Powering Justice: Redefining a Just Energy Transition through a South African Lens

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"Many people in this country have paid the price before me and many will pay the price after me."

- Nelson Mandela

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I love you all very much

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Abstract

At present, the world is facing the wicked challenge of combating climate change and dealing with its pressing consequences. Considering that the energy system is contributing significantly to the total greenhouse gas emissions, it is acknowledged by the academic arena that it is of significant importance that the present energy system is undergoing a deep transformation. However, transforming a deeply entrenched fossil fuel dependent energy system is not straightforward and comes with many challenges. A country in which the energy transition is perhaps especially challenging is South Africa in which the electricity production is for 88% dependent on coal. Moreover, the energy transition will inevitably create 'winners' and 'losers' which is concerning in a country where striking inequalities have persisted for centuries and the unemployment rate stands at 37%. Therefore, to avoid that the energy transition is exacerbating inequalities in society, scholars have increasingly advocated for a *just* energy transition (JET). There is however equivocation what justice means in the context of a JET considering the normativity of the concept. Drawing on 16 semi-structured interviews with 31 participants, this thesis aims to gain a more thorough understanding of a South African JET by exploring how justice is perceived by a variety of South African stakeholders in the Nkangala District Municipality (NDM). The results have shown that the concept of a JET is new, contested and moreover unknown to many people in the NDM. It is furthermore a concept that is associated with many fears. Nevertheless, most participants acknowledged the importance of the energy transition due to the pressing health issues resulting from the dense presence of mines and coal-fired power stations. Within the transition participants argued that 'uplifting people from hardship', 'access to accurate information and development of skills', 'meaningful engagement', 'energy sovereignty', 'transformative governance' and 'ameliorating the PCC process' are crucial elements in realizing a JET in the NDM. At present, considering the process around the decommissioning of the coal-fired power station Komati, the JET can be considered more a myth than reality. Considering that more coal-fired power stations will be decommissioned in the future, it is considered of crucial importance that consultations around the JET move beyond the tick-box exercise and meaningfully incorporate the before-mentioned justice elements. Following from the results, three storylines have been discussed: 'the JET as a threat to livelihoods', 'the JET as necessity to safeguard well-being', and 'the JET as a neocolonial practice'. Three additional justice elements have been found crucial in fostered a JET in the NDM: trustworthiness, integrity and decolonization. It was deemed important for governmental institutions to show more intrinsic motivation to tackle contemporary pressing issues in South Africa. In this way, some trust could be restored among the South African population.

Key words: Justice, Energy Justice, Just Energy Transition, South Africa

List of abbreviations

ANC	African National Congress
CEJ	Critical Environmental Justice
DFFE	Department of Forestry, Fisheries and the Environment
DMRE	Department of Minerals Resources and Energy
EJ	Environmental Justice
ESCOM	Electricity Supply Commission
EVKOM	Elektrisiteitsvoorsieningskommissie
GHG	Greenhouse Gas Emissions
IPCC	Intergovernmental Panel on Climate Change
JETP	Just Energy Transition Partnership
JTEP	Just Transition Enterprise Support Programme
JT	Just Transition
MEC	Mineral Energy Complex
MDGs	Millennium Development Goals
NCCRWP	National Climate Change Response White Paper
NDC	Nationally Determined Contribution
NDM	Nkangala District Municipality
NDP	National Development Plan
NPC	National Planning Commission
PCC	Presidential Climate Commission
REJ	Radical Environmental Justice
RES	Renewable Energy Source
SDGs	Sustainable Development Goals
SLAPP	Strategic Lawsuit Against Public Participation
UNEP	United Nations Environmental Program

Chapter 1

Introduction

1.1 Beyond business as usual: the necessity of the energy transition

Since the industrial revolution, the use of energy has steeply increased (Wrigley, 2013; Höök & Tang, 2013). Today, the world's primary energy demand relies for approximately 81% on fossil fuels (IEA, 2019; Höök & Tang, 2013). The combustion of fossil fuels to produce energy causes dramatic increases in greenhouse gas emissions (GHG) emissions (Kverndokk, 1994; Höök & Tang, 2013). In fact, research by Höök & Tang (2013) has shown that the energy sector is responsible for approximately 70% of total GHG emissions. This increase in GHG poses severe threats to human and environmental health (Martins et al., 2019; Jacobsson & Lauber, 2006). These include extreme weather events, land degradation, loss of biodiversity, respiratory problems and pandemics; just to name a few (*ibid)*. The newly released synthesis report by the Intergovernmental Panel on Climate Change (IPCC) at the beginning of 2023 once again exemplifies the need for more stringent action in order to prevent more extreme consequences from happening (IPCC, 2023). Under the business-as-usual scenario, set climate targets will seemingly be breached (Friedlingstein et al., 2014; Keyber & Lenzen, 2021) resulting in more unforeseen consequences for people, planet and profit. To avoid these, pathways need to be developed which aim for the 1.5-degree Celsius scenario (Keyber & Lenzen, 2021; Verbong & Loorbach, 2012). Considering its great contribution to global warming (Sterner, 2009; Nieto et al., 2020; Martins et al., 2019), it is undeniable that it is necessary to make a deep transformation of our current energy system (Jacobsson & Lauber, 2006; Sterner, 2009; Verbong & Loorbach, 2012) in order to achieve a sustainable future. If not, planetary boundaries will be passed resulting in unforeseen consequences (Rockström et al., 2009). The energy transition implies transitioning from a dominant energy source, i.e., fossil fuels, to another, i.e., renewables (Carley & Konisky, 2020). Transitions in the energy system are not unprecedented. For example, industrialization has stirred the transition from wood to fossil-based energy sources (Solomon & Krishna, 2011; Carley & Konisky, 2020). However, considering the high dependency of fossil fuels on everyday life, this transition necessarily relies on drastic changes in today's society and policy making (Jewell & Cherp, 2020).

Despite acknowledgement that an energy transition is necessary, there are a lot of uncertainties involved in how this energy transition is going to play out due to its complexity and context-specificness (Rotmans & Loorbach, 2009; Cherp et al., 2011; Cantarero, 2020). There are still significant knowledge gaps in how to manage such a multiscalar and multidimensional transition; there is no straightforward way to decarbonize today's economy. There are many actors involved, each having their own interests

which inevitably creates winners and losers (Markard, 2018). The energy transition can thus be considered a 'wicked' challenge as it is a transition in which many actors, sectors and disciplines are involved in an unpredictable context. This makes finding fitting solutions highly complex (Rittel & Webber, 1973; Verbong & Loorbach, 2012; Markard, 2018; Moallemi & Malekpour, 2018). Despite all the uncertainties, there is a general consensus about the necessity of the phasing out of coal and the development of renewable energy sources in the different 1.5-degree Celsius pathways for a sustainable future drawn by the IPCC (IPCC, 2014; Rogelj et al., 2018; Rogelj et al., 2018; Jewell & Cherp, 2020).

1.2 Advocating for a *just* energy transition

Inevitably, the energy transition will create 'winners' and 'losers' (Carley & Konisky, 2020). Historically, the dire consequences of climate change have primarily been induced by G20 countries (Caney, 2005; Paavola & Adger, 2006). Yet, developing countries find themselves disproportionally affected by the consequences of climate change (Paavola & Adger, 2006; Islam & Winkel, 2017). In fact, out of 36 countries that are responsible for emitting the gross part of emissions, 20 of these countries have low vulnerability to safety risks and food insecurity (Dijkshoorn-Dekker et al., 2022). In contrast, 11 of 17 countries with a low contribution to climate change in terms of GHG emissions are considered to be severely vulnerable to climate change (*ibid*). These countries have to deal with the 'loss and damages' that climate change brings (James et al., 2014). This raises the question who is responsible to pay for adaptation and mitigation measures, especially in developing and vulnerable countries. Although there are debates about this, a few related concepts have been established in the field. For example, the 'polluter pays principle' (Caney, 2005; Luppi et al., 2012) and 'common but differentiated responsibilities' (Stone, 2007; Deleuil, 2012) all address the question who should pay for addressing the consequences of climate change. In this context, a loss and damage fund was moreover initiated at COP27 (UNEP, 2022). This fund aims at financially assisting vulnerable countries to combat the consequences of climate change by countries that are historically responsible (UNEP, 2022; Wyns, 2023). This acknowledgement of financial responsibility was considered to be a 'breakthrough' (UNFCCC, 2022) as well as a milestone for climate justice (Wuns, 2023).

Due to the acknowledged importance of justice issues in the space of climate change, it has gained increased attention both in academic spheres and in international climate agreements and in related energy policies (Thomas & Twyman, 2005; Posner & Weisbach, 2010; Moellendorf, 2012; Schlosberg & Collins, 2014; Carley & Konisky, 2020; Biermann & Kalfagianni, 2020). It is now acknowledged that sufficient research should be devoted on how to realize a *just* transition (de Boon, et al., 2023). Despite a lot of research being done around a 'just transition', (Newell & Mulvaney, 2013; Sovacool, 2014; Sovacool and Dworkin, 2015; Jenkins et al., 2016; Jenkins et al., 2017; Sovacool et al., 2017; Healy & Barry, 2017; Carley & Konisky, 2020) there is still equivocation on what justice really

means and how it plays out in practice (Biermann & Kalfagianni, 2020; de Boon et al., 2023). This can be attributed to the fact that justice is a highly normative concept (de Boon et al., 2023). Despite its normativity, there is a general consensus that the energy transition should be inclusive where 'no one is left behind' and everyone has access to clean and affordable energy and that it reduces overall inequalities in society (Heffron, 2021). The body of literature around this concept is expanding (Heffron, 2018) and shifting. Whilst first the gross attention was paid to the securitization of workers, the term has expanded to broader societal goals to achieve a just society (Heffron, 2021).

A focus on justice in the energy transition space is highly relevant and in need for further research. Transitions can exacerbate inequalities and injustices in society by for example the endangerment of livelihoods. Perceptions of injustice within transitions can result in societal unrest and protests (Rothmund et al., 2016; Martin & Islar, 2020; Wieliczko et al., 2021). This can inhibit the development path of a just transition (Meadowcroft, 2011; Markard et al., 2020; Martin and Islar, 2020). In order to prevent this, it is important to gain an understanding of the perception of justice in a particular context so that these can also be incorporated in decision-making around just transitions (Schlosberg, 2013). If such an understanding is not established, it is virtually impossible to realize a just transition (Cadieux & Slocum, 2015).

1.3 Towards a just energy transition: the case of South Africa

The energy transition is extremely relevant on the African continent considering that the combination of population and economic growth is expected to significantly increase the continent's energy demand (Kebede et al., 2010). Within the African continent, South Africa is responsible for 42% of the continent's emissions (Kohler, 2013). Globally, South Africa is ranked thirteenth out of the top fifteen largest emitters (Shahbaz et al., 2013; Kohler, 2013; Tyler & Mgoduso, 2022). The major impact of South Africa on global emissions makes South Africa a relevant case study to research.

South Africa has to deal with severe impacts of climate change. Weather variability ranging from extreme droughts to floods are not unusual in this country (IPCC, 2022). An example of this are the unusual heavy rainfall and floods across the country that characterized February 2023. This is negatively affecting natural ecosystems as well as the livelihoods of people. Due to weather variability, harvests are prone to fail which leaves people in a dire situation with increased food insecurity (Gregory, et al., 2005; Gbetibouo, 2009). Climate change furthermore stresses the already limited water supplies of the country (DFFE, 2019). Consequently, some people are left with no other choice than to relocate to areas that are less affected by the detrimental effects of climate change. Water stress is also impacting the habitat of the country' flora and fauna. A study by Pegels (2010) has shown that the suitable habitat for flora and fauna in South Africa is expected to halve as a result of climate change. This will inevitably

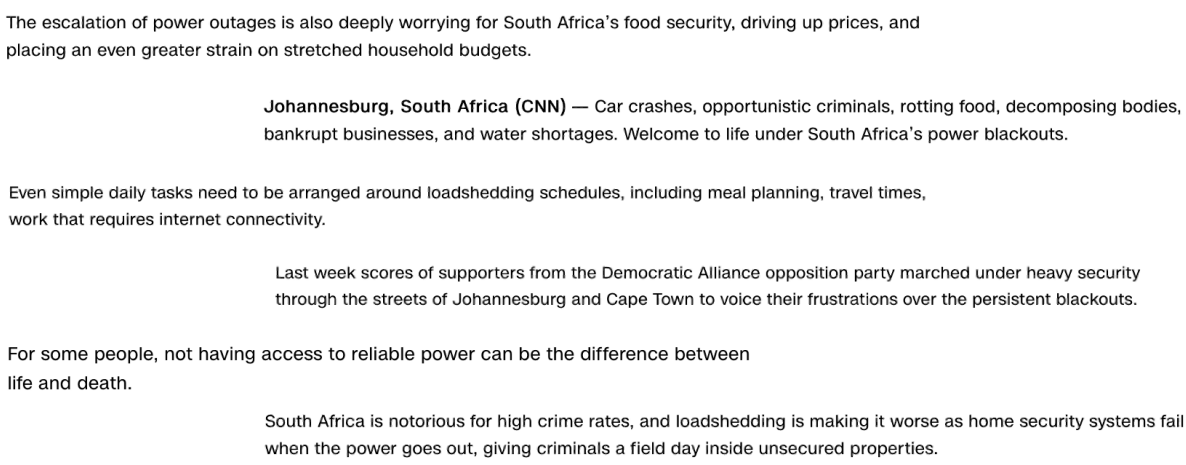
result in major biodiversity losses (*ibid*). Moreover, the health of people is negatively affected by the release of greenhouse gases (Gray, 2019). The country furthermore witnessed how climate change is exacerbating inequalities as the country's most vulnerable people are most severely impacted (PCC, 2022). Considering that the energy sector in South Africa is responsible for 78.9% of the country's total GHG emissions, this sector is majorly contributing to climate change and its detrimental associated effects (Merven et al., 2014; Tyler, 2020). It is therefore especially important for this country to realize an energy transition.

Despite the urgency, the energy transition is particularly challenging for a country like South Africa. At present, estimates suggest that 88% of the South Africa's electricity generation is coming from coal (Spencer et al., 2018). Two important players in the energy domain in South Africa are Eskom and Sasol. Eskom is a state-owned company which produces over 90% of the country's electricity primarily through the combustion of coal (Ting & Byrne, 2020). It is thereby responsible for 45% of the country's emissions (Makgetla, 2021). This makes Eskom a highly powerful actor in the energy transition in South Africa. Another important and powerful actor in this context is a former state-owned company called Sasol. Sasol provides energy in the form of liquid fuels, gas and chemicals to the country and is thereby responsible for 13% of the country's emissions (Hanto et al., 2022; Sasol, 2022; Makgetla, 2021). From the 190 million tonnes of coal that was consumed in South Africa in 2020, Sasol consumed 30 million tonnes in respective to 110 million tonnes used by Eskom (Makgetla, 2021). Not only is coal providing electricity to the population of South Africa, it also directly accounts for 120 000 jobs (*ibid*). Coal can thus be considered to be crucial for the country in many different aspects (Strambo et al., 2019).

Regardless of the importance of coal for South Africa, there is consensus among scientists that it is of crucial importance that coal is to be phased out (Brown & Spiegel, 2019; Frankhauser & Jotzo, 2018; Spencer et al., 2018). Nonetheless, concerns are that a significant proportion of the jobs in the coal sector will be lost once coal is going to be phased out. This whilst unemployment levels are already at a dramatic level of 37% (Borel-Saladin & Turok, 2013; Spencer et al., 2018; Strambo et al., 2019). Other concerns exist around the power imbalances that are prevalent in South Africa. With the apartheid legacy, inequality is a very prominent topic in South Africa. The World Bank (2014) identified a GINI coefficient of .63 in 2014 which makes South Africa one of the most unequal countries in the world (Tyler & Mgoduso, 2022). The potential increase in energy prices, due to investment in technology and infrastructure, could disproportionally affect already marginalized communities (Carley & Konisky, 2020). This could exacerbate existing inequalities.

On top of this, energy is a highly contested and value-laden concept as energy security is not a given in South Africa. This also became evident on the 9th of February 2023 when South Africa's President Cyril Ramaphosa declared a state of disaster for the country's electricity crisis (Gumbi, 2023). The state of disaster was contested due to the perception of the abuse of additional power as a result of

less oversight that comes with a state of disaster and was therefore revoked on April 5th 2023 (*ibid*). The state of disaster was initiated because the country has to deal on a daily basis with detrimental 'load shedding'. Load shedding entails the controlled disconnection of electricity supply for a temporary time span. This time span depends on the severity of the matter at that given time. It is classified in stages ranging from 8 representing the worst stage and stage 1 representing the 'least disruptive' stage. Load shedding is not new: the country has to deal with this issue since 2007 (Goldberg, 2015). This is despite Eskom being saluted in 2001 as one of the best functioning power companies in the world (Ritchie, 2023). In the past, South Africans had access to unprecedented low electricity prices (Fine & Rustomjee, 1996; Maurer et al., 2007; Ting & Byrne, 2020; Bowman, 2020). Nevertheless, the situation has downspiralled quickly the last years and has detrimental effects on virtually every aspect on daily life in South Africa. For example, lightening systems have been disrupted by load shedding which is negatively impacting the safety on the streets (News24, 2023). Safety on the streets is furthermore compromised by chaotic road situations due to non-functioning traffic lights (Krugersdorp News, 2023). Moreover, small-scale businesses cannot operate during power outages when there is no access to alternative sources of energy like e.g. a diesel-powered generator. The productivity of people has been comprised due to e.g. the inability to charge their electronic devices under load shedding (Gounden, 2023). The consequences of load shedding are also stretching to the health sector. Vital institutions like hospitals have been unable to provide essential services under load shedding (Laher et al., 2019). The agricultural sector is also severely impacted by load shedding considering (Trenner, 2023). For instance, under load shedding is it impossible to cool the products which is negatively impacting the quality. It is furthermore also impacting the wider food security in the country. Despite this list of consequences not even being near to exhaustive, it is evident that load shedding has far reaching impacts in South Africa (Goldberg, 2015). In figure 1, one can see how an article of the CNN discusses the load shedding situation in South Africa.


The escalation of power outages is also deeply worrying for South Africa's food security, driving up prices, and placing an even greater strain on stretched household budgets.

Johannesburg, South Africa (CNN) — Car crashes, opportunistic criminals, rotting food, decomposing bodies, bankrupt businesses, and water shortages. Welcome to life under South Africa's power blackouts.

Even simple daily tasks need to be arranged around loadshedding schedules, including meal planning, travel times, work that requires internet connectivity.

Last week scores of supporters from the Democratic Alliance opposition party marched under heavy security through the streets of Johannesburg and Cape Town to voice their frustrations over the persistent blackouts.

For some people, not having access to reliable power can be the difference between life and death.

South Africa is notorious for high crime rates, and loadshedding is making it worse as home security systems fail when the power goes out, giving criminals a field day inside unsecured properties.

Figure 1: A sample of broader media coverage discussing load shedding in South Africa.
Source: CNN (2023)

The cause of load shedding can mostly be traced back to Eskom, which has been accused of mismanagement of its power stations and toxic power relations (Bowman, 2020). Eskom is furthermore facing staggering debts of 26 billion dollar (BBC, 2023). Moreover, there are allegations of corruption within Eskom as well as intentional sabotage of power stations. That the relations within and with Eskom are complex was also apparent when the CEO of Eskom resigned after being poisoned with cyanide in his coffee late December 2022 (The Guardian, 2023).

Considering the above, it is clear that it is of significant importance that the energy transition in South Africa happens in a way that can be considered just for the affected stakeholders. Ensuring a just energy transition (JET) is perhaps especially relevant for South Africa considering all the injustices that have occurred in this country. Both justice and energy can be considered to be sensitive concepts in the context of South Africa. South Africa had to deal with horrendous injustices prior, during and even post-apartheid. The consequences of these injustices continue to be present in every-day life. The unreliable access to energy and the consequences it has on every aspect of life makes energy furthermore a troubling concept in South Africa.

1.4 Identifying the knowledge gaps

As established prior, research on justice in the context of an energy transition is highly relevant. Despite influential work on the just transition (Newell & Mulvaney, 2013; Sovacool, 2014; Sovacool and Dworkin, 2015; Jenkins et al., 2016; Jenkins et al., 2017; Sovacool et al., 2017; Healy & Barry, 2017; Carley & Konisky, 2020), knowledge gaps still need to be addressed. A widely acknowledged conceptual framework to look at justice in relation to energy is by unpacking justice in three elements; distributional, recognitional and procedural justice (Jenkins et al., 2016; McCauley et al., 2013). In short, these elements look at how injustices are distributed, if people are equally represented and if a fair process exists (Jenkins et al., 2016). Despite the influential nature of this state-of-art research around the JET, it is primarily focused on the global North or studied by researchers from the global North (Klinsky et al., 2017; Cantarero, 2020). In this way, Western theories and concepts dominate in the debate without sufficiently taking into account other ways of knowing. This unequal representation of knowledge can enhance power imbalances between the Global North and the Global South (Boogaard, 2019). It is important to avoid imposing dominant ideas onto non-Western countries. Imposing ideas that do not resonate with the ways of knowing of the respective country, in this thesis South Africa, can inhibit or slow down an inclusive transition.

Despite the dominance of Western theories and concepts in the scientific debate, considerable efforts have been made in South Africa to start a dialogue on how a just transition would look like in South Africa. Stakeholder consultations have taken place by the Presidential Climate Commission

(PCC) that aimed to create a common vision regarding the just transition in South Africa (NPC, 2018; NPC, 2019; PCC, 2022). The PCC however was established in a rather short time span and questions have been raised whether the PCC was able to do enough consultations to accurately create a South African framework on a just transition (Groundwork, 2022; Simelane, 2023). When looking at the PCC framework on a just transition, it also becomes apparent that their three pillars of justice are remarkably similar to how justice is conceptualized in the Western literature (distributional, recognitional and procedural justice versus distributional, restorative and procedural justice). Therefore, questions have been raised whether this framework is a truly South African perspective on a just transition (Satgar et al., 2022). The PCC itself also acknowledges that the proposed framework is a "*first organizing frame to spur action*" (PCC, 2022, p.4). They acknowledge that stakeholder dialogues to create pathways for South Africa's transition (PCC, 2022) are an iterative process which requires further research and dialogue to deepen the knowledge about realizing a just transition in South Africa (NPC, 2019). This can result in more detailed plans. Especially, further work is required in the so-called hotspot areas; the Highveld region (including parts of the Mpumalanga region) and Free State (Environmental Affairs, 2011). These areas are expected to be most impacted by the transition due to high dependency on either coal or agriculture (*ibid*). The energy and agricultural system are inherently intertwined primarily due to the high energy demand by the agricultural sector (Waheed et al., 2018). The agricultural sector not only contributes significantly to climate change but also faces considerable vulnerability to its impacts (*ibid*; PCC, 2022). Specific understanding at provincial or local level are needed considering that impacts are highly context-dependent. Within this, it is important to empower stakeholders by including and engaging them in processes (PCC, 2022). The PCC furthermore recognizes the important role of academia in establishing more profound understanding of ways to navigate the transition (PCC, 2022). By adding a plurality of views, the complexity of this transition can be better unpacked and understood (Van Opstal & Hugé, 2013). This could result in more insightful information for policy-makers. It is especially important for a country like South Africa to acknowledge and include a pluralistic view considering its history in which non-dominant worldviews were often neglected.

The Nkangala District Municipality (NDM) is situated in the Highveld region and is considered to be the energy hub of the country through the presence of mines and seven coal fired power stations (Denoon-Stevens & Du Toit, 2021). Hence, the transition away from coal will be heavily felt in this area. Considering the impact of the transition in this area, it is of extra importance to research justice perceptions in the context of a JET. Knowing what justice perceptions are in the context of a JET is very significant in achieving it (Schlosberg, 2013; Cadieux & Slocum, 2015).

1.5 Research aim & research questions

Societal perceptions of justice are highly important and actual in both research and decision-making processes around JETs (de Boon et al., 2023). The aim of this thesis is to get a more thorough understanding of a South African JET by exploring how justice is perceived by a variety of South African stakeholders in the NDM. The NDM was chosen considering that it is located in the Highveld hotspot area (Gray, 2019). By laying out local African perceptions of justice, this research took upon an innovative approach and can aid in a more comprehensive scientific understanding of what are important elements to realize a just and inclusive energy transition in the NDM. Furthermore, through presenting a view from the ground, this research aimed at making empirical contributions. Marginalized and often neglected people have shared their perspectives resulting in innovative perspectives on a JET.

The results of this research could possibly also be interesting for policy makers as it could guide local decision-making regarding realizing a just and inclusive energy transition in South Africa. Incorporating perceptions of justice can make the transition more just and empower different levels in society (Dijkshoorn-Dekker et al., 2022). Overall, this thesis thus aims to provide a more holistic understanding of justice in the context of the JET in South Africa and thereby has both scientific and societal relevance.

Central Research Question:

In the context of a just energy transition, how is justice perceived by a variety of stakeholders in the Nkangala District Municipality?

Sub-Research Questions:

1. How do stakeholders in the NDM understand the term ‘just energy transition’?
2. According to the perception of the stakeholders, what are important justice elements in envisioning the just energy transition in the NDM?
3. To what extent can the energy transition at present be considered as ‘just’ according to stakeholders in the NDM?

Chapter 2
Theory

In this chapter, the theoretical framework for this research is provided. The chapter starts with setting the context for South Africa. It then continues with the rise of the sustainability agenda and defining the core concept justice. Considering the normativity of the concept, a wide myriad of theories exists on the matter. It is however not in the scope of this chapter to exhaustively discuss these. Instead, it provides the main ideas around justice and where it stems from and how these will be used throughout this thesis.

2.1 Setting the context for South Africa

2.1.1. Historical context: Apartheid

South Africa knows a vibrant history. It is however not in the scope of this research to discuss South Africa's history extensively. Important to discuss in this research is the influence of 'apartheid' as it left stark scars on South Africa which are still visible up to today. Moreover, discussing apartheid can give an understanding about the systematic power imbalances that are still present up to today and how this shapes access to crucial resources like energy. Apartheid was a period in South Africa's history from 1948 until 1994 in which racial segregation and discrimination against black South Africans, 'coloureds' and Indians became institutionalized (Dubow, 2014). Despite this discrimination being present before 1948, it now became a social and political system (*ibid*). Apartheid was legitimized by the belief that white people were superior to other races. The by then ruling party, the National Party, enforced this during this time period (Giliomee, 2003). Apartheid systematically disadvantaged black people in every aspect of life, enforcing strict separation between black and white people (Møller, 1998). For example, black people could not enjoy the same quality of education as white people and they were only allowed to live in marginalized and designated areas of the country. The Group Areas Act, that prevented different races to live in the same areas, enabled this (Mabin, 1992). Moreover, black people were only able to have low-paid jobs and were not allowed to vote (Giliomee, 2003). Segregation was ruthlessly enforced (Dubow, 2014). Those that opposed apartheid were silenced and detained. Evidently, under apartheid there was no space for human rights nor justice. Following heavy protests within and beyond South Africa, the apartheid regime was eventually gradually abolished during the time period ranging 1990 to 1994 (Clark & Worger, 2022). 1990 was also the year in which Nelson Mandela was freed from prison. In 1994, Mandela became the first black president of South Africa under the African National Congress (ANC) (*ibid*). This marked a highly significant political and societal transition for South Africa and beyond. Despite apartheid being abolished over three decades ago, it has left remarkable scars on

the country which continues to impact South Africa today. While apartheid and the JET might be very different transitions, studying apartheid does give insights in understanding injustices and how power imbalances continue to shape whose interests are taken into account. It can be argued that people that were marginalized during apartheid continue to be vulnerable in the energy transition.

2.1.2 Eskom: the state-owned power utility in South Africa

At present, Eskom is responsible for providing electricity to millions of people throughout South Africa. In doing so, it operates power stations ranging from coal-fired, nuclear and hydroelectric. In line with the country's transition plans, Eskom is even supposed to provide wind and solar energy. In comparison, coal-fired power stations provided 38 773 MW electricity respectively to 1 860 MW from nuclear, 600 MW from hydroelectric stations and 100 MW from a wind farm (Eskom, 2023). By operating these varying power stations, Eskom is employing 44 772 people in South Africa in 2020 (Eskom, 2021). Considering that many coal-fired power stations of Eskom have either reached their lifespan or are badly maintained, several coal-fired power stations are expected to be decommissioned in the close future. The most recent coal-fired power station that was decommissioned is the Komati coal fired power station. The Hendrina, Grootvlei, Camden and Arnot coal-fired power stations are next in line to be decommissioned (Centre for Environmental Rights, 2022). The concept of repurposing and repowering power stations fit within this context. Whilst repurposing power stations involves changing the existing facilities of the plant to fit another purpose, repowering deals with replacing or upgrading facilities to enhance the initial purpose of power stations such as electricity generation (Raimi, 2017).

Eskom was founded in 1923 and received its name by combining two acronyms ESCOM (Electricity Supply Commission) and EVKOM (Elektrisiteitsvoorsieningskommissie) into Eskom. Since then, Eskom has had a monopoly over the country's electricity supply (Ting & Byrne, 2020). Originally, Eskom was responsible for providing electricity to gold mines (Groundwork, 2019). In response to the aforementioned oil crisis in the 70s, the demand for electricity increased. In order to keep up with the demand, Eskom realized seven power stations during the time period 1979 and 1992 (*ibid*). By the time South Africa found itself in a recession late in the 80s, the demand for electricity dramatically decreased. Therefore, Eskom was left with a surplus of electricity. It tried to drive up electricity demand by providing cheap electricity through governmental subsidies, some even argue the cheapest electricity in the world (Fine & Rustomjee, 1996; Maurer et al., 2007; Ting & Byrne, 2020; Bowman, 2020). In 1991, one year after the release of Mandela, the anti-apartheid movement pressured Eskom to provide energy to black townships through an electrification program (Groundwork, 2019) as only 36% of the South African population had access to electricity through the national grid (Baker et al., 2014). Consequently, between 1994 and 2000, 2.4 million of households were provided with access

to electricity (McDonald, 2009) and it was considered a great success. In 2001, Eskom was even lauded with being the 'power company of the year' (Dlamini, 2019).

By the 2000s, most of the initial electricity surplus was used. Therefore, it was in the plan to build new power stations Medupi and Kusile to keep up with the demand (Groundwork, 2019). However, these plans were put in motion too late. When the first building blocks for the new coal fired power plant Medupi were set in place in 2007, South Africa was encountered by the first 'load shedding' (Goldberg, 2015) As can be seen in figure 2, the load shedding problem reoccurred in 2014-2015 and from 2018 till present (Bowman, 2020). Not only is load shedding still present, it is also increasing in severity. The problems surrounding load shedding in South Africa are highly complex and multifaceted. The most important factors are intertwined and include insufficient planning and maintenance of power stations, insufficient investment, staggering debts of 440billion ZAR in 2020 (Bowman, 2020) and corruption. According to the South African Reserve Bank, 51 billion US dollar is lost every day due to the consequences of load shedding (Naidoo, 2023; Ritchie, 2023). Moreover, electricity prices have risen significantly, disproportionally affecting households, especially black households (Ritchie, 2023). This can be attributed to the apartheid legacy in which long-term purchasing agreements have been made with intensive energy users (Baker et al., 2014). Intensive energy users are thereby less affected by price fluctuations than ordinary households.

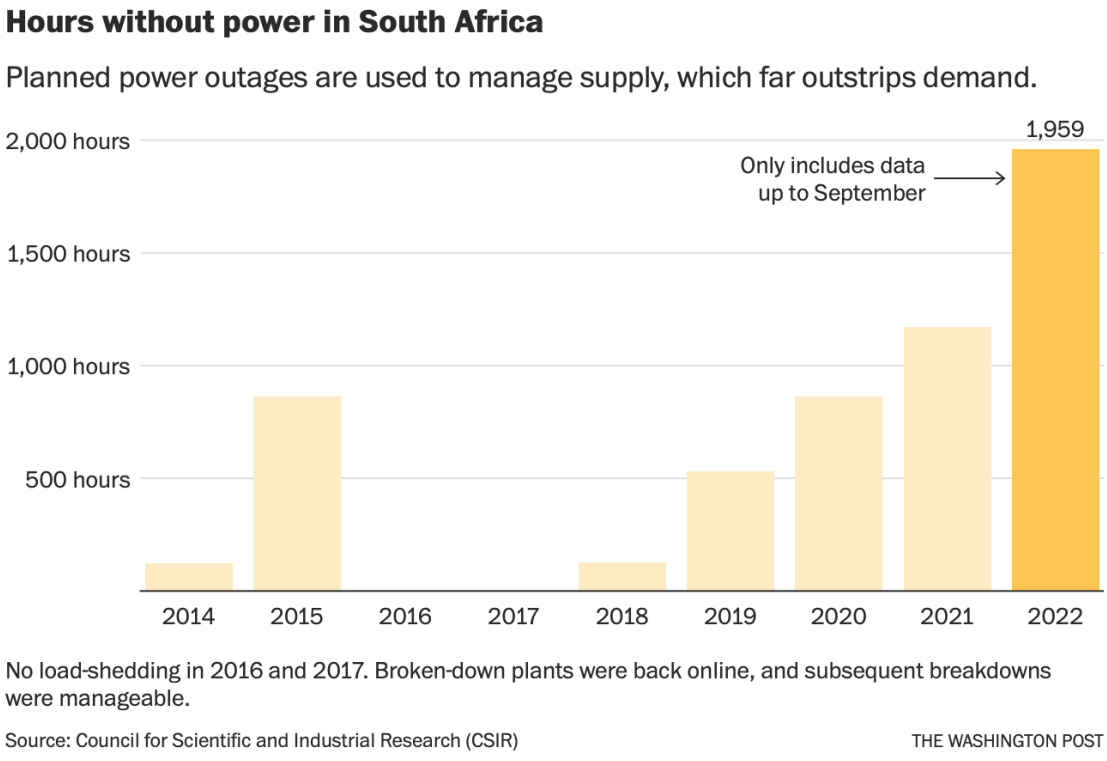


Figure 2: Severity of load shedding problem in South Africa.
Source: The Washington Post (2023)

At the core of Eskom's practices and the broader South African economy is the concept of mineral energy complex (MEC) (Fine & Rustomjee, 1996). Dating back to colonial and apartheid times, South Africa's economy is driven by and dependent on cheap coal which is supported by Eskom. This would then enable the production of cheap electricity and hence economic growth. However, this was all dependent on the extraction of coal and cheap labour (Baker et al., 2014). Cheap labour was facilitated by labour migration and the exploitation of people. The external costs of a polluted environment and health consequences are externalized on ordinary people. Up to today, South Africa's economy remains greatly dependent on this MEC (Fine & Rustomjee, 1996). Eskom has many vested interests in the coal value chain and is very much interested in maintaining the status-quo (Ting & Byrne, 2020).

2.2 The emergence of the sustainability agenda

Sustainable development was first coined in the well-known Brundtland Report; or *Our Common Future* (WCED, 1987). After this publication, the concept received considerable attention and is still widely used (Parris & Kates, 2003; Sneddon et al., 2006; Blewitt, 2008; Elliott, 2013). The emergence of this concept stirred a lot of debates on what sustainable development actually entails. There are numerous definitions on sustainable development (Elliott, 2013) with perhaps the most famous one being "*development that meets the needs of the present without compromising the ability of future generations to meet their own needs"* (United Nations Assemble, 1987 p.41). This definition seeks to find a balance between socio-economic development whilst also preserving the environment (Emas, 2015). It is furthermore thought that the Brundtland Report brought sustainable development on the international agenda and triggered awareness and discussion (Verma, 2019). It is thus considered to have major influence in the international arena (Elliot, 2013). Nevertheless, the interpretation of the concept leaves ample of space for ambiguity (Kemp et al., 2007) and some consider that the concept has become a buzzword (Solow, 1991; Palmer et al., 1997; Scoones, 2007; Pargman & Raghavan, 2014). Nevertheless, influential ideas exist on how to conceptualize this complex concept and how to make sense of it. Elkington & Rowlands (1999) for example, argue that sustainable development is underpinned by three, equally important, pillars: an economic, social and environmental pillar. All these pillars are intertwined as sustainability can only be reached when these pillars are integrated with one another and equally represented (Arowoshegbe & Emmanuel, 2016).

Flowing from this emerging concept of sustainable development, the Millennium Development Goals (MDGs) and the Sustainable Development Goals (SDGs) have been initiated. The eight MDGs were presented in 2000 and have thought to mobilize action to tackle multiple social and environmental challenges (Sachs, 2012). One of the MDGs explicitly refers to sustainable development; namely MDG 7 'ensure environmental sustainability' (Elliot, 2013). It is debatable whether the MDGs has

significantly helped the development agenda further due to its major shortcomings (Amin, 2006). These shortcomings are however not in the scope of this research to discuss. Nevertheless, the MDGs could have helped in symbolizing the development agenda and sharpen focus (Clemens et al., 2007). Through the recognition that it is important to move beyond poverty reduction and to have a more prominent role for the environment in the development goals, the seventeen SDGs were launched in 2015 (UN, 2015). A crucial difference with the former MDGs is that the private sector is more heavily involved (Scheyvens et al., 2016).

According to Adewuyi et al. (2020) and Hägele et al. (2022) providing 'clean and affordable energy' (SDG 7) could function as a silver bullet for successfully finding synergies between other SDGs like 'life on land' (SDG 15) and 'life below water' (SDG 14); just to name a few. For example, much time is still devoted in developing countries to generate energy sources for basic living activities like cooking. This is mostly done by women which is restricting them to spend time on other activities like educational activities (Day et al., 2016). Furthermore, the burning of e.g. biomass is releasing toxic substances which is detrimental for one's health (Bruce et al., 2000; WHO, 2006). Having access to clean energy sources can alleviate these impacts (Day et al., 2016). Considering the connection between achieving sustainable development agendas and decarbonizing today's economy, developing countries have an important role to play in the energy transition (Cantarero, 2020). Their energy demand is expected to double in the coming decades (IEA, 2019) and there is still much untapped potential for renewable energy in these countries (Cantarero, 2020).

Research by Jacob & Steckel (2016) has articulated the crucial role of South Africa in the global fight to combat climate change by transitioning its energy system, owing to its high emissions. The importance of the transition is also exemplified in section 24 of the South African constitution, which was established post-apartheid. This section argues that every South African has the right to enjoy a healthy environment that promotes wellbeing for both current and future generations (Cooper, 2019).

The justice component in sustainable development is highly important; sustainable development cannot be achieved in an unjust manner (Agyeman et al., 2010). Nevertheless, the justice component is not widely and directly emphasized in the SDGs. Out of the seventeen SDGs, one is explicitly focusing on justice (SDG 16) (Menton et al., 2020). This goal is centered around 'promoting peaceful and inclusive societies for sustainable development, providing access to justice for all and building effective, accountable and inclusive institutions at all levels' (UN, 2015). However, within this goal, it is not clear how justice is understood and has a narrow scope (Menton et al., 2020). More broadly, the Transforming Our World document (UN, 2015) only explicitly refers to justice twelve times (*ibid*). This indicates that justice is still underrepresented in global policy documents.

2.3 Defining core concept justice: Social Justice & environmental justice

2.3.1. Rawls Theory of Distributive Justice

Sustainable development and justice are deeply intertwined as sustainable development can only be achieved when justice principles are incorporated (Menton et al., 2020). At the same time, many contemporary sustainability issues are caused by injustices (Lele, 2017). For example, injustices can lead to unequal access to safe drinking water, clean energy and food security (Givens et al., 2019). Similarly to sustainable development, the term justice has multiple meanings depending on how one frames it (Morris, 2002). Extensive research has been done around the concept of justice encompassing numerous sectors. Influential ideas exist on how to make sense of this concept. With 'A Theory on Justice', John Rawls (1971 & 1999) made for example a great contribution on the development of this concept (Morris, 2007). In this publication, Rawls theorizes how a just society would look like and questions the then dominant utilitarian thought on justice (Wenar, 2021). The utilitarian view on justice implies that justice is achieved when there is the 'greatest good for the greatest number' (Côté, et al., 2013). This was however heavily critiqued as it could result in highly unethical practices. For example, slavery would then be able to be justified as only a rather small percentage of the population would suffer whereas the majority would benefit. Rawls heavily opposed to this by arguing that certain rights should not be violated under any circumstances. Rawls contemplated about the basic structure of society; meaning e.g. its political and economic system as these heavily influence the citizens of a society (Wenar, 2021). Rawls was thereby inspired by the social contract thought of influential enlightenment philosophers like Locke and Rousseau (Rawls, 1999; Scanlon, 1973). In line with this thinking, Rawls argued that free and rational individuals should decide how the basic structure of a just society should look like behind a 'veil of ignorance' (Rawls, 1999). This is the original position (Nagel, 1973) and implies that individuals should not know their initial position in society (Rawls, 2004). The intention behind this is to strive for objectivity by removing bias that leads to self-interest. The high level of insecurity causes individuals to make rational choices about the basic elements and primary goods of a just society (Hermans & Knippenberg, 2006). Examples of these include elements that every individual would strive to have such as human rights, freedom of speech, income; just to name a few (Wenar, 2021). This 'veil of ignorance' is necessary as people normally act merely from self-interest which is often resulting in inequalities and injustices.

This leads to 'justice as fairness' (Rawls, 1999) with two principles at the core; the liberty principle and the difference principle. The first principle is that every individual is entitled to basic rights like e.g. the right to vote or freedom of speech. This right should be equally available to every individual (Wenar, 2021). The second principle concerns itself about inequalities. Inequalities are only justified when there is 'fair equality of opportunity'. This implies that each individual with the same capabilities should have the same opportunities, regardless of their place in society (Wenar, 2021; Scanlon, 1973).

The second compartment of this principles refers to that inequalities are solely allowed once this favors the least well-off in society; also called the 'difference principle' (Hermans & Knippenberg, 2006; Collins, 2007). Within these two principles, the first principle overrules the second one.

Despite its major influence, the work of Rawls is criticized for lacking applicability to present issues (Collins, 2007). Another critique has been that some people will take the gamble behind 'the veil of ignorance' that favors the position the individual thinks he or she will be. This could result in unjust outcomes.

2.3.2. Frasers Tridimensional Approach to Justice

According to Fraser (2005), justice means 'parity of participation'. This implies that social arrangements should be in place that allow everyone to participate on equal footing in social life (*ibid*). If injustice were to be removed, obstacles that hinder 'parity of participation' ought to be eliminated (Fraser, 1998). According to Fraser (2001), focusing solely on distributive justice is not sufficient to comprehend the holistic character of justice issues. Distributive injustice is connected to the economic dimension of justice and implies that people cannot equally participate due to inequalities in resource distribution (Fraser, 1999). That is why Fraser proposed a second dimension; recognitional injustice and thereby complements Rawls (Collins, 2007). This is related to dominant cultures that can silence marginalized cultures. In this way, people cannot participate on equal footing which is resulting in inequalities. This then relates to the cultural dimension of injustice (Fraser, 2005). Fraser argued that it is necessary to account for both these dimensions to comprehend justice issues in today's world (Fraser & Honneth, 2003). However, later on, Fraser complemented this theory by proposing a third dimension, namely representation. This relates to the political aspect of justice (Fraser, 2005). It evolves around who is in or excluded in political decision-making processes. Injustices would occur when political rules hinder people to participate on equal footing in social interaction (Fraser, 2006). This interrelated three-dimensional framework (distributive, recognitional and representational justice) to justice gained momentum and is still widely used in the academic arena (Keddie, 2012; Cazden, 2012).

2.3.3. Sen & Nussbaum Capabilities Approach to Justice

To further advance the justice scholarship, influential thinking on justice is done by Nobel prize winner Amartya Sen and Marta Nussbaum. Sen & Nussbaum's emphasis on capabilities in their thinking resulted in the capabilities theory which gained momentum in the academic arena (Sen, 1992; Sen,1993; Sen, 1999; Nussbaum, 2000; Nussbaum, 2011; Sen and Nussbaum, 1993). A crucial element of this theory is the 'freedom to choose' (Sen, 1987). Individuals should have the opportunity to choose what they value in life and at the same time have the opportunity to flourish (Day et al., 2016). Sen &

Nussbaum (1993) criticize the general notion of progress measured in economic terms. According to these authors, progress extends beyond economic indicators to people's capabilities (Day et al., 2016). Sen thereby differentiates between 'functionings' and 'capabilities'. The first one referring to the state of an individual 'being' like e.g. having a healthy weight whilst the latter one refers to a set of functionings of which an individual can choose from to be capable to flourish in life according to their own wishes (Wells, 2022). Capabilities perspective differs from a Rawlsian perspective in that the capabilities perspective focuses on capabilities whilst the Rawlsian perspective focuses on 'primary goods' (Rawls, 2009). Another difference is that Rawlsian theory focuses on the individual's state in society whilst Sen is focusing on the individual's opportunity in society (Cohen, 1993). Sen (1999) argues that capabilities is more useful considering the difference in for example demographics and climatic conditions among people (Day et al., 2016). However, what are essential capabilities remains open for debate and is dependent on one's worldview (Yap & Yu, 2016). Sen argued that which capabilities are valued in societies is highly context specific and thus not generalizable for the world. These should be established through dialogue which aims to lay out shared value judgements (Sen, 1999; Alkire, 2007). However, Rawls (1999) criticizes this by arguing that it is not realistically feasible due to the difficulties in establishing consensus on capabilities for every specific location. Rawls (1999) therefore argues that measuring e.g. income is a more readily available and realistic tool to measure capabilities. Other critiques relate to the concern that value judgments are dominated by the one that hold most power (Dean, 2009).

2.3.4. Environmental justice

These theories laid the foundation for the radical environmental justice (REJ) framework. Environmental justice (EJ) emerged as a concept around the 1980s as a response to unequal distribution of waste that disproportionally affected African-Americans in North-Carolina, USA (Menton et al., 2020; McCauley et al., 2013; Davies, 2006). After this, much research has been done around this concept and the body of literature has extended to contemporary social and environmental problems (Capek, 1993; McDonald, 2002; Schlosberg, 2007; Sze & London, 2008; Holifield et al., 2009; Pulido & de Lara, 2018; Menton et al., 2020). Generally, environmental justice is concerned with the unequal distribution of environmental impacts on marginalized communities (Schlosberg, 2013). Environmental justice scholarship draws on previously mentioned social justice theories and breaks environmental justice down into three pillars: distributive, procedural and recognitional justice (Walker, 2012). Distributive environmental justice refers to how environmental (de)merits are distributed. Procedural environmental justice refers to who is involved in decision making around social and environmental problems. Lastly, recognitional environmental justice deals with if individuals are equally represented and recognized (Walker, 2012).

2.4 Energy justice

Considering the centrality of energy in everyday life and the increasing associated negative consequences of fossil fuel-based energy use, increased scholarly attention has been given to energy justice (Sovacool & Dworkin, 2015; Jenkins et al., 2016; Jenkins et al., 2017; Heffron & McCauley, 2017; Bouzarovski & Simcock, 2017). The energy-development nexus illustrates the debates that exist around the use of energy and development (Jingura & Kamusoko, 2016; Chireshe, 2020; Pan et al., 2023). Some studies illustrate the positive relation between energy use and human development (White, 1943; Mumford, 1970; Sorensen, 2011) whilst others found negligible or non-existent relations (Sarkodie & Adams, 2020). The World Bank (2018) nevertheless argued that energy is 'at the heart of development'. Moreover, Day et al. (2016) have shown in their research how deeply intertwined energy use and human capabilities are (see figure 3). In the figure below, one can see how many basic capabilities are ultimately dependent on energy.

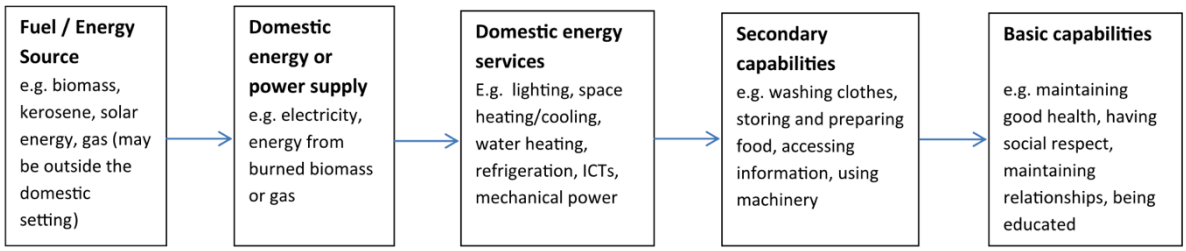


Figure 3: Dependency of energy for basic capabilities.
Source: Day et al. (2016)

Energy justice descends from environmental justice with a particular focus on (in)justices that evolve around energy systems (Carley & Konisky, 2020; Schlosberg, 2009). Energy justice would imply that "*all individuals should have access to energy that is affordable, safe, sustainable and able to sustain a decent lifestyle, as well as the opportunity to participate in and lead energy decision-making processes with the authority to make change*'' (Carley & Konisky, 2020 p.570). This also resonates with SDG 7 which advocates to ensure '*'access to affordable, reliable, sustainable and modern energy for all''* (UN, 2015). The energy justice scholarship builds upon earlier work done on justice and proposes the same tenets for energy justice as in environmental justice: distributional, procedural and recognition justice (Jenkins, et al., 2013; McCauley et al., 2013). The state-of-art literature around sustainability transitions have extensively used these tenets and acknowledges their importance (Kaljonen et al., 2021)

The first tenet for energy justice is distributional justice. This tenet relates to the distribution of the costs and benefits of the energy system (McCauley et al., 2013). It is concerned with where the injustice can be found (Jenkins et al., 2016). For example, some social groups can be disproportionally affected by the creation of a new wind farm. Also, the way energy is managed through infrastructure affects who has access to energy and who does not (Jenkins et al., 2016). Another current pressing issue

is how rising energy prices disproportionally affect some social groups more than others (Boardman, 2013). This results in injustices.

Recognitional justice, as second tenet, is heavily influenced by the work of Fraser and deals with questions to what extent decision makers involve fair representation of different perspectives (Jenkins et al., 2016). Not only should these views be recognized but they should also be recognized correctly so that they are not misused to meet the needs of those who are in power (Schlosberg, 2003). For example, in some energy programs people with particular needs were disregarded and labeled as 'knowledge-deficit' (Jenkins et al., 2016). The misrecognition of particular needs of particular groups can result in missing out knowledge that can be relevant for ameliorating policies.

The third tenet, procedural justice, is related to who is included and excluded in decision-making processes around energy systems (Jenkins et al., 2016). Stakeholders should be involved in decision-making on equal footing (Walker, 2009; Bullard, 2005). Furthermore, concerns raised by stakeholders should receive sufficient attention throughout a transparent process. Globally, it is often encountered that controversial energy projects are realized in places where ethnic minorities live (Pastor et al., 2001). These people are often less powerful and neglected in decision-making processes.

Tenets	Evaluative	Normative
Distributional	Where are the injustices?	How should we solve them?
Recognition	Who is ignored?	How should we recognise?
Procedural	Is there fair process?	Which new processes?

Figure 4: Three tenets of energy justice as proposed in the state-of-art literature.
Source: Jenkins et al., 2016

Later, restorative justice was introduced as an additional tenet in the energy justice scholarship (Johnstone & van Ness, 2007; Hazrati & Heffron, 2021; Banerjee & Schuitema, 2022). Stemming from criminal justice, restorative justice in the energy domain is concerned with acknowledging and rectifying historical injustices (Hazrati & Heffron, 2021). Moreover, restorative justice is concerned with healing from these injustices (Banerjee & Schuitema, 2022). According to Llewellyn & Howse (1999), restorative justice is a crucial pillar to rebuild societies that are historically torn by conflict. This tenet might be particularly relevant for a country in South Africa with a vibrant history of injustices. There are ongoing efforts for reconciliation with the most famous one being the Truth and Reconciliation Commission. Considering its relevance for South Africa, the PCC incorporated restorative justice as one of their main pillars in their just transition framework (PCC, 2022).

2.5 Sustainability transitions applied to the energy system

2.5.1 The rise of transition concepts

Prior to the oil crisis in 1973, little attention was given to the sustainability of the global energy system. However, due to this crisis, more attention was devoted towards energy conservation and efficiency in response to shortages and high prices (Lund, 2007). Moreover, awareness was established around the impact of the energy system on the globe due to the rapidly changing world, with conflicts in oil producing countries and accompanying rising energy prices and pollution (Solomon & Krishna, 2011). Therefore, along with the sustainability agenda, it was increasingly recognized that drastic transitions in both the world's energy system and society are required (Kemp et al., 2007; Grin et al., 2010; Solomon & Krishna, 2011; Verbong & Loorbach, 2012; Boström et al., 2018; Carley & Konisky, 2020; Weiland et al., 2021). This acknowledgement has stirred the expansion of the body of literature around this (Lund, 2007; de Vries et al., 2007; Razmjoo et al., 2021; Østergaard, et al., 2020).

Transitions have been associated with the disruption of systems (Kivimaa et al., 2021) in which costs and benefits are not equally distributed (Meadowcroft, 2011). Traditionally, transitions have been conceptualized as socio-technical transitions with a focus on greening technologies (Geels, 2005; Geels & Schot, 2007) However, this concept is increasingly being criticized for being too technocentric and failing to sufficiently incorporate normative concepts like justice (Meadowcraft, 2009; Newell & Mulvaney, 2013; Stevis & Felli, 2015). Therefore, the concept of sustainability transitions was coined by Markard et al. (2012) to complement socio-technical transitions (Elzen et al., 2004; Grin et al., 2010). It is defined as "*the long-term multidimensional and fundamental transformation processes through which established sociotechnical systems shift to more sustainable modes of production and consumption*." (Markard et al., 2012, p. 2). These large transitions are highly complex as practices related to these systems are often heavily intertwined with everyday life (Markard, et al., 2012). Furthermore, people attach different meanings to the primary problems, the possible solutions and the envisioned course of action (Carley & Konisky, 2020). Therefore, it remains unclear how to incorporate the justice dimension in policy making around sustainability transitions (Avelino et al., 2016; Köhler et al., 2019). There is moreover a lot of uncertainty involved in what the consequences will be of such a transition (Kemp et al., 2007). Evidently, it should be acknowledged that one sustainability transition does not exist. Considering the interrelatedness of sustainability transitions, it is more likely that multiple sustainability transitions concurrently develop at different scales, locations and speed (Henry et al., 2020). The complexity and the urgency of these sustainability transitions makes it a quickly emerging field of study (Meadowcroft, 2009; Markard, et al., 2012; Köhler et al., 2019).

2.5.2. The phase out of coal and the adoption of renewables in the energy transition

In the context of transitioning from a fossil fuel-based energy system to a renewable energy system, with among others the aim to achieve the 1.5 degree-Celsius target, the phase out of coal is deemed crucial due to its high carbon impact (Yanguas Parra et al., 2019). Although perhaps technologically feasible, there are a lot of social and political constraints that make the phase-out of coal highly complex (Spencer et al., 2018). Globally, 12 million people are reliant for employment on fossil-fuel dependent industries of which 7 million employed in the coal industry (Blankenship et al., 2022). Consequently, coal dependent countries have to deal with the arising consequences of the phase out of coal, encompassing challenges like dislocation, employment losses and migration (Harfst, 2015; Kok, 2017). The concept of re and upskilling therefore gained increased attention (Bray et al., 2022). This concept concerns the alignment of the demand and supply of employment by equipping people with the necessary skills within the transition (PCC, 2022). Reskilling refers to equipping people with new skills to relocate them in other fields of employment. It is typically needed whenever the skills are no longer in demand in the labour market. Upskilling, on the other hand, refers to further developing existing skills. Through upskilling people get the additional skills that align with developments in the labour market (IEA, 2022). Thus, reskilling refers to acquiring a new skill set whereas upskilling refers to advancing existing skills.

As a replacement for among others coal, a wide range of renewable energy sources now exist (Herzog et al., 2001; Hoogwijk, 2004; Panwar et al., 2011; Owusu & Asumadu-Sarkodie, 2016). An important characteristic of renewable energy sources is that they are *renewable* in the sense that all renewable energy sources are driven by sources that are considered constant and inexhaustible (Hoogwijk, 2004). The potential of renewable energy sources is dependent on the geographic location and is therefore not equally spread across the world (Scholten & Bosman, 2016). Solar energy is thought to have the largest potential for generating energy, especially in semi-arid areas (Panwar, Kaushik, Kothari, 2011). Wind energy is another renewable energy source and transforms kinetic energy into electricity with the help of wind turbines (Jenkins et al., 2011). The highest potential for this source is located around coastal areas (Scholten & Bosman, 2016). Furthermore, hydropower has the potential to transform kinetic energy into electricity. A prerequisite for this is large height differences and a plenty of water (Egré & Milewski, 2002). This makes mountainous regions a suitable place for producing hydropower (Scholten & Bosman, 2016). Biomass has the potential to generate heat, electricity and biofuels from organic (waste) material (Owusu & Asumadu-Sarkodie, 2016) Suitable locations for this are generally found around the tropics where there is ample rainfall and warmth (*ibid*). Geothermal energy has the ability to transform the Earth's heat into electricity (Barbier, 2002). Geothermal energy can virtually be found anywhere across the world but it is most easily extracted at the borders of tectonic plates (Scholten & Bosman, 2016). For sure, the role of nuclear power in the energy transition is controversial and extensively discussed (Markard, 2018; Buschmann & Oels, 2019; Agyekum et al.,

2020). Despite cleaner than conventional fossil fuel energy sources (Sovacool, 2008), there are major concerns about the radioactive waste (Ewing & von Hippel, 2009).

Although the necessity of the adoption of renewable energy sources has been widely acknowledged in the academic sphere, its introduction has stirred unrest in today's society including extensive debates and mass demonstrations across the world (Hägele et al., 2022). For example, Arifi & Winkel (2021) describe how an opposition movement was mobilized against wind farms in Germany's '*energiewende'*. Furthermore, resistance and protests have been associated with the generation of energy coming from nuclear power plants (Hayes, 2006). Hydropower plants are also associated with opposition and unrest considering its associated socio-environmental impacts (Ozen, 2014). In France, the 'yellow vest' movement is another example in which resistance is expressed towards sustainability transitions (Martin & Islar, 2021). This movement was triggered by a sustainability transition policy aimed at increasing diesel taxes. Later, its focus expanded towards addressing broader social-economic concerns (*ibid*). In most of the before-mentioned cases, movements considered the transition towards renewables as unjust. This illustrates the importance of an enhanced understanding of justice perceptions to underpin decision making processes around transitions, as it can enhance societal support (*ibid*).

2.5.3 Energy as a sensitive concept in geopolitics

The state-of-art literature has exemplified that the energy system is intertwined with geopolitics (Scholten & Bosman, 2016; Paltsev, 2016; Overland, 2019; Vakulchuk et al., 2020). The trade of energy is shaping power relations across the world (Su et al., 2021). Energy can become a commodity in which geopolitical power can be exerted. When Russia attacked Ukraine on the 24th of February 2022, a true energy crisis has unraveled in Europe. A study by Scott (2022) has shown that Europe's gas and coal supply is for 40% and 46% respectively sourced from Russia. Allying with Ukraine, Europe has been boycotting energy sourced from Russia as a means to exert pressure on the revenues derived from energy in Russia. As a consequence, Europe is finding itself in a dire situation in which energy security is decreasing and energy prices are skyrocketing with a peak in the year 2022 (European Commission, 2023). This is a prime example in which energy is used to exert geopolitical power.

Furthermore, there are debates about whether the transition towards renewable energy can reduce geopolitical risks (Vakulchuck et al., 2020). Examples of geopolitical risk associated with the arrival of renewable energy resources include the competition over scarce materials that are needed for the production of renewable energy technologies and changing trade dynamics with potential disputes (Su et al., 2021). The geographical dispersion of these materials and the associated extraction can result in geographical tensions. Many of these crucial materials can for example be found in China which makes China a powerful player in the energy transition (Scholten & Bosman, 2016). Additionally,

considering that many countries have the ability to generate renewable energy (Hoogwijk, 2004), the energy market will have more players and this will restructure trade dynamics and dependencies between formerly export and import countries of fossil fuels (Hoogwijk, 2004; Scholten & Bosman, 2016). Also, countries as China, the United States, Brazil and Germany that become frontrunners in the development of renewable energy resources can become more powerful (Fernández, 2023). On the contrary, formerly export countries of fossil fuels can become less powerful due to the potential decrease in demand for fossil fuels. This can impact global power dynamics (Overland et al., 2019). Some argue that the investment in renewable energy has the potential to reduce geopolitical conflicts (Peters, 2016; Lacher & Kumetat, 2011; Francés et al., 2013) in contexts where the ownership of fossil fuels is used as a weapon (Su et al., 2021). Others, nevertheless, argue that risks will just be relocated to other type of conflicts (Raman, 2013; de Ridder, 2013; Hurd et al., 2012). These geopolitical tensions and urgent climate calls, complicates the case for the phase out of fossil fuels and the adaptation of renewable energy sources. It is clear that the energy system encompasses many dimensions, scales and power relations. The energy system fuels virtually every dimension of today's society. It is impacting both the economy, society, politics and the environment in local, regional, national and international spheres.

2.6 The 'just' energy transition

2.6.1 The rise of the 'just energy transition' concept in the global arena

There is no consensus on what constitutes a 'just' transition (Heffron, 2021). However, generally, it implies that the transition towards a low-carbon economy should result in an equitable society in which costs and benefits are equally distributed among the population (Carley & Konisky, 2020). Recently, 'leaving no one behind' is a popular phrase that has been used in the just transition context (Heffron, 2021). Despite the concept gaining increased attention in recent years, especially after it being discussed at the Paris Agreement in 2015 (UN, 2015), labour unions already emphasized the need to incorporate justice elements in transitions as early as the 1970s (Newell and Mulvaney, 2013; Cha, 2020). The discussions around the just transition therefore mainly evolved around employment at first. At present, there are broader discussions about how the just transition can make society as a whole more equitable (Heffron & McCauley, 2018).

The concept also gained increased attention in international agreements. Examples of these include the International Labour Organization's Guidelines for a just transition (ILO, 2015), the Silesia Declaration on solidarity and Just Transition (UNCCC, 2018), the European Green deal (European Commission, 2019). Moreover, in 2018 at the G7 summit, the concept received significant attention after it being explicitly issued as a policy goal (European Council, 2018). This illustrates that the global agenda increasingly recognizes the importance of justice within transitions (Wang and Lo, 2021). Nevertheless, a prerequisite for realizing this transition is that society understands and supports it.

Inclusivity is highly important so that multiple interests are represented. In this way, support can grow (Chapman & Okushima, 2019). Often, however, marginalized groups are not sufficiently taken into account in decision-making. This can result in policies that only represent the ones in power. This, in turn, can result in less support and less effective policy-making. It is therefore crucial to understand the perspective and interests of marginalized groups so that more support can be generated and a just transition can be realized.

However, despite advocating for a just energy transition, in certain instances it persists that the justice component is not explicitly referenced to in international policy documents (Heffron, 2021) or that there is ambiguity surrounding how 'justice' is defined (Jenkins et al., 2020; Velicu and Barca, 2020). Moreover, it has been argued that these policy documents fail to recognize that justice is understood differently among people (de Boon et al., 2023) depending on individual values and norms (Sikor et al., 2014). Consequently, justice can be considered a profoundly normative concept, subject to diverse understandings (Smaal et al., 2020; Wijsman & Berbés-Blázquez, 2022).

2.7 Critique: Eurocentric dominance in the justice scholarship

Despite the major contribution to the state-of-art knowledge of the burgeoning (energy) justice scholarship, the before-mentioned theories and concepts have been criticized (Massarella et al., 2020) due to the lack of consideration of political and economic forces that drives injustices (Svarstad and Benjaminsen, 2020), and non-human beings (Sovacool et al., 2017). In response to the critique that has been given to radical environmental justice (REJ), critical environmental justice (CEJ) emerged as a 'second generation' branch of environmental justice (Pellow, 2016; Álvarez & Coolsaet, 2020). This branch differs from REJ in that it argues for the expansion of REJ by incorporating political ecology components by situating (in)justices in historical events (Pellow, 2016; Pulido and De Lara, 2018) and broader processes that drive power imbalances (Svarstad & Benjaminsen, 2020). Furthermore, it expands the concept by incorporating components like gender and sexuality (Pellow, 2016).

Moreover, it can be concluded that most literature is dominated by Western scientists who use Western concepts to research this phenomenon (Klinsky et al., 2017; Cantarero, 2020). Non-Western theories and concepts are often ill-represented in the literature. When the dominance of Western literature is not questioned, there is a danger in imposing dominant Western ideas on other ways of knowing (Olúwolé, 2014). Up to now, mainly Western scientists have determined what is considered just and how to arrive at a just transition (Martin et al., 2016; Sikor et al., 2013). This rather narrow view of justice could enhance further global injustices (Lawhon, 2013; Temper, 2019; Álvarez & Coolsaet, 2020). It is therefore argued that the three existing tenets of environmental justice should be expanded with recognition of the ongoing battle over nature and environmental knowledge (Lawhon, 2013; Vermeylen, 2019). The recognitional tenet in this branch is of extra importance and is extending to

epistemic justice (Valladares & Boelens, 2017; Widenhorn, 2013). Epistemic justice argues for the inclusion of other knowledge sources that have been previously marginalized due to the hegemony of Western knowledge systems (Widenhorn, 2013). This is a critical element in decolonial environmental justice (DEJ). It therefore advocates for the inclusion of other epistemologies and the need to ground justice thinking in the knowledge of affected people. It thereby responds to the critique that has been given to conventional environmental justice scholarship (Menton et al., 2020). It is argued that it is highly important to shed light on other ways of knowing as there is often discrepancy between the framing of problems and solutions between local communities and policy makers (Fairhead and Leach, 2003; Massarella et al., 2018).

2.8 The energy transition journey in South Africa

South Africa has made efforts to realize a holistic just transition, whereby the just energy transition is one of them (PCC, 2022). As can be seen in figure 5, policy development around renewable energy has started as early as in 2003 with the creation of the Renewable Energy White Paper (Hanto et al., 2022). This policy document was concerned with how much money should be invested in renewables (*ibid*). From 2010 until 2020, the National Planning Commission (NPC) was responsible for managing energy-related matters. Of vital importance in the South African work on the just transition is the National Climate Change Response White Paper (NCCRWP), coined in 2011 (DEA, 2011). The NCCRWP aimed at providing a plan for both mitigation and adaptation of climate change in South Africa at different time scales. The following year, in 2012, the National Development Plan (NDP) was launched and aimed to eradicate poverty and to reduce inequalities by 2030 (NPC, 2012). Important elements of this plan also include environmental sustainability and to ensure a transition towards a low-carbon economy (*ibid*). The 2010 Integrated Resource Plan (IRP) aimed at planning how South Africa's energy demand will be supplied and was updated in 2019 (Hanto et al., 2022). Governmental bodies like e.g. the Department of Forestry, Fisheries and the Environment (DFFE) have furthermore contributed to creating a just transition agenda (PCC, 2022).

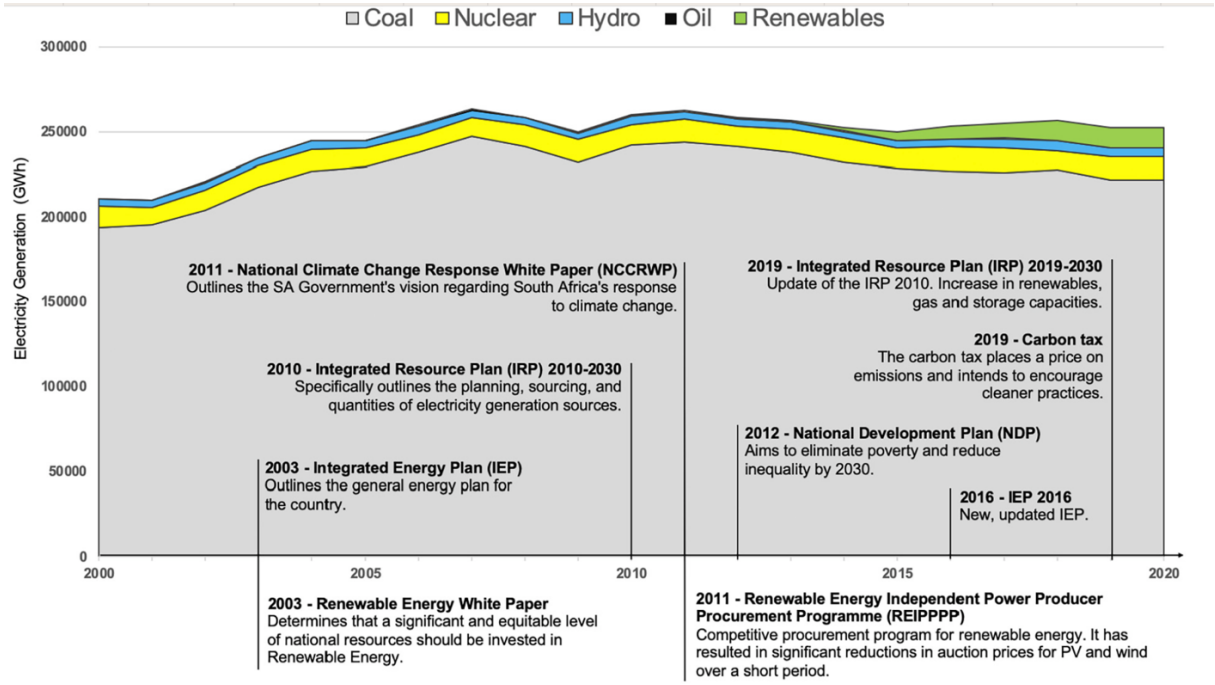


Figure 5: Timeline of electricity generation in GWh and policy developments regarding the energy transition.
Source: Hanto et al., 2022.

President Ramaphosa argued for the need for an 'independent and multistakeholder body' to coordinate the complex transition in South Africa (PCC, 2023). Therefore, the PCC was formed in 2020 with the aim of creating a common understanding of how a just transition would look like in South Africa (The Presidency, 2020). As evident from the PCC report, a 'just' transition is a holistic transition towards a sustainable society not only encompassing the energy sector (PCC, 2022). The PCC is supposed to advise on and support this just transition in South Africa (PCC, 2022). The PCC defines a just transition as follows:

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

"A just transition contributes to the goals of decent work for all, social inclusion, and the eradication of poverty."

"A just transition puts people at the centre of decision making, especially those most impacted, the poor, women, people with disabilities, and the youth—empowering and equipping them for new opportunities of the future."

"A just transition builds the resilience of the economy and people through affordable, decentralised, diversely owned renewable energy systems; conservation of natural resources; equitable access of water resources; an environment that is not harmful to one's health and well-being; and sustainable, equitable, inclusive land- use for all, especially for the most vulnerable" (PCC, 2022, p.8).

With the report of the PCC, it provides a just transition framework for guiding the transition in South Africa. Nevertheless, the three principles mentioned by the PCC for a just transition are remarkably similar to the existing literature on energy justice (distributional, restorative and procedural justice versus distributional, recognitional and procedural justice). The PCC acknowledges that these pillars are based on existing literature on the just energy transition, international best practices and their consultations (PCC, 2022). Another critique related to the PCC framework is that it is very much human-centered (Satger et al., 2022). As the PCC states "putting human development concerns at the center of decision-making" (PCC, 2022 p.6). It is therefore critiqued that it does not sufficiently account for environmental sustainability or the intrinsic value of nature.

Despite these efforts, only 2.2% of South Africa's energy mix was derived from renewable energy sources in 2019 (Ritchie & Roser, 2020). Despite the challenges associated with phasing out coal in a country heavily dependent on it, the importance of it was underscored during the COP26 in Glasgow in 2021. Notably, scholars have argued that the COP26 was a turning point in climate politics as it was the first time that a COP decision was made to inhibit the use of coal (Depledge et al., 2022). To boost the energy transition in particularly South Africa, an agreement between South Africa, the UK, the US and the EU was made during COP26 in which 8.5 billion US dollar was mobilized to accelerate the transition (European Commission, 2021). This money will be made available within the coming three to five years; some of it as donation, but most of it as loan with low interest rate (Tyler & Mgoduso, 2022). This is also called the Just Energy Transition Partnership (JETP). Nevertheless, these 8.5 billion dollars does not come close the estimated minimum of 250 billion that is needed to realize the energy transition in South Africa (Tyler & Mgoduso, 2022). Therefore, the Just Energy Transition Investment Plan (JET IP) was launched at COP27 in 2022. The JET IP lays out the investment needed to adhere to the decarbonization commitments as stated in the Nationally Determined Contribution (NDC) at 420-350 megatons of CO_2 in 2030 (The Presidency, 2022). The JET IP identifies priority areas for investment which are electricity, green hydrogen and new energy vehicles (*ibid*). Remarkable of this plan is the high percentage of loans (96%) in the financing plan (The Climate Ambition to Accountability Project, 2022).

2.9 Conceptualizing the just energy transition in South Africa

The before discussed theories and key concepts have guided in answering the research questions. The three core concepts are 'justice' and 'energy transition' and 'just energy transition'. Despite the normativity of these concepts and the many definitions that exists (Smaal et al., 2020; Wijsman & Berbés-Blázquez, 2022), three definitions have been uphold throughout this thesis.

2.9.1 Core concepts

1. Firstly, the concept of 'justice'. As Novak rightfully pointed out: *The minute one begins to define social justice, one runs into embarrassing intellectual difficulties* (Novak, 2011, p.11). Considering that this research focuses on the JET context, the concept was narrowed down to energy justice. Energy justice has been defined as "*all individuals should have access to energy that is affordable, safe, sustainable and able to sustain a decent lifestyle, as well as the opportunity to participate in and lead energy decision-making processes with the authority to make change*'' (Carley & Konisky, 2020 p.570).

2. Furthermore, the following definition of an 'Energy transition' was uphold throughout this research: "*a change in an energy system, usually to a particular fuel source, technology, or prime mover (a device that converts energy into useful services, such as an automobile or television)*" (Sovacool, 2016, p.203)

3. The 'just energy transition' concept emerges at the intersection of 'justice' and 'energy transition' and has been susceptible to many interpretations and consequently many ambiguous definitions (Wang & Lu, 2021). Nevertheless, considering that this research investigates South African perceptions of justice within the just energy transition context, the definition of a just transition by the PCC has been uphold: *"A just transition aims to achieve a quality life for all South Africans, in the context of increasing the ability to adapt to the adverse impacts of climate, fostering climate resilience, and reaching net-zero greenhouse gas emissions by 2050, in line with best available science."* (PCC, 2022, p.8).

2.9.2. Operationalization

For the key concepts, this research has a theoretical background that proposes four variables for justice in the context of a just energy transition: Distributive justice, recognitional justice, procedural justice and restorative justice (McCauley et al., 2013; Jenskins et al., 2016)

These tenets of justice can be considered very broad. Nevertheless, indicators can be found for these variables. Considering that this research has a South African focus and that the PCC has made efforts to operationalize these variables in their just transition framework, this research holds on to the operationalization of the PCC (2022). This can be found in figure 6. Recognitional justice is not discussed within the PCC framework but included in figure 6 due to it being frequently used in the literature. The indicators are based on existing literature (Schlosberg, 2003; Jenkins et al., 2016).

One indicator of each variable will be discussed. For example, the PCC (2022) argued that enabling South Africans to acquire the skills necessary for the green economy could be an indicator for distributive justice. Despite not discussed in the PCC framework, indicators for recognitional justice could include representation of different stakeholders and respect (Jenskins et al., 2016). For procedural justice, the PCC (2022) emphasized the importance of establishing an understanding of the energy transition among communities in order to empower communities. Lastly, the PCC (2022) sees the acknowledgements of past harm and reconciliation as important indicators for restorative justice.

As established, justice is a highly normative concept (Smaal et al., 2020; Wijsman & Berbés-Blázquez, 2022; de Boon et al., 2023). Moreover, it was established that these concepts are primarily Western-dominated (Klinsky et al., 2017; Cantarero, 2020). Therefore, this research adopted an inductive approach and aimed at not being led by existing theories and concepts so that a more local South-African perspective could be established. In order to unravel justice perceptions in the context of a JET without being led by predetermined concepts, this research instead asked for understandings of a JET and dreams and fears surrounding it in the interviews. Subsequently, elements of justice specific to the NDM were identified. In chapter 5, these results were thereafter compared and discussed with existing variables of justices as visualized in figure 6. Lastly, it was identified whether it is possible to develop additional elements of justice that extent beyond the conventional conceptualization of justice.

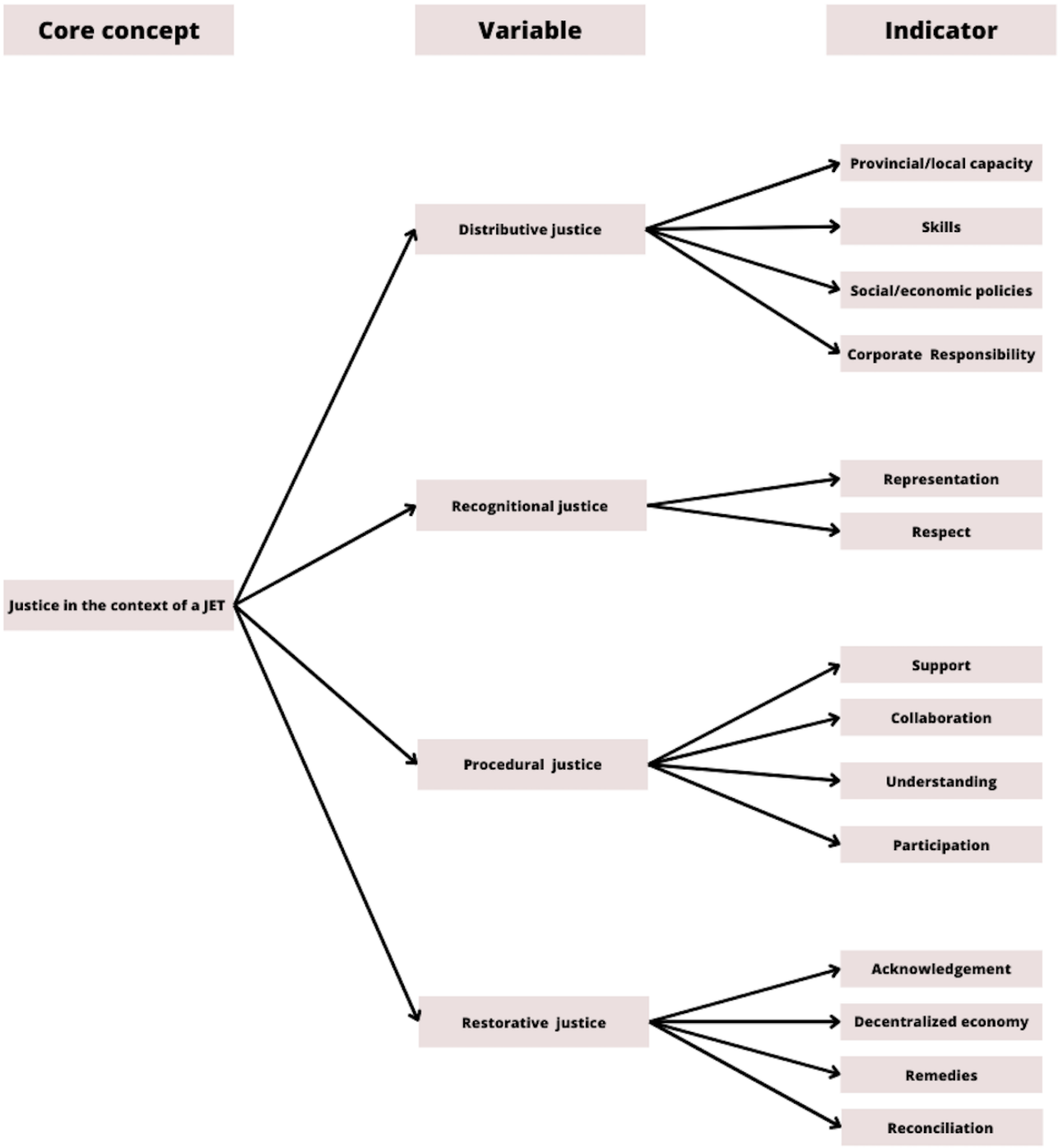


Figure 6: Operationalization of core concept based on theoretical framework.

Source: Author's own visualization.

Chapter 3
Methodology

The following chapter lays out the methods used in conducting this research. It outlines the research design, the motivation for the case study, the data collection methods, its analysis and ends with a note on positionality and ethics.

3.1 Research design

The research design used in this study was a case study. Due to time and money constraints, it was necessary to delineate the research to the NDM. This area was chosen as the NDM is heavily involved in the energy industry and will be severely impacted by the transition (Matoane, 2015). More extensive information about the motivation for choosing the NDM as case study can be found in section 3.2.

This research aimed at generating a grounded theory. Grounded theory implies that one tries to generate theory out of the collected data, or "*the discovery of theory from data*" (Glaser & Strauss, 1967, p1). This means that the main objective of this research was not to test existing theory. This was chosen as the current theories are Western dominated. It would be counterintuitive to use those theories to unravel non-Western perceptions of justice. According to a study by Charmaz (2004), grounded theory is particularly useful for social justice studies considering its potential to analyze processes and find relationships between emerging concepts.

In order to realize this, this research has generated qualitative data. Qualitative research can produce rich data that aids in understanding complex social phenomena (Bryman, 2016). Furthermore, qualitative research tries to understand social phenomena by positioning oneself in someone else's shoes (*ibid*). Therefore, this study took on an interpretivist philosophy. This implies that it recognizes that there is no sole objective reality 'out there' (Pham, 2018). In contrast, it acknowledges that realities are constructed and multiple (Denzin & Lincoln, 2011). It also recognizes that knowledge is co-constructed (Denzin & Lincoln, 2011). This interpretivist approach and recognition for multiple realities can be especially useful for this research. This is because this research aims to gain in-depth understanding of diverse ways in which justice in the context of a just energy transition is perceived through the eyes of South Africans in the NDM (Hammersley, 2013).

3.2 Case study explanation

Data collection for this research has been conducted in February 2023. Important to note is that South Africa has nine provinces, varying in size. One can furthermore categorize South Africa further in metropolitan municipalities, district municipalities and local municipalities. For this research, data collection has been done in the Mpumalanga province, with a special focus on the NDM, South Africa (see figure 7). The Mpumalanga province can be divided in three district municipalities; namely Nkangala, Gert Sibande and eHIanzeni. At present, 80% of the coal activity in South Africa is concentrated in the province of Mpumalanga (PCC, 2022). The NDM was chosen as research area because it is considered to be the 'energy hub' of South Africa and the economic heart of the province (Nkangala District, 2020). The area has deserved this name due to its abundance in coal reserves and seven located power stations of Eskom (Eskom, 2021). The location of these power stations in the municipality can be seen in figure 8. The NDM covers an area of 16 758 square kilometers and counts 1 445 624 inhabitants in 2016 (Nkalanga District Municipality, 2020).

Research by Patel et al. (2020) has shown that 70% of the value from the coal chain is derived solely from four local municipalities; eMalahleni, Steve Tshwete, Govan Mbeki and Msukaligwa; three of the four situated in the NDM. Interesting enough, eMalahleni literally translated means 'the place of coal'. That this is the place of coal is well visible in the area. Everywhere where one looks there are mines, power stations or enormous trucks that are transporting coal. Warning boards for blasting events were also not unusual to see. Furthermore, air pollution limits have exceeded frequently in the NDM (Denoon-Stevens & Du Toit, 2021) and has proven to be detrimental for human health (Hendryx, 2015). Greenpeace illustrated this by stating that Eskom coal-fired power plants are responsible for the death of 200 children each year (Holland, 2017). Even spending solely one day per field visit, one can already experience the thick air that is present in this area. Due to the direct experiences of living in the vicinity of power stations, these people might have a different perspective on justice in the context of a just energy transition from people that do not live in the vicinity of power stations.

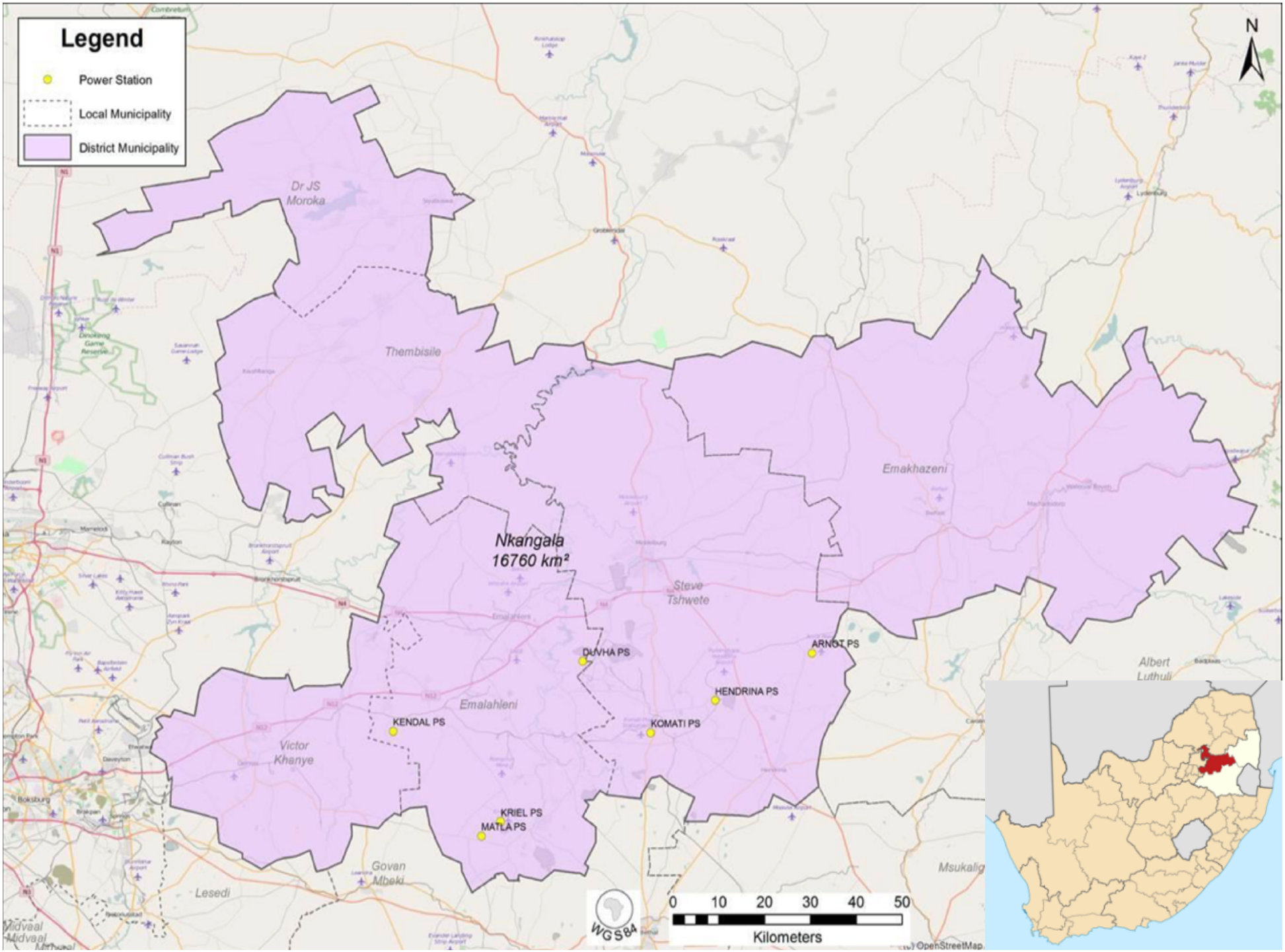
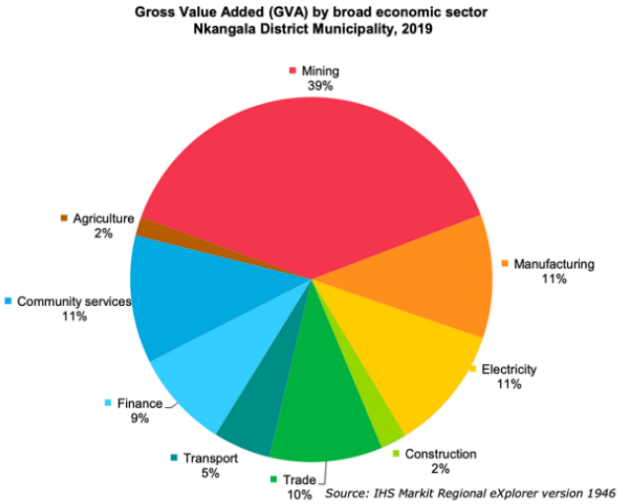


Figure 7: Geographical context of Nkangala District Municipality, South Africa and located power stations.
Source: Eskom, 2021(overview of power stations in the NDM) and Wikipedia, 2022 (top right map)

The unemployment rate in the NDM is dramatically high at 34.3% in 2019 (Nkalanga District Municipality, 2020). 17% of the people that are employed are working in the mining sector, which makes this sector the second largest employment sector (*ibid*). However, Molelekwa (2023) argued that 80% of the people living in eMalahleni are working either for Eskom or Transnet, the transport company owned by the state.

The NDM is furthermore of economic importance for Mpumalanga with the NDM contributing for 37,98% to the province's GDP (Nkalanga District Municipality, 2020). Within the 37,98% contribution to the GDP, mining is responsible for 38,7% of the gross value added to the economic sector (see figure 8). Important to note that there is a differentiation between coal mines and coal-fired power plants. Whilst Komati coal-fired power station has closed, and other coal-fired power stations are scheduled to be closed, mines continue to open. One can therefore question whether these closedowns are done to offset the transition or whether they are closed because of their reached lifespan. Nevertheless, in this thesis, a holistic approach is taken where both mines and power stations are addressed.



	Ehlanzeni	Gert Sibande	Nkangala	Total Mpumalanga
Agriculture	46,500	23,200	16,100	85,759
Mining	7,760	27,800	61,800	97,313
Manufacturing	30,300	34,000	27,900	92,187
Electricity	3,100	5,890	14,400	23,435
Construction	37,500	26,100	29,300	92,864
Trade	111,000	72,100	63,200	246,134
Transport	21,000	14,700	17,300	52,993
Finance	55,800	41,200	44,000	141,026
Community services	102,000	59,700	55,800	217,436
Households	45,300	22,800	27,900	96,017
Total	**460,000**	**328,000**	**358,000**	**1,145,165**

Source: IHS Markit Regional eXplorer version 1946

Figure 8: The importance of the mining sector in the NDM.
Left: Nearly 40% of GDP constitutes of the mining sector.
Right: Overview of the number of people working in different sectors in the three municipalities of Mpumalanga.
Source: Nkangala District Municipality, 2020.

As can be seen in figure 8, the Komati coal-fired power plant of Eskom is also situated in the NDM. This is especially interesting because this coal-fired power plant is decommissioned at the 31st of October 2022 and transformed into the so called 'Komati Repowering and Repurposing project' (Eskom, 2022). Operating since 1961, Komati had to be decommissioned as it had reached its lifespan (Eskom, 2022). The closure of Komati will however not significantly affect the national grid considering

that the remaining of Komati was only producing 121MW, representing approximately 2.2% of the country's electricity grid (Eskom, 2022; KPMG, 2017). Eskom argued this to be the largest repurposing project for the decommissioning of coal fired power plants in the world and is aimed at generating renewable energy with 150MW solar energy, 70MW wind energy and 150MW of storage batteries (Eskom, 2022). As stated by the World Bank (2022), this project can act as a model for the future decommissioning of other coal-fired power plants in South Africa and beyond. According to Eskom, "*no Eskom employees will lose their jobs as a result of the closure and Eskom has held extensive engagements with the employees, labour unions, the community and all affected stakeholders and communicated the requirement to shut down the plant timeously and clearly with everyone involved*." (Eskom, 2022; media statement). Nevertheless, some argue that the closedown of Komati has far reaching consequences that Eskom does not account for (Majavu, 2022; Groenewald, 2023). Communities fear that they will be disproportionally affected and that the shutdown will result in job losses that are not limited to Eskom employees (Majavu, 2022; Matikinca, 2023).

The combination of on the one hand the heavy reliance on the mining industry for both income and jobs and on the other hand the first steps made towards the energy transition, made this area an interesting area to research.

3.3 Data collection

3.3.1 Indalo Inclusive

Central to the data collection of this research was Indalo Inclusive. Indalo Inclusive is based in Pretoria South Africa and has facilitated this research and provided support on the ground. This not-for-profit organization was referred by my supervisor who worked with this organization before. Then, I did a background check on the organization and their work appealed to me. The word *indalo* stems from isiZulu and considers the world in a holistic manner in which everything is connected with one another (Indalo Inclusive, 2022). Indalo Inclusive is performing valuable work on a wide range of important elements that stimulate a more sustainable future for South Africa. Especially, Indalo Inclusive stimulates sustainable entrepreneurship that contributes to a just transition in South Africa. Furthermore, Indalo Inclusive has wide ranging partnerships such as United Nations Environment Program (UNEP), Government of Flanders, Climate Innovation Center South Africa, just to name a few (Indalo Inclusive, 2022. Indalo inclusive therefore deals with multiple dimensions and has a holistic approach to sustainable development. Its ambitious, inclusive and bottom-up approach to stimulate a just transition in South Africa made this a suitable organization for supporting me in conducting this research.

In Pretoria, I worked at the office of Indalo Inclusive combined with visits to the NDM. On the second day of my arrival in Pretoria I joined a workshop of Indalo Inclusive targeted at sustainable

entrepreneurship for women. This helped me familiarizing with the work that Indalo Inclusive is doing. The trips to the NDM were assisted by a key informant with who I was connected to through Indalo Inclusive. She has related work experience in the justice field and was very important for my research. Firstly, it was easier to get into contact with participants considering that she was South African and able to speak multiple local languages. Due to the hesitation of some participants towards outsiders, it was very helpful to have her assist me. People were more likely to participate and open up during conversations when she was with me. During our extensive car drives we would discuss the information that was given to us during the interviews. Where necessary, she could provide me with context or cultural backgrounds. Bouncing back the results with her enhanced the understanding of a South African perspective on the matter. The staff of Indalo Inclusive were very helpful in linking me with possible participants and setting up interviews. Rest Kanju, the director of Indalo Inclusive, was crucial in this process. Also, in informal settings on one of our trips together, Rest and his wife gave me valuable information about the South African context, its culture and important values and norms.

3.3.2 Conducting Interviews

In order to gather rich data about South African perceptions of justice, interviews have been conducted. Interviews are widely used in qualitative research and can provide in-depth information on the studied phenomenon (Bryman, 2016). The interviews that have been conducted in this research have been semi-structured in nature. Semi-structured interviews provide structure through e.g. an interview guide whilst also allowing for exploring topics that pop up during the interview. An interview guide was prepared with topics and questions that were aimed to be covered during the interviews. The questions were aimed to be open and not leading. For example, personal experiences and understandings of the just energy were asked for. One can find the interview guide in Appendix 1. The interview guide was checked by both Rest and my key informant. This was revised according to their feedback. Furthermore, the interview guide has been slightly adjusted according to the participant's background. Whilst providing structure, the order of the questions differed accordingly to how the interview proceeded. Nevertheless, all questions of the interview guide were covered in each interview. Furthermore, follow-up questions were asked to explore more in-depth information. Performing these semi-structured interviews was therefore a flexible process (Bryman, 2016).

At the start of each interview, I introduced myself and the aim of the research. Furthermore, consent was asked to record the interview. This allowed me to rehear the interviews and to make accompanying transcriptions. Furthermore, the recordings avoided that I lost full attention due to making fieldnotes. Nevertheless, jotting notes have been made during the interviews whenever people felt uncomfortable with recording the interview. When I noticed that people felt uncomfortable with recording, I decided not to record the interview so that people could speak more freely. In these

situations, I tried to make a lot of notes to capture the core of the interview as much as possible. Right after the interview was finished, I would write down as much as I remembered or I made a voice memo for myself. In total, four interviews were not recorded. Despite trying to ensure a somewhat informal setting, I have noticed a general sense of formality with most respondents. When asked about why this is, I heard that a lot of people have mistrust to foreign researchers that enter the space. People have felt exploited by researchers; they give their time but don't enjoy direct benefits or feel like their information is misused. Moreover, it could relate to the sensitivity of the topic under research. When explicitly stating that the information is solely used for academic purposes, participants generally felt more at ease.

One group interview has been conducted with 10 participants. This was a homogenous group; the group consisted of community people that advocated for a *just* transition and the phase out of coal in their living area in the NDM. This is in line with the recommendation of Krueger (1994) that has demonstrated that people are more willing to participate in fruitful dialogues once the group is homogenous. In this group interview, the existing interview guide was followed. However, a lot of topics thereafter came up that were explored deeper during the group interview. The results following from this group interview helped in checking the results that I already found. This made the internal validity of this research higher. The group interview was conducted in the office of the activists in the NDM. During the interview, I paid close attention to the group and power dynamics. Providing enough space for everyone to talk proved to be rather difficult considering that one person dominated the conversation quite a lot. Interesting enough, when this participant left for a short while, others started to talk as well. During the group interview, jotting notes that captured important elements of the discussion have been made by my key informant. At the end, I thanked everyone for their time and efforts and mentioned that everyone can receive the end product if they wish so.

3.3.3 Additional data collection methods

A Youth Climate Champions Workshop hosted by WWF in Johannesburg was attended on the 24th of February 2023 to get a grasp on how the youth is currently experiencing developments surrounding climate change and the just transition in South Africa. This workshop gave the unique opportunity to hear many youth voices and perspectives. Moreover, informal talks were held with people to receive additional information. Lastly, a webinar on 'repurposing coal mines for a just transition' was attended on the 28th of February 2023. In this webinar, the feasibility of a hydroponics pilot in repurposing coal mines was discussed alongside with the challenges that come with the just transition in Mpumalanga.

3.3.4 The research population

16 interviews were held in a period of 3.5 weeks. The interviews have been conducted with a variety of relevant stakeholders in the just energy transition space, ranging from governmental officers to activists in the field. Considering that there have been interviews with multiple participants, the total number of participants was 31. An overview of participants can be found in table 1. As can be seen in this table, different stakeholder groups were represented. Despite attending and having talks with people during the Youth Climate Champions Workshop, these people were not included in table 1 as these talks were regarded insufficient to be considered as a full interview. Furthermore, attention was also given to the men/women ratio. Historically, women perspectives are underrepresented in academics (Terry, 2009; Wickramasinghe, 2003). Therefore, I wanted to ensure a 50/50 ratio. 14 out of 31 participants were women hence the intend ratio was almost fulfilled. Most interviews have been conducted face-to-face in the NDM. Solely three interviews have been conducted online on Microsoft Teams. This was due to time or transportation constraints. Moreover, two interviews have been conducted in Cape Town. Whilst primarily focusing on the Mpumalanga province, these interviews were explorative to get a grasp of the status quo. The sample size of the research was based on the willingness of people to participate. Whilst more people have been approached, it has proved to be rather difficult to find people that were willing to participate. This could perhaps be attributed to the sensitivity of the subject under study.

Table 1: Overview of the research population

#Participant	Type of stakeholder	Gender	Date	Location
P #1 – Interview #1	NGO	Woman	30st of January 2023	Cape Town
P #2 – Interview #2	NGO	Man	30st of January 2023	Cape Town
P #3 – Interview #2	NGO	Woman	30st of January 2023	Cape Town
P #4 – Interview #2	NGO	Woman	30st of January 2023	Cape Town
P #5 – Interview #3	Governmental body – local level	Woman	10th of February 2023	Nkangala
P #6 - Interview #3	Governmental body – local level	Man	10th of February 2023	Nkangala
P #7 - Interview #3	Governmental body – local level	Man	10th of February 2023	Nkangala
P #8 – Interview #4	NGO	Man	13th of February 2023	Nelspruit
P #9 - Interview #5	Governmental body – provincial level	Woman	13th of February	Nelspruit
P #10- Interview #6	Activist/community member	Woman	16th of February 2023	Nkangala
P #11 - Interview #7	Activist/community member	Man	16th of February 2023	Nkangala
P #12 – Interview #8	NGO/activist	Man	17th of February 2023	Middleburg
P #13 – (Group) Interview #9	NGO/activist/community member	Woman	17th of February 2023	Witbank

P #14 – (Group) Interview #9	NGO/activist/community member	Man	17th of February 2023	Witbank
P #15 – (Group) Interview #9	NGO/activist/community member	Man	17th of February 2023	Witbank
P #16 – (Group) Interview #9	NGO/activist/community member	Woman	17th of February 2023	Witbank
P #17 – (Group) Interview #9	NGO/activist/community member	Woman	17th of February 2023	Witbank
P #18 – (Group) Interview #9	NGO/activist/community member	Man	17th of February 2023	Witbank
P #19 – (Group) Interview #9	NGO/activist/community member	Woman	17th of February 2023	Witbank
P #20 – (Group) Interview #9	NGO/activist/community member	Woman	17th of February 2023	Witbank
P #21 – (Group) Interview #9	NGO/activist/community member	Woman	17th of February 2023	Witbank
P #22 – (Group) Interview #9	NGO/activist/community member	Woman	17th of February 2023	Witbank
P #23 – Interview #10	Industry – ex worker mine	Man	17th of February 2023	Witbank
P #24 – Interview #11	Governmental body – finance	Man	20th of February 2023	Online
P #25 – Interview #12	Industry – mining company	Man	20th of February 2023	Online
P #26 – Interview #13	Royal family Nkangala/activist	Man	22nd of February 2023	Online
P #27 – Interview #14	Industry – ex worker Komati	Woman	23rd of February 2023	Komati
P #28 – Interview #15	Governmental body – local level/community member	Man	23rd of February 2023	Komati
P #29 – Interview #15	Governmental body – local level/community member	Man	23rd of February 2023	Komati
P #30 – Interview #15	Governmental body – local level/community member	Man	23rd of February 2023	Komati
P #31 – Interview #16	Counselor/community member	Man	23rd of February 2023	Komati

3.3.5 Sampling technique

Purposive sampling, an often-used sampling technique, is used whenever the researcher is looking for some kind of representative (Vehovar et al., 2016). Indeed, this technique was applied in this research considering that representatives of specific stakeholder groups were aimed to be targeted. Relevant stakeholders were identified through desk research and through the help of Indalo Inclusive. Search databases like e.g. Google and Google Maps have been used to explore who are important stakeholders in the transition and which stakeholders are present in the NDM. For example, a list of consulted stakeholders in the just transition summit in the NDM was reviewed and consequently checked for my research. These, and others, were then further discussed with my key informant. A list with possible stakeholders was afterwards delivered to Indalo Inclusive. Much initial contact was mostly established

through them due to their extensive network with relevant stakeholders. Nevertheless, I also tried to establish contact with possible stakeholders through LinkedIn. I searched for people working in the Komati coal fired power station and sent them a short message with what kind of research I was doing and if they would be interested in participating. Unfortunately, I have not received any replies from people approached via LinkedIn. I was aware that this technique might not be very productive due to some people in the community being semi-literate or not proficient in IT skills. However, considering that finding participants was difficult, it was just another attempt to reach possible participants.

Snowball sampling was also applied in this research. Snowball sampling is a sampling technique in which participants of the research refers to other potential participants. These, again, can refer to other potential participants; hence the snowball effect (Acharya et al., 2013; Bryman, 2016). Once the interviews were finished, I would ask whether the participant knew any other people that could be of interest for the research. In this way, more participants were found. This type of sampling was chosen due to the difficulty of finding participants.

The sampling technique for the group interview was not planned; it occurred spontaneously. Community members that were active within the same organization and had the same struggles were present during the session. Considering that all these people were active in the JET field, they could actually feed into the discussions. Therefore, although unconsciously, purposive sampling was applied for the group interview. This is in line with the recommendation of Morgan (1997).

At the end of the field research, some type of saturation was reached considering that certain elements repetitively came back in the answers of the respondents.

3.4 Data analysis

3.4.1 Data analysis interviews

As soon as possible after each interview, the jotting notes were converted into more extensive fieldnotes. Furthermore, the interviews were transcribed as soon as possible after each interview so that everything was still fresh in the memory. The transcriptions were written *intelligent verbatim*, meaning that the transcriptions are fitting the purpose of the research and 'irrelevant' parts will be left out (McMulllin, 2023). This choice was made due to time constraints. The researcher was aware of the choices that have been made considering what is deemed 'relevant' and 'irrelevant'. 'Irrelevant' words would comprise of words like 'umh', 'like' and repeated words. Whenever the participant was interrupted by someone or a phone call, this would also not be transcribed. Moreover, endless sentences would be shortened so that the readability of the transcript would not be compromised.

The transcriptions consequently have been imported in ATLAS.ti. Afterwards, the transcriptions have been coded so that I could make sense out of the dense and rich data. Grounded theory analysis has been applied including open and axial coding (Glaser & Strauss, 1967; Charmaz, 2006; Green & Thorogood, 2009). First, open coding has been applied meaning that bits of data were assigned to lose codes (Strauss & Corbin, 1990). Hence, the data was explored and loosely categorized. Afterwards, another round of coding was done resulting in more advanced codes; also called axial coding (*ibid*). This allowed to identify relationships between codes, categories and themes. An inductive approach to coding, meaning a bottom-up approach to coding was thus applied (Bryman, 2016).

3.5 Summary research approach

In summary, this research adopted an inductive approach. As can be seen in figure 9, semi-structured interviews without predetermined concepts were conducted. These interviews have been transcribed and coded accordingly. Following from this, justice elements have been identified specific to the NDM. Thereafter, these concepts have been compared with existing justice. Lastly, it was identified whether it was possible to develop additional elements to justice.

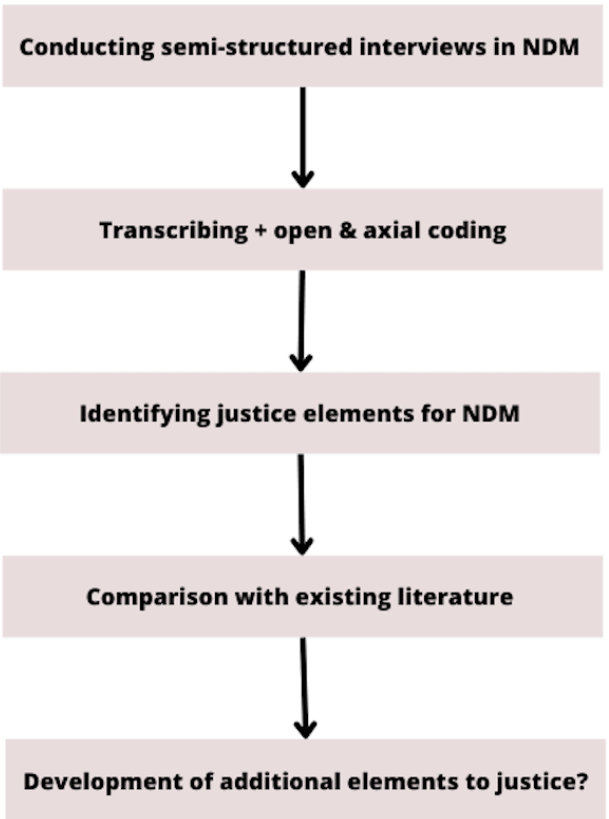


Figure 9: Visualization of research approach
Source: Author's own visualization

3.6 Positionality

Throughout this research, it was highly important for the researcher to be aware of and reflect on one's positionality and how this shaped the research, especially considering the sensitivity of the topic under study (Bourke, 2014). In qualitative research, it is impossible for the researcher to be neutral and value free (Van Maanen, 2003; Bourke, 2014). It is therefore important to be aware of existing biases and to make them explicit in one's research (Whittemore et al., 2001). Positionality entails the way we understand the world and is shaped by our social identity (Bourke, 2014). Positionality can include both fixed and fluid elements like gender or skin color versus ideologies and unique experiences that shaped a person (*ibid*).

As a Dutch young and white woman studying the perspectives of South Africans, I had to be aware of some elements regarding the 'self' (Milner, 2007). I reflected on my gender, race, age and culture. These elements influence how I understand the world around me whilst also influencing how I interpret other worldviews (Milner, 2007). My positionality also inevitably influenced the research design and the questions that were asked (*ibid*). This does not have to be problematic per se but it is critical to be sensitive to this. It was furthermore important to reflect on the history of my country and how this has affected a country like South Africa. I read a book about South Africa and its history and furthermore visited the apartheid museum in Johannesburg to get a grasp of the injustices that were done to the South African people. Nevertheless, it is important to realize that I can never truly understand what these people have been through. Sadly enough, the influence of apartheid is still well visible in the country and it is undoubtedly freshly in people's mind.

3.7 Ethics

Conducting research on the just energy transition in South Africa came with ethical considerations. As explained before, both justice and energy are highly sensitive concepts in South Africa. Talking about these concepts can be uncomfortable and raise feelings of sadness or anger. Therefore, it was important to approach this research with care in which ethical considerations were taken into account.

Perhaps especially important in sensitive research is informed consent. Before each interview, I would introduce myself and the aim of the research. Moreover, it was explained that participants can withdraw at any moment during the interview if the participants wished so. Every person included in this research voluntarily agreed on participating. When a participant was uncomfortable with participating or responding to a particular question, this was respected. Moreover, due to the flexibility of conducting semi-structured interviews (Bryman, 2016), the participants have been given the freedom to tell their stories in a way that they preferred.

Consent was asked regarding the audio-recording of the interview and it was confirmed that people would remain anonymous throughout the research. Instead of using names, participants would receive a number and referred to as participant # *number* (e.g. participant #1) throughout the report. Assuring this anonymity as well as that the research is solely used for academic purposes, generally put the participants at ease. Moreover, at the end of each interview, I would tell the participants that they can receive the end-product if they wish so. Most participants responded positively to this. Furthermore, the guidelines of the FNP regarding data management were followed. Lastly, plagiarism was not committed throughout this research.

Chapter 4

Results

In this chapter, the results following from the 16 interviews with 31 participants will be presented. This chapter adopts an inductive approach which allows for the exploration of emerging concepts and their relationships (Bryman, 2016). Then, these concepts, grounded in the empirical results of this study, can act as building blocks for building theory. Worthy to note, the results have been presented according to the order of the research questions as posed in the introduction.

4.1 Understanding the concept of a just energy transition in the NDM

Before exploring what are important justice elements within the NDM and how just the current JET in the NDM is, it is important to establish how the JET in the NDM is currently understood.

From the results, it appeared that the concept of a JET is fairly new and contested in the NDM. Among the participants, wide varying interpretations existed on the concept depending on e.g. one's sector, norms, values, worldviews etc. That the concept is fairly new also became apparent from the fact that participants reported that many people in the communities in the NDM are not familiar with the concept. Most participants of this research were however aware of the concept and associated the JET with something that is necessary in order to combat climate change. Nevertheless, when talking about the JET, participants expressed fears for the unknown and none of the participants argued that the transition is happening in a manner that can be considered 'just'. As became apparent by driving through the NDM and talking to people in the NDM, coal is of crucial importance for the district's economy. P#12 (NGO) explained how the NDM has attracted many people from across the country as well as from abroad that sought for economic opportunities. Historically, working in the mines was unattractive for many South Africans due to the low wages (P#23, industry). Therefore, foreign workforce was brought to the NDM to fill the positions. P#23 (industry) explained that at present working in the mines offers significant benefits like e.g. a good salary due to the presence of powerful trade unions. On this note, this participant reported *"But today, 99% of the mining industry is a better place than any operation in South Africa. Mining industry is paying"*. Consequently, phasing out such a critical resource created significant fears among the participants. On top of that, participants reported that many people are not aware of what a JET exactly entails and what the purpose is. Given the complexity of the transition, government officials (P#5/6/7, government) reported that it is extremely challenging to navigate the transition and how to anticipate on long-term consequences. According to P#8 (NGO) and

P#25 (industry) a fragmented understanding exists on the JET as many intertwined elements are discussed in silo, hampering a holistic approach.

4.2 Setting the context: Understanding the present health situation in the NDM

The necessity of the energy transition became apparent from the numerous health issues that were reported by the community participants. Virtually all community participants expressed fears about the dense presence of mines and power stations that are contaminating the district's water, land and air *"Look at the ground right now, that is not the color it's supposed to have. It is black from the coal blasting" (P#10, community)*. Consequently, the community participants explained that many people in the NDM suffer from respiratory diseases, including young children. As evident from the quote below, people in the NDM are left with a dire situation of both food and water insecurity as a consequence of contaminated land and water. P#13 (community) explained that the minister officially acknowledged the severity of the pollution by designating this area as 'highly contaminated' in 2007.

"We don't have clean drinkable water in our communities. Those that can afford are buying water. But those that cannot afford, they are drinking the same water that is polluted. Even the water that is coming from the municipality is not clean. Also, our land is contaminated. We cannot even plough our food" (P#13, community)

P#12 (NGO) explained that the consequences of the severe pollution in the NDM extend beyond the high mortality rates as it also impedes the social and economic development of the population. The illnesses that affect young children like e.g. asthma can affect both their mental and physical development. As a result, P#12 (NGO) reported that some of these children are unable to attend school which puts them at a disadvantage compared with their healthy peers. This participant furthermore argued that when these children seek employment later in life that requires a medical test, their illness can prevent them from passing the test. Future generations can therefore already be excluded due to the activities that are happening today (P#12, NGO). Furthermore, P#11 (community) reported that the occurrence of coal blasting is deteriorating the housing conditions in the NDM through e.g. cracks in people's home.

P#12 (NGO) furthermore explained how coal-affected communities have made considerable efforts to address these issues by making mining companies accountable in court. While mining companies in South Africa can have voluntary corporate social responsibility plans, they are legally obliged to have social labour plans in place. As explained by the same participant, a failure to comply can result in a withdrawal of their license to operate. However, "*they [mining companies] have perfected*

the art of non-compliance (P#12, NGO). This participant argued that this is possible due to the ineffective monitoring and enforcement mechanism of the Department of Minerals Resources and Energy (DMRI). Community members furthermore explained that mining companies operating in the NDM have made considerable commitments to the communities including clean drinking water and training programs. Unfortunately, P#12 (NGO) argued that these commitments have not been fulfilled. It has been observed that mining companies apply for plan variations, indicating that they are unable to meet the expectations and outline the necessity for drafting a new plan for the coming year. However, participants noted that there is a lack of transparency regarding the funds that were supposed to be allocated in the respective year. Moreover, skepticism was expressed regarding whether the newly submitted plans for the coming years have a double budget considering that the budget from the previous year were not utilized. P#12 (NGO) moreover noticed an increase in SLAPP (Strategic Lawsuit Against Public Participation) suits. Many people within mining companies are connected with the mineral council and it is observed that mining companies bundle their resources with is resulting in significant funds to combat public resistance. Through these SLAPP suits, communities have felt to be silenced and put at a disadvantage once again.

Whilst most of the participants acknowledged the presence of health problems associated with coal, a few participants were unconvinced about the controversial effects that coal brings to the communities. For example, P#31(community) argued that the water was entirely safe to drink and that he was unaware of anyone who suffered health problems in the community. The participant showed skepticism towards the transition and argued that it is useless and another way for people to make money. The transition would be legitimized by the intended health benefits for people.

4.3 Justice elements in envisioning the just energy transition in the NDM

4.3.1. Transforming lives: the importance of lifting people out of hardship

From multiple interviews it became apparent that uplifting people from their current living standards is extremely important in realizing a JET. As stated before, community members explained during the interviews that they are living in hardship in the NDM. Participants expressed fears that the transition will exacerbate the already striking inequalities by not equally spreading the costs and benefits. Consequently, virtually all participants acknowledged the importance of finding alternative employment opportunities in sectors other than the coal value chain to offset the loss of employment. The district is currently faced with a disturbing unemployment rate of approximately 34% and fears were expressed that the JET will further increase these rates. Therefore, P#7 (government) reported that the JET should make sure that the jobs created by the transition will be accessible to the communities and “no one is left behind”. As illustrated before, P#23 (industry) disclosed that working in the mines is a very

attractive job. Therefore, it was reported that employment opportunities in the green economy should be as attractive as those in the mining industry. There should furthermore be a social protection system in place for those people that cannot be absorbed by the green economy (P#9, government). Moreover, participants noted that the transition should not result in more load shedding. There was frustration among the participants that electricity is produced in the NDM and yet they do not have stable access to electricity themselves. Participants therefore noted that it is important that people have access to clean, reliable and cheap electricity. This could help in developing the communities further, both economically and socially.

"If it is not addressing the challenge of unemployment, poverty and inequality then it is not a just transition, it is just a transition" (P#25, industry)

For most of the participants from community, the JET was furthermore associated with something that is necessary due to the pressing health impacts of the coal industry. At the same time, these participants expressed a fear of losing one's livelihood as this could result in increased inequalities, crime, drugs abuse and violence. Among many participants, the JET was therefore negatively associated with taking away people's livelihood. Multiple participants explained that they do not know any case in which the JET was proved 'just'. This has made them pessimistic about the future decommissioning of other power stations. Participants reported that they would like to see real life examples in which they could witness where the JET was actually 'just'.

4.3.2. The gateway to knowledge: the importance of access to accurate information and development of skills

Following from the interviews, it became apparent that access to information is one of the key pillars for enabling a JET in the NDM. Many participants reported that people at different levels in society currently do not have access to accurate information or information at all. Participants from government and NGOs argued that the communication between different stakeholders is highly fragmented. This creates chaos and makes it extremely challenging to navigate the JET.

"A lot of people don't know what is happening around them, it is a mess. Even some of the people working in mines or power stations of Eskom do not know what is happening" (P#12, NGO)

Following from an interview with P#11 (community), it became apparent that many ordinary people in the NDM are unaware of the concept of a JET. This participant demonstrated this statement during the interview by approaching a person that was passing by and asking whether this person had ever heard of the JET. Indeed, this person had never heard of the concept neither about the closure of

power stations. According to P#10 (community), this is due to the fact that people are not properly informed about the current planning or development surrounding the JET. *"To be honest, what is happening over there, we don't have the full details" (P#10, community).* It was argued that the information that is present is not filtering down to the communities. Moreover, P#11(community) mentioned that the concept is "*invisible"*. P#11 (community) made the comparison with the HIV/AIDS situation. The participant argued that the government made considerable efforts to raise awareness around this by disseminating information through billboards, newspapers and the radio channels. People continued to be exposed to the information and were familiarized with the severity of the situation. This participant argued that the government is currently not showing similar efforts to generate awareness around the JET.

It was argued by P#12 (NGO) that even in governmental institutions there are officials who lack awareness or understanding what a JET exactly entails. The participant expressed concerns about this considering that these people are supposed to have accurate and first-hand information in order to establish plans for navigating this complex transition.

"I can tell you, some of them within the office, they don't even know a single thing about the just transition; or even climate change. There is that information gap" (P#12, NGO)

From the Youth Climate Champions Workshop, it became evident that the youth is struggling with the high-level policy documents. First of all, it was perceived difficult to find the information that one is looking for at the government's website. The website was perceived as outdated and difficult to navigate which makes accessing readily available information challenging. Moreover, a lot of data in different domains were perceived as outdated. The youth reported that this makes it difficult to form good arguments and therefore to meaningfully engage. According to P#12 (NGO), there should be support structures in place that assist people in receiving the right information and skills.

Community members and NGOs expressed concerns around the preparation of skills that are needed in the green economy. According to them, there is a mismatch between the skills that are currently taught to people and the skills that will be needed in the future. They strongly emphasized the need to align this supply and demand in order to close this skills gap. For the people already working in the fossil fuel-based economy, it was deemed necessary to re- and upskill these workers. These participants however also explained that some young people have lost hope in the future and do not see the need to pursue school. Participant #10 (community) explains that this is due to the current high levels of unemployment. This participant furthermore pointed out *"When a high school child starts asking: what is the use of going to school? That is really dangerous. That is when you need to start focusing a lot"*.

"The country from a skills point of view hasn't done enough to train people to be able to take advantage of the skills of the future; green skills. There is not a single university that has a curriculum on green skills. So, we are still lagging behind, we are still stuck on the previous ways of doing things. There is a long way to go for South Africa" (P#12, NGO)

Community members also mentioned the value of sharing information among communities as communities in the NDM are generally faced with the same problems. Engaging in discussions on how different communities are addressing and tackling issues stimulates mutual learning and support. Also discussing how certain approaches did not result in desired outcomes was considered important so that other communities are prevented from making the same mistake. P#12 (NGO) noted in this regard that operating in silo will reduce the chance to successfully oppose large and powerful mining companies. The importance of information sharing was also highlighted during the youth workshop, where participants argued for the necessity of holding preparing meetings for people attending high-level conferences for the first time. It was illustrated that these meetings should be supervised and facilitated by people that have experience attending such conferences. Currently, this is not being done but the attendants of the workshop argued that it would have significant benefits considering that the insights from their peers could help people without prior experiences with better preparation and understanding of what to expect.

4.3.3. Beyond tick-box exercise: facilitating meaningful engagement

Another element that was found critical by the participants in ensuring a JET is meaningful engagement. A prerequisite for meaningful engagement is the before-mentioned access to information. Following from the answers of the participants, consultations have taken place in the NDM. However, participants reported that these consultations were mostly highly flawed and not considered meaningful.

For example, P#13 (community) argued that the logistics surrounding the consultations have not been effective. This participant argued that consultations were generally announced too late for people to prepare for the meetings or they were not announced at all. When the consultations were announced, it was sometimes unclear what the exact timing of the meetings was. This resulted in people arriving too late to meaningfully engage. The participant furthermore continues with that consultations have been done in places that were not easily accessible to reach for community members, like e.g. fancy hotels. This was experienced as disturbing considering that many people simply do not have the funds to arrange transportation to these places. This resulted in the fact that only a privileged few were included in consultations. It was also reported by P#12 (NGO) that some of these consultations have been done online. However, not everyone has access to a computer, let alone a stable internet connection

considering the severity of the load shedding situation. The participant therefore argued that this is creating digital exclusion.

"When we go to those consultations, we have to have transport. Some of the consultations are late, so we have to have our own transport. If they were in the space of communities, we would mobilize enough. But how are we supposed to pay the bus, it is difficult" (P#13, community)

P#8 (NGO), P#10 (community), P#12 (NGO), P#13 (community), P#25 (industry), P#26 (activist) reported that those people that were lucky to be included in consultations would come in without prior knowledge which compromised the ability to meaningfully engage in the consultations. *"One of the key things the president argues for is "the process must be inclusive". Getting people in a room doesn't mean that the process is inclusive if they don't understand. You need meaningful engagement. Right now, we are not seeing that" (P#12, NGO).* Some participants argued that this was done intentionally to minimize resistance from the community and the additional believe that the community's understanding of the situation was very limited or even not existent. "*The communities need that knowledge and prep meetings to understand what the consultation is about. We have limited funds to do that. We think that our government or whatever consultation that they are going to make, all that they are doing is deliberately*" (P#18, community). In line with this, P#24 (government) notes: *"No, they don't know about it. Because it will create panic"*. Participant #16 (community) therefore argued that, in order to make the consultations more meaningful, it is important to hold preparation meetings. This would increase the understanding of the context and the purpose of the consultation. P#10 (community) lifted the idea to make 'community champions' meaning that a few people from the community are up-to-date about the latest development and are familiar with terminologies that are used in the field. These community champions will then engage with people and educate them on the necessary information in order to prepare them for consultations.

"Even in terms of consultations: we are still using a language that people cannot understand. If I go to a meeting with a society where we also know that the level of illiteracy might be between 70-80% and I want to use a typical language, I would be speaking to myself practically. And we've seen that happening a lot in some of these processes. Right from the onset, we are failing" (P#12, NGO)

4.3.4. Shifting powers: energy sovereignty

The desire for energy sovereignty in the NDM, whether for decision-making or energy production, emerged as an important element in many interviews.

P#7 (government), P#8 (NGO), P#9 (government), P#11 (community), P#23 (industry), P#25 (industry) reported that South Africa should have sovereignty over the energy transition trajectory and over the generation of renewable energy. They argued that at present most renewable energy projects are controlled by foreign companies which results in most production of techniques taking place abroad. As a result, the participants expressed discomfort with the loss of employment opportunities around the production of these techniques for the South African population. Therefore, to prevent major job losses that comes with closing down mines or power stations, participants perceived it highly important that the production, assembling and maintenance of renewable energy technologies take place in South Africa, and especially the NDM. Within this, it was perceived important to minimize dependence on the importation of foreign skills. This relates back to the before mentioned need for re and upskilling of people. Community participants argued to have a community-led energy system in which themselves have ownership over the production of energy.

"It must be a bottom-up approach. As communities we have a voice. We want to be part of it. We want to make it our own" (P#19, community)

At the municipality level, officials (P#5, #6, #7, #9 government) argued that they want to have full control over decision-making processes regarding the JET. They argued that currently the discourse surrounding the JET is mainly driven by the national government and municipality officials felt like decisions are imposed on them by the national government. The municipality of NDM felt therefore restricted by national government. Participants expressed discomfort with the decision-making process taking place outside the most affected provinces by people that lack understanding of local contexts (P#6, government; P#11, community; P#25, industry). Moreover, they experienced frustration with important events surrounding the JET mostly taking place in areas that will be much less impacted in comparison to Mpumalanga. Therefore, they argued, events surrounding the JET should take place in the hotspot areas. Within the transition, the district officials found it highly important that the NDM remains the energy hub of the country.

4.3.5 Transformative change in the South African government and Eskom

As mentioned earlier, participants opted sovereignty about decision-making processes as an important element for a JET. Many participants perceived that this is currently not happening and feel like there is a strong top-down approach for navigating the transition. Not a single participant was satisfied with how the government is currently operating. When talking with the participants or people beyond the study area about energy in South Africa, there was a general sentiment of hopelessness in either Eskom or the government. Following from talks with South Africans, it became evident that widespread mistrust is present. Various participants perceived that the South African government is not giving climate change and the JET much priority "*If you look at the competing priorities that the government has, I think issues of just transition are right at the bottom*" (P#25, industry). According to many participants, there should be more urgent action towards addressing these issues. Participants argued that there is no streamlined approach for the JET due to the perceived lower priority of the JET (P#7, government; P#9, government; P#13, community; P#25, industry). It was furthermore reported that different ministries are talking about different approaches with different terminologies. This is creating confusing among people *"We have different people saying different things. It is also very difficult to know who to listen to and who to trust at some point; that's another big factor" (P#3, NGO).* According to P#17 (community) there is currently a lack of ownership over responsibilities related to the JET. In this regard, P #24 (government) noted the necessity to indicate clear responsibilities among key stakeholders.

Critique was moreover expressed about the planning of the trajectory of the JET. Various participants voiced frustration about the timing of the discussions about the JET. They reported that conversations were only initiated now whilst power stations already started to close. P#12 (NGO) argued that these conversations should have happened much earlier to allow for better preparation for this complex transition. Participants noted that South Africa is unprepared for the transition and perceived that there is not a single economic diversification option that is viable enough to absorb the job losses that will be present in the coal value chain.

In the Youth Workshop, people perceived that conferences around the JET trajectory are consistently attended by a particular group of people which compromises the representability of these events. Consequently, participants of the Youth Workshop indicated that there must be a diverse representation of stakeholders involved in the JET with a special focus to include communities that will be most affected by the transition. They argued that a prerequisite for this is access to information and skills. This relates back to both section 4.3.2 about access to information and skills and section 4.3.4 about energy sovereignty. Moreover, participants argued for more transparency around the JET-IP. At present, the participants reported a lack of transparency about the allocation of money of the JET-IP. As

P#25 explains, the plan was released shortly before COP27, leaving people with insufficient time to review it. P#9 (government) argued for the importance that the government oversees that the majority of the money is directed to the Mpumalanga province.

Participants emphasized the need for transformative change in the state-owned power utility Eskom. A prerequisite for this is the element of transformative governance. As becomes evident under load shedding, Eskom is unable to provide the country with a steady supply of electricity, impacting every individual in the country. Participants argued that this can partly be attributed to the corruption scandals that Eskom is alleged of. It was perceived very important to address the severe issues within Eskom. However, addressing this issue proved to be very dangerous. When the CEO of Eskom, Andre de Ruyter, aimed to address corruption within Eskom, he was poisoned with cyanide in his coffee on the 12th of December 2022. According to a national interview with him (eNCA, 2023), Eskom is losing one billion Rand (approximately 55 million US dollar) every month due to corruption. In his interview, de Ruyter made serious allegations towards high politicians of the ANC that would be involved in this corruption. Moreover, de Ruyter reported in this interview that four well organized cartels would be active in Mpumalanga. De Ruyter in this regard furthermore stated that significant theft and sabotage within Eskom exist. These serious allegations have caused a lot of fuss in South African politics. The response of the government to these serious issues within Eskom was according to de Ruyter disappointing. In this regard he mentioned "*The response was essentially, "you know, you have to be pragmatic – in order to pursue the greater good, you have to enable some people to eat a little bit. So yes, I think it [corruption] is entrenched".*

Moreover, P#12 (NGO) reported that Eskom is implementing tariff increases due to its large debts. However, according to this participant, these increases are affecting individuals disproportionally as large industries have long-term purchase agreements with fixed tariffs which excludes them from these tariff increases. Ordinary people have to bear the burden to compensate for this through significant increases in tariffs. The same participants expressed concerns that this will affect individuals disproportionally considering that they are more susceptible to financial fluctuations than large companies. P#12 (NGO) in this regard notes "*An ordinary household in one financial year might have to pay 20 to 25% increase in terms of cost for electricity, let alone water and other services, just electricity. But we don't see that happening with big companies because they have long term purchase power agreements*". It was therefore argued that large companies should also be subject to tariff changes to make the increases more proportionally.

4.3.6. Ameliorating the PCC process

Despite efforts made by the PCC in addressing the justice component in the JET framework, participants argued that the process around the PCC was often flawed. For example, P#8 (NGO) mentioned that the PCC was not visible enough in local spaces. Many people in the community do not know about the existence of the PCC and the purpose of it, let alone about the consultations (P#9). There was critique on the fact that no one within the PCC is coming from the NDM (e.g. P#11, community and P#25, industry). *"There are people on the ground who work with communities that are not involved in the PCC. You expect someone who doesn't live a certain kind of life or standard to understand someone else's life. It is impossible" (P#11, community).* This participant also suspects that some people within the PCC are co-opt by the system, meaning that people who used to be activists on the ground are not anymore in activism due to the associated benefits of enjoying a position within the PCC. *"There are a few that I know who are in the PCC that were on the foreground fighting for the rights of the community. But now they want us to understand the transition as it is. 'Let's accept that the just transition is just" (P#11, community).* This mistrust towards the PCC was also reflected by P#10 (community) who was unsure whether the PCC is listening to the community. According to this participant, the PCC is not reflecting the community needs and wishes.

Nevertheless, community participants reported that a few consultations have been done by the PCC in the NDM with one of them being on the 7th of March. However, they reported that not many people were aware of this which could have created an unrepresentative sample of participants for the PCC to make the framework. According to P#11 (community), the media in the NDM like newspapers and radio never announced that the PCC was coming. So, only a few community members attended. Meanwhile, the PCC states "the community of Emalahleni says". According to this participant the attendants of these meetings were only the ones that are in line with what the PCC is saying. Participant #12 (NGO) also mentioned this: "*They only speak to aligned community members. When they come, they don't even have an idea what you are talking about. So, for me that is the critical issue*". Relating back to section 4.3.2, community members and activists reported that a lot of people are not aware of the JET. According to these participants, people were not prepared for the PCC meetings which resulted in fruitless engagements. "*The first question of the commission was: what is it that you want to discuss with us about regarding the just transition? Except for us, the room didn't come up with ideas (P#13, community).* According to some participants in this research who have participated in consultations done by the PCC, the language that was used during the consultations was too high level. P#10 (community) therefore suggested the PCC to make use of simpler English so that the comprehension of the content will be enhanced.

Another thing that some participants had wished for is feedback. They would like the PCC to report back to the communities. They are wondering whether the information they gave the PCC is actually arriving to the president. They want feedback about what has happened with their information and wishes. "*We were just talking but they don't come back to us and say: we report to the president and the president says this and that. They just want to continue with their work without giving us feedback*" (P#15, community).

4.3.7. Summarizing and exploring the relationships between the justice elements

In this section, an overview of the justice elements is provided as well as a figure that illustrates the relationships between the elements.

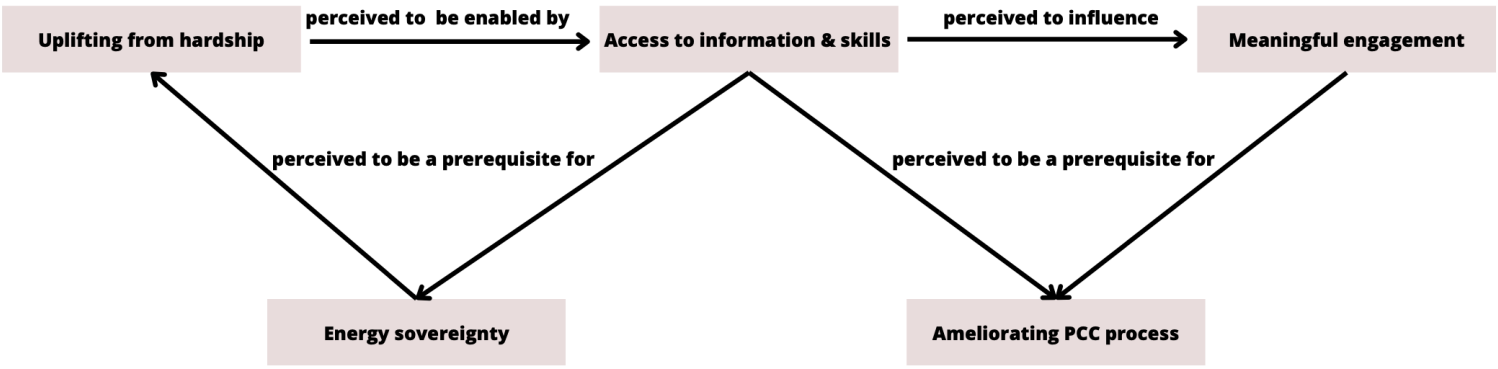


Figure 10: Relationships between the justice elements
Source: Author's own visualization

As can be seen in figure 10, participants argued that access to information and skills is perceived to be an enabler for uplifting people from hardship. Participants disclosed that the population in the NDM is currently lacking the skills that are needed to work in the green economy. Therefore, fears arose that the transition would increase the unemployment rate in the district and deprive communities further. Consequently, participants argued that access to information and skills could give them the tools to be employed in the green economy. As a result, unemployment levels would decrease and living conditions would improve. Moreover, participants argued that the access to information and skills could enhance meaningful engagement. As evident from the results, many people in the NDM currently lack understanding of a JET. Without having this knowledge in place, engagements were perceived as not meaningful. Multiple participants argued for the necessity to have preparation meetings prior to the engagements to equip people with the necessary information to meaningfully engage. Both these elements can then, in turn, contribute to ameliorating the PCC process.

Another justice element that arose from the results is energy sovereignty. Participants perceived access to information and skills a prerequisite for achieving this. As illustrated before, participants feared the loss of employment opportunities for South Africans due to the fact that most renewable energy technologies are dominated by foreign companies. Therefore, it was argued that South Africans should be equipped with the skills needed to produce and assemble renewable energy techniques within South Africa. Moreover, participants argued for the desire to have control over a bottom-up decision-making process around the JET. Nevertheless, the participants disclosed that a prerequisite for this is access to information. Energy sovereignty, in turn, was then perceived as an enabler for uplifting people from hardship as people have ownership over their own development trajectory.

Following from the results, recurring elements can be identified. One recurring element is for example inclusivity. This can be perceived as having access to accurate information and skills and meaningful engagement. Moreover, elements of transparency and trust frequently reoccurred. As became evident, participants had little trust in South African institutions. In order to regain trust in these institutions, processes around the transition should be much more transparent. Lastly, elements of localization and sovereignty were considered important. These were perceived as having ownership over technologies, control over bottom-up decision-making as well as deciding the pace of their transition (in contrast to the Global North deciding the pace).

As illustrated in the results, transformative governance was perceived another justice element in envisioning the JET in the NDM. Multiple participants argued for the need for transformative change within the South African government in other to meaningfully incorporate the justice elements. Transformative governance was therefore considered to underpin the JET (see figure 11).

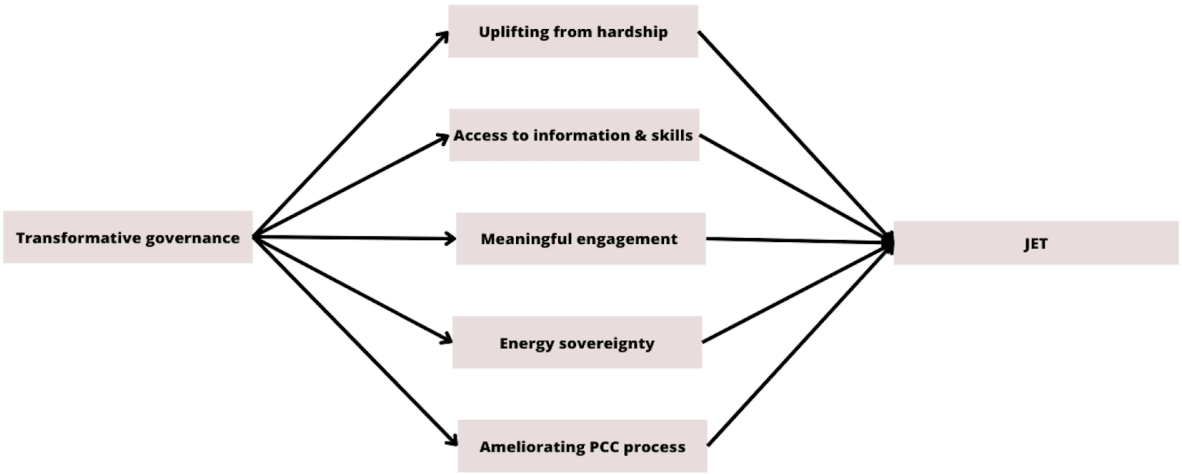


Figure 11: Transformative governance underpinning all justice elements within the context of a JET
Source: Author's own visualization

4.4 How 'just' is the current energy transition in the NDM?

4.4.1. The case of Komati: example case or example in vain?

Regarding the first steps taken in the NDM towards the transition by the closure of the Komati coal-fired power station, virtually all participants expressed that this was not done in a way that can be considered just. According to P#31 (community), the Komati area under apartheid was a white gated community for Eskom employees and their families. Anyone that was 'unauthorized' to be there would get arrested. The participant explained that at present people who hold high positions within Eskom and have high salaries do no longer reside in the area. The same participant mentioned that Komati was closed before during apartheid due to perceived surplus of electricity.

When looking at the before established justice elements, one could argue that there is no justice in the current energy transition in the NDM. For the justice element 'uplifting people from hardship' participants expressed fear due to the absence of a plan to move forward and felt desperate about their situation. Despite Eskom's assurance that no jobs will be lost, participants were convinced that jobs had disappeared. Concerns were especially raised for the job losses among the subcontractors of Eskom. A few participants noted that some direct Eskom employees have been relocated to other power stations. They argued that no consultations have however taken place regarding their preference for a specific power station. P#10 (community) raised concerns regarding the possibility that this approach might only provide a short-term solution, as other power stations will eventually also be decommissioned leading to job losses after all. Furthermore, P #12 (NGO) argued that multiple mines were linked to the Komati coal-fired power station and that therefore the closedown will undoubtedly impact the employment opportunities in mines as well. This participant is furthermore convinced that the loss of employment opportunities will eventually lead to the outmigration of people from the NDM as the transition offsets. The closedown of the coal-fired power station Komati was thus considered to have broader implications on the local economy. Within the context of uplifting people from hardship, P#28, P#29, and P#30 (community) have furthermore disclosed that they are suffering both economically and mentally. These participants argued that criminality and drugs abuse in the Komati area has increased lately. P#10 (community) also argued that this has resulted in an increase in gender-based violence. They furthermore mentioned that people have gone in illegal mining resulting in fatal accidents. In essence, participants reported that the closedown of the coal-fired power station Komati did not uplift people from hardship, rather, they argued, it has deteriorated their lives.

"Once people are stressed, the only way that they feel like they can release their stress other than beating their wives at home is drinking themselves to coma. Alcoholism, drugs and criminality is a big issue here. A lot of domestic violence is happening in households, because of the frustration" (P#10, community)

For the second justice element, access to information and skills, participants furthermore expressed dissatisfaction. Even at present, almost half a year post decommissioning, participants argued that people are unaware of the developments of renewables surrounding Komati. Participants argued that there is a lack of transparency which makes many people skeptical. P#27 (industry) mentioned that solar panels were seen one day, only to disappear the next day. This participant also expressed her mistrust, questioning why new mines are opening while simultaneously power stations are closed. People are left with unanswered questions and feel like they are *"left in the dark"* (informal conversation). Participants also expressed concerns about the lack of transparency regarding the exact number of people that have been affected by the closedown of the coal-fired power station Komati. P#12 (NGO) in this regard noted: *"But it becomes even worse: the labour unions can't tell you what happened to their own members. That's the worst-case scenario. They don't have information and people don't tell".*

Relating to the third established justice element, people argued that no meaningful engagement has taken place surrounding the decommissioning of the coal-fired power station Komati. P#12 (NGO) explained that the closedown of the coal-fired power station Komati was initially scheduled for September. However, as no consultations had been done by that time, it was rescheduled to October to allow some consultations to be done. P#10 (community) explained that a meeting was held by a representative of Eskom to inform the community about the closure of the coal-fired power station Komati. This meeting was however perceived as very chaotic and disturbing. According to this participant, the host of the meeting was not receptive to the sensitivity of the situation. The host kept on saying that she was in a hurry and was continuously checking her watch. Moreover, P#10 (community) reported that the information that was given was presented in a language that was not comprehendible for the target audience. This left the people with an unsatisfied feeling as they remained with a lot of uncertainty and there was no space to ask questions about whatever was unclear to them. Therefore, according to many participants, the consultations were mere a tick-box exercise than meaningful engagement.

"Yes, it was only one session. She was like: I am in a hurry to go to another meeting. We didn't feel like we can ask what is actually going on because she was in a hurry to leave. She was actually doing us a favor to present us this. It is ridiculous" (P#10, community)

The remaining justice elements were not discussed with an explicit link to the closedown of the coal-fired power station Komati. Nevertheless, interesting to add is that the activists among the respondents explained how they had to deal with negative responses from inside and outside the communities. They argued that they were labeled as anti-developers and had to deal with much critique. *"I became an activist and became enemy of some political parties; it is a risk"* (P#10, community/activist). Other activists explained how community members stated that activists feel like they are in government.

4.4.2. Beyond boundaries: Disturbing North-South Relations

At a broader level, several participants expressed concerns regarding how the transition is imposed on South Africa by the West. In this regard, P #25 (industry) mentions: *"what we don't like is how the Global North is starting to dictate how we are supposed to carry out our just transition journey"*. According to some participants, it is contradictory how the West is advocating for a transition in South Africa whilst themselves are importing coal from South Africa. Moreover, some participants argued for the concept of 'common but differentiated responsibilities'. According to P#25 (industry), the Global North is responsible for assisting the Global South with mitigating and adapting to the consequences of climate change. This responsibility can be traced back to the significant contributions of the Global North to climate change as well as having the financing capacities.

"Why as a continent or country we are continuing with the concept of a just transition if those who are advocating us to transition are going back. It seems that there is a hidden agenda" (P#6, government)

Furthermore, the way in which 8.5 billion US dollar is going to be injected into South Africa has generated discomfort among some participants. Not only is the money not nearly enough to meet the financing requirements for the transition to advance but it could also impede the country's development considering that solely 4% of the money will come in a form of grant. P#25 (industry) explained that the total amount of money that has to be repaid is expected to have increased significantly over time due to interest rates and the volatility of the Rand currency. This stirred concerns among the participants considering that South Africa is incapable to repay the already current staggering debts. Furthermore, participants argued that there is no transparency on how this budget is going to be allocated and who ultimately benefits from it. Therefore, there are concerns that the people on the ground will not benefit from this funding.

Chapter 5

Discussion

5.1. Situating thesis

At present, the world is faced with the wicked challenge to combat climate change and to furthermore deal with the pressing consequences of climate change (Martins et al., 2019). Considering that 70% from the total GHG emissions stem from the energy system (Höök & Tang, 2013), it is acknowledged in the academic arena that it is of significant importance that the present energy system is undergoing a deep transition (Jacobsson & Lauber, 2006; Sterner, 2009; Verbong & Loorbach, 2012). However, transitioning a deeply entrenched fossil fuel dependent energy system is not straightforward and comes with many challenges (Rittel & Webber, 1973; Verbong & Loorbach, 2012; Markard, 2018; Moallemi & Malekpour, 2018). A country in which the energy transition is perhaps especially challenging is South Africa in which the electricity production is for 88% dependent on coal (Spencer et al., 2018). Moreover, the energy transition will inevitably create 'winners' and 'losers' (Markard, 2018) which is concerning in a country where striking inequalities already persist for centuries. Therefore, to avoid that the energy transition is exacerbating inequalities in society, scholars have increasingly been advocating for a *just* energy transition (Newell & Mulvaney, 2013; Sovacool, 2014; Sovacool and Dworkin, 2015; Jenkins et al., 2016; Jenkins et al., 2017; Sovacool et al., 2017; Healy & Barry, 2017; Carley & Konisky, 2020). At COP26 in Glasgow, a plan was presented to mobilize 8.5 billion US dollar to accelerate the just energy transition in South Africa. There is however equivocation what justice means in the context of a just energy transition considering the normativity of the concept (de Boon et al., 2023). Most of the state-of-art literature has been dominated by Western scholars focusing on the Global North (Klinsky et al., 2017; Cantarero, 2020). Nevertheless, the PCC has made contributions to comprehend how a just transition would look like in South Africa (PCC, 2022). Despite it being a step in the right direction, the framework was established in a rather short amount of time and looks remarkably similar to the Western framework. The PCC therefore also acknowledges that more research is needed at local level to create a better understanding of this normative concept.

5.2 Answering the research questions

This thesis aimed at addressing this knowledge gap by exploring the meaning of justice in the context of a just energy transition in South Africa, especially for the NDM due to it being the energy hub of the country. In the following paragraph, the (sub)research questions will be briefly answered.

The results for the first sub research question have shown that concept of a JET is new and contested. The participants of this research argued that many people from the ground in the NDM are not aware of the meaning of this concept. Participants reported that even at higher levels of politics there is a fragmented view on the meaning of a JET and its purpose which makes navigating this transition very complex and confusing. Moreover, the results for the first sub-question have shown that the transition moves beyond energy to include health concerns. The second sub-question has illustrated that 'uplifting people from hardship', 'access to accurate information and development of skills', 'meaningful engagement', 'energy sovereignty' and 'effective governance' are important elements in envisioning the JET in the NDM. The last research question was concerned with how 'just' the current energy transition is unfolding. The respondents answered unanimously that the process around the decommissioning and repurposing of Komati was anything but just. The process around Komati was not well communicated with relevant stakeholders and up to today many people are left with much uncertainty around what has happened with employees working in the Komati power station and how it is impacting the economy and the surrounding communities. Additionally, many participants felt that the transition is currently being imposed on South Africa by the Global North. This resulted in frustration and distrust towards the Global North and negatively impacted the current perception on how just the JET is.

These sub-questions enabled to answer the main question of this research: In the context of a just energy transition, how is justice perceived by a variety of stakeholders in the Nkangala District Municipality? The results have shown that justice is perceived as a highly sensitive and normative concept that is furthermore approached with much distrust in the NDM. Therefore, establishing how justice is perceived is extremely difficult. Nevertheless, incorporating justice in the energy transition was deemed highly important. The before-mentioned 6 elements were deemed important to incorporate in future decision-making around the JET in the NDM. With these results, this thesis contributes to the state-of-art literature. As stated before, the current framework on a just energy transition is merely Western dominated which brings the danger of imposing Western ideas on non-Western countries. This thesis took upon an innovative approach by bringing in a local African view on the meaning of justice in the context of a just energy transition. This local knowledge can feed into the existing literature and the PCC framework document for a more specific understanding of justice in the context of a JET. Moreover, this thesis made empirical contributions by presenting a view from the ground. Marginalized and often neglected people have shared their perspectives resulting in innovative perspectives on a JET.

5.3 Exploring deeper: identifying storylines

Considering the inductive approach that this research has taken, it was possible to identify three storylines that emerged. These storylines represent the three most frequent perspectives among the participants and will be discussed below.

5.3.1 Storyline 1: The JET as a threat to livelihoods

The first storyline that came up was 'the JET as a threat to livelihoods'. The reasons to fear the transition varied, ranging from a lack of information and skills, lack of viable alternatives to employment and lack of successful examples cases. The most prominent fear that was presented was the closedown of mines and coal-fired power stations that would take away people's jobs and thereby also their livelihoods. This can be attributed to the centrality of coal for the NDM's economy. Confirming this, other literature highlighted the association between the energy transition and the threat to one's livelihood. A research collaboration between Oxpeckers and Climate Home (2023) found similar fears around the Duvha coal-fired power station, also situated in the NDM. The results from this research have shown that communities fear that their livelihoods will be threatened as the Duvha power station is one of the next five power stations that is in line to be decommissioned, latest by 2034 (*ibid*). Broader research done by Groundwork (2022) in South Africa moreover confirms the fear of losing one's livelihood as found in this research. The report shows how community members expressed fears about losing their livelihoods and were opposing the transition.

Consequently, many participants argued that it is crucial to create job opportunities within the JET to address the high unemployment levels in the NDM. Considering that most participants acknowledged that working in the coal-value chain is no longer sustainable, alternatives in the green economy could offer an opportunity. However, only a few respondents were convinced that the JET is actually going to create employment opportunities. This contrast with the wider discourse that is present which argues that the energy transition will result in numerous job opportunities in the green economy (Baker et al., 2014). An example of this is the 'one million climate campaign' in which it is argued that the green economy will create one million jobs (One Million Climate Jobs Campaign, 2011). Perhaps this could be attributed to the sentiment among participants that the government of South Africa is unable to adequately tap into these opportunities.

The results have shown that discussions about employment opportunities within the transition do not only evolve around the quantity of the jobs but also around the quality of the jobs. Following from the results, it became apparent that the mining industry is a lucrative and attractive industry to work in compared to employment opportunities in other sectors. Participants attributed this to the powerful trade

unions that exist. Fears thus arose if alternative employment to mining, if even present, will be as lucrative as coal mining jobs. Finding alternative jobs as lucrative as coal mining jobs was found to be crucial in supporting the transition. The difficulties of finding alternative jobs that are as lucrative as coal mining jobs was also found by Carley et al. (2018) in the US and Fiscutean & Morris (2021) in Romania. As a result of the closedown of Komati, Eskom promised that no jobs will be lost to Eskom employees. Although there is a lack of transparency on the exact numbers, it has been argued that individuals have been located to work in other power stations. Fears have been raised whether this relocation of individuals without their family being able to follow them can result in a disruption of family ties. This aligns with a study done by Fiscutean & Morris (2021) in which the coal dependent community under study in Romania has been given the chance to participate in a free training program that trains ex-miners to work in the wind turbine industry. The downside of this program however is that it requires moving out from their living area as that area is not suitable for wind turbines. This mostly applied for men who were formerly working in the mines.

The lack of having the skills that are required for the transition was furthermore found to be a fear among the participants of this research. The needed skills would have to be taken from other countries which could result in an even higher unemployment rate and dependency on the Global North. This fear of dependency is further discussed in storyline 3. The inability of the South African government to respond to challenges or opportunities was resulting in frustration and distrust among the participants. This moreover illustrates the importance of finding ways to capture jobs to South Africans. As a result of a lack of needed skills, there is a fear for the risk that hunger, unemployment, crime, violence and drugs abuse will increase. Indeed, this was also found by the before mentioned research by Oxpeckers and Climate Home (2023). Communities around the Duvha station expressed similar fears in which the communities are not well prepared for the skills that are needed in the future and thereby fear that they will be left with no jobs (Molelekwa & Hendricks, 2023). The similarities of the results could be attributed to the similar context that exists in both places. Both places are located in the NDM in which coal is crucial is sustaining the district's economy.

Another fear that was expressed throughout the results is the fear of not having access to accurate information. For example, people in the NDM stated that they were not sufficiently informed about the decommissioning of Komati. It was a surprise for them to hear that more power stations in the NDM are to be decommissioned in the future. This lack of information fuels the fear that other power stations will be decommissioned in the future without the people knowing. This, in turn, is threatening their livelihoods. This is aligning with the results that were found by Carley et al. (2018) who state that the job losses associated with the transition in coal dependent communities in Appalachia in the US came "*suddenly and unexpectedly*" (p.136). This relates back to 4.2.2. in which the access to accurate

information and development of skills is found to be a crucial justice element in envisioning the JET in the NDM.

Fears were not restricted to one's individual job. Until present, coal has been considered the building block of virtually every aspect of the NDM's existence and economy. Concerns were raised that the whole economy of the NDM will collapse once the transition offsets. That the phase out of coal can have much broader implications for the economy than solely the job losses in the coal mining industry has been widely illustrated in the literature (Carley & Konisky, 2020; Lobao et al., 2016 & Tierney, 2016). These studies refer to the Appalachia (Carley et al., 2018) and Australia (Burke et al., 2019) which witnessed a decrease in purchases or services by formerly employed coal workers. This had severe implication for the wider economy in the case studies.

Participants explained how the NDM has attracted many people from within and outside South Africa for employment opportunities. Related to this, fears have been expressed related to the possible out-migration of people from the NDM once employment opportunities are lost. In this regard, P#12 (NGO) mentioned "*You have to deal with the migration of the workforce. If I used to live in a house that I rented and now I am no longer working and I don't have prospects for a new job, I would just get home. I don't need to stay here*". Similar fears for the survival of the case studies in the transition were found in coal dependent communities in Australia (Della Bosca & Gillespie, 2018). Out-migration of people in former coal areas is already witnessed in the US (Morri et al., 2019) and Romania (Fiscutean & Morris, 2021).

Another fear that was expressed among participants was that the transition will solely benefit those who are in power. Participants argued that exacerbated inequalities could reduce overall well-being as well as a loss in opportunities for those not in power. This could, in turn, threat the livelihood of people. This relates back to the apartheid legacy in South Africa which has resulted in persistent power imbalances across the country and up to today continues to shape South Africa's energy system (Baker, Newell & Philips, 2014). Elites have generally been the ones enjoying the benefits that come with the current energy system that is embedded in the mineral energy complex. The possible persistent existence of elites in the renewable energy system could exacerbate inequalities and creates fear among participants. This is also confirmed by Baker (2011) and Bake et al. (2014) who explained how the apartheid legacy is important in understanding the distrust that is present among the South African population for foreign investors making use of the opportunities that exist in the energy transition. This could result in the persistent accumulation of wealth by elites. This is linked to storyline 3 that will be discussed later in this chapter.

Something that was prominent in both the article of Carley et al. (2018) and Della Bosca & Gillespie (2018) was the fear for the loss of identity by coal mining communities. A loss of identity could be a consequence of losing one's livelihood. This can have severe consequences as identity provides a sense of purpose, meaning and social status (Della Bosca & Gillespie, 2018). This is a result that was not much present in the results of this research. It was only mentioned that the mining industry is an industry in which many people want to work due to e.g. the good salary. That the mining industry is an integral part of their identify was however not coming up. This could be attributed to the fact that not many participants were working in the mining industry. Only one out of the 31 participants had worked in the mining industry. In this way, mine workers are not well represented in this research. Hence, it could be that the fear of losing identity is also a prominent issue in the NDM but it was not coming up in the results of this research. The participant that worked in the mining industry had more pressing fears over the loss of jobs which could result in more hunger and suffering in the district. Hunger might be a less pressing issue in the US and Australia due to the presence of stronger social protection measurements.

5.3.2. Storyline 2: The JET as a necessity to safeguard well-being

The second storyline that came up is 'the JET as a necessity to safeguard well-being'. As explained in section 4.2, many participants in this research reported that the people in the NDM are suffering from health-related problems due to the dense presence of coal mines and power stations. Water, land and air are severely polluted which poses threats to the communities' health in the NDM. This is also confirmed by a study done by the Nkangala District Municipality (2015) which shows that Eskom's emissions are significantly extending the permitted pollution limits. Thus, despite the government being aware of the exceeding pollution limits, it's not acting adequately on it. This was also reported by the participants and enhances feelings of distrust towards the government. Health problems associated with coal activities are evidently not unique to South Africa. China, India and the US belong to the top coal producing countries in the world and in all three countries substantial cases of health issues related to coal have been found (Stracher & Taylor, 2004).

Due to the experienced health problems, participants argued that phasing out 'dirty coal' is of crucial importance in decreasing pollution and consequently save the health of the current generation and future generations living in the NDM. This shows that many participants in this research are active agents with strong voices who want to break with the business-as-usual trajectory. The premise that shifting towards renewable energy sources is improving environmental sustainability (Charfeddine, 2017; Kahn et al., 2020) and therefore also people's health (Buonocore, 2015) is also illustrated in the literature.

The result that most people acknowledged the necessity of the transition is contradicting the findings of the latest report of Groundwork (2022). In this report, it is argued that most people in South Africa do not acknowledge the necessity of the transition. An explanation for this could be attributed to the fact that most community participants were either activists or did have significant knowledge on the topic. Therefore, these participants understand the necessity of the energy transition. Nevertheless, some of these participants still opposed the transition by arguing that the current energy transition is not just and should undergo drastic changes. The community participants that were not active in the field, were forcefully opposing the transition due to the jobs losses and associated negative consequences that would come with it. This is thus in line with the Groundwork report (2022). This furthermore exemplifies the wide-varying perceptions on ideas on what constitutes progress for South Africa. It moreover shows that there are conflicting priorities which makes realizing the JET extremely complex.

While almost all respondents argued that the coal mines and coal-fired power stations are bringing significant health problems to the communities, indoor air pollution was not a topic that was discussed in the interviews. This whilst research has shown that indoor air pollution relating to the burning of coal or wood for cooking is bring many health-related problems in other top coal producing countries like e.g. China, India and the US (Finkelman et al., 2002; Stracher & Taylor, 2004). Nevertheless, Groundwork (2022) indeed reported that this is also a prominent issue in South Africa. In fact, a study by Norman et al. (2007) shows that indoor pollution was responsible for 2489 deaths in South Africa in 2000. This is remarkable considering that 84% of the South African population is connected to the electricity grid (Groundwork, 2022). According to the participants, this could be attributed to the striking inequalities that are present, resulting in many people in the NDM unable to afford to make use of electricity.

According to the participants, the existing health problems will only exacerbate if business-as-usual continues. This would make it even more challenging for future generations to live in the NDM. Participants argued that the external costs associated with the coal value chain are not sufficiently acknowledged and taking into account. The coal value chain was considered corrupt and a crucial element in upholding the detrimental MEC. Shifting away from coal was perceived as an opportunity to break with the MEC and its associated negative consequences on people's health, the environment and inequalities. Breaking with a system that is historically reliant on deeply entrenched inequalities and power imbalances (Baker et al., 2014) could give rise to transformative change.

As evident from the results, activists in the NDM had to deal with negative responses from inside and outside the communities. Activists were labeled as 'anti-developers' and susceptible to much critique. This once more shows how sensitive and political the energy transition in South Africa is and how many vested interests are present. The majority of the activists within this research expressed

support for the transition. However, the broader sentiment in the NDM might be more towards anti-energy transition. Consequently, the activists represent a rather small group who are more vulnerable to receive negative responses. Moreover, it is enhancing the distrust that is present. It can furthermore be considered a strategy in which 'anti-developers' are excluded from the debate. This labeling of activists is not uncommon. Research by Steger & Drehobl (2018) has shown how an anti-fracking movement in Ireland is framed in the media as anti-developers. Jenkins (2015) furthermore showed that anti-mining activists are stigmatized and excluded from debate. This stigmatization and exclusion of activists is concerning considering that it can leave out important perspectives in the broader debates.

5.3.3. Storyline 3: The JET as a neocolonial practice

'The JET as a neocolonial practice' is the third and last storyline that will be discussed in this chapter. The answers from the interviews indicated that some respondents felt like the transition was imposed on South Africa by the Global North. Respondents expressed a feeling of discomfort and suspicion that the Global North is advocating for the transition whilst themselves are still importing coal from South Africa. This could be attributed to the entrenched power imbalances between the Global North and the Global South as a result of colonialism and apartheid (Khan et al., 2010). This history continues to shape how and where resources are extracted and on who's expense. Some respondents argued that the energy transition discourse is mainly advocated by the Global North and fear that it is another "*money-grabbing kind of thing*" (P#10, community/activist) and a new way to regain control. This could further entrench the existing power imbalances between the Global North and Global South and furthermore within South Africa. This sentiment was confirmed by a Groundwork report (2022) in which they reported that communities viewed the JET as neocolonial "*the transition was the agenda of overseas forces, they argued, and the consultants were talking from a white, elite and neocolonial perspective*" (Groundwork, 2022 p.26). The Ukrainian war, that started February 2022, most likely enforces this perspective. Due to the war, coal export from South Africa to Europe witnessed an eight-fold increase in the first six months of 2022 alone (Zawya, 2022). Therefore, participants could not help but wonder who's agenda is pushed in the context of a JET.

Moreover, the financial means that are needed to finance the JET in South Africa also raised concerns among the participants. The partnership announced at COP26 in which 8.5 US dollar is injected in South Africa to accelerate the transition, raised concerns among the participants. Considering that solely 4% of the money will come in a form of a grant, participants argued that the remaining 96% of the money that comes in form of a loan with interest rate will make South Africa increasingly dependent on the Global North. Moreover, they felt like the Global North has a clear vision on how the energy transition in South Africa should be carried out. This is concerning as the respondents argued that 'energy sovereignty' is one of the key elements in envisioning a JET. Imposing this vision on South

Africa could enforce power imbalances. Moreover, in line with financing the transition, participants argued that the Global North should be giving much more money in form of donation instead of loan considering that they contributed most to the issue of climate change and because they have the financial means. This can be situated in the broader debate around the principle of 'common but differentiated responsibilities' or 'loss and damages'. This was an important topic during COP27 in which a fund was established to ensure that vulnerable countries receive financial assistance if they need so (UNEP, 2022). Nevertheless, there remains uncertainty how this money will be spent and who is going to benefit. It is questionable whether the majority of the money from the Loss and Damages Fund (UNEP, 2022) will come in a form as a grant, as advocated for by the respondents of this research. If not, this could exacerbate the concerns raised by the respondents that the Global South is made dependent on the Global North. Indeed, research by Oxfam Novib (2023) indicated that developed countries are failing to financially assist developing countries to deal with the consequences of climate change. In fact, the initial yearly 100 billion US dollar that would be mobilized by developed countries has been decreased to 83 billion US dollar of which only 21 billion is coming in a form of a grant (*ibid*). This shows how power imbalances continue to shape resource flows.

P#25 (industry) rightfully pointed out that minerals are a prerequisite for renewable energy technologies. Hence, mining companies will continue to operate. Therefore, fears have evolved around the notion that the Global North will continue to strive for accumulation of minerals in order to realize an energy transition at the expense of the Global South. For both P#10 (community/activist) and P#31 (community), the transition was another "*money-grabbing kind of thing"* (P#10, community/activist) and solely justified in the name of the environment or people's health (P#31, community). Indeed, research has been done to investigate how 'sustainable' renewable energy projects in the energy transition actually are (Jerez et al., 2021; Tornel, 2023). Green colonialism, green extractivism (Jerez et al., 2021) and green grabbing (Fairhead et al., 2012) are frequently used concept in this academic arena. In line with P#10 and #31, Fairhead et al. (2020) demonstrated in their article that green extractivism is another form of occupying land that is justified in the light of saving the environment. Furthermore, in line with these arguments, Isla (2021) argued that discourses on sustainable development are now used to justify new ways of accumulation (Changon et al., 2022). It could be argued that this is a new form of neocolonialism in which the Global North remains the one in power and continues to strive for accumulation at the expense of others.

In line with P#25 (industry), research carried out by the Business & Human Rights Resource Center (2023) has demonstrated that South Africa is a crucial country in supplying minerals for the energy transition. It hosts critical minerals like lithium and is the world's largest supplier of manganese (Pistilli, 2023). This research furthermore shows how the mining of minerals needed for the energy transition resulted in vast human rights abuses across the world (*ibid*). In line with the fears among the

participants that the transition could exacerbate inequalities, the Centre for Research on Multinational Corporations (SOMO) has shown that communities are disproportionally affected by the severe consequences related to manganese mining like e.g. comprised water availability and quality. This is posing a threat on the health of communities and thereby also on the premise that the transition is a necessity to save livelihoods (as shown in storyline 2).

5.3.4 Interwoven narratives: linking the storylines

Evidently, the before-mentioned storylines are intertwined and are overlapping. Not one participant could be attributed to solely one storyline. As stated, many participants acknowledged the necessity of the transition and yet it was considered as a threat to one's livelihood. This can be attributed to the centrality of coal in every aspect of life in South Africa, and especially the NDM. This duality highlights how dependent South Africa is on the mineral energy complex and how complex the relationships between energy and well-being is.

Moreover, the relationship between job opportunities, foreign investment and neocolonial fears exemplifies once again the complexity of the transition. In all three storylines it became apparent that many participants are not convinced that the transition will tackle the issue of unemployment levels in the NDM. Rather, the phase out of coal would result in job losses or an increase in dependency of foreign skills. Furthermore, participants argued that it is the responsibility of the Global North to financially assist South Africa in its energy transition and yet foreign money is approached with a lot of suspicion.

5.3.5. Unexpected results

Some unexpected results have arisen from the results from this research. Firstly, the deeply entrenched distrust towards the South African government was considered as an unexpected result. Among virtually all respondents within and outside this study there was a sense of distrust to varying extents. Different governmental departments were under scrutinization including the president, DMRE, Eskom and the PCC. This distrust among different sectors and levels of society is creating an unstable foundation for the JET as this will diminish the support of governmental policies around the JET. This distrust could possibly be traced back to the country's apartheid legacy. With this legacy, the country inherited a deeply entrenched divide among population groups (Edelman, 2023). Moreover, the apartheid legacy is responsible for South Africa being the world's most unequal country (Tyler & Mgoduso, 2022).

Another explanation for the deeply entrenched mistrust could be attributed to the fact that it was perceived by the participants that the state is inadequate to respond to the enormous problems like e.g. high unemployment and inequality levels, unreliable access to energy and poverty that South Africa is

faced with. The participants felt like they do not receive responses to the concerns they raise and thereby mistrust in the government's capability is enhanced (OneWorld, 2022). This is exemplified in a quote by P#13 (community): "*The government department claimed that they placed monitoring stations all around. But we felt that those monitoring stations were put in wrong positions where they have to capture the air quality of those areas. The ones that were at the right position were not working and able to capture the data according to how we want it as communities. That's when we felt that there is no will in terms of making sure that they are reducing their emissions and they comply with whatever as communities we want them to".* These results align with the findings of OneWorld (2022) which found that communities in Emalahleni expressed discomfort with the feeling that the government is not taking their concerns about pollution seriously. Groundwork (2022) attributed the entrenched mistrust in Emalahleni to the inability to adequately deliver services to communities.

Moreover, participants mentioned that they know very few cases in which the government was able to operate successfully. This, in turn, was enhancing the distrust among the participants. On top of this, the findings of this research indicated that participants wished for feedback from governmental institutions. They wanted to know whether the information they had shared in meetings was reaching institutions and reflect on it. This is confirming the results of OneWorld (2022) which stated that communities in Emalahleni expressed that different levels of governmental institutions are invisible during workshops. This created uncertainty whether their concerns are shared and reaching different levels of institutions.

A practical example of the distrust that was prominent in this research was when some respondents refused to continue to talk once they saw an ANC representative approaching. The mistrust in the South African government was also illustrated by the Edelman Trust Barometer (2023) which indicated that solely 22% of the South Africans have trust in the government compared to 62% in business. Moosa & Hofmeyr (2021) furthermore discuss that the trust in the ANC is significantly low at a percentage of 27% and continues to decline; with a particular distrust among the younger generations. It is troublesome that especially the youth have so little trust in their institutions considering that they are the ones that are supposed to carry on the transition trajectory.

Secondly, the importance of the informal economy was an unexpected result. The informal economy in the NDM is of crucial importance for sustaining many livelihoods. The informal sector encompasses a wide range of activities including illegal coal mining, trading of coal but also street food vending to people working in the coal value chain. The importance of the informal economy in South Africa is also demonstrated in research by Makgetla and Patel (2021) who demonstrated that 3 million livelihoods are sustained by informal enterprises in South Africa. The significance of the informal economy could possibly be traced back to the high unemployment levels that are prevalent in South

Africa. Once people cannot find employment in the formal sector, people have little choice to enter the informal economy. Compared to other countries, the informal economy in South Africa is rather small (Meagher, 2020). This can be attributed to the apartheid legacy in which informal economic activities were penalized (Groundwork, 2022). Compared to the formal economy, people working in the informal economy have to deal with less rights (*ibid*). Therefore, people working in the informal economy might be more vulnerable to the changes the JET brings. It is thus of significant importance that adequate research and attention is going on how to anticipate on these consequences.

Interestingly, P#7 (government) in this research argued that it is of importance in the JET that the formal economy expands as the informal economy will then contract. However, this is contradicted by research done by Skinner & Rogan (2019) who state that the relationship between the formal and informal economy is not counter-cyclical. The authors furthermore indicated that this thought of counter-cyclical relationship is often prevalent in policy-making but highly flawed. P#7 (government) is part of a governmental institution which is confirming the argument by Skinner & Rogan (2019).

5.4 Reflections on the used theories and methods

5.4.1. Reflection on the usefulness of the concept of a JET

Considering that energy is the lifeline of today's society, it is undoubtable that the energy transition will have far reaching consequences in every aspect of life, not solely restricted to the energy system. The energy transition will require deep transformative changes in the whole society. It is therefore not solely a technical transition but also a societal transition in which deep transformation in employment and identities are required. It is therefore debatable whether there is such a thing as a just energy transition as energy is a concept that is intertwined in many other concepts and because justice is such a normative concept. One could argue that the concept of a just transition (JT) is therefore more useful and appropriate. Indeed, this is also illustrated by Meadowcroft (2009) who states that complex concepts like energy cannot be restricted to solely one regime as it is interwoven with many other systems. Therefore, Meadowcroft (2009) argues that 'an energy transition' does not exist, it is merely a series of interwoven transitions that are happening at different scales, times and dimensions. Indeed, the PCC acknowledges this in their framework by arguing that transforming the coal-value chain is a subprocess that needs to be addressed within the wider JT. It thereby takes upon a more holistic view on the transition. Furthermore, as Martin & Islar (2021) rightfully pointed out, sustainability transitions have to deal with different temporalities. Whilst the global community might talk about 'the end of the world', the 'end of the month' scenario would probably be much more appropriate for struggling communities on the ground (*ibid*).

Moreover, the concept of a JET fails to recognize the underlying interactions that brought us to the current status-quo. Capitalism and associated negative consequences like e.g. inequalities, unsustainable production and overconsumption are crucial elements that need to be addressed within the transition. Capitalism is prioritizing economic gains and is driven by the exploitation of fossil fuels and marginalized communities. This has profoundly shaped power structures and access to resources. Moreover, Tornel (2023) argues that the pillars of justice can solely be achieved within the capitalist system and therefore enhances coloniality of power. It thereby disregards differences in ontologies and enforces hegemonic way of knowing. One could furthermore question whether recognitional justice, that emphasized the need for the fair representation of different perspectives, emphasizes 'otherness' (Mignolo & Walsh, 2018). Therefore, the concept fails to challenge the coloniality of power (Tornel, 2023). Moreover, a characteristic of a capitalist system is overconsumption. Overconsumption is responsible for recourse depletion and significant waste streams. Behavioral changes should therefore also be integrated within the transition to address this. This requires a paradigm shift. The concept of a JET should therefore also acknowledge and address these root components and challenge the status-quo.

5.4.2. Reflection on the used theories

As introduced in previous chapters, the PCC introduced a just transition framework consisting of the following pillars: distributional restorative and procedural justice (PCC, 2022). These pillars will be discussed and compared with the results of this research.

Procedural justice was the pillar that was most prominent in the results of this research. Procedural justice looks into who is included and excluded in decision-making processes and whether these processes can be considered inclusive for those that wish to participate (Carley & Konisky, 2020). It became evident that many participants are not satisfied with the procedures around the JET. Many participants, varying from community members to government officials, felt excluded from decision-making processes. Moreover, participants expressed their dissatisfaction with how the PCC is operating. According to many participants, the results from the PCC deviate significantly from what the community raised as important.

Yet, when one compares the results of this research with what the PCC identifies as important elements within the procedural justice pillar, they are quite similar. The results of this research have shown that it is of crucial importance to raise awareness and understanding of the JET. This is in line with the PCC framework which places emphasis in enhancing the understanding of a JT. Moreover, the participants argued that they want to be part of a bottom-up decision-making process in which they have ownership over their JET trajectory. This is supporting the PCC which states that they want to support

and collaborate with stakeholders in actively engaging in decision-making processes around the JT. Nevertheless, participants argued that this is currently not happening.

Whilst the PCC is advocating for procedural justice, community members argued that there is no procedural justice within the PCC itself. As discussed in the results, the participants expressed that PCC meetings were too high level, no preparation meetings were done and the logistics were unclear. Therefore, the PCC was only able to consult with a limited people within the communities. Following from the results, the participants indicated that the premise of the PCC to have "*Consulted widely with workers, communities, small businesses, and social partners in the country in 2021 and 2022 on the framework (PCC 2022a; 2022b), in line with international best practice guidance (ILO 2021), allowing impacted groups to discuss their own development pathways and livelihoods*" cannot be upheld. Participants expressed that they felt like the PCC process was mere a superficial tick-box exercise instead of genuine and meaningful engagement. This created suspicion among the participants. This can be linked with existing literature that exist on citizens participation. For example, Arnstein (1969) made a great contribution to the body of literature around citizens participations by providing 'a ladder of citizen participation'. This ladder aims at showing different levels of citizen participation. When comparing the sentiment among the participants about the PCC processes with Arnstein's ladder of citizen participation (1969), one can argue that the PCC process can be categorized under 'degrees of tokenism'. Tokenism involves that only a small number of unrepresentative people can superficially participate (*ibid*). This is in line with the concerns expressed by the participants that the PCC is only talking to 'aligned' community members. Hence, there would be an unrepresentative sample of which the PCC is drawing their results from. Furthermore, participants felt like their concerns are not flowing to higher levels considering that they did not receive feedback of their meetings. Indeed, this is in line with what Arnstein understands under tokenism: "*they [citizens] lack the power to ensure that their views will be heeded by the powerful*" (Arnstein, 1969, p.217). Participants therefore argued to have a lack of trust in changing the status-quo.

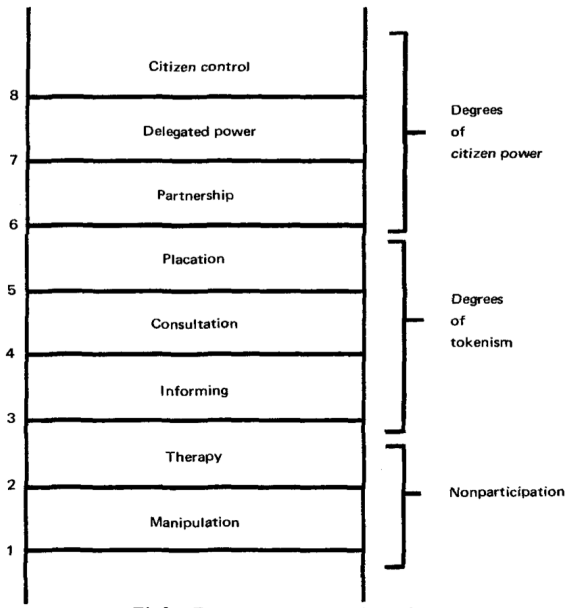


Figure 12: Different levels of citizen participation
Source: Arnstein (1969)

Distributional justice is concerned with the distribution of costs and benefits related to the energy transition (Carley & Konisky, 2020). Following from the results, it was deemed of crucial importance to close the skills gap. As presented in the results, participants argued that there is a misalignment between what skills are currently taught to people and the skills that will be needed for the future. This was also exemplified in the PCC framework in which they state that it is important that South Africans are equipped with the skills that are needed to work in the green economy. Moreover, there was an overall sentiment among all participants that the transition should reduce the striking inequalities that persist in South Africa. It moreover became evident that the participants gave much importance to the fact that the NDM and broader Mpumalanga is not disproportionally negatively affected by the energy transition. The NDM does not want to bear the burden of lost opportunities by phasing out coal. The PCC recognizes these concerns and argued that policies should be implemented to identify how costs and benefits will be distributed within the transition. Local government officials felt comprised in their ability to draft their own trajectory around the JET as the current decision-making process is too much top-down. The PCC states that the capacity of both local and provincial level should be increased in order to enhance local economic development. This also relates to procedural justice in which it was deemed important that individuals are equipped with an understanding of a JET. As P#12 (NGO) stated: *"I can tell you, some of them within the office, they don't even know a single thing about the just transition; or even climate change. There is that information gap".* Hence, prerequisite for an increase in capacity is an enhanced understanding of a JET. Another element under distributive justice defined by the PCC is the importance of corporate responsibility within the transition. This aligns with the results of this research in which the importance of corporate social responsibility and social labour plans was highlighted. Nevertheless, the participants argued a mistrust towards these plans as monitoring and enforcement mechanisms were often flawed. In addition to this, it was perceived important that the costs associated with the investment in clean energy does not disproportionally affect individuals. At present, participants argued that ordinary people are disproportionally faced with tariff increases due to long-term purchase agreements by large companies. This is related to the persistent MEC that South Africa inherited from the apartheid legacy (Baker et al., 2014). Participants argued for the importance that the possible increase in prices related to the JET should not disproportionally affect ordinary people (Boardman 2013). One could even argue that the implementation of tariff increases in large energy consumers could prevent ordinary consumers to bear an increase in costs. Lastly, participants exemplified that there should be a more equal distribution of costs and benefits between the Global North and the Global South. At present, participants felt that the Global South is disproportionally burdened with the effects of climate change and associated costs. Therefore, participants argued, the Global North should bear the responsibility to financially assist the Global South with coping with these consequences as the Global North is most responsible for climate change.

Restorative justice deals with the historical injustices that have been done to people. This might be especially relevant for South Africa as the country historically has to deal with many injustices prior, during and even post-apartheid. The MEC is responsible for many of the injustices that have been done to the South African population (Baker et al., 2014). Indeed, participants argued that the coal mining, which is a crucial element in the MEC, is responsible for the environmental pollution and the associated negative health consequences. As exemplified in storyline 2, some respondents argued that it was of major importance to move away from 'dirty coal' in order to alleviate the prevalent health problems in the district. The intrinsic importance for decreasing the pollution in sake of saving the environment was not much prevalent. It was more seen as a mean to improve community's health. In line with this, the PCC reports that the acknowledgement of the environmental and health problems related to the coal mining is important in the restorative pillar. Whilst they do mention the environment in their report, it is very much human-oriented (Satger et al., 2022). An example of this is illustrated in what the PCC defines as the aim of the transition: *"seizing the opportunities and managing the risks associated with climate change, with an overarching goal of improving the lives and livelihoods of all South Africans, particularly those most impacted"*.

Conforming to the restorative pillar, participants argued that energy security should increase with the transition. Despite access to electricity rapidly expanding from 36% in 1993 (Davidson & Mwakasonda, 2004) to 86% in 2014 (Sarkodie & Adams, 2020), many participants from the NDM argued that they did not have (stable) access to electricity. This is ironic considering that this is the place where most of the country's electricity is produced. People might be connected to the grid but do not have the financial means to actually make use of the energy. This is confirmed in a country-wide study done by Baker et al. (2014) which argued that millions of households in South Africa do not have the financial means to make use of the electricity grid, even though they are connected to it. This is highly concerning considering that access to energy and basic capabilities are deeply intertwined (Day et al., 2016). Thus, access to energy might not solely be related to the access to the grid but also access to the financial means to make use of the grid. This is highlighted as distribution of access to energy by Jenkins et al. (2016) and is evidently intertwined with the distributional justice pillar. The unstable access to electricity is evidently not unique to the NDM. The daily detrimental load shedding has a deep influence on the development trajectory of South Africa. According to the participants, the compromised accessibility to energy for South Africans could be attributed to entrenched corruption within Eskom. This is in line with Sarkodie & Adams (2020) and Poloamina & Umoh (2013) who argue that entrenched corruption within governmental institutions in South Africa (*ibid*) and broader Sub-Saharan Africa inhibits the accessibility to energy for the inhabitants of South Africa. This is highly concerning as access to energy is a crucial element in reducing poverty in South Africa as it fuels both human and economic development (Sarkodie & Adams, 2020). Whilst the importance of energy security is highlighted in the PCC report, critique towards Eskom was not expressed in the PCC report. This is

interesting considering that Eskom is a crucial actor in the transition and has to undergo transformative change. This could be attributed to the fact that both PCC and Eskom are governmental institutions.

5.4.3. Last reflections on the PCC framework

With their just transition framework, the PCC acknowledges that justice is underpinned by distributional, procedural and restorative justice (PCC, 2022). Considering that all these elements were somehow all present in the results of this research, one could argue that justice is a universal concept that is recognized within the JET context. The underlying elements of distributional, procedural and restorative justice are reoccurring and recognized. Nevertheless, it is important to acknowledge that the interpretation and application of these elements can vary depending on the specific context. Accurately including and incorporating these different interpretations are crucial in fostering a JET.

At a large scale, the framework of the PCC is not addressing the underlying issues that are responsible for the need for a just transition. Issues like power imbalances, overconsumption and the continuous strive for accumulation are elements that are not discussed in the PCC framework. This relates back to the arguments made in section 5.4.1. Moreover, the PCC is very much human-centered and thereby fails to acknowledge the intrinsic value of nature (Satger et al., 2022). Despite the PCC taking a holistic view on the transition by acknowledging that transforming the coal value chain is a subprocess within a broader transition, it fails to recognize a holistic perspective that includes humans as part of nature, rather than prioritizing humans over nature.

Furthermore, one could however question whether it is useful to divide justice in three separate pillars as they are all interwoven with each other. Moreover, the pillars are very broad hence many elements can be categorized under one pillar. It therefore might underemphasize the context-specificness of perceptions of justice. Using the framework furthermore does not allow to examine justice in depth; if one examines justice on the local level, there might be additional pillars of justice that have to be taken into account. Superficially, one can argue that the framework of the PCC is ticking boxes regarding justice elements in supporting the coordination of the transition in South Africa. Broadly, the results of this research seem quite similar with the PCC framework. However, many elements like e.g. "*Equipping South Africans with skills, assets, and opportunities to participate in industries of the future, with particular attention on impacted groups, the poor, women, people with disabilities, and the youth" (*PCC, 2022 p.8*)* remain rather vague. Furthermore, the PCC is ticking boxes regarding doing consultations with communities. However, as stated before, these consultations were not considered deep which resulted in frustration and distrust in the communities. Therefore, it is important for the PCC to take the next step and operationalize the elements further. Due to the mistrust in governmental institutions, there was a strong need among the respondents for actionable success examples to show to the population that their voices are heard and action is being taken. As P#26

(royal family/activist) outlined: "*nice policies but no action*". Only when people see things changing positively, some trust can be regained. The lack of trust among the population is concerning considering that it can hamper support for the transition.

Following from the results, participants argued that governmental institutions, including the PCC, should have intrinsic motivation to address issues around justice and the transition. At present, participants felt like that the government is not really committed to address contemporary issues in South Africa. Hence, participants disclosed that the government is taking some kind of action towards the transition mere from a ticking boxes perspective than an intrinsic motivation to change the status-quo.

Considering the above, this research proposes to add three elements to the existing framework on justice that takes into account the context-specificness of the NDM area in South Africa. Following from the results it became evident that trustworthiness, integrity and decolonization are important prerequisites in order to achieve justice in the context of a JET in the NDM. Because of the current lack of transparency, there is a lot of suspicion among the residents of the NDM. Moreover, a lack of integrity is creating an enabling environment for practices like corruption. Evidently, corruption is a significant problem in South Africa and a lack of transparency could exacerbate this pressing problem. Therefore, it is important that governmental bodies put more genuine interest in transitioning and practice what they preach. This is evidently also connected with trustworthiness; distrust is fostered in the absence of integrity. A lack of trust can furthermore hamper effective communication and cooperation between different levels of society. Elements of decolonization are also related to elements of trust. Participants from this research were very suspicious to how the Global North is advocating for a JET in South Africa. The 8.5 billion dollars and the associated fears enhanced the distrust in achieving a JET. Participants argued that they want ownership over the pace of the transition, over renewable energy technologies, and over the decision-making processes surrounding the transition. Trust is thus a crucial element in achieving a just transition or an inclusive society at large as a lack of trust could further polarize an already divided society.

5.4.4. Reflection on the used methods

The used methods in this research were able to generate data that facilitated to answer the proposed research questions. The use of semi-structured interviews provided enough flexibility to explore topics that were deemed relevant by participants whilst at the same time maintaining structure throughout the interview. The iterative nature of this research helped in exploring themes deeper that were frequently coming up. Along the way, I became more flexible and confident in conducting the interviews. I could therefore state that organizing and conducting this research and associated interviews in an unfamiliar setting helped me in developing both academically and personally. Nevertheless, there were limitations within this research that need to be addressed.

The main limitation of this research was to find enough respondents that were willing to participate in a rather fixed time span. Due to budget constraints, it was only possible to conduct 3.5 weeks of fieldwork in South Africa. It was aimed to have more respondents, especially from industry. It would have been nice to talk with people from Eskom or mining companies. However, due to the sensitivity of the subject this proved to be highly difficult. When present in the Komati area, we were even warned by the local community not to enter the Komati power station to ask about the repurposing project due to possible "aggressive behavior". Activists were very vocal and more open and willing to talk about the subject. Therefore, the sample size might have a slight bias towards activists, NGOs and community members as these people were more accessible. Despite this, a variety of stakeholders are represented in the sample size.

Crucial in social research is to be aware of one's positionality. Unavoidably, my positionality has affected the research. Being a Dutch young white woman without much knowledge of the local context has definitely shaped the way I have framed the research design, the interview guide and the way participants perceived me. It is therefore important to acknowledge that this research cannot be subjective and is value laden. Therefore, the results are very context specific and considers the complexity of the topic under research (Creswell, 2007). Moreover, it recognized that there are multiple realities, each as valid, and knowledge is co-constructed (Denzin & Lincoln, 2011). This relates back to the interpretivist approach that this research took upon (Pham, 2018).

Although 16 interviews is a nice sample size for the given timespan, the number is too low to ensure external validity. The results are context specific and cannot be generalized throughout the country, or even the NDM. However, considering that community participants argued that most coal-dependent communities are faced with the same problems, some external validity to other coal-dependent communities within South Africa could be ensured. Furthermore, a selection bias of respondents could be present considering that much initial contact was established by Indalo Inclusive.

This proved however to be necessary to receive replies from stakeholders and to ensure interviews. Desk research to identify more possible stakeholders was nevertheless done to counter selection bias as much as possible. A potential list with stakeholders was delivered to Indalo Inclusive and they would approach them.

Moreover, the replicability of this research is low. The interviews were semi-structured in nature meaning that the structure of the interview was different in almost each interview. It is very likely to receive different answers from different respondents or even the same respondents once the research is replicated. The reliability of the research therefore might be compromised. Furthermore, transcribing the interviews *intelligent verbatim* comes with its limitations considering that it is a subjective process to determine what is 'relevant' and 'irrelevant'. This was countered as much as possible by doing multiple rounds of coding.

A further limitation of the study could be that participants gave socially desirable answers, especially participants from official institutions. I have heard officials saying very general things that are in line with official documents like e.g. "leaving no one behind". Considering that these answers are rather vague, I asked the participants for further explanation with what they meant with this. However, most of the times people would phrase their answer differently but with the same meaning.

Moreover, energy and justice are both highly sensitive topics in South Africa. It was noticed that numerous people were suspicious towards outsiders, including researchers and the media. This relates back to the widespread distrust that was found in this research. A practical example of how some participants used formality within the interviews is by extensively asking what happens with recordings or defensively responding to sensitive questions. Because of the sensitivity, 4 interviews were not recorded. This was of course respected. However, it was therefore challenging to remember everything correctly. This could have resulted in some misinterpretations. This was countered as much as possible by making extensive notes during the interviews and writing everything that I remembered down right after the interview. Also, some people told me that they were already approach multiple times for other interviews and therefore some kind of research fatigue was present. Reflecting on this, it would have been beneficial for the research to spend more weeks in the study area. This would have given me more time to create relationships and to build trust among participants. In this way, participants perhaps felt more confident to share sensitive information and to refer me to other possible participants.

Conducting a focus group was encountered to be more difficult to anticipated. Therefore, unfortunately no focus groups have been held during the stay in South Africa. This could be attributed to the difficulties of finding participants, the suspicion towards foreign researchers and the sensitivity of the topic. Not having the focus group as a method was perceived as a limitation considering that the

results of the interviews could not be triangulated. Nevertheless, a group interview was held that provided interesting insights in community dynamics and activist perspectives.

Another limitation that was present throughout this research were language barriers. South Africa is a country with eleven official languages (MC Alexander, 2022). Luckily, most people were perfectly able to speak English. However, in a few cases my key informant had to act as a translator. This could have resulted in a translation bias or minor misinterpretations. In order to counter this as much as possible, confirmation questions were asked through my key informant whenever something was unclear.

Chapter 6

Conclusion

6.1. Concluding remarks

In conclusion, this thesis aimed to explore the meaning of justice in the context of a JET in the NDM. Considering the complex challenges faced by South Africa, including its heavy reliance on coal for electricity generation, high carbon emissions, frequent load shedding, and the persistent legacy of social injustices this is a highly relevant field of study. By examining the perceptions of justice among various South African stakeholders in the NDM, this research has made contributions to the understanding of what constitutes a just and inclusive energy transition for the NDM.

The findings of this study have shed light on the complexity and limited understanding of the concept of a just energy transition in the NDM. It became evident that many people are not aware of current thinking or developments surrounding this transition, leading to associated fears and uncertainties. Through the exploration of justice elements in the context of the NDM, six important pillars of justice were identified: ‘uplifting people from hardship’, ‘access to accurate information and skills’, ‘meaningful engagement’, ‘energy sovereignty’, ‘transformative governance’ and ‘ameliorating the PCC process’. At present, the decommissioning of the coal-fired power station Komati was considered more a myth than reality.

The research also highlighted three distinct storylines: 'JET as a threat to livelihoods,' 'JET as a necessity to safeguard well-being,' and 'JET as a neocolonial practice.' Moreover, a deep-rooted mistrust was identified towards the national government and the global north. The roots of this can be traced back to a lack of intrinsic motivation within the government to initiate transformative change or adequately respond to contemporary issues. To enhance the existing justice framework, this research proposes the addition of three additional elements of justice that take the local context of the NDM into account: trustworthiness, integrity and decolonization. These elements can contribute to a more comprehensive understanding of justice in the context of energy transitions in the NDM. The usefulness of the concept of the just energy transition was furthermore questioned considering the interlinkages of energy with many other systems such as agriculture or transportation.

In reflecting upon the current state of the just energy transition in the NDM, it becomes apparent that it remains more of a myth than a reality. The existing pathway towards the energy transition falls short in achieving justice. Looking ahead, with national elections on the horizon, it

begs the question of whether it is time for transformative change. The urgency to address these issues is paramount, and a genuine commitment to a just energy transition is crucial for the sustainable development and future of South Africa.

In conclusion, this research has provided valuable insights into the local perceptions of justice and the complexities involved in achieving a just energy transition in the NDM. By amplifying the voices of marginalized communities and proposing additional pillars of justice, this thesis contributes to the ongoing discourse on just energy transitions. It is imperative that all stakeholders, including the government, civil society, and international actors, come together to address the challenges and work towards a more equitable and sustainable energy future for South Africa.

6.2. Outlook for the future: recommendations

6.2.1 Recommendations for governmental bodies

Evidently, the concept of a JET is new and contested. Many people in vulnerable areas like the NDM lack awareness on the concept which is creating a chaotic and fearful dynamic around the concept. Despite it being impossible to have a streamlined definition on the concept, awareness about its presence, purpose and consequences should be clarified. This can be done from a very early age in primary or secondary schools. Respondents argued that at present most children are familiarized with the concept of climate change and its consequences. However, the concept of a JET is lacking from this curriculum. Introducing the concept to children could be a first right step in enhancing awareness around the concept.

It is furthermore important to identify *if* the youth is actually interested to be employed in the green economy and why yes or no. Then, it would be possible to tap into the possible opportunities or barriers. Study programs should be established that prepare the youth for the skills that are needed in the future. Considering that it was deemed important to prevent the importation of knowledge and skills from abroad to avoid loss in job opportunities, universities should offer study programs that teach the required skills. Examples of these skills are the manufacturing of renewable energy technologies. The preparation of the youth with a green skills curriculum can aid in decreasing the enormous skills gap that is currently prevalent in South Africa. This is of major importance in order to ensure a JET in South Africa. A prerequisite for this is that the youth stay motivated to go to school. As explained by P#10 (community) the youth is increasingly pessimistic about the use of going to school as there is a significant lack of job opportunities. Nevertheless, the government should raise efforts to increase youth engagement. The youth is after all the ones that will have to carry on the transition. Moreover, the

government should strengthen social protection systems for those who are vulnerable and unable to participate in the green economy.

For older generations, it is furthermore of crucial importance that awareness is spread. As mentioned by P#11 (community), the government should be more active in familiarizing the population with the concept of a JET. P#10 (community) argued for creating community champions that are familiar with important developments around the JET. These community champions have local knowledge and understand important things specific to the area. Considering that this is a person within the local community, it can be that people trust this person more. This can enhance learning. Budget should be allocated to these community champions so that these people can continue doing their work.

Moreover, the government should ensure a more productive information flow. As noted by participants, most information is stuck at national government and not flowing down to communities. At the same time, communities felt like the knowledge that is present in communities is not arriving to the national government. Therefore, the government should stimulate the information flow between different levels of society and across sectors. The PCC evidently plays a crucial role in this as the stimulation of knowledge spreading and awareness can enhance the effectiveness of consultations. As exemplified in the results chapter, people were not satisfied with the procedures around the PCC. The PCC should seriously address these concerns as it is hampering meaningful engagement. First of all, people should be familiarized what the PCC is, what the purpose is and what its goals are. Moreover, the PCC has to make sure that people are prepared for consultations, consultations are taking place within communities and that the logistics around the consultations are clear. In this way, consultations could become more accessible and representative. This would foster more meaningful engagement as participants argued that the PCC is only talking to aligned people or activists. The media could play an important role in announcing these logistics of the PCC to communities. It was furthermore deemed important that someone from the PCC that is representative for the communities is included in the PCC board. Lastly, it is important that the PCC is actively reporting back to communities about their findings and how they are going to act upon it.

It is furthermore important that the South African government is more open for a bottom-up approach in which local needs and voices are incorporated in decision-making. Moreover, provincial and local governmental bodies should be given more opportunity to develop and execute their own development plans. With the help of the PCC, the government should have a more coherent planning around the transition in which responsibilities are clearly defined. The government should furthermore ensure that events around the just transition are taking place in areas that will be most impacted by the transition.

Consider that mining will continue in South Africa for the next decades, it is important to strengthen the monitoring and enforcement mechanisms around mining companies. It is also crucial for the government to get a grip on the toxic dynamics around Eskom. It is time for South Africa to address the enormous challenge to tackle the entrenched corruption within Eskom. Moreover, considering that Hendrina and Grootvlei coal-fired power stations are next in line to be decommissioned, it is of crucial importance to incorporate a local understanding of justice perceptions to avoid the same thing from happening around Komati.

6.2.2. Recommendations for further research

Despite this research contributing to the state-of-art knowledge, it is important that sufficient research is devoted to the justice component within the just transition in South Africa. Perhaps valuable to know for future researchers is that one could encounter a sense of distrust, especially towards researchers coming from the Global North. Moreover, as also stated by Groundwork (2022), engagement fatigue can be encountered upon.

It would be interesting that future research is extending this research with a larger sample and including important stakeholders like Eskom and the PCC. These stakeholders are highly significant and cannot be excluded from the debate. This does not have to be restricted to the NDM but also other areas in South Africa. Thereafter, the findings could be compared with the ones of this research. It would moreover be interesting to extend the research to communities dependent on e.g. the agricultural sector. It would be interesting to explore whether this sector is facing similar fears regarding the just transition and how they conceptualize justice. This could enhance understanding of what the influence is of the sector one is working in on the conceptualizing of justice.

Considering that one of the most significant fears among the respondents was that there are no viable employment alternatives present, it is important for further research to focus on identifying what people perceive as viable employment opportunities. After establishing this, research can focus on how to realize these opportunities. This is crucial considering that having viable and desirable employment opportunities in place could enhance support for the transition. Moreover, as discussed in chapter 5, the loss of identity was a frequently encountered fear within the energy transition in other studies (Carley et al., 2018; Della Bosca & Gillespie, 2018). It would be interesting to research whether the loss of identity is also present in coal-dependent communities in South Africa. This, in turn, should be taken into account by studies focusing on finding viable employment alternatives.

Furthermore, it would be interesting for further research to compare the Just Energy Transition Partnership with Indonesia that was announced end of 2022. Evidently, Indonesia has a very different

context from South Africa with a different culture, norms and values. It would be interesting to research the influence of culture on the perceptions of justice and to compare two significantly different countries.

Lastly, it is important that research is conducted on how vulnerable people within the informal economy will be impacted by the transition and how they conceptualize justice. These perspectives are often missing from debates.

With the upcoming national elections in South Africa on the horizon, the time has come to determine whether the country will embrace transformative change or continue with business as usual.

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Appendix

Appendix 1 – Interview guide

Below, one can find the interview guide that has been used for the interviews. Please note: the interview guide was slightly adjusted for the participant's background.

1. Can you introduce yourself?
2. What is your understanding of JET?
3. To what extent do you think it is necessary to realize an energy transition? Why?
4. What have people been saying about the JET?
5. How fair is an energy transition? (individuals, society, economy)
6. What are your dreams about the just energy transition?
    a. Why is this important for you?
    b. What do you think is needed to realize these dreams?
7. What are your fears about the just energy transition?
    a. What makes you fear this?
    b. What is important in preventing that these fears become reality?
8. If the transition is to be considered "just''. What are the elements that should be prioritized?
9. Experiences closing down Komati
    a. What happened?
    b. Why?
    c. Has it happened in a fair manner?
    d. Were people informed and included?
10. How do you envision your role within the JET?
11. What are important and meaningful questions to be asked and discussed for future projects or to people affected by the transition?