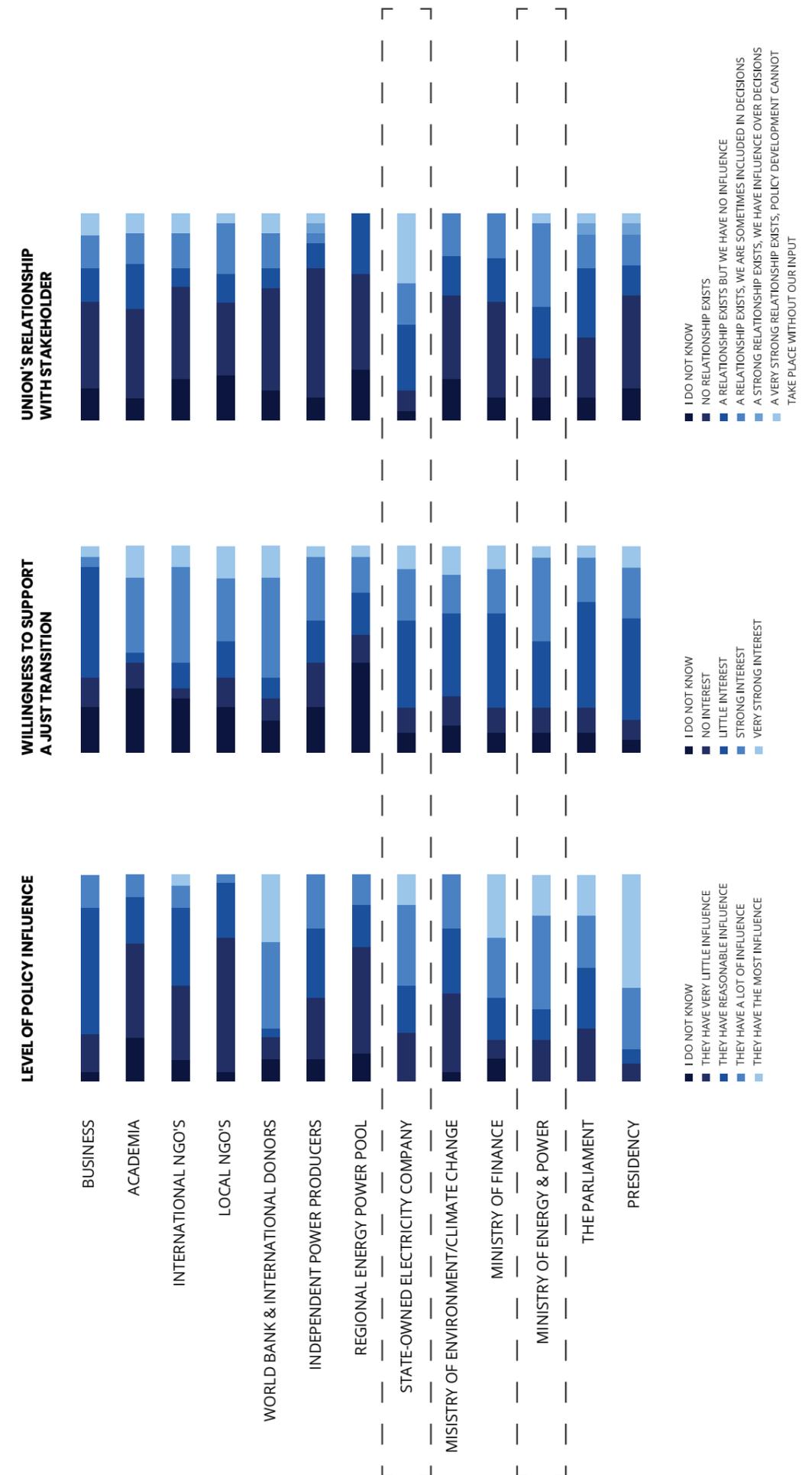
HOW DO WE IDENTIFY AND MAP THE RELEVANT STAKEHOLDERS?

Stakeholder mapping or political economy analysis can assist unions in identifying who can be potential just transition allies and champions in their countries as well who could oppose the process (IISD, 2018A). The three questions that will guide a stakeholder mapping exercise are in line with those posed in the Defining a Just Transition Survey:

- How would you rate the level of policy influence the following role-players have over energy policy development in your country?
- How would you rate the role-player's willingness to support a Just Energy Transition?
- Please rate the relationship you have with the relevant role-players

The figure on the next page illustrates the results across all the survey responses received. The profile of each stakeholder differs between the three variables; their level of policy influence, their willingness to support a just transition and their relationship with unions. It can, for instance, be seen that 56% of unions said that the Presidency has the most policy influence. When considering their willingness to support a just transition and their relationship with the unions, this percentage, however, decreases. State-owned energy companies and the Ministry of Energy and Power, on the other hand, have a strong positive rating across all three variables. These two stakeholders could thus be the entry point for unions. There are also stakeholders such as the World Bank and International Donors who have strong policy influence and show a willingness to support a just transition. Enhancing the relationship with these organisations should also be considered.

STAKEHOLDER MAPPING



Each country can develop its own individual influence-interest-engagement plot or actor-network guided by their answers to the questions posed in the survey. To illustrate this, we used the responses from one of the surveys submitted.

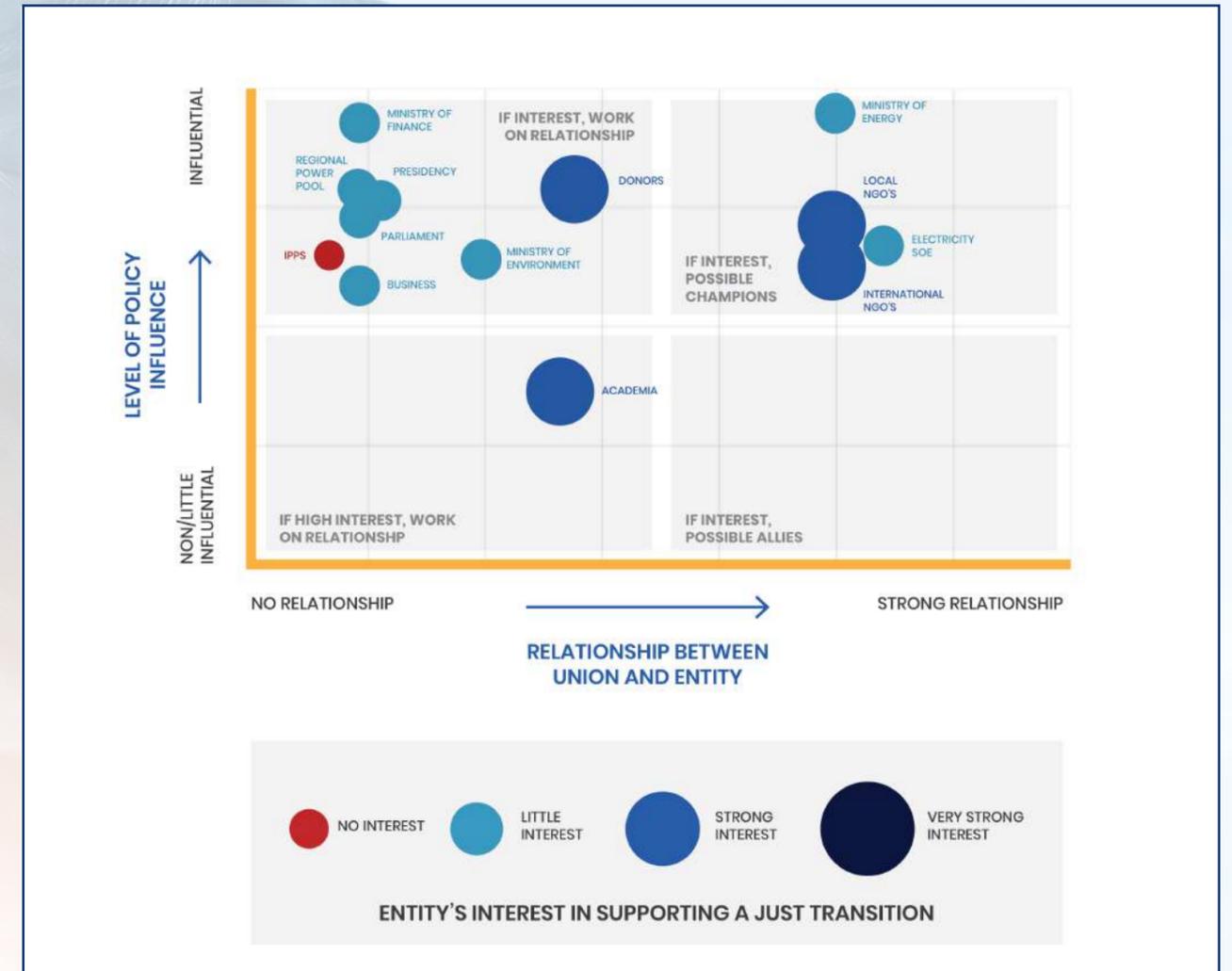
Figure 12: Influence-Interest-Engagement Stakeholder Mapping



Source: LRS Defining a Just Transition Survey (2019) results and IISD (2018A) adaptation

To take the analysis a step further, we indicated which areas of the plotting area represents which possible actions.

Figure 13: Influence-Interest-Engagement Stakeholder Mapping with action zones



Source: LRS Defining a Just Transition Survey (2019) results and IISD (2018A) adaptation

By taking this simple approach, unions can identify their leverage points and who they can approach as possible champions and allies. In the example above, it could involve the Ministry of Energy, SOE and NGO's. Potential allies are represented in academia, but unions will have to work on the relationship. From the example given, it can also be concluded that Independent Power Producers (IPPs) should be approached with caution as they are quite influential but show little interest in a just transition.

The thorough responses received in the Defining a Just Transition Survey show that unions are quite familiar with the role-players in their respective countries. SSAEN affiliates can conduct similar mapping exercises for their individual countries and plan the just transition approach accordingly. Should unions have difficulty in identifying the relevant stakeholders, they can also make use of media articles, focus group discussion and relevant interviews (IISD, 2018A). This mapping approach can be expanded to consider factors such as gender, level of good governance or willingness to cooperate between departments.

DECENT JOBS, FOR WORKERS AND AFFECTED COMMUNITIES, REMAINS CENTRAL TO A JUST TRANSITION – SO WHAT DO WE DO?

In its simplest form, a just energy transition will see no worker left without a decent job or affected community without a sustainable economy. Jobs are thus central to a just energy transition. Unions should have clarity of both the opportunities and threats within a just energy transition. As one of the ten arguments for a just transition in SSA, we illustrated the job creation potential of renewable energies. This section takes the argument a step further and identifies the necessary demands that will ensure decent jobs for all. The challenge in SSA is not predominantly the development of market adjustment programmes within a fossil-fuel transition

but even more so how to negotiate agreements within new industries. As much as a new beginning could mean new job creation, renewable energy employment brings with it a new set of challenges. This section subsequently considers the type of jobs, the role of technology, geographical location, new job creation opportunities and gender component of a just energy transition. It also addresses the broader demands such as the protection of the vulnerable and industrial policy development that forms part of a just transition.

DATA IS NEEDED TO KNOW WHAT THERE WILL BE A TRANSITION FROM

The first step in planning for a just transition is knowing what needs to be prepared for the region. It is not possible to develop adequate labour policies if those who stand to be affected are not recognised. There are four key areas in which the availability of accurate data and information will assist a smooth just transition. The first data component represents the labour market profile. The age, skill set, and education levels of the existing workforce needs to be assessed (UCT Energy Research Centre, 2019).

A just transition is not an overnight procedure. A just transition will be a continuous process that continually has to be adjusted. Technology will continue to improve, and some challenges will disappear while new issues will surface. If it is found that a large part of the existing workforce is set to retire in the next decade transition packages should be developed accordingly. COBENEFITS (2019A) provides a relevant example located in South Africa:

“For example, the estimated median age of coal miners in Mpumalanga is 38 years. This means that some portion of the present workforce will be approaching retirement age by 2040 when a bulk of coal-fired power plants would be reaching the end of their assumed technical lifespan and the associated mines would be undergoing closures. Redeployment, early retirement and retraining costs can only be assessed through more detailed information and by acknowledging the imminent closures of coal infra-structure” (COBENEFITS, 2019A: 23).

The second element relates to the condition of existing infrastructure and energy units (UCT Energy Research Centre, 2019). Should existing distribution infrastructure require expensive upgrades, it builds a stronger case for decentralised energy provision in some areas. Similarly, if existing fossil fuel energy units have reached the end of their lifespan, it provides an opportunity to transition to renewable energies naturally.

The third information source is national assessments and the mapping of potential renewable energy locations. Mbirimi (2017) explains that this could stimulate more investment in the sector. It also has importance in terms of job creation. It will indicate where potential jobs can be created and where losses can occur.

The fourth set of information relates to climate change impacts and as an indirect result, employment opportunities. Floods and other climate change related disasters will have a direct bearing on communities. To mitigate these effects, it is first necessary to assess who stands to be impacted the most and secondly what can be done to decrease their vulnerability. Adequate ceilings, solar water heaters, solar panels, water tanks and food gardens are all interventions that could assist communities in a disaster situation (AIDC, 2017). The provision of these amenities can, in turn, be a great source of job creation.

While data could positively contribute to planning and development, there needs to be an accompanying word of caution. Industry 4.0 is, to a large extent, based on the availability of data, including that of workers. This creates serious privacy concerns as described at the recent Fourth Industrial Revolution 4IR Global Labour University (GLU) conference held in South Africa:

“Data and artificial intelligence are central to the digital economy. Who owns this data, and what are the effects on workers? We are already facing issues with biometrics at the workplace. Employers are using surveillance systems to infringe on workers privacy. We need studies that will inform us on how to respond to the 4IR” (Ruth Ntlokotse, second deputy president of NUMSA, sited in IndustriALL 2019B).

These concerns raise a substantial demand pertaining to training. There should be training and transparency for all workers regarding data privacy within their companies.

WHAT DO WE PROMOTE, INITIATE OR DEMAND?

- 01 All parties involved, including ourselves, need to collect data related to the employment profile, existing infrastructure, renewable energy potential and vulnerable communities to inform their just transition planning.
- 02 We need to negotiate agreements that will map the skills needs within the transitioning energy sector.
- 03 Academic institutions, NGO's and the private sector are all stakeholders with whom partnerships can be developed to source such information.
- 04 Impact studies must be conducted by all relevant stakeholders, and mitigation measures put in place before transitions commence.
- 05 Unions need to demand the protection of worker's and communities' rights to information, training and education, and privacy. Training and transparency regarding data privacy must be prioritised for all workers.



Let's take solar power as an example. Solar plants will require the building and installing of generation plants, the building and operation of smart grids as well as the maintenance and repair thereafter. Most of the jobs will be in the initial construction phases, but maintenance and repairs will also require large employment numbers. Job types such as electricians, technicians and engineers will be available. South Africa should at all costs avoid what COBENEFITS (2019B) refers to as the "boom-bust" skills cycle:

"The present skills shortage in renewable energy is partly a result of the 'boom-bust' cycles that have occurred in the procurement processes; for example, as an effect of the REIPPPP, projects are often constructed simultaneously, creating sharp and short-term increases in demand for skills" (COBENEFITS, 2019B: 20).

COBENEFITS (2019A) reiterates such municipal based employment opportunities and says that where IPPs are present, they should be allowed to delegate jobs connected to their corporate social responsibility to municipalities.

The next question that needs to be asked is what skills levels will be required in renewable energies. Mbirimi (2017) alludes to the fact that the renewable energy sector could produce largely high-skilled jobs. Based on the South African context, COBENEFITS (2019B) estimates that 60% of the required renewable jobs will be skilled or highly skilled. They argue that the remaining lower-skilled jobs will be in the agriculture and mining sectors. In addition to such sectors, the manufacturing of basic components could stimulate job creation in lower-skilled jobs.

The construction, installation and maintenance of the projects would be the other contributing component (Mbirimi, 2017). The case study below provides examples of green jobs that could be created in Uganda through renewable energies.

Spacing projects out equally will allow for steadier skills demand and the creation of permanent jobs. Project planning should as far as possible consider such impacts. Locating construction, maintenance and repair jobs as municipal functions will ensure that workers are employed in permanent jobs rather than temporary positions (AIDC, 2017).

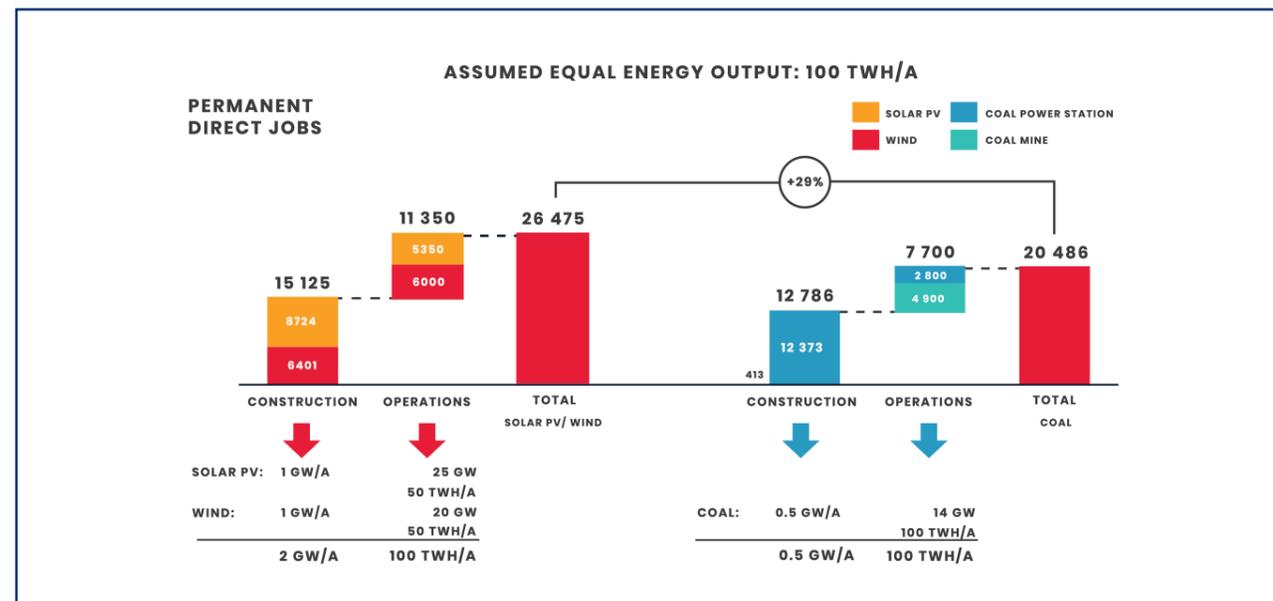
CASE STUDY 11: Green energy jobs in Uganda, solar technicians, energy assessors etc.

THE TYPES OF JOBS THAT WILL BE CREATED ARE IMPORTANT

The job structure between fossil-fuel and renewable energies will differ. Renewable energies will represent a different composition of economic sectors. Some argue that renewable energies need more employment in construction and manufacturing, where jobs in thermal generation are concentrated in operations and fuel supply.

Authors such as Bischof-Niemz (2019A) on the other hand, argue that there are not only more jobs to be created in the construction phases but also in operations and maintenance. He provides the illustration below to show the number of permanent direct jobs created in Solar PV/Wind compared to coal.

Figure 14: Number of jobs created for an assumed equal energy output of 100 TWh/a



Bischof-Niemz (2019A)

"Uganda has an overall energy deficit, and the overnment has prioritized energy efficiency. Training is needed at many levels in the energy sector, on new energy sources and generation technologies, energy efficiency and technologies and renewable energy generation. The major sectors for green occupations are in agriculture, energy, water and environment, manufacturing industries, transport, trade and forestry.

Solar technicians will be needed for the development of solar technology, as well as the installation and maintenance aspects. Energy assessors will be necessary to assess power/energy losses, through illegal connections and inefficient transmission and distribution. Green-collar technology installers, clean electricians and retrofitters along with pipefitters, plumbers and clean-energy auto manufacturing line workers will be vital.

Green accountants/auditors will eventually be in demand as the assessors of monetary efficiency associated with green initiatives; however, this does not yet exist in Uganda. Regarding gender, new green-collar occupations are male-dominated, especially with regards to renewable energy. However, women dominate initiatives in organic farming – although this is the only green employment area in which this is the case" (Strietska-Ilina et al. 2011:412).

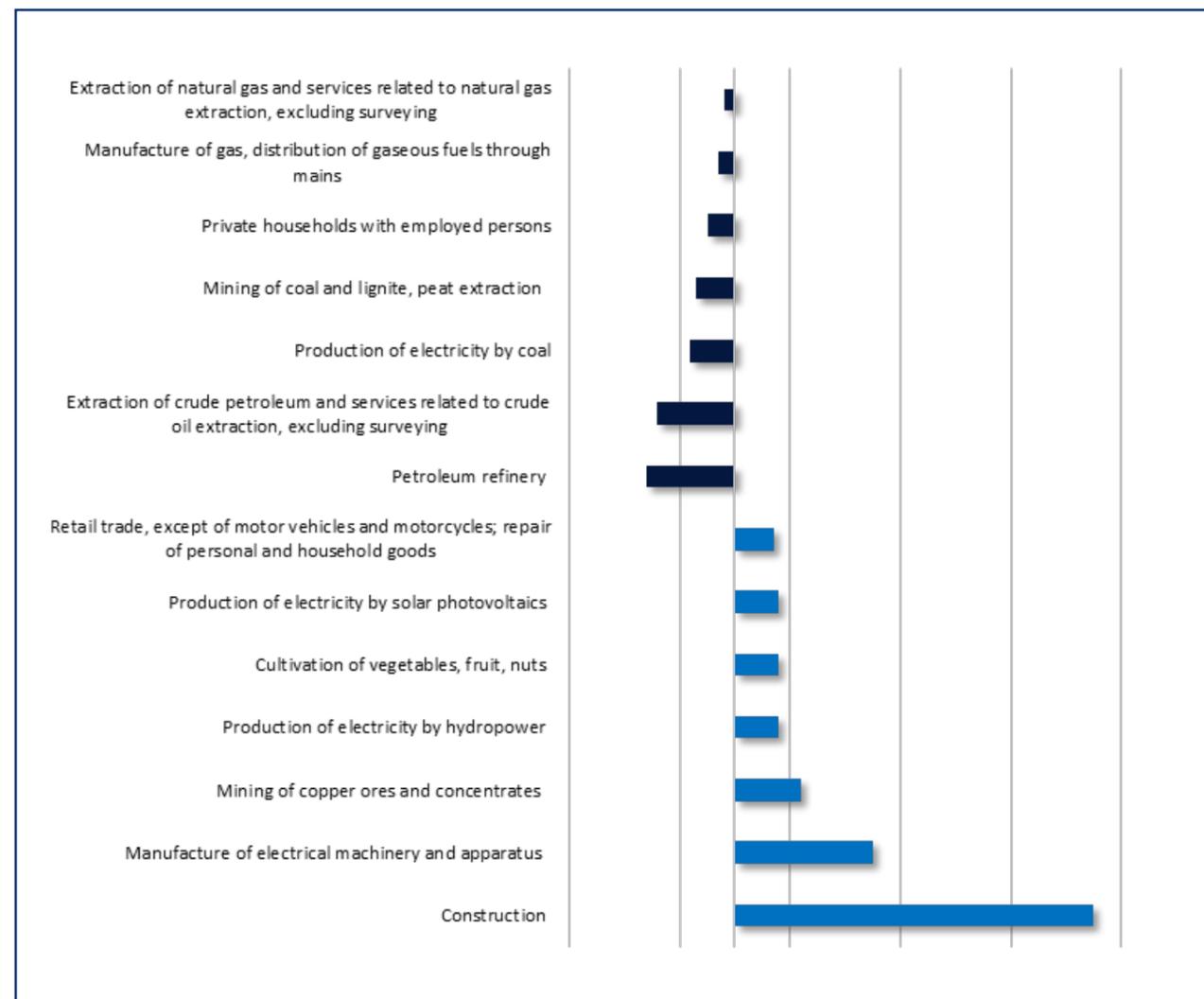




Solar technicians, energy assessors, technology installers, clean electricians, retrofitters, pipefitters, plumbers and clean-energy auto manufacturing line workers are all examples of renewable energy-related jobs for which the demand in countries could increase.

On a global level, the ILO (2018) provides the following summary of the sectors that stand to be affected by a transition to sustainable energy.

Figure 15: Sectors most affected by the transition to sustainability in the energy sector (number of jobs)



Source: LRS adaptation of ILO (2018) data

This global estimation indicates that the bulk of the job creation potential will be in construction and the manufacturing sector. The later will be with a focus on electrical machinery and apparatus. COBENEFITS (2019B) identifies electricity-intensive users such as the chemical sector and metal product as major employers in manufacturing sectors.

Although there will be a decrease in coal mining, the ILO (2018) believes there will be an increase in other forms of mining such as copper, nickel, iron and other non-ferrous and metal ores. These are inputs that could be used for electric vehicles and machinery. Hydropower, agriculture and solar PV are predicted to further contribute to employment creation. The oil and coal sectors are expected to have the highest job losses (ibid.).

In addition to the direct jobs that will be created, attention also needs to be given to the ripple effect employment creation can have. Within job projections, the amount of jobs created by an energy type is often counted as the sum of the direct, indirect and induced jobs. The direct jobs are those created directly on-site such as construction or maintenance. The indirect jobs represent the jobs created through the demand for resources such as building material. The induced jobs are when workers, in turn, spend their salary on services such as transport or goods such as food.

Using this method illustrates the multiplying effect of employment within an economy. The broader job creation potential, associated with renewable energies, will be spread across the economy but also concentrated in basic manufacturing, engineering, transport equipment, utilities, construction and their supply chains (Federation Syndicate European, 2018).

As discussed within the ten just transition arguments, there are additionally jobs that will be created through the overall greening of economies. The AIDC (2017) describes such an example located in the Western Cape, South Africa. A ceiling insulation project created numerous employment opportunities for unemployed community members while also teaching them new skills. If such projects would be expanded in a country, it can create thousands of jobs (ibid.).

WHAT DO WE PROMOTE, INITIATE OR DEMAND?

01 We, as unions, need to demand the creation of decent jobs through actions such as the following:

- Efforts should be made to space out renewable energy projects and avoid sharp short-term skills demand increases. This will create an opportunity to create permanent jobs rather than temporary construction jobs.
- Locating construction, maintenance and repair jobs as municipal functions will ensure that workers are employed in permanent positions rather than temporary positions.

02 All parties, including ourselves, must give special attention to the youth and new entrants in the fossil-fuel related sectors. They need to be informed about the sector's future changes before applying and, as part of their contract, provided with a concrete transition plan.



AN ENERGY TRANSITION WILL LOOK DIFFERENT GEOGRAPHICALLY

Renewable energies are based on different resources than fossil-fuel and will require different locations. This has the advantage that new areas could receive economic stimulation and job creation opportunities. On the other hand, some areas can lose their economic base and jobs should fossil-fuel activities cease to exist. The renewable energy potential between countries and regions differs considerably.

Senegal, Gabon and South Africa, for example, have wind potential along their coastlines but not on the interior (UNEP,2017). While South Africa has solar potential on the interior, a country like Gabon has less so due to interior forestry. These discussions are particularly important as communities and workers stand to either lose or benefit from the location of projects.

An example taken from India (Case Study below) illustrates the need for policy and bidding processes that take into consideration the geographical nature of renewable resources. Should energy and infrastructure provision be targeted at urban or wealthier areas, historic energy distribution patterns will be repeated and energy poverty will continue.

CASE STUDY 12: Sharing the cost of energy provision across richer and poorer states in India

“There is a clear mismatch between the areas where renewable energy’s expansion is taking place and the areas where coal production is taking place. On the one hand, at present, the widely promoted green energy corridors, based on resource assessments, seem to be focused on fairly prosperous states such as Andhra Pradesh, Gujarat, Karnataka, Tamil Nadu, Maharashtra, and Himachal Pradesh.

It has been suggested that states with rich renewable resources provide transmission infrastructure to states with lesser burden. However, this is where we meet a very core problem with the private sector. Its generation will be limited to returns on investment, and in this case, the returns are guaranteed when utilities are able to purchase electricity.

Hence, based on current investment patterns, one notices that most of these firms are focusing their investments towards more urbanised states such as Gujarat, Tamil Nadu, Andhra Pradesh, and Maharashtra” (TUED, 2016:11).



Various practical and innovative measures can be taken to bridge the geographical challenge. In a country such as South Africa, renewable energy production could be considered in old mining and coal production regions.

The first step will be to access the renewable energy potential, and then COBENEFITS (2019B) suggest location-specific renewable energy auctions in the former coal regions. Bischof-Niemz, T. (2019B) argues that although the energy potential might be less in these regions, the higher production costs will be offset by the savings made being near established transmission infrastructure and load centres.

In China, collapsed coal mines have been converted into floating solar projects (IISD, 2018A). Economies negatively impacted by the removal of previous energy production activities can also benefit from the creation of special industrial zones to attract manufacturing opportunities and jobs (COBENEFITS, 2019B). These dynamics are further discussed in the following section.

Within SSA, the contentious issues of land ownership will additionally play a large role. All the activities associated with energy production and distribution are linked to land (Ngwenya, Halsley, Davids & Schubert, 2017). The development of new projects will have to pay careful attention to these dynamics. Land ownership provides an opportunity to channel benefits and revenues to communities.

WHAT DO WE PROMOTE, INITIATE OR DEMAND?

01

Both union and government policies need to be developed, taking into consideration the geographical nature of renewable resources to avoid repeating historic energy provision patterns. Innovative solutions such as floating solar projects, special industrial zones and energy production could be considered in old mining and coal production regions. These are examples of how former fossil-fuel areas could be linked to renewable energy production.

02

We demand that, should the private sector form part of the transition, the bidding process needs to ensure they commit to energy provision for all and not just in geographically convenient areas.

03

All parties should give careful attention to the issue of land ownership to ensure benefits and revenues are channeled towards communities.



EMPLOYMENT WITHIN MANUFACTURING AND TECHNOLOGICAL INNOVATION MUST BE CREATED LOCALLY

Just transition literature emphasises the importance of renewable energy manufacturing localisation. To develop a better understanding of why this is of importance, there are four phases that should be considered:

PHASE 1:

The first is at the initial phase when renewable energies are being considered and starting to enter the energy landscape. During this phase, countries will be importing the required equipment and components. Developed countries such as Germany, Spain and China have been role-players in the manufacturing of renewable energy components (TUED, 2012). It is estimated that as much as 43% of the renewable jobs created thus far were in China (IISD, 2018A). Within this scenario, all the jobs associated with the manufacturing will be located elsewhere.

PHASE 2:

The second phase will be when the increasing demand for goods and lower cost of production in developing countries influence producers to relocate. In this scenario, some of the benefits are shared more equally (TUED, 2012). Jobs will, however, be within large private Multinational Corporations (MNCs) who are notorious for their disregard of labour issues. This phase, however, creates an opportunity for skills transfers and training. Companies from China, for example, can license their technology to the worker-owned cooperatives for reasonable royalties (AIDC, 2017).

PHASE 3:

This scenario represents the first step towards a just transition when renewable energy equipment starts being manufactured locally. In the initial stages, the focus can be on basic components. As examples, solar modules, inverters, mounting structures such as extruded aluminium rails, “follow the sun” single-axis and double-axis tracking systems, cables, connectors and other electrical components are all identified as basic solar components that can be considered for local production (Sweeney, 2015). Public works installation programmes can also be initiated in which local small and medium-sized companies (SMEs) are supported (ibid.). The standardisation of devices and sizes of elements such as mini-grid generators, solar modules, conductors, transformers and transformers will further “create a basis for manufacturing these devices” in the region and “help in creating economies of scale, making local manufacture of these products more viable” (Mbirimi: 56).

PHASE 4:

The fourth and desired scenario is in line with demands such as the National Union of Metalworkers of South Africa (NUMSA) in South Africa which calls for social ownership of renewables through local production. This scenario will also accommodate Industry 4.0 the best. As technology continues to replace workers, the social ownership structure will allow workers to continue benefiting from the profits with more free time available. One of the factors that will determine the success of local manufacturing is the government's commitment to long-term and continuous usage of renewable energy. The associated capital cost will be high, and all role-players need to be assured of the success of their undertakings.

In addition to manufacturing, investing in the technologies associated with renewable energies creates opportunities for job creation. The development of and investment in new sectors can help to absorb jobs lost through the transition. This is relevant for both the energy and technological transition. Examples include smart grid, battery and electric vehicle technology (COBENEFITS, 2019A).

It is even said that coal can be used in the production of certain renewable energy components (Halsley, 2018). The continent is likewise well located to explore ethanol as an energy source which can reduce transport emissions by up to 80% when mixed with petrol (Fakir, Bole-Rentel & Chireshe, 2019). The case study below illustrates the job creation potential of the jatropha biofuel sector in Mali.

CASE STUDY 13: Mali's emerging jatropha biofuel sector as well as challenges and priorities for a green economy

“Strategies or policies specifically geared towards greening the economy are not currently in place and the term “green job” is not commonly known in Mali. However, various activities exist that are driven by the need for markets to adapt to the current economic situation, and by the need to develop employment markets that address youth unemployment and difficulties faced especially by the primary sector due to climate change.

It is evident that greening the economy is still regarded as a burden rather than an opportunity. However, there is gradual recognition that there is significant potential for green jobs in Mali, both for the creation of new occupations as well as developing new skills within existing occupations. Some of the most promising economic sectors in Mali include energy supply with renewable energy, agriculture, waste management, construction, forestry and carbon finance.

Due to the impact of climate change, the economy and the labour market need to shift towards a more green approach... Since Mali has available land, an increasing number of initiatives are working on the development of biofuels (biodiesel and bioethanol) from jatropha, cassava and sugarcane.

Biofuel from jatropha is becoming a popular replacement for imported fossil fuel. The need to expand this industry has given rise to new skills gaps for nursery growers, producers and jatropha oil motor operators, and for developing its use at a local level. It is also important to train operators of multifunctional platforms and other machinery (agricultural, transport, etc.) in adapting and maintaining their equipment for the use of jatropha biofuel.

In the area of energy, the greatest opportunities for creating new green jobs are in rural electrification, energy production from agricultural residues, energy efficiency and various applications of solar energy.

In Mali, the greening of the labour market has not yet been identified as a priority; therefore, skills needs have not been directly addressed by any agency or programme. However, various organizations could tackle the identification of skills needs for a greener labour market, for example, the Observatory Department of Employment and Training of the National Agency for Employment, and the strategic planning committees of various ministries. Since skills needs for the green jobs labour market had not been identified in Mali prior to this study, there has not yet been any intentional skills response” (Strietska-Ilina et al. 2011:345).

The Mali case study illustrates the job potential of alternative energy sources and production methods. In addition, it also highlights the importance to realise the food-energy-water nexus of sustainability. Water, energy and food security are all linked and dependent on one another. As is shown in Mali, innovative agro-processing could contribute to better food security in a country and the overall greening of the economy.

While new technologies provide an opportunity to stimulate new job creation, it also creates an opportunity to develop new sectors shaped around decent job creation. As the following section explains, this will depend on the availability of a skilled workforce.

WHAT DO WE PROMOTE, INITIATE OR DEMAND?

- 01** We, as trade unions, need to demand:
 - The development of manufacturing policy framework and local content policies. These must ensure employment in renewable energy manufacturing industries where unions are recognised, and all workers are protected.
 - The creation of economic incentives such as special economic zones focusing on technology.
- 02** We must demand and where possible conduct an assessment of the renewable energy local content potential.
- 03** We need to demand and ensure all health and safety approaches and policies stay up to date with new occupations and technologies.
- 04** All stakeholders, including ourselves, must:
 - Acknowledge the reality of Industry 4.0, especially in the manufacturing sector. Technology will increasingly play a role and change how humans are required to perform certain functions. Promote skills transfers with existing foreign-owned producers for certain renewable energy components to be manufactured locally and be socially owned.
 - Locate energy security within a food-water-energy nexus. Water, energy and food security are all linked and dependent on one another.
- 05** Alone and within our broader just transition networks, we must campaign for:
 - The standardisation of renewable energy equipment and technologies to stimulate the local industry and job creation.
 - The development of local technological innovation such as smart grid, battery and electric vehicle technology.
 - The development of alternative, locally sourced biofuels energy sources.



RENEWABLE ENERGY VALUE CHAINS MUST NOT EXPLOIT THE AFRICAN CONTINENT'S RESOURCES AND WORKERS

The just energy transition is a synonym to alternative clean energy sources and associated products such as electric and hybrid cars. This section previously revealed how an increase in demand for such products would mean an increase in demand for certain resources such as cobalt used in electric vehicles. The unprecedented demand for solar panels will also mean a sharp increase in the demand for resources such as germanium and indium (Worral, Roberts, & Whitley, 2018).

These are only some examples of resources that will need to be mined with increasing pressure to meet the global demand. Within the existing capitalistic system and opportunity for profits within renewable energies, it opens a window for serious labour and human rights violations. The examples of cobalt mining in the Democratic Republic of the Congo (DRC) electronic waste in Ghana illustrates how the less visible components of low carbon energy could lead to a transition that is more unjust than previously known.

CASE STUDY 14: Cobalt mining in the Democratic Republic of the Congo and electronic waste in Ghana: How a low carbon transition can lead to a violation of human rights, gender inequalities and environmental degradation.

"The International Renewable Energy Agency (IRENA, 2018) reports in their most recent outlook that between 2015 and 2050, the share of low-carbon electricity in total final energy consumption needs to double as technologies such as electric vehicles (EV), battery storage, heat pumps, and solar PV become mainstream.

Underlying these much-heralded trends, however, is concomitant growth in the demand for critical materials, minerals, and metals. The International Resource Panel (2019) recently noted that resource extraction has more than tripled since 1970, underwriting a fivefold increase in the use of non-metallic minerals; and that by 2060, global material use could double to 190 billion tons.

[The] ongoing transitions to low-carbon societies are being underwritten by serious (but rarely acknowledged) social and ecological injustices at opposite ends of the supply chain – at the artisanal mines providing cobalt from the Democratic Republic of the Congo (DRC), and at the facilities handling streams of electronic waste in Ghana. Indeed, as our results show, without careful attention, low-carbon transitions may be paradoxically contributing to environmental destruction, air pollution, contamination of water, and the health risk of cancer and birth defects.

They can deepen existing gender inequalities. They depend on the exploitation of children, some of whom are exposed to extreme risks of death and injury while mining for cobalt, drowned in waterlogged pits, or worked to death in the e-waste scrapyards of Ghana. Low-carbon transitions are also worsening the subjugation and exploitation of ethnic minorities and refugees. Perversely, in both cases, the dispossessed communities of Congolese cobalt mining and e-waste processing in Ghana come to rely or depend on the very activities that are harming them.

One core conclusion is that patterns of injustice and domination are embedded in existing processes of decarbonisation, in spite of the assumption that low carbon trajectories represent a more just way of producing energy. While decarbonisation may thus contribute to cleaner air and cleaner production in the Global North, much of the environmental and social harm is simply made invisible and displaced, or spatially externalised, to the Global South.

A "just transition," when guided by more multi-scalar and reflective energy justice approaches, would consider well beyond the lost coal mining jobs in Germany or disrupted energy markets in the United States to the formal and informal labour segments of Africa (and beyond), many of them low-wage, less organized, and highly at risk" (Benjamin, Sovacool, Hook, Martiskainen, Brock, Turnheim, 2020:1-17).

These case studies and the level of exploitation that the low-carbon, energy- value-chain can result in deserves serious consideration by unions. Informal and vulnerable workers need urgent protection. Unions as just transition champions will have to build their campaign to not only focus on energy workers but also the workers and communities negatively impacted by the race for renewable resources.

WHAT DO WE PROMOTE, INITIATE OR DEMAND?

We, as trade unions, need to:

01

- Conduct low-carbon energy value-chain mapping exercises, not only focusing on employment opportunities but also existing exploitation practices. Such value chain mapping exercises can benefit from inputs and support from stakeholders within a broader just transition network (for example, academic or research bodies).
- Explore ways in which they can unionise exploited informal workers within low carbon energy value chains. These workers are extremely vulnerable and need urgent protection.
- Agree which workers along the value chain will be unionised by which affiliate.



SKILLS DEVELOPMENT PROGRAMMES MUST BE ALIGNED TO MEET NEW DEMANDS

The skill set required to install, maintain and operate renewable energies will differ from that in traditional fossil-fuel energies. Components such as smart grids rely on "processing huge amounts of data, placing a premium on skills related to handling complex systematically linked data" (Mbirimi, 2017: 56). In addition, technology and Industry 4.0 is changing the skills profile required across all sectors. If countries are to stay ahead of these changes and skills demands, they will have to develop their training and educational programmes accordingly.

The localisation of manufacturing and technological innovations as well as the successful implementation and management of renewable energies will depend on the availability of the necessary skills. The case study below shows us how unions in New Zealand lead community assessments to identify possible future opportunities within the oil and gas phase-out.



CASE STUDY 15: Oil and gas phase-out in New Zealand: Unions and civil society conducts an opportunity analysis in the region most impacted

"Earlier this year there was a very deep process led by Taranaki unions, investors and councils and indigenous communities to work out all the different opportunities for Taranaki in the future across energy, food and fibre, and tourism. This led up to a Just Transition Summit in May hosted by the government. At that summit, the outcomes of the community consultation process were delivered, along with a plan on how to diversify the region's economy. Stage two will be the implementation. – There will be good jobs, but only as long as unions make sure we achieve that, Huggard says. – If we leave it to chance, then that may not be the case" (Just Transition Centre, 2019:7-8).



WHAT DO WE PROMOTE, INITIATE OR DEMAND?

01 We, as trade unions, need to demand:

- For national skills assessments to align supply and future demand for skills. Job market impact and potential assessments should guide a just transition to ensure the changing jobs profile absorbs all workers. Unions can play an active role in initiating and conducting community skills and impact assessments.
- For the alignment of all skills development policies and technical and vocational education and training systems to:
 - enable the localisation of renewable energy value chains (particular focus should be on renewable energy component manufacturing, construction, installation, maintenance, service skills and technological innovation)
 - absorb the impact of Industry 4.0.
- The continuous renewal of educational approaches in anticipation of evolving skills.

02 All parties must promote in-house training, skills transfers and peer learning.



Within the transformative approach to a just transition, the dismantling of interlinked systems of oppression and the removal of gender divisions are necessary. While skills development and training provide women with an opportunity to improve themselves and their circumstances, it does not address the deep-rooted gender norms within societies.

It could be something as simple as a man being embarrassed that the neighbours will see him doing the washing and think that his wife is lazy (ENERGIA, 2019). Such beliefs and norms prohibit the equal distribution of work and freedom within society. Although it will take time to unroot these beliefs, creating a conducive environment for women to participate economically, will start adjusting the scales. Interventions such as reduced working hours will make more time available for unpaid work to be shared between men and women (Asia Pacific Forum on Women, 2017). Access to technology could contribute to such reductions in working hours. Another option is to make more funding available for carework and housework that could see women receive compensation or have those that need care seen to professionally.

A universal basic income and the equal distribution of land are all measures that will give women the autonomy to make their own decisions and decrease their dependency (ibid.). Women must furthermore be included in the decision-making processes regarding energy provision and solutions. Women know the challenges they face with existing, unreliable energy provision or the complete lack thereof. Women will thus know the best solutions, and their voices must be heard (WoMin, 2016).

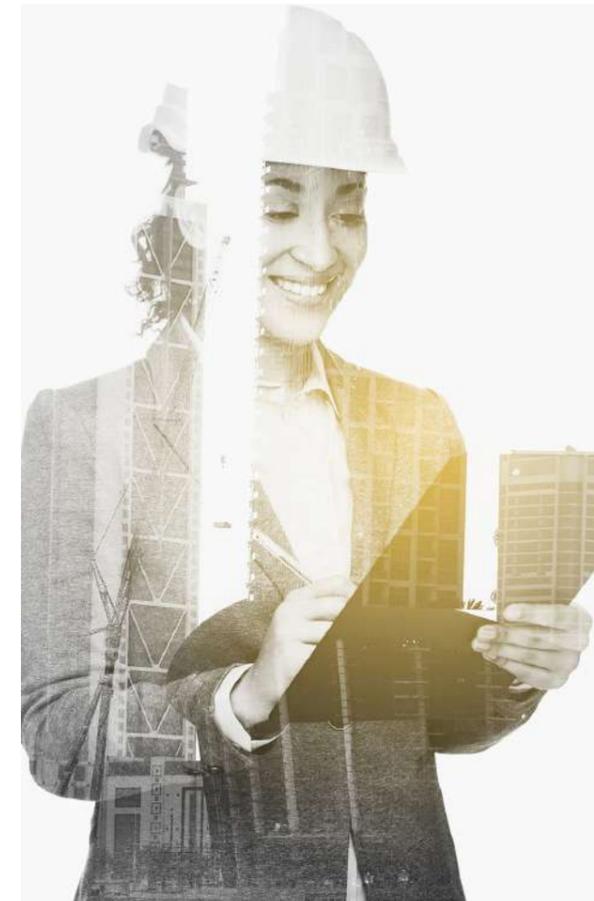
WHAT DO WE PROMOTE, INITIATE OR DEMAND?

01 We, as trade unions, need to demand:

- The alignment of all skills development policies to cater to the educational, training and physical needs of women (childcare facilities, save transport, suitable times, etc.).
- Universal energy access to all. This is vital to reduce the health, physical and emotional burden women are carrying within an energy poverty context.
- Reduced working hours so that unpaid work can be shared more equally between men and women.
- The public funding of care work and housework.
- For a social wage and adequate social protection policies.
- For the equal distribution of land between men and women.

02 All stakeholders involved, including ourselves:

- Ensure gender mainstreaming within all policy processes and make sure the needs of both men and women are met within policies.
- Conduct gender impact assessments.
- Include women in decision-making processes (design, implementation and monitoring and evaluation) to ensure planning procedures and solutions meet their needs.
- Acknowledge gender norms and promote programmes that will confront and dismantle systems of oppression.



PROMOTING GENDER EQUALITY AND UNROOTING GENDER NORMS

To confront the gender division of labour, national training programmes should be developed to meet the skills need of women as well as their physical needs such as childcare facilities. It is estimated that of the total number of employees working in the energy sector on the continent, only 20% are women (UNEP, 2017). Technology is changing the type of jobs women can do. Improved equipment has made it possible for women to do tasks for which they previously were considered not strong enough.

ENERGIA (2019) explains how providing women with training opportunities do not only improve their employment opportunities, but also give them self-confidence and a feeling of empowerment. Women in business or employment have greater access to social networks that provide them with support, opportunities or even just a platform to share experiences.

As women are considered more risk-averse than men, working collectively reduces their risk-related concerns (ibid.). Employment policies should be developed to encourage the employment of women. The utility Kenya Power is cited as an example of good practice in this regard:

“Recruitment policy is cognisant of women’s family responsibilities; for example, a willingness to agree to overnight field stays is not specified as a condition of employment. The organisation is demand-responsive and willing to understand and address staff concerns. For example, they installed separate women’s and men’s toilets when requested by a female member of staff” (ENERGIA, 2019:32).

LABOUR MARKET ADJUSTMENT PROGRAMMES MUST ENSURE NO ONE IS LEFT BEHIND

Although associated with a reformist approach to a just transition, labour market adjustment programmes have an important role to play in protecting workers and communities in an energy transition.

Although not all countries in SSA are reliant on fossil-fuels, the region will still experience fossil-fuels transitions in some countries whereas in others it could be more focused on the diversification of the existing energy mix.

IndustriALL (2019A) explains how a just transition should include the following:

“Labour market adjustment programmes should take account of individual, family, and community needs and wants. Creative and worker-focused labour market policies should include an absolute right to financially and physically accessible education and training based on the principles of life-long learning and workers’ right to choose what best meets their needs and wants.

This would include everything from skills training offered by unions, employers and educational institutions, apprenticeship programmes, and secondary and higher education. If a clerk wants to apprentice as a millwright, or a miner wishes to study music, this should be supported because, in the end, society will benefit. A Just Transition will cost money to implement, but the payback to society will be enormous” (IndustriALL, 2019A:7).

An important word in this quote is “creative”. Market adjustment programmes should be approached creatively, taking into consideration the unique context of a country. A transition to renewable energies will stimulate various new industries, and the success of adjustment programmes will depend on a country’s ability to align these processes. There will be an increase in the demand for labour that could be met by the workers in transition.

Poland represents one of the main case studies relating to market adjustment programmes. The country underwent a coal transition in which 75% of employment was shed in 15 years (Gass, undated). The Mining Social Package (MSP) was the main market adjustment instrument. One of the main successes identified in the MSP is the inclusion of unions in the development of the programme (IISD, 2018B).

Although the programme was a move in the right direction, it is not considered an overall success as not all the workers got absorbed into the labour market (ibid.). The boxes below describe the different instruments that formed part of the MSP as well as their failures and lessons learned.

CASE STUDY 16: Poland’s successful early retirement instrument

MINERS LEAVE: “The main “protective” instrument was the miners’ leave, in the form of early retirement. To be eligible for this instrument, a miner was to be within five years of retirement due to age or job seniority. It was paid in the amount of 75 per cent of monthly salary. Upon achieving retirement rights, the beneficiaries began to receive full retirement benefits. Importantly, miners are one of the few professional groups that still have special retirement privileges obtained during Communist times.

The generally applicable retirement age—65 years for men and 60 years for women—does not apply to this group. Underground miners are eligible for retirement after only 25 years of work experience, which means for the majority of them reaching pension rights already at the age of around 45. Workers on miners’ leave could take up a job outside of the colliery, but the amount of leave would be then cut by half”.

REASON FOR SUCCESS: “The incentive to leave voluntarily proved successful—the number of miners who benefited from the offer proved even slightly higher than expected. Almost 37,000 workers benefited from miners’ leave, with nearly 30,000 choosing the unconditional redundancy payment. Overall, the MSP reduced employment by 67,000 workers. Labour productivity in the sector (tonnes of coal/person) rose by 40 per cent from 1998 to 2002 (Figure 9) (Kaczorowski & Gajewski, 2008).” (IISD, 2018B: 14).

Voluntary early retirement packages, therefore, represent a successful instrument that can form part of market adjustment programmes. The next instrument proved to be less successful and represents once-off redundancy payments made to workers with the idea of workers seeking their own employment opportunities.

CASE STUDY 17: Poland’s golden handshake did not lead to the re-employment of all

REDUNDANCY PAYMENT: “A single, unconditional redundancy payment in the form of a “golden handshake” was the most widespread “activating” instrument. It amounted to 24 months of the average salary in the mining sector. The redundancy payment was limited to workers not eligible for miner’s leave and could not be combined with the welfare allowance”.

REASON FOR FAILURE: “The “active labour market policy” in the form of redundancy payments was only theoretically “active.” The idea behind this measure was that the ex-miners would invest in their own new businesses or at least would be financially supported during the period of retraining.

However, apart from one optional retraining course, there was no comprehensive support of beneficiaries in the difficult process of job-seeking included as an intrinsic component of this instrument. As a result, redundancy payments led to a large-scale retreat from the labour market. The most recent survey of the fates of former mineworkers in 2004 (five to six years after leaving the mine), showed that 35 per cent of the redundancy payment recipients were not employed (Karbownik, 2005)” (IISD, 2018B:15).

While the redundancy payments proved to be very popular but not effective, welfare allowances were not popular from the start, which contributed to its failure.

CASE STUDY 18: Although welfare allowances in Poland were anticipated to be very successful their conditional nature made them a failure

WELFARE ALLOWANCE: “Another “activating” instrument—a welfare allowance taking the form of voluntary redundancy—was paid on a monthly basis during the period of retraining and job seeking, but for no longer than two years. It amounted to 65 per cent of the average monthly salary. After taking up employment outside of the mining sector, recipients of the welfare allowance were granted a single payment in the amount of 14.4 months average salary. The offer related to workers who gained new employment within two years after leaving a colliery” (IISD, 2018B:15).

REASON FOR FAILURE: “The welfare allowance proved to be unsuccessful, as it did not gain any significant attention among mineworkers—in total only 419 persons chose this option... However, the necessity of finding new employment within two years was probably perceived by workers as an excessive risk considering their lack of experience in job hunting, lack of professional competence (a low level of education is very common among former miners) and the uncertainties in the local labour market” (IISD, 2018B:15).

In addition to these three instruments, a retraining course was also offered. This option was, however, in the form of a “single retraining course to improve their employability outside of the mining sector” (IISD, 2018B:15). This brings forward the key lesson from the Poland case study.

Within both the redundancy payment and welfare payment instruments, workers were left to on their own to seek their next employment opportunities. Not taking into consideration the lack of experience and need for retraining of workers was a significant failure of the programme. Going forward, it is important for other countries to learn from this example and ensure that all labour restructuring instruments include obligatory professional retraining.

These retraining programmes need to be developed based on comprehensive skills assessment and impact studies.



WHAT DO WE PROMOTE, INITIATE OR DEMAND?

01 We, as trade unions, need to:

- Play an active role in the development of market adjustment programmes as well as the management of relevant funds and resources.
- Conduct collective bargaining across national regional and global boundaries to ensure suitable adjustment programmes.
- Develop training plans to put to national training bodies (such as the SETAs in SA) to drive the reskilling and reabsorption of workers into a greener economy.

02 We need to demand and initiate comprehensive skills assessments and impact studies.

03 We need to demand:

- That we as trade unions and workers must be protected throughout the transition period, commitments should be made to, for example, not dismiss workers during the transition period.
- During a negotiated transition period, 100% of the salaries of workers should be guaranteed and paid monthly.
- Support the redeployment of workers in stable and well-paying employment.
- Obligatory professional multi-purpose retraining should form a part of all labour restructuring instruments (relocation, redundancy payments, welfare allowances, early retirement, etc.):
 - Training does not have to be limited to formal institutions but could include work-based learning or other initiatives by social partners.
 - Retraining should not be limited to the energy sector or relevant skills. Training programmes should accommodate those who would want to change their skills and the sector, company or part of the company they work in.
 - Retraining programmes should be prioritised above redundancy payments or golden handshakes. The latter should only be in exceptional cases.
 - Retraining programmes should be a long-term commitment to ensure no worker is left behind. Those who struggle to find new employment opportunities should receive constant support. It is worth considering temporarily relocating such workers to alternative fossil-fuel sites within a company.
- Early retirement programmes can be included as a successful market adjustment instrument.
- Market adjustment programmes should be approached creatively taking the unique context of each country into consideration. There exists an opportunity to align the new skills demand the transition will create with the existing supply of employees in the energy sector. Jobs do not only have to be created directly in the energy sector but can also be in related industries such as the upgrading of houses.
- Provide social security systems, including unemployment benefits.

MARKET ADJUSTMENT PROGRAMMES MUST INCLUDE AFFECTED COMMUNITIES

Market adjustment programmes need to not only focus on workers but also the communities affected by the transition. A good example is a community who live around mining areas that will be closed. If pro-active steps are not taken, many stands to lose their jobs and families their income. Smith (2017) provides an adequate description of what such communities could result in:

“First, from previous industrial transitions, we know that workers and their families need new jobs where they live, not new jobs in a different part of the country that they cannot access. Social ties, homeownership, aging parents, or poverty can make it impossible for people to move when the local employer shuts down. Second, deindustrialization can tear apart the economic and social fabric of communities, starting a vicious spiral where a declining tax and revenue base means less funding for public services, more employers and workers moving away, and fewer and fewer jobs left” (Smith, 2017:7).

To give some examples of instruments that can be implemented to protect communities, we refer to the Polish case study.

CASE STUDY 19: Market adjustment instruments aimed at protecting communities affected by the coal transition in Poland

- **“Colliery–commune cooperation: Mining communes were entitled to create a new enterprise along with the mining company in order to create new jobs outside of the coal sector—a kind of public-private-partnership). Mining companies were supposed to bring to the newly established companies the redundant real estate as their contribution.**
- **Acquisition of property: Mines that reduced the scope of mining activity or were put into liquidation could hand their superfluous real estate over to the mining commune. It could then be used by the commune to support economic activity on its territory.**
- **Additional tax revenue: Mining communes were getting a slightly increased percentage of the personal income tax compared to other communes (In Poland the income from personal income tax is divided between communes and the national budget).**
- **Preferential loans: The mining communes could apply for a preferential loan from the government budget to increase economic activity in the commune. The loan could encompass up to 75 per cent (80 per cent after revision in 1999) of the planned investment” (ISSD, 2018B:15).**



The main success of the market adjustments instruments aimed at communities is that there is a realisation of the broader impacts of energy transitions. Should the communities affected not form part of the transition, the whole regional economy would deteriorate.

The critique, however, is that the interventions came too late, differences between regions were not considered, and the local authorities lacked the necessary knowledge to accommodate the transition (IISD, 2018B). Such negligence not only leads to physical degradation of physical spaces but also the sense of community and belonging which no financial resources can replace. Increased substance abuse, depression and higher rates of suicide are associated with such degradation (IISD, 2018A).

WHAT DO WE PROMOTE, INITIATE OR DEMAND?

01 We, as trade unions, need to demand that:

- Market adjustment programmes should focus beyond those directly impacted to include the communities and economies in which activities are located. Care should be taken to accommodate women and create equal opportunities for all.

02 We need to demand but also where possible initiate or conduct:

- Community impact assessments from the first planning stages, to ensure the impacts of a transition are absorbed. Mitigation measures need to be in place from the onset.
- Market adjustment programmes must be informed and shaped by the communities concerned through social dialogue and democratic participation.
- Differences between economies should be taken into account. Strong existing economies would require a different approach to one with little comparative advantage outside of the previous energy or mining activities. In such situations linking the economy to regional activities could be more successful.
- Ensure the required skills and knowledge is available to absorb the instruments implemented. Training in municipalities could be necessary or ensuring there are social partners or educational providers skilled to assist the communities in transition.

03 Ourselves and all stakeholders involved need to encourage communities to develop their own just transition action plans identifying opportunities to develop renewable energy production etc. Assistance in developing such plans should be provided as needed.



It is thus necessary to mainstream a just transition across all government departments, and policy development approaches. In addition to energy policies, one of the main policies that will anchor a just transition is an integrated sustainable industrial policy. IndustriALL (2019) adequately describes such policies as follows:

“Sustainable industrial policies treat the environment, the economy, and society in an integrated manner. The aim must be a genuinely sustainable environment with reduced greenhouse gases, where former mining and industrial sites are restored and environmentally regenerated, where species and spaces are protected, energy and resources are used frugally, responsibly, and circularly, since there are no jobs on a dead planet.

Sustainable industrial policies must be economically sustainable, increasing efficiency and productivity while creating new opportunities, while linking this to guarantees of job creation.

The policies must aim for a genuinely sustainable society where technological change benefits all, wealth and income disparity are reduced, human and labour rights guaranteed, the weak and marginalised in society are protected, and there are opportunities for individuals, families, communities and cultures to thrive and prosper” (IndustriALL, 2019:5).

It is within such overarching industrial policies that the strategic objectives for a just transition must be stipulated, the necessary financial and legal framework developed, and the creation of decent jobs prioritised (Federation Syndicate European, 2018).

Industrial policies are what makes it possible to favour certain ventures above others through incentives such as financing, infrastructure and taxes (ibid.). In order to absorb those workers who might stand to lose their jobs and create new jobs, job creation does not have to be limited to the renewable energy sector.

Creating jobs in different sectors and within new technologies will add to the existing employment demand. What is rather important is that the industrial policies in which such jobs are described adhere to the just transition objectives set out for the economy.



ALL DEMANDS TO BE INCLUDED IN INTEGRATED LONG TERM SUSTAINABLE INDUSTRIAL POLICIES

SSA is facing an energy crisis. This crisis, in turn, is creating a policy vacuum. Mbirimi (2017) explains that policy vacuums do not appear often, but when it does, it creates an opportunity to influence policy processes and shape developmental trajectories.

We are thus currently faced with an opportunity in the region. While advocating for a just transition, unions need to be able to make certain policy demands in addition to those relating to jobs.

Coherent and holistic long-term planning must be the foundation for advancing justice within a changing energy system. A just transition in some way or another will impact all sectors of the economy and will also need planning across all sectors of the economy.

WHAT DO WE PROMOTE, INITIATE OR DEMAND?

01 We demand that governments must:

- Develop integrated sustainable industrial policies to guide the economy towards a just transition. Development should happen in such a manner that different regions complement each other rather than compete and create a profit-driven race to the bottom.
- Develop Industry 4.0 policies aligned with industrial policies.
- Assess the opportunities and threats within each economy and focus on the diversification of local economies.
- Industrial policies must force companies to provide workers with safe and healthy workplaces.
- Ensure that just transition policies are carried through to enterprise-level by companies and large MNCs.
- Increase the investment in energy infrastructure, improving access to energy.
- Conduct necessary infrastructure assessments and upgrades. Infrastructure needs to be adapted for renewable energy to become an increasing contributor to the energy supply. The expansion of off-grid solutions will need to form part of policy plans.
- Develop just transition regional energy policies to provide a framework in which countries can locate their own policies.
- Promote cross-border energy trade to scale up energy provision and confront the high levels of energy poverty.
- Within global trade, SSA countries must first ensure sufficient supply locally before setting the terms of global trade agreements, ensuring adequate revenues and avoiding over-dependency on only a few buyers.
- Managing the impacts of a rapid shift to renewable energy resources without increasing inequality and unemployment requires that governments, through inclusive, participatory planning, establish clear and explicit mandates such that all stakeholders (including the financial sector) All parties must be bound by some basic parameters and encouraged to align all activities with national energy plans. Such plans can only be coherent if they specify desired outcomes for at least two decades ahead and the localisation of renewable energy industries requires reliable and ambitious deployment plans.

02 We as trade unions, together with other just transition stakeholders:

- Advocate for good governance in which patronage and oligarchies are confronted.

DEMOCRATIC AND SOCIAL OWNERSHIP WITHIN A JUST TRANSITION: EXPLORING PUBLIC-COMMUNITY/WORKER PARTNERSHIPS

“Energy democracy” is a complex term with different interpretations. At its core, it is the redistribution of energy from ownership by a small percentage of the population to the majority of the population (Scholt, 2011). In SSA energy provision patterns were historically targeted at servicing industries. Within energy democracy, on the other hand, energy provision to communities is prioritised. Communities and especially women, are given a choice in energy ownership, operation, production and distribution (Asia Pacific Forum on Women, 2017 & Skinner, 2015).

There are two interpretations of what shape energy democracy can take. IndustriALL and this research strongly support democratic ownership through public tenure:

“...energy is a basic need and a public good; and public authorities must govern its production and use with public policies in the public interest, whether in the extraction, production, transmission and distribution of energy, particularly facing the rapid changes driven by environmental needs and disruptive new technologies” (SSAEN, 2019:2).

The TUED (2012), another global union fighting and advocating for energy democracy, also demands that energy be transferred back from private hands to public hands. In the process, they demand that public entities should stop operating like private corporations towards the democratisation of energy.

The second interpretation of energy democracy links to a lack of confidence in markets but also the state. In the Defining a Just Transition Survey unions identified poor governance, planning and management as some of the main contributing factors to the energy crisis in the region. The example in Senegal below shows how government bodies can lack the necessary knowledge, willingness for participatory approaches and the development of quality, durable infrastructure. Their primary objective is to attract donor funding.

CASE STUDY 20: Government vs civil society approaches to eco-villages in Senegal

“While interning with the National Ecovillage Agency (ANEV), I observed how solar panels come to substitute for more complex visions of social and political development. Along with the National Agency for Renewable Energy (ANER), ANEV is one of two government organisations seeking to implement renewable energy programs in Senegal. ANEV’s stated mission is to turn “half of all of Senegal’s rural villages into ecovillages”. In practice, the agency is largely working to install solar panels and build solar pumps for villages. The Global Environment Facility of the United Nations Development Program (UNDP) provided \$16 million in initial funding for this project, showing the importance of the international financial footprint.

ANEV has been criticised for lack of knowledge in the same way as many government bodies in Senegal. One day, while sitting in a circle around a communal bowl of yassa poulet with officials at the Ministry of the Environment, I was told that at ANEV “they don’t know anything about ecovillages” and “you could probably tell them far more than they know”.

Some pointed out that ANEV is not in a position to know better because it was founded in a decidedly top-down act and staffed by ex-military men. President Abdoulaye Wade, as recounted by some ANEV officials, had been in Germany and seen that people there were building ecovillages. In 2008 he signed a bill to bring that idea to Senegal...

If the international community is to provide rural electrification to every village, ANEV’s project is a sobering demonstration of the hazards of such imagined solidarity. Indeed, bringing in solar panels and large amounts of international finance destroyed a local NGO network of villages coordinated by GEN Senegal (GEN Sen) that had been working to build ecovillages in Senegal since 2002. That organisation’s vision was also to strive for sustainability, but instead stressed a “participative approach between different actors concerned with the development of communities” that relied on the “synergy which unites villagers, researchers, students, experts, and professionals in fields relating to the general preoccupations of the populations”.

GEN Sen was bypassed by a government with other plans: installing its own employees, many from the military, and focusing largely on the technical work of building community solar panel systems. ANEV's mandate was to turn ecovillage into a technocratic initiative for procuring international funds without regard to local communities and their visions for social transformation.

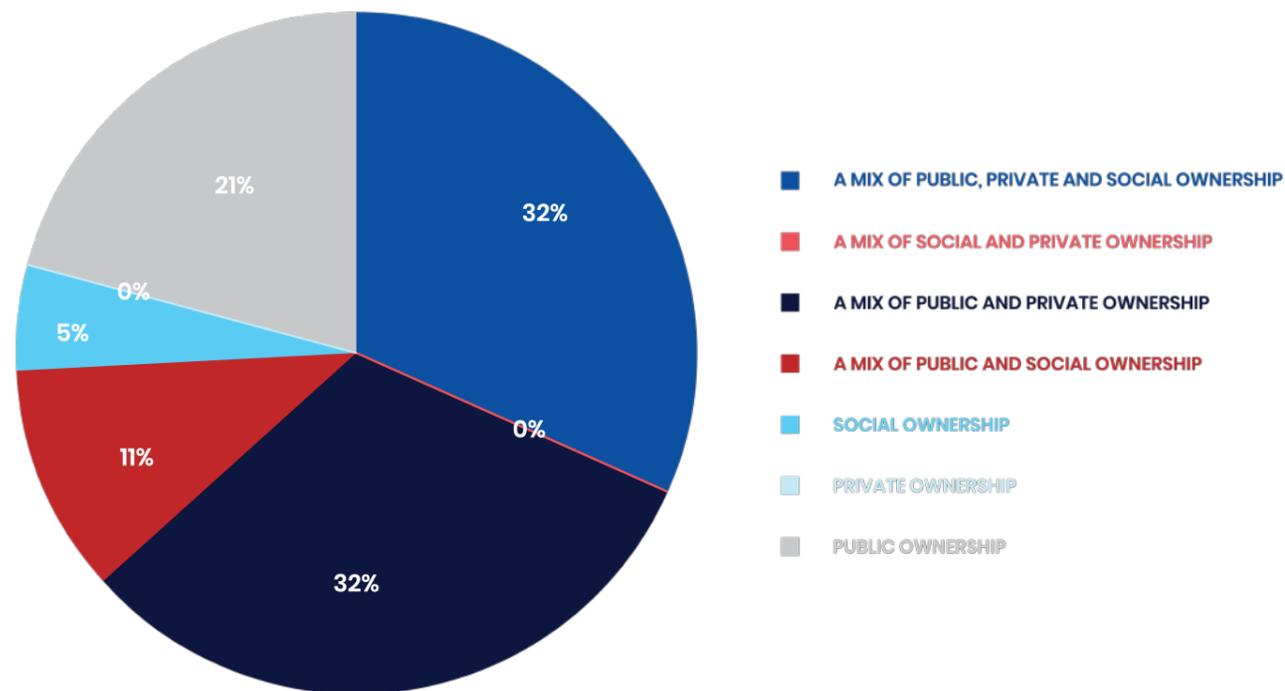
The result was that GEN Sen, which had dreamed of finally getting coveted international funding, witnessed a government program that hired only its own bureaucrats and functionaries cease all further consultation with the NGO. The NGO itself, which viewed solar panels as only a small (and hardly the most important) component of development, dissolved while ANEV continued its work.

I remembered a Canadian development expert, who spoke to me at the International Ecovillage Summit in Dakar in December 2014 about how they were "using solar panel parts with cheap components, and they claim it cost them \$60,000! Those will need to be replaced in four or five years, tops" (Simmet, 2018:71-81).

The Senegal example reiterates the thoughts of Mbirimi (2017), who explains how public utilities have become monopolies and that distribution of energy to the people is not their main priority (Mbirimi, 2017). Such priorities will have to change going forward, and there is an increasing role for unions to play. Within the Senegal example, unions could have been the voice of workers and communities to ensure democratic and quality approaches. The restoration of public goods and services will not only be to the benefit of workers but also women who could work in an environment where human rights are respected (Asia Pacific Forum on Women, 2017).

Given the geographical nature of energy poverty in SSA and existing governance challenges, decentralised community-owned energy systems become an important component of energy democracy that deserves attention (Mbirimi, 2017). The idea behind community and social ownership is, however, not yet well known and received. One of the questions in the Defining a Just Transition Survey was which ownership models unions think would be the most appropriate within a just transition in their country. It can be seen that unions favour public-private partnerships above public-community ownership models.

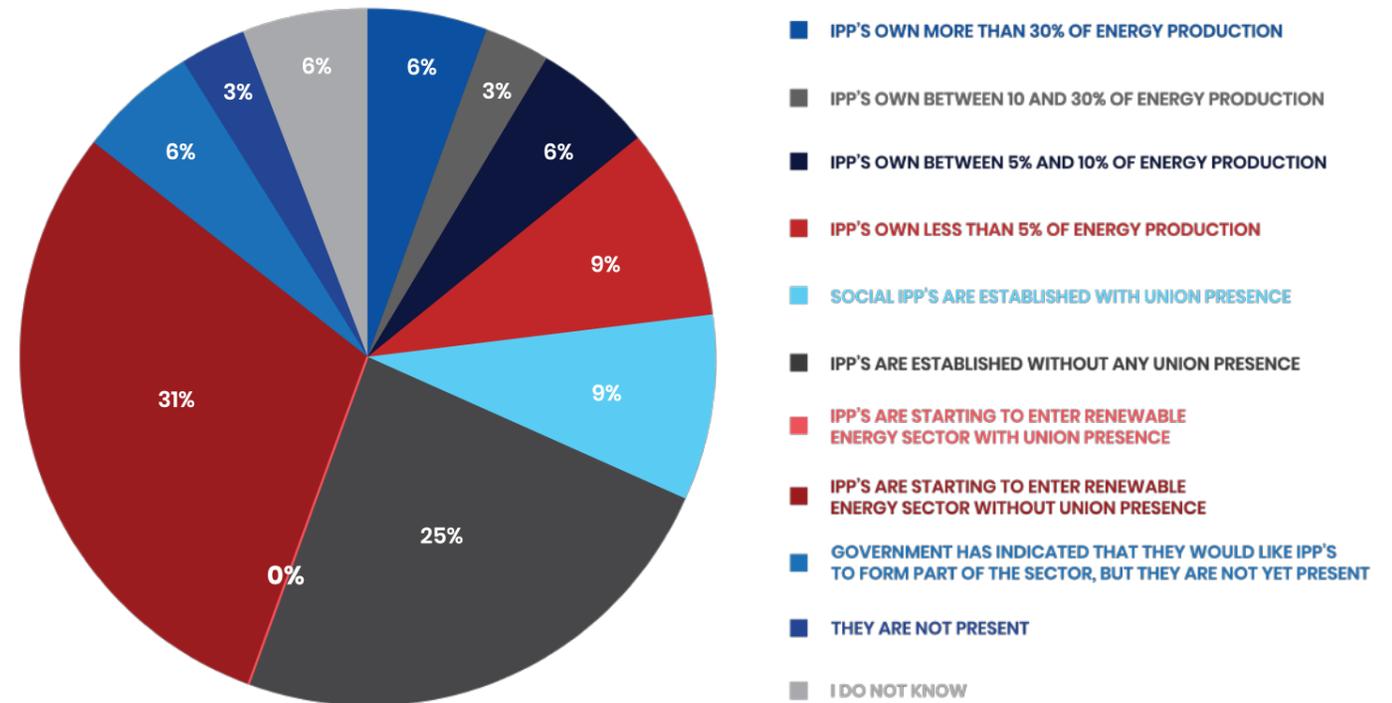
Figure 16: If there is a shift from fossil fuels to renewable energy in your country, which ownership model do you think would be most suitable?



Source: LRS Defining a Just Transition Survey (2019)

The private sector through IPPs is playing an increasing role in the region. It is estimated that 18 SSA countries have IPPs present (Avila et al., 2017). The Defining a Just Transition in SSA asked IndustriALL affiliated to identify what the current situation with regards to IPPs in the renewable energy sector in their countries is. Their responses are illustrated below.

Figure 17: What is the current situation with regards to IPPs in the renewable energy sector in your country?



Source: LRS Defining a Just Transition Survey (2019)

The presence and familiarity with the private sector could possibly explain why unions prefer public-private partnerships above public-community ownership models. While this may be true, 25% of unions indicated that IPPs are already established without any union presence, and another 31% indicated that they are entering without such. The negative impact of private energy providers is known across the globe. In the Philippines, for example, it is said that the establishment of private energy providers meant a shift to a private monopoly with 100% increases in power rates (TUED, 2012). In terms of the negative impacts on workers, SSAEN affiliates themselves know private companies disregard for labour. At the last SSAEN meeting held in Johannesburg, South Africa, unions shared some of their experiences:

"MNCs in the oil and gas sector are the most difficult in recognizing the unions' right to "freedom of association," e.g. in Schlumberger, ENI and Halliburton" (GTPCWU, 2019).

"Freedom of association and compliance to collective agreements by some MNCs in Nigeria remains very difficult".

"MNCs in the oil and gas sectors are the most difficult to deal with, e.g. Shell, Total, Halliburton, etc. They also tend to disregard GFAs where they do exist" (NUPENG, 2019).

"The number of unionised workers has declined since the privatisation of the electricity company in Nigeria. It also resulted in the increased number of casual workers – increasing employment insecurities" (NUEE, 2019).

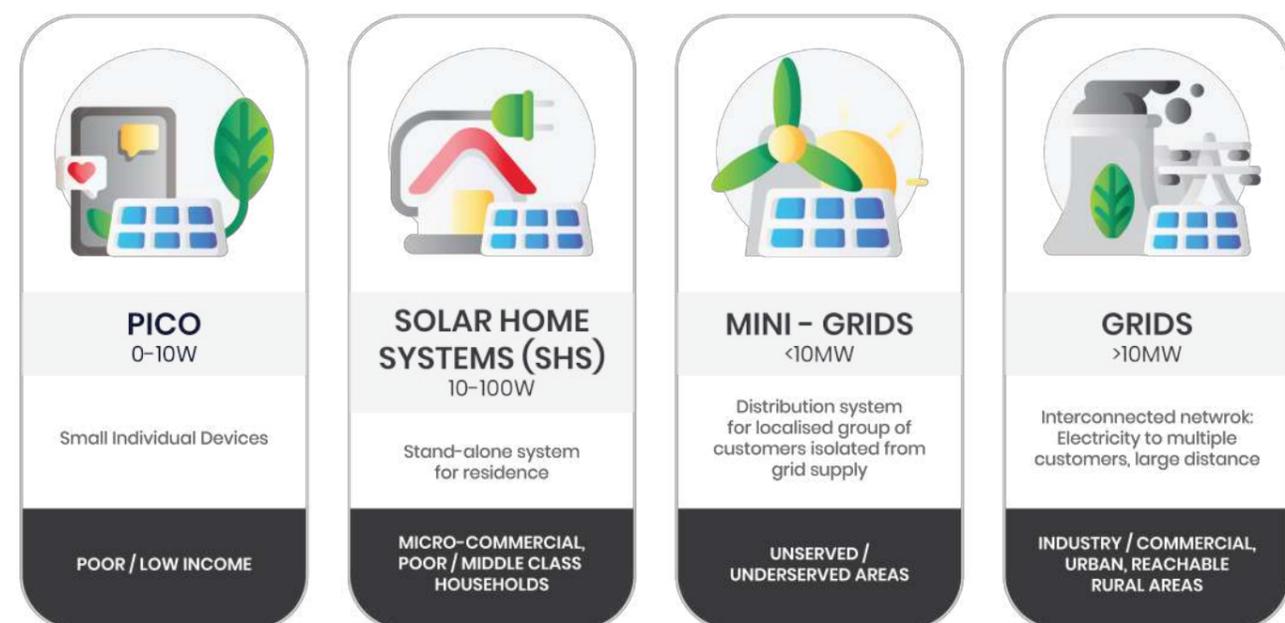
This research would subsequently like to suggest that public-community partnerships receive more attention within the SSAEN Network. It is not to imply that community or worker ownership models do not have their own challenges. It is rather suggested that these challenges should be explored to see if there is not a way that public-community ownership models with union involvement can deepen the democratic ownership of energy.



DECENTRALISED COMMUNITY AND WORKER OWNED ENERGY SYSTEMS: CHALLENGING OPPORTUNITIES WITHIN A JUST TRANSITION

Local energy solutions are becoming more predominant across the globe. Mini-grids represents one such solution where energy production is located away from a centralised source to have energy produced locally. The figure below illustrates the location of mini-grids among smaller and larger energy production options.

Figure 18: Renewable technologies expand electricity access options



Source: Corfee-Morlot et al. (2018)

Decentralised energy systems can be connected to the main energy grid or function independently. Off-grid energy systems offer the advantage that it will diversify the energy profile within a country and provide more climate-resilient options. The choice of which to use will be context-dependent.

The IEA (2014) uses the example of Nigeria and Ethiopia to illustrate such contextual considerations. In Nigeria, with a 200 million and higher population density, mini-grids connected to the existing grid can be considered. On the other hand, in a country like Ethiopia with lower density numbers and rural populations located far from existing grid infrastructure, off-grid solutions will be more appropriate. The case study below provides an example of an existing decentralised system in Ethiopia.

CASE STUDY 21: Ethiopia off-grid hybrid power system for remote villages

“The Grand Ethiopian Renaissance Dam (GERD), which is currently under construction, is expected to be the largest hydroelectric dam in Africa and to generate 6,450 MW of electricity at full capacity. In 2018, the Federal Government of Ethiopia launched the National Electrification Program (NEP), a comprehensive plan to reach universal access to electricity by 2025. The GE off-grid hybrid power system is ideal for remote villages and hard-to-reach operations but can also provide increased reliability when grid supply is inadequate. In Ethiopia, the scalable microgrid system powered by a Hybrid Distributed Power unit provides reliable, sustainable and cost-effective power to 1,500 inhabitants of Digo Village, powering a health clinic, school, administrative offices and homes. GE’s Hybrid Distributed Power combines PV solar panels, batteries, and a diesel generator to provide reliable, cost-effective power to a mini-grid system.” (General Electric Company, 2019:14).

The challenge with such decentralised systems is that they are often privately run. There does, nevertheless, exist a strong case for community ownership models in SSA. Decentralised energy grids present an opportunity to reach rural communities that were previously outside of the reach of the energy grid. Mbirimi (2017) shares his optimism regarding decentralised energy systems in the following statement:

“For example, decentralised power provision is often viewed as a short-term measure to be exploited only when there are gaps in the energy system, instead of a viable option for expanding electricity provision to populations scattered in rural communities across the country” (Mbirimi, 2017:11).

Various studies have illustrated the benefits mini-grid energy systems can bring to a community. An example of such a study conducted in Kenya is given below.

CASE STUDY 22: The positive impact of a community-based electric micro-grid in rural Kenya (Mpeketoni Village)

“Through a detailed case study analysis of a community-based electric micro-grid in rural Kenya [Mpeketoni Village carried out during June–August 2005], we demonstrate that access to electricity enables the use of electric equipment and tools by small and micro enterprises, resulting in significant improvement in productivity per worker (100–200% depending on the task at hand) and in a corresponding growth in income levels in the order of 20–70%, depending on the product made. Access to electricity simultaneously enables and improves the delivery of social and business services from a wide range of village-level infrastructure (e.g., schools, markets, and water pumps) while improving the productivity of agricultural activities. We find that increased productivity and growth in revenues within the context of better delivery of social and business support services contribute to achieving higher social and economic benefits for rural communities. We also demonstrate that when local electricity users have an ability to charge and enforce cost-reflective tariffs and when electricity consumption is closely linked to productive uses that generate incomes, cost recovery is feasible” (Kirubi, Jacobson, Kammen & Mills, 2009:1208–21).

While it is beneficial to highlight the various positive impacts that mini-grid energy systems can bring to a community, it is dangerous not to acknowledge the challenges associated with such approaches and systems.

The Mali Multifunctional Platform (MFP) is a very good example of an off-grid energy project in SSA. Although based on diesel-powered off-grid energy, the project reached hundreds of villages and thousands of people. The case study below provides extremely valuable lessons with regards to similar public-community partnerships.

CASE STUDY 23: A female-run, off-grid diesel energy platform that reached hundreds of villages in Mali: achievements and challenges

“The Mali Multifunctional Platform (MFP), a government-managed, multilaterally sponsored energy program that distributed a small diesel engine attached to a variety of end-use equipment, expanded access to modern energy services and raised village incomes from 1999 to 2004. Over this period, it successfully distributed more than 500 MFPs throughout Mali, and in doing so empowered women, improved educational opportunities, and enhanced food security and community cohesion. The MFP has also motivated the government to install 1800 such platforms by the end of 2012.

Yet a number of factors have constrained the government’s attempts to provide energy services. As of 2010, AMADER signed concessions with 80 private sector operators, but these operators reached only 180 villages out of thousands.

At least four things, apart from the functionality of the platform, make the MFP distinct from other energy development projects.

First, the government adopted a “softly, softly” approach, minimizing public involvement and relying on communities and local women’s groups to take charge of implementation. Second, the financial model of the MFP was based on cost-sharing: the project provided grants of up to \$2500 for platforms and as much as \$10,500 for mini-electric

grids or water networks. Women's groups, however, and communities were expected to finance 40 to 60 percent of equipment costs for platforms, and assume responsibility for depreciation, maintenance, salaries, and operation.

Third, the MFP targeted women. Instead of asking communities to request MFPs, the strategy was to seek out women's associations and include their participation as a condition of ownership. Fourth, and most importantly, the MFP embraced an eight-stage sequential model that involved feasibility studies, training, monitoring, and evaluation...

In 1999, during the first year of the MFP's nationwide operation, the government installed 48 platforms and trained 240 people on how to operate them. The program also educated 47 male artisans in mechanical and electrical installation, welding, and maintenance. By June 2001, the program installed 149 platforms, benefiting about 100,000 women. By the time the program finished in December 2004, 514 platforms were installed, which exceeded the program's target. These platforms represented a \$10 million investment and served an estimated half a million women or 5 percent of the entire rural population, mostly in the Southern regions ...

Based on the MFP in Mali, other West African countries including Burkina Faso, Ghana, Senegal, Guinea, Niger, and Togo have all started their own national programs, collectively providing energy services to 3 million people. The MFP in Mali has empowered women by lightening their workload, improving the efficiency of water collection, and enabling their participation in the local economy. The platform also gives women more choices in determining how they use their time. This often has the effect of making their previously invisible efforts visible to men, enabling them to gain recognition and social standing. Women become more literate, refine their bargaining and negotiating skills, and learn to conceive and implement business plans through the MFP approach. As one study concluded, "the creation of a decentralised energy enterprise owned and managed by women can generate strong dynamics for structural transformation in a setting where land and agricultural-based assets are primarily owned by men and tasks are performed by women as unpaid obligations to men".

Notwithstanding the aforementioned five benefits, this section presents five sets of interconnected challenges identified by our respondents and the literature: idleness and maintenance, policy coordination, poverty and financing, dependence on imported fuels and technology, and patriarchy.

MFPs are more complicated and more difficult to operate than ordinary diesel generators, solar home systems, or microhydro dams. Most AnilRhino, and Lion motors are "robust" enough that they continue to operate despite this poor maintenance, but the assessment concluded that "very few villages practice preventative maintenance." Parts are often replaced only after they break, and in some cases, repair costs of poorly managed systems can offset gains in income.

One independent evaluation team visited all 514 MFPs in Mali one year after the project ended and noted that roughly one-quarter were non-functional. The endemic and widespread nature of poverty in Mali does make it difficult for platforms to generate incomes. Most local markets, for example, have "limited scope for revenue growth" given that their customers are "extremely poor".

One of our participants also commented that "it is difficult for some villages to afford an MFP even though they could benefit from one." Both the diesel generator and the diesel fuel that runs most MFPs in Mali must be imported and the generators often from India and the fuel from Mali's neighbours. The underlying lesson here is that energy access projects work best when they couple that access with productive uses, income generation, and elevating the social and economic status of underprivileged groups. Even though the technology in some cases may have been "wrong" since MFPs depend primarily on diesel fossil fuel, the approach at delivering it, and focusing on things like cost-sharing, governance, gender, and empowerment, was "right." The MFP demonstrates the utility of starting with feasibility studies and piloting phases before scaling up to the national scale.

As one assessment has explained, "the participatory and feasibility study helps each village define the components of its platform on the basis of its priorities and its technical and financial capacities. It also helps the project identify specific baseline indicators (economic, technical, and social) for each community".

One of our other respondents commented that the MFP was so successful because it was implemented with a "complementary educational program so people can both learn about the MFP and how to maintain it, and also learn about business models and how the economic gains derived from the MFP can improve their lives."

Another implication of the MFP is that there is an alarming number of non-functioning platforms within Mali, roughly one quarter as of 2005. This may imply that one of the supreme challenges in decentralising energy access away from national utilities and private companies to villages in the process of decentralisation itself. In order for the MFPs to work, women's groups need to perform preventative maintenance and possess the acumen to realize when repairs are needed; mechanics need to be able to service platforms; spare parts need to be available, and local clients need to demand energy services. A kink in any one of these chains could result in a non-functioning platform... (Sovacool, Clarke, Johnson, Crafton, Eidsness & Zoppo, 2013:115-125).

The Mali MFP example is based on a diesel-powered off-grid energy system. Similar renewable energy projects will automatically overcome some of the challenges identified, such as the cost of diesel.

In this example, private sector operators were used to provide the energy systems but did not achieve their targets. Worker cooperatives could be considered to fill this role in other models. The case study further crucially illustrated how social ownership, and female ownership, can overcome gender imbalances. As an objective of a just transition, this is a very central point for consideration.

Women and communities were expected to finance 40-60% of the equipment cost. Given the high levels of poverty, unions with their investment arms can play a role and ensure their involvement in such projects. While the aim of this project was to decentralise energy away from national utilities, we argue that a more combined approach with public-community participation can be considered.

Another example leaning more towards a public-community partnership is given in the off-grid mini-hydropower example in Tanzania. In this case, a community-based utility was developed to run the energy system, but the authorities were invited to sit on the board and invest in the power utility. This example likewise provides insights into how worker cooperatives could possibly operate.

CASE STUDY 24: Off-grid mini-hydro power in the Ludewa District, Tanzania run by a community-based utility LUMAMA

"In this article, we are concerned with access to electricity for poor people in East Africa and specifically study a case of rural electrification using off-grid mini-hydropower in Tanzania. The hydropower system of 300 kilowatts (kW) was built by an Italian non-governmental organisation (NGO) in partnership with the local church and funded by international and national donors.

We focus our discussion on a few aspects that previous research highlight as prerequisites for sustainable small-scale energy systems in poor rural areas: achieving economic viability, a high degree of local participation and development of local expertise. The most important overall factors that make these goals hard to achieve are rural poverty and poorly developed rural economies and markets. These factors result in low demand for electricity services, slow development of economically productive electricity use and a weak customer base. For private and commercial entities, economic viability includes recovering investment costs and making a profit. For donor-funded, non-commercial initiatives, cost recovery is not necessary, and economic viability is defined as covering the costs of operation, maintenance and, in this case, future reinvestments.

Our aim is to explore the process whereby a donor-funded off-grid electrification project using renewable energy, implemented by an international NGO, translates into an organizationally and economically viable local utility, and a growing local economy.

One important critique directed toward NGO-led development in recent years is related to NGOs' dependency on donors. The literature argues that this dependence risks placing NGOs in a patron-client relationship with donors, where the activities and interventions are more or less donor-driven.

The debate over the role of NGOs in development also speaks to a general debate on issues of ownership and results-based management. While ownership by states over their national development agendas is being widely promoted within the new global aid architecture, there are growing concerns that foreign actors still determine much of the development agenda. That is, the emphasis on ownership has, in some instances, been shown to be difficult to combine with donor priorities, especially since donors face increasingly strict demands from their own governments or funders.

Rural electrification in Ludewa District, Tanzania, Tanzania's Southern Highlands, has a temperate climate and hydrological conditions suitable for the development of small-scale hydropower systems. There are many non-profit



hydropower installations, in areas where the national grid does not reach, owned and operated by local churches or community organisations. There are also some pico-hydropower installations developed by local entrepreneurs. The initiative to build a mini-hydropower system in the Kisongo river basin in Ludewa District came from the local church to the diocese in the neighbouring region of Njombe, Tanzania. The diocese contacted the Italy-based international development cooperation organization ACRA-CCS (at the time ACRA-Cooperazione Rurale in Africa America Latina) and asked them to help find funding and carry out the implementation.

... ACRA-CCS wanted the hydropower plant to be owned by the communities themselves. Therefore, in 2009, a community-based utility was created under the Tanzanian legal framework for NGOs. The utility was named LUMAMA after the initials of the three villages connected; ownership of the electricity system was handed over to LUMAMA in 2010.

Toward the end of the first phase of the project, ACRA-CCS identified a number of threats to the sustainability of the plant: the construction was not fully completed according to plan, and the average consumption was only around 40 kW; LUMAMA revenues were not sufficient to cover the costs of operation and maintenance or of depreciation costs. Organisationally, LUMAMA did not have enough capacity to manage the service efficiently and independently.

These challenges were addressed in the second phase of the project. The 'logic' by which ACRA-CCS worked through the second phase was to build on what had been achieved in the first phase and expand it. ACRA-CCS raised new funding from multiple donors, which made it possible to undertake a range of activities in parallel. Thereby, the NGO could finalise planned construction and then expand the grid to reach more customers and communities. It could also build local management capacity and work with communities to find solutions to challenges. The electrification scheme expanded to include activities in education and health because the NGO reasoned that electricity connection for public services such as schools and healthcare institutions would result in a long-term positive impact on the quality of life in the area. Other components focused on natural resource management, agriculture, business development and water provision.

Only by working together with individual villagers, community groups and LUMAMA, as well as government authorities at multiple levels, could ACRA-CCS drive the project in the desired direction. In order to achieve this, the first priority was to finalise the construction and establish enough connections to reach a certain level of income for LUMAMA from the electricity fees. In order to raise capital for future investments, a number of tree plots for timber production have been established as LUMAMA property.

...connection fees represent an important barrier for most rural customers; they were requested only to cover the cost of internal wiring. The typical cost of connection is 180,000 Tanzanian shillings (TZS) (about 80 Euros), and this investment was made easier by a credit scheme for customers, set up in the first phase. The other main priority in phase II was to build the managerial and organisational capacity of LUMAMA, in order to create real ownership and a sense of local responsibility... To strengthen LUMAMA, ACRA-CCS provided a management expert to work closely with the local utility and to sit in weekly meetings with the staff.

The NGO also provided training, for example on management and administration, accountancy and good governance (with emphasis on the principles of transparency and non-corruption). The technicians, the manager and the accountant are all villagers who live in the area. They have been recruited and trained, and are appointed by the LUMAMA board. Over time, they have developed the skills necessary to manage the system on a daily basis.

ACRA-CCS assisted LUMAMA in developing the organisational structure and adapting the organisation's regulation to accommodate the growing number of customers. The regulation secures democratic decision-making and prevents political leaders from gaining positions of leadership in LUMAMA. All customers are LUMAMA members and are perceived by the staff and board as shareholders in the hydropower plant and distribution grid. Also, ACRA-CCS worked to ensure the support of district government and the church partner by giving them positions on the utility board. It can be seen as a deliberate attempt at encouraging powerful institutions to invest in the continuation of the energy system and the survival of the local utility.

In terms of cost, the project has been expensive. Total cost amounts to about D 6 million, for a system of 300 kW capacity. Off-grid electrification of poorer areas requires public investment or donor funds; return on investments is not an option unless the system can sell excess electricity to a large customer – preferably the national grid. But the Mawengi case shows that even off-grid systems can become economically viable in terms of covering the cost of operation and maintenance after a few years." (Ahlborg & Sjöstedt, 2015:20-33).

A key insight given in the Tanzanian example is the high level of investment that is required to launch decentralised projects. In this case, donor funding was secured through an Italian NGO. Within the SSA context, characterised with high levels of poverty, covering the operating costs after installation can pose a challenge. The examples given show that in poor communities reliant on seasonal incomes, initial revenues are not high enough to make the projects self-sustainable. Mbirimi (2017.) supports such arguments and states that within rural communities, they will likely not be able to pay the necessary connection costs for renewable energy grids. In the Tanzania example, timber production was initiated for additional income, and it was found that with time, off-grid projects can, in fact, become economically viable.

Another important factor to take from this example is that time and resources are required to build the necessary local expertise necessary to manage an off-grid system efficiently and independently. It consequently poses questions regarding the willingness of communities to drive such projects. In the example of Hvide Sande Wind Farm in Denmark, the move to community ownership was in fact driven by the community who opposed the privatisation of renewable energy.

CASE STUDY 25: Hvide Sande Wind Farm in Denmark: a non-profit community cooperative owned energy project

"The Hvide Sande Wind Farm in Denmark is a good example of a non-profit community energy project. The project is 80% owned by the Hvide Sande Community Foundation, a charitable foundation, while the remaining 20% is owned by 400 local cooperative investors, as required by Danish law. All profits derived from the development (which are estimated to be approximately ZAR 18 million per year) are retained and invested in local projects which are democratically decided upon by local residents. What is important about the Hvide Sande project is that it grew out of resistance to private, developer-led, RE projects as expressed in the other forms of ownership as set out above. Analysts have described a "resistance spirit" within the local community which is more concerned with the principles of "welfare and the common good" than a return on profits.

Municipalities have also played a role in investing directly in community energy projects, thus alleviating the need for projects to seek private financial assistance. For example, the Middelgrunden Windfarm in Denmark is 50% owned by the Copenhagen municipality and 50% by a local cooperative" (Overy, 2018:11).



Running independent power plants takes time and energy, and communities struggling to survive will have more pressing needs than a community in Denmark. Communities in SSA would not necessarily want to be involved in running complex energy systems. Social dialogue and participation processes would assist in predetermining the level of willingness. The high levels of unemployment and physical constraints of living without energy could motivate communities to get involved. Awareness campaigns could assist in this regard.

What is further striking of the Denmark example is that the local municipality owns 50% of the wind farm and the local cooperative the other 50%. One of the concerns with decentralised community-owned projects is the effect thereof on municipal income. There is an argument that renewable energy could lead to municipal budget cuts. In South Africa, the sale of electricity purchased from Eskom can amount to as much as 25% of the municipal income (Overy, 2018). Various arguments need to be considered within this context. The first is that communities with mini-grids within reach of the national grid would want to sell their electricity to the municipality. The municipality could thus still make an income from electricity.

The source from which they purchase could just change (Overy, 2018). The second argument directly speaks to the SSA context. As part of one of our ten just transition arguments, we discussed the extent to which individuals have moved to using electricity generators rather than being dependant on the unreliable national electricity provision. ENERGIA (2019) explains that due to the large number of customers that have already abandoned the grid for reliable alternative resources, the move to renewable energies will be less severe. Others feel that decentralised energy systems would, in fact, take pressure off municipalities and make resources available for other much-needed areas:

“Municipalities have a strong business case for developing mini-grids. Municipalities in South Africa have a mandate for service delivery, including energy provision and electrification for populations between 75,000 and 5 million. Mini-grids ease budgetary strain for municipalities by enabling the development of local industries and create jobs, as well as poverty alleviation and sociological development.

Where and when a mini-grid is ultimately connected to the grid, it will be the primary provider of electricity locally. This will reduce the local demand for grid electricity, and decrease budgetary pressure on municipalities to subsidise low-income households beyond 50 kWh/household/month. This will also reduce the amount of grid infrastructure that the municipality must build to connect new customers” (Curnier et al., 2017).

While these could be convincing arguments, Skinner (2015) is more cautious regarding the impact of customers leaving the grid. The author writes within a global context and argues that if more people leave the grid, the cost of maintaining the existing grid will increase for service providers and the remaining customers will have to carry the increasing costs. While this may be true, the context will once again be the determining factor. In SSA, decentralised energy systems will bring a solution to areas previously outside of the reach of the grid infrastructure. There will be no existing income for municipalities to lose. In other instances, models such as the Denmark example are relevant where municipalities step into a partnership with cooperatives.

COOPERATIVES AND COMMUNITY OWNERSHIP: DEMOCRATISED OWNERSHIP OR DISTRIBUTED FORMS OF PRIVATE OWNERSHIP?

Community ownership would, in many cases, be in the form of cooperatives or community trusts. Angel (2016) describes energy cooperatives as follows:

“Energy cooperatives are companies governed by their members: individuals who invest in the co-op to fund new renewable energy production, or (less commonly) consumers who buy power from the co-op. Energy generated is usually sold back to the national grid, although the possibility for local energy markets is now opening up.

In countries where community energy has flourished, this has largely been due to “Feed in Tariffs” (FITs): subsidies to offer co-operatives a generous rate for the energy they sell to the grid... Energy cooperatives are rapidly multiplying across the globe, allowing millions of people to become active producers of the energy they use” (Angel, 2016: 13).

Cooperatives could also operate separately from the national grid. Regardless of their physical location, there are various challenges associated with cooperative ownership. Membership is limited to those who can afford it, and they operate for profit and benefits. Both tend to remain within the membership as described below:

“In reality, many community-based models, even when initiated by communities themselves, do not meet the requirements of a transformative JET [Just Energy Transition]. For example, while there are approximately 1 000 renewable energy cooperatives in Germany, the majority simply return profits from RE developments to investors from within communities.

This is also the dominant model in the United Kingdom, and in Denmark, home to over 6 300 cooperatively owned wind turbines. The benefits of ownership are generally not broadly shared among community members, but enjoyed by cooperative members, largely as payments or reduced energy costs” (Overy, 2018:11).



The author provides similar views to community ownership in general:

“Many community-owned RE developments represent little more than distributed forms of private ownership with membership restricted to those who can afford to purchase shares. IRENA argues that an “overly fluid” definition of community energy contributes to this problem, enabling commercial developers and individuals wishing to invest to make spurious claims about community involvement to lend legitimacy to new projects. This speaks directly to how communities are defined. It is clear that many projects generate local income for some individuals and groups, but that is a very different outcome to projects which generate income for local communities” (Overy, 2018:12).

The size of cooperatives and their members can be immense. In Germany, for example, there more than 800 renewable energy cooperatives operating with 200 000 members. The CRELUZ project in Brazil also has as much as 20 000 cooperative members as described below.

CASE STUDY 26: CRELUZ member-run co-operative in the state of Rio Grande do Sol in Brazil

“Another example the CRELUZ member-run co-operative in the state of Rio Grande do Sol in Brazil. This cooperative, which was formed in 1999, has 20 000 members and runs six small hydroelectricity plants (a total of 4 MW). It states that its primary aim is to supply electricity to all who need it. The cooperative generates and sells its own electricity to its members and returns all its profits into building more generation capacity, local economic development projects, and to provide free electricity to those who cannot afford to pay. The cooperative provides 600 families with free electricity and employs 87 people who are provided with health insurance, transport, food and extensive training opportunities. In addition, it has a sliding tariff scale through which wealthier users subsidise poorer families” (Overy, 2018:11).

The CRELUZ example shows how benefits can be fairly distributed through, for example, free distribution to poor families. The fact that cooperatives could try to keep benefits to themselves combined with the high number of members calls for a regulatory or representative body such as unions. Cooperatives are not democratically elected, but there is a window to explore unions presence and participation (Benton-Connell, 2015). These are dynamics that should be further explored. Unions could be threatened with losing membership through a move to renewable energies. It is thus necessary to find ways to ensure their involvement and be the voice of those possible unprotected in new forms of ownership.

THE WAY FORWARD: FURTHER RESEARCH, DEVELOPING INDICATORS AND UNION TRAINING

AREAS FOR FURTHER RESEARCH

The research identified the following two key areas for further research to strengthen SSAEN's approach to a just transition in SSA:

UNION INVOLVEMENT IN COMMUNITY OR WORKER PROJECTS AND COOPERATIVES

Socially owned energy systems can be embodied in different formats. COSATU in South Africa has demanded that "the RE [Renewable Energy] sector should be "state-owned", and that the state should fund the establishment of worker-owned energy cooperatives" (Overy, 2018:19). Whether cooperatives will be community or worker-owned will depend on the context. Off-grid energy systems in rural areas will be better suited for community ownership. Local expertise and maintenance capabilities will, however, have to be developed to bridge the spatial divide. Worker cooperatives could, for example, better take over the role of IPPs in the energy sector. Benefits will thus be equally shared among workers. We would like to suggest that further research is conducted into the way in which a combination of worker and community cooperatives can be developed with unions presence. Unions can have an increased presence in the energy sector through, for example, investing into cooperatives or accessing finance on behalf of communities or workers. These are all dynamic that deserves greater attention and research.

THE FUNDING OF A JUST TRANSITION

The funding of a just transition is a complex area but of crucial importance. In 2015 the cost of achieving universal energy access was estimated to be around USD 20 billion (APP, 2015). In terms of financing a just transition, carbon taxes, fossil-fuel subsidy reforms, and a just transition fund are some examples that need further unpacking. It is estimated that governments spend as much as 1.3% of national budgets to subsidise energy utilities in the region (APP, 2015). In the Defining a Just Transition Survey (2019), 23% of unions said that fossil-fuel based energies are subsidised in their country while 18% said that the government would like to remove these subsidies. A reform of fossil-fuel-based subsidies will make resources available that could be allocated towards other much-needed areas:

"By reforming fossil fuel subsidies, there is a dual benefit in that economically, and environmentally unsustainable financial supports are removed, while fiscal space is created that can then be invested in areas that support the transition. This can include investments in communities or infrastructure, as well as direct financial supports for workers. Fiscal space can also be used to invest in the social safety net, which will be critical for those facing unemployment as a result of transition" (IISD, 2018:15).

Case studies conducted in Ghana, Egypt and Senegal, however, show that fossil-fuel subsidies will have to be approached carefully to avoid civil uprise (IISD, 2018A & GSI, 2010). Communicating and illustrating the positive impacts of suggested reform will be critical to its success.

In line with IndustriALL's demands, unions should also advocate for the development of a Just Transition Fund in their respective countries:

"In addition, IndustriALL demands that companies and governments commit themselves to create an adequate Just Transition Fund, to be co-directed by representatives of relevant trade union organizations, and used for the preservation and creation of sustainable industrial jobs, and to supplement strong social protection programmes with comprehensive and creative labour adjustment programs for the workers affected, in order to preserve today's industrial capacity and build tomorrow's" (SSAEN Concept Note, 2019:2).

The fund can be ringfenced to ensure the implementation of market adjustment programmes, protection of communities, social protection provision, financing of decentralised community projects and economic diversification (Smith, 2017). China, for example, has dedicated USD 15 billion to deal with job losses in the coal industry (IISD, 2018A). It is not yet known if this amount will be enough to cover the cost of the transition.

It is thus suggested that further research is conducted into possible business models within a just transition as the research has shown the high associated costs. The direct participation of unions, including their investment arms, in the energy sector, should also be further explored.

DEVELOPING JUST TRANSITION INDICATORS

The development of progress indicators will depend on the existing status quo in each SSA country. Negotiated indicators give unions something to which the government and the private sector can be held accountable. An example of an indicator is that it is only 20% of the population at the time had access to clean cooking facilities; a target can be set to reach 100% by a set time. For example, 50% of the population must have access to clean cooking facilities by 2030 and 100% by 2040.

Given the findings of the research, the overarching indicators in any country should be along the following lines:

- Long-term goals to reach a zero-carbon economy.
- Establish a publicly governed energy system.
- Widening access to energy OR universal energy to access for all.

A further overarching indicator relates to the collection of data and conducting thorough impact assessments to plan for a just transition.

To highlight a few, impact assessments and data are required within the following areas:

- Energy potential (renewable energy potential, location, decentralised production etc.).
- Assess fossil-fuel dependency and transition readiness.
- Infrastructure (existing and future needs).
- Jobs (current profile and future demand).
- Communities needs and opportunities for economic diversification.
- Gender.
- Local manufacturing potential.

From a socio-economic perspective, the following can be included as progress indicators:

- Housing provision.
- Health services.
- Clean cooking facilities.
- Education.
- Access to services.
- Leisure and well-being.
- Social security.

Socio-economic indicators can be guided by broader frameworks such as the Sustainable Development Goals. With regards to the protection and development of decent jobs, the indicators such as the following will be applicable:

- Union recognition.
- Percentage of permanent jobs compared to temporary and precarious jobs.
- Number of unfair dismissals (goal should be zero).
- Development of market adjustment programmes.
- Jobs lost during the transition (goal should be zero).
- Number of new jobs created.
- Number of workers trained.
- Number of workers reskilled.

To ensure adequate social dialogue, indicators regarding the establishment of a Just Transition Task Team/ Council/ Forum and the development of participatory social dialogue platforms will be relevant.

The following plans and policies are of great importance:

- Employment risks and just transition plans.
- Management of climate risks assessments and policies.
- Decarbonisation plans.
- Gender mainstreaming policies.

Unions should also develop internal indicators through which they can monitor their own progress. Some examples of such indicators are the following:

PHASE 1: Internal knowledge development:

- Familiarisation with the just transition definition and justifications.
- Develop a solid basis of knowledge regarding a low carbon energy transition, technology transition and the needs of women.
- Apply knowledge within the context that you are located.

PHASE 2: Membership participation and policy development

- Engage members and facilitate the sharing of knowledge.
- Finalise internal just transition approach or policy document.

PHASE 3: Solidarity network development:

- Develop a just transition communication strategy focusing on jobs, but also broader issues such as universal energy provision, poverty alleviation and the needs of the vulnerable.
- Conduct stakeholder mapping exercises.
- Approach the identified stakeholders.
- Establish just transition solidarity networks.
- Identify just transition champions.

PHASE 4: Make demands

- Finalise and make just transition demands.
- Inclusion in government policy development.

PHASE 5: Way forward:

- Continuous adaptation, monitoring and evaluation.

Although indicators could come across as over-ambitious, it does give all stakeholders something to work towards. What is key, is that each union develop indicators according to the context and needs in their countries.

UNION RESEARCH, TRAINING AND KNOWLEDGE BUILDING

The continues capacity building and training in unions are essential. An example taken from the oil and gas phase-out in New Zealand shows how unions place a just transition on the political agenda through building the capacity of union members and leaders. What was central to achieving this is enabling “workers, delegates, and shop stewards to drive the debate about

just transition. The unions should have a clear position on how just transition should be implemented in our societies and for working people. If workers have the capacity to drive that debate, it not only gives a voice to working people. We will also develop a leadership cadre of workers who can support their colleagues through the transition” (Just Transition Centre, 2019:8).

CASE STUDY 27: Oil and gas phase-out in New Zealand: Unions place a just transition on the political agenda through building the capacity of union members and leaders

“Recently, the coalition government in New Zealand took an important step to address climate change and create a clean, green and sustainable future. They announced that they would stop issuing new licenses for offshore oil and gas exploration, leading to a phaseout of the sector by 2050.

While a report earlier this year from the New Zealand Institute for Economic Research (NZIER) predicted job losses, lower incomes for skilled workers and a cut in living standards, the government, unions and communities have responded with a just transition national plan and a plan for the regions most affected.

Sam Huggard, General Secretary for New Zealand’s Council of Trade Unions (NZCTU) says that the union’s primary goal has been to put just transition on the political agenda. And in particular making sure that there is a plan to support workers through change collectively, rather than people being dealt with on an individual basis. As Huggard puts it, after campaigning to get support for just transition from political parties, business, NGOs, and government, they now have strong public support for a just Transition as the key response to climate change. The government has committed to just transition on a policy level and formed a Just transition unit. The unit’s primary focus is now to support the Taranaki region in New Zealand where much of New Zealand’s oil and gas industry traditionally has been based. Consequently, the Taranaki region is the region that is likely to be most affected by the government’s decision to phase out off shore oil and gas. The government’s main task therefore, is to come up with a transition plan to support the workers as the region, and the country diversifies away from the oil and gas industry.

As part of this process, the economic development agency of the Taranaki City Council has identified future opportunities for new jobs in industries such as clean energy, food and tourism. The transition to this future will, according to Huggard, have to be quick – since the government has already made a decision to end future permits for offshore oil and gas exploration.

Unlike other countries, New Zealand has a very poor record of active labour market policies and policies to support workers going through change. – It’s very much that you go to the local welfare office on your own and put your name on the job board, Huggard says. One OECD report last year found that workers in New Zealand shoulder the economic cost of change much more than workers in other countries. The policy of Just Transition, of course, is miles away from this approach. And the unions’ approach is to support workers collectively in the process of just Transition and make sure that burdens and benefits are shared in a just way. Given the starting point in New Zealand, the unions now have to work quite hard to get the need to ensure a plan to support workers through change high up on the political agenda.

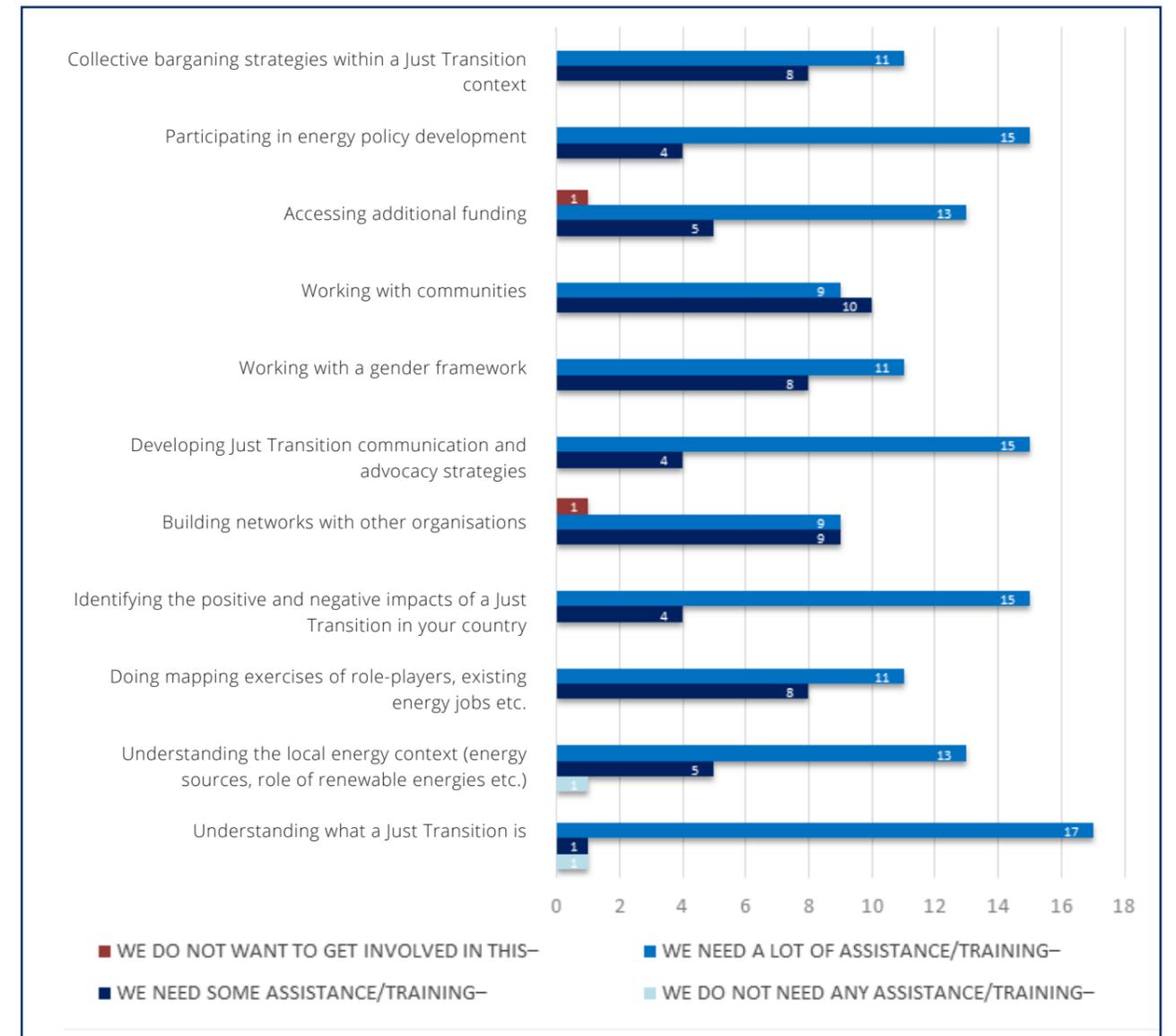
We should map out the skills and expertise of the existing workforce, and support the transfer of those skills and expertise to new industries with good-paying conditions and good terms on a collective basis, Huggard says. At the same time, the unions are focused on ensuring leadership by workers. The union is working hard to build up the capacity of member leaders, delegates and shop stewards in the oil and gas sector.

So how would you have a conversation about Just Transition and workers with an energy executive, or the city council or mayor, or with a community leader? Huggard gives this question as an example of what a shop steward in the oil sector needs to know when approaching the question of Just Transition on behalf of his or her members. Building up the delegates’ capacity to lead on the issue of addressing climate change and to be proud of the union’s role in creating a clean, green and sustainable future through Just Transition has been critical. NZCTU are therefore encouraging unions not only to support these discussions on the shop floor but also to build competence in union leadership, especially unions covering workers in the high carbon industry. The goal is to make sure leaders are well supported and trained to carry out this new leadership role with their members” (Just Transition Centre, 2019:7-8).

During the Defining a Just Transition Survey, 48% of unions indicated that they do not have an energy policy within their union. Only 8% said that they had a good internal energy policy based on a long-term vision. The reason for this lack of internal policy could be knowledge or resources. Mbirimi (2017:6) repeatedly explains how unions must “build a solid base of knowledge and understanding of the issues surrounding climate change

and transition to low carbon energy systems”. This research represents one step in a continuous process of research and training towards developing a solid base of just transition-related knowledge. The Defining a Just Transition Survey asked unions in which areas they would need assistance and training. The results are illustrated below.

Figure 19: In which of the following areas would your union need assistance and training?



Source: LRS Defining a Just Transition Survey (2019)

The survey results reconfirm the need for research studies such as these. While this study has given unions a broad just transition framework addressing some of their training needs, the next step will be to apply such knowledge within their own context and to start stimulating discussion.



Research and training require a lot of resources, both physical and financial. Unions are encouraged to invest in building their own knowledge base. In addition to unions' own internal resources, they have several options available. The first is to continue participating in the IndustriALL-SSA's SSAEN network and to be an active member. Unions have different levels of experience and knowledge. Sharing each other's successes and failures provides a golden opportunity for unions to learn about the implementation of a just transition in the region. The SSAEN just transition project is stretched over a number of years, and this report represents one of the first steps. During this process, it is important that affiliates and the network continue to support each other through information sharing. This is especially relevant where private sector energy providers have already entered the energy space. Unions need to continue to advocate for and demand the following:

- Demand union presence.
- Negotiate collective agreements that are pro-worker.
- Pressurise government to place set requirements and regulations for any private service provider wanting to enter the sector.
- Caution with regards to small decentralised power production plants. Such plants could also get bought up by large corporate companies which will take away any democratic ownership of the energy source.
- Create awareness among all affiliates regarding existing GFAs and ensure that they monitor their implementation accordingly.

The region is unique and will pose unique challenges that unions can overcome if they stand together. Investing in study tours, for example, could have various positive results. The second is linked to building country-specific knowledge and applying just transition principals in a unique context. Existing academic institutions, NGO's or civil society movements should be approached to form information and research networks. There is a great deal of existing knowledge within each country. Given the urgent need for a low-carbon transition, various international organisation are developing relevant just transition courses, training or online information portals. Unions can utilise such portals to increase their level of knowledge. Unions can approach organisations such as the International Federation of Workers Education Association (IFWEA) to develop training courses according to their own needs. Another option is to tap into local or international funding to support training and research needs. Unions should approach organisations with a clear indication of their human, organisational and financial needs.

Regardless of what route unions take, the value of knowledge and information within a just transition should always be remembered. A just transition is a broad concept and can at first be very intimidating. By breaking it into small steps, a better understanding will arrive with time. Unions are not alone when grappling with these issues and challenges. Reaching out to others with the same concerns will make the journey easier. Some days will be easier than others, but together we can help each other through the difficult parts and make this work.

CONCLUDING WITH A JUST TRANSITION DEFINITION FOR ENERGY UNIONS IN SUB-SAHARA AFRICA

This research report has provided unions with an overarching just transition framework. We hope that it will provide unions with practical tools and information they can apply to develop a better understanding of the term and how to approach it within their own countries.

A just transition entails not only workers within an energy transition but also communities and confronting the status quo. Based on the research findings and consultation process, we would like to conclude the report with the following working definition of a just transition for energy union in SSA:

A just transition in sub-Sahara Africa will create universal access to clean, reliable energies and improve the lives of millions of people. Social dialogue will form part of every step, and no worker or community will be left behind. Workers will have decent protected jobs with access to training and reskilling opportunities. Social protection will be available to all citizens, while communities will operate in diversified and viable economies. Energy will be democratised through public and social ownership with good governance principles. A just transition will dismantle interlinked systems of oppression. It will recognise the role women's unpaid and low-paid work has contributed to sustaining the status-quo and provide them with better opportunities. Within a just transition, challenges but also resources and opportunities will be equally shared for us to take care of each other.

A just transition can become an advocacy tool that governments, unions and communities can use to demand a fair and equal world for all. Although the broadness of the term can be overwhelming at first, it becomes easier to understand and utilise if broken up into smaller pieces. This research represented the first of such pieces through providing a justification for a just transition within the SSA context. It is our hope that unions will be able to use this information and familiarise their leadership, unions members, workers, communities and women with the notion of a just transition. Throughout this process, unions should never feel that they cannot raise difficult and uncomfortable questions. Themes such as broadening the forms of social ownerships are complex issues rarely implemented in the region. Only through open and honest discussions will the true viability of the suggestions made be known. There does not exist something like the wrong question. Unions are the most familiar with the situation in their countries and will be able to provide the most insight into what could possibly work and what would require resources that are just not available. SSAEN and the continued sharing of experiences and lessons will have a central role in a just transition for energy workers in SSA.

BIBLIOGRAPHY

1. Ahlborg H, Sjöstedt M. 2015. Small-scale hydropower in Africa: Socio-technical designs for renewable energy in Tanzanian villages. *Energy Research & Social Science* 5: 20–33. [file:///C:/Users/Mari/Downloads/1-s2.0-S2214629614001510-main%20\(3\).pdf](file:///C:/Users/Mari/Downloads/1-s2.0-S2214629614001510-main%20(3).pdf) Date of access: 1 Feb 2020.
2. AIDC. 2017. One million climate change jobs: moving South Africa forward on a low-carbon, wage led and sustainable path. <http://aidc.org.za/download/climate-change/OMCJ-booklet-AIDC-electronic-version.pdf> Date of access: 11 Oct 2019.
3. Angel, J. 2016. Strategies of Energy Democracy. https://www.rosalux.de/fileadmin/rls_uploads/pdfs/sonst_publikationen/strategies_of_energy_democracy_Angel_engl.pdf Date of access: 23 Oct 2019.
4. APP. 2015. Power, People, Planet – Seizing Africa's Energy and Climate Opportunities: Africa Progress Report 2015. https://reliefweb.int/sites/reliefweb.int/files/resources/APP_REPORT_2015_FINAL_low1.pdf Date of access: 25 Oct 2019.
5. AREI. 2016. Transforming Africa towards a renewable energy powered future with access for all: Summary Report. [file:///C:/Users/Mari/Downloads/arei_-_framework%20\(1\).pdf](file:///C:/Users/Mari/Downloads/arei_-_framework%20(1).pdf) Date of access: 2 Oct 2019.
6. Asia Pacific Forum on Women. 2017. A Feminist Interpretation of Just and Equitable Transitions in the Context of Climate Change http://apwld.org/wp-content/uploads/2018/10/2018_Just_and-Equitable_Transitions_briefer.pdf Date of access: 2 Oct 2019.
7. Avila, N., Carvallo, J. P., Kammen, D. M. & Shaw, B. 2017. The energy challenge in sub-Saharan Africa: A guide for advocates and policy makers <https://www.oxfamamerica.org/static/media/files/oxfam-RAEL-energySSA-pt1.pdf> Date of access: 2 Oct 2019.
8. Bacon, R. & Kojima, M. 2011. Issues in estimating the employment generated by energy sector activities http://siteresources.worldbank.org/INTOGMC/Resources/Measuring_the_employment_impact_of_energy_sector1.pdf Date of access: 2 Oct 2019.
9. Benjamin K., Sovacool B.K., Hook, A., Martiskainen, M., Brock, A. & Turnheim, B. 2020. The decarbonisation divide: Contextualizing landscapes of low-carbon exploitation and toxicity in Africa. *Global Environmental Change* 60, 102028 <https://www.sciencedirect.com/science/article/pii/S0959378019305886> Date of access: 1 Feb 2020.
10. 1Benton-Connell, K. 2015. Energy Cooperatives. Published in: POWER TO THE PEOPLE: Toward Democratic Control of Electricity Generation (TUED) <http://unionsforenergydemocracy.org/wp-content/uploads/2015/06/TUED-Power-to-the-Peoplefinal.pdf> Date of access: 23 Oct 2019.
11. Bischof-Niemz, T. 2019A. Opinion: Are there really more jobs in coal than in renewables? *ENGINEERING NEWS* https://www.engineeringnews.co.za/article/opinion-are-there-really-more-jobs-in-coal-than-in-renewables-2019-02-12/rep_id:4136 Date of access: 9 Sept 2019
12. Bischof-Niemz, T. 2019B. Opinion: If there are more jobs in renewables, why are coal miners so unhappy? <https://www.engineeringnews.co.za/article/if-there-are-more-jobs-in-renewables-why-are-coal-miners-so-unhappy-2019-03-08-1> Date of access: 9 Sept 2019
13. Bruederle, A. & Hodler, H. 2019. Effect of oil spills on infant mortality in Nigeria. *PNAS*, 116 (12) 5467-5471 <https://doi.org/10.1073/pnas.1818303116> Date of access: 1 Feb 2020.
14. COBENEFITS. 2019A. Economic prosperity for marginalised communities through renewable energy in South Africa: Assessing the co-benefits of decarbonising the power sector <https://www.cobenefits.info/resources/cobenefits-south-africa-prosperity/> Date of access: 14 Oct 2019.
15. COBENEFITS. 2019B. Future skills and job creation through renewable energy inSouth Africa: Assessing the co-benefits of decarbonising the power sector. https://www.cobenefits.info/wp-content/uploads/2019/03/COBENEFITS_SA_Jobs_Skills_Executive-Report_190322.pdf Date of access: 14 Oct 2019.
16. Corfee-Morlot, J., Parks, P., Ogunleye, J. & Ayeni, F. 2018. Achieving clean energy access in sub-Saharan Africa: A case study for the OECD, UNEP, World Bank project: "Financing Climate Futures: Rethinking Infrastructure" <https://www.oecd.org/environment/cc/climate-futures/Achieving-clean-energy-access-Sub-Saharan-Africa.pdf> Date of access: 9 Oct 2019.
17. COSATU. 2011. A just transition to a low-carbon and climate resilient economy: COSATU policy on climate change: A call to action https://www.sagreenfund.org.za/wordpress/wp-content/uploads/2017/05/Naledi_A-just-transition-to-a-climate-resilient-economy.pdf Date of access: 23 Oct 2019.
18. Creamer, T. 2019. Initial 'just energy transition' work points to need to cushion coal regions *ENGINEERING NEWS* <https://www.engineeringnews.co.za/article/initial-just-energy-transition-work-points-to-need-to-cushion-coal-regions-2019-07-03> Date of access: 9 Sept 2019
19. Curnier, B., Lane, J., Szewczuk, S., Walley, L. & Walley, L. 2017. Integrating off-grid solutions into South Africa's electrification programme: Carbon Trust and CSIR http://www.cityenergy.org.za/uploads/resource_426.pdf Date of access: 26 Oct 2019.
20. Elliott, C. 2019. WORLD RESOURCE INSTITUTE: Planning for a "Just Transition": Leaving No Worker Behind in Shifting to a Low Carbon Future <https://www.wri.org/blog/2019/03/planning-just-transition-leaving-no-worker-behind-shifting-low-carbon-future> Date of access: 9 Sept 2019.
21. ENERGIA. 2019. Gender in the transition to sustainable energy for all: From evidence to inclusive policies https://www.energia.org/cm2/wp-content/uploads/2019/04/Gender-in-the-transition-to-sustainable-energy-for-all_-From-evidence-to-inclusive-policies_FINAL.pdf Date of access: 29 Oct 2019.
22. Energy Research Centre. 2019. Socio-economic considerations for a Paris agreement-compatible coal transition in South Africa: University of Cape Town https://www.google.com/search?q=Socio-economic+considerations+for+a+Paris+agreement-compatible+coal+transition+in+South+Africa&rlz=1C1AVFB_enZA779ZA780&oq=Socio-economic+considerations+for+a+Paris+agreement-compatible+coal+transition+in+South+Africa&aqs=chrome..69i57.372j0j7&sourceid=chrome&ie=UTF-8 Date of access: 14 Oct 2019.
23. Fakir, S., Bole-Rentel, T. & Chireshe, F. 2019. <https://www.dailymaverick.co.za/article/2019-10-16-future-fuels-and-the-coming-ethanol-revolution-is-sasol-facing-technological-redundancy/> Date of access: 23 Oct 2019.

24. Federation Syndicate European. 2018. A GUIDE FOR TRADE UNION: Involving trade unions in climate action to build a just transition https://www.etic.org/sites/default/files/publication/file/2018-09/Final%20FUPA%20Guide_EN.pdf Date of access: 14 Oct 2019.
25. Gass, P. undated. In Search of Just Transition: Examples From Around the World <https://iisd.org/library/just-transition-examples> Date of access: 9 Sept 2019.
26. Gass, P. undated. In Search of Just Transition: Examples From Around the World <https://iisd.org/library/just-transition-examples> Date of access: 14 Oct 2019.
27. General Electric Company. 2019. Re-imagining the future of power in Sub-Saharan Africa https://www.ge.com/content/dam/gepower-pw/global/en_US/documents/regions/africa/Re-imagining%20the%20future%20of%20power%20in%20Sub-Saharan%20Africa_Digital.pdf Date of access: 9 Oct 2019.
28. Groundwork. 2018. Coal Kills: Research and dialogue for a just transition. http://www.groundwork.org.za/specialreports/Coal_Kills.pdf Date of access: 10 Oct 2019.
29. GSI. 2010. The global subsidies initiative untold billions: fossil-fuel subsidies, their impacts and the path to reform: Strategies for reforming Fossil-Fuel Subsidies: Practical lessons from Ghana, France and Senegal.
30. Halsey, R. 2018. REFLECTION PAPER - JUST ENERGY TRANSITION: Community ownership, Jobs and the future of Renewable Energy systems www.90by2030.org.za Date of access: 26 Oct 2019.
31. https://www.iisd.org/gsi/sites/default/files/strategies_ffs.pdf Date of access: 21 Oct 2019.
32. IEA. 2014. Africa Energy Outlook <https://wzestore.iea.org/weo-2014-special-report-africa-energy-outlook> Date of access: 9 Oct 2019.
33. IISD. 2018A. Real people, real change: Strategies for just energy transitions. <https://www.iisd.org/sites/default/files/publications/real-people-change-strategies-just-energy-transitions.pdf> Date of access: 2 Oct 2019.
34. IISD. 2018B. The Transformation of the Polish Coal Sector: GSI REPORT <https://www.iisd.org/sites/default/files/publications/transformation-polish-coal-sector.pdf> Date of access: 2 Oct 2019.
35. ILO. 2017. Third item on the agenda - Addressing the impact of climate change on labour: Governing Body 329th Session, Geneva, 9–24 March 2017 https://www.ilo.org/wcmsp5/groups/public/---ed_norm/---relconf/documents/meetingdocument/wcms_543701.pdf Date of access: 11 Nov 2019.
36. ILO. 2018. Employment and the role of workers and employers in a green economy https://www.ilo.org/weso-greening/documents/WESO_Greening_EN_chap2_web.pdf Date of access: 11 Nov 2019.
37. IndustriALL, 2019B Unions can shape the future of work in the Fourth Industrial Revolution. Fourth Industrial Revolution 4IR Global Labour University (GLU): Johannesburg, South Africa <http://www.industrialall-union.org/unions-can-shape-the-future-of-work-in-the-fourth-industrial-revolution> Date of access: 20 Nov 2019.
38. IndustriALL. 2019A. A trade union guide to a Just Transition for workers. <http://www.industrialall-union.org/a-just-transition-for-workers> Date of access: 11 Nov 2019.
39. IRENA. 2018. Renewable Energy and Jobs - Annual Review <https://www.irena.org/publications/2019/Jun/Renewable-Energy-and-Jobs-Annual-Review-2019> Date of access: 11 Nov 2019.
40. International Finance Corporation, 2018. Unlocking Private Investment: A Roadmap to achieve Côte d'Ivoire's 42 percent renewable energy target by 2030. <http://documents.worldbank.org/curated/en/566921532638485663/Unlocking-private-investment-A-Roadmap-to-achieve-C%C3%B4te-d-ivoire-s-42-percent-renewable-energy-target-by-2030> Date of access: 1 Feb 2020.
41. Just Transition Centre, 2019. Just Transition in action: Union experiences and lessons from Canada, Germany, New Zealand, Norway, Nigeria and Spain https://www.ituc-csi.org/IMG/pdf/191120_-_just_transition_case_studies.pdf Date of access: 1 Feb 2020.
42. Kirubi C., Jacobson A., Kammen D.M. & Mills A. 2009. Community-based electric micro-grids can contribute to rural development: Evidence from Kenya. *World Development* 37:1208–21. <https://www.sciencedirect.com/science/article/abs/pii/S0305750X08003288> Date of access: 1 Feb 2020.
43. Mbirimi, I. 2017. Future energy policy in Southern Africa: What role for trade unions? <https://library.fes.de/pdf-files/bueros/festucc/13750.pdf> Date of access: 2 Oct 2019.
44. Mustapha, H. 2019. Just transition and development: The role of trade unions in Nigeria. A presentation to the TU-OECD-DAC Forum Paris, 9 April 2019. Climate Change Coordinator, Nigeria Labour Congress. https://www.google.com/search?q=Just+transition+and+development%3A+The+role+of+trade+unions+in+Nigeria.&rlz=1C1AVFB_&nsition+and+development%3A+The+role+of+trade+unions+in+Nigeria.&aq=chrome..69i57.158j0j4&sourceid=chrome&ie=UTF-8 Date of access: 1 Feb 2020.
45. Ngwenya, P., Halsley, R., Davids, I. & Schubert, T. 2017. Southern African Catholic Bishops' Conference: Parliamentary Liaison Office: Briefing Paper 444: Ownership and a Just Energy Transition. <http://www.cplo.org.za/wp-content/uploads/2017/12/BP-444-Ownership-and-a-Just-Energy-Transition-Nov-2017.pdf> Date of access: 23 Oct 2019.
46. Overy, N. 2018. PROJECT 90 BY 2030: The Role of Ownership in a Just Energy Transition <https://90by2030.org.za/wp-content/uploads/2018/04/Just-Energy-Transition-The-Role-of-Ownership-in-a-Just-Energy-Transition.compressed.pdf> Date of access: 26 Oct 2019.
47. Pelz, D. & Bello, M. 2017. Nigeria: Oil spills lead to increased newborn mortality in the Niger Delta <https://www.dw.com/en/nigeria-oil-spills-lead-to-increased-newborn-mortality-in-the-niger-delta/a-41052670> Date of access: 1 Feb 2020.
48. Ranjan, R. 2019. Japan's Univergy to Invest \$200 Million in Zambian Solar Projects <https://mercomindia.com/japan-univergy-invest-zambian-solar-projects/> Date of access: 9 Nov 2019.
49. Rennkamp, B., Haunss, S., Wonga, K., Ortega, A., Casamadrid, E. 2017. Competing coalitions: The politics of renewable energy and fossil fuels in Mexico, South Africa and Thailand. *Energy Research & Social Science* 34 (2017) 214–223 <https://www.sciencedirect.com/science/article/pii/S2214629617302360> Date of access: 14 Oct 2019.
50. Rodriguez Acha, M. 2016. DISCUSSION PAPER Gender Equality & Just Transition: WEDO. <https://unfccc.int/sites/default/files/728.pdf> Date of access: 25 Oct 2019.
51. Scholtz, A. 2011. Living Planet Unit, WWF: A Discussion of systemic challenges for a just transition towards a low carbon economy http://awsassets.wwf.org.za/downloads/just_transitions_paper_with_refs.pdf Date of access: 21 Oct 2019.
52. Simmet, H. 2018. "Lighting a dark continent": Imaginaries of energy transition in Senegal. *Energy Research & Social Science* 40 (2018) 71–81. <https://www.sciencedirect.com/science/article/abs/pii/S2214629617304371> Date of access: 1 Feb 2020.
53. Skinner, L. 2015. Remunicipalization and Public Renewable Power. Published in: POWER TO THE PEOPLE: Toward Democratic Control of Electricity Generation (TUED) <http://unionsforenergydemocracy.org/wp-content/uploads/2015/06/TUED-.Power-to-the-Peoplefinal.pdf> Date of access: 23 Oct 2019.
54. Smith, S. 2017. Just Transition: A Report for the OECD. <https://www.oecd.org/environment/cc/g20-climate/collapsecontents/Just-Transition-Centre-report-just-transition.pdf> Date of access: 21 Oct 2019.
55. Sovacool B.K., Clarke S., Johnson K., Crafton M., Eidsness J. & Zoppo D. 2013. The energy-enterprise-gender nexus: lessons from the Multifunctional Platform (MFP) in Mali. *Renew Energy* 50: 115–25. <https://www.sciencedirect.com/science/article/abs/pii/S0960148112003758> Date of access: 1 Feb 2020.
56. SSAEN. 2019. Project Proposal IndustriALL SSA Regional Office Programme.
57. Strietska-Ilina, O., Hofmann, C., Haro, M. D. & Jeon, S. 2011. Skills for green jobs: A global view. Synthesis report based on 21 Country Studies. International Labour Office, Geneva. https://www.ilo.org/global/publications/ilo-bookstore/order-online/books/WCMS_159585/lang--en/index.htm Date of access: 1 Feb 2020.
58. Sweeney, S. 2015. Public Goods and Public Works Approaches to Energy Transition and Climate Protection. Published in: POWER TO THE PEOPLE: Toward Democratic Control of Electricity Generation (TUED) <http://unionsforenergydemocracy.org/wp-content/uploads/2015/06/TUED-.Power-to-the-Peoplefinal.pdf> Date of access: 23 Oct 2019.
59. TUED. 2012. Resist, Reclaim, Restructure: Unions and the Struggle for Energy Democracy <http://unionsforenergydemocracy.org/wp-content/uploads/2013/12/Resist-Reclaim-Restructure.pdf> Date of access: 10 Oct 2019.
60. TUED. 2016. UP FROM DEVELOPMENT: A Framework for Energy Transition in India <http://www.energy-democracy.net/?p=990> Date of access: 21 Oct 2019.
61. UNEP. 2017. Atlas of Africa Energy Resources. https://www.icafrica.org/fileadmin/documents/Publications/Africa_Energy_Atlas.pdf Date of access: 2 Oct 2019.
62. UNRISD. 2018. Mapping Just Transition(s) to a Low-Carbon World http://www.rosalux-nyc.org/wp-content/files_mf/reportjtrc2018_1129.pdf Date of access: 21 Oct 2019.
63. WoMin African Gender and Extractives Alliance. 2016. Women Building Power Towards Climate and Energy Justice for Women in Africa <https://womin.org.za/images/women-building-power/Women%20Building%20Power%20Paper%20Towards%20Climate%20and%20Energy%20Justice.pdf> Date of access: 25 Oct 2019.
64. World Bank. 2010. Biomass: Meeting Sub Saharan Africa's Energy Needs <https://www.worldbank.org/en/news/feature/2010/12/22/biomass-meeting-sub-saharan-africas-energy-needs> Date of access: 2 Oct 2019.
65. Worrall, L. Roberts, L. & Whitley, L. 2018. Enabling a just transition to a low-carbon economy in the energy sector Progress and lessons in Emerging Markets. HSBC Centre of Sustainable Finance by the Overseas Development Institute. <https://www.sustainablefinance.hsbc.com/reports/enabling-a-just-transition-to-a-low-carbon-economy-in-the-energy-sector> Date of access: 1 Feb 2020.

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