Power struggles: An exploration of the contribution of renewable energy to sustainable development, decent work and the “just transition” through a case study of wind farm development outside Loeriesfontein, Northern Cape Province (2011-2020)

by

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Declaration

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Abstract

Through a case study of the development of two linked wind farms outside Loeriesfontein, a small town in the Northern Cape Karoo, this dissertation explores the contribution of renewable energy to sustainable development, "decent work" and the "just transition" to a low-carbon economy in South Africa. In considering how the just transition can be realised in Loeriesfontein and the wider Hantam Local Municipality, this dissertation draws on an understanding of sustainable development that rests on three non-negotiable moral imperatives: satisfying human needs, enhancing social equity and respecting environmental limits. It also locates the political struggles around the introduction of renewable energy into South Africa's energy mix within an analysis of the Minerals-Energy-Complex (MEC) and the continued influence of this complex in South Africa's political economy after the democratic transition of 1994.

This dissertation thus broadens the focus on the plight of workers and their communities in the coal sector in current debates on the just transition, to include communities in the Northern Cape. This province is currently home to over half the projects in the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP). Since the introduction of the REIPPPP in 2011, studies have highlighted the programme's potential for community development and job creation in the "host" communities located within a 50km radius from where renewable energy projects are constructed. However, there has been little research on actual developments within these sites and, as a result, the voices of the marginalised people living in these communities have been missing in the debates.

My study utilised a case-study research design involving semi-structured in-depth interviews with key informants and former workers employed during the construction of the two wind farms, along with policy and documentary analysis, observation and primary data from a household survey. Main findings were the following. Firstly, the jobs created during the construction of the wind farms satisfied some but not all of the criteria of "decent work": while wages and work conditions were generally better than those offered by other local employers, training opportunities were neglected. Furthermore, very few local workers could be absorbed into the workforce once the wind farms began operating. Company claims around the number of (short-term) jobs created were also misleading. Secondly, the community development projects initiated in terms of the REIPPPP's local economic development scorecard were introduced in a piecemeal, top-down fashion and mired in local patronage politics. While

targeting certain community needs, they fell short of advancing holistic sustainable development. The Community Trust established as part of the ownership structure of the two wind farms may have potential in alleviating household poverty once it becomes operational, but that will require strong, democratic management and ensuring that impoverished households in the municipality are targeted as beneficiaries.

This dissertation confirms the importance of harnessing the investment in renewable energy towards sustainable development in host communities and broadening the understanding of what the just transition to a low-carbon economy entails in South Africa. It concludes with certain policy and research recommendations in this regard.

Opsomming

Hierdie tesis verken die bydrae van hernubare energie tot volhoubare ontwikkeling, behoorlike werk en die 'billike oorgang' na 'n laekoolstof-ekonomie in Suid-Afrika deur middel van 'n gevallestudie van die ontwikkeling van twee gekoppelde windplase buite Loeriesfontein, 'n klein dorpie in die Noord-Kaapse Karoo. Die tesis neem in oënskou hoe die 'billike oorgang' in Loeriesfontein en die groter Hantam Plaaslike Munisipaliteit verwerklik kan word, en steun in hierdie oorweging op 'n begrip van volhoubare ontwikkeling wat op drie ononderhandelbare morele noodsaaklikhede berus: voldoen aan menslike behoeftes, versterk maatskaplike billikheid en respekteer omgewingsperke. Dit plaas ook die politieke stryd oor die toevoeging van hernubare energie tot Suid-Afrika se energiemengsel binne 'n ontleding van die minerale-energie-kompleks (MEK) en die voortgesette invloed van hierdie kompleks op Suid-Afrika se politieke ekonomie ná die demokratiese oorgang in 1994.

Hierdie tesis verbreed dus die fokus op die posisie van werkers en hulle gemeenskappe in die steenkoolsektor, binne die huidige debat oor 'billike oorgang', om gemeenskappe in die Noord-Kaap in te sluit. Hierdie provinsie huisves tans meer as die helfte van die projekte in die program vir die verkryging van onafhanklike kragprodusente vir hernubare energie (Renewable Energy Independent Power Producer Procurement Programme, of REIPPPP). Sedert die bekendstelling van die REIPPPP in 2011, het studies die program se potensiaal vir gemeenskapsontwikkeling en werkskepping in die "gasheer"-gemeenskappe binne 'n omtrek van 50 km van waar hernubare-energieprojekte gebou word, uitgelig. Daar is egter nog min navorsing oor werklike ontwikkelings binne hierdie terreine gedoen en dus word die stemme van die gemarginaliseerde mense in hierdie gemeenskappe nie in die debat gehoor nie.

My studie het 'n gevallestudie- navorsingsontwerp gebruik, wat semigestruktureerde, diepgaande onderhoude met hoofinformante en voormalige werkers, wat tydens die konstruksie van die twee windplase in diens was, tesame met beleids- en dokumentêre ontleding, waarneming en primêre data uit 'n huishoudelike opname, behels. Die hoofbevindings was die volgende: Eerstens het die werk wat tydens die konstruksie van die windplase geskep is, aan sommige van die kriteria van 'behoorlike werk' voldoen, maar nie aan almal nie – hoewel lone en werkstoestande oor die algemeen beter was as enigiets wat deur ander plaaslike werkgewers aangebied is, het opleidingsgeleenthede agterweë gebly. Voorts kon baie min van die plaaslike werkers in die werksmag opgeneem word nadat die windplase in werking gestel is. Die maatskappy se bewerings oor die aantal (korttermyn-) werke wat geskep is, is ook misleidend. Tweedens is die gemeenskapsontwikkelingsprojekte

wat ingevolge die REIPPPP se telkaart vir plaaslike ekonomiese ontwikkeling begin is, stuksgewys, hiërargies ingestel en was dit vasgevang in plaaslike patronaatskapspolitiek. Hoewel sekere gemeenskapsbehoeftes geteiken is, het die projekte nie daarin geslaag om holistiese volhoubare ontwikkeling te bevorder nie. Die gemeenskapstrust, wat as deel van die eienaarstruktuur van die twee windplase gestig is, het dalk die potensiaal om huishoudelike armoede te verlig wanneer dit in werking tree, maar dit sal sterk demokratiese bestuur vereis en daar sal seker gemaak moet word dat verarmde huishoudings in die munisipaliteit as begunstigdes geteiken word.

Hierdie tesis bevestig hoe belangrik dit is om die belegging in hernubare energie ten bate van volhoubare ontwikkeling in gasheer-gemeenskappe in te span en die begrip van wat die ‘billike oorgang’ na ’n laekoolstof-ekonomie in Suid-Afrika behels, te verbreed. Dit sluit af met sekere beleids- en navorsingsaanbevelings in hierdie verband.

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Dedication

This dissertation is dedicated to my late mother, and late friends: Peter Moatshe (CJ); Tom Marathodi (Scorpion); and Kevin Christopher Swarts.

Though you won't see me graduate, I will remember you all by what the Apostle Paul said in the book of Colossians 3-16: Let the message of Christ dwell among you richly as you teach and admonish one another with all Wisdom through psalms, hymns, and songs from the Spirit, singing to God with gratitude in your hearts.

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List of acronyms

ANC	African National Congress
APPA	Atmospheric Pollution Prevention Act
BBBEE	Broad-Based Black Economic Empowerment
CGR	Cape Government Railways
COP	Congress of Parties
COPE	Congress of the People
COSATU	Congress of South African Trade Unions
CRE	Community Renewable Energy
CSAR	Central South African Railways
DA	Democratic Alliance
DoE	Department of Energy
DEA	Departments of Environmental Affairs
DMRE	Department of Mineral Resources and Energy
ECB	Electricity Control Board
EOI	Export oriented industrialisation
GDP	Gross Domestic Product
GHG	Greenhouse gases
GNU	Government of National Unity
HDI	Human Development Index
IDC	Industrial Development Corporation
IDP	Integrated Development Plan
ILO	International Labour Organisation
ITUC	International Trade Union Confederation
IPP	Independent Power Producer
IRP	Integrated Resource Plan
ISCOR	Iron and Steel Corporation of South Africa
LDC	Limited duration contract
MDGs	Millennium Development Goals
MEC	Minerals-Energy Complex
NDC	Nationally Determined Contribution
NDP	National Development Plan
NEDLAC	National Economic Development and Labour Council
NER	National Energy Regulator
NERSA	National Energy Regulator of South Africa

NEMA	National Environmental Management Act
NGR	Natal Government Railways
NUM	National Union of Mineworkers
NUMSA	National Union of Metalworkers of South Africa
NGP	New Growth Path
OCGT	Open Cycle Gas Turbine
PPA	Purchasing Power Agreements
RDP	Reconstruction and Development Programme
REIPPPP	Renewable Energy Independent Power Producer Procurement Programme
RSA	Republic of South Africa
SACP	South African Communist Party
SALDRU	Southern African Labour and Development Research Unit
SLP	Social and Labour Plan
SASOL	South African Coal, Oil, and Gas Corporation
SARChI	South African Research Chair Initiative
SAR&H	South African Railways and Harbours
SAWEA	South African Wind Energy Association
SKA	Square Kilometre Array
SDGs	Sustainable Development Goals
UN	United Nations
UNCED	United Nations Conference on Environment and Development
UNFCCC	United Nations Framework Convention on Climate Change
VFPC	Victoria Falls Power Company
WCED	World Commission on Environment and Development
WSSD	World Summit on Sustainable Development

Chapter One: Introduction: Two sides to South Africa's "just transition" coin

1.1 Introduction to the study

On 12 March 2018, late at night, Transform RSA, a non-profit company, and the National Union of Metalworkers of South Africa (NUMSA) filed an urgent court interdict in South Africa's North Gauteng High Court. The interdict was aimed at stopping Eskom, South Africa's vertically integrated state-owned electricity utility, from concluding purchasing power agreements (PPAs) with 27 independent renewable energy producers.[1] These Independent Power Producers (IPPs) had been conferred "preferred bidder" status in bid windows 3.5 and 4 of South Africa's flagship Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) (Independent Power Producers (IPP) Office, 2021). In their founding affidavit to the Gauteng High Court, Transform RSA and NUMSA advanced two inter-connected reasons – cost and jobs – for why they had taken such drastic action, on the eve of the agreements being signed.

The first was that Eskom was producing energy in excess of what the country required (at the time there was no "load shedding");[2] thus the signing of the PPAs would mean that the utility would be buying electricity that was not needed from the renewable energy IPPs (NUMSA, 2018a; Affidavit case no: 42887/2017). The second was that the price that Eskom intended paying the renewable energy IPPs far exceeded the price at which the utility was allowed to sell electricity in terms of the applicable regulations (NUMSA, 2018a; Affidavit Case No: 42887/2017). The unintended consequence, the applicants contended, would be that Eskom would have to reduce its own electricity generation, which would lead to a loss of revenue for the utility, the idling or shutting down of power stations, and ultimately the loss of 30 000 jobs; this would severely affect the province of Mpumalanga where many of these jobs are located (NUMSA, 2018a; Affidavit, case no: 42887/2017). As a trade union organising at Eskom,

[1] The forerunner of Eskom was originally known as the Electricity Supply Commission or *Elektrisiteitsvoorsieningskommissie* in Afrikaans, from which the current name for this utility company derives. In this dissertation I use Eskom as the name unless the sense dictates otherwise.

[2] In South Africa, load shedding is the term given to an electricity-demand management tool to temporarily suspend electricity supply when it is insufficient to meet the demand from all consumers.

NUMSA's position was that the closure of power stations "would have a direct and negative impact on our members and that's why we applied for an urgent interdict to block the Minister to conclude these projects" (Hlubi-Majola, interview, 5 June 2018).

In short, what Transform RSA and NUMSA were arguing in their founding affidavit to the Gauteng North High Court was that purchasing electricity from renewable energy IPPs when Eskom did not need the additional electricity would, under the prevailing regulatory regime, push up the utility's primary energy cost, which would negatively affect Eskom's balance sheet.[3] The two parties fell short of arguing that Eskom would be entering a "utility death spiral", which is "when the rate of economic growth is too low to compensate for the effects of higher tariffs and the unreliable supply of electricity" (Hutchinson, Gibson and Phaweni, 2018:59).

In response, Greenpeace Africa, a prominent environmental Non-Governmental Organisation (NGO), condemned the interdict, labelling it as sabotage of renewable energy "in favour of coal" and, moreover, "standing in the way of progress" (Alfred, 2018). Greenpeace contended that once the four bid windows of the renewable energy procurement programme had concluded, 100 000 full-time equivalent jobs would have been created in South Africa, thus more than compensating for any loss of jobs as a result of the move away from coal-fired energy (Alfred, 2018). For its part, the South African Wind Energy Association (SAWEA) questioned the data on which Transform RSA and NUMSA had based their assertions, arguing that the applicants did not take into account South Africa's long-term interests (SAWEA, 2018a). The wind industry body argued further that the closure of old coal-fired power stations, which are exempt from the country's lax environmental laws, was unrelated to the renewable energy procurement programme (SAWEA, 2018a). NUMSA, in turn, registered its disappointment with Greenpeace's "ignorant statement" and accused the environmental NGO of attacking it for insisting on a "just transition" towards a socially owned renewable energy regime (NUMSA, 2018b). For NUMSA, a "just transition" to renewable energy should take into account the interests of the black working-class communities who depend on coal mining for their livelihoods and, furthermore, are at the receiving end of climate change (Moosa, 2018).

In the end, the Gauteng High Court ruled against Transform RSA and NUMSA and on 4 April 2018 Eskom signed the outstanding PPAs with the renewable energy IPPs. A year later, in 2019, the Coal Transporters Forum lost a similar application to the one that Transform RSA

[3] Eskom's three biggest primary cost drivers are: coal, diesel and the IPPs.

and NUMSA had brought, when it tried to have the PPAs which were signed in April 2018 set aside, on the grounds that not all the regulatory requirements had been satisfied (Venter, 2019). This judgement paved the way for the renewable energy projects under bid window 3.5 and 4 to be finalised and administratively endorsed by means of the country's 2019 Integrated Resource Plan (IRP) (Department of Mineral Resources and Energy (DMRE), 2019). The IRP (first promulgated in 2011) is South Africa's roadmap for energy generation for the years 2010 to 2030, which also serves to plot the pace and scale of the country's transition to a low-carbon economy (DMRE, 2019). Since its promulgation, 18 000 megawatts (MW) of new generation capacity have been committed through the IRP, with 6 422 MW already procured from renewable energy sources and a further 12 000 MW planned to replace the coal capacity that is to be decommissioned between the years 2020 and 2030 (DMRE, 2019).

The contestations around the urgent interdict of 2018 and its aftermath reflect the major fault lines and tensions in contemporary struggles in South Africa over the form and speed of the country's energy transition from a coal-dominated regime to one centred on renewable energy. Since this time the phrase "just transition" has received increased prominence in South Africa's energy policy debates. Its reach and meaning lie at the heart of this dissertation, which is premised on the understanding that for the energy transition to be truly just, it must contribute to social and economic development in South Africa that is sustainable, i.e. to sustainable development, the latter conceptualised broadly in terms of promoting social justice and human wellbeing across society, while respecting environmental limits. As argued in 2016 by Swilling, Musango and Wakeford, the possibility of a just transition rests on the overall goal of "human well-being (income, education and health) within a sustainable world (decarbonization, resource efficiency and ecosystem restoration)" (2016: 657). The particular contribution of this dissertation is that it explores the contribution of the renewable energy sector to sustainable development in the generally marginalised communities hosting the wind and solar farms where renewable energy is being generated, focusing in particular on the contribution of these plants to "decent work" (not simply job creation) and local community development. Through a case study of two wind farms, I explore how these issues are being addressed by Mainstream South Africa (henceforth Mainstream)[4] in a small Northern Cape town called Loeriesfontein, and consider the implications of this case study for deepening current debates on renewable energy and the just transition.

[4] Mainstream South Africa was established in 2009 by Mainstream Renewable Power, together with Genesis Eco-Energy. In 2015 Actis, a private equity company, and Mainstream Renewable Power formed Lekela Power to tap into the African market. Mainstream Asset Management South Africa (MAMSA) manages Mainstream South Africa's assets. I expand on this complex set of relationships in Chapter Six.

Loeriesfontein, located in the Hantam Local Municipality, has a population of around 3 000 residents, the overwhelming majority of whom are considered "coloured" in terms of South Africa's official population classification system.[5] As the "host" community for Mainstream's Loeriesfontein 2 and Khobab Wind Farms, it accrues community development benefits in line with the commitments required in terms of the REIPPPP. This is because although the two wind farms are located on privately owned farmland some 60 kilometres (km) north of the town, Loeriesfontein is their closest town in terms of the 50-km radius requirement that is used to determine the allocation of community benefits. As part of the third bid window of the REIPPPP, the development of the two wind farms started in 2011, their construction commenced in 2015 and they began commercial operations (projected to run over 20 years) in December 2017. The two wind farms were thus unaffected by the court interdict brought by Transform RSA and NUMSA in 2018; however, had the interdict succeeded it would have stalled plans for another renewable energy project near Loeriesfontein, a 86.25 MW solar farm by Solar Capital that was awarded "preferred bidder" status under bid window 4 in 2015.

For labour unions and other stakeholders supporting the 2018 interdict, for the transition to a low-carbon economy to be just, there has to be, at a minimum, adherence to the seven *Guidelines for a just transition towards environmentally sustainable economies and societies for all* developed by the International Labour Organisation (ILO) (2015). Of particular importance is Guideline Five which stipulates that "coherent policies" are needed that promote "the creation of more decent jobs" and anticipate "impacts on employment, adequate and sustainable social protection for job losses and displacement, skills development and social dialogue, including the effective exercise of the right to organize and bargain collectively" (ILO, 2015: 5). While I accept the centrality of organised labour's concerns about the form of the transition, my argument is that their interpretation of the just transition in South Africa focuses on only one side of what I am describing as the "just transition coin": the interests of the workers (their own members in particular) who produce the coal and work in existing coal-fired power stations, and their communities. Missing from this debate is what I regard as the other side of the "just transition coin": the interests of the workers involved in the development of the infrastructure for renewable energy (most of them temporary) as well as work-seekers and communities in the areas targeted for investment in renewable energy projects, many of them in the marginalised Northern Cape Province.

[5] The term 'coloured' has a complex history which I briefly cover in Chapter Six. I use the term black in its broader political sense to include people regarded as black African, coloured and Asian in terms of contemporary empowerment policies such as Broad-base Black Economic Empowerment (BBBEE).

These communities are facing the same socioeconomic challenges as those that dominate the country's landscape elsewhere: unemployment, poverty and inequality. However, in the Northern Cape these socioeconomic problems are rooted in a particular social-ecological context, characterised by a semi-arid environment that is dominated by large-scale, predominantly white-owned commercial farming. The largest of the nine provinces by surface area, the Northern Cape is also sparsely populated and its small towns like Loeriesfontein are widely dispersed. According to the provincial government's *25-Year Review*, which reflects on "achievements and failures" since 1994, the local state in the province (comprising its district and local municipalities) is challenged to provide basic services to its constituent communities (Northern Cape Provincial Government, 2019: iii). The province has a tiny industrial base and its skills profile is limited. Where there is industrial development, as in the provincial capital Kimberly, this is indicative of an accident of geography in terms of resource deposits.

Initially, proponents of renewable energy viewed local development in the host communities of renewable energy projects as a burden on the nascent sector. However, in advancing their opposition to the 2018 Transform RSA/NUMSA interdict, Greenpeace, SAWEA and the then Minister of Energy, Jeff Radebe, pivoted towards the benefits for host communities and highlighted the positive impact of the REIPPPP in addressing socioeconomic challenges in the host communities (Alfred, 2018; Radebe, 2018; SAWEA, 2018a). Some of the benefits are described in abstract and aggregated terms such as "full-time equivalent employment", "job-years" and the "national gains" that flow from South Africa's transition to a low-carbon economy (Radebe, 2018; SAWEA, 2018a). Furthermore, community benefits are most commonly measured in financial terms: money spent, for instance, on the procurement of computers, or paying science and mathematics teachers or invested in vegetable gardens (Mainstream, 2014; 2018; Radebe, 2018). Qualitative assessments of the contribution of IPP community development projects to social justice and human wellbeing do not form part of the assessment rubric.

As this case study shows, the value of the job and community development contributions mandated in terms of the REIPPPP are contested at the local level. Exploring these tensions and what they have to say about sustainable development and the just transition in the Karoo region of the Northern Cape is a central concern of this dissertation. My aim is to direct attention away from Mpumalanga and the metropolitan centres, towards the other side of the "just transition coin". As such, a major focus of this dissertation is on the claims around employment creation and community development in Loeriesfontein, the host community for the Loeriesfontein 2 and Khobab Wind Farms. To what extent are developments on the ground

advancing sustainable development in Loeriesfontein and thereby ensuring that the transition towards a low-carbon energy regime that the renewable energy sector is driving is a just one?

My analysis takes as its starting point that struggles over what the just transition involves are shaped by and embedded in South Africa's mineral endowment and the history of its exploitation and struggles over who should benefit from it. The significance of this history for the country's development trajectory since the mineral revolution of the late 19th century has been theorised by Fine and Rustomjee (1996) in terms of a "minerals-energy complex" (MEC. They argued that the MEC has involved a system of accumulation, facilitated by the state, around core sectors and their linkages in South Africa's economy; historically, profitability within this system has been enhanced by the exploitation of black African labour. The MEC has been critical in determining the country's industrialisation trajectory which has unfolded unevenly across different regions, with industrial and manufacturing development concentrated in the north-eastern parts of South Africa. This complex, I argue, is still relevant for shaping South Africa's economy and energy regime today. Given its significance, the benefits of the country's transition to a low-carbon economy that the investment in renewable energy is supporting can be expected to accrue primarily at the national level. Through my case study I consider what a just transition means when developments in the isolated and marginalised Karoo region are included within the analysis.

This dissertation makes several important contributions to current debates on South Africa's energy mix and transition to a low-carbon economy. Through my case study I argue that a just transition must mean more than the mitigation of job losses and the promise of "green jobs" in South Africa's coal-producing and metropolitan areas alone. What is needed, rather, is a more robust and far-reaching understanding of sustainable development that is applicable to different contexts, including the areas producing renewable energy. I ground my analysis of local developments in my case-study site in a conceptual framework that argues for an understanding of sustainable development that foregrounds commitments to advancing social justice, satisfying human needs and respecting environmental limits, commitments that are non-negotiable and must operate in tandem with each other (Holden et al., 2016). What this case study shows is that individual renewable energy projects are falling short of advancing sustainable development understood in these terms in their local host communities. Within the context of the Karoo, the failure to leverage the opportunities represented by the current investment in renewable energy in the province will likely lead to an area which has historically been marginalised both economically and environmentally being left further behind as the country transitions to a low-carbon energy dispensation.

In unpacking the aggregated data on job creation and claims regarding the contribution of renewable energy IPPs to local community development in my study site, I draw on the ILO's "decent work" agenda to analyse the claims the renewable energy sector is making regarding job creation. This understanding of decent work fits within the understanding of sustainable development indicated above, as discussed further in Chapter Two. In making these links I contribute to theory building around decent work and sustainable development. At the same time, while it is important to ensure that the jobs that come with the development of the renewable energy sector meet the standards of decent work, it is also important to understand the limitations of the local job creation promises of the renewable energy sector in host communities. Given the short-term nature of most of these jobs (concentrated in the construction phase), what becomes critical is the contribution of renewable energy to local community development beyond jobs – here the local economic development commitments of the IPPs are key, as is the as-yet-to-be realised potential of the community development trusts. My case study points to the longer-term potential in the community development trusts that renewable energy IPPs are required to establish, provided that the not insignificant amounts of money that they will accrue are distributed to those most in need, rather than be captured by local elites.

What also emerges through my study is the importance of the household as a primary site for targeting if the redistribution of resources through community development initiatives is to be meaningful. My case study brings into sharp focus the tensions and conflicts that the construction of the two wind farms has generated at the local level, and what this reflects about policy contestation at the national level. As per the regulations of the REIPPPP, the companies involved in the development of these wind farms are required to make a commitment towards community development in the town of Loeriesfontein. Funding for this is determined by a calculation based on a percentage of the revenue derived from the sale of electricity to Eskom from the projects.[6] This case study shows how local politics in the Hantam Local Municipality have been affected as local stakeholders have jostled for advantage and residents in the other towns in the municipality – Calvinia, the municipal hub, Nieuwoudtville and Brandvlei – have questioned the formula and pushed for a more equitable allocation of resources among themselves.

To date empirical research on the performance of the renewable energy sector in terms of job creation and community benefits in local host communities has been limited. In 2012 Wlokas,

[6] The percentage ranges from 0.5%-1.5% depending on what is being funded i.e. socioeconomic development or enterprise development (Eberhard & Naude, 2016:26).

Boyd and Andolfi identified the following as important emerging issues with regards to community development and renewable energy: “who beneficiaries are; how to assess communities without raising expectations; what are possible community development contributions; and how is implementation capacity ensured, either institutionally or through community structures” (2012:48). They signalled a critical gap that this dissertation seeks to fill. Although the 2019 IRP embraces the phrase “just transition”, it neglects the concerns coming from the other side of the transition coin: the host communities for the projects coming out of bid windows one, two, three and four. Understanding these concerns is essential for deepening our understanding of what a transformative sustainable development programme entails on the ground, and what changes in policy and practice are required for a just transition to be realised.

In the rest of this introductory chapter I provide an overview of my dissertation, starting with the problem statement, research questions and research design in the next section. This is followed by brief overviews of the town of Loeriesfontein, South Africa’s international commitments around climate change and the REIPPPP in section three. This section is intended to provide introductory context and background before my more detailed discussion of these issues in subsequent chapters. The final section provides an overview of how my discussion is laid out across chapters two to nine.

1.2 Problem statement and research design

1.2.1 Research problem

In 2012, the World Bank identified South Africa as the 14th biggest emitter of greenhouse gases (GHG) in the world, even though its economy ranked only 27th in terms of its Gross Domestic Product (GDP) (World Bank, 2012). On the African continent, the country is the biggest GHG emitter, with Eskom the biggest contributor to South Africa’s emissions, responsible for 39% of the nation’s GHG (Centre for Environmental Rights, 2019 in Department of Public Enterprises, 2019). The main reason for South Africa being a major carbon emitter is its dependence on coal-fired energy generation, itself the result of the abundance of coal deposits concentrated in Mpumalanga. Concerns around the environmental and economic impacts of coal-fired powered stations are multiple and interlinked, affecting land, labour and livelihoods. For example, water and air pollution caused by mining affects not only the health of all living

organisms, but has a negative impact on agricultural livelihoods and exacerbates the loss of biodiversity as well.

According to the World Bank (2011), the growth of GHG has "three key drivers": first, "Economic activity, measured by real GDP"; two, "Energy intensity of GDP (a measure of energy efficiency)", and three, "Carbon intensity of energy consumption". The latter is driven by "the proportion of fossil fuels in the country's primary energy mix, measured by the ratio of CO_2 emissions to energy consumption". Historically, and until the present day, these drivers can best be understood in South Africa through the political-economy lens of the MEC. Initially termed the energy-minerals complex (Fine,1992; Rustomjee, 1990; 1991 & 1994), the idea of the MEC as developed by Fine and Rustomjee (1996) theorises that since the late 19th century, South Africa's industrialisation has been predicated on a relationship between core sectors of the economy – mining (gold, coal, diamonds, and others), energy (coal-fired electricity) and manufacturing. The system of accumulation this complex has underpinned was enhanced by the state (through various laws and regulations) and dependent on both the inflow of foreign capital and the exploitation of cheap black African labour through the migrant labour system (Fine & Rustomjee, 1996). As a framework, the MEC is still important for understanding how the transition to a low-carbon economy is playing out in post-apartheid South Africa.

Marquard (2006) asserts that the development of South Africa's energy system is remarkable in four ways which can be linked to South Africa's historical developmental trajectory. The first is that from the inception of coal as the country's primary energy source, forward and backward linkages and industries have developed around this strategic natural resource, including a fully-fledged coal-to-oil industry. Second, the geography of South Africa's electricity system, as it has developed historically, places Mpumalanga at the centre of electricity generation, while the distribution and transmission network of the national grid reflects where the industrial hubs are located. Third, while access to household electricity has improved post-1994, the continued use of other sources such as firewood and paraffin for cooking and heating reflects socioeconomic inequalities. And fourth, as a percentage of final energy demand, the consumption of electricity by industries is disproportionally distributed towards mining and manufacturing, which account for over 60% of electricity consumption, followed by households at 20% and other industries sharing the remaining 20% (Eskom, 2017; Marquard, 2006). Structurally, as noted by the World Bank (2011, 2012) above, this means economic activity and growth is predicated on high and intensive consumption of energy that is primarily coal-generated.

Globally, the transition to renewable energy is seen as urgent because of the mounting threat climate change poses to the planet and human life. However, in South Africa, as in other coal-rich countries, there are economic and political obstacles in the transition to a low-carbon economy. South Africa committed formally to international climate change goals at the Copenhagen Summit in 2009, but the country is struggling with various developmental deficits while also locked into a developmental path that is shaped by the history of the MEC. The MEC remains a powerful structural force from the past that has effectively adapted to post-apartheid conditions, in part because many of its key elements, such as the power of state-owned companies, have been endorsed by the post-apartheid government and the new political elite. The ruling African National Congress (ANC) has instituted policies such as employment equity and broad-based black economic empowerment (BBBEE) as instruments for levelling the playing field between historically advantaged whites and historically disadvantaged blacks, but these policies have been less successful in the private than the public sector. While claiming to benefit the black majority, BBBEE policies have been used to dispense rewards to politically connected individuals, manage patronage networks in the ANC through cadre deployment and build a black business class in South Africa (issues I explore further in Chapter Five).

The formal introduction of renewable energy in the country's energy mix poses both a threat and an opportunity to one of the core sectors in the MEC, that of energy. This threat or opportunity extends across the energy sector's value chain, to coal transporters, coal mine workers, power plant workers and communities and, now, to new nodes in the renewable energy sector. The introduction of renewable energy also reflects the continuation of capital accumulation associated with the core sectors of the MEC, which have been successfully financialised post-1994 (Ashman, Fine & Newman, 2011). Of the R209 billion private sector investment attracted by the REIPPPP between bid windows 1 to 4, 20% or R41.8 billion is foreign direct investment (IPP Office, 2021), while the rest is domestic capital.

From the perspective of the labour unions, the "just transition" is understood in relation to the rights and interests of the workers and communities tied to the fossil fuel economy. On the side of renewable energy, proponents – a mix of corporates and environmentalists – have made several claims regarding the sector's contribution to employment creation and sustainable development. They argue that the transition to clean energy is important environmentally and is in line with South Africa's National Development Plan (NDP) and that any potential job losses as a result of the shift are outweighed by the overall social, economic, developmental, health and environmental benefits. However, many of these claims have not been sufficiently probed. There are problems with the way jobs in the renewable energy sector

are calculated, problems with the extent to which the jobs that are created qualify as decent work, problems with the ability of host communities to benefit sufficiently during the construction phase of individual projects, and also problems with the articulation between, on the one hand, corporate needs to operate and deal with regulatory demands efficiently and, on the other, local expectations around the community development commitments the sector is required to make. In addition to national-level analysis of economic and environmental data, these issues need to be properly explored in their local contexts, through case studies such as the one provided in this dissertation.

Once these issues are taken into account, it becomes clear that the just transition cannot be only about justice for workers in the coal industry and the communities in which they live, but must extend to the promotion of social justice and sustainable development for the workers and communities in the places such as Loeriesfontein where the infrastructure for the transition to a low-carbon economy is being built. This requires paying attention to the views and experiences of these host communities, as well as evaluating the contribution of renewable energy companies towards sustainable development, measured against a deeper understanding of what this concept involves than one premised simply on concerns with energy costs and carbon emissions.

This dissertation explores these issues as they have been playing out in Loeriesfontein since Mainstream began developing its two wind farms outside the town in 2011. The focus of this case study is on the contribution of the two wind farms to job creation and community development in the town during the construction phase and the first two years of the farms' commercial operations phase, i.e. from 2011 to 2020; this contribution is evaluated in terms of an understanding of sustainable development that encompasses the notions of decent work and social equity. As my analysis shows, the contestations around employment opportunities and the community development initiatives that took place at the local level in Loeriesfontein mirror those playing out in national debates on the IRP, with respect not only to community struggles to be heard but also struggles over the distribution of benefits. This has significant implications for broadening our understanding of what a just transition to a low-carbon economy must entail.

1.2.2 Primary research questions

This dissertation is structured around two main research questions:

1. To what extent is the transition to renewable energy a just one in terms of its contribution to sustainable development in the host communities where the infrastructure is being developed, firstly, via the contribution of the renewable energy sector to "decent work" and secondly, through the sector's commitments to local community development?

2. What light does this study shed on national debates on the meaning of a "just transition" as the country moves from coal-fired electricity generation towards renewable energy?

Flowing from this are several sub-questions:

1. What are the major concerns and policy debates within which the development of the renewable energy sector in South Africa, the performance of the REIPPPP and debates on the just transition must be understood?
2. What are the major development challenges facing host communities in the Karoo region of the Northern Cape in general and Loeriesfontein in particular?
3. What are the local labour market conditions in Loeriesfontein, and how well placed are residents of the town to benefit from current and future investments in renewable energy in the local municipality?
4. What local employment opportunities have the investments in renewable energy brought to Loeriesfontein and to what extent have these jobs met the criteria of decent work?
5. To what extent is sustainable development being advanced by the community development projects the renewable energy sector is required to make in its host towns in terms of the REIPPPP?

1.2.3 Research design and key concepts

I have deployed a case-study research design, in which in-depth, semi-structured interviews with a wide range of participants, observation and documentary analysis have been my primary research methods. My first research question is addressed primarily through my case study of the development of the two Mainstream wind farms outside the Northern Cape town of Loeriesfontein while addressing the second requires locating my study within a broader consideration of the development of South Africa's energy sector historically and the turn to renewables in post-apartheid South Africa from the early 2000s.

Interviews were conducted with informants who are close to the energy debates nationally as well as with key informants and former workers on the wind farms in my case study site, Loeriesfontein. These interviews were supplemented by observations and informal engagements with many people in the field as well as by extensive documentary analysis of policy documents and other texts. In addition I was able to draw on primary data from a 2019 household socio-economic survey in Loeriesfontein that was conducted by the research group within which my dissertation has been undertaken, the South African Research Chair Initiative (SARChI) Research Chair in the Sociology of Land, Environment and Sustainable Development at Stellenbosch University (henceforth the SARChI survey). Although I was not involved in the data collection or primary analysis, I contributed to the formulation of the open-ended questions on renewable energy in the survey questionnaire as well as to discussions on the interpretation of especially the data on work and migration patterns. My research methodology is discussed in detail in Chapter Three.

Key concepts within my conceptual framework have already been introduced, notably the just transition, sustainable development, decent work and the MEC, all of which are discussed in greater depth in Chapter Two. As mentioned above, my understanding of the just transition is broad, encompassing not only the "what" and the "how" of the transition to a low-carbon economy but also the "where" and the "who", to include the communities hosting the infrastructure for renewable energy. In developing my understanding of this concept I have also drawn on the ILO's (2015) seven *Guidelines for a just transition towards environmentally sustainable economies and societies for all*, which is helpful for linking the just transition to broader debates on sustainable development.

My understanding of sustainable development draws on a model developed by Holden, Linnerud and Banister (2016) which describes sustainable development as a space bounded by three non-negotiable imperatives: satisfying human needs, enhancing social equity, and respecting environmental limits. As discussed further in Chapter Two, this understanding circumvents concerns that the concept of sustainable development has been reduced to "greenwashing", while providing a basis for critical engagement with the national and international policy documents that have embraced the language but not necessarily the practice of development that is socially just and environmentally sustainable.

The concept of decent work championed by the ILO fits well with two of Holden et al.'s sustainable development imperatives, those of enhancing social equity and satisfying human needs. According to the ILO the primary goal of decent work is to promote "opportunities for

women and men to obtain decent and productive work, in conditions of freedom, equality, security and human dignity" (ILO, 1999:3); the decent work agenda rests on four strategic pillars: employment creation; rights at work; social protection, and social dialogue. It is also central to international commitments to achieving the United Nations' (UN) *2030 Agenda for Sustainable Development*, in which "decent work" is included under goal eight of the 17 sustainable development goals (SDGs) set out in this document (United Nations, 2015a).

One of the most consistent assumptions underlying arguments about the contribution of renewable energy to sustainable development is that job losses in the coal industry will be offset by gains created by renewable energy projects. This advances a narrow understanding of the labour market which misconstrues the how, when, where and why of workers' entry into labour markets. In looking at the labour market in Loeriesfontein I draw on Jamie Peck's (1996) analysis of the ways in which the labour market actively reproduces pre-existing social inequality through processes of incorporation, allocation, control and reproduction. Consideration of the limitations of the labour market in this small town leads me to consider the household as a critically important but overlooked site for the redistribution of resources and local economic development beyond temporary, low-paying jobs.

The main features of the MEC have already been briefly described. In unpacking how this has played out historically and in the post-apartheid period, I have found Gabrielle Hecht's (1998) notion of "technopolitics" (developed in relation to the nuclear power industry in France) to be useful for analysing developments in South Africa's electricity sector, a sector that is inextricably linked to the mining sector.

1.3 Context and background

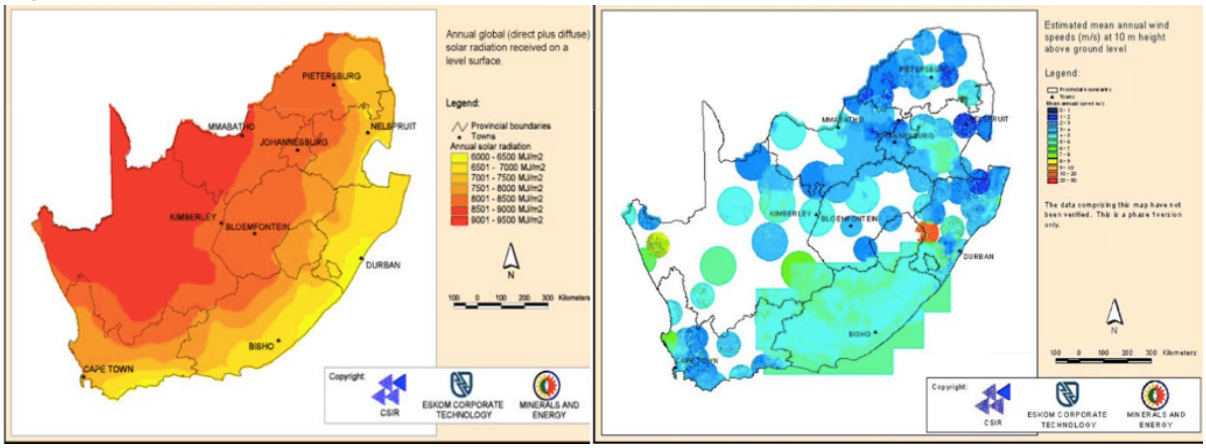
In this section I provide brief overviews of the town of Loeriesfontein within the Karoo region of South Africa's Northern Cape Province, South Africa's commitments to reducing its carbon footprint and the REIPPPP climate change that follow are preludes to fuller discussion in Chapter Five for the latter and Chapter Six for the former.

1.3.1 Loeriesfontein in the Northern Cape Karoo

The Karoo is an arid to semi-arid area that covers about a third of South Africa's land area and spreads across four provinces (Northern Cape, Eastern Cape, Free State and the

Western Cape), with the bulk of it falling in the Northern Cape. Its climate and geography make it an ideal candidate for renewable energy generation. On average, South Africa has more than 2 500 hours of sunshine per year and its average direct solar radiation levels, ranging between 4.5 and 6.5kWh/m2 per day, place it in the top three countries for solar radiation levels in the world (DoE, 2015). Within South Africa, the Northern Cape Province is particularly well endowed with solar resources, as well as some pockets of wind energy resources as shown in Figure 1.1 below.

Figure 1.1: Annual solar radiation and wind resources in South Africa



(Source: Council for Scientific and Industrial Research (CSIR), 2016)

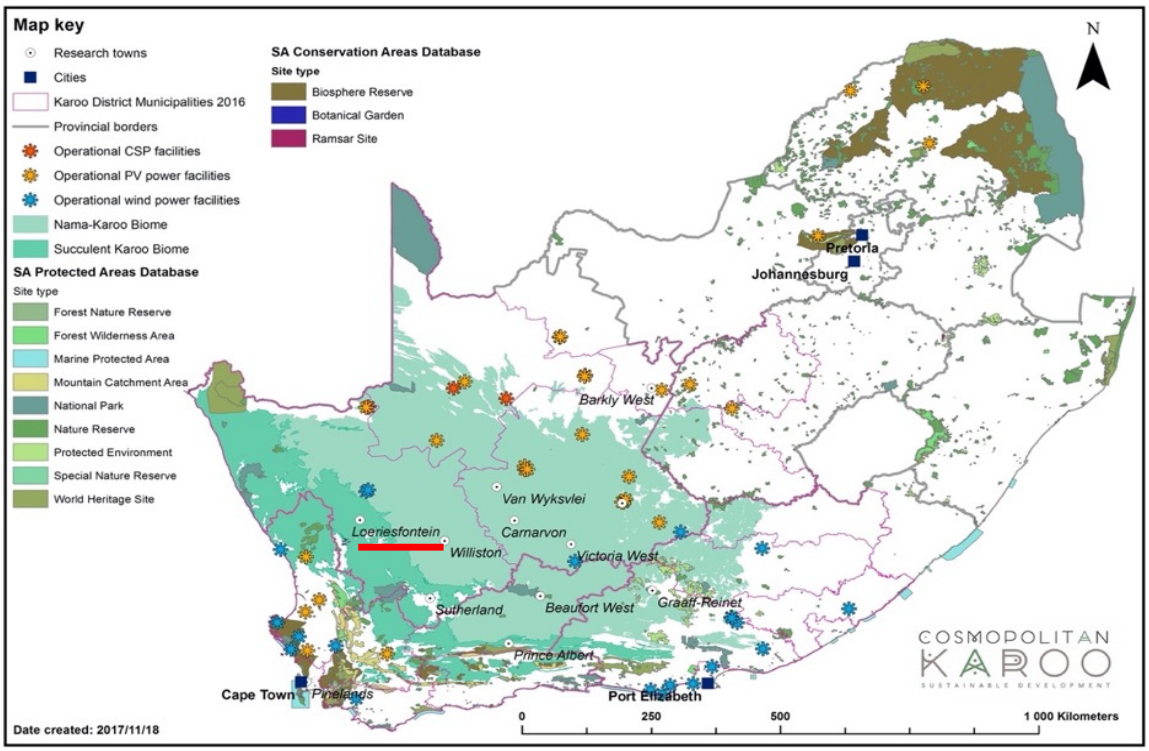
As of 31 March 2021, the IPP Office's Northern Cape Provincial Report indicated that the province accounted for 56% of procured renewable energy capacity and 59 of the 112 projects procured in bid windows 1, 2, 3, 3.5 and 4 under REIPPPP (IPP Office, 2021:8).[7] Forty-six of the 59 projects are solar PV and CSP; 12 are wind, and one is a small hydro-electricity plant, the Kakamas Hydro Electric Power plant. The 58 non-hydro projects account for 100% of all solar CSP, 65% of all solar PV and 43% of all wind projects in the country (IPP Office, Northern Cape Provincial Report 2021:9). The 112 projects across these bid windows represent 6 422 MW and contributed to "a reduction of 33.2 million tonnes (Mton) carbon dioxide (CO2) and water savings of 39.2 million kilo litres" as of 31 December 2018 (SAWEA,2019).

The distribution of renewable energy projects is spread across the five district municipalities in the province. By 2021 the REIPPP programme's total investment in the Northern Cape (over seven bid windows) was almost 50% more than the province's annual gross domestic product

[7] The figures include some very small renewable energy projects that are not connected to the national grid.

of R92 billion (IPP Office, 2021:10). Figure 1.2 below shows the distribution of solar and wind projects in South Africa in 2017, when I started my research.

Figure 1.2: Large-scale renewable energy projects, South Africa 2017, with the town of Loeriesfontein underlined in red



(Source: SARChI Research Chair in the Sociology of Land, Environment and Sustainable Development)

In terms of employment creation, the REIPPPP programme was reported to have created 35 485 “job-years” in local communities in the province, with the three projects in the Hantam Local Municipality responsible for contributing 3 469 “job-years” (IPP Office, 2021:12). At the end of 2020, the Loeriesfontein 2 and Khobab wind farms were the only “sister” wind farms among the 36 projects then in operation in the country, having been originally designed as one big wind farm and constructed in tandem. As can be seen in relation to Figure 1.1, Loeriesfontein is also well located in terms of solar resources. Construction on a solar farm, Orange Loeriesfontein, which had been delayed by the 2018 court interdict, was getting underway in Loeriesfontein in 2019 at the time my fieldwork was drawing to a close.

Like many small towns in the Northern Cape, unemployment and poverty rates in Loeriesfontein are extremely high. The 2019 SARChI survey that contributed to my study found the town’s official (narrow definition) unemployment rate to be 39%, with 46% of households reporting social grants as their main source of income (Vorster, 2019). White

people still dominate the local economy but they constituted a tiny proportion of the town's population, with the overwhelming majority of the town's population self-identifying as coloured in the survey and under 3% of households identifying themselves as white (Vorster, 2019).

The history of the town is rooted in experiences of dispossession and racial discrimination that strongly influence claims for social justice in Loeriesfontein today (Davids, 2021). The town was established in the late 19th century around a store which was still in operation at the time of writing this dissertation. The original inhabitants of the area were likely Khoekhoe/Nama pastoralists and |Xam hunter-gatherers, but in 1860 the colonial government in Cape Town granted a Ticket of Occupation for the farm, Loeriesfontein, to a group of Basters (a social group comprising people of mixed black and white parentage that emerged in the Northern Cape in the colonial period). By the late 1880s, white settlers on neighbouring farms were agitating for the Ticket of Occupation to be withdrawn and eventually, in 1892, the Commissioner did so, paving the way for the town to be proclaimed shortly thereafter.

These struggles over land and autonomy speak to the particular way in which the region was incorporated into the colonial economy and labour proletarianised. Whereas the diamond and gold mining that was transforming the country far to the east and north relied on the migrant labour system, this was not the case in the agriculture-based economy of the Northern Cape Karoo. Throughout the 20th century the local economy depended on extensive sheep farming in a semi-arid and drought-prone region that until 1994 was dominated by a numerically small but politically powerful white elite. By elite I mean those individuals or families who owned vast tracts of land and were able to use this valuable resource as a bargaining tool to protect and increase their economic interests. In 1968, the coloured majority was affected by a proclamation under the Groups Areas Act of 1966 which confined them to a small portion of the town and appears to have extinguished the residual grazing and cropping rights some of them still had in the extensive commonage lands surrounding the town (Davids, 2021). With the advent of democracy in 1994, the town lost its independent municipal status and was incorporated into the Hantam Local Municipality within the Namakwa District Municipality in the new province of the Northern Cape.

Since 1994, provincial politics in the Northern Cape have been dominated by the ANC, with the Democratic Alliance (DA) as the official opposition.[8] Both provincial and district political dynamics mirror national politics, but in the town of Loeriesfontein, the power dynamic is more fluid and the local ward election is a closely contested affair. The 2011 local government

[8] The Congress of the People (COPE), a splinter party from the ANC formed in 2008, briefly replaced the DA in this position after the 2009 National elections.

elections ushered in a DA-led coalition government in the nine-member local council, with one councillor from the Congress of the People (COPE) (Electoral Commission of South Africa (IEC), 2011).[9] The DA won ward five, Loeriesfontein, but nearly lost it to the ANC in the 2016 local elections, when the DA lost overall control of the local council to the ANC. In a 2019 by-election the Loeriesfontein ward shifted to the ANC – in this election the DA and ANC were separated by just six votes in favour of the ANC candidate, with seven spoilt ballots (IEC, 2016; 2019).

The development and construction of the two wind farms occurred during the 2011-2016 local government election cycle which sandwiched the 2014 national general elections. In chapters six and seven, I show how the local politics that have played out in the local municipality have had a profound influence on the implementation of local community development projects associated with the wind farms. By politics I refer to what Lasswell (1936) described succinctly as who gets what, when and how. The town's history, its current socio-economic challenges and the local political dynamics in relation to the balance of power within the larger local municipality make the town an ideal case study in which to explore commitments to sustainable development, decent work and the prospects for a just transition. This is because regardless of the locus of power in the municipal council (seated in Calvinia), the 50-km radius rule guarantees that within the local municipality the wind farms' commitments around community development are focused on Loeriesfontein.

1.3.2 South Africa's climate change commitments

At the Copenhagen Climate Change Conference of 2009, then President Jacob Zuma committed to reductions in the country's GHG by 34% by 2020 and 44% by 2025, thereby signalling internationally a policy shift towards the inclusion of renewable energy in South Africa's energy mix (Baker, 2015). In December 2011, guided by the 2003 *White Paper on Renewable Energy*, the then Department of Energy (DoE) initiated the REIPPPP, thereby paving the way for renewable energy IPPs to develop the renewable energy industry in the country from scratch (Baker, 2015; Baker, Newell and Phillips, 2014). Around this time, however, Eskom was entering a sustained period of management instability which hindered internal decision-making processes, affected the utility's performance negatively and compromised the South African government's commitment to its carbon-reduction targets. Load shedding is not just a technical issue but a reflection of larger management and political

[9] In this coalition COPE had one seat in the nine-member council and the DA four (IEC, 2011).

crises which could not be remedied simply by the introduction of renewables to the energy mix.

South Africa pledged its first Nationally Determined Contribution (NDC) in terms of the United Nations Framework Convention on Climate Change (UNFCCC) in 2015, under the Paris Agreement. The country committed to capping its annual emissions at 614 million tonnes of CO_2 ($MtCO_{2)}$) (Department of Forestry, Fisheries and the Environment, 2020). Under the draft plan prepared ahead of the Congress of Parties set for late 2021 (COP 21), South Africa stated that it intended to commit to limit its annual GHG to 398-440 $MtCO_2$ by 2030, representing a 28% cut compared to the 2015 pledge (Department of Forestry, Fisheries and the Environment, 2020). Meeting these NDC commitments relies on transitioning to a low-carbon economy and there is no doubt that renewable energy is needed to achieve South Africa's climate change commitments. In the context of load shedding, renewable energy is also attractive because of the relatively short construction lead time (one to three years) compared to that of coal or nuclear power stations. However, the mere commitment to introducing renewable energy technology does not, on its own, ensure energy democracy (Davies, 2021) nor that South Africa's energy transition will address both sides of the "just transition coin".

1.3.3 The REIPPPP programme (REI4P) of 2011

The publication of the first IRP in 2010 signalled the South African government's intention of actualising its commitments to climate change which had been internationalised at Copenhagen in 2009. Following this, the government introduced the REIPPPP in 2011. REIPPPP is designed as an auction to procure new generation capacity and is triggered through determinations made by the Minister of Energy using the Electricity Regulation Act of 2006 (amended in 2007), together with the Electricity Regulations on New Generation Capacity (DMRE, 2019). Bids in the programme are evaluated based on two components: price or tariff and the economic development commitments. The former accounts for 70% of the overall points allocation and the latter for 30%. In June 2021, the DMRE requested proposals from renewable energy IPPs under the 5th bid window for 2 600 MW, on top of the 2 000 MW already procured under its Risk Mitigation IPP Procurement Programme (Mantashe, 2021).

In terms of tariffs, the REIPPPP has registered a remarkable price drop across the bid windows, even though a case can be made that prices for the first two bid windows were high to begin with. For example, since its inception wind tariffs have dropped by 59%, making wind prices cheaper than new coal-based power generation (SAWEA, 2018a). With regards to the

economic development commitments, this component of the REIPPPP was introduced at the eleventh hour and was viewed at the time as “controversial, often confusing”; however it was introduced as a lever to ensure local development in the host communities where projects would be based (Eberhard, Kolker and Leigland, 2014:33; Walwyn and Brent, 2015).

The economic development scorecard has seven non-priced categories: job creation, local content, ownership, management control, preferential procurement, socio-economic and enterprise development (DoE, 2015). These categories are explored in detail in Chapter Five and subsequent chapters. The most contentious of the seven categories, employment creation, has received the most public attention. Three notable research studies which engaged with employment creation under the REIPPPP are those by Stands (2015), Eberhard et al., (2014), and Tyler and Steyn (2018). They all agree on one central point, that the reported employment figures are misleading due to confusion with regards to the measurement of the jobs produced and the definition of a job. The notion of “job-years”, which is defined as equivalent to full-time employment for one person for the duration of one year, is widely used in research studies to compare job creation among technology sources. However, comparisons are often problematic as some studies do not state up front their key assumptions required for comparison and there is no uniformity across studies as to what are direct, indirect, or induced jobs. (I critique the notion of job-years as applied to job creation in Loeriesfontein in Chapter Seven.)

With regards to local community development (a term I favour to encompass the socio-economic development, enterprise development and community trust requirements of the REIPPPP), few studies have looked at actual impacts in local communities. This is largely due to the fact that the socio-economic development plans and enterprise development plans of projects that are used in the bidding process are not publicly available, due to the competitive nature of the bidding process. Notable exceptions in this regard are the case studies conducted by McDaid (2014; 2016) and Nkoana (2018). As already mentioned, the study by Wlokas et al (2012) also considered challenges around local community development that developers might face. Their research suggested that, owing to the decentralised geographic locations of renewable energy projects, there was potential for community development and a more dispersed distribution of revenue (Wlokas et al., 2012). However, other case studies (Tait, 2012; McDaid, 2014, 2016; Nkoana, 2018) identify a lack of guidance for developers with regards to drawing up sustainable development initiatives in host communities as a potential challenge. This early research made it clear that the expertise of renewable energy developers lies not in community development activities but in energy generation.

Accepting that renewable energy IPPs are in the business of producing energy, two key questions still arise. One, why is community development driven by a top-down approach and two, why are local development plans not made publicly available, even after the bid winners have been announced? In 2014 Eberhard et al. noted that "the most important lesson to transfer from the REIPPPP is the benefits of a well-designed and transparent procurement process" (2014:3). However, as pointed out by McDaid (2014, 2016), and Nkoana (2018), the same cannot be said for the sector's local community development requirements. Nkoana (2018) advocates for awareness and capacity-building programmes, tied to participatory governance structures, to prioritise vulnerable stakeholders in local communities. McDaid (2014, 2016) argues that socioeconomic development should not form part of the bidding process, but be introduced afterwards as a transparent and standardised requirement.

I agree with both positions, but add a further caveat derived from experience with community ownership models in the mining sector. As currently conceptualised, the REIPPPP is far from realising a just transition; also missing is the notion of community renewable energy (CRE) which Seyfang, Park and Smith (2013:978) define as "Projects where communities (of place or interest) exhibit a high degree of ownership and control of the energy project, as well as benefiting collectively from the outcomes (either energy-saving or revenue-generation)". Under the current REIPPPP regime, the local host community obtains a 5% ownership in the projects, through a community trust mechanism (discussed in Chapter Five). However local people have no control of community development projects and investment in renewable energy projects serving local households and businesses is not a concern (beyond the call for self-generation to mitigate Eskom's supply constraints). At this stage the collective benefits for local communities lie in what Hirschman (1958:14) called "social overhead capital" (education; healthcare; social welfare and some infrastructural developments) while the economic and environmental benefits of clean electricity are accrued nationally.

In Chapter Five I argue that, as in the mining industry where a Social and Labour Plan (SLP) is required before a mining license can be issued, local community development plans that reflect local needs and development priorities should form part of the bidding process under the REIPPPP.[10] Furthermore, local community development should not be equated with corporate social responsibility as they are not the same thing, while the possibility of the household playing a meaningful role in the determination and distribution of benefits needs to be explored. My understanding of local community development is influenced by the model

[10] This Plan sets requirements for applicants for mining and production rights with regard to various human and community development plans (Department of Mineral Resource, 2010:4).

for sustainable development put forward by Holden et al. (2016) which I review in the next chapter.

1.4 Chapter outline

My case study of the contribution of renewable energy to sustainable development, decent work and the just transition in Loeriesfontein is located within the broader context of South Africa's contested transition to a low-carbon economy. The first three of my nine chapters address my research problem and underlying research design. Following this introductory chapter, Chapter Two develops the conceptual framework, key elements of which have already been introduced. Thereafter, Chapter Three reviews my research methodology which involves a case-study research design. In this chapter I also reflect on some of the challenges I encountered during fieldwork, particularly regarding the disclosure of information.

The next two chapters (four and five) address the national context for current energy policy debates and political struggles, thus addressing sub-research question 1 (What are the major concerns and policy debates within which the development of the renewable energy sector in South Africa, the performance of the REIPPPP and debates on the just transition must be understood?). Chapter Four offers an historical overview of the political economy of South Africa, through the lens of the MEC, up until the country's transition to political democracy in 1994. This chapter lays the background for an analysis of the dilemmas facing South Africa in transitioning to a low-carbon economy in the post-apartheid era, which is the focus of Chapter Five. This chapter addresses the introduction of renewable energy into South Africa's energy mix through the REIPPPP and why struggles over the just transition are so fierce. The chapter also reviews the issue of load shedding and Eskom's passage from fiscal stability to a "utility death spiral".

Chapters six, seven and eight return the reader to the Northern Cape and my case study site. Chapter Six situates my case study in the Northern Cape and the new developments in renewable energy, astronomy and mining in the province, thus addressing sub-research questions 2 and 3 (relating to major development challenges facing host communities in the Karoo region of the Northern Cape in general and Loeriesfontein in particular and labour market conditions in Loeriesfontein). This chapter shows how land ownership has shaped social relations and economic activity in the Karoo regions of the Northern Cape since colonial times.

Chapter Seven focuses on the issue of decent work in relation to the two wind farms built in the vicinity of Loeriesfontein, thus addressing sub-research questions 3 and 4 (concerning local labour market conditions and the local employment opportunities have the investments in renewable energy have brought to Loeriesfontein, including to what extent these jobs have met the criteria of decent work). It covers the construction phase of the wind farms that began in early 2015 and ended in November 2017, looking at issues around the nature of the employment created, work conditions and who was employed. In this chapter I show that the construction of renewable energy projects are not themselves sources of decent, long-term jobs at scale and insisting they should be is not realistic – thus their contribution to sustainable development in their host communities has to be understood as going beyond the issue of jobs alone.

Chapter Eight picks up on this issue. It shifts the focus to local community development once the construction phase had ended and explores the specific challenges around local community development projects in Loeriesfontein, in the context of the political contestations involving the local municipality, Mainstream, and members of the local community. This is where sub-research question 5 is primarily addressed (To what extent is sustainable development being advanced by the community development projects the renewable energy sector is required to make in its "host" towns in terms of the REIPPPP?).

Finally, Chapter Nine sets out my concluding discussion. This chapter reflects on my research findings and provides recommendations for both policy and further areas of research.

Chapter Two: Conceptual Framework

This chapter discusses the conceptual framework I have developed to guide me in structuring my study and interpreting my findings. It is divided into five main sections for ease of presentation; however, the various elements of this framework need to be seen as in conversation with and connected to each other.

Section one explores the concept of "sustainable development". Here I first outline the concept's rise to prominence in global policy discourse, culminating in the adoption of the UN's Sustainable Development Goals (SDGs) in 2015. I also consider three major criticisms levelled against conventional understandings of the concept and then review the more considered approach that I have adopted, which draws on the useful model developed by Holden et al. (2016), with its three "moral imperatives". In section two I turn to the issue of decent work and its relationship to labour markets, using Peck's theory of the social regulation of labour markets to unpack the latter issue. In section three I discuss the idea of the just transition and its relationship to sustainable development and decent work, here drawing on the ILO's 2015 guidelines for operationalising this concept. In section four I briefly discuss the MEC and the issue of technopolitics; how the relationship between energy, capital and the state in South Africa actually unfolded over time, i.e., the MEC in practice, is addressed in Chapter Four. Finally, in section five, I pull the various elements of my conceptual framework together in proposing what a transition to a low-carbon economy that is just and includes the other side of the "just transition coin", in my case, the renewable energy host site of Loeriesfontein, should entail.

2.1 Sustainable development

The concept of sustainable development has emerged out of two major concerns globally: advancing "development", including addressing the major developmental challenges in the global south (Mkandawire, 2001; Swilling, 2008), while also advancing sustainability, including addressing mounting environmental challenges and fears around ecological collapse, including as a result of climate change (Swilling & Annecke, 2012). It is impossible to do justice to the enormous literature on this subject in the available space. In what follows I provide a brief overview of the history of the term, followed by an acknowledgement of major criticisms

of it, before presenting the model of sustainable development that I consider valuable for addressing the many development challenges in my case study site in the Northern Cape.

2.1.1 The origin and evolution of the concept

The concept of sustainable development was internationalised in 1987 by the UN's World Commission on Environment and Development (WCED), commonly referred to as the Brundtland Commission after its Chairperson. This Commission defined sustainable development as ''development that meets the needs of current generations without compromising the ability of future generations to meet their needs and aspirations'' (WCED, 1987:43). This widely adopted definition aimed to bring the issues of sustainability and development together. The former entails the capacity to maintain some entity, outcome or process over time (Basiago, 1999), while the latter has been defined as an "evolutionary process in which the human capacity increased in terms of initiating new structures, coping with problems, adapting to continuous change, and striving purposefully and creatively to attain new goals" (Peet, 1999: 77). Historically, the central issue of concern is the relationship between human society and the natural resources on which people rely for their sustenance.

Arthur Pigou (1920) first promoted the idea of the externalisation of costs while Mensah (2019) points to the importance of Malthusian population theory in shaping concerns about unsustainable development. The thrust of Malthusian population theory is that "population growth was likely to outstrip the capacity of the natural resources to support the needs of the increasing population" (Mensah, 2019:7, citing Rostow & Rostow, 1978). The implications of Malthusian population theory on prospects for long-term economic growth and the environment did not go unnoticed, with environmental concerns coming to the fore internationally in 1972, at the UN Conference on the Human Environment in Stockholm (Mensah, 2019). This conference was convened on the back of the publication of a 1972 report titled *The Limits to Growth*, produced by the influential Club of Rome (a group of current and former heads of state, scientists, economists, and business leaders) which concluded:

> If the present growth trends in world population, industrialization, pollution, food production, and resource depletion continue unchanged, the limits to growth on this planet will be reached sometime within the next one hundred years. The most probable result will be a rather sudden and uncontrollable decline in both population and industrial capacity (quoted in Meadows 1972: 23).

The Brundtland Report acknowledged the tensions identified in *The Limits to Growth* between economic growth and environmental degradation. The concept of sustainable development it proposed sought to find a balance between meeting pressing issues in the present without compromising future needs, which are more abstract and speculative. The declaration of a "common future" by the Brundtland Report and the demand that this be sustainable were instrumental in "catapulting" the concept of sustainable development into mainstream policy discourse (Baptista, 2014:359). Its model for sustainable development identified the economic, the social and the environment as three critical spheres of human activity that needed to be brought into balance. However, a major criticism of the Brundtland Report is that it ended up putting the demands for economic growth ahead of environmental concerns (Baptista, 2014).

Baptista (2014) went on to argue that tensions in the "common future" espoused in the Brundtland Report are essentially political and that the Report is "a representation of a future that is derived from and also dictated to society" (Baptista 2014:359). As discussed more fully below, one could argue that the concern is actually how not to let future needs, as abstract and speculative as they may be, compromise or impinge on meeting urgent present needs. As such, one can argue that the tensions inherent in the Brundtland Report's widely used definition are between principle and practicality, and in times of crisis (such as the global health crisis the world is currently experiencing with the covid-19 pandemic), trade-offs are often required or insisted upon.

Following the 1987 World Commission on Environment and Development, in 1992 the UN held a Conference on Environment and Development (UNCED) in Rio de Janeiro at which participating countries adopted a framework of action called Agenda 21 (the launching of the United Nations Framework Convention on Climate Change (UNFCCC)). Beckerman (1994) notes that this conference, also known as the Earth Summit, was full of references to the concept of sustainable development, and, more importantly, that in adopting Agenda 21, countries pledged to incorporate environmental issues into their domestic development policies. Moreover, countries were required to submit progress reports to a newly established Commission on Sustainable Development. Ten years later, in 2002, the World Summit on Sustainable Development (WSSD), also known as the Rio+10, was held in South Africa, in Johannesburg, to review progress in implementing the outcomes of the 1992 Earth Summit. It developed a plan for implementing the objective of the Agenda 21, the Johannesburg Plan (Mensah, 2019). The culmination of this global process came with the adoption of the Nationally Determined Contribution to reducing national emissions in 2009 at the Copenhagen Conference (COP15).

The Brundtland Commission's tripartite model of sustainable development (economy, society, environment) was influential in the formulation of the UN's eight 'Millennium Development Goals' (MDGs) in 2000 (UN, 2015b), intended to guide national governments' development priorities. The eight goals were: the eradication of extreme poverty and hunger; universal primary education; the promotion of gender equality and empowerment of women; the reduction of child mortality; the improvement of maternal health; combating of HIV/AIDS, malaria and other diseases; ensuring environmental sustainability; and the development of a global partnership for development. In 2015, the UN replaced the MDGs with the 17 SDGs set out in its *2030 Agenda for Sustainable Development*. The 17 SDGs have 169 targets and 303 indicators by which to measure progress towards meeting them.

According to Hickel (2019), the 2030 Agenda signalled a clear shift in development theory from viewing underdevelopment and poverty as separable from environmental issues to a renewed attempt at reconciling the two. However, economic growth is still privileged among the goals. The first five of the 17 SDGs are social goals and are directly linked to human development and enhancing what Sen (1992) has defined as human capabilities (discussed further below). These goals envisage a world with 1) no poverty, 2) zero hunger, 3) good health and well-being, 4) quality education, and 5) gender equality (UN, 2015a). The social goals are closely linked to the economic goals (goals 8, 9, 10, 12 and 17). Goal 8 and its associated targets are particularly relevant for this dissertation. This goal seeks to "Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all" (UN, 2015a:21). It sets a prescribed target of a sustained "7% gross domestic product growth per annum in the least developed countries," for decent work to be realised (UN, 2015a:21). The environmental goals (goals 6, 7, 11, 13, 14 and 15) deal directly with the concept of sustainability: clean water and sanitation; affordable and clean energy; sustainable cities and communities; climate action; life below water; and life on land (UN, 2015a). The last two SDGs, goals 16 and 17, deal with "peace and justice", "strong institutions" and partnerships.

Here it is worth noting that the UN's commitment to sustainable development, which was internationalised after 1987 and taken forward through the Rio conference of 1992, occurred in parallel with South Africa's political transition from apartheid to democracy, while the development of the global MDGs and SDGs took place at different stages in the reconstruction of the post-apartheid social order. In the early 2000s Von Holdt (2002) described South Africa's transition to a post-apartheid society as involving a "triple transition" comprising 1) inclusive political democracy, i.e. the extension of political rights to the previously marginalised

black majority, 2) economic liberalisation with a strong redistributive element, i.e., the incorporation of this majority into the formal economy, and 3) post-colonial transformation, by which he was referring to the structural transformation of society. In this triple transition, although environmental rights received recognition in the Bill of Rights in South Africa's 1996 Constitution, major ecological challenges were largely left to one side. Environmental activists were, however, able to seize the opportunity provided by the 2002 Johannesburg Summit to domesticate ecological issues and in 2011 South Africa hosted the United Nations Climate Change Conference (COP 17), thereby positioning itself globally as the poster child for sustainable development on the African continent. Notably, the 2002 Johannesburg Summit also drew the largest protests against government failures since the end of apartheid (Death, 2010), indicative of mounting dissatisfaction with the ANC government's shortcomings in negotiating the "triple transition" described by Von Holdt. In this context the struggles around the just transition that have come to the fore in recent years can be seen as integral to the structural transformation referred to by Von Holdt,

2.1.2 Major criticisms of the concept of sustainable development

Despite international progress being made towards achieving the UN's MDG targets (Sachs, 2015) and the shift in development economics to incorporate environmental concerns (Hickel, 2019), the understanding of sustainable development informing the UN's SDGs remains problematic. Critics have identified three main concerns. The first is that, in the words of Holden et al. (2016:3), the definition of sustainable development is "vague, weak or meaningless", even an oxymoron as some analysts have described it. For Holden et al., the UN's SDGs are "attempting to cover all that is good and desirable in society" but they fail to address the temporal gap between meeting current and future needs. The challenge is, rather, to meet basic needs and eradicate poverty (while respecting the environment and taking into account people's own aspirations for a better life), and at the same time to appreciate that future generations will be best placed to articulate their needs. For his part, Baptista (2014) argues that there is no clarity on what present needs are.

The second major concern is that the attention to economic growth as a driver of "development" is misplaced in mainstream understandings of sustainable development, with economic growth becoming a goal in itself within the SDGs (goal 8), albeit linked to the idea of decent work and qualified by the adjective "sustainable" (Stiglitz, Sen and Fitoussi, 2010; Holden et al., 2016). Some analysts argue that paying attention to economic growth is an appropriation of the sustainability discourse by capital. Thus Foster and Clark argue that this

constitutes “a renewed strategy for profit from planetary destruction” (2009:1), while Cock argues that the idea of economic growth needs rethinking since there are simply not “enough resources for all to enjoy the intensely consumerist and waste-creating lifestyles of the advanced industrial nations” (2011a:45). As already noted, analysts such as Baptista (2014) were critical of the Brundtland report for attempting to strike a balance between economic, social and environmental concerns but in the process effectively supporting demands for economic growth ahead of environmental concerns. In similar vein Gupta and Vegelin (2016) argue that the SDGs embody trade-offs that ultimately favour economic growth over ecological viability and social well-being.

The third criticism, which intersects with the first two, concerns the practicality and implementability of the SDGs. Holden et al. (2016) argue that the 17 SDGs, with their 169 targets and 303 indicators, embrace too many unprioritised objectives. MacFeely (2017:50) agrees: by expanding upon the MDGs, the SDGs have become a “cocktail” of goals and the means by which to achieve them. Moreover, the 17 goals are not prioritised between those that are primary and those that can be considered secondary; this increases the risk that some less important goals may be targeted and achieved at the expense of those that may be more fundamental, thus creating a false impression of general progress. Here, reinforcing the concern about unintended trade-offs that privilege the economy over other sectors, Holden et al. point out that the economic goals are quantified, whereas the environmental goals remain “unquantified ambitions to ‘protect’, ‘strengthen’ and ‘promote’” (2016:3) which are far more intangible goals that are difficult to assess.

Despite the strength of these criticisms, Holden et al. (2016) argue for a model for sustainable development that retains the central objectives of sustainability and development while reconciling the points of tension identified above. They are driven by a concern with moving beyond abstract critique to policy interventions that address the crisis of unsustainable development. Of particular interest, given the crisis of poverty and unemployment in South Africa, Holden et al. do not reject the idea of economic growth out of hand but regard it as neither inherently good nor bad – this is because economic growth may be required as part of the solution for advancing sustainable development in contexts where human development indicators are very poor, even though the mantra of economic growth in advanced economies needs to be challenged as a major contributor to global ecological problems, including climate change. The value of their alternative framework lies in its recognition that “poverty, injustice, and environmental degradation interact in complex and potent ways” (Holden, Linnerud, Banister, Schwanitz and Wierling, 2018:18) and thus need to be tackled holistically.

I find their position on retaining but reconceptualising the concept helpful, given also its currency in South Africa's political lexicon – rather than abandoning it, the challenge is to give meaningful content to it (as with the term "just transition"). In the next section, I discuss the core elements of the Holden at al. model that take up this challenge.

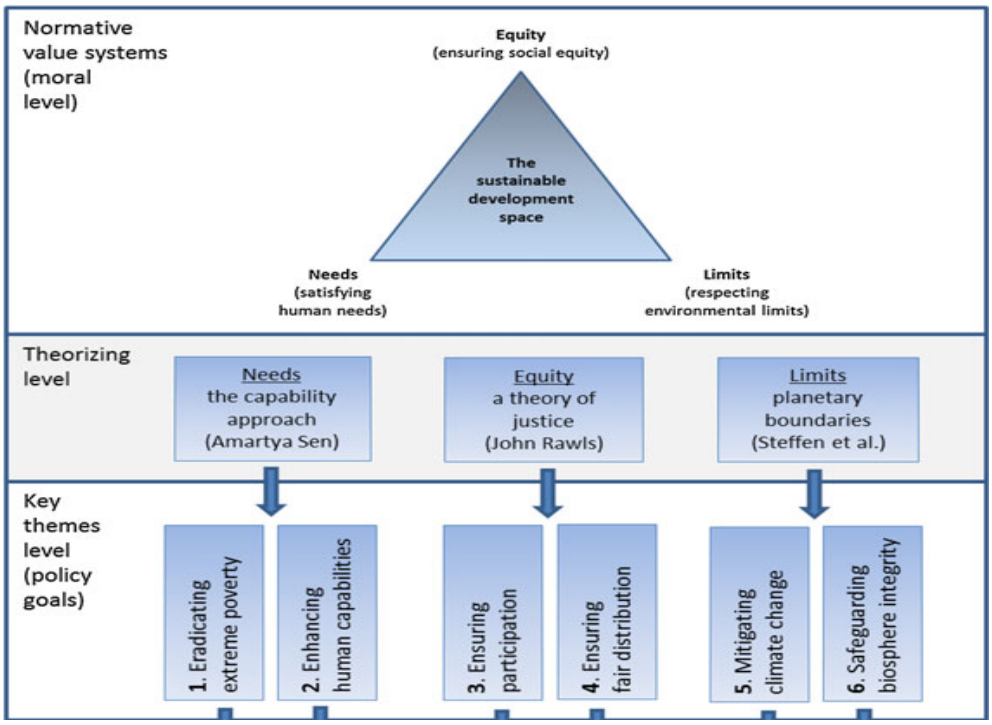
2.1.3 Holden et al.'s alternative model for sustainable development

The framework for sustainable development suggested by Holden et al. is premised on the interlinking of the three moral imperatives already described in Chapter One as underpinning truly sustainable development: satisfying human needs, ensuring social equity and respecting environmental limits. These three imperatives define what Holden et al. describe as the "sustainable development space" (2016:3); their schematic representation of this "sustainable development space" is shown in Figure 2.1 below. In theorising each of the moral imperatives that define this space, they draw on Sen's capability approach for understanding human needs, John Rawls' two principles of justice for understanding social equity, and the Stockholm Resilience Centre's planetary boundary approach for identifying environmental limits (discussed further below).

The point of departure in the Holden et al. model is what the authors identify as an ethical turn in the academic literature on sustainable development – hence their description of the three non-negotiable imperatives as moral imperatives. In a 2018 book that builds on Holden et al.'s original 2016 article, the authors (here Holden, Linnerud, Banister, Schwanitz and Wierling) describe sustainable development as a normative value system "on a par with human rights, democracy, and freedom" (2018: 11).

As depicted in Figure 2.1 the model gives content to the three "imperatives" through six selected "key themes" which serve to prioritise the policy targets that need to be set, along with selected indicators of progress that are needed to assess the implementation of the policy priorities. The authors argue that satisfying human needs, for instance, requires that at a minimum extreme poverty must be eradicated and human capabilities enhanced (themes 1 and 2). To achieve social equity, democratic participation and a fair distribution of resources are seen as paramount (themes 3 and 4) while to ensure that environmental limits are respected, mitigating climate change and safeguarding the biosphere (themes 5 and 6) are seen as central at the planetary level. In this model, any policy that seeks to address a stated objective must be examined to ensure that it is not in conflict with any of the three moral imperatives, hence that it operates within the "sustainable development space" that the imperatives define.

Figure 2.1: Holden et al.'s model for global sustainable development



(Source: Holden et al., 2016: 9)

Holden et al. argue that the six global goals ("themes") in their model are not only more manageable than the 17 SDGs, thus making focus easier, but they are also less prescriptive in terms of content, making them adaptable to different developmental, cultural and environmental contexts. This recognises that a socially desirable goal such as well-being or improved quality of life "rests on different preferences in time and space" (2016:3). In setting the parameters of what constitutes a sustainable development space, the model thus leaves room for context-specific policies and different pathways to achieve a particular goal, an approach which I find extremely helpful for conceptualising sustainable development in the very particular context of the Karoo.

In 1992, Agenda 21 recognised that "indicators of sustainable development need to be developed to provide solid bases for decision-making at all levels and to contribute to a self-regulating sustainability of integrated environment and development systems" (UN 1992 :346). Holden et al. agree that unambiguous quantitative indicators of progress towards their six themes or global goals are needed and identified the following: 1) the global Multidimensional Poverty Index; 2) the Human Development Index developed by Mahbub ul Haq; 3) the Democracy Index developed by the Economist Intelligence Unit 4) the Gini coefficient; 5) CO2 concentration levels, and 6) the extinction rate of well-studied organisms as indicators for genetic diversity. Here it is important to note that these are high-level indicators for measuring

progress towards national or global goals – applying the model at more local scales, such as the Karoo or Loeriesfontein, requires identifying indicators that are locally applicable.

In this context an important issue that does not receive explicit attention in the Holden et al. model is that of decent work which, I argue further below, fits within their understanding of sustainable development but requires specific attention in defining the just transition to a low-carbon future in the South Africa context.

Satisfying human needs: Sen's capability approach

Sen's capability approach that Holden et al, favour is constituted by two primary concepts: *functionings* and *capabilities.* Functionings are the "beings and doings" of an individual, and capabilities are a combinations of various functioning that a person can achieve (Sen, 1992 in Robeyns, 2003:11). Simply put, a "functioning is an achievement, whereas a capability is the ability to achieve" (Sen, 1987:36). Functionings are more directly related to living conditions and circumstances whereas capabilities "are notions of freedom, in the positive sense: what real opportunities you have regarding the life you lead" (Sen, 1987:36). The ability for functionings to achieve a particular well-being depends on three "conversion" factors: personal characteristics (e.g.: physical condition, soft skills), social characteristics (e.g.: social norms, power relations) and environmental characteristics (e.g.: climate, infrastructure) (Robeyns, 2003). The distinction between functions and capabilities lies in what *could* be possible if people have freedoms and real choices.

Robeyns (2003) argues that Sen's capability approach to human development offers an appropriate framework for evaluating social policy, individual well-being, social arrangements and proposals for social change. The core concern in the capability approach is the focus on what people are able to *do* and *be*, that is, on their capabilities and functionings, and on removing obstacles, such as hunger and poverty, that hinder them in this endeavour. Here Sen also emphasises the importance of people defining their priorities for themselves.

Literature on the capability approach has two strands: the "narrow" interpretation and the "broad" interpretation (Holden et al., 2016). The narrow interpretation concerns itself with levels of education, health and income, and the broad interpretation with more abstract social goods such as equity, freedom and sustainability. Holden et al. (2016) favour the narrow interpretation for the purposes of their model. They foreground Doyal and Gough's (1991) *A Theory of Human Need* which distinguishes between universal and objective needs for health

and autonomy, and the right to their optimal satisfaction. Doyal and Gough argue that basic needs are universal but their satisfiers may not be, since they are culturally dependent. They refer to basic needs as "intermediate needs" which Holden et al. (2016:4) identify as follows: "nutrition and clean water, protective housing, a non-hazardous work environment, a non-hazardous physical environment, appropriate health care, security in childhood, significant primary relationships, physical security, economic security, appropriate education, and safe birth control and childbearing". Holden et al. argue that satisfying these intermediate needs will likely help to eradicate extreme poverty and eliminate hunger. However, Sen himself argues that equating well-being with satisfying intermediate needs is a "meagre view of humanity" (2009: 250) and that a broader interpretation is required. I favour the broader interpretation but do not dismiss as unimportant the concerns raised in the narrow interpretation.

The capability approach has been criticised on two main fronts. First, Martha Nussbaum, herself an advocate of the approach, argues that Sen's exposition of the capability approach does not have a prescribed list of functionings, which she considers necessary if the capability approach is to be useful for meaningful policy development. She has produced such a list (Nussbaum, 2003) which has itself been criticised for being too prescriptive and eurocentric (Robeyns, 2003). Second, the capability approach has been criticised for being overly individualistic (Deneulin and Stewart, 2002). However, according to Robeyns this critique is more "frequently heard during discussions than it is published" (2003:43). In response, Sen has argued that prescribing a list of functionings would not be in line with the general approach of the capability approach in that it would curtail individual agency and dictate doings and being. In rejecting a list of functionings, Sen (1997) reminds us that in matters concerning social choice and distributive justice, process matters.

I also do not prescribe a definitive list of functionings to support in a place like Loeriesfontein, but in considering the obstacles to social choice and redistributive justice as a result of poverty, I recognise the importance of investments in education, health and sufficient income in the town. As will be seen, I also identify the household as an important site for where these functionings can best be supported.

Ensuring social equity: Rawls' two principles of justice

Sen argues that while theories of justice can be diverse in their focus, such as demanding equal income or equal opportunities, the common denominator running through them is wanting equality of something: "every normative theory of social justice demands equality of

something – something that is regarded as particularly important in that theory" (Sen, 2009:291). In South Africa, a just and equitable distribution of resources is critical, considering that the country is one of the most unequal in the world. A commitment to social justice is therefore central for a just transition to renewable energy, so as not to leave people behind or to leave further behind those already behind. (I use the concept of social equity interchangeably with that of social justice.)

Holden, et al.'s model of sustainable development draws on John Rawls' "two principles of justice" to give content to the moral imperative of social equity and its two associated themes or goals: those of ensuring participation and an equitable distribution of resource or benefits (Rawls, 1999 in Holden, et al., 2016:4). The first of Rawls' principles is the equal liberty principle. This principle posits that "each person is to have an equal right to the most extensive total system of equal basic liberties compatible with a similar system of liberty for all" (Rawls, 1999 in Holden et al., 2016:5). I acknowledge that there are philosophical debates with regards to what basic liberties entail; for me the operationalisation of this principle in the context of a just transition calls for the participation of marginalised voices, or what Meadowcroft (2012) calls "absent constituents", in decision-making processes. The second principle applies to the distribution of wealth and income and is closely related to the exercise of authority and responsibility (Holden et al., 2016); it lies at the heart of what constitutes a just transition to renewable energy at the national and local level in South Africa. The thrust of this second principle, read together with the first, is that

> 'social and economic inequalities are to be arranged so that they are both: (a) to the greatest benefit of the least advantaged, … and (b) attached to offices and positions open to all under conditions of fair equality of opportunity'. Part (a) of the second principle is often called the 'difference principle' and part (b) the 'fair equality of opportunity principle' (Holden et al., 2016, citing Rawls, 1999).

I use the difference principle to problematise the role of the state (authority and responsibility) in the transition to a low-carbon economy, including the a top-down approach to community development in the design of the REIPPPP from position by design. As already mentioned in Chapter One, at a national level the role of the state in the just transition is to provide policy certainty by implementing the IRP. Another crucial role that the state needs to play is to strengthen its monitoring and evaluation of local community development plans. Transparency around these plans would enhance prospects for community participation although not necessarily address the goal of a fair distribution of resources on its own. Ultimately, the state has an overriding responsibility to ensure that the two principles of ensuring participation and

a fair distribution of resources, responsibilities which are accorded the renewable energy IPPs, are met in the local community development plans the IPPs develop for their respective host communities.

Respecting environmental limits

The moral imperative of respecting environmental limits insists that development can only be sustainable if it respects the ecological limits to economic and social activity. Holden et al. (2018:17) remind us that "we depend on nature for the essentials of life conditions: air, food, material, and water". Their approach to establishing environmental limits advances the "planetary boundary approach" developed in 2009 by a group of researchers at the Stockholm Resilience Centre, the Stockholm Environment Institute and the Tällberg Foundation in Sweden. This group of scientists defined planetary boundaries as marking the limits of the safe operating space for humanity with respect to the functioning of Earth's biophysical systems (Holden et al., 2016). They proposed nine critical areas for attention in the planetary boundary approach: climate change, ocean acidification, stratospheric ozone depletion, interference with the global phosphorus and nitrogen cycles, rate of biodiversity loss, global freshwater use, land-system change, aerosol loading and chemical pollution (Holden et al., 2016).

The planetary boundary approach is pitched at a global level where the debate on carbon emissions and global warming is most pronounced. Global warming and climate change cannot be ignored at the local level but respecting environmental limits at this scale involves a different calculus of relevant indicators which are context specific. The nine critical areas listed above may not all apply; those that do may have different levels of significance. For example, the biosphere functions differently in the Hantam Local Municipality compared to the coalfields of Mpumalanga. Thus mitigating climate change has a particular meaning in the semi-arid Succulent Karoo where Loeriesfontein is located: this is an area which is a recognised globally as a biodiversity hotspot, has high levels of sunshine and strong wind resources, making it suitable for renewable energy, and is prone to drought, which climate change appears to be exacerbating. In Mpumalanga, on the other hand, 'local' excesses in GHG contribute directly to an unhealthy local environment as well as to the global crisis of climate change, but the transition away from fossil fuels threatens local livelihoods.

The challenge, then, is to determine the environmental limits that need to be set for the different contexts and at the appropriate scale at which they must operate. In the context of

the Succulent Karoo, conserving its unique biodiversity and managing its limited water resources wisely have to be key considerations.

2.2 Decent work and the social regulation of labour markets

2.2.1 The decent work framework and its application

The importance of the concept of "decent work" is that it "juxtaposes the generation of employment itself with the conditions under which it is generated as well as workers' rights and their voice in the community" (Burchell, Sehnbruch, Piasna, & Agloni, 2014:4). These are critically important issues for addressing poverty and inequality in South Africa.

Launched in 1999 by the ILO, the concept of decent work rests on four pillars: employment creation, basic rights at work, social protection and social dialogue. The pillars are compatible with the ILO's just transition guidelines (discussed further below) and fit within Holden et al.'s model for sustainable development, inasmuch as they are directly linked to the goals of eradicating extreme poverty, enhancing human capabilities, and ensuring democratic participation and fair distribution. The pillars were initially identified in response to deteriorating labour market conditions in Europe as a result of the dual processes of globalisation and liberalisation from the 1980s, leading to calls to bring all forms of employment closer to the ideals of decent conditions. In the European Union, the social model which was institutionalised has at its core the elements of good working conditions and the provision of social security. These were reflected in a set of goals and indicators agreed on at a meeting of the European Council in 2001 (EUROPA, 2001), with the idea of decent work influencing the subsequent development of the European Union's social model (Burchell et al. 2014). The framework has since been criticised as being a "slogan" or "mantra" that represents a defeat for organised labour by neoliberal hegemony (Standing, 2008: 370; Sum & Jessop, 2013) but this overlooks the extent to which organised labour has endorsed the goal of decent work, including in South Africa, as indicated below.

The primary goal of decent work "is to promote opportunities for women and men to obtain decent and productive work, in conditions of freedom, equality, security and human dignity" (ILO, 1999:3). To operationalise the four pillars of decent work the ILO identified ten statistical and legal indicators for what are referred to as the substantive elements of decent work: employment opportunities; adequate earnings and productive work; decent working time;

combining work, family and personal life; work that should be abolished; stability and security of work; equal opportunity and treatment in employment; safe work environment; social security; and social dialogue, employers' and workers' representation (ILO, 2013). Table 2.1 below provides a summary of the pillars and their indicators.

Table 2.1: A summary of the decent work pillars and indicators

Pillars	**Indicators**
Employment creation	Employment opportunities; Adequate earnings and productive work
Basic rights at work	Work that should be abolished; Stability and security of work Equal opportunity and treatment in employment Safe work environment
Social protection	Social security Decent working time Combining work, family and personal life
Social dialogue	social dialogue, employers' and workers' representation

(Source: ILO, 1999, 2013)

The first pillar, employment creation, refers to "adequate opportunities for work, remuneration (in cash and in kind), and embraces safety at work and healthy working conditions" (Ghai, 2003:113). This pillar deals with the quantity of jobs available in the economy and not necessarily the nature or quality of those jobs. The second pillar, basic rights at work, refers to "freedom of association, non-discrimination at work, and the absence of forced labour and child labour" (Ghai, 2003:113). The third pillar, social protection, goes beyond the second pillar and considers whether those who are employed are protected against unemployment, sickness, disability and destitution in old age (Ghai, 2003). The fourth pillar, social dialogue, refers to spaces and institutions which facilitate dialogue between employers and employees in matters concerning their relationship. In this dissertation I consider social dialogue to be an essential attribute of a democratic society and, in Ghai's words, "a means of resolving inevitable conflicts of interest over economic and social policies in a cooperative framework" (2003:133).

Although the ILO Guidelines provide both a framework and indicators for giving content to the idea of decent work, systematic and consistent application of this concept across different contexts and geographies has proved difficult, leading to criticisms that it lacks methodological precision (Burchell et al., 2014). Burchell et al. (2014) provide two reasons for the difficulties of comparative research on measuring decent work: one, problems with reliable and comparable sources of data, and two, differences in the level at which the labour market is

measured (individual workers; the jobs themselves, or local, regional or national labour markets). The main problem is that "there is no simple set of variables that can undisputedly be thought of as summarising what constitutes a good job" (Burchell et al.2014:6). Despite this criticism feminists scholars have welcomed the way in which the concept embraces informal forms of work where women workers are often concentrated (Prugl, 1999; Vosko, 2002).

As a signatory member of the ILO, South Africa has ratified the ILO's conventions.[11] The government adopted the ILO-supported Decent Work Country Programme in 2010, through the National Economic Development and Labour Council (NEDLAC) (Webster, Budlender & Orkin, 2015); it has thus placed the issue of decent work at the centre of its employment creation agenda. However, what decent work entails in South Africa is elusive as noted by then Minister of Labour, Nelisiwe Oliphant, in 2011 when she argued at an annual labour policy conference that decent work "can only be successful when all stakeholders constantly keep in mind ... the context of the South African and global economies, social realities such as poverty, inequality and education levels, and the long-term goals for South Africa, which must be weighed against short-term costs," (SAPA, 2011). Researchers at the Society, Development and Work Institute (SWOP), based at the University of Witwatersrand, have argued that in the South African context decent work should be viewed as an objective to aspire to, a goal that can be incrementally achieved but is not immediately achievable (Webster, Phoskoko, Machaka, Bischoff, Chinguno, Guliwe & Metcalfe, 2009). Interestingly in this regard, a 2009 study of construction workers involved in the construction of the 2010 soccer world cup stadia, found that trade unions were unsuccessful in organising and recruiting workers on limited duration contracts (LDC) into their structures, even though "most of the contractors are using more and more workers in this category, citing the volatility in the industry" (Chinguno, 2009:39).

Notwithstanding the criticisms, the concept of decent work has been widely adopted in both the policy and academic literature. Much of the empirical research on decent work tends to be quantitative, in studies commissioned by the ILO or published in the ILO's official bulletin, *International Labour Review* (Burchell et al, 2014). In South Africa a study by Webster et al. (2015) focused on individual workers in three industries: security, agriculture and hospitality. Two noticeable studies which work with the related concept of "quality of work", rather than "decent work" per se, are Benya's (2009) seminal study on the introduction of women miners into underground work and its link to social reproduction, and a more recent study by Mackett

[11] South Africa re-joined the ILO in June 1994, after thirty years of self-imposed absence.

(2020), which looks at South Africa's labour market more broadly. Mackett shows that researchers looking at the issue of decent work "have been left to define decent work in the particular context in which the study is undertaken", alternatively according "to what is available to them within the constraints of available data" (2020: 207). Mackett's study contributes an index of decent work, created by using an iteration of the South African Labour Force Survey (2008). Her findings are important for understanding that, in the main, higher paid professionals tend to have more decent working conditions than low-skilled workers in elementary occupations. However, the higher a worker is on the occupational ladder, the lower the quality of work they enjoy in terms of balancing work, family and personal life (Mackett, 2020).

Operationalising the pillars and indicators

In this dissertation my approach to measuring decent work was guided by the economic and social context in which the renewable energy jobs were being created, thereby avoiding prior assumptions about which types of jobs could be considered decent. I looked at the number of jobs created on the wind farms and who was employed during the construction period in relation to the local labour market, as well as at issues relating to basic conditions of work, social protection and social dialogue. The workforce during the construction of the wind farms was segmented into permanent workers (core staff), sub-contractors, workers on LDC contracts and labour brokers. In Chapter Seven, I assess the ten indicators listed above both qualitatively and quantitatively, with a particular focus on the local workers who were on limited duration contracts.

2.2.2 Social regulation of local labour markets

One of the most consistent assumptions underlying arguments about the contribution of renewable energy to sustainable development is that job losses in the coal industry will be offset by gains created by renewable energy projects. In criticising NUMSA for its 2018 interdict, Greenpeace South Africa claimed that the renewable energy sector would create 100 000 employment opportunities, enough to offset the potential job losses in the coal sector. Even if one accepts the claim at face value, critical questions arise concerning what kinds of jobs will be created and whether they will be unionised and meet the criteria of decent work. Put differently, there is no theory of how the labour market functions in the dominant discourse around renewable energy within the sector itself; at the same time, a theory of job creation is implicit, centred on the creation of employment opportunities during construction in the areas

where the infrastructure is located and on the local content requirements in the manufacturing of equipment and components.

This advances a narrow representation of the labour market as a commodity market, with labour reduced to a homogenous commodity, based on general equilibrium theory. This misconstrues the how, when, where and why of workers' entry into labour markets. In exploring this issue I note Polanyi's premise that labour is not a true commodity, because its reproduction is social (1957 [1944]), and draw on Peck's (1996) thesis on labour markets and the ways in which the labour market actively reproduces pre-existing social inequalities through processes of incorporation, allocation and control (see also Elson, 1999). Employment creation models viewed this way challenge claims that job losses in the coal/ power plant sector will be offset by job creation in the renewable energy sector. Two key questions which arise in response to such propositions are: where will these jobs be created and what kinds of jobs (i.e. how decent) will they be?

Peck's theory of the social regulation of labour markets is helpful in exposing the shortcomings in ready assumptions around the creation of alternative jobs. It offers a critique of human capital theory, as used by dual and segmented labour market theorists, and draws on Marx and Polanyi. While dual labour market theory looks at differences in labour markets in terms of the industrial sectors within which they are located and divides labour markets into primary and secondary markets, Peck (1996) conceives of labour markets in spatial rather than industrial terms, and shows how non-state social institutions, such as households and schools, mediate the structure of labour markets socially and politically in complex and sometimes contradictory ways. Using a spatial lens to look at job creation in the renewable energy sector, requires looking at the different geographies in which the materials for renewable energy components are mined, the components are manufactured and the wind turbines or solar panels installed and then operated, which also requires looking at the idiosyncratic forces around labour supply and demand in the different areas.

The central premise of Peck's (1996) structured labour market theory is that labour is not a commodity capable of self-regulation but is a "fictitious commodity" that is shaped by multiple contending forces. As such, labour is not regulated solely by supply and demand forces within the industrial sector. Moreover, the price for labour power is not determined by market forces alone, as is argued in general equilibrium theory. As a fictitious commodity, Peck argues (1996:117), labour is subject to four processes – incorporation, allocation, control and social reproduction – which are themselves shaped by "the disciplining effects of market regulation,

purposive regulatory action on the part of the state, and the diverse effects of social institutions, practices, and conventions".

Local labour markets are thus unique in that "each represents a *geographically specific institutionalization of labour market structures, conventions and practices*, providing unique contexts against which the strategies of labor market actors are formulated" (Peck, 1996:266, emphasis in original). What this means with regard to the renewable energy sector is that job losses in one labour market (such as the coal mines of Mpumalanga) will not necessarily translate into job gains in another labour market elsewhere (such as the wind farms in the Northern Cape). The local labour market of Loeriesfontein has been historically structured around very poorly paid and low-skilled work in commercial agriculture (extensive livestock farming), while that of Mpumalanga has developed around mining in addition to agriculture.

Incorporation deals with the reasons why people become wage earners, which in capitalist societies is underpinned by economic necessity and social desirability (Peck, 1996). Allocation is the process of matching workers with jobs which, Peck argues, tends to be arranged in terms of the "ascribed" rather than "achieved" status of workers, with gender, race, age and ethnicity being significant indicators, and socially disadvantaged groups being allocated socially undesirable or physically hazardous jobs as well as being over-represented among the unemployed (Peck, 1996). Control refers to the enlistment of the "consent of the worker in a way consistent with the maintenance of control over the labour process" (Peck, 1996:32). Simply put, the worker must do what he or she is paid to do, within a particular legal framework and structure of employment power relations. For example, workers in the gig economy, like uber drivers, are controlled by algorithms, whereas factory workers are controlled by the speed of machines or production targets.

The importance of the household as a site of social reproduction

I use Peck to analyse the labour market conditions shaping the nature of local employment during the construction of the two Loeriesfontein wind farms, in conjunction with the understanding of decent work discussed above. Peck also argues that the processes of incorporation, allocation and control cannot be delinked from the site of social reproduction, which is the household:

> the sphere of production and the sphere of social reproduction are both separate and connected. They are separate in the sense that they each have their own structures of

> dominance along with their own distinctive rhythms and tendencies, but they are also related in the sense that each conditions and interacts with the other (1996:39).

In my analysis of sustainable development in the context of Loeriesfontein I build on this insight to consider social reproduction at the level of the household, drawing on the SARChI household survey for evidence of its importance as a site where basic needs are – or are not – met. Social reproduction can be understood as involving "complex tasks and processes that ensure the production and reproduction of the population on a daily and generational basis" (Fakier & Cock, 2018:44). The first involves the unpaid reproductive labour involved in care work (including childcare), cooking, cleaning, etc., generally undertaken by women in the household. The second involves the household as a site for satisfying "basic needs – such as food, water and sanitation – essential for the survival of poor households" (Fakier & Cock, 2009:354). This links directly to the concern with satisfying human needs in Holden et al.'s model of sustainable development,

There is a large literature on the difficult of defining the household (see: Mallet, 2004; Benya, 2009; Nomvete, 2021) which it is not possible to go into here. Smith and Wallerstein (1992: 13) define a household as "the social unit that ... enables individuals, of varying ages of both sexes, to pool income coming from multiple sources in order to ensure their individual and collective reproduction and well-being" (1992:13). In the SARChI household survey in Loeriesfontein the term was used to cover the domestic group which shares income, living expenses and resources, including food (not necessarily equitably) within a shared living space (the house) and is organised primarily but not exclusively around family relationships. Power relations within the household, including those of gender and age, structure how decisions are made about the internal distribution of resources; nevertheless, this remains an important site for addressing human needs.

As already noted in Chapter One and expanded on in Chapter Eight, the approach to community development as currently structured in the REIPPPP is top-down, with little or no community participation in decision-making processes and scant attention to needs at the level of the household. The sectors receiving the bulk of attention in community development projects are education, healthcare, and social welfare. Social investment in these sectors in Loeriesfontein is consistent with Sen's capability approach – projects in these areas can make a material difference to their beneficiaries. The broader questions are how to measure the impact of these investments across the community, whether the projects are sustainable over time, and whether they reflect community views on their primary needs. I argue that what Hirschman (1958) described as "social overhead capital investments", which are the projects

favoured by the IPPs, are unlikely to lead to structural change in the absence of local households being able to play a more meaningful role for the following related reasons.

Firstly, South African academics and researchers at the Centre for Researching Education and Labour at the University of the Witwatersrand have established that “chronic poverty in learners’ homes correlates with many input and output educational measures” (Allias, Cooper and Shalem, 2019:116). Poverty being the basis for inequality, Allias et al. (2019) argue that improved equality of educational achievements will not change labour market inequality: “if schools in poor communities could miraculously produce more equal, and better, learning achievements, there is no guarantee that this would have a significant effect on income inequality” (Allias et al., 2019:17). In other words, the improvement of knowledge and skills of a potential workforce will not necessarily create its own demand leading to reduced income inequality (Allias et al., 2019). More targeted support in the labour market is required.

Secondly, and building on this last point, research show that direct money transfers, particularly in the hands of women, enhance the wellbeing of children. In England, Lundberg, Pollak and Wales (1997) show that in the 1970s when a child allowance was deposited into the bank accounts of mothers household expenditure on goods such as children’s clothing increased. In Brazil, Rangel (2006) has shown that the extension of alimony rights to cohabiting women led to an increased investment in their children’s education, which was also the case in Chile (Martinez, 2013). In the case of South Africa numerous studies have shown that the state’s Child Support Grant, phased in after 1998, has made a major contribution to alleviating not simply child but general household poverty. Citing a range of studies, Leila Patel (2011:363) has described it as “now widely acknowledged to be the Government’s most successful poverty reduction programme, with far-reaching developmental impact”. In the town of Loeriesfontein itself, Vorster and Walker (2019) have shown that (assuming the money is successfully claimed) the injection of funds from the Covid-19 ”social relief of distress” grant would have made a significant difference to household income levels, lifting over a quarter of households living below the upper bound poverty line above that line.

2.3 The Just Transition

This brings me to the term “just transition” which has gained currency in the debates on the transition to a low-carbon economy in South Africa since the court interdict of 2018 described in Chapter One. Since that interdict, all the main national stakeholders with a direct material interest in the transition to a low-carbon economy are on record as supporting the idea of a

just transition, while disagreeing about the distribution of the associated costs and the responsibilities of the state, Eskom and the renewable energy companies.

In 2019 the South African government explicitly acknowledged the importance of a just transition in two key policy documents related to the energy sector: the IRP, published by the DMRE, and the *Roadmap for Eskom,* published by the DPE. In the latter, the term "just transition" is defined along the lines put forward by a non-governmental organisation, the Climate Justice Alliance (CJA), as follows:

> Vision-led, unifying and place-based set of principles, processes, and practices that build economic and political power to shift from an extractive economy to a regenerative economy. This means approaching production and consumption cycles holistically and waste-free. The transition itself must be just and equitable; redressing past harms and creating new relationships of power for the future through reparations. If the process of transition is not just, the outcome will never be. Just Transition describes both where we are going and how we get there (CJA in DPE, 2019:32)

While I am in broad sympathy with the principles identified by CJA, my understanding of the just transition focuses attention not only on the "what" and the "how" of policy in terms of its objectives and process, but also broadens the understanding of the "where" and the "who" that that policy must address. My study shows that the terms of the debate have to be expanded to include the sites where renewable energy is being generated. I also understand the concept to have emerged in the context of struggles over the nature of South Africa's energy transition but to go beyond the energy sector, inasmuch as it involves moving towards the sustainable development space described above.

This section provides brief overviews of the history of the term, leading to the ILO's adoption of its *Guidelines* on the just transition in 2015. I use these guidelines in my analysis of the REIPPPP in chapters five to eight, in which I show that major weaknesses in the programme, including its top-down approach, are impacting negatively at the community level and thereby failing to put the energy transition on a just footing.

2.3.1 History of the term

The origins of the term "just transition" can be traced to struggles by labour unions in North America in the 1990s to establish what was called a "superfund for workers", to protect the income of workers who were going to be affected by the policy changes which

environmentalists were advocating to beef up environmental protection. At the core of the just transition concept is thus a simple principal of equity. The president of the Oil, Chemical and Atomic Workers Union in the United States of America (USA) (now part of the United Steelworkers), Tony Mazzocchi, used the concept progressively to argue that environmental protection could be an employment creator and that new "jobs could become part of a broader societal approach to a Just Transition" (Sweeney & Treat, 2018:7). Thus more environmental protection was seen as an opportunity and not just a threat to workers. Mazzocchi's idea of a just transition was succinctly capture by unionist Brian Kohler of the Communications, Energy and Paperworkers Union of Canada who argued that "The real choice is not jobs or environment. It is both or neither" (Kohler, 1997:1).

The International Trade Union Confederation (ITUC) took the lead in framing global labour's approach to climate change and environmental issues (Sweeney & Treat, 2018). In June 2010 it adopted a resolution to address climate change through "sustainable development and just transition" (ITUC, 2010) at its second World Congress. The key demands of the ITUC regarding sustainable development and a just transition were presented at the 2011 United Nations Climate Change Conference (UNCCC) in Durban, namely, "socially responsible and green investment, low-carbon development strategies, and … decent work and social protection for those whose livelihoods, incomes and employment are affected by the need to adapt to climate change and by the need to reduce emissions to levels that avert dangerous climate change" (ITUC, 2011).

In South Africa, the concept was introduced in 2011 by the Congress of South African Trade Unions (COSATU), with its Central Executive Committee adopting a Policy Framework on Climate Change in August of that year (COSATU, 2012). This is often ignored in the literature on the transition to sustainability in South Africa, in which the industrial labour unions are seen to exercise significant power in thwarting policy deemed not beneficial for their members. COSATU's wide ranging resolutions on climate change were supported by NUMSA, at the time an affiliate of the federation, with the union in 2012 at its 9th National Congress calling for the building of a socially owned renewable energy sector. COSATU's resolutions on climate change came on the back of a resolution adopted by the ITUC which the federation supported (COSATU, 2012).

Several analysts have argued that the call for a just transition has to lead to what is described as energy democracy. In a recent systematic literature review of the concept of energy democracy, Szulecki and Overland (2020) have identified three broad understandings of the concept that can be linked to both the call for a just transition and the imperatives of

sustainable development as described above. The first understanding is that energy democracy is a process. This entails the involvement of grassroots social movements who are challenging energy incumbents. The second is that energy democracy is an outcome of the decarbonisation of the energy system through the incorporation of renewable energy into a democratised energy system that is community-centred and addresses people's energy needs rather than the interests of the major corporations that currently dominate the fossil-fuel economy. This refers to the move to incorporate renewable energy into a democratised and small-scale energy system. Renewable energy then is both a means to and an end in itself. And third, energy democracy is a normative goal inasmuch as it reflects the aspirational ideals of a decarbonised future. In the words of Davies (2021:8), energy democracy can be defined as "a collectively held and performed vision of a desirable future that invigorates and widens political claims on the energy transition".

The call for energy democracy brings together various social actors, including labour movements, civil organisation and grass roots social movements, all with different and sometimes contradictory interests. In the South African context Davies (2021) has argued that in its current form the REIPPPP is inadequate for satisfying the imperatives of both decarbonisation and development and thereby advancing energy democracy meaningfully. This is consistent with the critique I develop of the REIPPPP as failing to advance the just transition in my case study site.

2.3.2 The ILO's 2015 *Guidelines*

At the Climate Change Conference in Paris in 2015, labour unions successfully lobbied for the inclusion of text referencing "the imperatives of a just transition of the workforce and the creation of decent work and quality jobs in accordance with nationally defined development priorities" as key requirements of the Paris Agreement (UN, 2015c:3). Subsequently, the ILO issued its seven guidelines for what the just transition entails:

1) The most fundamental is strong social consensus on the goal and pathways to sustainability. Consensus can be achieved through social dialogue and this has to be integral in the institutional framework for policy-making and implementation. In short, consultation at all levels is a key;
2) Policies must respect, promote and realize fundamental principles and rights at work;
3) There must be a strong gender dimension to policies or programmes in order to promote equitable outcomes;

4) Policies must be coherent across economic, environmental, social, education/training and labour portfolios. Obstacles must be removed to provide an enabling environment for enterprises, workers, consumers and investors to embrace and drive the transition towards environmentally sustainable and inclusive economies and societies;
5) Coherent policies should provide a just transition framework for all to promote the creation of more decent jobs, including as appropriate: anticipating impacts on employment, adequate and sustainable social protection for job losses and displacement, skills development and social dialogue, including the effective exercise of the right to organize and bargain collectively.
6) There is no "one size fits all". Policies and programmes need to be designed in line with the specific conditions of countries, including their stage of development, economic sectors and types and sizes of enterprises.
7) In implementing sustainable development strategies, it is important to foster international cooperation among countries. In this context, we recall the outcome document of the United Nations Conference on Sustainable Development (Rio +20), including section VI on means of implementation. (ILO, 2015:5-6)

These guidelines reflect organised labour's interest at both the global and national level, with both NUMSA and the National Union of Mineworkers (NUM) calling for them to be adhered to in the debate on the just transition in South Africa.[12] However, the ILO guidelines do not engage seriously with the question of environmental sustainability (Basiago, 1999), nor do they specify the concerns of the renewable energy sector's host communities which I am arguing must be acknowledged as integral to the energy transition. What I also show in Chapter Five is that achieving a just transition is difficult in the South African context, given the centrality of Eskom, a state-owned electricity utility, in the industrialisation of the country historically and its continued importance in post-apartheid South Africa. These structural constraints were originally theorised by Fine & Rustomjee (1996) in terms of the MEC, the core features of which are the focus of the next section.

[12] Until 2014, NUMSA and NUM were affiliates of the Congress of South African Trade Unions (COSATU), the most powerful trade union federation in South Africa.

2.4 The Minerals-Energy Complex

Fine and Rustomjee argued at the time of South Africa's transition to democracy that the MEC "is central to an understanding both of South Africa's industrial past and its future" (1998:689), while Clark (1994) argued that the success or failure of the new democratic state in South Africa after 1994 would be judged on how effectively it used the state-owned enterprises that it inherited. This is the context in which the challenges of plotting a just transition to a low-carbon economy, via renewable energy, have to be understood.

2.4.1 Core features of the minerals-energy complex

As already indicated, the MEC offers a theory of the relationship between two primary sectors in South Africa's economy, that of mining and of energy, and their significance in the accumulation of capital and the industrialisation of South Africa since the late 19th century (Fine and Rustomjee, 1996). Although foreign capital was the catalyst for the development of mining, the state played a crucial role by investing in key infrastructure through state-owned enterprises such as the railways in the first phase and electricity generation and manufacturing in the second phase, as well as enforcing the migrant labour system. This "complex" set South Africa on a particular path of economic development. The post-apartheid state inherited this architecture and has since tried to broaden the base for accumulation. However, the MEC has proved resilient, both because it is difficult to shift this complex towards a more sustainable path and because the complex provides opportunities for a new project of accumulation in the interests of a newly emerging political elite, thus enabling a diversification of accumulation.

In this regard Fine and Rustomjee (1998:691) argued that the core sectors of the MEC created backward and forward linkages that "allowed us not only to identify the MEC, but also to interpret it as a 'system of accumulation'". Backward linkages are the demand created by a new industry for inputs, for instance, cement for construction or steel for railways; forward linkages are the reverse – the knock-on effects of a new industry's outputs on the firms it supplies (Hirschman, 1958). Clark (1994) documents how historically foreign capital, drawn to South Africa by the discovery of diamonds and gold, was the catalyst for the development of the electricity sector to meet the energy demands of the mining houses which at first relied on private companies or generating their own electricity to satisfy their energy requirements. In her seminal book, *Manufacturing Apartheid: state corporations in South Africa*, she draws parallels between state enterprises and the state, and shows that the former have been around for as long as the state.

Clark (1994) argued further that the similarities in state-owned enterprises reflect conditions in the country, not in their respective industries. Thus state-owned enterprises can be used as prisms to examine the relationships among various social forces in society that may not often come into direct contact with each other: politicians, workers, businessmen, bureaucrats and the broader citizenry. Historically, state-owned enterprises in South Africa were set up to regulate the price of goods and services and, later, to structure the labour market in the industrialisation process (Clark, 1994). As such, the "single most characteristic feature" of state enterprises is their "flexible nature and, almost by definition, their ability to absorb and reflect demands specific to their environment" (Clark, 1994). A change in the balance of power in a country is reflected in its state-owned enterprises and institutions, which, in turn, reflect the shifts in the social forces driving that change.

The MEC has been criticised for being overly structuralist and leaving little room for agency. Bell and Farrell (1997) used a statistical approach to criticise Fine and Rustomjee by analysing the fixed core sectors and their share of GDP in the economy over a specified time, to determine their weight in the overall economy in the same period. Their contention is that the influence of the core sectors of the MEC did not retard industrialisation, given the diversification of the manufacturing industry and import substitution industrialisation (ISI) policies from 1971 onwards. For Bell and Farrell "a major shortcoming" of Fine and Rustomjee's MEC thesis "is the lack of an adequate statistical picture of the evolution of the economy as a whole and of manufacturing industry in particular" (1998: 592).

In response, Fine and Rustomjee (1998:690) claimed that since they had not taken a position on import-substitution versus export-oriented industrialisation (EOI), their "ideas have primarily been ignored at best, or resisted, misinterpreted and dismissed at worst". For them the ISI versus EO controversy is an inappropriate framework for assessing industrial policy "but serves as a metaphor for a different controversy, of state versus market" (1998:694). In practice the strengths of the MEC "arise out of the productive and infrastructural capacities that have built around its core sectors" while its weaknesses arise from "the failure of this to be vertically integrated into the rest of the economy" (1996:252).

2.4.2 Technopolitics

To navigate the historical changes in the MEC and the relationship between state, capital and labour over time, I also draw on Gabrielle Hecht's concept of technopolitics and technopolitical

regime(s). Hecht defines technopolitics as the "strategic practice of designing or using technology to constitute, embody, or enact political goals" (1998:15) and a technopolitical regime as the "engineering and industrial practices, technological artefacts, political programs and institutional ideologies which act together to govern technological development and pursue technopolitics" (1998:16). I use both technopolitics and technopolitical regimes to analyse the emergence and transformation of what Andreas Malm (2013) has called the fossil economy – this is "an economy characterised by self-sustaining growth predicated on growing consumption of fossil fuels, and therefore generating a sustained growth in emissions of carbon dioxide" (2013:17), which in South Africa can be explained in terms of the MEC.

My use of technopolitics and technopolitical regimes is slightly different from how Jaglin and Dubresson (2016) have deployed the term. They locate Eskom in the history and sociology of technology and view the utility as a sociotechnical system with strategic policy choices in energy technologies and systems, requiring balancing the interest of social actors and at the same time defending particular interests. They review the implementation of BBBEE policy in Eskom and make the argument that this is a form of neopatrimonialism (Medard, 1996), while I show how in its developmental trajectory organised labour is both dictated to and makes economic and political demands on Eskom, capital and the state.

My use of technopolitics is not intended to reduce technology to politics, nor vice versa, but to highlight the importance of political and social forces in shaping the adoption of a particular technology. Hecht demonstrates this point by analysing France's adoption of nuclear energy after the Second World War. In South Africa the major issues of contention in the energy transition do not concern the particular renewable energy technology to be adopted but centre on struggles over the ownership of the assets and the institutional arrangements governing them. I argue that regardless of the energy mix, transitioning to a low-carbon economy will fail if there is no political buy-in and social acceptance from key constituencies, including organised labour and affected communities.

A reading of the MEC through technopolitics, as a technopolitical regime, explains why the development trajectory of the MEC has proven so very difficult to turn around, given the logic of capital accumulation not only in pre- but also post-apartheid South Africa. Ashman et al. (2011) argue that after 1994, the financialisaton of the global economy that started in the 1980s gave room for a reconfiguration of South African conglomerates associated with the core sectors of the MEC, and at the same time facilitated the inclusion of the black political elite through policies such as broad-based black economic empowerment (discussed further in Chapter Five). The financialisation of the South African economy, however, has not

addressed historical fault lines in the labour market, in which the labour unions have a material interest, and this helps explain the way trade unions have responded to the technological changes that have disrupted labour's organisational power, power which was enhanced after1994 with the extension to workers of more rights. (On this see Hlatswayo, 2015.)

The inclusion of renewable energy in South Africa's energy mix presents a technological change that trade unions have had to respond to, to protect the gains they have made since 1994. The resistance to renewable energy by trade unions and other vested interests in the coal sector's value chain is not only because of its disruption of current processes of capital accumulation, but, as I discuss further in Chapter Five, because the renewable energy sector is failing to articulate or align itself with broader socio-political demands around eradicating poverty, reducing inequality and creating employment.

The multi-level perspective (MLP)

In her PhD, Baker (2012) analyses the transition to a low-carbon economy and the introduction of renewable energy in South Africa by locating it in the MEC and drawing on the "multi-level perspective" (MLP). The central thrust of the MLP is that socio-technical transitions, like the one in the energy sector, occur through an interactive process involving three different levels: the regime, the niche and the landscape (Geels, 2018). Regimes are patterns of "technologically determined behaviour", shaped by "'cognitive routines and discourses" amongst engineers and "influenced by policy makers, scientists, energy users, vested interests and other professional groups" (Baker, 2012:30 citing Geels and Schot, 2007). Though stable and predictable, regimes are protected by lock-in mechanisms, defined by Unruh (2000; 2002) as positive feedbacks or increasing returns on the adoption of the selected technology. A niche refers to a protected space at the micro-level, which is where research and development (R&D) usually occur and where new technologies and "radical innovations" emerge (Geels 2011: 27; Lehtonen and Kern 2009). The landscape level refers to "broader contextual developments that influence the sociotechnical regime and over which regime actors have little or no influence" (Geels, 2018:225). This level is shaped by endogenous and exogenous factors such as geography, ideology, accidents, geo-politics, wars, and economic crisis (Geels, 2018).

Baker (2012) locates the coal-electricity nexus in South Africa at the regime level, the renewable energy sector at the niche level, and their interaction at the landscape level, the latter seen to be shifting in favour of renewable energy technology in response to global concerns around climate change. Renewable energy technologies and decentralised smart

grids are niche innovations emerging against the backdrop of the prevailing sociotechnical system and regime, characterised by the fossil-fuel economy. In the MLP niche innovations are able to gain a foothold in particular applications, in particular geographical areas, with the help of targeted policy support (Geels,2018; Kemp, Schot & Hoogma, 1998).

While the delineation of the three levels is useful, the main weakness of the MLP is that it does not account sufficiently for the domestic politics involved in the transition to a low-carbon economy and the extent of the resistance to the adoption of renewable energy in contemporary South Africa (described in Chapter Five). In other words, why has the niche innovation of renewable energy not gained stronger traction and widespread social support, even though it has received targeted policy support nationally and is backed by an intergovernmental organisation specifically set up for the promotion and adoption of renewable energy? Drawing on technopolitics I am able to explore these questions in chapters four and five in relation to the role that organised labour has played in influencing and shaping government policy.

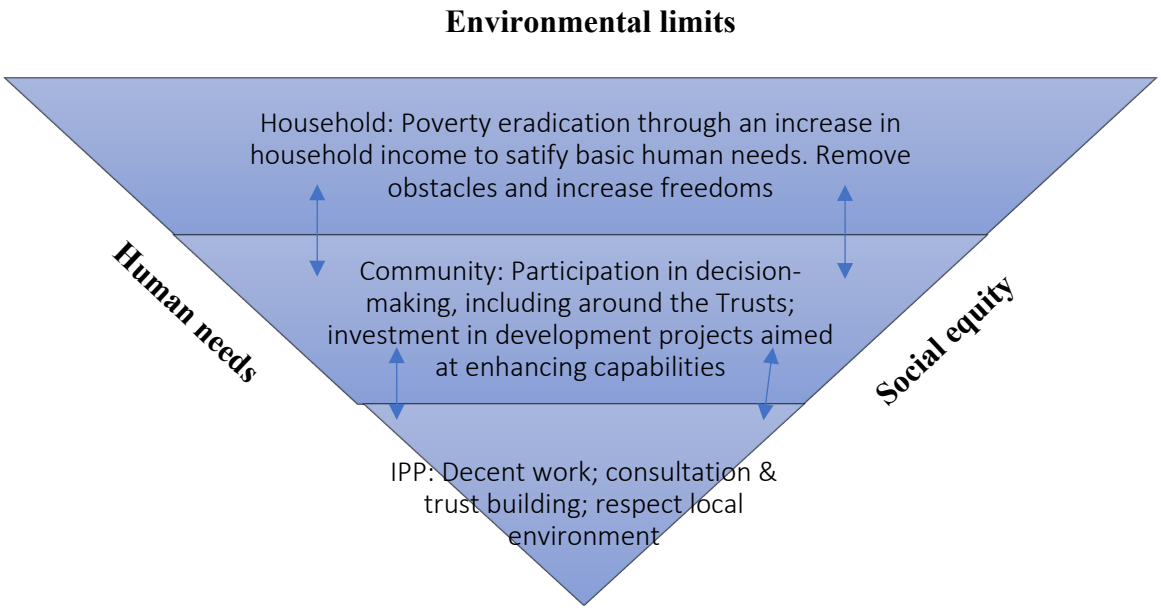
2.5 The just transition and sustainable development in the small Karoo town of Loeriesfontein

What emerges from the discussion above is that sustainable development in South Africa requires a just transition to a carbon-neutral energy dispensation (i.e. an energy transition), but the demand for justice goes way beyond that. The just transition is both a destination that is aligned with the moral imperatives of the "sustainable space" defined by Holden et al. and a set of processes to get there. In other words, a just transition to renewable energy is not just about addressing climate change and reducing greenhouse gases but needs to be designed in relation to the imperatives of social justice and satisfying human needs as well. Furthermore, this transition needs to extend to renewable energy's host communities as well as to the workers and their communities in coal-producing areas. At the individual project level (such as the two wind farms in my case study) this means that the renewable energy sector needs to contribute to enhancing, not retarding, human capabilities (through poverty eradication in the first instance). It needs to bring marginalised voices into local decision-making processes, promote fair distribution in job creation and its social investment projects, while respecting bio-diversity and environmental limits in the local context. Critically, it cannot rely simply on its contribution to the reduction of national carbon emissions for its "green" credentials.

This does not mean that renewable energy IPPs bear the sole responsibility for sustainable development in their host communities, nor that they should take over functions of local, provincial and national government. However, for IPPs to contribute to sustainable development, as its advocates maintain they do, then they need to look beyond the interests of their shareholders and their contribution to the reduction of GHG. The community development commitments in terms of the REIPPPP need to be consistent with the sustainable development space outlined in Section 2.1 above.

Using the conceptual framework I have laid out above, Figure 2.2 below sets out a schematic representation of the key players as well as issues renewable energy projects need to address if they are to contribute to sustainable development and advance the just transition in their host communities. Working within the "sustainable development space" defined by Holden et al.'s three moral imperatives of respecting environmental limits, addressing human needs and advancing social equity, this model identifies the household, the community and the renewable energy IPP as three important and interacting levels of engagement and identifies key themes (goals) that are relevant at each level. What these imperatives entail at the local level in Loeriesfontein is teased out more fully in chapters six to eight. Here I simply highlight key elements of my application of the idea of the sustainable development space to the town. I return to this model in Chapter Nine, my concluding chapter.

Figure 2.2: A model for renewable energy projects' contribution to sustainable development in their host communities



In the top-down approach currently reflected in the REIPPPP, the model would start with the IPP proposing a set of community projects, with implementation timelines and project monitoring in the hands of the IPP's local management team. I have inverted this model to place the household at the top, in recognition of its key role in social reproduction, and to make communication between the three levels multidirectional. In Loeriesfontein, the eradication of poverty is crucial for enhancing human capabilities. I argue that both poverty and income inequality must be addressed at the level of the household, working together with the "social overhead capital" projects which are already in place in Loeriesfontein. This proposal is based on the assumption that decision-making processes in households around consumption generally address human needs and well-being.

In addition to their responsibilities to ensure that the work that they provide meets the criteria of decent work, renewable energy IPPs also have responsibilities around community development. Currently the focus is on once-off projects in specific social sectors. In my model, the role of the IPPs shifts to include much greater responsibility for building relationships of trust within their host communities, as a prerequisite for meaningful community participation in determining community development priorities. At the same time, the projects that are undertaken have to be respect local environmental conditions, which in the case of Loeriesfontein means at a minimum ensuring that biodiversity is protected and the utilisation of scarce water resources is sustainable.

2.6 Conclusion

In this chapter I have laid out the core elements of the conceptual framework that informs my understanding of what a just transition to a low-carbon energy dispensation in South Africa and Loeriesfontein must involve: breaking with the constraints set by the MEC, along with a commitment to a sustainable development agenda understood as encompassing the three "moral imperatives" of satisfying human needs, promoting social equity and respecting environmental limits. Giving content to these moral imperatives has to incorporate the struggle for decent work, while respecting environmental limits, which means engaging with the ecological conditions and challenges in both coal-producing and renewable energy areas. In addition, giving effect to sustainable development in a renewable energy host community like Loeriesfontein requires the primary focus of the community development responsibilities of the renewable energy sector to be on meeting household needs, with the aim of improving household conditions and thereby enhancing capabilities. What my case study shows,

however, is that the just transition has also to be understood as a process of struggle to advance towards the sustainable development space as defined in this chapter. In this struggle concerns with decent work and household wellbeing feature prominently.

Chapter Three: Research Methodology

This chapter discusses the case study research design that I developed to answer my research questions. The discussion is organised across five main sections. The first section reflects briefly on the value of the case study in sociological research. The second section provides an overview of my primary data collection phase and highlights key events which occurred during this time and shaped my fieldwork and approach to data collection. This section provides context for the third and fifth sections. The third section discusses the different methods that I deployed in the case study. The fourth section discusses my data analysis and in the fifth and final section I review ethical considerations and reflect on certain challenges I encountered during my fieldwork.

3.1 A case study research design

A case study is an analysis of a single case which is "intrinsically bounded" (Winegardner,2005:7) but speaks to larger themes. In choosing my case study site, I picked the town of Loeriesfontein town "for theoretical relevance" and not for "statistical representativeness" (Burawoy 1985:17). Yin (2006) argues that a case study design is appropriate for "empirical inquiry that investigates a contemporary phenomenon within its real-life context" and is particularly useful "when the boundaries between phenomenon and context are not clearly evident" (Yin 2006: 18). According to Meyer (2001:330) the strength of a case study is that "it is tailor-made for exploring new processes or behaviours or ones that are little understood".

As the nearest town to the two wind farms within the Hantam Local Municipality, Loeriesfontein is the target for community development commitments as per REIPPPP regulations. Given the other solar and wind farm projects in the pipeline, the town could become a mini hub for renewable energy in the future. Within the broader debates on the scope and focus of the just transition away from coal-fired electricity generation in South Africa, this case study allowed me to explore development dynamics around renewable energy projects and thus expand the terms of the debate on the just transition beyond the coal-producing regions. Unlike other case studies related to renewable energy projects (McDaid, 2014, 2016; Nkoana, 2018) my case study hones in on the local political and implementation dynamics which face development

projects in communities which face widespread poverty, unemployment, inequality, high dependency on social grants and adversarial local politics. My case study also allows for comparisons with other big infrastructure projects in the Northern Cape, notably the Square Kilometre Array (SKA) radio astronomy project located outside of the town of Carnarvon, where the project's local community development interventions have also been contested. (See, inter alia, Terblanche, 2020; Gastrow & Oppelt, 2019; Atkinson, 2019; Walker, 2019; Butler, 2018; Walker & Chinigò, 2018).

A case study design lends itself to the use of mixed methods for data collection, involving methods selected from both the quantitative and qualitative methodology toolboxes which is the approach I have adopted. For Patton (2001), qualitative research involves a "naturalistic approach seeking to understand phenomena in context-specific settings, such as real-world settings [where] the researcher does not attempt to manipulate the phenomenon of interest" (Patton, 2001: 39). Denzin & Lincoln argue that the emphasis in qualitative research is on the processes and meanings "that are not rigorously examined or measured in terms of quantity, amount, intensity or frequency" (1994:4). In quantitative research, on the other hand, researchers "abstract from this world" and investigate the causal relationship which exist between variables "based on probabilities derived from the study of large numbers of randomly selected cases" (Denzin & Lincoln, 1994:5). The advantage of using mixed methods lies in its complementarity, thereby providing breadth and depth and also enhancing the reliability of one's research findings through triangulation. My study is weighted towards qualitative methods but because I also draw on a survey I regard my approach as a mixed-methods case study

According to Bryman (2012:628), the mixed methods chosen should be "mutually illuminating'', which is what I have endeavoured to achieve. In this dissertation, I have drawn on qualitative methods of unstructured or semi-structured interviews, observation and documentary analysis to explore, firstly, the meanings and practices attached to the employment opportunities and community development programmes of the renewable energy projects in Loeriesfontein and, secondly, the debates on the just transition and energy policy more broadly. I have used quantitative data derived from a household survey conducted by the research group within which my dissertation has been conducted to gain invaluable insights on broader demographics, household conditions, labour market conditions and municipal services in my case study site. Each of my research methods are discussed in more detail in Section 3.3, following an overview of how my data collection unfolded in the following section.

3.2 Data collection overview, 2017 – 2020

My study spanned a period of a little over four years, from early 2017 into 2020, and encompassed fieldwork in the Hantam Local Municipality, interviews with key informants in the energy sector nationally as well as extensive policy and documentary analysis. My primary fieldwork in Loeriesfontein started in February 2017 with a scoping trip and ended in February 2019, which was when my last formal face-to-face interview took place. In December 2019 I made a brief visit to the town as part of the report-back on the community household survey which was conducted in August of that year. Due to the outbreak of Covid-19 and the restrictions on travel imposed by the national lockdown regulations, I was unable to return to the town for follow-up fieldwork in 2020, as I had hoped; I was, however, able to travel back to Loeriesfontein briefly in December 2020, to catch up with new developments since my previous visit in December 2019.

My first exposure to Loeriesfontein was in February 2017 when I visited the town as part of an orientation field trip for postgraduate students in the SARChI Research Chair in the Sociology of Land, Environment and Sustainable Development at Stellenbosch University. To familiarise new and old students with the broader research environment of their individual research projects, the research Chair (Professor Walker) has initiated an annual “inception field trip” for her cohort of postgraduate students. During these trips, selected towns and places of interest in the Karoo are visited, to introduce students to the region and assist them identify issues and/or places for possible research projects. Loeriesfontein was one of the towns we visited as part of the 2017 inception field trip. Our visit to the town included a tour of the Loeriesfontein 2 Wind Farm which was then a construction site, with the tour conducted by Mainstream’s Health and Safety Officer. (See Appendix 1.) I was already interested in the issue of decent work and how this agenda was playing out in struggles around South Africa’s energy dispensation, because of my research background in the mining industry and trade union politics, particularly those involving COSATU. This tour cemented my interest in Loeriesfontein as a research site in which I could take these issues forward through a case study of renewable energy and its local development impacts in relation to the national policy-political debates playing out in centres far from this small Karoo town.

What sparked my particular interest in Loeriesfontein was our tour of the wind farm construction site. I was intrigued that our access to the two wind farms was negotiated on our behalf by a local associate of the SARChI Chair with the right credentials to reassure the managers of the site that we were a responsible group, with a genuine interest in renewable energy and sustainable development. In previous research projects requiring fieldwork at a

mine, power plant or construction site, I had always secured access through the company management or a trade union representative; in these cases, the party that had not initiated the access (whether management or a trade union) generally insisted on meeting "the students" as well, to check that they were being "well looked after". This was the first time I had experienced access to a research site being facilitated through a third party. Considering the size of the wind farm project, I was intrigued that we did not meet any union representatives from any of the dominant unions in the construction industry on site, and wondered what this might say about the nature of the workforce. At the same time, I was encouraged by the fact that our access had been negotiated differently and the possibility that I would be able to leverage this once I had started my fieldwork proper.

This began after I had received ethical clearance from the Research Ethics Committee for the Human Sciences at Stellenbosch University in late 2017. (See Appendix 2.) Thereafter I travelled to Loeriesfontein to begin to familiarise myself with the town and conduct preliminary interviews with people I expected would be able to assist me as key informants (namely, the ward councillor and school principals) as well as to identify additional key informants and recruit potential participants who either had worked or were working on the wind farm site. During this trip, a colleague and I experienced a mishap involving our approaching an individual who had the same name as the person to whom we had been directed but turned out not to be the person for whom we were looking. While this encounter produced some difficulties subsequently with the actual person to whom we had originally been directed, meeting the "wrong" person turned out to be a blessing in disguise for me, as I was able to establish a good relationship with this person who agreed to host me during my next stay in Loeriesfontein. At the same time, the sensitivities that I witnessed around my not speaking to the "right" person early on alerted me to the presence of tensions within the community that were clearly important to understand but needed to be approached carefully.

In December 2017 I travelled to Johannesburg to attend a hastily convened Energy Indaba organised by the then Department of Energy (DoE). Although styled as an opportunity for discussion and feedback from the DoE on the Integrated Resource Plan (IRP 2017) this crucial policy document concerning the country's energy mix was not up for discussion over the two days of the Indaba (7 and 8 December). Instead the then energy minister, David Mahlobo, informed the delegates that the IRP had already been finalised and approved by the Cabinet. I sensed that this Indaba was seen as forming part of the DoE's "consultation" with stakeholders in the energy sector, timed carefully to take place a week before the crucial ANC

elective conference from 16 to 20 December 2017.[13] In between sessions at the Indaba, I managed to conduct interviews with senior officials from the IPP Office, guided by issues that had been raised by the ward councillor in Loeriesfontein when I interviewed her in November 2017.

My second period of sustained fieldwork in Loeriesfontein took place in April and May 2018. This time I stayed with the individual who had agreed to host me earlier, which was very positive for my research. He and his wife were well informed about developments in the town, even though they were not directly involved with the wind farms and had been away for studies for much of the construction period. Both university graduates, the wife was employed as a social worker for one of the organisations in town (until December 2020) while the husband was an emerging entrepreneur with knowledge of provincial and local government politics. I also knew that staying with them, as opposed to locating myself in one of the bed-and-breakfast establishments with white proprietors, in the "whiter" side of town, would be crucial for familiarising myself with day-to-day life in the "coloured" part of Loeriesfontein where the majority of townspeople reside. My hosts were also able to organise a translator for me, to assist me negotiate my less than fluent Afrikaans, and this individual turned out to be a particularly valuable key informant as well.

After this sustained period of fieldwork, I made two further quick trips to Loeriesfontein. The first was in May 2019 to attend the "Namakwa District Municipality: Winter Relief Programme" at which the provincial MEC for Co-operative Governance, Human Settlements and Traditional Affairs, Bentley Vaas, was the keynote speaker and scheduled to hand over title deeds for state-built housing to beneficiaries. (Nine tittle deeds were handed over in all,) This felt to me like an ANC political rally. (See Appendix 3). The second trip was in December 2019 for a feedback session with local officials and some townspeople on the results of the SARChI Chair's household survey that had been conducted earlier that year. Throughout this period and during a concentrated writing phase in the first half of 2018 I was constantly engaging with policy debates. In this time I conducted several interviews with key informants in the energy sector to make sense of the national debates. I also attempted to interview Mainstream's officials but, as discussed further below, was unable to secure meetings.

[13] At this conference, Cyril Ramaphosa defeated Nkosazana Dlamini-Zuma to become the President of the ANC, paving the way for him to become State President after the May 2019 national elections. Under Ramaphosa's administration bid windows 3.5 and 5 PPAs were concluded and the Departments of Mineral Resources and of Energy consolidated into a single Department (the DMRE).

I had intended to return to the field in the course of 2020 in order to view some of the community projects that Mainstream had initiated and to engage with the new ward councillor, a former high school principal whom I had previously interviewed who had replaced the DA councillor in the by-election of August 2019. However, the onset of the Covid-19 pandemic disrupted this plan. In December 2020, I was finally able to return to Loeriesfontein to visit friends and pay my respects to two families I had got to know well who had both experienced the loss of loved ones. This last trip was thus essentially a private visit but it also turned into a debriefing session for me. At this time, I learned about various community development initiatives associated with Mainstream as well as contestations in the community around the control of community development funds.

3.3 Research methods

3.3.1 Interviews

My main source of data was interviews, all conducted on the basis of informed consent (Appendix 4). In total, I conducted 46 interviews with 45 participants, one of whom I interviewed twice (a ward councillor). Seventeen were unstructured, in-depth interviews with people I considered key informants while 25 were in-depth semi-structured interviews with people who have worked on the wind farms, the great majority of them (23) former workers. Prospective interviewees were told that they could choose to be anonymous, in which case I would identify them in my dissertation by either a pseudonym or a generic term to describe their position. In a spirit of openness, three of my participants waived their right to anonymity: NUMSA's national spokesperson, Phakamile hlubi-Majola, former Eskom CEO, Matshela Koko and energy expert Chris Yelland. Table 3.1 below summarises the distribution of my participants.

One limitation with my sampling that needs to be acknowledged is that I did not specifically target members of the white community in Loeriesfontein to find out their perceptions around renewable energy, the just transition and sustainable development. While three of my participants were white, only one was a permanent resident of the town. Negotiating access would certainly have been difficult, as was shown during the Loeriesfontein survey in 2019 when enumerators encountered some refusals to participate (Vorster, 2019:9). More importantly, however, the target group for community development initiatives through the renewable energy sector are the previously disadvantaged black majority. Furthermore my

selection of the key informants in the town whom I did interview was based on their office, not on the colour of the skin. Nevertheless community development should be inclusive of everyone in the community so this is an issue for consideration in follow-up research.

Table 3.1: List of research participants

Participants	Number
Unstructured in-depth interviews	**20**
IPP Office	2
Labour unions	2
Energy expert and analyst (Yelland)	1
Former Eskom action CEO (Koko)	1
SAWEA CEO	1
Municipal manager	1
Department of Labour	2
Loeriesfontein/Hantam:	
Ward councillor	2
School principals	2
Community development worker	1
Police	1
Chairperson of the Business Chamber	1
Mainstream:	
Construction and Operations Manager	1
Implementation Manager	1
Former economic development manager	1
In-depth semi-structured interviews	**25**
Former workers on wind farms	23
Currently employed through wind farm	2
Total	**45**

Unstructured in-depth interviews

These interviews were conducted using a purposive or non-random sample of participants whom I considered key informants, working in various official and institutional positions both locally, in Loeriesfontein and the Hantam Local Municipality, and nationally in relation to the energy sector in South Africa. Simply put, a key informant is someone from a "select group of individuals who are likely to provide needed information, ideas, and insights on a particular subject" (Kumar, 1989:6).

The topics and themes explored in the in-depth interviews were tailored to the position of each of the participants, but, broadly, covered energy policy, renewable energy, decent work, sustainable development, and the just transition in South Africa. (See Appendix 5.) The flexibility of these in-depth interviews allowed me to ask complex questions while also allowing my respondents the space to clarify points and expand on their views on the complexities

(Rea and Parker, 2005; Berg, 2007; Bryman, 2012). For example, the former Eskom CEO explained South Africa's complex energy regulatory regime to me in detail, including how tariffs are set and demand forecasts are done. Initially scheduled for 45 minutes, this interview lasted for almost two hours. My first interview with the ward councillor helped me identify themes to explore during my data analysis, and identified the fudging of lines between socioeconomic development and enterprise development, as well as her particular interest in the former as a vehicle to supplement service delivery.

According to Kumar (1989), the atmosphere during interviews with key informants should be informal, resembling a conversation among acquaintances. This was the case with most of my interviews. However, organising interviews with key informants working for Mainstream turned out to be a frustrating process which affected the nature of the discussion. My interaction with company officials started in 2017, before my second visit to Loeriesfontein, when I sent an email to the company's economic development manager requesting an interview. I followed up with a request to the contact person who had arranged the inception trip tour of the Mainstream construction site, to help facilitate interviews with the economic development managers for the wind farms. When these efforts failed to produce results, I decided in 2018 to use the social media platform Twitter to request an interview with the company. Because I do not have many followers (which translates into influence) I was not confident of a response, but I did get one. I was asked about the processes I had followed and shortly thereafter the person I had previously tried to contact called to ask if I still needed the interviews and the data that I had initially requested.

By this stage I was aware that the relationship between Mainstream and local players in the community of Loeriesfontein was strained. I opted not to interview the economic development manager at that stage, since she was still quite new to the job, and in my experience people who are compelled to do interviews when they are not keen tend to be unforthcoming. I thus asked to interview the implementation manager and construction manager – the latter had relocated and is a permanent resident of Loeriesfontein. Before agreeing to meet with me, Mainstream's construction manager and now operations manager requested that I send a letter from a lawyer or my supervisor confirming my status as a student and giving an undertaking that my research was for academic purposes. I emailed the required letter from my supervisor in May 2018 and my interview with the construction manager was held at Mainstream's offices in Cape Town in August 2018. (See Appendix 6.) Because I was allocated only 30 minutes I adjusted my questions to focus on the themes of construction and employment. My interview with the implementation manager was held in Loeriesfontein in October 2018. This lasted an hour and the atmosphere was cordial.

Again using Twitter, in early 2019 I managed to arrange an interview with one of the economic development managers of the wind farms. She was generous with her time, giving me two hours and instructing her workers not to interrupt us unless the issue was serious. She also sent me documents and notes detailing her experiences in Loeriesfontein during the construction phase. These documents brought to light some issues regarding project selection, transparency and decision-making which had been left hanging in my earlier interviews and pointed to tensions between the construction team and the economic development team (addressed in chapters seven and eight). After analysing them, I afforded Mainstream an opportunity to respond to some questions the documents raised for me. I was subsequently invited to a meeting in Cape Town that I thought would be to discuss the issues raised. Instead, after being told I could not record the meeting, my methodology was questioned and I was told not to follow unsubstantiated rumours. This meeting was attended by six staff members, including their legal counsel. At its conclusion I was told I should email any further questions I might still have (see Appendix 7), and the company reserved its rights not to respond, a right which I respect.

Semi-structured interviews

My 25 in-depth semi-structured interviews with local workers (only two of them still employed through the wind farms) were designed to explore their "experiences, opinions, values, aspirations attitudes and feelings" (May, 2011:131) regarding work and broader issues of community development (Appendix 8). The first section of the interview schedule covered standard biographical information, the second section covered the participant's employment history while the third section was guided by section two and covered their experiences of working on site in the construction of the wind farms. Questions in the second and third sections were open-ended in character, to "enable the interviewees to answer questions within their own frame of reference" (May, 2011:136). The advantage of using in-depth semi-structured interviews is the degree of flexibility it affords, without limiting the probing of questions, while allowing for some comparison of answers. Most of these interviews were conducted at my participants' homes, and some in my hired car.

My 25 participants were selected using snowball sampling with the help of the translator. The use of the translator was occasioned by my weak command of the Afrikaans language, the main language spoken in the town. My participants were accommodating about being interviewed in English; however there were moments of code-switching from English to Afrikaans which I could not follow fully, or questions of mine being misunderstood, which the

translator could pick up and clarify. The translator is a university graduate who was unemployed at the time. I explained her role to participants, including that she had signed a non-disclosure agreement (NDA) with the University (Appendix 9). For the most part I found she played an additional, unintended role of facilitating rapport between myself and participants. May (2011: 143) defines rapport as the "development of a mutual trust between two parties which enables an interview to flow more freely". However, one participant requested that my interview be conducted without her present which I respected.

I stopped recruiting participants for my in-depth semi-structured interviews when I reached a point of what I considered data saturation. Glaser and Strauss (1967:61) define saturation as:

> The criterion for judging when to stop sampling the different groups pertinent to a category is the category's theoretical saturation. Saturation means that no additional data are being found whereby the sociologist can develop properties of the category. As he sees similar instances over and over again, the researcher becomes empirically confident that a category is saturated.

3.3.2 Observation

Observation is used as a research tool in two distinct ways that have been described as structured and unstructured (Prezlik, 1994). Structured observation involves the use of a predetermined guide to direct the researcher's attention towards the research objects or events he or she is looking for in the field site. Unstructured observation, on the other hand, is open-ended, with no predetermined guide. Griffiths (2011) divides both structured and unstructured observations into nonparticipant (i.e. simply observing) and participant observation, in which the observer also takes part in all or some of the activities being observed. The identity of the researcher as observer may be concealed or known to those being observed (Gold, 1958).

I used unstructured observation, with my identity as a postgraduate student from Stellenbosch University clearly known and my role oscillating between participant observer and non-participant observer. The deployment of unstructured observation was in appreciation that sometimes what people say and what they do are two different things. I relied on both my eyes and ears during observational periods (Silverman, 2004) to check out if what I was being told corresponded with what I was actually seeing, observation thus being part of my data triangulation process and providing a deeper understanding of the broader picture (Neuman, 2000). For example, while publicly available documents reported on a women's vegetable

garden in which Mainstream had invested, what I saw was an empty patch of ground with only a greenhouse structure as evidence of this being a vegetable garden.

I also observed that middle class coloured families lived in just one street in the former “white” part of town (which was where my hosts also resided). Many of the houses in town appeared empty, which I was told was because their owners were white farmers who were either based on their farms or had left the town altogether due to the drought. As a participant observer, I was afforded an opportunity of attending a party organised by Mainstream for the specialist workers in the installation teams for the wind turbines who I observed were foreign (from the language spoken). I went sheep shearing with my host and his relatives and friends, and hunting with some young men. I observed a matric dance procession and attended a prize-giving event for the primary school. I also attended a community meeting which involved a presentation on the proposed development of four more wind farms outside Loeriesfontein.

Through these encounters I was attempting to become “immersed in the daily lives of the people” (Leedy and Ormrod, 2014: 145). Observation and my field notes thus added to my reflections on the issues that were emerging through my fieldwork. It played an important part in shaping my sense of the town which went through several stages. In part this was because of my initial unfamiliarity with the social setting of a small Karoo town and my own racialised identity within the town as a non-coloured, non-Afrikaans-speaking person, who was also a postgraduate student at Stellenbosch University. I am from the metropolitan area of Tshwane, in Gauteng, the political and economic centre of the country, with my roots in the large suburb of Mamelodi, historically an apartheid-era township for people classified as black, currently with a population of 334 577 people. At first my general sense of how I was being perceived was that people were curious as to what I was doing in town. This curiosity shifted into people wanting to find out more about my interest in the wind farms near the town. The next stage, in my second phase of fieldwork, was more welcoming with mostly young residents wanting to know more about me. I quickly learned to position myself as a student, rather than a PhD student, since the idea of a PhD was intimidating for some and unfamiliar for others. I also had the pleasure of explaining the difference between sociology, social work and psychology. In some of these exchanges I saw a sense of hope in my interlocutors, coupled with ambition and a desire to see the world, but this was also accompanied by the knowledge that in reality their options are limited. One young man who has since become my friend dreams of becoming a glass-blowing artist. Many young people requested information regarding any employment opportunities I might know of.

I also took time during my fieldwork to visit a white farmer in the district with whom I had become acquainted. During my time with him, I was asked all manner of questions about my project; we also had wide-ranging conversations regarding farming, politics and the possibilities of a different looking Karoo. The warm welcome I experienced during these visits challenged the impression of white people in the Loeriesfontein area that I had gained from encounters in public spaces in the town. When I greeted white people there, I would often be ignored. Whenever I went to the only supermarket in town, an activity I did regularly, I received curious looks from white people. If I was driving a car with the Stellenbosch University logo on it, the curiosity was visibly heightened. This experience was not a new one for me – I have had similar experiences when conducting research in Gauteng with a car with a University of Pretoria logo on it.

I also observed a coloured community that was sharply divided along political lines between the ANC and DA – as already noted in Chapter One, in the 2019 by-election the difference between the two parties in the Loeriesfontein ward was just six votes. However I found it difficult to make sense of the divide sociologically and to determine how much of it was ideological and how much to do with contestations over positions and patronage opportunities. As already mentioned, an official government event I attended felt like an ANC rally. In marginalised communities the fault lines around the allocation of resources or services are easily exploited. My observations of these dynamics were revealing of how limited opportunities and centralised control can lead to exclusionary practices along political lines as well as how local networks shift over time. Here my key informants' knowledge of local dynamics was invaluable in helping me navigate this shifting terrain. These dynamics are explored further in Chapter Six.

My host's household was a particularly valuable hub of knowledge co-creation, in which my observations could be discussed and different viewpoints expressed and challenged. Difficult topics, like race relations, could also be broached informally during social braais, a frequent activity, especially during the winter when it was cold. My relationship with my host obviously raises some questions about managing personal bias which I reflect on further below.

3.3.3 Documentary analysis

Bowen describes documents as a "non-reactive source of data which can be read and reviewed multiple times and remain unchanged by the researcher's influence or research process" (2009: 31). According to Guba and Lincoln (1981:228) from a research perspective

a document is “any written material … that was not prepared specifically in response to some requests from the investigator”. Documents can take the form of files, statistical records, images and records of official proceedings (Silverman, 1993).

I drew on all manner of documents, including national policy documents and legislation, material on Eskom’s online archival repository, and the extensive grey literature on renewable energy and energy policy. Some of the documents made available to me were, as I later found out, not explicitly in the public domain, for example Mainstream’s 2013 “Community Development Plan” prepared by the consultancy, Tshikululu. Two other such documents warrant mentioning here: the 2015 Loeriesfontein “Community Prospectus” and the 2016 “community response” prepared jointly by Mainstream and Murray and Roberts to address community grievances.[14] The Tshikululu “Community Development Plan” was important for my understanding of how Mainstream understood “sustainable development” and planned to implement its community development programmes. The “Community Prospectus” details the plans identified by Mainstream’s economic development team together with various community stakeholders and also takes forward some of the programmes identified in Tshikululu’s “Community Development Plan”. The “Community Response” document was revealing of the tensions between the construction team led by Murray and Roberts, Mainstream’s economic development team and the local community during the construction of the wind farms.

These documents were not just recorded facts, but “socially situated products” (Scott, 1990: 34) that helped me gain a deeper understanding of the issues at hand. They also helped with my ordering of the timeline of events.

3.3.4 The Loeriesfontein socio-economic household survey

The Loeriesfontein household socioeconomic survey was conducted in Loeriesfontein in July 2019 by Professor Walker’s SARChI research team. (See Vorster, 2019 for a full report.) Groves, Fowler, Couper, Lepkowski, Singer and Tourengean (2009: 2) define a survey as a “systematic method of gathering information from [a sample] of entities for the purposes of constructing quantitative descriptors of the attributes of the population of which the entities are

[14] The full title of the document was “Response to community list of demands received 08 April 2016 at community meeting in Sports Hall, Loeriesfontein’, hereafter referred to as the “Community Response” document.

members". The survey used a proportionally stratified sample of 201 households, with a margin of error of approximately 6.6 (Vorster, 2019: 8).

The primary purpose of the household survey was to collect data on socioeconomic conditions in a representative sample of households in Loeriesfontein. This survey, like others conducted by Professor Walker's SARChI research team, is intended to serve as a baseline for further longitudinal research in the town as well as for comparative research purposes with other small towns in the Karoo. Loeriesfontein town was picked largely because of the investment in renewable energy in the area. Similar surveys had already been conducted in two towns affected by the investment in astronomy in the Karoo, one in Vanwyksvlei in 2016, one of the "host" towns for the Square Kilometre Array (SKA), and the other in 2018 in Sutherland, near to the Southern African Large Telescope (SALT) astronomy site.

I did not participate in the design of the questionnaire and administration of the survey, nor in the primary data analysis, but contributed ideas for the questionnaire with regard to renewable energy issues and was involved in discussions on the interpretation of the findings, in particular those regarding in-migration and employment. I also attended the report-back meeting to the local municipality at which the preliminary survey findings were presented and discussed with local officials and interested community members. I have had full access to the survey data which has been especially useful for painting a picture of socioeconomic conditions in the town which is missing in other documents. The survey provides hard data on poverty levels and income at the level of the household, as well as on labour market participation, the importance of social grants, education levels and service delivery in the town.

3.4 Data analysis

Data analysis involves searching for explanation and understanding in relation to one's concepts and theoretical framework by, in Bohm's words, "breaking data down into bits and then 'beating' the bits together" (1983: 156). According to Rubin and Rubin (2005: 202), the aim of data analysis "is to discover variations, portray shades of meaning and examine complexity". Data analysis in this study was based on a multi-layered qualitative data analysis technique that involved both thematic and content analysis (Akinyode & Khan, 2018).

With the permission of my participants, all but one off my interviews were recorded and later transcribed. The in-depth semi-structured interviews were analysed in relation to my

understanding of decent work and the theoretical underpinnings of sustainable development set out in the previous chapter. Comparisons of the responses from my participants revealed clear variations in the understanding of work and decent work which could be linked to skill levels, job titles, prestige and the demands one was facing. The understanding of decent work in these interviews was different from what was described in the policy documents regarding employment.

The analysis of my in-depth interviews with key informants exposed both figuratively and literally the gaps on social issues in the policy. For example, in the renewable energy sector the implementation of community development programmes takes place once the projects have reached the commercial operations phase, because these projects are funded by the revenue generated by the individual project. It thus does not make sense for renewable energy IPPs to have to provide quarterly reports to the IPP Office during the construction phase, as required by national policy. Over time, one can see the IPP Office quarterly reports becoming repetitive, reflecting that individual renewable energy IPPs are simply complying with policy requirements rather than reflecting on actual local needs, achievements and challenges. This policy social gap is reflected in the composition of the bid evaluation consultants for the REIPPPP. Despite the economic development criteria being introduced in the eleventh hour, the bid evaluations team did not have a socioeconomic development specialist. This might explain why it was decided that community development plans would not be made publicly available, even after the preferred bid winners had been announced, thereby rendering the process of community development opaque. (See Chapter One.)

As noted by other scholars, analysing qualitative data is “an interpretative and subjective exercise, and the researcher is intimately involved in the process, not aloof from it” (Lacey & Luff, 2007: 6). There were times when I would just listen to my interviews, immersing myself in what was being said and allowing myself to arrive at the meaning of the data organically. In this way I kept revisiting my data which helped me in refining my analysis over time. For instance the semi-structured interviews I conducted with former workers included a section which encouraged participants to reflect on their experiences of work. It was through the process of refining my analysis with the help of my supervisor and returning to my transcripts that I picked up the way in which identity politics were manifesting as a theme in relation to the issue of worker control (on which see the discussion in Chapter Seven).

3.5 Research ethics and reflections

Guillemin and Gillam identify two types of ethics in research, namely, “procedural” ethics and ethics “in practice” (2004:226). Procedural ethics are intended to ensure that the research meets established institutional norms and requirements with regard to codes of conduct whereas ethics in practice are about the judgment calls that researchers have to make in the field, which may be guided by procedural ethics but cannot always be reduced to them. In terms of procedural ethics, this study was approved by Stellenbosch University’s Research Ethics Committee (REC), with the study being categorised as “low risk” (Appendix 2). Data collection was conducted following university guidelines and the distillation of best practices in conducting social science research as set out in the International Sociological Association’s Code of Ethics (2001).

Since the research involved people who live in a marginalised community, the issue of “ethics in practice” was of paramount importance throughout my research process. All my interviews were voluntary and based on the principle of informed consent. Some participants preferred to give verbal consent rather than sign the informed consent form. All participants were asked for their consent for the interview to be recorded, with all but one agreeing after I had explained what this involved. My participants were given time to read the informed consent form and the opportunity to ask me questions before proceeding; at the end of the interview I again asked participants if they had any questions for me. On one such occasion, one person went on at some length bemoaning the lack of clear criteria in choosing socioeconomic projects in the community, while some participants thanked me for being interested in their plight.

I have used pseudonyms to protect my participants’ identity as far as practically possible (see Appendix 4) and have also been mindful of my responsibilities in this regard when writing about issues that could be regarded as sensitive. However, this is where research in practice begins to differ from procedural ethics as pseudonyms may not ensure participants’ anonymity in a small town like Loeriesfontein where people’s movements and networks are closely observed. As mentioned, three of my participants chose not to be anonymised in this dissertation, in the spirit of openness; this also makes sense because the three are easily identifiable and active in the energy policy space. Occasionally during the interviews they each said “quote me on this” or “put this on record”. To safeguard the anonymity of officials from the Department of Labour and the IPP Office, I decided to refer to them as senior managers and not provide their exact titles. With regard to informants working for Mainstream the situation has been more complex. In hindsight, the fact that Mainstream initially had two economic development managers for its wind farms, neither of whom were working in

Loeriesfontein at the time of my primary fieldwork, helped preserve the anonymity of the manager I finally managed to interview. Similarly, the fact that SAWEA, the most vocal of the industry bodies, has had two CEOs, has helped obscure the identity of the CEO with whom I secured an interview.

Another ethical challenge that I had to confront during my research concerned the internal documents which Mainstream management felt I should not have been able to access – something I found out only after I had already been given sight of them and even though, as I later learned, they were available to ward committee members and hence, informally at least, in the public domain. This situation was challenging because it raised questions about the intersection of my ethical responsibilities as a researcher towards my informants with my responsibilities as a researcher towards the integrity of my data and transparency in the collection of data. My relationship with my host who provided me with a place to stay during my fieldwork was also put under pressure because he was one of the local people who had access to the documents in question. With hindsight I realise that this may have contributed to complicating my relationship with Mainstream because of their perception that I was "taking sides" in the conflicts that erupted around their community development commitments. My host, however, was not discomforted by this, as his primary concern was for the community of Loeriesfontein to be treated in a reasonable and transparent manner and he thought that my research might assist in this regard.

After reflection on the issues I decided to draw on these documents for two reasons. One, despite their being deemed "confidential" they pose no material or physical harm to any of my participants. Two, at least one of these documents was used in the initial bid process; however, after that process had been completed there was no material reason for the company's proposals around its socioeconomic development plans to remain confidential. Rather, their availability should be seen as in the public interest. It is inexplicable that community development plans in the renewable energy bid process are not made publicly available whereas social labour plans required before a mining license is issued are available online. As indicated in my discussion of the moral imperatives of sustainable development and expanded upon in chapters seven and eight, meaningful community development cannot be conducted under a cloud of secrecy. Moreover, under the current REIPPPP regime, in which community participation is limited, communities need to know of community development plans for their own communities, so that they can hold the responsible stakeholders accountable. In this regard, transparency increases accountability.

In working through these issues, however, I have been conscious of how the blurring of the ethics and the politics of research have intersected with my own positionality in a profound way. Bourdieu (1990) reminds researchers to be conscious of their positionality and how this affects the notion of objectivity. He argues that researchers can never be neutral since our experiences and histories influence our value judgements; therefore in addressing the issue of bias and prejudice, one needs to practice reflexive sociology. That is, researchers need to interrogate their self-blindness and personal circumstances throughout the research and writing process. My experience are shaped by my own family and educational history. My father was a shop steward for NUMSA before joining the Tshwane Municipality as an ANC candidate and serving as a councillor for 15 years. During my Honours and MA postgraduate studies at the University of Pretoria, I spent five years participating in research in the mining industry. My move to Stellenbosch University in 2017 to study for a PhD exposed me to a very different set of challenges. This personal history has profoundly influenced how I have approached my research topic and navigated what was for me the very new environment of Loeriesfontein.

Chapter Four: Forging South Africa's Industrialisation Trajectory: The MEC and Eskom's Place within It

In this chapter I show how the institutions and relationships encapsulated within the idea of the MEC came to shape South Africa's political economy from the time of the mineral revolution in the latter half of the 19th century to the post-apartheid era that was ushered in after 1994. This history reflects Eskom's strategic policy choices (its technopolitics) as the political landscape changed over time.

The chapter describes the sequencing of key developments, starting with the mineral discoveries, followed by the penetration of railways from the coastal areas into the interior, the formation of the electricity system and then the emergence of a metals manufacturing sector. In showing the consolidation of the MEC through the 20th century I also link these processes to the technopolitics at play, including the interaction between key state-owned companies and private capital in the process of capital accumulation and how state power was used to organise South African society over time. The major state-owned company under discussion in this chapter is Eskom; this chapter explores the role that the electricity utility played after its formation in 1923, using the MEC to understand the shifting technopolitics over time.

My discussion of this history unfolds over four main sections. The first section discusses the forging of the MEC before 1948, including the role that railways played in the formation of the Union of South Africa, the establishment of Eskom and the institutionalisation of the migrant labour system. The second section discusses the consolidation and growth of Eskom in the first two decades of the apartheid era, beginning with the transformation of Eskom into a vertically integrated monopoly with the help of the Anglo-American Corporation in 1948. The third section addresses how Eskom attempted to adapt to the changing political and economic landscape in South Africa from the 1970s; this includes a discussion of the internal reforms the state utility undertook even before black African workers won their industrial rights in 1979, and the implementation of various cost containment measures recommended by the De Villiers Commission that was established in 1983. The fourth section discusses important policy debates in the early years of the post-apartheid government under the ANC. This shows how the state moved from production to redistribution of capital accumulation for social change (Jaglin & Dubresson, 2016).

4.1 The forging of the MEC, 1860-1948

4.1.1 "A railway Union in a railway age"

Up until 1923, South Africa's energy system developed in close relationship with the discovery of diamonds and gold in the late 19th century.[15] The mineral revolution, which started with the discovery of diamonds in the Kimberley region in 1867, followed by the discovery of gold on the Witwatersrand in 1886, unleashed a period of rapid industrialisation and economic change in southern Africa. Electricity generation in this period was decentralised and undertaken by independent power producers and mining houses to service the needs of the mining industry and local authorities (Clark, 1994; Marquard, 2006; Brent Styan, 2015). In the early stages, before the Union of South Africa was established, the supply of electricity was provided by some 40 municipalities (local authorities) and 18 private companies, the most prominent of these private company being the Victoria Falls Power Company (VFPC) (Brent Styan, 2015).[16] Kimberley became the first city in Africa to make use of electric streetlights (at a time when London used gas lamps), and the rapid growth of the city of Johannesburg saw the installation of an electricity reticulation system as early as 1891 (Christie, 1984; Gentle, 2009).

The Union of South Africa came into being on 31 May 1910, eight years after the Boer republics of the Orange Free State and Transvaal made peace with the British colonial power through the Treaty of Vereeniging. The South African War between 1899 and 1902 was primarily a war about the control of the mineral wealth of South Africa (Clark,1994). The political settlement between English and Afrikaners in the white ruling class involved the amalgamation of the Cape Colony, the Natal Colony, the Transvaal, and the Orange River Colony. Though the minerals revolution started in the Kimberley area of the Northern Cape, when the latter was still part of the Cape Colony, most of the province as it is constituted today was far removed from the new centre of political and economic power in the Johannesburg/Pretoria area of the Transvaal, at the heart of the unfolding minerals and energy complex.

[15] I use electricity system and energy system interchangeably and make the distinction only when referring to the source of energy; coal, wind, sun, water etc..

[16] VFPC was formed in 1906 and it was renamed Victoria Falls and Transvaal Power Company Limited 1909. The renamed company was known as VFP

In 1910, the Transvaal legislative assembly passed a Power Act just three days before the Act of Union; this Act sought to balance the economic interests of municipalities, railways and mine owners, with the state playing a minimal role in energy generation (Christie 1984; Clark, 1994). The 1910 Power Act was as a result of a commission of inquiry instituted by the Transvaal administration to address the concerns of producers and consumers but it ended up focusing on VFPC's monopoly and the energy needs of the gold mines (Clark, 1994). That same year (1910), the Cape Government Railways, Natal Government Railways and Central South African Railways were reconstituted under the centralised South African Railways and Harbours (SAR&H).

In the decade after 1910, the role of the state in the electricity supply industry remained limited to one of regulating the industry by offering operating licenses to municipalities and private companies through what were referred to as concessions or undertakings (Marquard, 2006). Local municipalities benefited from the electricity supply industry through the generation and distribution of electricity via sales. The railways, which had been in operation since 1860 when the Natal Railway Company started operating a line In Natal, benefited through conveying coal, and the mining companies benefited through the security of the supply of electricity (Mitchell,2014; Mbem, 2018). According to Christie (1991), the Union of South Africa was "a railway union in a railway age", and railways were a key catalyst in integrating the different sectors of the economy (Christie 1991:593).

At this point, leveraging off the development of the railways, the technopolitics of the time were shaped by struggles over the needs of the agricultural sector and those of the industrial sector, chiefly mining. The key industries in the inland areas of all the provinces of the Union were mines, built on the back of the migrant labour system which developed out of the compound system pioneered in the diamond industry in Kimberley (Allen, 1992). The compound system formed an important component of the migrant labour system. The mines relied on two types of migrant labour: white labour, much of it sourced from Britain, employed in skilled and supervisory levels, and unskilled black African labour sourced from rural areas in southern Africa (Burawoy, 1976). Burawoy argued that for an economy to function, a labour force has to be "maintained and renewed", the latter referring to the filling of any vacancies that get created and the former to the day-to-day subsistence of workers (1976:1052). Under the migrant labour system, Burawoy (1976) argued, these two processes occurred in geographically separate locations. Influenced by their experiences in craft unions in Britain, white workers created a union to protect their positions in the labour market from black African labour (Simons and Simons,1969).

In 1918, in response to the burgeoning need for an efficient railway system, the SAR&H commissioned London-based engineers Merz and McLellan to investigate the feasibility of a socio-technical transition in the railway industry through the electrification of the railway network (Marquard, 2006). The engineers reported that the benefits of railway electrification would be a cut in transportation costs and travel time, and a reduction in wear and tear of railway tracks. The commission's recommendations were taken up by the national government, with railway electrification beginning in 1923 in Natal; this "laid the basis on which the provincial and national grids were built up" (Christie 1984:81).

Railways continued to play an important role in South Africa's industrialisation process, transporting both goods and passengers, until competition from road transport in the late 1970s began to erode its supremacy. In 1981, the SAR&H was renamed the SA Transport Services (SATS). In April 1990, SATS became a limited liability company, Transnet Limited. After 1994, Transnet Limited separated its passenger and goods rail services. The former was assigned to a new state-owned enterprise, the Passenger Rail Agency of South Africa (PRASA) that reports to the Minister of Transport, while Transnet Freight Rail (TFR) is located in the Department of Public Enterprises. In a 2020 article in the media outlet, *Daily Maverick*, Williams argued that this separation "created major operational, safety and accountability problems that had not existed before" (Williams, 2020).

4.1.2 The establishment of Eskom's precursor in 1923[17]

In 1919, Merz and McLellan were commissioned for the second time by the South African government under Prime Minister Jan Smuts to investigate the significance of the electricity supply industry in the country for further industrialisation (Christie, 1984). As with the railways network, Merz and McLellan recommended a centralised system for better control and coordination of the development of the electricity supply industry, in support of the industrial sector (Clark, 1994; Eberhard and Mtepa, 2001). VFPC initially opposed competition from a state-owned company as it threatened its market share and profit margin, while SAR&H and eventually municipalities supported the state's role in the production of cheap electricity, as they would benefit financially (Clark, 1994). In the end the government passed the 1922 Electricity Act which led to the formation in 1923 of the precursor of Eskom, a state utility company called the Electricity Supply Commission (ESCOM), along with a regulatory body,

[17] The following narrative on Eskom's history draws largely on information from the utility's "Heritage" website: https://www.eskom.co.za/sites/heritage/Pages/default.aspx . The history on this website is presented in decades i.e 1923-1929; 1930-1939 etc, and I reference accordingly in the text.

the Electricity Control Board (ECB). Eskom's role as specified in the enabling legislation included:

> The investigation of new or additional facilities for the supply of electricity within any area, and for the co-ordination and co-operation of existing undertakings so as to stimulate the provision, wherever required, of a cheap and abundant supply of electricity (Electricity Act 42/1922: Clause 3(b).)

Eskom's central role in the consolidation of the MEC was well captured by its founding Chairman, Dr van der Bijl:

> There lies before the Electricity Supply Commission a great task and a great opportunity. It will be our endeavour to play our part not as those who follow where others lead, but as pioneers; to foresee the needs of a country fast developing, and by wise anticipation be ever ready to provide power without profit, wherever it may be required (Eskom, nd (1923-1929)).

Eskom was to be funded through private and government loans rather than directly from the fiscus, with its operations under the supervision of the Minister of Mines and Industries (Clark, 1994). The 1922 Electricity Act also gave the Governor General the power to appoint individuals to Eskom's board, and to expropriate undertakings 38 years after the issuing of generation licences, subject to ECB and Eskom approval (Marquard, 2006). The creation of Eskom in 1923 thus positioned the state strategically to control and coordinate the development of the electricity supply industry. The state achieved this by making Eskom a semi-autonomous statutory corporation that was financially and operationally independent of the state but still accountable to the public through parliamentary oversight (Steyn, 2006). Eskom's mandate was to provide the cheapest electricity possible to its consumers: the mines, local authorities and the railways (Marquard, 2006).

To manage the private interest of VFPC and Eskom's long-term objectives, a complex financing and management relationship was entered into. When VFPC made an application to build the Witbank Power Plant, the Chairman of Eskom, Dr van der Bijl, opposed the application on the basis that VFPC did not supply electricity at cost and this could undermine the utility's position in the future (Clark, 1994). To work around the impasse, Merz suggested, at the request of Prime Minister Smuts, that the new power plant should be financed and owned by Eskom but designed, built and operated by VFPC (Clark, 1994). This compromise arrangement formed the basis of a complex relationship between Eskom and VFPC until the latter's assets were finally expropriated by the state in 1948. This relationship would also

inform the relationship between Eskom and coal miners regarding the cost-plus contracts, an issue I return to later in the chapter.

After the formation of Eskom, another core component of the MEC, the steel industry, was set up under the 1928 Steel Act, with railway feedstock playing an important role (Roberts and Rustomjee, 2010). According to Clark (1994), the state's support for the formation of the steel industry was largely influenced by the needs of both the mining and railway industries, and the prospects of job creation for the white working class. According to Christie (1991), Prime Minister Smuts covered a lot of ground in 1922, in managing to convince mining house owners like Ernest Oppenheimer, Lionel Phillips, Solly Joel and Albus to invest in an iron and steel industry which would be supported by the state. The initial investment by the mining houses in the iron and steel industry saw the creation of ISCOR under the Pact government in 1928 (Christie, 1991; Clark, 1994). Although initially subdued, Roberts and Rustomjee (2010) argued that the growth of the steel industry was underpinned by the production of armaments during the Second World War and the expansion of the mining sector in the post-war period. As I show below, under war-time conditions and with the support of the steel industry the manufacturing sector fast-tracked South Africa's industrialisation process, to a point where Eskom struggled to keep up with demand after the war. At all material times, the technopolitics of the time were geared towards South Africa's industrialisation and the narrow pursuit of sectorial interests in mining, railway, energy, manufacturing, with the social and economic benefits distributed along racial lines.

The key players driving the MEC in this time – the state, foreign capital and the white ruling elite – were able to use technology to institute a technopolitical regime predicated on the exploitation of black workers via the migrant labour system, with a racialised colour bar that reserved certain jobs and positions for white workers. There were moments when this technopolitical regime was disrupted, for instance, during the First World War, when there was a shortage of labour because some men had enlisted. To fill this gap the Chamber of Mines "relaxed" the colour bar and allowed black African men to fill position previously reserved for white men (Clark, 1994). With the end of the First World War, the allocation of white labour was "distorted" while a sharp decrease in the price of gold in 1921 led to a decrease in mineworkers' wages (Allen, 1992; Clark, 1994). The discontent among white mine workers led to the 1922 Rand Revolt (Allen, 1992). This strike shifted the political landscape and led to the Smuts government losing the elections to General Hertzog's Pact Government. To reward the white working class, the Pact Government passed the Industrial Conciliation Act of 1924, an Act that recognised white workers as employees and recognised white trade unions in the workplace but excluded black African workers (Allen, 1992; Terreblanche 2012).

The Industrial Conciliation Act of 1924, together with earlier pieces of racist and discriminatory legislation such as the Mines and Works Act of 1911, the Native Labour Regulation Act of 1911 and the Natives Land Act of 1913, was a major blow for black workers' rights as it legally entrenched a dual industrial labour system (Mashayamombe, 2018).

4.1.3 The migrant labour system

The migrant labour system was the invention of mining houses, supported by national legislation passed to address questions of labour control and profit maximisation. The system is a representation of the way that the labour market was socially regulated through the process of incorporation; allocation, control and social reproduction (Peck, 1996). It involved black African men, squeezed by a combination of conquest, dispossession and coercion (including taxation), leaving their homes in reserves and communal lands within South Africa and neighbouring countries to work in the mines and factories in South Africa's economic centres. Their incorporation into the labour market was facilitated by various recruitment agencies, including the Rand Native Labour Association (later replaced by the Witwatersrand Native Labour Association (WNLA or Wenela)) and The Employment Bureau of Africa limited (TEBA) which emerged in 1900 as ''capital's frontline institution for securing labour's compliance to the mine workplace regime'' (Forrest, 2013:5; see also Mashayamombe, 2018). During the colonial and apartheid periods mine compounds became a site of both control and resistance (Bezuidenhout & Buhlungu, 2010; 2010; Moodie, 1994).

Building on earlier analyses by Wolpe (1972) and Legassick (1974), Burawoy (1976) argued that the analysis of the migrant labour system in South Africa has to be grounded in the "historically concrete circumstances of the articulation of different modes of production and the corresponding superstructures". In this analysis the migrant labour system "entails a dual dependence upon employment in one place and an alternate economy ... in another ..." (Burawoy, 1976:1050). The two economies in question are the capitalist economy and the subsistence economy in the reserves, the latter responsible for social reproduction involving the labour of women, with the help of children, and remittances from the capitalist economy. For Moodie (1994:23) the migrant labour system is a "particular organisation for the appropriation of surplus value" within the gold mining industry. Regardless of the industry within which the system was implemented, there is no dispute among scholars that the migrant labour system cheapened black African labour, and disrupted family structures.

More recently Alexander (2001, 2008) has considered the migrant labour system in the context of the coalfields of Natal and the Transvaal, which feed most of Eskom's coal-fired power stations. He points out that on the Natal and Transvaal coalfields, the labour system involved settled labour, in contrast to the oscillating migrant labour system in the gold industry. His account thus differs from the one taken by Wolpe (1972), Legassick (1974), Burawoy (1976) and Moodie (1994). An oscillating migrant is the worker described by Burawoy (1976), who leaves home to work elsewhere for a prescribed period and returns when the employment contract ends. A settled migrant on the other hand, is a worker who has moved from his place of birth in pursuit of economic opportunities and settles elsewhere. This new place of residence is where social reproduction occurs. Alexander contends that the level of agency exercised by settled and oscillating migrant workers is different, and this influences the level of control that can be applied to them.

Notwithstanding the similarities in both the gold and coal industries with regard to pay and work condition, Alexander's analysis challenges the cheap labour theory with regard to the coal industry, since colliery owners encouraged black workers to settle with their families close to the colliery: they therefore did not depend on the alternative economy elsewhere. In section 4.2.3 below I consider the agency of Eskom employees who are not mine workers but settled power plant workers and the implications for the transition to a low-carbon economy. Here it is also worth noting that in the Karoo regions of the Cape Colony, for reasons explored in Chapter Six, the migrant labour system did not take hold.

4.2 The consolidation of Eskom, 1948 – 1970

So far in this chapter I have covered key developments in South Africa's industrialisation process starting with the discovery of diamonds. This section covers Eskom's market consolidation in the electricity sector by becoming a vertically integrated monopoly in 1948, the year that also saw the start of the apartheid era.

4.2.1 Becoming a vertically integrated state enterprise in 1948

The Second World War (1939-1944) led the white ruling elite in South Africa under Jan Smuts and the United Party to rethink the role of the state in directing the economy in general, and key state-owned enterprises in particular (Christie, 1991; Clark, 1994). The architect of South Africa's state-owned enterprises, Dr van der Bijl, who was the founding chairman of Eskom,

ISCOR and the Industrial Development Corporation (IDC) (established in 1940), was made Director General of War and Supplies in 1939 and Director of Supplies in 1943 (Christie, 1991). Christie argues that in these powerful positions Dr van der Bijl operated with the industrialisation of South Africa beyond the war in mind, because he thought of war production as a catalyst in the country's industrialisation process. As the Director of Supplies, he controlled the production of both civilian and war goods and services (with the exception of petrol, food and labour) as well as imports and export (Christie,1991). In a letter to Smuts he wrote of how he envisaged war conditions making possible "extensive industrial development according to a carefully considered and comprehensive plan, in which all the components fit in such a way as to effect complete rationalization of your industrial activities and so avoid national economic waste" (Dr van Der Bijl, quoted in Christie 1991:606).

Dr van Der Bijl's did not live long enough to see the success of his vision. During the war years delays in the supply or outright cancellation of replacement equipment for its power plants forced Eskom to think differently regarding energy supply security (Clark, 1994). In documents on the Eskom Heritage website the utility's third decade since its formation (1940-1949) is referred to as *The years of suffering – "Into the darkness"* (Eskom, 1940-1949). After the war, the mines, the country's biggest electricity consumers, began to suspect that the VFPC was overcharging them for electricity (Clark, 1994), while Eskom's expansion efforts reflected the desire to exit from "darkness" by ensuring the security of supply in a context of increased energy demand by the industrial sector. On the socio-political front, Smuts's government was also facing a policy stalemate regarding racial segregation in a context of rapid African urbanisation. While full integration was not on the cards, two opposing positions were placed before the white electorate. On the one hand, D.F Malan's National Party (NP) (the *Herenigde Nasionale Party*) was pushing an Afrikaner nationalist agenda that advocated more aggressive segregationist policies and on the other hand, Smuts's United Party was presenting a more pragmatic approach, accepting African urbanisation as a fact and total segregation as unsustainable (Clark, 1994).

The economic goal of Afrikaner nationalism, which was tied to its political goal, was to increase the Afrikaner share of the commanding heights of South Africa's economy (Giliomee, 1979; O'Meara, 1996). Political power was important to achieve this economic goal and African urbanisation threatened the job security of the white working class (Giliomee, 1979; O'Meara, 1983). The fiercely contested national election of 1948 was won by the NP because of the Westminster constituency system in place, which gave it a majority of parliamentary seats even though the United Party received a majority of the votes cast (White, 1989). O'Meara (1996) contends that "the NP accession to office struck pure terror in the hearts of most

anglophile businessmen", given its anti-capitalism campaign and "overt intention to promote purely Afrikaner interest against the predominant economic power centers [of white English speakers] (O'Meara, 1996;139).

The advent of the apartheid era under the NP after 1948 marks a serious turning point in South Africa's history. However, the 1948 political shift did not affect Eskom's core mandate of providing cheap electricity. In pursuit of this the utility pushed for the expropriation of VFPC assets, which Dr van der Bijl had argued for, on the grounds that in the long run this would benefit customers, the biggest of which were the gold mines.[18] Based on his calculations Ernest Oppenheimer, Chairman of the multinational Anglo American Corporation, urged the expropriation to be expedited (Clark, 1994). Anglo American Corporation, which had started in the gold sector in 1917, also had interests in the diamond industry, through De Beers, and the coal industry through Coal Estates (Thompson, 2020). In 1945, the Anglo American Corporation acquired African and European Investment Company, a company that was Iscor's primary coal supplier and owned most of the collieries supplying coal to power stations in Witbank and Vereeniging. The multinational mining company was also the biggest consumer of electricity at the time.

Oppenheimer offered some shrewd advice to Eskom on the issue of expropriation: "Make an offer to the shareholders [of VFPC] at a price slightly above the ruling market price: I have a hunch that this would be cheaper than dealing with [Bernard] Price" (Eskom, nd (1940-49)).[19] In the end, an agreement was reached on 1 July 1948 and Eskom bought VFPC's assets for 14.4 million pounds, with the financial support of Anglo American Corporation which contributed 8 million pounds (Clark,1994). At the time, this was the largest financial transaction in South Africa (Steyn, 2006). Table 4.1 below shows the power plants Eskom acquired.

The acquisition of VFPC's assets transformed Eskom into a vertically integrated state monopoly overseeing electricity generation, transmission, and distribution (Gentle, 2009). In 1949 Eskom's chief engineer, Albert Jacobs, took over the reins at the utility as its Chairman. At the time the utility's most pressing challenges were meeting strong industrial demand within South Africa and dealing with worldwide shortages in plant equipment (Eskom, nd (1940-49)). To deal with the first challenge, which was concentrated in the Witwatersrand, the Chamber of Mines had discussions with Eskom around measures to mitigate for unplanned outages and load shedding (Steyn, 2006). Eskom also embarked on an ambitious expansion

[18] Dr van der Bijl died suddenly in 1948 with little expectation that his plans would be successful (Clark, 1994).
[19] Price was the General Manager of VFPC and Chief Engineer in the company.

programme which was financed through a loan by the International Bank for Reconstruction and Development (Eskom, nd (1940-49)).

Table 4.1: Eskom and VFPC power stations as of July 1948

Eskom's power plants	**VFPC power plants**
Malieveldspruit hydro (1925)	Brakpan
Witbank (1926)	Simmerpan
Vaal (1938) Orange Free State	Rosherville
Congella (1938) Durban	Vereeniging
Klip (1940)	Robinson Central
Hex River station (1946)	Vaal power station
West Bank (1946)	Canada Dam
	New Modder Mine
	Modder B Mine

(Source: Eskom, nd (1940-1949))

4.2.2 The 1950s: the years of growth

In Eskom's fourth decade (1950-1959), which the utility regarded as *"The years of Growth – The wonder years",* the utility commissioned eight new power stations. This resulted in a major expansion in its total generating capacity which grew by 170% between 1945 and 1959 (Eskom, nd (1950-59)). This increase is mainly attributable to the acquisition of the VFPC assets (which included their workforce) and the utility's expansion programme.

In the 1950s the mining and steel sectors remained the utility's most significant customers. By 1960 Anglo American and Iscor accounted for 71% of all of Eskom's sales (Clark, 1994). However in this time Eskom also established the Rural Electrification Department to supply electricity to small consumers outside municipal supply areas which involved extending the transmission lines into the white farming areas (Eskom, nd (1950-59)). These small consumers were mainly white farmers who were politically significant for the ruling NP. In the Northern Cape, the Northern Cape Development Association, an alliance between white farmers, businesspeople and the diamond company, De Beers, had been lobbying the government for such an undertaking in the province and in 1951 it was established (Conradie & Messerschmidt 2000:110; Christie 1984:154 quoted in Marquard, 2005). Rural electrification initiatives were done "only if it could pay for itself" through cross-subsidisation, assisted by an amendment to the Electricity Act which allowed the designated Minister to direct Eskom to supply electricity below cost to certain jurisdictions (Marquard, 2006:151). In Loeriesfontein, an electricity supply scheme which only served the white areas of the town was completed in 1960; it was only extended to the coloured area of the town in 1985 (Davids, 2021).

Globally, the 1950s saw growing interest in the pursuit of nuclear energy for peaceful means after the USA's Atomic Energy Commission proved that it was possible to generate electricity using uranium for fuel (Marquard, 2006). The confirmation of significant deposits of uranium in South Africa in 1944 led to the country being included in a USA-UK nuclear weapons programme as a key supplier of the mineral.[20] In the mid 1970s, with the help of France, Eskom build the first and currently only nuclear power station on the African continent, at Koeberg outside Cape Town (Marquard, 2006). In the late 1940s the state, through the IDC, also established Sasol as well as the Phosphate Development Corporation (Foskor) (Clark, 1994). Sasol, which manufactures liquid fuels from coal, consolidated the strength of the energy sector in the MEC; it's capacity was expanded in response to the oil embargo in the 1970s.

Eskom's rapid rate of expansion which started in the 1950s came at a human cost. In 1960, 435 coal miners lost their lives in the Coalbrook mine disaster, still considered the worst mine disaster in South Africa's mining history (Cobley, 2020). The disaster was due to the collapse of underground pillars at the Coalbrook mine in the Northern Free State (van der Merwe, 2006). The mine had been awarded a contract in 1950 to supply coal to the new Taaibos power station, starting from 1954 (Schauffer, 2018). This was in terms of an arrangement between Eskom and coal suppliers to ensure security of supply, whereby Eskom would contribute to the initial costs of sinking new coal shafts and subsequent operational costs, in return for mining companies dedicating their coal reserves to Eskom. Collieries awarded contracts with Eskom along these lines were known as Cost-plus mines. In the case of Coalbrook, the Taaibos power station had required the mine to increase its production from 1 600 tonnes per day to 10 000 (van der Merwe, 2006). The mine engineer hired by Eskom to evaluate the possibility of this new target cautioned that "competent planning, electrical equipment and organisation would be necessary if the greatly increased output were to be maintained safely" (quoted in Schauffer, 2018).

The aftermath of the tragedy also brought to the fore the racially discriminatory compensation regimes in place in terms of the Workmen's Compensation Act. According to the Act, a white worker who was totally disabled "received a lifelong pension equal to seventy-five per cent of his monthly earnings" while a black worker in the same position "was entitled to no more than

[20] Uranium was first discovered in South Africa in 1915 but it was only in 1944 that a study by the Chemical, Metallurgical and Mining Society confirmed that the country had significant amounts.

a lump sum of £150 – the equivalent of a pension for only three and a third years in the case of a worker earning £60 a year" (Simons and Simons, 1969: 534).

4.3 The years of expansion and change: 1970-1994

By the 1970s Eskom had consolidated its place within the MEC. The utility's expansion programme benefited the mining and manufacturing sectors, with the former seeing an increase in profits after the USA went off the gold standard in 1971, on the back of South Africa introducing the Rand as its currency in 1960 (Clark, 1994). In the manufacturing sector, Anglo-American Corporation established Highveld Steel and Vanadium in the 1960s while Iscor rapidly expanded its Newcastle and Vanderbijlpark works in 1969 and 1970 respectively (Roberts & Rustomjee, 2010). The process of capital accumulation was also facilitated through Afrikaner Economic Empowerment deals (Xaba, 2020; Terreblanche, 2012). However, Eskom's time of expansion and consolidation faced some headwinds. Internationally, South Africa was starting to be isolated due to gathering condemnation of its apartheid policies. Domestically the NP government was facing the rise of increasingly militant trade union movement, beginning with the Durban Moment in 1973 when at least 60 000 black workers went on strike against their low wages. Eskom feared that it would run out of power and at the same time it had to finance its own growth.

The following sections lay out the conditions leading up to Eskom's first crisis that led to a commission of inquiry.

4.3.1 The expansion of power stations

In its sixth decade, described by the utility as *"The Years of Consolidation"* in which *"Demand for electricity soars*" (Eskom, nd (1970-79)), Eskom's senior management took a conscious decision to make coal its "holy grail" and position the utility as a world leader in this space. They also took the decision to build new power stations adjacent to coal mines and provide capital for the development of these mines (the Cost-plus mines already described). Eskom's engineers were encouraged to improve power plant technology to accommodate South African coal, resulting in the so called "six-pack" power stations featuring "dry cooling combustion technology … adapted to burn high-ash, low calorific value coal" (Marquard, 2006; Steyn, 2006; Eskom, nd (1970-79)). To fund the expansion programme without access to capital markets (due to South Africa's growing political isolation, as international opposition to

the country's apartheid policies gathered momentum), the utility established the Capital Development Fund (CDF) in cooperation with the regulatory board (Marquard, 2006). The programme was also helped by the fact that in the early 1970s all Eskom's regional undertakings were integrated to form a single national electricity grid (Marquard, 2006; Steyn, 2006).

In the 1970s alone Eskom built eight power stations: four base-load power plants, two peaking power stations and two renewable energy hydro power plants (Eskom, nd (1970-79)). (See Table 4.2.) The annual growth in electricity demand during Eskom's sixth decade was almost 9%, which Eskom projected could be met through its expansion programme (Eskom, nd (1970-79)). However, as previously mentioned, the global economy started to lose steam in the 1970s; geopolitically, the Portuguese lost political power in neighbouring Mozambique, threatening plans to complete the Cahora Bassa hydro scheme. The South African government and Portuguese plans of damming the Zambezi River in the north of Mozambique committed South Africa to buying electricity from Mozambique starting from 1975 (Steyn, 2006; Eskom, nd (1970-79)). In South Africa, the 1970s and 1980s saw a rise in inflation that reached a peak in 1986, at 19.7% (Mybroadband, 2020).

Table 4.2: Eskom's power stations built between 1971 and 2004

Name of station	**Location**	**Year of commission-first to last unit**	**Number and installed capacity of generator sets MW**	**Total installed capacity MW**	**Total nominal capacity MW**
BASE-LOAD STATIONS (11)					
Arnot	Middleburg	Sep 1971 to Aug 1975	1x370; 1x390; 2x396; 2x400	2 352	2 352
Duvha 6	Emalahleni	Aug 1980 to Feb 1984	6x600	3 600	2 875
Hendrina 2,6,7	Middleburg	May 1970 to Dec 1976	5x200; 3x195; 1x168, 1x170	1 728	1 293
Kendal 3	Emalahleni	Oct 1988 to Dec 1992	6x686	4 116	3 840
Kriel	Bethal	May 1976 to Mar 1979	6x500	3 000	2 850
Lethabo	Vereeniging	Dec 1985 to Dec 1990	6x618	3 708	3 558
Majuba 3	Volksrust	Apr 1996 to Apr 2001	3x657; 3x713	4 110	3 843
Matimba 3	Lephalale	Dec 1987 to Oct 1991	6x665	3 990	3 690

Matla	Bethal	Sep 1979 to Jul 1983	6x600	3 600	3 450
Tutuka	Standerton	Jun 1985 to Jun 1990	6x609	3 654	3 510
Koeberg	Cape Town	Jul 1984 to Nov 1985	2x970	1 940	1 860
PEAKING STATIONS GAS/LIQUID FUEL TURBINE STATIONS (4)					
Acacia	Cape Town	May 1976 to Jul 1976	3x57	171	171
Port Rex	East London	Sep 1976 to Oct 1976	3x57	171	171
PUMP STORAGE SCHEMES (2)					
Drakensberg	Bergville	Jun 1981 to Apr 1982	4x250	1000	1000
Palmiet	Grabouw	Apr 1988 to May 1988	2x200	400	400
HYDROELECTRIC STATIONS (2)					
Gariep	Norvalspont	Sep 1971 to Mar 1976	4x90	360	360
Vanderkloof	Petrusville	Jan 1977 to Feb 1977	2x120	240	240
Total Generation Group power station capacities: 35 463 MW					

(Source: Eskom, 2004)

Eskom's expansion programme raised environmental issues which were largely ignored by government due to lack of state regulation on industrial emissions at the time (Singer, 2010). Despite making technological advances on coal-fired power plants, Duvha Power Station, one of the six-pack power stations, had boiler problems that meant it did not meet acceptable emissions levels. This pollution problem was only solved in 1984 when the offending units were retrofitted with "pulse jet fabric filter plants – a world first" (Eskom, nd (1970-1979)). Duvha Power Station was constructed as back-up to the Cahora Bassa hydro scheme (Steyn, 2006).

According to Singer (2010), the acceptable emissions level were guided by the Atmospheric Pollution Prevention Act (APPA), South Africa's first major legislation on air pollution which was passed in 1965 after two decade of debate over the scope of its mandate (Singer, 2010). Singer argues that the APPA changed the legal control of the environment, turning local and national authorities into regulatory bodies. However, the regulatory powers of local authorities in Witbank were curtailed by the fact that power stations were classed as "schedule of noxious industries", falling under the control of the Chief Officer and outside the reach of local authorities (Singer, 2010:107). According to Singer, the implementation of the APPA was enhanced by the establishment of a National Air Pollution Advisory Committee which

supported the gradual implementation of the Act "as the most effect way of adopting to shifting environmental conditions" (Singer, 2010:108). Environmental issues associated with coal-fired power stations would again feature in the 1980s, with the establishment of the De Villiers Commission.

4.3.2 Tariff increases and the De Villiers Commission (1983)

Against the backdrop of the power plant expansion programme and strong energy demand, in Eskom's 6th decade the cost of electricity started to increase faster than inflation (Conradie & Messerschmidt 2000; Marquard, 2006). The economic sanctions being imposed on South Africa to signal mounting international opposition to its apartheid policies introduced another dynamic. Between April 1976 and January 1977, Eskom announced three tariff increases of 15%, 13% and 25% respectively, so that by 1977 consumers were paying 166% more for electricity than in 1971 (Eskom, nd (1970-1979)); Steyn, 2006).

Further sharp tariff increases in 1981, 1982 and 1983 received government attention (Steyn, 2006). Following the 1983 announcement of tariff increases, Eskom was summoned by then Prime Minister PW Botha to explain itself (Steyn, 2006). Eskom's Chairman, Jan Smith, thought that the meeting went well. However, without consulting the utility's management, PW Botha appeared on national television to announce that the tariff increase would be adjusted downwards from 16,7% to 14,5% (Steyn, 2006). In 1983 the NP government also instituted a Commission of Inquiry into "The Supply of Electricity in the Republic of South Africa". Known as the De Villiers Commission after its Chairman, the Commission's brief was to investigate the issue of electricity tariffs, planning, plant performances and the role of the ECB, the regulator.

The De Villiers Commission made six significant recommendations aimed at containing costs that affected Eskom's governance and management structure, its investment decisions, accounting practices and electricity forecasting methodology into the post-apartheid era. These were:

1. Eskom should adopt a two-tier management structure made up of an Electricity Council of stakeholders and a Management Board to run the operational side
2. Eskom should play a leading role in electricity conservation to maximise efficiency and minimise capital requirements
3. Eskom should maximise plant availability, and reassess safety and environmental standards to investigate cost cutting measures

4. Eskom should change its forecasting techniques, improve consultation with consumers and develop a more flexible expansion programme which could be easily expanded or contracted
5. Eskom should abandon its "neither at a profit nor loss" principle and adopt orthodox accounting principles
6. Eskom should abandon the concept of "undertakings" and adopt a concomitant diversification of a cost-reflective tariff structure (Republic of South Africa, 1984:15-18).

The implementation of the De Villiers Commission recommendations by Eskom helps account for why the utility survived the political transition in 1994, while other state-owned companies like Iscor and Sasol were privatised.

4.3.3 Eskom's survival strategy

This section deals with the implementation of the De Villiers recommendations in relation to cost containment and managing Eskom's work force. At a time when the global trend was towards countries liberalising their state-owned power utilities, Eskom and the apartheid state moved in a different direction by retaining state control with a restructured management system. Recommendation 1 of the De Villiers Commission was implemented through two pieces of legislation in 1987: the Electricity Act (41/1987) and the Eskom Act (40/ 1987). Clause 24 of the Eskom Act exempted the utility from paying any dividends and taxes, made provision for a new institutional structure, changed the official name of the utility from ESCOM to Eskom and renamed the ECB the National Electricity Regulator (NER).[21] The implementation of the two-tier management structure split responsibilities between the Electricity Council, constituted by stakeholders to formulate general electricity policy, and a Management Board to run the operational side (Marquard, 2006).

Established in 1985 by Cabinet, the Electricity Council included government bureaucrats, independent experts and representatives of the Energy Intensive Users Group (Marquard, 2006). Johan Maree was appointed as its head while Ian McRae became CEO. Maree was a prominent member of the new Afrikaner business elite, who had previously been CEO of the state-owned arms manufacturer, Armscor (at the request of Prime Minster P.W Botha), with the brief to place it on a commercial footing. This was now what he was expected to do at

[21] Upon his retirement from Eskom in 1994, McRae was appointed Chairman of the National Electricity Regulator.

Eskom (Marquard, 2006). McRea had joined Eskom in 1947 as an apprentice fitter and risen through the ranks to management level. These developments meant that responsibility for electricity policy now lay with the Electricity Council and Eskom itself could no longer set electricity prices unliterally. Moreover, Eskom now reported to the Minister of Public Enterprises, not of Energy, as had been the case before (Marquard, 2006). The inclusion of members of the Energy Intensive Users Group in the Electricity Council is indicative of their power within the MEC.

The91doptionn of the fifth and sixth recommendations of the De Villiers Commission required Eskom to adopt orthodox accounting principles and a cost-reflective tariff structure. However, it was argued that even with a cost-reflective tariff structure, consumers were privileged since "electricity is a basic ingredient of development and progress" and "the community would benefit if it were made available as cheaply as possible to consumers and prospective consumers" (Republic of South Africa, 1984:192). Practically, the cost containment measures were addressed by Eskom's new management team by drastically reducing the utility's workforce. As shown in Table 4.3 below, by 1990 Eskom had 50 000 employees (down from 66 000 in 1985). By the end of 1996 the utility had 39 952 employees. To manage its workforce Eskom established an "Opportunity Committee" in 1986 with a mandate to investigate and remove discrimination in its policies (Eskom, nd (1980-89)). During this time Eskom also started training and upskilling black workers and future employees.

Eskom's new management were alive to the possibilities of political change – by the late 1980s it saw the challenge of an ANC government-in-waiting beyond the engine room. Marquard (2006) argues that in response the utility devised a two-prong strategy, the first prong to benchmark Eskom against other utilities internationally, and the second to put forward a price compact. The latter involved a 9% price increase in 1991, with a commitment to reduce electricity prices by a cumulative 20% over five years (Davis, 1997; Conradie & Messerschmidt 2000; Marquard, 2006). The 1991 price compact was tied to a mass electrification programme aimed at black households that Eskom embarked on in 1987 under the slogan "Electricity for All" (Marquard, 2006). The survival strategy was thus based on a quid pro quo: Eskom would expand the electrification programme and reduce the cost of electricity but politicians would have to stay out of the engine room. In reflecting on these developments in an interview with me in 2018, energy analyst Chris Yelland credits McRea's foresightedness for Eskom's survival strategy:

> Ian McRea could see the writing on the wall, and realised that, unless Eskom started serving the under-served population, when the new government [ANC] took over,

> Eskom would be dismantled. He realised that. And I believe that was a survival strategy, as well as an ethical strategy, but I think it was probably only a survival strategy, I mean that's what managers are supposed to do, to look after the survival of the business. … So, he embarked on a policy called electricity for all. He convinced the board to start a major electrification programme in black townships as well as the rural areas … as a matter of survival. It was going to cost a lot of money, it was probably never going to be economically justified, but from a social and political imperative it was critical for the survival of Eskom as it was structured then (interview, 4 June 2018).

4.3.4 Eskom's changing workforce and the rise of COSATU

Compared to other companies Eskom was leading the pack in terms of reforming industrial relations as early as the 1970s, before the De Villiers Commission. For example, in 1972 all hourly paid Eskom employees were converted to employees receiving monthly salaries. Although at the time this change affected mostly white employees, the importance of the principle cannot be underestimated considering the limited organisational rights black workers had at the time (Eskom Annual Report, 1972). Moreover, in 1978 Eskom introduced the Patterson job evaluation system, which grades jobs and pay grades hierarchically in terms of the level of decision-making involved (Chinguno, 2015). In the early 1980s, Eskom also considered employing black people in "traditionally white occupation and sharing of facilities" (Eskom, Annual Report, 1983:24).

By 1984, Eskom's workforce had reached 64 560. Employee numbers peaked at 66 800 in 1986 before slowly declining to just under 40 000 in 1990. (See Table 4.3 below.) The decline was in part due to the implementation of the De Villiers Commission's recommendations with little resistance from organised labour on its early years of formal industrial rights. By 2019, the number of Eskom employees had increased from the 1990 levels but was still significantly smaller than in1986 (Eskom, Annual Results, 2019).

Table 4.3: Growth of Eskom's workforce, 1948-1990

Years	**1948**	**1954**	**1960**	**1966**	**1972**	**1978**	**1984**	**1986**	**1990**
White	108	4 366	5 413	6 455	9 566	14 896			
Coloured and black	1 605	7 951	9 241	12 124	17 371	25 655			
Total	2 692	12 317	14 654	18 579	26 937	40 550	64 560	60 800	39 952

(Source: Eskom Annual Reports, 1948-1996)

The changes mentioned above have to be contextualised in relation to the 1970s, a time of political ferment and labour unrest. Following the 1973 Durban strikes and the 1976 Soweto uprising, the apartheid state established a Commission of Inquiry into Labour Legislation, popularly known as the Wiehahn Commission. This was followed by the Riekert Commission to investigate the system of influx control designed to control the movement of black Africans. Both Commissions were instituted against the backdrop of rising strike action and urban unrest in response to the harsh socioeconomic conditions black workers and communities were facing (Southern African Labour and Development Research Unit (SALDRU), 1979). The Wiehahn Commission reported that labour law and labour practices in South Africa were drifting in opposite directions, with the dual industrial relations system failing to adjust to the movement of black African workers into semi-skilled jobs alongside Asian, coloured and white workers (SALDRU, 1979). The implication of the dual industrial system was that employers often had to negotiate separately with employees doing the same work, in the same factory, through worker committees for black African workers and industrial councils for the rest. One of the Commission's recommendations was to incorporate black African trade unions into the country's industrial relations system, as a way of controlling them institutionally while preventing unions from having ties with political formations (SALDRU, 1979). This was done through legislation that prevented formal links between trade unions and political parties (Habib and Valodia, 2006).

The recommendation from both Commissions paved the way for the formation of the Congress of South African Trade Unions (COSATU) in December 1985. Four federations – the Council of Unions of South Africa, the Federation of South African Trade Unions, the Azanian Congress of Trade Unions and the South African Workers' Union – amalgamated to form the most powerful workers' federation in South African history (Twala and Kumpi, 2012). Between 1985 and 1991 COSATU's membership increased from 462 359 to 1 258 853 (Macun and Frost, 1994). It was dominated by two unions: the NUM and NUMSA. Formed in 1982, NUM was COSATU's biggest union affiliate until 2012. NUMSA was formed in 1987 when four different unions in the metal and motor industries merged.

In 1991, after the unbanning of the ANC and South African Communist Party (SACP) by the apartheid government, COSATU entered into a formal Alliance with these parties (henceforth the Alliance). In the lead-up to the 1994 general elections, the ANC's mobilisation efforts relied on COSATU's organisational structures and access to the factory floor (Buhlungu, 2005). Until 2017, every Secretary General of the ANC after its unbanning in 1990 has been a former trade

unionist, all of them from the NUM.[22] Just as General Hertzog's Pact government rewarded its white working-class supporters by passing the Industrial Conciliation Act of 1924, so the ANC government passed the Labour Relations Act of 1995 after it came into power, to level the playing field and consolidate black workers' rights and gains. Here it is worth noting that black African workers received their industrial rights 15 years before the extension of political rights in 1994.

4.4 Eskom and the post-apartheid state, 1994-1995

It is against this history that the major struggles over Eskom and the just transition in the post-apartheid have to be understood.

In the transition to democracy the role of state-owned enterprise created a dilemma for the new ANC-led government. At the time they were viewed with suspicion by the ANC as part of the apartheid bureaucracy responsible for the country's regressive social policies. The ANC was inheriting a deeply unequal society; a major economic question which confronted it was how to extend the social benefits that had flowed from the state-owned enterprises to the historically disenfranchised, in a context of globalisation and the dominance of free market ideology. Within the Alliance, the question was what the role of state-owned enterprises should be in the transformation of society as a whole. These questions are explored in this section which looks at the debates over macroeconomic policy and Eskom's role in post-apartheid South Africa. These had major implications for energy policy and debates on South Africa's energy mix after 1994, which are reviewed in the next chapter.

4.4.1 Debates on privatisation and nationalisation: From RDP to GEAR

In 1994 the ANC won the South African national election with its "Reconstruction and Development Programme" (RDP) manifesto, which it described as "an integrated, coherent socio-economic policy framework" which "seeks to mobilise all our people and our country's resources toward a final eradication of the results of apartheid and the building of a democratic, non-racial and non-sexist future" (ANC, 1994: 4). The RDP manifesto envisaged a redistributive programme that placed the state at the centre of South Africa's post-apartheid

[22] Secretary General is the most powerful position in the ANC. In 1991, Cyril Ramaphosa, founding general secretary of the NUM, was elected to this position. He was followed by Kgalema Motlanthe and then Gwede Mantashe, both former NUM General Secretaries.

development and industrialisation strategy (ANC, 1994). Six basic principles underpinned its political and economic philosophy: 1) an integrated and sustainable programme; 2) a people-driven process; 3) peace and security for all; 4) nation-building; 5) linked reconstruction and development; and 6) the democratisation of South Africa (ANC, 1994). These translated into five broad programmes: meeting basic needs; developing human resources; building the economy; democratising the state and society; and implementing the RDP (ANC, 1994). Key to the RDP's aim of integrating "growth, development, reconstruction and redistribution into a unified programme" was an infrastructural programme that would "provide access to modern and effective services like electricity, water, telecommunications, transport, health, education and training for all our people" (ANC, 1994:10). The initial focus was thus on meeting basic human needs and thereby opening up previously suppressed economic and human potential in urban and rural areas. At that stage the coal-fired basis of electricity was not an issue and environmental concerns were low on the list of priorities.

Although it won a commanding majority, the ANC fell shy of the two-thirds majority required to introduce wholesale changes to the 1993 Interim Constitution which had made provision for the establishment of a transitional Government of National Unity (GNU). The GNU, which was in place from 27 April 1994 to 3 February 1997, was led by the ANC, with Nelson Mandela as president and Thabo Mbeki and F.W de Klerk as deputy presidents. Key ministries responsible for the core sectors of the MEC and the functioning of the country's economy, including Minerals and Energy, Finance, and Constitutional Development and Provincial Affairs, went to the NP. These ministries were of strategic importance for safeguarding the economic interests of the white minority.

Flowing out of the policy debates that predated the transitional period (1990-1994), the GNU was confronted with the issue of the privatisation of state-owned enterprises. The context for this was different from that which had previously confronted the apartheid government (Fine, 1995). For the latter, Fine argues, the privatisation question was not a neutral policy choice between private or public ownership, but, rather, was a product of and in response to the crisis in which the apartheid system found itself. Given the realisation that apartheid could not be sustained politically, there were economic motives for privatisation within the apartheid government: firstly, to raise revenue in the face of economic sanctions and disinvestment and secondly, to strengthen the position of corporate capital, more particularly its Afrikaner components. In the GNU, on the other hand, the question of privatisation was re-introduced by the ANC because of its need to finance the RDP (Fine, 1995). To achieve this, the Mandela administration faced two broad options: access the capital markets by adjusting the

macroeconomic policy to reflect prevailing economic orthodoxies or privatise state-owned enterprises and risk antagonising organised labour.

These early debates on privatisation are essential for understanding emerging tensions between the ANC government and its Alliance partners (the SACP and COSATU) which informed subsequent debates on the need for the country to transition to a low-carbon economy. In the mid-1990s the shifts in broader macroeconomic policy were putting the members of the tripartite Alliance on a collision course with each other. However, before these debates gained any real traction the NP withdrew from the GNU in June 1996, a week after the adoption by Parliament of the country's final Constitution.[23] This was on the grounds that "the constitution contains no provision for the continuation of any form of joint decision making in the executive branch," and the NP's "influence within the GNU has been declining" (de Klerk, 1996).

The withdrawal of the NP from the GNU was followed by the government's replacement of the RDP with a new macroeconomic strategy, the Growth, Employment and Redistribution (GEAR) policy. GEAR is a neoliberal macroeconomic policy that calls for reducing budget deficits, inflation control, stable exchange rates, reduction of tariffs to remove trade barriers, capital liberalisation, and the privatisation of state-owned companies, including Eskom. Then Minister of Finance, Trevor Manuel, argued that GEAR gave effect to the RDP's objectives "in the context of a rapidly globalising and highly competitive international environment" (Manuel, 1997:5). However, in GEAR the role of the state is seen as limited and it is the market that guides development, including resource allocation. This represented a significant shift away from the redistributive ethos of the RDP.

The manner in which GEAR was introduced also undermined one of the basic principles of the RDP, that it was a people-driven process. Political analyst Richard Calland described the introduction of GEAR as the "greatest policy shift in the history of the ANC, and neither COSATU nor the South African Communist Party (SACP) were informed let alone consulted" (2006:144). Even though the shift to GEAR occurred under Mandela's presidency, COSATU and SACP attributed this to Mbeki's administration and have coined it the "1996 Class Project". Webster (2001) and Buhlungu (2005) both argue that this shift heightened tensions in the Alliance around the role of the state in the development of the county. COSATU rejected GEAR in a statement released on 19 July 1996:

[23] The withdrawal of the NP did not immediately end the GNU.

> These conservative models are not going to bring about the envisaged creation of new jobs, nor going to deliver the social needs of our people. At the most it [GEAR] will increase the gap between the poor and the rich, and condemn the homeless and jobless into extreme levels of poverty … COSATU is committed to the elaboration of a Macro-Economic Framework which first and foremost addresses the national priorities and interests of our people (COSATU, 1996).

4.4.2 Eskom and the privatisation debate in 1994/5

Eskom occupied a very particular position in the policy debates on privatisation in the mid-1990s. At this time the strength of Eskom lay in the fact that it was a vertically integrated monopoly. However, this strength was also its weakness, given that in 1984 the De Villiers Commission recommendations aimed at maximising efficiency and containing costs had directed Eskom to become a leader in conserving energy by maximising plant efficiency and minimising its capital requirements through a flexible expansion programme. Practically, these recommendations raised the question of introducing competition into the electricity sector to improve Eskom's efficiency. Although this issue was not traversed directly by the De Villiers commission it was formally introduced into the energy policy discussion by the 1998 Energy White Paper, discussed further below.

Eskom's finances are crucial for understanding its place in these privatisation and restructuring debates. By restructuring (in this case unbundling) I am referring to the separation of the vertically integrated utility into separate business units for generation, transmission and distribution. In 1994, credit ratings agencies Moody's Investors Services and the Standard & Poor Rating Group gave Eskom positive investment rating grades of Baa3 and BB respectively (Eskom, 1994). The attractiveness of Eskom as a borrower from international and domestic money markets was "in part due to its bonds having enjoyed certain tax privileges (akin to those offered to insurance companies and pension funds)" (Fine, 1995:11).

In addition to its strong investment grading, Eskom was a well-run entity that was providing a key service cheaply, one that had been denied to the majority of the population by the apartheid government. In 1994 Eskom's revenue had increased year on year by 11.8% from R13,8m in 1993 to R15,4m. In the same period its tariff increase was 7.6% while its sales volumes increased by 3.9% (Eskom, 1994). Between 1995 and 2005, Eskom earned a pre-tax rate of return on its assets of between 8% and 12% and in 2004/05, the utility posted a record net profit (Kessides, 2020). Moreover, Eskom was meeting the energy sector's social

objectives in terms of electrifying previously disadvantaged households, and keeping the lights on. Between 1991 and 1997 the utility managed to electrify over 2.4 million households; in 1994 alone, Eskom electrified over 250 000 homes (Eskom, 1994; DME, 1998). Crucially, the utility was selling some of the cheapest electricity in the world at the time (Kessides, 2020), neutralising any possible competition in the absence of regulatory reforms which would incentivise Eskom to welcome competition.

Privatising Eskom under these conditions did not make sense for the government as it would have meant that the state would lose ownership of a company that was well positioned to borrow on domestic and international markets, without it being sure that it would see a net increase in income that could be made available for the development of the larger economy. Thus when faced with a stark choice between two positions on Eskom – deregulation of the power-generation sector without privatisation or privatisation without deregulation – the post-apartheid government chose the former.

Governments tend to privatise state-owned enterprises which are underperforming or are a strain to the fiscus (Fine, 1995). However, as noted above, Eskom was in a relatively strong financial position at this time, with the survival strategy developed out of the De Villiers Commission recommendations in place. Whereas other state owned entities were privatised before and after 1994, Eskom's social and price compacts thus meant that it inadvertently managed to avoid being targeted in the nationalisation versus privatisation debate that was ensuing amongst the political elite (but outside the sphere of influence of organised labour).[24]

4.5 Conclusion

In this chapter I have located the MEC in its socio-historical context, unpacking the consolidation of the complex in the course of the 20th century in relation to the prevailing technopolitics. While benefiting a small white population at the expense of the majority of the population, the use of state-owned enterprises to drive South Africa's industrialisation also helped successive governments succeed (up to a point) in withstanding internal social unrest and, increasingly from the 1960s, external pressures. Historically Eskom's core mandate was to meet the energy needs of its biggest consumers, to support industrial development as cheaply as possible, and thereafter to expand its capacity to benefit other consumers where the need arose. It fulfilled this mandate through the burning of coal.

[24] Iscor was privatised sequentially, in 1989 and 2002, Sasol in 2000 and Telkom in 2002.

With a financial contribution from Anglo-American, the biggest electricity consumer at the time, Eskom became a vertically integrated utility when it expropriated VFPC's assets. The complex relationship between Eskom and the VFPC exemplifies the utility's shifting responsibilities over time. Key beneficiaries of its subsequent electrification programme were white farmers who had played an important political role in the 1948 elections. At the same time Eskom was ahead of the curve with regards to improving black workers' conditions from the 1970s, thereby demonstrating a certain degree of flexibility and strategic thinking.

This chapter also shows how contestations over the ANC government's macroeconomic policy in the 1990s shaped the labour union's responses to proposals to unbundle Eskom; the resistance to restructuring the utility was supported by its strong balance sheet at the time. Furthermore, even before the dawn of democracy, Eskom's management had begun to shift the technopolitics around the energy sector in anticipation of the political changes they could see on the horizon; this involved directing electricity provision beyond the established mining and industrial sectors and the narrow interest of white consumers. In the next chapter I show how the debates on the just transition to a low-carbon economy have been entangled with questions about redressing past injustices, black advancement and democratic consolidation, questions which the renewable energy sector initially attempted to exempt itself from having to answer.

Chapter Five: The Dilemmas of a Just Transition in Post-Apartheid South Africa

This chapter builds on my overview of the technopolitics shaping the MEC in Chapter Four, to review the challenges the complex faces in the democratic dispensation. It addresses major debates on post-apartheid South Africa's energy policy and the role of Eskom as the national utility responsible for both electricity generation and distribution within that. It also unpacks the country's commitments related to climate change and the tensions in implementing the core programme at the heart of these commitments, the REIPPPP.

The discussion in this chapter is divided into five sections that unfold in chronological order across two administrations of the ANC government. Section one provides important context and reviews key policy documents governing the electricity sector and environmental management. This section highlights some key areas of policy contestation under the Mbeki presidency. Section two reviews the technopolitics surrounding the state's attempts to unbundle Eskom and secure energy supply in the light of the country's successful bid to host the 2010 FIFA Soccer World Cup, an outcome which precipitated decisions that locked the country into its reliance on Eskom and coal-fired electricity generation. The section also covers the unravelling of the Alliance politics, which I trace back to the Mbeki presidency, and its influence on the partial implementation of the certain components of the Electricity Act.

Section three explores energy policy development after 2009 during the Zuma administration. The section reviews South Africa's international commitments around climate change after the Johannesburg Summit in 2002 and a second attempt at unbundling Eskom, aimed particularly at accommodating renewable energy, at a time when NUMSA was still part of COSATU and the federation was still on a honeymoon phase with Zuma's administration. This is followed by Zuma's second term in office which saw nuclear energy coming to the fore as the technology of choice for the energy transition. This section provides the context for section four which looks specifically at the key components of the REIPPPP that was introduced in 2011 and early objections to the economic development component of the REIPPPP by SAWEA, as well as Eskom's resistance to signing PPAs (purchasing power agreements). This section concludes with a brief comparative literature on renewable energy adoption in other contexts.

5.1 Post-apartheid South Africa's energy policy before 2009

5.1.1 The 1998 *White Paper on Energy* and the Eskom Conversion Act of 2001

The prioritisation of economic liberalisation by the ANC government under GEAR informed two key policy documents in the energy sector, the 1998 *Energy White Paper* and the 2003 *White Paper on Renewable Energy* (Department of Minerals and Energy, 1998; 2003). Renamed in the process of implementing the De Villiers Commission's recommendation, the National Energy Regulator (NER) guided the restructuring of the electricity industry and Eskom's electrification programme while becoming an economic regulator (Marquard, 2006). Between 1995 and 2005 the NER's played the role of co-ordinator of the technological regime but was not part of NEDLAC, a key institution in post-apartheid South Africa's democratic order (Parliamentary Monitoring Group, 2001). Set up in 1994 (Act 35 of 1994), the objective of NEDLAC is to strengthen participation in socioeconomic policy through facilitating consensus building and cooperation among government, labour, business and the community (NEDLAC, 1994). Outside of the workplace, this is where disagreements over the ILO's 2015 *Guidelines for a just transition* were debated and ironed out.

At this time the division of responsibilities for Eskom's operations and its administration between two ministries exemplified the dilemmas and challenges around the possibilities for privatising the utility. In 1994, the then Office of Public Enterprises became a fully-fledged Department of Public Enterprises and Eskom's principle shareholder, while the Department of Minerals and Energy (DME) became responsible for its operations and performance, taking energy and electricity policy matters over from the Electricity Council. In an interview with me in June 2018, former Eskom CEO Matshela Koko argued that shifting energy policy from Eskom to the Department of Minerals and Energy was to be expected but was not well thought through by the democratic government:

> What was not managed properly was the capacitation of the policy makers in the DMR.[25] Because the know-how remained in Eskom, but policy is done in the DMR…. Interestingly, Jeff Radebe was the Minister of Public Enterprises. Remember Public Enterprises then, post 1994, was set up as the department of privatisation. All the companies that are there, were put there so that they could be privatised. And the White Paper [on energy] was consistent with that mandate (interview, 5 June 2018).

[25] Although Koko used this acronym, he was referring to what was then still the Department of Minerals and Energy, before its split into the Department of Mineral Resources and the Department of Energy.

The 1998 *White Paper on Energy* identified five policy objectives: increasing access to affordable energy services; improving energy governance; stimulating economic development; managing energy-related environmental and health impacts; and securing supply through diversity (DME, 1998). These objectives are consistent with the idea of technopolitics that Hecht has described as the "strategic practices of designing or using technology to constitute, embody, or enact political goals" (1998:15); they correspond to three of the recommendations made earlier by the De Villiers commission relating to energy conservation, improvement of plant efficiency and minimising capital requirements for the expansion programme. The 1998 *White Paper* also identified major challenges facing the electricity sector. At that stage, however, capacity to meet new demand was not seen as an immediate concern – the *White Paper* noted that "growth in electricity demand is only projected to exceed generation capacity by approximately the year 2007" (DME, 1998:41).

With regard to environmental concerns, the 1998 *White Paper* acknowledged that "coal-based electricity generation is causing significant long-term damage to the environment" and made note of the country's international commitments in this regard. However, it tied these to the need to balance these commitments against the state's "development interests":

> Government will monitor international developments and participate in negotiations around response strategies to global climate change, in order to balance its environmental responsibilities and development interests in these processes (DME, 1998: 15).

By then South Africa was a signatory to the 1992 Framework Convention on Climate Change. However, as already noted, in practise, environmental concerns were not high on the state's policy agenda and the legal framework for environmental management in South Africa was still being finalised. I return to this framework in section 5.1.2.

To address what the government saw as the primary challenges, the 1998 *White Paper on Energy* recommended the diversification of the primary energy supply base and the restructuring of Eskom (DME, 1998). It thus called for Eskom's unbundling from a vertically integrated monopoly into three business units: generation, transmission and distribution, all still to be state-owned. In this period, the debates on Eskom's restructuring reflected the Mbeki administration's concerns with the direction that state-owned enterprises in South Africa should take, which were in line with GEAR. These debates gained traction with the publication of the Eskom Conversion Bill and culminated with its enactment as the Eskom Conversion Act of

2001. This made provision for the utility to be regarded as a public company that would be a tax and dividend paying entity, “with effect from a date determined by the Minister by notice in the Gazette” (Parliamentary Monitoring Group, 2001) – a date that had not been gazetted at the time of finalising this dissertation (late 2021). One of the implications of this was that Eskom would no longer be able to fund the electrification programme for low-income-households internally, but would have to look to funds from the fiscus for this instead, thus continuing to pursue the RDP mandate but putting a strain on government finances (Eberhard & Mtepa, 2001).

The Eskom Conversion Act also stripped Eskom of the power to decide on new generation capacity and shifted that responsibility to the DME. This meant that Eskom would no longer be the only source for the supply of electricity within the country, paving the way for the introduction of alternative energy sources from IPPs, including from renewable energy although this was not the issue at the time. In 2001 the South African Cabinet approved a resolution that Eskom needed to make space for 30% of its generation capacity to come from IPPs, BEE companies or transnationals. This resolution also approved a process to split transmission into high and low voltage power lines and for distribution to be allocated to six Regional Electricity Distributors (REDs) (Greenberg, 2006; DPE, 2000). In April 2001, the Cabinet explicitly mandated that: “Eskom [would] not [be] allowed to invest in new generation in the domestic market … to ensure meaningful participation of the private sector in electricity in the medium term” (DME Cabinet Memorandum April 2001, quoted in Newbery & Eberhard, 2008:58).

Before the Eskom Conversation Bill was passed, COSATU served a section 77 “Notice on Privatisation” at NEDLAC (Parliamentary Monitoring Group, 2001). In opposing the Bill COSATU argued that they had not been properly consulted and their concerns were not considered (Parliamentary Monitoring Group, 2001). On 29 and 30 August 2001 COSATU held a nation-wide anti-privatisation march (Hlangani, 2001). In what can be read as political expediency, the Mbeki government subsequently backtracked on implementing its April 2001 Cabinet resolution in totality (Eberhard & Mtepa, 2001) and decided to implement only those parts that were not seen as politicised. As a result non-core and regulatory services related to nuclear technology and transport were removed from generation, transmission and distribution and moved to Eskom’s commercial subsidiary, Eskom Enterprises (Greenberg, 2006). However, the Gazette notice to formalise turning Eskom into a public company was not forthcoming.

The COSATU strike demonstrated organised labour's strength in bending government's will on issues on which labour held strong views. In an interview with me in 2018, energy analyst Chris Yelland argued that the 1998 *White Paper on Energy* was ahead of its time and its full implementation was help up by ideological differences in the Alliance:

> … the politicians at the time who were very much in the central planning mould of the South African Communist Party and COSATU … wanted a state monopoly and this new document is calling for a liberalisation, where you would have a mixture of government and private market orientated …. The only trouble is that it has never been implemented, energy has never really been high in the priority [of politicians] because it was left to Eskom and Eskom was just doing it, they [politicians] never really got stuck in. For years we've had a whole series of ministers since Pik Botha, including Pik Botha, who know nothing about energy, and energy was not high on the agenda because it was working (interview, 4 June 2018).

5.1.2 Environmental policy

After 1994, national debates on South Africa's environmental policy shifted from the technocratically driven approach of the apartheid era to a broader focus on inclusivity and addressing social and economic issues (Peart and Wilson, 1998; Rossouw and Wiseman, 2004). Central to the early discourse was a concern with environmental justice, reflected in the constitutional provision that everyone has the right "to an environment that is not harmful to their health or well-being". The Constitution also invoked the international discourse on sustainable development by setting out the need for the environment to be protected "for the benefit of present and future generations", to be achieved through:

> reasonable legislative and other measures that prevent pollution and ecological degradation; promote conservation; and secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development" (Republic of South Africa, 1996: Clause 24(a)).

This constitutional framing shares important features with the sustainable development space proposed by Holden et al. However, it was not the case that these were significant concerns in political and policy debates at the time. In the apartheid era, environmentalism in South Africa was focused largely on conservation strategies concerned with threatened animal and plant species and habitats and ignored the social needs and aspirations of black people (including those affected by forced removals to make way for protected areas) (Cock, 2001;

2004). These preoccupations, Cock has argued, shaped the framing of environmental issues in post-apartheid policy debates as removed from the concerns of the black majority. According to Cock (2004), in the early 2000s access to clean water and electricity, not climate change, were the two environmental struggles most frequently cited by local communities. McDonald (2002) also viewed the lack of basic services like sewage and sanitation as the most pressing environmental justice problems facing millions in South Africa. The challenge environmentalists faced was how to link local community issues to broader environmental concerns, including climate change.

In August 1995, the ministry of Environmental Affairs and Tourism convened a Consultative National Environmental Policy Process attended by 600 delegates representing all sectors of society (Rossouw and Wiseman, 2004). With formal constitutional rights for the environment linked to social and economic ones, this consultative process culminated in the promulgation of the National Environmental Management Act (NEMA) in 1998, setting the legal framework for environmental management in South Africa. However, Rossouw and Wiseman (2004) argue that a key weakness of the environmental policy process has been the lack of a structural implementation logic; thus "The EIA [Environmental Impact Assessment] regulations were promulgated in 1997 and enforced before the national environmental law (for instance, NEMA) was enacted in 1998" (2004:138).

5.1.3 Policy developments around renewable energy and black economic empowerment

In 2003 the Mbeki government oversaw important developments in two areas of policy that would play significant roles in the broader politics around the transition to a low-carbon economy. The first was the release of the *White Paper on Renewable Energy*, and the second the passage of the Broad-Based Black Economic Empowerment Act (Act 53) that same year.

Released a year after the 2002 World Summit on Sustainable Development in Johannesburg had put the issue of renewable energy firmly on the table, and informed by the 1998 *White Paper on Energy*, the 2003 *White Paper on Renewable Energy* identified four strategic areas for attention for the successful implementation of large-scale renewable energy projects in the country: 1) the financial and fiscal instruments, 2) the legal instruments, 3) technology development and awareness raising, and 4) capacity building and education (DME, 2003:32-32). It also identified barriers to successful implementation. Foremost among them were the high capital costs of renewable energy compared to conventional (fossil fuel) energy supplies,

as well as concerns around the return on investment and lack of consumer awareness on the benefits of renewable energy technology. The *White Paper on Renewable Energy* also singled out various financial, legal, regulatory and organisational barriers and the lack of non-discriminatory open access to key energy infrastructure, in particular the national electricity grid managed by Eskom (DME, 2003:9).

The enactment of the Broad-based Black Economic Empowerment (BBBEE) Act in 2003 was the culmination of a long process to give legislative teeth to the struggle for social justice and an end to racial discrimination in the management of the economy. The objectives of the Act were set out as follows:

a) Promoting economic transformation in order to enable meaningful participation of black people in the economy.
b) Achieving a substantial change in the racial composition of ownership and management structures and in the skilled occupations of existing and new enterprises;
c) Increasing the extent *to* which communities, workers, cooperatives and other collective enterprises own and manage existing and new enterprises and increasing their access to economic activities, infrastructure and skills training;
d) Increasing the extent to which black women own and manage existing and new enterprises, and increasing their access to economic activities, infrastructure and skills training;
e) Promoting investment programmes that lead to broad-based and meaningful participation in the economy by black people in order to achieve sustainable *5* development and general prosperity;
f) Empowering rural and local communities by enabling access to economic activities. Land, infrastructure, ownership and skills and
g) Promoting access to finance for black economic empowerment (Act 2003:3-4).

The Act's objectives speak to the moral imperatives of satisfying human needs and ensuring social justice that I have described as central to sustainable development, as well as to concerns raised in the ILO's *Guidelines* for a just transition (in particular, guidelines four, five and six (see p50-51). The challenge with the BBBEE policy has been the realisation of its "broad-based" redistributive elements to ensure that its benefits reach beyond politically connected individuals. Jaglin and Dubresson (2016) show how BBBEE became a vehicle for neopatrimonialism, with Eskom's revenue shifting from production to redistribution for social change.

Both the BBBEE policy and GEAR have failed to translate their broad principles into outcomes that are consistent with the objective of the "meaningful participation of black people in the economy" with regard to inequality in general and wage inequality in particular. This failure is reflected in the national data on inequality and employment – as of 2019 the top 1% of income earners in South Africa took home almost 20% of all income, while the top 10% took home 65% (World Income Database, 2019). With regard to racial inequality, between 2011 and 2015 the mean real earnings amongst employed whites was R24 646 per month compared to only R6 899 amongst black Africans (StatsSA, 2019). For coloureds and Indians/Asians, the corresponding figures were R9 339 and R14 235 per month respectively (StatsSA, 2019). According to the 2014/15 Living Conditions Survey, almost half (49,2%) of all adults in South Africa were living below the upper-bound poverty line (UBPL) of R1 227 per month, with female-headed households most vulnerable to the experiences of poverty.

GEAR set ambitious targets, including economic growth of 6% per annum by the year 2000 ,accelerated job creation, reaching 409 000 jobs annually after the year 2000, and reducing the budget deficit to 3% of GDP (National Treasury, 1996). However, these targets proved elusive. While government debt as a percentage of GDP declined from 49.7% in 1994 to 28.9% by 2007, unemployment went from an already extremely high 22.9% in 1994 to 30% by 2004 (Goldman Sachs, 2014). Though government debt decreased, personal debt was increasing within household as a percentage of disposable income, reaching 80% in 2007 compared to 56.6% in 1994 (Goldman Sachs, 2014).

Thus beyond questions about energy policy and South Africa's climate change commitments, the incipient renewable energy sector was also faced with questions about how it would contribute to the pressing socioeconomic challenges of unemployment, inequality and poverty. As noted in Chapter One, initially the industry shied away from these issues on the grounds that it was a new industry and the burden of responsibility for these challenges that it was being asked to carry was too heavy. In this response the industry showed that it did not appreciate the wider technopolitics at play in the energy arena. Instead it chose to rely on narrow arguments about the merits of renewable energy and the threat of climate change to pressurise the prevailing technopolitical regime (the coal-electricity nexus) to adapt to changing conditions (Hecht, 1998). In terms of the Multi-Level Perspective described in Chapter Two, the sector was failing to see beyond the niche level to the wider landscape level (Geels, 2018).

5.2. Hosting the 2010 FIFA Soccer World Cup

In this section I show how winning the rights to host the 2010 FIFA Soccer World Cup acted as a catalyst in shifting government inertia around energy policy to concerns around adding generation capacity. This is reflective of the technopolitical regime of the time in which energy policy was enmeshed within domestic politics, particularly the Alliance politics already covered in Chapter Four.

5.2.1 Locked-in coal and load shedding

South Africa's winning of the hosting rights for the 2010 FIFA[26] Soccer World Cup had consequences for the technopolitical regime in the way in which it locked the country into its reliance on Eskom's coal-fired technology (Unruh 2000; 2002). The win in 2004 was seen as a major affirmation of South Africa's standing in the world, the first FIFA World Cup to be held on the African continent (Van der Heijden, 2013). The South African government regarded the 2010 World Cup as a showpiece for projecting its soft power and putting the country "on the map" (Marx, 2010). Hosting the World Cup fitted perfectly with President Mbeki's conception of the African Renaissance. The government felt it could justify the costs by highlighting how the construction of stadiums would lead to job creation and the event would boost the tourism industry, tackle poverty and leave a lasting legacy in the physical infrastructure (Oosterbaan, 2013). Energy security now became a government priority and less than a month after the win was announced, in June 2004, Cabinet approved the building of two new coal-fired power stations, the Medupi and Khusile Power Stations by Eskom.

The timing of the approval of Eskom's new build programme is telling and reflects the government's desire not to disappoint the country on the global stage, or worse, to lose the hosting rights because of something as basic as the secure supply of electricity. In 2001, with the full knowledge that in 2007 electricity demand would exceed supply, the Mbeki government had barred Eskom from building new power stations. However, now, with the security of energy supply a crucial requirement put forward by FIFA and agreed to by the South African Government (FIFA, 2006), the utility was being giving carte blanche on generation capacity. At the time Matshela Koko was a Boiler Plant Engineering Manager at Eskom. In an interview I had with him he described the very real prospects of an insecure energy supply in driving the government to finally take Eskom's concerns regarding new generation capacity seriously:

[26] FIFA is the widely used acronym for the international Federation of Football Associations. South Africa's winning bid after it controversially lost the bid for the 2006 World Cup to Germany by a single vote in 2000.

> When the government came to us [Eskom] and said, now it's beginning to sink in and we are going to run out [of] electricity in 2010, you must start building, South Africa was bidding for the World Cup, and part of the levers was energy security. You can't, if by any chance FIFA learned that you'll run of electricity, you can't host the World Cup. They [Government] came to us and said: do whatever you need to do to keep the lights on (interview, 5 June 2018).

To address the looming energy supply crisis government opted to procure electricity from Eskom and not the IPPs provided for in its energy policy. The reason for this was simple: it believed it did not have the time for a prolonged procurement process involving IPPs when Eskom could deliver. Koko (2018) argues that at that time Eskom took what proved to be very costly decisions that it would not ordinarily have taken. The first was to build the two very big coal-fired power plants, first Khusile and then Medupi, which went against one of the recommendations of the De Villiers commission. The two power stations were never going to be ready by 2010, but Eskom opted for them in order to address longer term baseload concerns. Medupi, the first base-load power station to be built by Eskom in 20 years (after the Majuba power station in 1983) would, upon completion, be the world's largest dry cooled power station.

The second costly decision, to address the issue of security of supply in the short term while at the same time deferring plant maintenance, was to opt for the tried and tested Open Cycle Gas Turbine (OCGT) technology to address peaking capacity (Brent Styan, 2015). Like renewable energy plants, OCGT plants have a short construction lead time so they could be constructed in time to meet the energy demands of 2010. At the time this was regarded as a cheaper option than renewable energy; however, with hindsight this turned out not to be the case. Delays in Medupi and Khusile coming online and intensified load shedding after problems at the Majuba station in 2014 have meant that OCGT plants have been used more often to mitigate load shedding than to regulate network voltage fluctuations at peak periods.

To build the Medupi and Khusile power stations within budget and on time, Eskom would have needed the management experience it had in the 1960s and 1970s. Moreover, its workforce would need to increase – by the end of March 2018 Eskom's workforce had increased from 28 938 in 2003 to 46 665 (Eskom, 2003; 2019). A unionised workforce opens up not only possibilities for better working conditions for workers but also additional revenue for unions through subscription deductions from members' salaries.

Medupi was initially budgeted at R79 billion with construction starting in 2007, and Kusile at R81 billion with construction starting in 2008 (Parliamentary Monitoring Group, 2019). The sequence of events and controversies that have accompanied these two power stations demonstrate how energy projects have been bedevilled by the BBBEE Act. In 2005, soon after Eskom was given the green light by Cabinet to add additional capacity, Hitachi Power Africa was formed, with the ANC's investment arm, Chancellor House, "acquiring" a 25% stake in the company (Baker, 2012; Brent Styan, 2015; Jaglin & Dubresson, 2016).[27] Thereafter, in 2007, the R35.5 billion boiler supply contract for Medupi "happened "to be awarded to Hitachi Power Africa, in consortium with Hitachi Power Europe (Baker, 2012; Brent Styan, 2015). By 2019, the delays of Medupi and Kusile had resulted in cost overruns of R145 billion and R161.4 billion respectively (Parliamentary Monitoring Group, 2019).

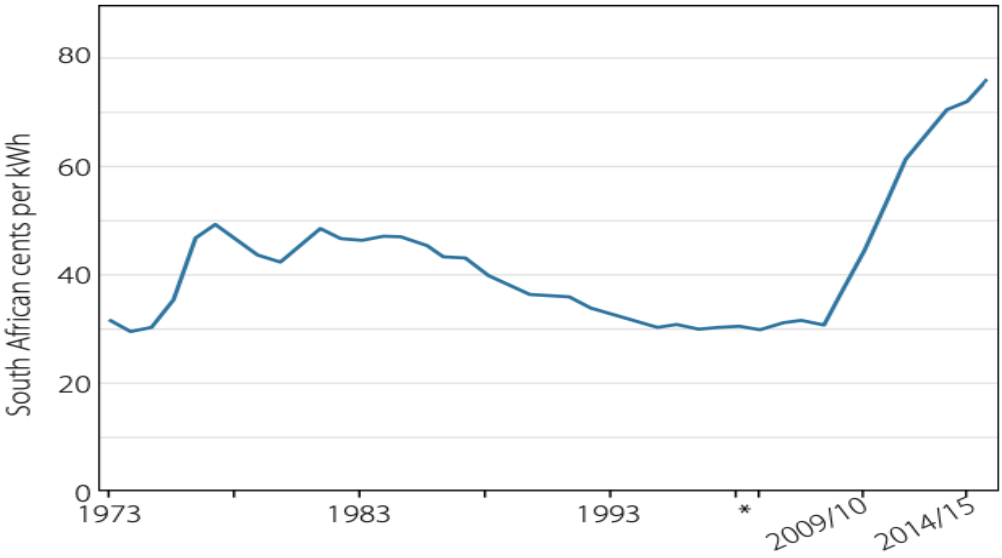
As had been predicted in the 1998 *White Paper on Energy*, in November 2007 the supply of electricity was unable to meet demand and South Africa experienced the first episode of what was to become a chain of load shedding events that has not yet ended. President Mbeki publicly apologised at a gala dinner in 2007 at which he was quoted as saying "Eskom was right, government was wrong" (Sokopo, 2007). He repeated this apology in 2008 during the annual presidential "State of the Nation" address in Parliament, in which he dedicated a quarter of his speech to energy supply constraints:

> We take this opportunity to convey to the country the apologies of both the Government and Eskom for the national emergency which has resulted in all of us having to contend with the consequences of load-shedding. I would also like to thank all citizens for their resilience and forbearing in the face of the current difficulties (Mbeki, 2008).

Load shedding coincided with a steep increase in the price of electricity, undermining the price and social compact of the 1990s. (On this see figure 5.1 below.) The steep electricity increase also coincided with the replacement of NER by the National Energy Regulator of South Africa (NERSA) in 2005. As a single regulator for the electricity, piped gas and petroleum industries, NERSA's objective is to reduce Eskom's monopoly in the energy sector through competition, with the intention of stimulating economic growth.

[27] Chancellor House was created in 2003 by former ANC treasurer general Mendi Msimang,

Figure 5.1: Electricity prices between 1973 and 2015



(Source: Deloit (2017) in Kessides, 2020)

Under the Zuma administration (2009-2018), this pattern of extracting resources through BBBEE deals for personal and patronage purposes, particularly in state-owned enterprises with substantial procurement budgets, became a version of technopolitics in itself, associated with a particular family, the Guptas (Myburgh, 2017). In the energy sector, both Medupi and Kusile projects have reflected this system of accumulation. It is my contention, however, that the political elite in the ANC were already embarking on a system of accumulation between 1994 and 2004, one that was rooted in the MEC and designed to enrich a few politically connected individuals at the expense of the ordinary people of South Africa.

5.2.2 The Influence of Alliance politics in the ANC

After the 2002 Johannesburg Summit, concerns around climate change continued to be overshadowed by domestic politics. In 2005 then President Mbeki removed Jacob Zuma as Deputy President of the country, because of his links with a former financial advisor (Shabir Shaik) who was convicted of corruption. However, Zuma remained the deputy president of the ANC and contested for the position of president at the party's 52nd National Elective Conference in 2007 at Polokwane, paving the way for him to become President of South Africa in 2009. This was not a simple process, with Zuma's moral character coming under sharp scrutiny in 2006, when he stood trial for allegedly raping a close family friend half his age – a charge of which he would later be acquitted. Despite the ethical clouds surrounding Zuma at the time, his sacking in 2005, coupled with a deep sense of resentment among the Alliance partners towards the Mbeki administration, saw the emergence of a left-populist coalition in

support of Zuma in 2007. In April 2009, then acting National Prosecuting Authority head, Mokotedi Mpshe, controversially dropped the corruption charges against Zuma which were linked to his financial advisor.[28] This was followed by the ANC winning the 2009 general elections and Zuma's ascendancy to the presidency in May 2009.

In his memoir, *Time is not the measure*, Vusi Mavimbela argues persuasively that the Polokwane conference left both the ANC and the government deeply fractured:

> Mbeki had not inherited a divided ANC and a government that lack cohesion where loyalties were hard to decipher. Mandela bequeathed to his successor a growing ANC, a buoyant nation and an optimistic public service. Zuma would start on a constantly shifting political and administrative platform where a sizeable section of the ANC supporters loathed and despised him. Anger against Mbeki in the ANC and the Alliance before Polokwane had become so visceral that the slogan "anybody but Mbeki" gained strong currency (2018:381).

The lack of cohesion within both the ANC and the government undermined prospects for domesticating the ILO's just transition guidelines at a crucial time in the Alliance.

Though the strength of the Alliance propelled Zuma to power, 10 years into democracy COSATU's membership was shifting from one based predominantly in the industrial sector towards one in which public sector unions were increasingly prominent (Bezuidenhout, Bischoff, & Nthejane, 2017). In 2012 Buhlungu and Tshoaedi argued that for COSATU, workplace restructuring had resulted in "a growing number of the workforce" being "outside its organizational reach, as it is currently conceived" (2012:22) and, furthermore, that COSATU's response to workplace restructuring had been to retreat "into a defensive posture of workplace protectionism that focuses on those with full-time formal employment" (2012:22). The introduction of the REIPPPP in 2011 coincided with COSATU confronting what Buhlungu (2010:17) described as the "paradox of victory": as the labour movement was exerting its power and exercising its influence in the new democracy, "the fruits of their victories continue to elude them as the processes of liberalisation that they champion almost always result in the organisational weakening of union structures".

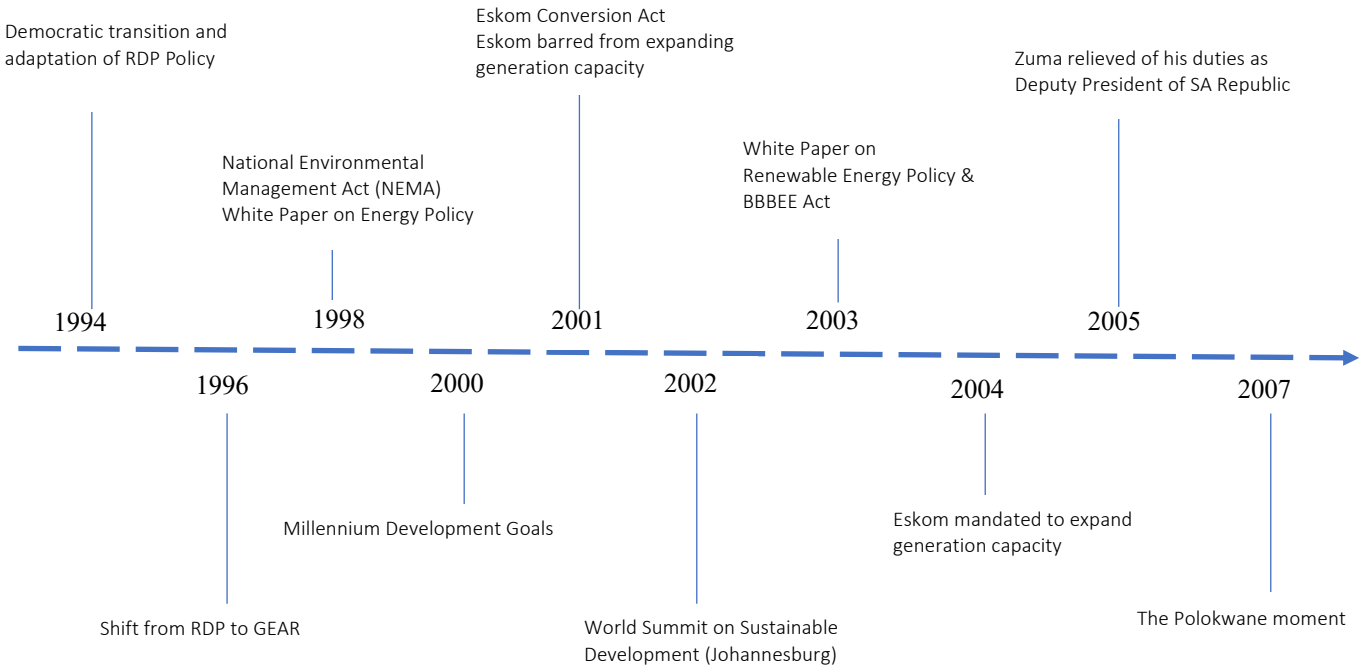
Also at this time, the productive capacity within the country for the production of the intermediate and capital goods identified by Fine (1995) and Fine & Rustomjee (1996) as

[28] These charges were later reinstated by the NPA in 2018 following a finding in 2016 by the High Court that the dropping of the charges was irrational and the charges should be reinstated.

necessary for the economy to expand remained weak. Fine argues that the weaknesses in South Africa's productive capacity reflects the legacy of past mistakes in economic policies "designed to build up large-scale Afrikaner capital and integrate it with large-scale 'English' capital" (Fine, 1995:16). In the post-apartheid era black capital was incorporated into capital's upper echelons through a mix of debt and share schemes that have benefited politically connected individuals.

The timeline below summarises policy developments between 1994 and 2007.

Figure 5.2 Timeline for developments between 1994 and 2007.



5.3 Energy policy and the just transition after 2009

This section covers the first term of the Zuma's administration and the unravelling of the Alliance in his second term. In this time the Zuma government made commitments around addressing climate change which were linked to the decarbonisation of the electricity sector, Eskom refused to sign purchasing power agreements in 2015, and in 2018 NUMSA and Transform RSA brought an urgent court interdict against Eskom described in Chapter One. Significant policy documents in this time include the National Development Plan (NDP) of 2010 and the Independent System and Market Operator Bill of 2011 .

5.3.1 The re-centring of climate change concerns in a politically contested landscape

As already noted in Chapter One, in his first five-year term as president of South Africa, Zuma re-introduced South Africa's commitments to climate change by internationalising them at the 2009 United Nations Climate Change Conference in Copenhagen (COP 15). Here Zuma pledged to reduce South Africa's GHG emissions by 34% in 2020 and 44% by 2025. In 2010 his administration released South Africa's National Climate Change Response Green Paper (2010), which was a direct response to the Intergovernmental Panel on Climate Change. The Green Paper acknowledges that "successful climate change mitigation in South Africa must focus on the energy sector" and noted that the rollout of "renewable forms of energy and also a nuclear energy roll out would result in the largest emission reductions" (Department of Environmental Affairs (DEA), 2010:13). Two years after the Copenhagen pledge, South Africa hosted the United Nations Climate Change Conference (COP17) in Durban. At this event the state unveiled the preferred bidders of it its flagship REIPPPP and launched the Green Economy Accord.

At this time the Zuma administration also released a new economic strategy document, the New Growth Path (NGP) (2010), followed by the publication of a new policy framework for development in South Africa, the National Development Plan (NDP) in 2012.The NGP singled out job creation and infrastructure development as urgent priorities and identified five key sectors of the economy for driving these priorities: agriculture, mining, manufacturing, tourism and, significantly, the "green economy" (Department of Economic Development, 2011). In the discussion on the green economy, renewable energy is positioned in relation to the Integrated Resource Plan (IRP) (2010). The language of sustainability and also of equity was prominent in Chapter Five of the NDP, titled "Ensuring environmental sustainability and an equitable transition to a low-carbon economy". The understanding of an "equitable transition" foreshadowed later thinking associated with the "just transition" in its emphasis on the need to manage the process of transition in a manner that would "protect the poor and vulnerable from the transitional costs associated with mitigation, such as increased costs of energy, food and transport, job losses in carbon-intensive industries, and the demand for different skills" (National Planning Commission, 2012:211).

COSATU, however, was critical of both these policy frameworks. Its main criticism of the NDP centred on the way job creation was understood:

> "The jobs plan is problematic in that it projects many more jobs to be created by small business and in the services sector; that the NDP ignores the New Growth Path and

> the Industrial Policy Action Plan; and that the NDP calls for job creation through reducing the rights of existing workers." (Coleman, 2013)

In other words, the jobs plans in the NDP was seen to limit the opportunities for industrial diversification, thereby limiting employment generation and the broadening of the skills base. The Industrial Policy Action Plan was seen as particularly important for coordinating up and down linkages within economic activity and improving the weak productive capacity seen as holding back economic expansion (Fine, 1995; Fine & Rustomjee 1996). COSATU welcomed the NGP's overall thrust on infrastructure development, but its assessment of the plan was that it did not represent a breakthrough in economic policy and training opportunities for the public sector (healthcare and education) were not sufficiently developed (COSATU, 2010). Unlike with GEAR however, COSATU appeared to accept the NDP, provided that it was understood within the context of the NGP and Industrial Policy Action Plan.

Eberhard (2011) argues that by this time recurring load shedding had exposed the country's coal-dependent mode of energy generation as both economically and environmentally unsustainable. While I agree that coal generation is environmentally unsustainable, the underlying factors responsible for load shedding at the time were the declining spend on the maintenance of power plants over time, the aging infrastructure and a "utilisation factor" of 87% (Hadebe, 2019).[29] Nevertheless, major concerns around load shedding and its impact on the economy bolstered the attractiveness of renewable energy for the government as a solution to the energy supply crisis, at least in part because developing the infrastructure for this would not depend on the fiscus and it would be possible to leverage investment in community development out of the renewable energy sector. However, for both small- and large-scale renewables to be able to play a significant role in the country's energy mix, the issue of Eskom's control of access to the national grid had to be confronted. This happened with the introduction of the Independent System and Market Operator Bill which coincided with the launch of REIPPPP in 2011

5.3.2 The Independent System and Market Operator Bill of 2011

The separation of climate change issues from energy policy had implications for state policy which, in turn, influenced how the trade union movement responded to environmental issues. While the legal framework for environmental management lies with one state department, the

[29] The utilisation factor reflects the ratio of actual energy produced against the energy that the full available capacity could have produced, (Eskom, 2017).

responsibility for the mitigation of climate change cuts across several departments that are not well coordinated among themselves: the Departments of Environmental Affairs (DEA), of Minerals Resource and Energy and of Public Enterprises. In an interview with a COSATU researcher, a question I asked about the federation's engagement with the government on climate change prompted him to reflect on the challenges of working across the divides within government:

> We've had engagement with the DEA, we are part of the national climate change committee …. We meet once a quarter and even in our engagements … with Department of Environmental Affairs, they say that they don't really work much on energy issues, that's Department of Energy and I think it's well-known, I don't think it's a secret, that government departments don't coordinate very well with each other (interview, 6 June 2018).[30]

To illustrate the importance of coordination and collaboration, in 2011, a few months after the DEA had tabled its National Climate Change Response Green Paper, the Department of Energy introduced its proposed Independent System and Market Operator Bill at NEDLAC. This Bill proposed that independent suppliers (IPPs) would have access to the national grid within a state regulated system. The objective of the Bill was to create a state-owned "operator" that would manage the system, act as a trader of electricity to customers in line with Government policy, and provide input into the planning of electricity supply and transmission (Ministry of Energy, 2011:5).

The importance of an Independent System and Market Operator was twofold. One, the regulator would allow independent power producers access to the national grid for the purpose of transmitting and distributing generated electricity. Two, this was an integral part of Eskom's unbundling as it would regulate the conflict of interest between the buyer and seller of electricity in a way that thwarted potential market abuse. These two points are important because in terms of the REIPPPP Eskom is the sole buyer of electricity from renewable energy IPPs. Being one of the primary cost drivers in the utility constitutes a shift of revenue and disrupts the entrenched technopolitical regime built around BBBEE deals in Eskom (Jaglin & Dubresson, 2016). The first public resistance by Eskom came in 2015 when the utility refused to sign the PPA.

[30] Ms Beaumont is Deputy Director-General of Oceans and Coast in the Environment, Forestry and Fisheries

As with Eskom's Conversion Bill, the Independent System and Market Operator Bill received the attention of both NUMSA and the NUM which at that stage were in what could be described as a "honeymoon" phase with the Zuma administration. The "normalisation" of relations in the Alliance played a factor in their agreeing to work on the Bill. The NUM resolved that the Bill should be passed as an empty shell, with the understanding that a socioeconomic assessment would be conducted to assess future electricity prices as well as job creation and poverty reduction programmes for working class and poor communities (NUM, 2012). Moreover, the NUM resolved to debate the role of IPPs in the energy sector and the possible restructuring and unbundling of Eskom.

NUMSA, on the other hand, took a much firmer stance than NUM. It opposed a privately driven plan for introducing renewable energy, and "advocated instead for a socially owned renewable energy sector made up of energy parastatals, cooperatives, municipal-owned entities and other forms of community-based energy enterprises" (NUMSA, 2012a:14). For NUMSA, a privately owned renewable energy sector would not cater for an "equitable dividend to communities and workers directly involved in production and consumption of energy" (NUMSA, 2012a:14). The union also raised concerns with what it viewed as the piecemeal manner of introducing changes to the electricity sector "without being guided by an explicitly agreed description of the end-state of the sector" (NUMSA 2012a:8). The piecemeal manner of introducing changes to the electricity sector was, however, the strategy for "meaningful participation" under the Zuma administration. It characterised the consultation process around the first IRP, for instance, as well as the administration's pursuit of nuclear energy.

5.3.3 Crises within the Alliance

Zuma's second term in office as President of South Africa (2014-2018) saw major shifts in the political landscape as well as an attempt to shift energy policy towards a more significant role for nuclear energy and a pause on the rollout of renewable energy. During this time the Alliance was unravelling. In November 2014 NUMSA, by then the most outspoken critic of the Zuma administration and the biggest union affiliate by membership (having surpassed NUM), was expelled from COSATU by the federation's Central Executive Committee (CEC). The disillusionment with Zuma's administration was not restricted to the Alliance. Popular sentiment was also beginning to turn, evidenced during the state memorial service for Nelson Mandela in December 2013, when President Zuma was booed by sections of the crowd.[31]

[31] By this time the issue of extensive state spending on the President's private Nkandla homestead had emerged in the public domain.

In the Alliance, the expulsion threatened to split the labour union federation in half and precipitated a battle for the soul of COSATU (Cherry, Jekeka, & Malope, 2017). The feared split did not occur; rather, in a move that I and other analysts have viewed as a purge (see Bezuidenhout and Tshoaedi, 2017; Satgar and Southall, 2015; Gentle, 2015), Nzwelizima Vavi, then the Secretary General of COSATU, was expelled from the federation in 2015 (for not attending a media briefing which communicated the decision to expel NUMSA). In 2016, a Worker's Summit was organised, spearheaded by NUMSA, with the aim of forming an independent, militant trade union federation. In 2017, informed by the Worker's Summit resolutions, the South African Federation of Trade Unions (SAFTU) was formed with Vavi elected as its Secretary General. With over 800 000 members in 21 union affiliates, SAFTU is the second biggest trade union federation in South Africa; however it is locked out of NEDLAC due to insufficient documentation required by law for parties to be considered for admission (Mahlakoane, 2018).

At this time Zuma's personal desire for a nuclear deal with Russia's biggest utility, Rosatom, became a top priority but the plan was thwarted by the Cape Town High Court in April 2017 as a result of legal action brought by Earthlife Africa and the Southern Africa Faith-Communities' Environmental Institute which challenged the procurement process and the country's nuclear power needs (Fig, 2017). Zuma went to extraordinary lengths in pursuit of the nuclear deal, including cabinet reshuffles late at night to replace ministers who were hindering his ambitions. Revelations from his first term in office that state institutions and apparatuses, including Eskom, were being repurposed to benefit politically connected families and individuals close to the President and expand his patronage network were also coming to light. During the writing of this dissertation, a Judicial Commission of Inquiry into Allegations of State Capture, known as the Zondo Commission, was underway to determine the extent of the capture and its first report with evidence of extensive malpractice was released to the public in January 2022.The thesis of State Capture is first described by a group of academics and independent journalists in the *Betrayal of the promise: How south Africa is being stolen*, detailing the significance of a nuclear deal to Eskom and the implication on the energy transition (Bhorat, Buthelezi, Chipkin, Duma, Mondi, Peter, Qobo, Swilling, et al. 2017).

Zuma resigned as the President of South Africa in February, 2018, after his preferred candidate for president of the ANC lost to Cyril Ramaphosa at the ANC's 54th National Elective Conference in December 2017. The following year Eskom's finances came under the spotlight. The first Group Chief Executive Officer (CEO) of Eskom appointed by Ramaphosa's administration presented the utility's annual results for the 2018/19 financial year. They

showed a net loss after tax of R21bn, compared to R2.3bn the previous year, and debt exceeding R440bn. Eskom's financial troubles can be traced back to the early 2000s. Since 2000, Eskom's annual costs had grown at a rate of 14.5%, significantly faster than its revenue at 12%, while between 2010 and 2018, the utility had only been able to service its debt by means of high tariff increases and government recapitalisation funds (Hadebe, 2019).

Between 2009 and 2019, Eskom enjoyed a 325% tariff increase, as well as an injection of R83bn in government recapitalisation funds (bailouts) (Hadebe, 2019). Simply put, Eskom was struggling to service its growing debt (largely due to the cost overruns of Medupi and Kusile) through revenue from the sale of electricity. It was experiencing what Hadebe (2019:3) has described as a utility death spiral: "increasing costs, declining revenues and decreasing profits due to technological improvements and the increasing number of clients who are moving off-the-grid". (See Chapter One.) These developments provide critical context for South Africa's REIPPP programme, which is discussed in the next section.

5.4 The Renewable Energy Procurement Programme of 2011

5.4.1 From a feed-in-tariff to a competitive bidding system

The REIPPPP was approved by the South African government in 2011 ahead of the COP 17 held in Durban. The introduction of renewable energy into South Africa's energy mix faced resistance from within NERSA, the DoE and Eskom from as far back as 2007 (Baker, 2012). The renewable energy programme initiated by NERSA in 2007 was initially planned as a feed-in-tariff system in line with international best practice in incentivising investment in renewable energy. This was, however, changed to a competitive bidding process in the REIPPPP in 2011, to fall in line with South Africa's government procurement framework (Baker, 2012; Baker & Wlokas, 2015; Eberhard et al., 2015). The bidding system was favoured by the DoE and National Treasury, while the feed-in-tariff system got the backing of NERSA, IPPs, and German and Danish donors (Baker, 2012).

The feed-in-tariff system involves an arrangement that sets a fixed price for the purchase of electricity that is higher than the retail price, in order to cover the cost of generation at "reasonable profit" for the IPP. Two factors are important in a feed-in-tariff system: PPAs which are government backed and guaranteed grid access. With unions cautious about the Independent System and Market Operator Bill, a feed-in-tariff system was unlikely to gain

traction until that Bill was passed and the politics of grid access ironed out. The competitive bidding system which prevailed is a winner-takes-all auction in which bids are assessed against two elements: first, tariffs (pricing), accounting for 70% of the scorecard, and second, an economic development (ED) component counting for 30% of the total scorecard. Both are important for understanding dynamics around the development of the two wind farms outside Loeriesfontein and are reviewed below, first the economic development criteria and second the issue of tariffs.

Given the absence of an independent grid systems operator, Eskom's participation in this bidding system is restricted to that of being a buyer of electricity from the IPPs and provider of grid connection for successful projects. This "silent" participation by Eskom in the REIPPPP is despite the fact that the utility had formed a Renewable Energy Business Unit in April 2011, to which it had transferred its 61 MW small hydro power plants in the Eastern Cape (Koko, 2020). Moreover, Eskom also has a 100 MW Sere Wind Farm which began commercial operation in 2015. This initial drive to diversify into renewable energy by Eskom was thwarted by the National Treasury in August 2015 when the latter declined the power utility's request to establish an Eskom Renewable Energy Company which was designed as a subsidiary of Eskom Holdings SOC that could hopefully participate in the REIPPP programme (Koko, 2020).

The design of the REIPPPP is well covered in the academic literature (see: Baker 2012; Tait 2012 ; Baker et al., 2014; Eberhard et.al., 2014; Stands 2015; Walwyn & Brent, 2015). In the next two sections I review the programme in a distinctive way, using two contentious issues as entry points to the just transition debates: the inclusion of the economic development component and the impasse around tariffs.

5.4.2 The economic development criteria

The economic development criteria (which include local socio-economic development requirements) are informed by the BBBEE Codes of Good Practices of 2003. As noted earlier, the economic development scorecard was introduced in the bidding process without sufficient consultation with renewable energy IPPs and socioeconomic specialists. Both international and local reviewers were involved in the scoring. The international reviewers – Linklaters (UK), Tony Wheeler Consulting (UK), and Ernst & Young (Eberhard et al.,2014 – focused on legal, technical and governance issues. Locally, legal evaluations were conducted by Bowman Gilfillan, Edward Nathan Sonnenbergs (ENSafrica), Ledwaba Mazwai and Webber Wentzel. Financial evaluations were handled by Ernst & Young and PWC; project management by SPP

Project Solutions; and technical evaluations by Mott MacDonald (Eberhard et al.,2014). The seven elements and their weighting within the overall scorecard are summarised in Table 5.1 below.

Four of the seven elements in the economic development scorecard – employment creation, ownership, socioeconomic development and enterprise development – are linked to the requirement for investment in "community development" within a 50-km radius of where the projects are located.[32] The local ownership component ("shareholding by local communities") is managed through the mechanism of a community trust that is invested in the project via a loan from the Development Bank of South Africa and/or a private bank. Once that debt has been paid off, the community trust will start to accrue dividends which will create an extra income stream over and above the funds allocated to community development through the socioeconomic and enterprise development commitments identified in the scorecard. In the case of Loeriesfontein, the local community trust has been allocated 5% project ownership, which translates into potentially significant funds for community development once the loan has been paid off, as discussed further in Chapter Eight.

Table 5.1 Economic development scorecard criteria (as at bid window 4)

Element (Weighting)	**Description**	**Threshold**	**Target**
Employment creation (25%)	RSA Based employees who are citizens	50	80
	RSA Based employees who are Black people	30	50
	Skilled employees who are Black people	18	30
	RSA based employees who are citizens and from local communities	12	20
	RSA based citizens employees per MW of Contracted capacity	NA	N/A
Local content (25%)	Value of local content spending	40-45	65
Ownership (15%)	Shareholding by Black People in the Seller[33]	12	30
	Shareholding by Local Communities in the Seller	2.5	5
	Shareholding by Black people in the Construction Contractor	8	20
	Shareholding by Black people in the Operations Contractor	8	20
Management control (5%)	Black people in Top Management	--	40
Preferential procurement (10%)	BBBEE Procurement	--	60
	QSE & SME Procurement	--	10
	Women Owned Vendor Procurement	--	5

[32] This requirement appears to be informed by the Social and Labour Plans for mining companies in the mining industry.

[33] "Seller" refers to the Renewable Energy company making the bid.

Socioeconomic development (15%)	Socio-Economic Development Contributions	--	1.5
	Adjusted Socio-Economic Development Contributions	--	1.5
Enterprise development (5%)	Enterprise Development Contributions	1	0.6
	Adjusted Enterprise Development Contributions	1	0.6

(Source: DoE, 2015)

Initially, as already noted, SAWEA viewed the economic development requirements as imposing compliance costs which were "very high" for an infant industry and imposed a "heavy and unanticipated compliance burden" (Creamer, 2011 in Baker et al., 2014:14). Many international bidders felt that factors in the economic development scorecard "were too demanding and played too substantial a role in bid valuation". They also complained that "no guidance on how such plans were to be prepared or how they would be evaluated was initially provided" (Eberhard et al.,2014:24). However, as already indicated in Chapter One, it is disingenuous for international bidders to argue that economic development requirements impose too high a cost, as they are familiar with the concept of community renewable energy in developed countries. The more pertinent issue concerns communication and the manner in which changes were introduced in the bidding process in a piecemeal manner.

As far as funding for community development initiatives is concerned, this is done through a percentage of revenue from the sale of electricity to Eskom by the renewable energy IPP. In an interview with me, the CEO of SAWEA captured the problems with this approach to community development in terms of the "tick-box" mentality it inadvertently rewards, as well as its mismatch with actual conditions in the places where projects are being built:

> The IPP Office wants compliance, but compliance can mean anything, and … just ticking boxes, and I'm not saying that's what the industry is doing, but if you up pressures to spend a certain amount of money per quarter and you are working in a barren community where there is only one house there and one house there and very low population there is only so much you can do. Otherwise you run a risk of creating white elephants.

The CEO went on to note how the renewable energy industry is shifting over time:

> So now we've started engaging on the process of collaboration amongst projects in the same regions…and look at a longer term over the 20 years not next quarter what are we going to achieve because you are not going to plan anything long-term if you are looking at quarterly spend. Over the next 20 years period this is where we would like

> to see the community going and for us to get there this is step one and this is step two….then you can track your progress of development (interview, 11 December 2019).

The body responsible for overseeing both the bidding process and compliance of community development is the Independent Power Producer (IPP) Office which was established by the Department of Mineral Resources and Energy, the National Treasury and the Development Bank of South Africa. The CEO expanded on the problems with its oversight role with regard to compliance:

> But if you are focusing on ticking boxes on a quarterly basis, I can pay R500 000 for someone to go and teach teachers how to teach maths because I can always say, well I've spent R500 000 and when you see the value of the work that has been done versus the amount that has been paid …. And I don't think the IPP Office looks at that. And the other thing that we want to start focusing on, and I'm actually doing research on that, is the impact of the SED spend in the community. So it's not just how much has been spent, then you report big numbers in billions, but we want to see stories of the people on the ground. Do you see the benefits or you just hear [that] this project is spending this much in this community, but only on paper (interview, 11 December 2019).

I pick up on these challenges in relation to the implementation of Mainstream's community development commitments in Loeriesfontein in Chapter Eight.

Similar problems arise with regard to the employment creation projections made during the bidding process and what is actually achieved through the projects. In 2015 the IPP Office projected that between bid windows 1-4, the REIPPPP would create 109 444 direct, full-time-equivalent (FTE) persons jobs in both the construction and operations phases over a 20-year period (DoE, 2015). SAWEA claimed that of this number, 38 701 FTE person-years of employment had already been created in renewable energy host communities for youth and women (SAWEA, 2018a). However, many of these employment opportunities are not permanent but temporary, and, as already discussed in Chapter One, the calculations on which these numbers are based are questionable. (I explore this further in relation to measuring job creation in Loeriesfontein in Chapter Seven.) With regard to the other elements of the scorecard, Overy (2018) notes that credible empirical data with respect to local content, ownership, management, and preferential procurement in the renewable energy sector are

limited and sometimes not at a level that allows for meaningful comparison between technologies (Overy, 2018).

With regard to the issue of ownership, Baker (2015:151) notes that "project companies demonstrate a complexity of ownership structures involving international, national, private and public players and technical, financial, black and local community shareholdings". Moreover "a project company may be head-quartered in one country, have offices and assets in various others, and be listed somewhere else". Baker argues that this complexity leads to difficulties in attributing direct project ownership, which is an issue with regard to the two wind farms outside Loeriesfontein. These complexities notwithstanding, a pattern regarding black ownership in the REIPPPP projects is emerging which suggests that politically connected individuals and companies are benefitting. For example, the co-founder of the Jay & Jayendra company listed below is Jay Naidoo who was the founding General Secretary of COSATU, a former Cabinet Minister responsible for implementing the RDP, a former Minister of Communication, former chairperson of the Development Bank of Southern Africa (DBSA) (2001-2010) and a former executive director of NEDLAC. [34] The Thebe Investment Corporation is an entity in which the ANC has a stake through the Batho Batho Trust.[35] Its six projects include the two wind farms outside Loeriesfontein.

Table 5.2 provides a summary of black-owned companies that have benefitted from the REIPPPP and are linked to politically prominent individuals who have already benefited from BBBEE deals in the mining sector.

Table 5.2: Black-owned companies that have benefitted through the REIPPPP

Company	**Number of projects**
Pele Green Energy	6
Thebe Investment Corporation	6
Siyakhula Women's Opportunity Trust	5
Ramizest (Letsatsi Trust)	4
Royal Bafokeng Holdings	4
Jay & Jayendra	2
Khana Energy	2
H1 Holdings	2
Total	27

(Source: Overy, 2018)

[34] DBSA provides valuable support to the REI4P.

[35] Thebe was founded in 1992 and Batho Trust has 46.79%. Thebe Investment Cooperation is also a shareholder in Seriti Resources.

5.4.3 Tariffs

One of the argument that NUMSA and Transform RSA advanced in their 2018 interdict was that the costs of the renewable energy IPPs were higher than Eskom's. These costs are passed through to the consumer by Eskom as the sole buyer of electricity from renewable energy sources. Tariffs for the first two bid windows were certainly high and Eskom will continue to pay these costs for the next 20 years and pass them through to consumers. However, since 2011 the tariffs associated with the different technologies under the REIPPPP have declined substantially as shown in Table 5.3 below. In an interview with me the SAWEA CEO noted that it is generally acknowledged that projects in the first two bid windows of South Africa's REIPPP programme carried a high cost and consideration should be given to refinancing them through equity or debt restructuring (interview, 11 December 2019). The argument is that falling costs of renewable generation will offset the initial high costs, making renewables competitive in relation to fossil fuels, and this should make them increasingly attractive (Walwyn & Brent, 2015). From bid window 3, the cost of renewable across technologies dropped significantly, with the biggest drop being witnessed in wind.

Table 5.3: Average renewable energy tariffs over bid windows [R/kWh]

Technology	**Large IPP**						**Small IPP**	
Rounds Dates	Round 1 2011	Round 2 2012	Round 3 2013	Round 3.5 2014	Round 4 2015	Expedited	S1 2014	S2
Wind	R1.51	R1.19	R0.87		R0.75	R0.62	R1.15	
Solar PV	R3.65	R2.18	R1.17		R0.91	R0.62	R1.22	R1.01
Solar CSP	R3.55	R3.32	R1.93	R1.8				
Biomass			R1.65		R1.61		R1.65	
Small hydro		R1.36			R1.24			
Landfill gas			R1.11					

(Source: DoE, 2015)

In South Africa's energy discourse, the question of costs is framed in what is called "a levelised cost of electricity", with comparisons being made between renewables and fossil fuels (coal) (Walwyn & Brent, 2015).[36] However, the renewable energy tariff should be viewed in light of the blended tariff structure in this comparison and not as individual technologies or bid windows.

[36] "The levelised cost of electricity … from a generation plant is the net present-day monetary cost per present day kWh unit of electricity delivered, which when adjusted for inflation each year over the lifetime of the plant, will recover its full costs, including the initial investment, cost of capital (including dividends and interest), fuel and all other fixed and variable operating and maintenance costs" (Yelland, 2016).

The decline in tariffs is significant because it has been argued by Treat & Sweeney that the "main contributor to the cost of renewables is not the actual technologies themselves, but the cost of borrowing money for projects—in other words, interest rates" (2019:2). From the profit-making perspective of private investors, having tariffs falling faster than the real costs of building the projects diminishes profit margins. However, government-backed PPAs guarantee returns on investment and reduce risks. Treat & Sweeney argue that the falling tariff prices bode well for the mass deployment of publicly owned and controlled renewable energy projects, since where "governments are able to fund infrastructure projects directly, they can do so; where they need to borrow, they can access financing at lower interest rates than private developers" (2019:5).

In 2015 Eskom objected to signing new PPAs with renewable energy IPPs, arguing that increasing renewable energy supply under conditions of excess electricity would increase the price of electricity, because the costs would be passed on to the consumer under the current regulatory framework, further burdening consumers and constraining economic growth. It claimed:

> the (2016) electricity supply is adequate up until 2021 and Eskom is justified not to sign-up additional IPPs. This point remains valid even at an exaggerated 3.3 percent compounded annual growth rate (Eskom, 2016).

In their investigations, the regulator, NERSA, found that "Eskom had not breached its license conditions by delaying the signing of 27 renewable energy Purchase Power Agreements (PPAs) for 33 months" (SAWEA, 2018b). These PPAs were finally signed by the Ramaphosa administration in 2018. This move also paved the way for the 5th bid window to be launched in 2020, along with significant changes in the scorecard used to evaluate bids in the REIPPP programme. Tariffs now account for 90% while the economic development scorecard has been reduced to 10%.

5.4.4 South Africa's REIPPPP in comparative perspective

In this section I reflect briefly on how the REIPPPP compares with the adoption of renewable energy in other contexts, including in developed countries in the global north where the introduction of renewables in the energy mix has been largely successful. In these cases,

unlike the situation in South Africa, the adoption of renewable energy has its roots in social movements and community-based organisation in the 1990s that were strongly opposed to nuclear energy as a source of power for environmental reasons (Karnøe and Jørgensen, 1995). Unlike the top-down approach of the REIPPPP in South Africa, this facilitated a bottom-up approach which has shaped a very different ownership model, one in which community involvement is high, most notably in the form of community renewable energy (CRE) projects. As noted above, in these projects local communities are able to exercise ownership and control while also benefitting "collectively from the outcomes (either energy-saving or revenue-generation)" (Seyfang, Park and Smith 2013:978).

Thus in Germany, the *Energiewende* (meaning "energy transition" or "energy revolution") has resulted in almost half of the country's renewable energy capacity being owned by individuals and local or regional community groups (Yildiz, Rommel, Debor, Holstenkamp, Mey, Müller, Radtke and Rognli 2015). This is regarded by many analysts as a model for how to transition to a low-carbon economy (Gills, 2014; Mathews, 2017; Coester, 2018). In Sweden the adoption of renewable energy was pioneered through eco-villages. In the Netherlands renewable energy was built through the initiatives of individual citizens working through cooperatives (Kooij, Otemana, Veenmana, Sperlingb, Magnussonc, Palmc and Hvelplund, 2018). In Denmark until the year 2000, in order to become an owner of a wind turbine one needed to be a permanent resident of the municipality in which the turbine was located. What is clear is that in Denmark there was an atmosphere of open discussions between different stakeholders which played a crucial role in the energy discourse; it also helped that between 1980 and 2001 the majority in the Danish parliament could be considered "green" in outlook (Kooij et al., 2018). Here small community-owned renewable energy schemes were already in place around the time that Eskom was established in the 1920s; between 1985-2014 total domestic electricity supply from renewable energy (mainly wind) increased from negligible to 42% (Kooij et al., 2018).

These country-specific examples demonstrate the importance of community involvement and popular buy-in for the adoption of renewable energy. This buy-in translates into a financial link that connects communities and renewable energy companies through various ownership arrangements. Hence the contribution of renewable energy IPP to local economic development and sustainable development in particular is important. The labour unions in particular have mobilised around the need for a just transition but their focus, and focus of much of civil society, has been on what this means for workers and communities tied to coal sector and how policy around the energy transition must take their needs and alternative sources of livelihoods fully into account. The involvement of local municipalities and communities is the common

denominator in many places where there has been a successful transition to renewable energy (Mey et al.,2016; Kerr et al.,2017; Kooij et al.,2018) – something that has not been present in South Africa, as my case study makes very clear.

The picture is, however, different in China, the United States of America (USA) and Australia – all, like South Africa, countries where fossil fuels have played a major role in industrial development and electricity supply. In China the transition to a low-carbon economy has been centrally driven by its authoritarian and single-party state in a well-coordinated fashion – so much so that there is currently *overcapacity,* i.e. supply is beyond what can be successfully integrated into the system and put to use (Treat & Sweeney 2019:5). In the USA with its individualistic, entrepreneurial and capitalist ethos, factors limiting the penetration of renewable energy include the political power of states and of communities dependent on fossil fuels for state economies and local employment, notably Wyoming, Alaska and North Dakota (Handler, Henry & Bazilian, 2020). In Australia coal accounts for 75% of all electricity generation, making for an unsupportive political environment for the promotion of renewable energy; here some local communities are pushing for CRE, albeit with mixed success (Geoscience Australia, 2019).

Where there has been resistance to the introduction of renewable energy, the common denominator is often a combination of poor planning from the side of government and a lack of community involvement in publicly or privately funded projects. This is evidenced in cases of publicly funded projects from Sub-Saharan Africa, (Ikejemba, Mpuan, Schuur, and Van Hillegersberg, 2017) and Mexico (Dunlap, 2018). In 29 publicly funded projects across nine sub-Saharan countries (Nigeria, Ghana, Kenya, Gabon, South Africa, Tanzania, Mozambique, Ethiopia and Malawi), Ikejemba et al (2017) found the reasons for failure of the projects to be similar across the different countries, including political agendas around the process of awarding projects; low levels of stakeholder co-operation, public acceptance and inclusion; and poor planning and implementation. They have proposed greater transparency and shared responsibility and community involvement as critical for the successful implementation of private and publicly funded renewable energy projects.

In Mexico in the case of the Bíi Hioxo wind park contestations centred on land-use-changes impacting farmers. Dunlap's (2018) case study of the Bíi Hioxo wind park brought to the fore the diverse nature of the struggles by local groups around the development of this project. The reasons for failure in this project echo those identified by Ikejemba et al. (2017), specifically the role of political agendas and problems around the process of awarding projects. Here the proponents of renewable energy were found among politicians, land elites and unions, while

those resisting it could be divided into two groups: those against *exploitation* and those against *dispossession*. The first group was not necessarily against renewable energy development, "but are against exploitative land deals, advocating, in areas already subject to wind energy parks, for increases in social development, employment, profit-sharing and (heavily) subsidized or free electricity" (Dunlap, 2018:633). The second group's stance was total rejection of renewable energy development (Dunlap, 2018).

This is very different to South Africa where the most prominent resistance to renewable energy is not related to the politics surrounding land use per se (in host communities)(see: McEwan, 2017), but to concerns around job losses in the coal sector and the implications of this for unemployment, poverty, and inequality in parts of the country far removed from the primary sites of investment in renewable energy. However, the issues identified by Ikejemba et al. (2017) as important for successful project implementation, specifically transparency, shared responsibility towards tackling socioeconomic challenges and the importance of community involvement, all resonate with the findings from my study.

5.5 Conclusion

This chapter has reviewed struggles around the direction of the MEC in post-apartheid South Africa and the place of renewable energy within that, as Eskom moved from fiscal stability towards a "utility death spiral". Developments in the country's new democratic order ran in parallel with gathering concerns globally about the threat of climate change, which also influenced the way in which South Africa's environmental management policies took shape after 1994. The debate on the just transition to a low-carbon economy has been (and still is) entangled with questions about redressing past injustices, black advancement and democratic consolidation, questions from which the renewable energy sector initially attempted to exempt itself.

The chapter shows how contestations over Eskom's unbundling in the early 2000s shaped organised labour's response to the introduction of large-scale renewable energy. While the major unions have acknowledged that renewable energy has a role to play in climate change mitigation efforts, significant concerns have been raised about project ownership, the question of costs and tariffs and how best to mitigate job losses in coal producing areas. These issues and who is or should be responsible for resolving them have often been obscured in the policy debates in which cost comparisons between energy sources have taken centre stage. In the

struggles over the shape and pace of energy policy development and implementation reviewed in this chapter, however, the voices of people in the host communities for renewable energy projects were conspicuously absent. In the next three chapters I turn from national developments in the energy sector to the Northern Cape and Loeriesfontein, my case study site.

Chapter Six: On the Frontier: Loeriesfontein in the Context of the Northern Cape Karoo

This chapter sets the scene for the discussion of the contribution of renewable energy projects to decent work and community development in Loeriesfontein in chapters seven and eight. It begins by situating Loeriesfontein and the investment in renewable energy outside the town in the context of the history and ecology of the Northern Cape and key developments in this marginalised region of South Africa since 1994. These include significant changes in land use since 1994 in addition to and alongside the investment in renewable energy. Section two reviews socio-economic conditions in the town of Loeriesfontein, drawing largely on the SARChI household survey of 2019 (Vorster, 2019), supplemented by my own fieldwork. Section three provides an overview of the two Mainstream wind farms for which Loeriesfontein is the designated local "host" community, as background for the detailed discussion on their job creation and community development impacts that follows in the next two chapters.

6.1 Karoo overview: Land, economy and ecology

6.1.1 Colonisation, land dispossession and hybrid identities

In the history of colonisation and land dispossession in South Africa, the Karoo features as what Nigel Penn (2005) has called a "forgotten frontier". Penn (2005:13) argues that critical issues such as "who should own the land and under what conditions, and who should work for whom and under what conditions" were decided on this frontier in a relatively short period of time. The outcome of these struggles was a land dispensation in which land ownership in the Northern Cape at the time of South Africa's democratic transition was more heavily skewed in favour of white farmers than anywhere else in South Africa other than the Free State (Walker, 2008: 245). In 1996 some 82% of the Northern Cape Province was classified as privately owned commercial farm land, almost all of it allocated to extensive livestock farming (primarily sheep) on uncultivated rangeland.

Genetic and archaeological evidence makes it clear that the first humans in the Karoo were the ancestors of the |Xam – San hunter-gatherers who were living in the area at the start of the colonial era, which for this region began in the early 18th century (Parkington & Dlamini, 2015; Morris, 2018). The other group of people living in the area at the time were pastoralists,

known collectively as the Khoekhoen (also Khoikhoi), whom the Dutch colonists referred to by the derogatory term “Hottentots” (Oliver & Oliver, 2017). There is consensus amongst historians that the Khoekhoen introduced small livestock in the form of sheep to the Karoo when their forebears first moved south from present-day Namibia into the western half of contemporary South Africa some 2 000 years ago (Smith, 1992). Both social groups lived off the land, within the constraints imposed by the arid to semi-arid conditions.

The precolonial era in the Karoo was characterised by a slow rate of social and ecological change – the footprint of both San hunter-gatherers and Khoekhoe pastoralists on the land was light. The arrival of European colonists at the Cape in the middle of the 17th century upended these ways of life. The slow movement of European settlers from Cape Town into the northern interior during the 18th century was at the expense of the indigenous people who over the course of the next 150 years lost control over the Karoo and its resources, including valuable water points (Penn, 2005; Legassick, 2004). As Penn notes, the history of the colonial era in the Karoo is characterised by violent encounters between European settles and the original inhabitants of the land. Over time, these violent encounters led to changes to the independent way of life of the original inhabitants and gave way to a social order based on permanent settlement involving a class of white, Dutch-speaking landowners supported by an underclass of labourers and servants of largely Khoisan ancestry (Walker et al., 2018).

Marks (1972), Elphick (1972), and Fourie & Green (2015) have argued that the impact of colonialism smudged the lines between the Khoekhoen and San. In recent years the term ‘Khoisan’ has been used to describe these two groups collectively. Penn points out that this term “was used when the identity of indigenous societies became uncertain or when it became evident that both Khoikhoi and San were linked together” (1995: 46). He also argues that “Khoikhoi and San are not timeless ahistorical categories but historical categories and social constructions” (1995:43-44). Walker et al. argue that “the gradual evolution of this colonial society involved both the destruction of the precolonial order and the creation of new, hybrid identities, along with a racialised social hierarchy that persists, albeit in attenuated form, into the present” (2018:162). The new hybrid groups that emerged included the Basters and the Griqua; as already described in Chapter One, the town of Loeriesfontein was established in 1894 on the back of a colonial land grant to a group of Basters in 1860. In the apartheid period the descendants of this group were officially classified by the state as “coloured” in terms of the Population Registration Act of 1950.

The establishment of Christian mission stations as refugees for some dispossessed indigenous people mediated harsh government policies towards them while also facilitating the

development of trade links between the Cape and the interior (Penn, 2005). These mission stations formed the nucleus of the "coloured reserves" established mainly in the Namaqualand region, and Christian identity forms an important part of the social fabric of Karoo towns today (Butler, 2019; Manyani,2020). The gradual evolution of this colonial society was instrumental in the proletarianisation of the local labour in distinctive ways that differed from the migrant labour system that emerged on the Kimberley diamonds fields in the late 19th century. As already noted in Chapter One, what is key here is that no influx control system was developed for people classified as "coloured". This "free labour" was instrumental in the development of a distinct colonial political economy, underpinned by the agricultural and mining sectors that have dominated the economy of this region since the late 19th century.

6.1.2 Economic developments from the late 19th century

The discovery of diamonds in 1867 on the northern-eastern edges of the Karoo proper marks the commencement of the mineral revolution in southern Africa described in Chapter Four. This saw the shift of the political and economic centre of the future South Africa northwards from the Cape Province to the highveld. The discovery of diamonds also led to political struggles over the ownership of South Africa's mineral wealth between the British Government and the Boer republics which culminated in the South African War of 1899-1902 and led to the establishment of South Africa as a national entity in 1910.

Outside of Kimberley, commercial sheep farming became the main economic activity in the Karoo in the latter half of the 19th century, with merino wool one of the Cape Colony's major exports (Beinart, 2003). According to Beinart (2003), between 1895 and 1904 the Karoo saw a significant decline in wool production; whereas in 1875 the number of merino sheep was 10 million, in 1905 this number was below 6 million. Climatic conditions contributed to these changes, with the decline in merino numbers associated with a prolonged period of drought (1880-1920). Through the 20th century periodic droughts were closely linked to economic decline in the Karoo, as was the case between 1919-31, 1944-49 and 1962-73 (Dean and Milton, 1999). Drought stalled the growth of commercial agriculture and exposed the weakness of relying on a single main economic activity (Beinart, 2003). The pressures on commercial sheep farming in the first half of the 20th century were, however, relieved by the introduction of more conservationist approaches to land management (Hoffman, 2014).

In the second half of the 20th century the imposition of a brutally enforced system of racialised identities under apartheid through the Population Registration Act of 1950 and the Groups Areas Act of 1950 led to the submerging of older ethnic identities such as Baster and Nama

into the coloured category. The former Act categorised people into four distinct groups and the latter made racial segregation in terms of residence and work compulsory. In Loeriesfontein, the Group Areas Act was enacted in 1968; thereafter residents classified as coloured (the great majority) were forced to move into new townships laid out on the outskirts of the town (Davids, 2021). Möller (1988) suggests a social hierarchy lingered in Loeriesfontein between those who were regarded or regarded themselves as Baster and those who were regarded as coloured. How this social hierarchy was affected by the incorporation of both groups into the racialised category of coloured is a topic for further research.

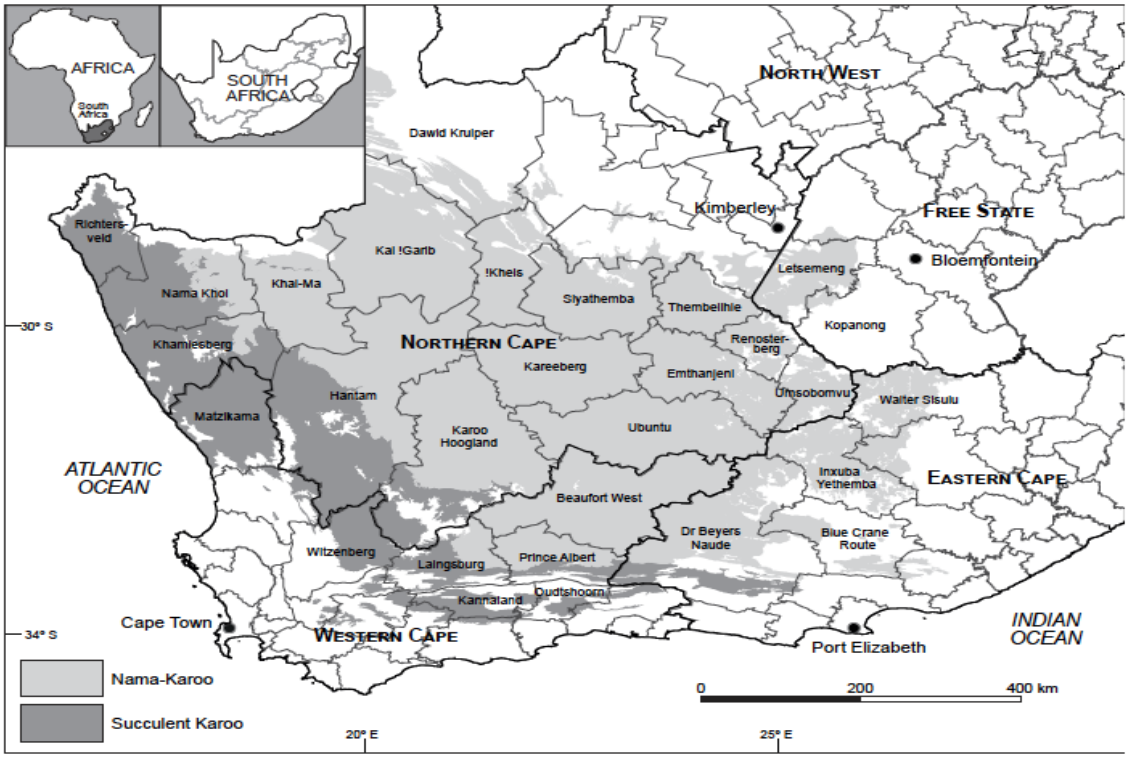
As part of a much longer process of social and economic change, over the course of the 20th century the population of the Karoo transformed from being predominantly rural to being predominantly urban, located in small towns such as Loeriesfontein (Hill & Nel, 2019). Walker et al. (2018) argue that a process of consolidation of farm holdings got underway from the 1970s, which has continued into the present day and reflects both these shifting population dynamics and economic pressures on commercial farmers, as the state removed earlier subsidies and forms of support from the 1970s. Between 1911 and 2004, the overall population of the Karoo grew by 176%; however, the total urban population grew by 407% while the rural population declined by 33% (Hill and Nel, 2018:207). During the same period, the white population declined by 50%, from 44% of the total population in 1911 to just 12% in 2004. In this time the biggest growth came from the coloured and black African population groups which grew by 314% and 221%, respectively (Hill and Nel, 2018:207). Increased out-migration of white people from the Karoo saw financially stronger farmers buying out weaker farmers, “not only adding to the decline in the white population but precipitating a movement of redundant farmworkers of the land and into nearby small towns” (Walker et al., 2018:164). What this means today is that despite the popular image of the Karoo as a rural area, three out of every four people in the Karoo now live in small country towns (Hill & Nel, 2018), many of which are struggling with socioeconomic challenges.

Given its ecology (discussed further below) and South Africa’s development trajectory in the twentieth century, the Karoo is a sparsely populated area relative to its size. In 2011 its population was just under a million people or 1.9% of South Africa’s total population (Walker et al., 2018: 160). To put the number in perspective, South Africa’s smallest province and its economic heartbeat, Gauteng, accounts for just 1.5% of the land area but 26% of the population (or 15.5m people) of South Africa (StatsSA, 2020).

6.1.3 Karoo ecology

The Karoo is an arid to semi-arid area that covers a little under a third of South Africa's land area and spreads across four provinces (Northern Cape, Eastern Cape, Free State and the Western Cape), with the bulk of it falling in the Northern Cape (Henschel, Hoffman and Walker, 2018). (See Figure 6.1 below.) As already noted in Chapter One, its aridity and elevation combine to make it an excellent site for renewable energy generation. The Karoo comprises two of the nine recognised biomes in the country: the arid Succulent Karoo in the west and the semi-arid Nama-Karoo on the inland plateau (Walker et al., 2018). Both the Nama Karoo and the Succulent Karoo biomes are characterised by ecological sensitivity, with rainfall playing a significant role in the land's productivity. According to Hoffman, Skowno, Bell, and Mashele (2018) more than 95% of the land in the Karoo is classified as "natural", i.e. it is uncultivated rangeland. Loeriesfontein sits on the border of the Succulent Karoo biome, where it starts to shift into the Nama Karoo.

Figure 6.1: South Africa's Succulent Karoo and Nama Karoo biomes



(Source: Walker et al., 2018:158)

South Africa is ranked the third most biologically diverse country on Earth, and one of 12 "megadiverse" countries "which collectively contain more than two-thirds of global biodiversity" (Endangered Wildlife Trust, n.d.). Three of the 25 identified diversity hotspots in the world fall

within South Africa, one of them being the Succulent Karoo (Myers, Mitterm, Mittermeier, Fonseca & Kent, 2000).[37] Although vulnerable to land degradation, since the 1980s there has also been an increase in protected areas in the Karoo, especially in the Succulent Karoo biome, in recognition of the significance of its biodiversity (Hoffman et al., 2018).

As already mentioned, the number of domestic livestock has significantly decreased in the Karoo as land management practices have improved and farm ownership consolidated. According to scholars like O'Connor & Roux (1995), Hoffman & Todd (2000), and Mucina *et al.* (2006), the shift from migratory wildlife (primarily ungulates) to fenced livestock farming (primarily sheep and goats but also cattle and other domestic animals) represented a major large-scale disturbance in the ecosystem of the Karoo. Today climate change has been identified as one of the key drivers of change in the Karoo, impacting on its social-ecological system which Walker et al (2018: 157) have defined as "the complex interaction of social and ecological dynamics in the environment on which life depends". Climate change is impacting on both rainfall and temperature in the Karoo in complex ways. These changes are putting pressure on land-based livelihoods and making a rethink of people's relationship to the environment and how to sustain livelihoods increasingly urgent (Walker et al., 2018). The people of the Karoo thus have an interest in mitigating climate change, including through the national shift to renewable energy.

6.1.4 New land uses in the Karoo after 1994: Astronomy and land reform

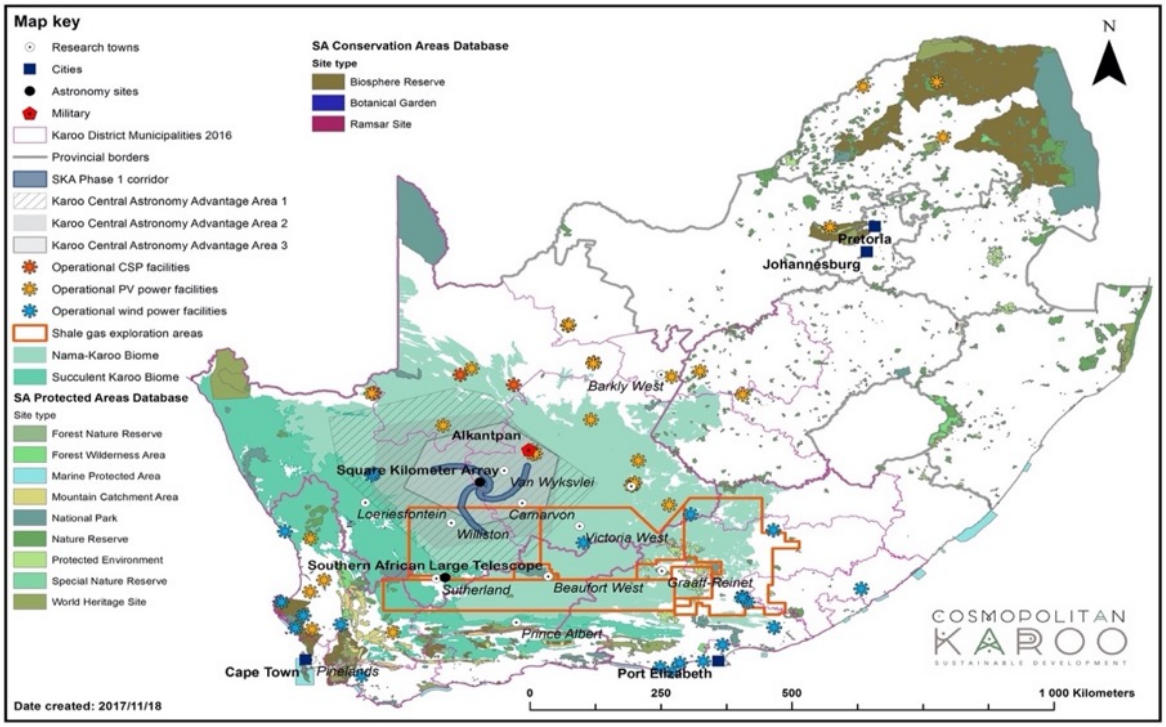
Walker & Chinigò (2018) have argued that for some time the natural resources of the Karoo have been subordinated to national and global imperatives. Recent developments in the areas of astronomy, mining, and energy have brought fresh, externally driven investments into a region which most South Africans regard as essentially an empty space (Walker, 2019). (See Figure 6.2 below.) These developments entail a new use of the region's natural resources, under a differently configured state at the local, provincial and national levels.

The creation of the Northern Cape Province after 1994 led to the province being divided into five district municipalities and 26 local municipalities. The district municipalities are Frances Baard District Municipality, John Taolo Gaetsewe District Municipality, Pixley ka Seme District Municipality, Namakwa District Municipality and ZF Mgcawu District Municipality (Municipal Demarcation Board, 2016). The Hantam Local Municipality is one of six local municipalities falling within the Namakwa District Municipality; the other five are Karoo

[37] The other two are the Maputaland-Pondoland-Albany hotspots and the Cape Floristic Region.

Hoogland, Khai-Ma, Nama-Khoi, Kamiesberg and Richersveld Local Municipalities. Administratively, the creation of both district and local municipalities has created an extra layer of bureaucracy without improving local government capacity to cope with the large-scale and sophisticated investment projects that are currently occurring in the Karoo (Atkinson, 2019). Moreover, the large distances to be travelled between district capitals and local municipality centres exacerbate the challenges associated with this extra bureaucratic layer. For example, the Hantam Local Municipality encompasses some 36 128 square kilometres. The District Municipality's Head Office is in Springbok, some 335 km from Calvinia, the local municipality headquarters. The provincial capital is in Kimberley, some 568 km from Calvinia. These distances demonstrate how isolated towns like Loeriesfontein are from the centres of government in the province. While most planning is meant to be driven by the local municipality, it needs to be coordinated with the district municipality and endorsed by the provincial government, with the great bulk of the budget allocation coming from the national government.

Figure: 6.2: Investment in new land uses in the Northern Cape as of 2017



(Source: SARChI Chair in the Sociology of Land, Environment & Sustainable Development)

Despite the provision for community participatory mechanisms through mandatory consultative meetings to discuss municipalities' Integrated Development Plans (IDPs), Walker et al. (2018) have raised concerns over the ability of local people in the Karoo to participate meaningfully in

shaping a sustainable future for themselves. Within other projects that are of national importance, the Northern Cape has been marginalised. For example, during the 2010 FIFA World Cup, the Northern Cape was the only province that did not host a match. Moreover, not one of the nine Special Economic Zones or industrial development zones declared in 2012 by the Department of Trade and Industry were in the Northern Cape (although recently, the government has proposed establishing a Special Economic Zone in Upington).

Questions about the ability of local people to benefit meaningfully from the major land-use changes in the Northern Cape after 1994 have been raised most notably with regard to the promotion of astronomy, in particular radio astronomy in the form of the international Square Kilometre Array (SKA) project. Researchers such as Walker and Chinigò (2018), Gastrow and Oppelt (2019), Atkinson (2019) and Terblanche (2020) have brought into sharp focus the competing developmental agendas at local, provincial, national and global level associated with the SKA in the Northern Cape. In pursuit of national and global investments in the field of astronomy, most of the Northern Cape has been declared an Astronomy Advantage Area (AAA), in terms of the Astronomy Geographic Advantage Act of 2007. This Act empowers the Minister of Science and Technology to regulate any activity deemed to impinge on the pursuit of astronomical science in the Northern Cape province (Atkinson, 2019). To put the scale of the area the Act covers into perspective, Walker (2018:3) notes that “the ‘astronomy reserve’ is larger than the total land area set as a target for the country’s beleaguered land reform programme in the mid-1990s, which was for 30 per cent of commercial farmland to be redistributed from white to black ownership across the country as a whole”. She argues that for a sector that contributes scantily to the provincial and local economy, this represents an extraordinary commitment of land resources, at some 36% of all commercial farmland nationally.

The primary beneficiary of the Act has been the MeerKAT radio astronomy project, the South African built precursor to the global Square Kilometre Array (SKA) radio astronomy project outside Carnarvon. To accommodate the project, some 130 000 hectares of white commercial sheep farmland were bought by the state and regulations introduced to restrict activities seen as detrimental to the functioning of the project (Terblanche, 2020). Indicative of the power of the SKA in the Northern Cape, in order to secure environmental authorisation for four new wind farms proposed for construction near Loeriesfontein, the renewable energy company concerned must conduct its environmental impact studies in consultation with the SKA-SA

Project, and construction cannot commence before the SKA-SA project office has given its approval.[38]

Another potentially important land-use development since 1994 has been the state's leveraging of municipal commonage land for the purpose of its land redistribution programme. After 1994, in order to address the legacy of colonial land dispossession and apartheid-era policies of forced removals that had grossly skewed land ownership in South Africa, the ANC government implemented a policy of land reform. In the Northern Cape, commonage land adjacent to Karoo towns and owned by the local municipalities has been leveraged for the land redistribution programme and made available for black small-scale and emerging farmers to use, with the primary objective of supplementing poor residents' livelihoods in small country towns (Atkinson, 2007). In the Northern Cape Province, municipal commonage land accounted for 33% (725,000 ha.) of all land made available for land redistribution in the province up to the end of 2016 (Walker, 2019). In terms of land redistribution, the Northern Cape commonage programme has been the single largest contributor to land reform provincially, and a very significant contributor to the commonage programme nationally (Walker, 2019). However, while the commonage programme has been praised for its potential to contribute to land reform (Atkinson and Ingle, 2018), it has faced challenges around poor management and competing land interests. In Loeriesfontein, as discussed further below, competing claims to the municipal commonage have resulted in major tensions within the community (Davids, 2021).

6.1.5 Renewable energy in the Northern Cape

Investment aimed at exploiting the solar and wind resources of the Northern Cape has been a major driver of land-use change since 1994. As previously noted in Chapter One, the province is home to 59 of the 112 renewable energy projects procured through the first four windows of the REIPPPP. The province is followed by the Eastern Cape, with 17 projects and the Western Cape with 14 (IPP Office, 2021). The distribution of renewable energy IPPs is spread across all five district municipalities in the Northern Cape. The district municipality with the largest share of projects is the Pixley ka Seme with 21 projects, followed by ZF Mgcawu with 18, then Namakwa (in which Loeriesfontein falls) with 12. Frances Baard and John Taola Gaetsewe have five and six projects respectively (IPP Office, 2021).

[38] The four farms in question are: Ithemba, Xha Boom, Graskoppies and Harterbeest Leegte Wind Farms, all proposed by Mainstream South Africa.

Since the bulk of the investment in renewable energy in South Africa has been located in the Northern Cape, the province is seen to have benefitted enormously from the investment share of the REIPPPP, with the programme's total investment in the province amounting to almost half the Northern Cape's annual gross domestic product of R92 billion by 2020 and creating 35 485 "job-years" in local employment opportunities (IPP Office, 2021:10). However, as already noted, there are limitations with regard to these numbers and how local benefits are distributed. (I explore this issue further in the case of Loeriesfontein in the next chapter.) Furthermore, despite the scale of IPP investment in the Northern Cape, the relationship between the IPPs and local municipalities has become contested.

The primary strategic plan for municipalities is laid out in their respective IDPs which are intended to set out a five-year plan for the municipalities. According to Marco, a senior manager in the IPP Office whom I interviewed, municipalities are expected to provide their strategic plans to the IPPs so that they can work with, but not duplicate, municipal plans in their own community development initiatives (interview, 7 December 2017). However, in his view municipalities are looking to the IPPs to do their work for them, rather than using their IDPs to guide the development of community development projects in the 50km-radius zone around project sites. This extends to the funding of basic infrastructure:

> I'm generalising here, but if you go check 90% of those plans [IDP] are not existing, they are backdated to five, six years ago and they are [a] copy and paste and they have not been updated. Their [the municipality's] role is also to ensure that they get the right amount of funds from Treasury in order to develop their municipality, they are not doing so. Their expectations and I'm talking with experience, I've had those meetings with the IPPs and the different mayors or councillors, their expectations is that the IPP now takes its funds and puts it in in the upgrading of the water plant or takes those funds, the SED funds, and puts it into developing the road or closing of potholes or whatever the case maybe. I'm not suggesting that shouldn't be done, I'm suggesting that those funds, are not, they shouldn't be utilised in totality for those projects. There is a system in place that the municipality lists the activities or enhancement that the municipality requires at budget time. Those funds are then requested from the Treasury and the funds are made available. Now they don't use it for that, they use it for something else, then it's their problem. SED should not be utilised for infrastructure for the municipality (Marko, interview, 7 December 2017).

The tensions identified by Marco around the allocation of SED funds are explored in detail in Chapter Eight with regard to how they manifest in Loeriesfontein. However, his comments point

to challenges faced by many of the municipalities in the Karoo and South Africa more widely. The tensions he is identifying share similarities with those identified in Chapter Five around the control of resources nationally – they speak to both capacity problems in local government and the political instability caused by intense contestation over major projects which offer job and other economic opportunities locally and feed into local patronage networks.

6.2 Loeriesfontein

6.2.1 The Hantam Local Municipality

The Hantam Local Municipality is one of six local municipalities within the Namakwa District Municipality in the western part of the Northern Cape. Figure 6.3 below shows the location of the municipality relative to Springbok, the centre of the Namakwa District Municipality, as well as the location of Loeriesfontein, Brandvlei, Nieuwoudtville and Calvinia relative to each other.

Figure 6.3: The Hantam Local Municipality

(Source: Google Earth)

According to the Hantam Local Municipality's 2020/21 IDP, in 2017 the population within its jurisdiction was 21 505 (Hantam Local Municipality, 2020). The overwhelming majority of the population is classified as coloured and the dominant language is Afrikaans. While the 2020/21 IDP describes the local economy as being constituted by primary, secondary and tertiary sectors it notes that there has been a "contraction in certain primary and secondary (sub)sector contributions in recent years" (2020:5). According to the IDP the primary and secondary sectors' combined contribution to the Hantam economy was about 30% of the total, "with the percentage share of the 'Agriculture' subsector a massive 73% of this contribution" (Hantam Local Municipality, 2020:5). Income levels within the municipality are low, with Census 2011 data showing that a significant proportion (some 76%) of households in the municipality earned less than R5 200 per month (Hantam Local Municipality, 2020). According to the municipality, unemployment, poverty and high levels of social grant dependence are driving an increase in the number of indigent households as well as relative income inequality, with 35% of all households in the municipality classified as indigent (most of them in Calvinia) (Hantam Local Municipality, 2020).

As mentioned in Chapter One, since 1994 provincial politics in the Northern Cape have reflected the national political landscape. The 15-member Namakwa District Municipality council has been firmly in the hands of the ANC but contestation for office is dynamic in local municipalities and wards. In the Hantam Local Municipality, the 2011 local government elections ushered in a DA-led coalition but control over the municipality shifted back to the ANC in 2016. Loeriesfontein ward and the formation of COPE were important in understanding these shifts in the nine-member Hantam Local Council, with the local ward of Loeriesfontein a DA ward until the 2019 by-election when it lost to the ANC.

Though Calvinia remains the main political hub, Loeriesfontein (and the ward) is emerging as a major site of contestation within the municipality because of its favourable location vis-à-vis the renewable energy projects. In the Hantam Local Municipality, the three renewable energy projects are a source of envy and competition among the other towns in the municipality that all face similar socioeconomic conditions. Though Loeriesfontein is more than 50 km from the two wind farms – the actual distance is 60km – it is the closest to these projects of all the towns in the Hantam Municipality and thus the beneficiary of the 50-km radius requirement in the renewable energy sector's community development obligations. This windfall for the town has become entangled with the local politics driving conflict between the two major parties, the ANC and the DA.

In the following section I draw on data from the Loeriesfontein household survey to look at socio-economic conditions in Loeriesfontein itself.

6.2.2 The politics of space in Loeriesfontein

The Baster history of Loeriesfontein and the impact of apartheid on the town has already been briefly referred to in Chapter One. Today, entering the built-up area of the town on the R27 provincial road from Nieuwoudtville, one first passes through the section that was declared a coloured area under the Group Areas Act in 1968. The majority of the town's population still reside in this area which is divided into five neighbourhoods: *Rooiblok*, *Die Dam, Ou Skema* [Old Scheme], *Nuwe Skema* [New Scheme] and *Die Land* [The Land]. The Ou Skema and Nuwe Skema are likely based on the two socio-economic housing schemes Möller (1988) described as built for Basters and coloureds in the 1970s. *Die Land* is a post-apartheid sub-economic (RDP) housing project; the first 100 houses out of the total of 307 for the scheme were completed in 2011. They have been built on or very close to a section of the old *Bruin saailande* [Brown sowing lands/fields] (Hantam Local Municipality, 2012).

Continuing on the main road one first crosses a dry river course which historically was the buffer zone separating the white and coloured group areas, before entering the original town centre, known as *Bo-Dorp* [Upper Town] or *Die Dorp* [The Town]. The 'white' community continues to live here, along with a small number of coloured middle-class households. As previously noted, many houses in the formerly white area belong to local farmers who do not spend all their time in the town; some of them stand empty for much of the time, while others have been converted into bed and breakfast establishments (B&Bs). The main road in the Bo-Drop has the following business establishments strung out along it: the Loeriesfontein Hotel; a dilapidated garage with a small store; a Pep Store; a Post Office; AgriMark, an agricultural and lifestyle product store; a Standard Bank Branch Office (this is the only bank branch in town), a second petrol station; the Boesmanland Pub & Grill; a Spar supermarket and Tops liquor store (the latter opened during the construction of two wind farms) as well as four small general trading stores that mostly sell groceries and takeaways. The main road and the one leading into the former coloured residential area are the only tarred roads in the town; all side streets in the residential areas roads are gravel.

As already noted in my discussion of my research methodology in Chapter Three, my observations during my fieldwork led me to conclude that interpersonal relations across the racial divide are strained but residents also tolerate the familiar, racialised "other". During my interview with the only local white participant from Loeriesfontein in my sample, a lawyer who

had moved to the town in 1976, I asked him as an *inkommer* [incomer][39] to describe the changes he had witnessed in Loeriesfontein since his arrival. His answer reflects the ambiguities of social change in the town:

> What I can say is that the social situation changed a lot in Loeriesfontein, not a lot, what I'm referring to is that, people always say to me that Loeriesfontein has gone backwards, and I always say how could that be. And if you look out of [a] certain perspective, if you are a white person, you will say, OK, Loeriesfontein has gone backwards, but if you look at it out of an objective perspective then you will see that … Loeriesfontein has a high school, up to grade 12, which was never the case. We have a primary school also and we have a private school which is open to all races and that is a very good thing … we had a very smooth transition from a town according to old standards in South Africa that transformed into a town where all races, I think, are getting on very well with each other. One can communicate, we have very good relationships (interview, 10 May 2018).

It is clear from the remark above that the democratic transition has brought some positive changes to the town – by "getting along", the lawyer means that white and coloured residents are interacting in social spaces which were previously reserved for white people only. The town's schools reflect the ambiguities of the social change. The town has two primary schools, the TNJ vd Walt Kollege and the Loeriesfontein Primary School. TNJ vd Walt Kollege is a privately owned pre- and primary school located in Die Dorp while Loeriesfontein Primary is a public school located in Ou Skema with no white students. The town's only high school, Loeriesfontein High School is a public school located in the Die Dorp. Before the transition to democracy it was reserved for white children only. Since the opening up of schools to all races, it has seen a steady increase in the number of coloured children attending it but a concomitant decline in the number of white children; this can be attributed to "white flight" (a phenomenon where white parents take their children out of state schools when other race groups start to join) (Walker et al, 2018:166). This phenomenon, coupled with a declining white population in the town, means that today the high school does not have any white students attending it, only coloured and a small number of black African students (Principal, interview, November 2017).

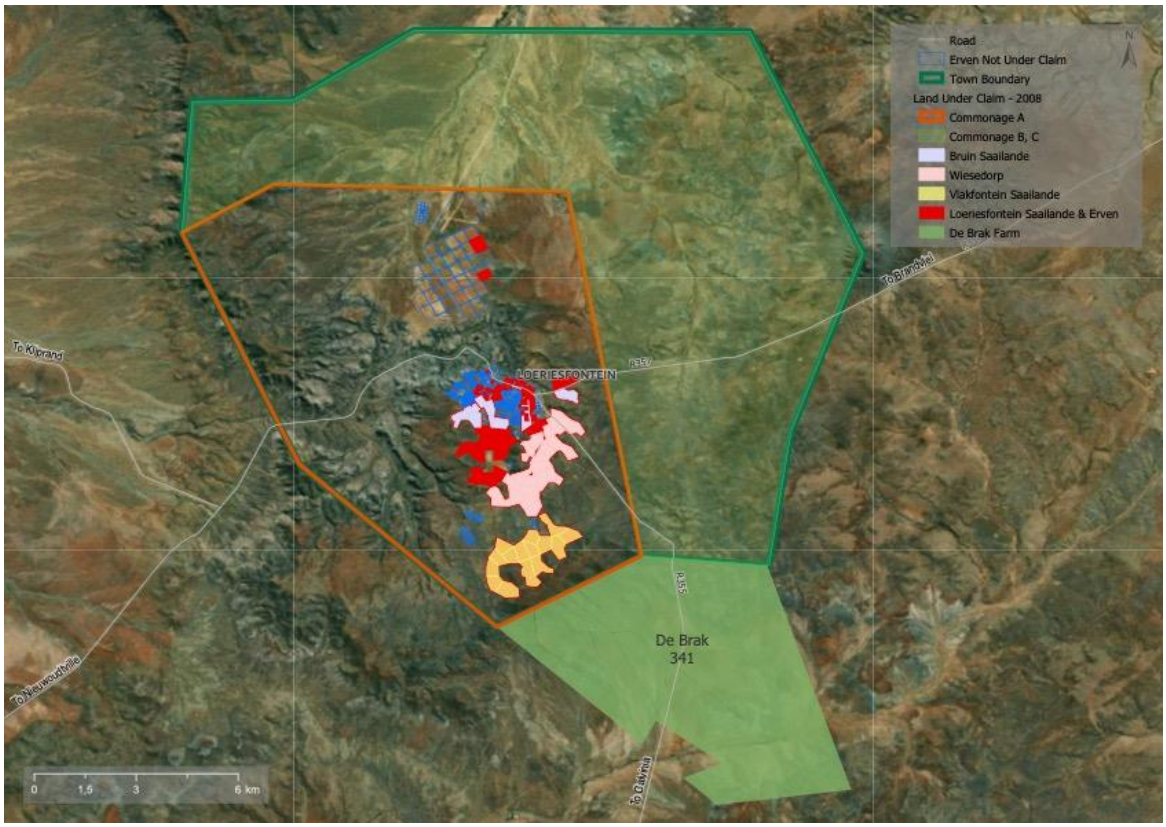
Other major public buildings in the town are several churches (with racially segregated congregations still), a public library; an internet café located in the Ou Skema and a "windpump" museum housed in an old Baptist Church in Die Dorp. The museum features in

[39] An *inkommer* is the Afrikaans term for an outsider, whether white, black African or coloured (Robins, 1997).

local tourist brochures as one of only two “windpump” museums in the world. (The other, the Mid-America Windmill museum, is in Kendallville Indiana, USA). The town has a number of societies and clubs which, based on my observation, generally serve the coloured and white communities separately; these include an Emerging Farmers; association the Loeriesfontein Communal Property Association (representing restitution claimants); Women Against Crime (WAC); *Goue Oues* [Golden Oldies]; the Farmers’ Union Sports Club; the Loeriesfontein Golf Club (with coloured members) and the Loeriesfontein Tourism Office, the Fred Turner Museum and the Business Chamber (the latter regarded in town as “white” organisations). There is also a Community Policing Forum, working with the local police service, which can be regarded as an organisation representative of general community interests.

The built environment of the town occupies only a small portion of the total area of the Loeriesfontein townlands. For much of the twentieth century this land was managed as commonage belonging to the town. After 1994 ownership passed to the Hantam Local Municipality and the land was made available for emerging small farmers in Loeriesfontein. However, ownership of the townlands was affected by a land restitution claim that as of 2020 was still not fully resolved (Davids, 2021). Figure 6.4 shows the land under claim in 2008. It covered plots in town, former fields and all the commonage.

Figure: 6.4: The Loeriesfontein land claim, 2008



(Source: SARChI Chair in the Sociology of Land, Environment & Sustainable Development)

While the restitution programme is designed to provide redress for victims of discriminatory laws and practices in the past, hence restitution for the history of land dispossession described in Chapter One, this has pitted two land reform programmes against each other and brought conflicts and tensions to the community. This has seen ownership of what was known as Commonage A (outlined in orange on Figure 6.4) transferred from the Local Municipality to the Community Property Association (CPA) representing approximately 800 members. According to Davids (2021) since 2008 the status of the CPA's rights over the commonage has been a source of confusion and dispute in the town, particularly among the small-scale farmers who had been leasing it from the municipality, for whom the potential of the commonage as a land reform asset has been lost.

6.2.3 Demography

According to the 2011 national census, the town's population stood at 2 403; with coloured people constituting the majority of the population at 86%, followed by whites at 14% and black Africans at 0.06% (StatsSA, 2011). In terms of contemporary understandings of population categories in South Africa, Loeriesfontein can thus be described as a predominantly coloured town; this designation also reflects the Baster roots of the town. The 2019 household survey indicates that the town's population had grown since 2011 to a little over 3 000 residents (Vorster, 2019).

The town has clear class distinctions that overlap with race. It has a small white middle class and a tiny coloured middle class that is constituted mainly by public servants (police, teachers, municipal officials) and retired former public servants (Vorster, 2019). A severe drought that started in 2012 has affected both commercial and small-scale farmers negatively, leading to some commercial farmers leaving the district altogether. However, economically, the white community still wields considerable power, reflected in the predominantly white ownership of business enterprises in town and farms outside the town. Their influence is also reflected in the networks that Mainstream South Africa used to recruit workers during the construction phase and the lobbying around a tuckshop at the construction site, described further in chapters seven and eight. As in many small rural towns, news travels fast, often along party political lines, and social and political networks shape access to business and employment opportunities.

In terms of gender, the survey data indicates that women outnumber men, with 51.5% of the population female and 48.5% male (Vorster, 2019). Another important demographic feature of the town is its youthful population. According to the 2011 Census, a quarter of the population (26%) was under the age of 14, while nearly two thirds (64%) were of working age, i.e. between the ages of 15 and 64 (StatsSA, 2011). A comparison between the 2011 Census data and that from the 2019 household survey indicates two significant changes in the age distribution of the population. First, in 2011, persons in the age cohort 15-19 represented just over 11% of the total population of Loeriesfontein but in 2019 this cohort had decreased to 6.5% of the total. Second, and likely linked to the first shift, the 2019 survey found the 25-29 age cohort was proportionally larger than it had been in 2011; this reflects a return of young adults who had previously migrated in search of opportunities elsewhere but since come back to the town in the hope of getting work with the construction of the wind farms. The 20-29 age group were beneficiaries of employment opportunities during the construction of the two wind farms (Vorster, 2019). However, the migration of young people to neighbouring towns or the Western Cape is still a feature of the town and consistent with the findings of Eigelaar-Meets on migration patterns in the Northern Cape (2018).

6.2.4 Household income and poverty

Household poverty is alarmingly deep and widespread, with implications for social mobility. The poorest 10% of households "have an income of approximately R750 per month or less, the poorest 22% have an income of R1 750 or less and approximately 50% have R3 000 or less" (Vorster, 2019:46). On the other hand, the wealthiest 10% of households have a monthly income in the region of R13 500 or more (Vorster, 2019). When expressed on a per capita basis, household income poverty is laid bare as shown in Table 6.1. For the poorest 10% of households it is R210 or less. Approximately 50% of households have a per capita income of under R1 000 while the wealthiest 10% of households have a monthly per capita income of R4 000 or more (Vorster, 2019).

Table 6.1: Per capita household income per household percentiles in Loeriesfontein

Household percentiles	Per capita amount
5	R 173
10	R 210
25	R 563
50	R 999
75	R 1 780
90	R 4 000
95	R 8 775

(Source: Vorster, 2019)

To put household poverty in Loeriesfontein in perspective, consider the following. As of April 2018, South Africa's food poverty line was R547 per person per month, meaning that 40% of the poorest households in Loeriesfontein fell under this line at the time of the household survey (Vorster, 2019; StatsSA, 2018). Household poverty is also reflected in the high levels of dependency on government social grants, with 37% of all residents receiving a social grant. The survey data indicates that wage employment is the main source of income for 47% of households while social grants are the main source of income for 46% of households (Vorster, 2019). The extent of poverty can be attributed to a combination of factors: high levels of unemployment and underemployment as well as low wages in the local labour market.

This is a context where meeting basic needs through the eradication of poverty at household level is a prerequisite for human wellbeing, an issue I return to in Chapter Nine where I consider the contribution of the renewable energy sector towards realising this as a basic need.

6.2.5 Educational outcomes and the labour market

Educational outcomes in Loeriesfontein are poor, which also has ramifications for employment prospects and upward social mobility and undermines prospects for enhancing human capabilities more generally. The household survey data shows that the majority (76%) of children aged 0–4 years are cared for at home by their guardians (Vorster, 2019). Though crèche attendance is low, the survey data shows that all children aged 6 -15 years are in preschool or primary school. However, children start dropping out of school at the age of 16, with boys showing a higher drop-out rate compared to girls; no 19-year-olds in the survey sample were attending an educational institution (Vorster, 2019:26). Until Mainstream started sponsoring maths and science teachers in 2018, the high school did not have teachers for these subjects, which dramatically narrowed career prospects for students in Loeriesfontein.

The 2019 survey data show that 24% of the population of town have completed matric and/or a tertiary qualification. There has been some generational improvement in this regard with 37% of people aged 20–29 years having completed matric and/or a tertiary qualification compared to 18% of people aged 50–59 years (Vorster, 2019:28). This suggests that employment opportunities that require a matric as a minimum will favour people in the youthful age cohort 20-29.

Once people leave the educational system, they enter a very restricted labour market. The 2019 survey found that 78% of Loeriesfontein's working population (those between ages 15-

64) were economically active. i.e. were either in paid work, looking for employment or would take work given the opportunity (Vorster, 2019). However, the survey data also indicates that many workers in Loeriesfontein are underemployed, that is, they are not in fulltime employment or with permanent contracts (Vorster, 2019). Of those employed, 26% do temporary or odd jobs on an irregular basis, 64% have a regular job with one employer, but do not necessarily work five days a week, and 6% have their own business (Vorster, 2019). Employment creation that satisfies decent work indicators is thus urgently needed to assist in the eradication of poverty and contribute to sustainable development.

As shown in Table 6.2 below, the town's unemployment rate (narrow definition) stands at an extremely high 39%. While the survey did not find any gender differences in the unemployment rate, age and educational level were significant determinants of one's employment status (Vorster, 2019). Of those unemployed, 60% are between the ages 20-29, 43% are between the ages 30-49 years, and 46% between the ages 50-59 (Vorster, 2019). In terms of education, 56% of those unemployed have no matric or post schooling qualification while 38% do.

Table 6.2: Unemployment in Loeriesfontein

Economically active population	78%
Unemployment rate	39%
Unemployment per age cohort	
20-29	60%
30-49	45%
50-59	46%
Unemployment by education level	
No matric/post school	56%
Matric/post school	38%

(Source: Vorster, 2019)

As shown in Table 6.3 below, the biggest employer in Loeriesfontein is the private sector, providing 49% of all jobs, followed by the public sector (government and semi-government, including Transnet) at 35%. Ten percent of those employed work in the informal sector, with the remaining 6% working for churches, NGOs and community-based organisations (Vorster, 2019:41). Of note, some 4% of those found to be in employment through the survey were employed on the wind farms.[40] However, the temporary nature of most of the jobs created is reflected in the survey finding that "of the people who were unemployed during the survey, 23% had previously worked at the wind farms" (Vorster, 2019:53).

[40] Some caution is needed in generalising from this percentage to the town as a whole, given the small numbers involved.

Most workers in Loeriesfontein are employed in low-income and unskilled jobs, with general work, domestic work (women) and farm work (men) the most common types of jobs (Vorster, 2019). (See Table 6.3 below.) Employing 10% of the labour force, the Community Works Programme makes a significant contribution to livelihoods in this small town (Vorster, 2019). The low wages associated with the nature of employment are reflected in the data on household income detailed above. Half of those employed were earning R2 500 or less a month, almost a third (30%) were earning R1 000 or less, and only 7% of those in employment were earning more than R13 500 (Vorster, 2019). This last cohort constitutes the small middle class which consists mainly of coloured and black African public servants, white business owners and retired farmers and professionals.

Table 6.3: Distribution of employment in Loeriesfontein

Private sector	**49%**
Mine	2.4
Windfarm	4.1
Construction	3.5
Farm/Agriculture	16.5
Works for private person	8.2
Self-employed (formal)	7.1
Informal sector	**10%**
Self-employed (informal)	3
Employed in informal sector	7.1
NGOs & CBOs	**6%**
Public sector	**35%**
Education/police etc	16.5
Municipality	3.5
Community Works Programme	12.4
Transnet	2.4

(Source: Vorster, 2019)

6.2.6 The provision of municipal services

Basic services are in place in Loeriesfontein, with affordability rather than availability the key issue determining consistent access. In terms of housing provision, almost everyone lives in brick houses with 68% of houses built by the state but now owned by the occupier and 29% privately built (Vorster, 2019). Reflecting the investment in state housing that has taken place in Loeriesfontein since 2011, average household size in Loeriesfontein is not large, at 3.5, with the median being 3. Ninety-nine per cent of households in Loeriesfontein have access to electricity, almost entirely (96%) on the basis of prepaid metres (Vorster, 2019). All plots have access to running water – for 64% via taps in the house and for the rest via standpipes on their

plots. In terms of sanitation, 72% of households have waterborne toilets inside the house; the remainder (28%) have pit toilets located in the backyard (Vorster, 2019).

Satisfaction levels with regard to the level of municipal services were generally positive in 2019 when the survey was conducted. However, survey respondents described the provision of health services as unsatisfactory, with the lowest satisfaction levels directed at the local hospital at 39% and the clinic at 54% (Vorster, 2019). In terms of development and progress, 42% of the respondents in the survey were of the opinion that the town had not progressed in the previous 10 years while 58% thought that there had been some progress, citing the coming of the wind farms, the provision of RDP housing in 2011, decent water infrastructure and the opening of a Pep store as evidence. Respondents also highlighted "the unique natural environment … the safety and tranquil nature of the town, the windmill museum and strong social cohesion" as positive attributes of their town (Vorster, 2019:57). The main impediments to development in Loeriesfontein, according to the survey respondents, were limited cooperation in the community, fed by envy and conflict, and the lack of job opportunities, especially for the youth. Political divisions and alcohol and drug abuse were also cited as serious problems, with poor service delivery/infrastructure and lack of skills mentioned by a few respondents.

6.3 The development of the Loeriesfontein 2 and Khobab Wind Farms

In this section I provide an overview of the development of the two wind farms outside Loeriesfontein, as background for the discussions on decent work and community development in chapters seven and eight. This includes a synopsis of key events from the bid process through to the start of operations (during my fieldwork), as well as brief accounts of the ownership structure of the wind farms and their contribution to the "local content" requirements of the REIPPPP.

6.3.1 Key events, 2011 – 2017

Mainstream's Loeriesfontein 2 and Khobab Wind Farms were among the 93 bids submitted to the IPP Office in August 2013 under bid window 3 of the REIPPP programme. In October of that year, 17 preferred bidders were announced, including these two linked projects. SiVEST, a South African based international consultancy company was contracted to conduct the EIA

for the two farms and the construction was carried out by Murray & Roberts, a South African-based engineering and mining contractor.

The site for the wind farms had already been identified by Mainstream before the 2010 FIFA World Cup, based on the *Wind Atlas for South Africa*, developed by the South African National Energy Development Institute. In preparation for its bid, Mainstream contracted Tshikululu Social Investments NPC, a Johannesburg-based social investment company, to conduct a community assessment of Loeriesfontein. Tshikululu sent a team of community development experts on a two-day field visit to Loeriesfontein in December 2011, to collect data for a socioeconomic development and enterprise development plan which Mainstream would use in the bidding process. I return to the Tshikululu Report and problems with the implementation of their proposals in Chapter Eight.

The two wind farms have been constructed on privately owned commercial farm land, namely portions 1 and 2 of the Farm Aan de Karree Doorn Pan Nr. 213, Calvinia RD, Northern Cape. The two farm portions are separated by a road. The rental or lease agreement between the farm owner and Mainstream is confidential. However, informal conversations I had with knowledgeable people in the area indicate that the lease agreements offer a good source of income for 20 years, one that is far more reliable and stable than that derived from sheep farming. What is interesting about the Loeriesfontein 2 and Khobab wind farms is that the initial bid was for one 480 MW wind farm, but because of the cap on large-scale projects, Mainstream decided to split the project into two farms, each providing 140 MW. Despite the split, the two wind farms were built in tandem, both using the same workforce, one main contractor (Murray and Roberts) and the same turbine manufacturer (Siemens Gamesa).

The “local content” component of the two wind farms is covered in section 6.3.3. The turbines access the grid through an Eskom sub-station, the Helios substation, that was constructed in 1971 by ISCOR in order to electrify the 861 kilometre Sishen–Saldanha railway line, known as the Ore Export Line (OREX). This substation was later transferred to Transnet and then to Eskom. This is a clear illustration of the significance of the MEC historically in shaping the way in which renewable energy has been rolled out in South Africa – the location of projects and distribution of the electricity generated dependent on the country’s national grid, and thus on Eskom, rather than conceptualised as part of a new energy dispensation shaped by people’s needs.

The construction of the wind farms started in June 2015 and ended in November/December 2017, with the project entering the commercial operations phase soon thereafter. In 2015

Mainstream's economic development team made presentation to the local municipal council, had consultations with various community organisations and produced a "Community Prospectus" in 2015 to guide its socioeconomic development and enterprise development commitments. In addition, it contracted another Johannesburg based company, Tushiyah Advisory Services, to implement enterprise development. Also in 2015 a former Mainstream employee established a local NGO, Senze Consulting, with the support of Mainstream, to support community development; in 2019 Mainstream also supported the establishment of a cooperative, Loeriesfontein Work and Grow Primary Cooperative, to implement community projects in Loeriesfontein.

The construction phase was marked by two community protests which are discussed in further detail in the next two chapters. The first started soon after construction began in 2015, initiated by community members who felt that they were being overlooked for employment opportunities. This led to interventions by the local DA ward councillor and Mainstream's economic development team and the construction team making some undertakings to invest in "good-will" projects at an "Enterprise Development Day" organised in April 2015. The second community protest took place in April 2016 (a few months before the local government elections) and morphed into an industrial strike action. In this protest grievances raised in the first community protest resurfaced and the protests turned violent, requiring Public Order Police from Springbok to be called in to intervene. Significantly, the DA ward councillor retained the ward in the 2016 local government elections but after the 2019 national elections she was deployed by the DA to Parliament. This created a vacancy on the local council, leading to a by-election in August of that year which, as noted in Chapter One, was won by the ANC candidate by six votes. In the 2021 local elections a DA candidate won back the ward.

6.3.2 Ownership and management

At the point of bidding, renewable energy IPPs have to provide information addressing the following general requirements: "project technology, contracted capacity, site name and co-ordinates, co-ordinates of the substation for the intended connection, whether it will connect to the transmission or distribution system, whether the project was submitted under a prior bid round" and the environmental impact assessment (EIA) (Eberhard & Naude, 2016:5). The bid also requires an estimate of the number of people required for construction as well as details about the local content to be sourced; project ownership; management control, and preferential procurement (Eberhard & Naude, 2016).

The ownership structure of Mainstream's two wind farms outside Loeriesfontein is complex and cuts across international boundaries. The two wind farms are each owned by a consortium of international and national institutional investors, a renewable energy company, local BEE partners and a community trust. Mainstream established Mainstream South Africa and then brought in Actis to help establish Lekela Power. Actis, a private equity firm based in the United Kingdom (UK) holds 60% share and Mainstream Renewable Power (based in Ireland) the remaining 40% of Lekela Power (Lekela Power, 2017). Lekela Power was established to penetrate Africa's renewable energy market; its assets are operated by Mainstream South Africa through Mainstream Asset Management South Africa (MAMSA), a subsidiary of Mainstream Renewable Power.

Table 6.4 below shows the shareholder structure for the Khobab wind farm, as of 2014. The lenders involved in setting up the community trust (the Khobab Renewable Energy Trust) as a shareholder are ABSA Bank and the Development Bank of Southern Africa.

Figure 6.4: Shareholding for the Khobab Wind Farm

Member	Luxembourg Mainstream Renewable Power	Old Mutual Life Assurance Company South Africa (IDEAS)	Genesis Khobab Wind (Pty)	Old Mutual Life Assurance Company South Africa (Future Growth)	***Black Enterprise members***	
					Thebe Investment Corporation	Khobab Renewable Energy Trust
		10.46 % Black	3.7 % Black	10.46 % Black	65.86 % Black	100 % Black
Shareholding	40%	25%	15%	5%	10%	5%

(Source: Marais, 2014)

With regards to the two wind farms, Lekela Power holds share ownership in Mainstream Renewable Power (40%) and Old Mutual (30%). Two special-purpose companies; Genesis Khobab Wind (Pty) Ltd and Genesis Loeriesfontein 2 (Pty) Ltd, have a 15% share ownership one of the two wind farms. The BEE ownership in the wind farms is vested in the ANC-linked Thebe Investment Corporation, which has a 10% stake in each of the farms, while the two community trusts, the Loeriesfontein Renewable Energy Community Trust and the Khobab Renewable Energy Community Trust, hold the remaining 5% of shares in their respective farms. The community is set to benefit potentially significantly through these community trusts, while the bulk of the benefits will accrue to the respective equity share owners. Share ownership is not static. The ANC's investment arm, the Batho Batho Trust, owns 46.79% of

Thebe Investment Corporation.[41] It is important to note that at the time of my fieldwork, no community member was a trustee in either of the community trusts. Both community trusts will only start receiving dividends once their loans are paid off.

6.3.3 Local content

The "local content" requirements of the REIPPPP scorecard is said to play an important role in employment creation so it is important for this case study to identify where the jobs associated with it are located. Mainstream reported that the sourcing of local content exceeded 40% of the project total value which were estimated at R7 billion, or R3.5 billion for each farm (Herbst, 2016). This means that more than R2,8 billion was spent locally within South Africa - but not, however, in the Hantam Local Municipality or the Northern Cape.

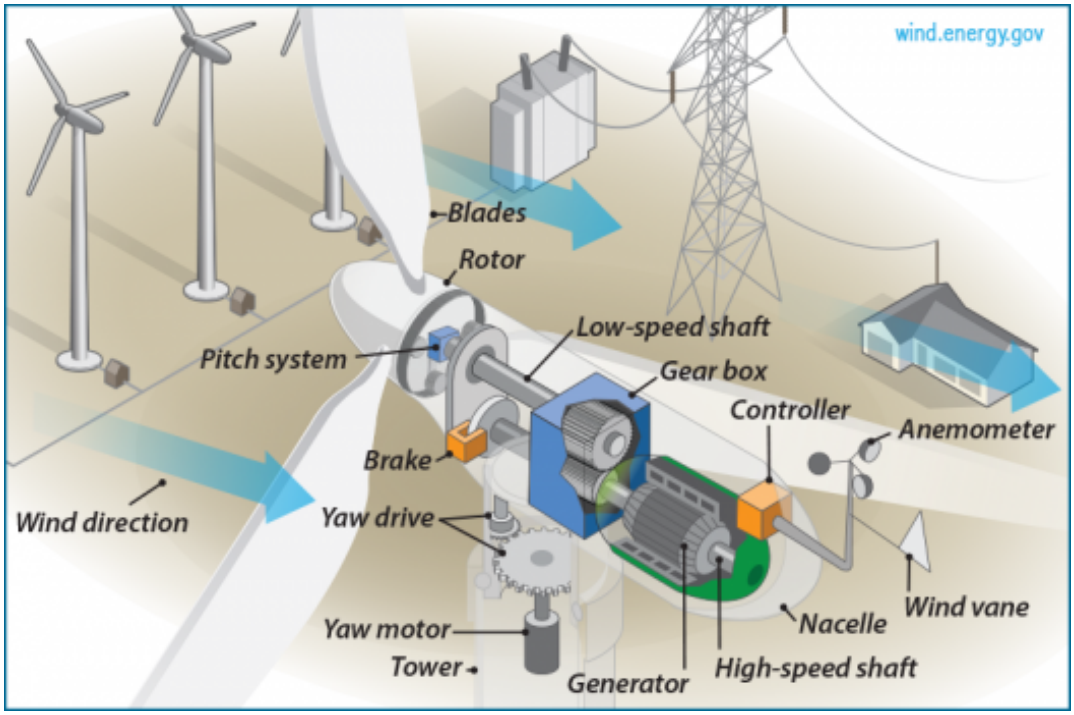
Wind farms comprise a cluster of wind turbines that are laid out in a particular pattern across the farm; these are connected to each other by a network of roads and cables. Figure 6.5 below provides a graphic overview of wind turbine components and how they link together. Turbines can be either vertical-axis or horizontal-axis; in South Africa they are commonly vertical-axis in design, in which the turbines (or blades) are placed on top of a high tower. This is the case with the Loeriesfontein wind farms which have a total of 122 wind turbines (61 for each farm). The nacelle, the "central nervous system", houses some of the critical components such as the rotor, brakes, generator and gearbox, and connects the tower section with the blades, as shown in Figure 6.5. Each wind turbine has three blades, each 53 metres long and made from fibreglass reinforced epoxy; when the blades are at their highest the turbine reaches a height of 152m at its tip (Lekela Power, 2017).

The two critical components, the nacelle and the blades, were supplied by a Danish manufacturer, Siemens Wind Power (now Siemens Gamesa Renewable Energy) and thus had to be imported. Siemens is also responsible for the care and maintenance of the wind turbines during the commercial operations phase of the wind farms. According to Lewis and Wiser (2007), the barrier to local manufacturing of these components is not a lack of skills but the lack of sufficient domestic demand to support local manufacturing. As Baker (2012) notes, South Africa is behind the curve in what is a relatively mature and consolidated global wind industry with "increasingly sophisticated technology and a reluctance amongst leading turbine

[41] Batho Batho trust was founded in 1992 as community-based trust; it subsequently formed Thebe. Its founding Chairman was Nelson Mandela.

manufacturers to license their turbine technologies, particularly to developing countries" (2012:174).

Figure 6.5: Wind turbine components



(Source: Department of Energy, USA)

These 61 wind turbines are spread across 6 650 ha of farmland, with a combined total of 280 MW of installed capacity. The wind turbines start working at a wind speed of three meters per second (m/s) and cut out at a wind speed of 25 m/s, or at 13km/h and 90 km/h (Khobabwind.co.za). Though the combined capacity of the two wind farms is 280 MW, according to Betz's law, no turbine can capture more than 16/27 (59.3%) of the kinetic energy in the wind (Huleihil & Mazor, 2012). In other words, the two wind farms do not produce more than 168 MW even at optimal efficiency.

The imported components for the turbines had to travel by road from Port of Ngqura (near Port Elizabeth) to Loeriesfontein via Graaff-Reinet and Beaufort West, a distance of 1 158 km along the N10 (Kiganda, 2017). German international courier, DHL, and UK headquartered ALE were contracted to make deliveries of the cargo. In total, the transportation operation covered over 2.5-million kilometres and moved over 42 000 tons of equipment and wind turbine components (Herbst, 2016). According to the Loeriesfontein Wind Farm project manager, in addition to a police escort, the cargo had a front and rear escort (Herbst, 2016) which I was able to observe

during the 2017 inception field trip described in Chapter Three. According to Paul, Mainstream's Construction Manager and now Operations Manager for one of the wind farms, every turbine brought with it 45 tons of rebar steel and cement (interview,10 September 2018). The transportation of all this equipment has put considerable stress on the road infrastructure, which was a concern of the local lawyer I interviewed (Interview, 10 May 2018). The concern about road infrastructure is important considering that only two roads in Loeriesfontein are tarred, and the gravel roads that deteriorated during the construction phase have not been adequately rehabilitated.

The indirect and induced job creation that came with the transportation of the key components, Were complemented by the direct job creation that was derived from the localisation of the tower sections. The tower sections are procured and manufactured locally by GRI Wind Steel South Africa (Pty) Ltd, a subsidiary of Spanish owned Gestamp Renewable Industry (GRI). These sections were manufactured at its production plant in the Atlantis Special Economic Zone in the Western Cape. Their route from the manufacturing plant to the wind farms covered 1 396 km via the N1 via Worcester, Laingsburg and Beaufort West (Kiganda, 2017).

6.3.4 Community development projects

Development projects in poor communities are always highly politicised but the challenges this brings can be managed with consistent and transparent communication. As indicated above, Mainstream's entry into the community was initiated at multiple points that were facilitated by different social actors: first Tshikululu, in 2011; then the construction company, Murray and Roberts, in 2015, and then Mainstream's economic development team, also in 2015. Each of them made contact with different local players. Tshikululu met "community stakeholders and key informants", local government representatives, prominent local individuals and Mainstream's construction team. During these initial encounters the different elements of the project were not communicated with the respective parties consistently and holistically; this had implications for the implementation of the community development projects, resulting in the two community protests in 2015 and 2016.

The Mainstream team met with the Council in March 2015 just after the company had won preferred bidder status. Murray and Roberts, the main contractor, started recruiting without making initial contact with the council or local councillor. Mainstream's construction manager, now the operations manager for one of the wind farms, was part of the construction team with Murray and Roberts; he has a house in town and is and was a point of contact for the white

community. Menzi, one of the two economic development managers, had a good relationship with the DA ward councillor who became her point of contact with the coloured majority in the community.

As already noted, the fact that the construction of the two wind farms took place a year before the local government elections was significant. As mentioned in Chapter One, the local councillor had ambitions for a second term in office and the ANC wanted to wrestle power away from this DA ward. Within this politically contested terrain, it is a few relatively powerful and influential people were best placed to benefit from new investments, at the expense of the broader community. In this context, the top-down approach of the REIPPPP towards community development is not responsive to political dynamics on the ground.

Marco, the manager in the IPP Office I interviewed, acknowledged this point to me:

> It sounds like I'm anti municipality but I'm not, I believe you really need to work with them. But I'm talking about the reality. First of all, I think there are some problems, right in the beginning as you know the project [REIPPPP programme] was driven top-down, which never works, it doesn't work no matter what it is, you don't drive anything from the top down you've got to build from the bottom and become inclusive. I think that's the problem that the department had, the Department of Energy and government at government level, that's exactly what happened. So the decisions were made here [Pretoria] and pushed down to say: this is how it's going to work. So IPPs per se, there was no real link in the beginning with the municipalities. So the guys arrived and the guys started building, the whole people came to work, but the municipality said: No, what's going on? That kind of thing is not great (interview, 7 December 2017).

In an interview I conducted with the Hantam Municipal Manager, he also lamented the fact that Mainstream's approach towards community entry favoured interaction with "community stakeholders" in Loeriesfontein itself ahead of the local council of the Hantam Municipality in Calvinia:

> They [Mainstream] started on the wrong foot with the community, they confused themselves as to who they are, so they started with the community members, instead of starting with council [local council in Calvinia] first to get approval and cooperation first … it has now become an ANC and DA thing, rightfully so because everyone of us, the poorest, everyone that saw something, wants to see business, wants jobs, and the ward councillor is a DA councillor and this has divided us now … they [Mainstream] must go back and dismantle the ward committee and those committees which assists

> them in those projects … the ward committee's function is to monitor, it doesn't count as community participation … all of them got something (interview, 12 May 2018).

The ward committee was initially used by Mainstream to drive community development projects in Loeriesfontein, and the "something" that the Municipal Manager was referring to was control over the allocation of the socioeconomic development and enterprise development spend which became politicised early on in the process.

6.4 Conclusion

In this chapter I have located Loeriesfontein within the ecology and broader history of racialised dispossession in the Karoo regions of the Northern Cape. This history is reflected in the inequalities around land ownership and access to economic and other resources, including education, that persist in the town today. The development challenges facing the town can be expected to be exacerbated by the impact of climate change on this arid to semi-arid region. In the post-apartheid era the Northern Cape has attracted new investments in astronomy, most notably radio astronomy with the development of the SKA. These developments have, however, raised questions about the extent to which these major land-use changes are addressing local needs and concerns. The introduction of renewable energy in the country's energy mix, driven by climate change concerns globally, is raising similar concerns. It has seen major investment in wind and solar projects in the Northern Cape, due to the province's natural resource endowment; the "local content" component of this investment has, however, not been realised in this province. This investment has been driven by international investors, along with some prominent national corporations and their BEE partners. In Loeriesfontein, two protests during the construction phase of the wind farms signalled both concerns about top-down approaches to community development in the rollout of renewable energy projects and complex local political dynamics.

Chapter Seven: Renewable Energy, Employment Creation and Decent Work in Loeriesfontein, 2015-2017

In this chapter I focus on the first element in the REIPPPP's economic development scorecard, that of employment creation, and its relationship to decent work during the construction period of the Loeriesfontein 2 and Khobab wind farms. The chapter explores the extent to which local residents have been able to capitalise on the local employment opportunities brought by Mainstream, in the context of the labour market conditions in Loeriesfontein described in the previous chapter. It thus addresses my sub-research questions concerned with how well-placed residents of the town are to benefit from current and future investments in renewable energy in the local municipality, the local employment opportunities the investments in renewable energy have brought to Loeriesfontein and the extent to which these jobs meet the criteria of decent work. As described in Chapter Two, the ILO's framework for decent work rests on four pillars: employment, rights at work, social protection and promotion of social dialogue. This framework guided my assessment of "decent work" at the two wind farms.

As already noted in Chapter Five, the overall weighting of the employment creation element in the REIPPPP scorecard is 25%, with the thresholds for the various categories of employees set as follows: 50% of employees to be South African citizens; 30% of employees to be black people; 18% of skilled employees to be black, and 12% of employees to be from "local" communities within a 50km radius of the project. This last target is relevant for my discussion of the direct employment creation associated with the two wind farms in Loeriesfontein itself.

The chapter draws largely on my semi-structured interviews with the 23 former and two current employees on the wind farms, supplemented by my interviews with various key informants, data from the SARChI household socio-economic survey and documentary analysis. What it shows is that despite the importance of the decent work criteria in the workplace, there are limitations with regard to the local job creation potential of renewable energy projects. More important for sustainable development over time, therefore, are the community development projects associated with these projects, with considerable but as yet untested potential lying with the community trusts, issues which are taken forward in Chapter Eight.

This chapter is organised into two main sections. The first section covers the construction period between 2015 and 2017 and discusses my findings on employment creation and former workers' perceptions of decent work. The second section addresses issues related to how

local labour was incorporated during construction, the kinds of jobs that were available, and how labour was controlled (Peck, 1996). This section presents my finding on the politicisation of employment opportunities and the triggers of the first community protest in 2015.

7.1 Employment creation and decent work

7.1.1 Total employment

Quantitative modelling is crucial in the development of both economic and energy policy, and it is the standard through which claims, evidence and assumptions are processed and results tested for consistency and reliability. However, for this to work well it is important that the variables that are used are robust and clear. I have already indicated my concerns about the concept of "job-years" used by the renewable energy sector to advance their employment creation credentials. "Job-years" is an abstract concept used to justify investment which inflates job numbers. The concept is flawed methodologically and brings into question issues of reliability. In this chapter I make use of a simpler and much more accurate method for calculating the contribution of the two wind farms to employment creation during construction: the head count of those actually employed on site. This brings out qualitative details that are missing in the "job-years" statistics.

By way of background, in 2012, SiVEST estimated that the construction of the two wind farms outside Loeriesfontein would generate 569 "new jobs" for a two year period, "of which 313 jobs would be sourced locally, 220 from the rest of South Africa and 36 from outside the borders of South Africa" (SiVEST, 2012:230). If one uses the "job-years" method of calculation, these 569 jobs would translate into 1 138 job-years (assuming the period of employment is 2 years). When I enquired about actual job creation, Mainstream reported that between April 2015 and December 2017, a "cumulative quantum in person months" of 1 448 was created (see Table 7.1 below). What this figure does not convey is the length of employment of the individual jobs.

As one can see, the SiVEST estimates projected that the majority of "new jobs" would be locally sourced, by which they meant sourced within the wider Hantam Local Municipality, encompassing not only Loeriesfontein but also Brandvlei, Calvinia and Nieuwoudtville as well as two tiny hamlets, Middelpos, and Zwartkop. In their calculations SiVEST went a step further and broke down the estimated local labour component into various skills categories as follows: 214 unskilled workers, 75 semi-skilled workers, nine skilled workers and one professional

(SiVEST, 2012:228). This breakdown totals 299, which is at odds with the total number of 313 locally sourced jobs they indicate elsewhere in the same document.

Table 7.1: Mainstream's job creation statistics for the Loeriesfontein wind farms

April 2015 - 07 Dec 2017				
	Obligation		Cumulative Quantum in Person Months	Cumulative Quantum Achieved
Construction	*RSA Based Employees*		5,032	10,611.20
	RSA Based Employees who are citizens		4,818	10,212.10
	RSA Based Employees who are black People		3,745	9,214.20
	Skilled Employees		2,271	6,302
	Skilled Employees who are black people		1,158	3,260.20
	RSA Based Citizens who are citizens from local communities		1,448	3,820.40
	Total Top Management			88
	Total black people in top management			44
		Black Female		44
		Black Male		0

(Source: Mainstream, e-mail communication, May 2018)

This discrepancy underscores the difficulty of monitoring corporate claims about job creation in the renewable energy sector. Nevertheless, taking both numbers into account, one can reasonably state that in the bidding process SiVEST calculated that the construction of the wind farms by Mainstream would create around 300 jobs for local people, a projection which exceeded the 12% threshold for local employment creation set out in the economic development scorecard. Subsequently, post-construction, Lekela Power reported that 70% of the workforce had come from the Loeriesfontein community, and that those who had worked during the construction phase had benefitted directly from the skills development programmes which had been put in place (Lekela Power, 2017).

However, SiVEST's estimates and Lekela Power's claim are in sharp contrast with the information I received during my interviews and from various documents that suggested that about 150 people from Loeriesfontein were employed in total during the construction phase between June 2015 and December 2017. This number is itself not strictly accurate in terms of the actual headcount, since some people included in the figure were employed more than once in different capacities and by different companies during the construction period. It would thus be more accurate to say that 150 employment opportunities were created, not that 150 people were employed. Even though this is less than the figures cited by SiVEST and Lekela Power, one can argue that the employment opportunities created in the construction phase of the two

wind farms did satisfy the first pillar of the ILO's decent work framework, especially considering the town's extremely high unemployment rate.

Local observers themselves suggested that the number of local beneficiaries was still lower than my estimate of 150 employment opportunities. According to Paul, Mainstream's Operations Manager for one of the wind farms, at the height of the construction period there were some 600 workers on-site for a period of about a year, of whom approximately 100 would have been local people from Loeriesfontein (interview, 10 September 2018). Paul's estimate of 100 was corroborated by one of Mainstream's economic development team member and is close to the figure presented in its 2016 "Community Response" document at the time of the second protest (Menzi, interview, 26 February 2019). It is also compatible with the data I was able to secure from the Department of Labour in Calvinia in 2018 which showed that in that year 110 former workers on the wind farms had applied for unemployment insurance fund (UIF) benefits.

Whether 150, 110 or 100 local people were employed during the construction phase, this information indicates that SiVEST's initial estimate of 300 local jobs was overly optimistic and puts in doubt Lekela Power's 2017 claim that 70% of the workforce came from the Loeriesfontein community. The discrepancies could possibly be accounted for by the role of sub-contractors in the process. During construction, labour demand varies from phase to phase and to accommodate this fluctuation, it is very common for small, specialised contractors to be employed as subcontractors on big construction projects (Chinguno, 2009). These subcontractors include qualified tradesmen such as bricklayers and those skilled in masonry, painting, plumbing and carpentry who travel from project to project and often work as a team (Chinguno, 2009; CIBD, 2015). While these people can be counted as local in the sense that they would have been South African citizens, possibly from the area, they would not necessarily be residents of the local town in question, in this case Loeriesfontein.

7.1.2 A profile of the locally sourced workforce

In this section I present findings from my sample of the 23 former and two current workers who were employed during the construction of the two wind farms. My recruitment strategy for my sample has already been described in Chapter Three. Adding confidence to my findings based on this sample, the results with regard to gender, age and educational levels of the workers correspond closely to those from the SARChI household survey of 2019.

The great majority of my 25 informants were coloured men between the ages of 20 and 40 (see Table 7.2 below). More than half (15) were under the age of 30, with only two participants older than 40, both of them with previous experience in the construction industry. The oldest was 53 and had over 30 years' experience while the other participant, who was 42, had worked in the road construction industry as a roller operator. This profile speaks more to the relatively youthful population and labour market conditions in the town than to the construction industry's preference for hiring younger people (Haupt and Madikizela, 2009; Sangweni, 2015).

Of the three women in my sample, two were over the age of 30 and had previous work experience. According to Haupt and Madikizela (2009), managers in the construction industry typically view unskilled young women as unreliable and are more likely to hire older women with previous work experience or younger women who are professionals. The youngest woman, who was hired as a temporary office administrator by Murray and Roberts, has a diploma in office administration but no previous work experience. One of the older women was employed as a driver by BMC Crane to transport the crane erection team while the other was employed by Murray and Roberts as a cleaner to clean the houses the company rented in town. The woman who worked for BMC Crane do not have children, while the other two women do.

Table 7.2: Worker profile in terms of age and gender (N=25)

Age group	**Men**	**Women**	**Total**
20-24	10	1	11
25-30	4		4
31-35	5	1	6
36-40	1	1	2
41-45	1		1
46-50			0
51+	1		1
Total	22	3	25

The educational status of my participants is shown in Table 7.3 below. It reflects the poor educational outcomes in the town already discussed in Chapter Six, with the great majority (18) not having gone beyond grade 10. The two participants with a primary or lower education qualification (one man and one woman) fell in the 36-40 age bracket, while the two participants with post-secondary school qualifications (diplomas) were in the youngest (20-24) age bracket. The role of education in structuring labour market outcomes is crucial: the 2019 survey showed that Loeriesfontein residents who had completed matric were faring better than those without matric. However, given the nature of the local economy, labour market conditions in

Loeriesfontein do not demand that workers have a matric, although having one does add an advantage.

Table 7.3: Educational level of former employees (N = 25)

Educational level	Number
Primary and lower	2
Grade 8-10	16
Grade 11-12	5
Post matric and diploma	2

Table 7.4 below shows the major phases and contractors involved in the construction of the two wind farms.

Table 7.4: Construction phases and contractors of Loeriesfontein 2 and Khobab Wind Farms

Phases	Contractor	Activities/process
1.Road Construction	E-Cat Subcontractor	Construction of gravel road on the farms to allow access for the wind turbine.
2. Ground Excavation	Murray and Roberts Consortium Waka-Bee Construction	Clearing ground and preparing holes 3m deep and 19m in diameter.
3. Foundation Construction	Murray and Roberts Consortium Concor Infrastructure NMC Construction Khweza Imikhono	Construction of wind turbine foundation at each turbine location using concrete and steel.
4. Cabling	Lusisies Contractors	Installation of electric cables underground at each wind turbine site.
5. Substation construction	NMC Construction	Construction of the substation. Cables from the wind turbines all meet at the substation.
6. Wind turbine parts delivery and layout	ALE DHL	Delivery of turbine parts using specialised abnormal-load trucks and layout across the farm according to the site plan
7.Wind turbine erection	BMC heavy Cranes South Africa Siemens	Building of each turbine piece by piece; this involved four cranes working together.
8.Completion	Fairwind Siemens	Commissioning and testing ahead of finally being put into operation.
9. Operations phase (over 20 years)	Mainstream (MAMAS) Siemens	

(Source: Mainstream's Loeriesfontein first community newsletter,2015b)

Most of the workers from Loeriesfontein who were employed by the main contractor and/or sub-contractors during the construction phase were employed as general workers in unskilled

positions during phases 1 to 5, on limited duration contracts. Specialist workers such as professionals, technicians and associate professionals came from other parts of the country or were foreign workers employed by the companies (main contractors) which were Mainstream's clients during construction. The majority (20) of my participants had previous work experience before being employed at the wind farms, either in the formal or informal sectors of the economy. Of the five with no work experience, four were men in the 20-24 age bracket.

The point of flagging previous work experience is that it fits with the logic used by employers in employing people. This is because during construction, contractors and sub-contractors want to hire people who will be reliable and a fairly good proxy indicator for reliability is previous work experience. Previous work experience is a possible explanation for why one can still be employed despite not having a matric qualification, as was the case with most of my participants. However, here I need to qualify what I mean by work experience: if one had worked for remuneration before, whether in cash or in kind (e.g. food, transport and clothes, as was often the case), I considered it as counting as work experience. Considering the precariousness of the labour market, I did not consider the length of previous employment as significant.

As already noted, the duration of jobs created in the construction of renewable energy projects is short, which is at odds with the decent work indicator of stable and secure work. Half (13) of my 25 informants were employed for a year or less, eight for between one and two years and only two for a little over two years. (See Table 7.5).

Table 7.5: Employment duration (N=25)[42]

Months employed	**Number**
0-3	3
4-6	3
6-12	7
13-18	4
19-24	4
25+	2
Permanent	2

The two who were permanently employed after the construction phase was over were both men. One of them had previously worked for Waka-Bee Construction (a contractor in phase two, ground excavation, of the construction period) and was hired as a security guard for a

[42] At least three of my participants worked for more than one company, further evidence that previous work experience influences employment prospects.

different company. The other was initially employed as a general worker for Siemens during phase seven of the construction (wind turbine erection) and then got permanently employed as an administrator for the same company. The temporary workers were all employed formally, with contracts, which meant that they were eligible for unemployment insurance fund benefits (for 10 months). A workers' committee was also established to deal with grievances, although how effective this was is not clear.

Despite the temporary nature of most of the jobs on offer, the impact of the construction of the wind farms on the local labour market was significant, as was reflected in the SARChI household survey data. As already noted, that survey found that 23% of people of working age who were reported as unemployed during the survey had worked at the wind farms during construction, while 4% of those who were employed in 2019 during the survey were still working on the wind farms (Vorster, 2019).

7.1.3 Remuneration and household dynamics

The first pillar of decent work, that of providing employment opportunities, was addressed temporarily during the construction phase. However a further question that arises in terms of the decent work criteria is whether the remuneration received was "fair", which I assess in the first instance relative to local labour market conditions (which, as discussed in Chapter Six, are poor).

Based on what my informants reported to me, the wages offered by the wind farms were very competitive in comparison to most other jobs available in Loeriesfontein and this was a major incentive in seeking employment there. As shown in Table 7.6 below the majority (17) of my participants took home a gross monthly income of between R5 000 and R7 000. Once over-time pay is factored in, something which I was told occurred often, then five of my participants in the bottom category of wages (between R5 001 and R5 500) regularly earned more than R6 000 a month. These income levels stand in sharp contrast to the findings from the 2019 household survey which was that 29% of those employed in Loeriesfontein were earning R750 or less a month and almost half (48%) were earning R2 500 or less a month (Vorster, 2019). The basic gross monthly income of R6 001-plus of fourteen of my participants put them at the higher end of Loeriesfontein's wage scale – the 2019 survey found that of those employed and receiving an income in Loeriesfontein, only 21% had an income higher than R5 400 (Vorster, 2019).

Table 7.6: Gross monthly income of participants

Amount	Number
R5 001-R5 500	5
R5 600-R6 000	5
R6 001-R7 000	7
R7 001-R8 000	6
R10 000+	1
Declined to answer	1
Total	25

To understand the impact of these wages in the household I asked participants if they thought their wages were enough for them. The general consensus was that the wages were enough, thus satisfying the decent work indicator of adequate earnings and productive work. However as with the answers to the understandings of decent work (explored later), some of the responses were more nuanced than a simple recognition that the wages were above average for Loeriesfontein. Perceptions were linked to the respondent's level of financial responsibility for household members or other parties as well as their employment histories. Thus for Thabo, a recent graduate without any children of his own to support, the money was seen as more than enough:

> I just come from school, from college, so to start working, then you get five to six thousand at my age, without a child, without shop account, five thousand rand, six thousand rand was enough for me, cause I don't have any expenses. So, I give a thousand rand at home just for food and the rest I bury in the bank (interview, 5 May 2018).

Thabo was also one of the two people who were permanently employed by Siemens after the construction phase as an administrator. He is 24 years old and has a diploma in drama studies and is thus a member of the very small group of people in Loeriesfontein with a post-school qualification. However, while R 6 000 was enough for Thabo, it was not enough for Thomas, who is the primary breadwinner in his household, with family responsibilities. Thomas was the other participant who was permanently employed after the construction phase, while his sister was the driver employed by BMC crane. However, at the time of my fieldwork he was a single parent living with his parents in their home and with two children studying in college; he thus had many more financial responsibilities than Thabo. He reflected on his remuneration thus:

> Enough is broad, but, I mean I have two daughters that live in Cape Town that I must also support, so obviously pay was never enough, but seeing that jobs are very scarce

> around here, I didn't really complain, cause it's something you have that you didn't have in the past. But, was it enough? No (interview, 4 May 2018).

Both Thabo and Thomas' comments on wages speak to their family responsibilities. Koosie, on the other hand, who is single, with no children but living with and supporting his mother, assessed his remuneration in relation to his work experience, He is a shutter hand with 30 years' experience in the construction industry and felt that his remuneration did not reflect this experience nor compare well with what he had earned in the past:

> What I was earning here now, last year, its, what I was earning when I was finishing my training in the 90s … when I was working for myself and I had my own team. I was working for an Afrikaner *boer* [farmer], and he paid me, let's say, five times the rate I was earning now. This does not include the guys who are working for me, it was mine, my salary (interview, 6 May 2018).

While not explicitly stating that his remuneration was not enough for him, Koosie's remarks are pregnant with understandings of occupational hierarchy, job status and perceptions of fairness. His feelings of unhappiness with his wages were further fuelled by the fact that for him and his team, the difference in payment compared to general workers was marginal, and that "was humiliating":

> I mean the difference, that's one of the fights we had with the company. To recognise us, at least as skilled. They classed us as semi-skilled (interview, 6 May 2018).

A further dynamic involved unfavourable comparisons being drawn between the wages on offer to recruits and those being paid to workers who were brought in by the construction companies as part of their permanent workforce. A number of my participants were part of teams that had external workers – *inkommers*, as discussed further below – who were being paid on a different scale to them. As noted by one of my key informants, "People start to talk and compare things: We do the same work, but you are getting paid differently, why?" (interview, November 2017). The second community protest during the construction phase was triggered in part by some local workers finding out how much some of the permanent workers were earning and perceiving this as unfair discrimination.

I return to this impasse in section 7.2. In the next section I expand on the theme of skills and training in the next section.

7.1.4 Skills development and training

According to the Chairperson of the Local Business Chamber, the arrival of Murray and Roberts challenged the local farming community which was already under stress as a result of the effects of the drought:

> The farming community was in an unenviable position that they had to compete with the wages in the mining or development sector like the renewable energy. And it was also attractive for any farm worker to leave his work on the farm. There were two advantages, the one is that he could stay in town which is more attractive, and he could earn more money, but unfortunately, he could only earn more money for only two years. A lot of them are sitting in town without work (interview, 10 May 2018).

The advantages the wind farms offered farm workers looking for alternative work opportunities were also attractive for many unemployed Loeriesfontein residents looking for work in a depressed local economy in which employed workers were earning R 2 500 per month on average. However, Murray and Roberts (and other subcontractors) found themselves facing a skills challenge when sourcing local labour, because of the nature of the Loeriesfontein labour market and educational system described in the previous chapter. As noted above, the majority of the local workers whom I interviewed were classified as unskilled or semi-skilled, although some might have been given titles that suggested that they were skilled. According to Paul, Mainstream's Construction Manager at the time, the local labour force was not adequately prepared for the jobs they were offering, because the town's economy rested on the agricultural sector, unlike the mining towns north of Kimberley where he had previously been based. Recruits from Loeriesfontein thus had to be taught the basics of working in the construction sector, such as health and safety protocols, including the proper usage of Personal Protective Equipment (PPE), and toolbox talks (Paul, interview, 10 September 2018).

While this induction meets the decent work indicator of a safe work environment, Paul's answer to my question indirectly confirms that work seekers in Loeriesfontein are not well placed to benefit from current and proposed investments in renewable energy (the focus of my sub-research question 3). However, given Mainstream's commitments around using local labour, the question for the companies involved in the construction of the wind farms was, according to Menzi, Mainstream's economic development manager: "How can we train to then use without delaying our construction schedule?" (interview, 26 February 2019).

The short answer is that the training of local labour should have started before construction, but this clashed with production priorities. Revealingly, a senior Manager in the IPP Officer told me they had expected "that there would be a skills transfer in a traditional sense" but he did not know "to what extent that has happened, because we did not design a monitoring framework to be able to capture that" (Mbulelwa, interview, 5 December 2017). Skills transfer in the "traditional sense" entails the accreditation of the skill that is said to be transferred which can be verified through a competency test. In Loeriesfontein, according to the former councillor, this did not happen as promised:

> There was a promise of transferring skills and I don't believe that it did happen. They did train some and gave them certificates, but it had nothing to do with the work … Somebody said they did, say you do painting but are busy with concrete labour – it's got nothing to do [with your work], it's not related to what you are doing. So they did do training and people received training, but I don't think it was accredited so it's useless to me, it's a waste (interview, 28 November 2017).

The issue of skills and training cannot be ignored in assessing whether the employment provided meets the criteria of decent work or not. This issue goes to the heart of the ILO's just transition guideline concerning coherent policies across the economic, environmental, social, education/training and labour portfolios (ILO, 2015). However, for the companies concerned, the issue boils down to a cost-benefit analysis within the project. If it costs less to train local labour than to bring in workers that do not need much training, then local labour will be trained. Similarly, if one worker can do the work of three workers, why hire three? From the perspectives of employers "a skilled worker is one who is hard to replace or do without, an unskilled worker is one who is easily substitutable or dispensable" (Tilly, 1988:452).

Menzi is of the view that much more could have been done to prepare and equip local people to benefit from the job opportunities on offer but there was an unwillingness to do so, as economic development was viewed as a "grudge purchase". Menzi's characterisation of development as a "grudge purchase" speaks to the manner in which the economic development component of the REIPPPP was introduced into the scorecard at the eleventh hour and viewed as a heavy burden for the nascent industry (discussed in chapters one & five). She laid out some practicalities around training, skills and general development as follows:

> A lot of the complaints in the community were: But we are not getting prized jobs, [just] manual labour jobs. Why cannot we be trained to drive the machines? Because they are not only better paying jobs, but how much skill is required since we are drivers.

> Some of them had driving certificates. And the argument Murray and Roberts would always put forward is, we can put in a programme, and they come to me, the ED manager, to put in a programme that puts through five people into machine driving school, because it's a different type of driving. But by the time they get certified the project is done … the farms were built in tandem so they were maximising efficiency, so on one side they may have started the construction, and on the other they are doing steels [phase 2 and 3], that's how they managed their skilled labour. Because it's the same teams that would move, so there are lags. Maybe we start a programme now for Khobab, but they are only ready when Loeries starts to do their digging or foundation (interview, 26 February 2019).

Menzi, the economic development manager, went a step further to point to the lack of "sympathy" in the sector with skills development and training:

> If you wanted to [train] you would, the point is you don't want to because they were disgruntled. The thing about economic development that you need to understand is, the contractors are white Afrikaners and the developers are British, Irish, mmm, internationals. Both have no sympathy for economic development in South Africa, in fact the internationals are worse than the white Afrikaners. Murray and Roberts was accustomed to BEE, they find their way around it, they are like Basil Reed. I understand construction, I worked in construction – it's just a different company, we are all the same. When we were colluding and being charged by the Competition Commission, I was there. It's the same mentality: we don't want to [train people] but we have to (interview, 26 February 2019).

She also pointed to the use of unskilled labour to meet the company's local employment targets:

> They like coloured communities because they speak the same language, and they can convince them to just *toe maar*, just dig and we'll pay you, we'll make it comfortable, just wave this flag. How many flag bearers did we have? And they were all female, all the males were diggers (interview, 26 February 2019).

From the time when Mainstream received news that they were the winning bidders in 2013 to the time that construction commenced on the two wind farms in 2015, steps could have been taken to prepare and train local labour. Why this was not done reflects a serious weakness in the design of the REIPPPP, a point that Mbulelwa from the IPP Office accepted needs to be

addressed, to ensure greater benefits for local labour from the employment opportunities (interview, 5 December, 2017).

7.1.5 Space as a tool for control

The control of workers is a complex process that is shaped by a number of factors, with the aim of "enlist[ing] the consent of the worker in a way consistent with the maintenance of control over the labour process" (Peck,1996:32). As described in Chapter Four, the compound and migrant labour system are good examples of how workers have been controlled spatially in South Africa in the past. In Loeriesfontein, geographic space and skill levels were also used as tools for worker control, although in a less directly coercive way.

As already described, the wind farms are located 60km outside Loeriesfontein and the town is divided spatially in terms of racial profile and proximity to services – the formerly whites-only Bo-Dorp on the one hand and the formerly coloured group areas, where the majority of residents still reside, on the other. This spatial divide was reflected in the living and transport arrangements for the different categories of people working on the wind farms and the degree of control the company was thus able to exercise over them. The more specialised and senior you were, the more likely you were to live in town, on the white side.

During my initial fieldwork in 2017 I had already observed that senior managers and skilled and specialised workers lived in the Bo-Dorp and travelled to the construction site in company vehicles. The specialist international workers imported by Siemens and Fairwind had their own accommodation in a temporary labour camp which was located about a kilometre outside the town. Their period of employment started in phase 6 of the construction process, when the wind turbine parts were being delivered and laid out. These highly skilled workers had access to a private swimming pool and the community golf course, as well as to a gym with equipment housed in converted ship containers. They travelled to the construction site in bakkies and mini-vans.

The main contractor, Murray and Roberts, housed their permanent workers, whom they brought with them for the contract, at another temporary labour camp set up close to the construction site or in white-owned guesthouses in the town. This group of permanent workers were mostly black African men who spoke IsiXhosa and IsiZulu, with some SeSotho speakers. Those who lived close to the construction site were able travel to town on Fridays and their weekends off. One reason why they were housed there is that there was not enough

accommodation in Loeriesfontein. Their temporary camp had satellite dishes but nothing close to what the international specialist workers had in terms of recreational. Concor and other sub-contractors accommodated their workers in the white area of town and transported them to the site daily.

Workers recruited from Loeriesfontein lived at their family homes and were picked up daily at 06:00 a.m. by company transport to travel to the construction site. The arrival of so many workers from outside Loeriesfontein challenged their sense of place and disrupted what they considered the proper hierarchy between locals and *inkommers*, the term given to people who were not born in Loeriesfontein but have come to the town to live and work. It is not just a descriptive term but carries a strong sense of someone who does not belong, without the same claim to status and membership in the community as people who were born there. Similar tensions were found by Mashayamombe (2018) on two new mining projects in Mpumalanga and Northern Cape.

One of my questions to the former workers I interviewed was whether they had enjoyed their work. Most commented that they had enjoyed aspects of it, but this was often qualified in terms of strained relationships with *inkommers*. Thus Mark's response was as follows:

> *Ja*, I enjoyed, but not all the time, because we work with, maybe, let me explain to you. We are working with coloureds from another town *nê*, they want to be high [superior], so it's not always nice to work with them. When I work with my people, most of the time I work with my people it was nice, because we understand each other. Those guys come from Springbok, they were a little bit tough to connect to because they just want to be like *baases* [bosses] (interview, 10 May 2018).

For his part Denzil said that he had enjoyed the work, but he also complained of a foreman who was not local and used inappropriate language when speaking to the workers:

> People didn't know how to talk to people ... they never choose foremen from Loeriesfontein, our people work as general workers. A lot of young white guys who are foreman, but they can't do my job, he just stands there and points around (interview,10 May 2018).

I also asked one of the Community Liaison Officers on the project if he enjoyed his work. Although he said he did, Zorzi, who was from the area, was well aware of how the community could turn against him. He said being a CLO was a strange experience but understanding the local culture was a major advantage:

> if you know your people and you know how to deal with your people, you will have to do your job. I was born here, I was raised here, so the people know who I am, what I can do, what I am capable to do (interview, 10 May 2018).

By "your people", Zorzi is referring to the coloured community is Loeriesfontein. What is interesting about the three quotations above is the possessive language ("our", "your") which can be linked back to the issue of control. Peck (1996) argues that the balance between consent and control transcends contractual obligations and involves continuous negotiations between controller and controlled. In Loeriesfontein the local/*inkommer* cleavage set up tensions which affected worker control. The effective exercise of control depends not only on who is being controlled, but also by whom and how.

7.1.6 Perceptions of decent work

So far in this chapter I have shown that elements of the four pillars of the ILO's "decent work" framework were present to a limited degree. Alongside the temporary nature of most of the employment on offer, social protection for workers was in place in a minimal way, inasmuch as there was formal compliance with basic conditions of service such as provision for unemployment insurance. However, the jobs on offer did not offer most workers opportunities to enhance their capabilities and did not match up to their own perceptions of decent work.

The factors that shape individual understandings of what decent work means are multidirectional and multi-layered. However, one theme that came through strongly in my informants' perceptions was that of pride – decent work was not only about satisfying human needs but involved work that one could be proud of, which invokes Sen's notion of capabilities as the freedom for people to be able to live the life they choose, a life of which they can be proud. For Frank this linked personal and social identity to his responsibilities for social reproduction by putting food on the table for his household and family:

> Decent area, cleanliness, work that you [are] proud of it – when you do the work, you want to do [it] for the rest of the life. You are happy, glad to stand up in the morning to go to work, 'cause you know that is your pride. Provide food on the table. You know when you come to work that is what I'm good at, that is my passion (interview, 8 May 2018).

Tom defined decent work as "permanent work, and it's for more savings and stuff, because when you on contract you never know" (interview, 10 May 2018). Here, decent work is tied to

job security which reflects the precariousness of his previous job as a farm worker. In the case of Thomas, however, his previous job came closer to his definition of decent work than his work on the wind farms. He had previously worked on a gypsum mine and then in an office environment and found the conditions at the wind farm construction site harsh and physically demanding:

> From my past experience, where people can work together, where we can have a good relationship with your employer, and where payment is on time and its fair, and where the environment is friendly. Meaning there are facilities, especially look at the wind farm, you are far away in the veld, there is nothing much, so you'd expect to make it as comfortable as possible. For example, the fridge, microwave, just make it comfortable, not the luxuries but the basic things to keep you in a comfortable level …there was a lack of most of those things (interview, 8 May 2018).

However, for Bossie, with 30 years of experience in the construction industry, the environment at the construction site was simply part of working conditions in the industry. For this reason he did not have much sympathy with the people who were complaining about this:

> The people complaining about the problems at work, some of them were [complaining] about the bus, they say the driver didn't pick them up. But sometimes people are late. Other times it's about the weather – we work in the veld, there's no shadows, its warm, the wind, its dusty. Then people complain about eating in the dusty area, they can get sick…you are lucky if you standing near the bus … sometimes they strike about who they want the manager of Murray and Roberts [to be], because that manager didn't treat people well. They argue about money, the payments, and the promises [that were] made (interview, 5 May 2018).

Reflecting on whether his work qualified as decent work, Buta remarked that "it was not really a decent job because it is not what I really wanted to do, I just did it cause I didn't have money and I needed money and there's no work so I had to take it …." (interview, 6 May 2018). His answer echoes Frank's notion of decent work as work that you want to do. However in the absences of that, one takes what is available, even if the money is not considered enough to support your family. Like Thomas above, Peter placed an emphasis on working conditions which meant his previous job could not be considered: "Everyone was working with silicon, grease, that electrical grease … we were working with copper, we must put grease there, so it's not that decent" (interview, 9 May 2018). Even though personal protective equipment was given to all workers, Peter felt his work was not decent although he fell short of stating categorically that he did not take pride in it.

Knox, a surveyor assistant, also emphasised pride and occupational status as important:

> I did have a decent work, I was proud cause I know the work that we did wasn't the work that other people do, maybe they do earth works, or concrete work, they didn't do the work that I did. I can say with pride that when we do the work, they must wait for us, you see. They can't work before us … (interview, 9 May 2018).

Knox's conception was interesting in that he understood decent work in relational terms and as status based. When I probed him whether he thought others who worked on the wind farms had decent work he responded: "From my point of view, it is what they think of it" (interview, 9 May 2018), thereby problematising the notion of decent work as objectively determined.

7.2 The politicisation of employment opportunities

This section examines the contestations around incorporation and allocation of work, in Peck's (1996) terms. By now what should be clear is that those who were allocated low status jobs within the construction industry were members of the historically marginalised social group in the Northern Cape, which reflects how social hierarchies organise local labour markets (Peck, 1996). Here I consider the politics that the process of incorporation and the allocation of work generated.

In a community like Loeriesfontein with high levels of unemployment and poverty any process of job recruitment was bound to be fraught with challenges. As already noted, the timing of the 2016 local elections further exacerbated the potential for conflict. Under these conditions, the process followed for recruitment is important, not simply the outcome. When that process is undermined from the onset it leads to discontent and perceptions of unfairness, bringing into play the issues around participation and a fair distribution of resources that Holden et al. (2016) highlighted as fundamental in their model of sustainable development.

7.2.1 Contestations around labour incorporation

According to Gerald, a senior official in the Department of Labour in Calvinia, when his department first heard about the construction of the two wind farms in 2014, officials saw this as an opportunity to use their Employment Services South Africa (ESSA) database to identify potential workers. Officials also hoped to use the opportunity to expand their database (interview, 10 May 2018). ESSA is an interactive database that links employers with suitable

candidates on the system by matching potential employees against the key requirements of the employers, such as educational level, qualifications, gender and skills. Thus Gerald initially imagined that the Department would manage the process of labour incorporation (interview, 10 May 2018). Moreover, he also thought that the demand for labour during the construction phase would be big enough to incorporate workers from other towns in the Hantam municipality, something which SiVEST had also anticipated.

However, in his words: “It didn’t work that way”. He claimed that the idea of using the ESSA database was blocked by the ward councillor in favour of employing a Community Liaison Officer (CLO) who would be responsible for managing recruitment in Loeriesfontein:

> The councillor in Loeriesfontein took that responsibility to, let’s say to employ people and refer people to Mainstream and … the construction company, Murray and Roberts. So the councillor took that whole thing, referring unemployed people to them. However, those people were on our database ... so we could have [avoided] this whole thing of politics. Because you know the councillor is a political office bearer and we didn’t want politics to play a role when it comes to employment opportunities. There is no politics in the department, we don’t do politics, everyone must have an equal opportunity in getting employment (interview, 10 May 2018).

Murray and Roberts entered Loeriesfontein’s local labour market as a private employer in the construction process and began to recruit local workers informally in 2015. According to various informants, by not advertising jobs but following well-established practice in the construction industry of recruiting by word of mouth (Haupt & Madikizela, 2009; Sangweni, 2015; CIDB, 2015), Murray and Roberts set themselves up against the ward councillor, who had an eye on the upcoming local government elections in 2016. This informal process of recruitment appears to have created tensions from the start, with issues around the recruitment of local labour being discussed at the Enterprise Development Day that the company held on 17 April 2015, at which its “Community Prospectus” of proposed development projects was presented. A month later the first community protest took place, on 16 June 2015 (a public holiday commemorating the 1976 Soweto uprising).

I have been unable to gather details about the number of people involved in the 2015 protest. However, it is clear that at issue were broader concerns regarding the distribution of resources and benefits in the community. According to Menzi, the protests were caused by the “improper” process Murray and Roberts was following in recruiting local labour (interview, 26 February 2019). She felt that a more appropriate way to recruit would have been either to work through

the Department of Labour or to advertise the type of jobs on offer locally, through an open process. In her view the construction company was relying on established networks in the white community:

> It was right in the beginning of construction [10 June 2015]. Murray and Roberts arrived in town. So, it was all good with Mainstream, they [the community] loved Mainstream. Then Murray and Roberts arrived and started actually working and they messed it up. They didn't advertise jobs, they went to the same sources that Mainstream had told them that its ok to go to, all white, and they started getting people to work. Completely inappropriate, no process. The Councillor was irritated that I had built a relationship with her but Murray and Roberts arrive, and they do their own thing. And the right way to do it was to get a list or involvement of Sub-Council in advertising jobs. They have a database of unemployed people. The alternative was to advertise, put it at the Spar, I mean it's not a big town…and manage the process (interview, 26 February 2019).

Figure 7.1 below provides images of the 2015 protests, which were captured by one of Mainstream's economic development team members.

Figure 7.1: Community protest, Loeriesfontein, 16 June 2015.

(Source: anonymous)

The placards on display in Figure 7.1 clearly register grievances relating to Murray & Roberts and local businesses they were seen to be favouring. In the left hand photo the placard resting on the car translates into English as: "No accommodation for Malala [a local guesthouse]; close [stop this] or the community will surely close it!". In the photo on the right, the poster reads in English as follows: "We are fed up with unemployment, to hell with Transnet, Murray and Roberts and Malala Guesthouse". Nowhere in the posters are Mainstream or the other

subcontractors mentioned, which supports Menzi's assertion that initially the relationship between Mainstream and the community was good.

The outcome of the community protest was an undertaking by Murray and Roberts (and its sub-contractors) to advertise all opportunities for employment and service providers connected to the construction of the wind farms. To remedy the situation, Menzi and the ward councillor (who had established a good working relationship) suggested that a CLO should be employed by Murray and Roberts and all vacancies advertised, starting with that of a CLO (Councillor, interview, 28 November 2017; Menzi, interview, 26 February 2019). In this process, which was initiated after the protest, the councillor's office served as a place where local community members could drop off their CV's which she passed on to Murray and Roberts who made the appointment of the CLO. This person then assumed the role of recruiting local labour that Gerald in the Department of Labour had envisaged that the ESSA database would play. (The councillor did not take it upon herself to recruit local labour as thought by Gerald.)

The use of a CLO for recruitment in the construction sector is well established but in Loeriesfontein there was unhappiness that the recruitment process was commandeered by Murray and Roberts through their CLO. This need not have been detrimental if the process was seen to be managed openly and transparently. However, in the second community protest in April 2016 damaging accusations of favouritism surfaced against the CLO. As detailed further below, members of the ward committee were seen to have benefited unfairly through service contracts (Mainstream, 2016; interview, councillor, November 2017).

7.2.2 A captured ward committee and the second community protest in 2016

Although the first community protest was resolved with undertakings, the underlying conflicts over the distribution of opportunities were not resolved but continued to simmer. In this time a pattern was manifesting of resources being allocated through the ward committee which was meant to be responsible for spearheading the various community development initiatives which were to be implemented after the construction phase was over (discussed further in Chapter Eight). According to the ward councillor this was a major reason for the 2016 community protest:

> The problem is, firstly they [Murray and Roberts] gave one of the ward committee members a taxi. You're supposed to speak on behalf of the community. So now they invested in you and gave you a taxi and said you can get a tender now, to drive the people from town to the site, and let's make it so that you can pay it off within the three

> years. So immediately that person [who] was the spokesperson for the community, he became silent in the meetings that we had. You had to speak and say: The community is frustrated in this area, they are unhappy in this area [but] he became silent. And they did it with each and every one of my 10 ward committee members, everybody got a tender. Everybody got something and there I was alone (interview, 28 November, 2017).

During construction Murray and Roberts used the preferential procurement process as allowed in the bid scorecard. In addition to the ward committee member who was provided with a taxi to transport workers, a sub-contractor was brought in from the Western Cape who had his own general workers, thus bypassing the CLO and agreements regarding the use of local labour and advertising opportunities. This sub-contractor was reportedly contracted by Murray and Roberts without the company having demonstrated that the required skills were not available in Loeriesfontein or the Hantam Local Municipality or Namakwa District Municipality (interview, Menzi 2019; Mainstream Communication, 2015). Upon hearing this, community members prevented the sub-contractor from working and put forward the name of a locally based company as a replacement sub-contractor, but Murray and Roberts rejected this company on the grounds that it was not registered with the Unemployment Insurance Fund (Mainstream Communication, 2015). According to Menzi, this example was one of many instances where Murray and Roberts treated the Loeriesfontein community "like a dog chasing its tail" (interview, 26 February 2019).

The second community protest took place over the 13th and 14th of April 2016 (Police, interview, 7 May 2018). Due to the proximity of this protest to the 2016 local government elections, which were held four months later on 3 August 2016, I found it difficult to establish during my fieldwork what exactly triggered it and who the drivers of it were. Two of my informants viewed it as an industrial strike which morphed into a community protest, while the local police officer viewed the sequence of events in reverse order. What is not in dispute is that the main roads in Loeriesfontein were blocked with rocks and burning tyres, preventing any movement, including work on the wind farms, and Public Order Police had to be called in from Springbok to quell the protests. In this time Murray and Roberts sent an SMS to all its workers (which I saw), stating that if they did not report for work, they would be dismissed – a reflection of the lack of protection that a limited duration contract offers workers.

I did not find any evidence of mass dismissals and according to Menzi, the protest was resolved by appealing to the "ring leaders" to end it (interview, 26 February 2019). Also in this time the CLO either resigned or was dismissed. I was unable to interview him formally but in an informal

conversation I had with him in 2017, after a Primary School prize-giving event, he told me that he had been dismissed because Murray and Roberts wanted him “to go against the community”. He refused to elaborate further on what this entailed.

The following account is pieced together from Mainstream’s “Community Response” document (2016) and incomplete community reports prepared by its economic development team. In the build-up to the protest, a community meeting was held at the Loeriesfontein Sports Hall on April 8, 2016. From this meeting Murray and Roberts and Mainstream were presented with a list of demands and grievances from the community to which they subsequently prepared their written “Community Response” document. The community grievances and demands covered six issues, the first four of which are discussed in this chapter and the last two in Chapter Eight. They were summarised by Mainstream in its response as follows:

1. Procurement/Recruitment opportunities and contracts are awarded to ‘outsiders’ vs locals.
2. The CLO’s central role is not functioning as it is supposed to.
3. Project Management attitudes and conduct in dealing with employees and those still actively seeking employment from Loeriesfontein community.
4. High expectations from community due to historical promises made by the project company are not being fulfilled.
5. Tolerance levels for peaceful resolutions are low and ultimatums are put forward to project management by community.
6. Insufficient social investment and upliftment of community by project company (Mainstream, 2016).

In their response to the first grievance, Mainstream stated that as part of the REIPPPP, three commitments had been made with the Department of Energy: job creation; local content and preferential procurement. Mainstream defended its performance as follows:

> There is no requirement to give all jobs to the local community, but we have made a commitment to not only meet the targets for jobs allocated to local communities but to the exceed them. To date, we have created approximately 200 opportunities for jobs from the local community. We have also provided certification to illustrate the competency of employees that can be used to find other job opportunities (Mainstream, 2016:3).

Unhappiness over the issue of certificates and training surfaced during my field work in 2018. While people had been trained, many reported that they had not received their certificates. The certificates that I saw mentioned that the recipient had participated in the project, and that their competency certificates needed to be renewed every one or two years depending on the task.

In response to the second grievance concerning the CLO and his role in the process of recruitment, Mainstream again defended the process in place:

> A list of the CVs on the project database is required to be on the CLO's noticeboard outside his offices. A random computer selector is being utilised to put forward names for employment from this database. The CLO is not responsible for and not permitted to put forward names for opportunities outside of this process (Mainstream, 2016:4).

The third grievance concerned an issue of alleged racism levelled against a senior Murray and Roberts' manager by the Mayor, along with perceptions about the ill treatment of workers and those looking for work. The company's response was a standard corporate response to a contentious issue, which went as follows:

> Racism is a serious offence and is illegal according to the constitutional laws of our country. The project company as a responsible corporate citizen is required to abide by the law and to ensure that its employees who are its representatives also abide by these laws (Mainstream, 2016:3).

It is noteworthy that this response did not address the allegations. Instead, the community was told to follow the grievance and complaints procedure which would be explained in detail by the CLO (Mainstream, 2016). It is extraordinary that by April 2016 the CLO had not yet detailed the grievance and complaints procedure to the community.

The fourth grievance deals with legacy issues. That Mainstream had made a number of commitments in 2015 to local residents regarding employment opportunities is not in dispute; however, the interpretation of them is contested. In their 2016 response Mainstream reminded the community that they had communicated at the 2015 Enterprise Development Day that the number of jobs were limited – 150 at the peak of the construction period – but then added that "where possible, we [Mainstream and Murray and Roberts] will prioritise Loeriesfontein community for opportunities but not at the expense of quality" (Mainstream 2016:5).

It is clear from the above that the protesting community members and Mainstream's management were working from very different vantage points. Comments by a senior manager whom I interviewed in the IPP Office go to the heart of the disjuncture between, on the one hand, community perceptions and grievances, in a context of extremely limited options for social mobility, compounded by the hurt and anger stemming from the community's past, and on the other the challenges faced by renewable energy IPPs in meeting their primary commitments to build the renewable energy projects and deliver to their corporate shareholders. They also resonate with Menzi's observation regarding the general attitude of the construction industry towards economic development as a "grudge" obligation. The IPP official remarked that local small and emerging contractors were unprepared for the contractual demands placed upon them:

> In the beginning, because IPP have signed on start date and a finish date, which is very strictly monitored that if they are late by one day we penalise them, they lose two days in their contract and that's a lot of money, so that is very strict, and investors and shareholders are on it. We cannot be late, rather we should finish the project early or on time. So with regards to the small businesses in the local areas there was a major shift in how they used to do business with government. Because you find that traditionally, those businesses were used to do business with government and there it doesn't matter, tomorrow is still another day. You know what I mean – you can shift the goal post, you can escalate on your contract to whatever limit until the budget is exhausted for this year. (Mbulelwa, interview, 7 December 2017).

This shift for small and emerging contractors in doing business with big contractors with shareholders and investors to account to is overwhelming since guarantees are required to mitigate risk. Mbulelwa went on to say:

> Here its committed R1.2b, it must happen between this time and that time, and there are key milestones that are monitored from start to finish, so you cannot afford to be late. So those [small] businesses wanted to participate in this space, but they could not provide some of the guarantees and security to say what would happen if you don't finish your part within this week. So we found out that the SMMEs were not ready to participate in such an environment (interview, 7 December 2017).

7.3 Conclusion

In this chapter I have covered issues related to employment opportunities and the contestations around them during the construction phase. This shows that the employment opportunities created during construction were better in terms of basic conditions than those available on the local labour market but were mostly low-skilled and short-term. Moreover, skills development, including the training of local labour before the construction started (in order to maximise opportunities for local benefits and participation), was lacking. While meeting some of the criteria for decent work at a minimum level, local job creation did not measure up to local expectations and access to the available jobs became a source of local patronage which further fuelled community frustrations. This is significant considering that other job opportunities through project ownership, management control and local content (covered in Chapter Six), were beyond the reach of most residents.

This does not take away from the indirect and induced job opportunities created in the local community through the increase in demand for accommodation, food and other local services as a result of the construction of the two wind farms. However, the direct jobs created in the construction phase were not sustainable once that phase came to an end and the conflict generated by the contestations over work continued into the operational phase of the wind farms. Local job creation through the investment in renewable energy is insufficient for making a substantial contribution to the eradication of poverty in Loeriesfontein, which means that the local community development commitments of the renewable energy sector become particularly important. This issue is covered in the next chapter.

Chapter Eight: Dissonant Ambitions around Community Development

In this chapter I discuss the community developments initiatives in Loeriesfontein in relation to my conceptual framework and the understanding of sustainable development in that: that .sustainable development involves a vision of development as “freedom” (as advanced by Sen), that is about meeting human needs and advancing social justice, while respecting environmental limits. This chapter thus addresses my fifth research sub-question: To what extent is sustainable development being advanced by the community development projects the renewable energy sector is required to make in its “host” communities?

In section one I discuss Mainstream’s community development plans for Loeriesfontein between 2011 and 2015, beginning with the initial community development strategy developed by the social investment fund manager, Tshikululu, followed by an account of the plans in Mainstream’s “Community Prospectus” of March 2015. In section two I review the various projects that were initiated and proposed between 2016 and 2019, situating the areas of intervention proposed in the context of the community tensions described in the previous chapter and the challenges this posed for the implementation of community projects. Here the problems lay not with a scarcity of resources, but with the competing local patronage networks and decision-making processes which undermined public participation. As argued by Hirschman (1958:10), tensions around “development” are not so much between known benefits and costs “but between the goal and the ignorance and misconceptions about the road to that goal”. Section three takes a step back from the detail to provide an assessment of the challenges facing the implementation of the various projects and their contribution to the broader goal of sustainable development.

8.1 Mainstream’s community development plans, 2011 – 2015

8.1.1 The Tshikululu Report (2013)

As already mentioned in previous chapters, Tshikululu, a Johannesburg-based “social investment fund manager and advisor” company, was appointed in 2011 to produce a tailor-made socio-economic development plan for Loeriesfontein on behalf of Mainstream. Its Report, finalised in 2013, was used in Mainstream’s bid application in the third bid window and informed Mainstream’s subsequent commitments around community development once the construction phase – with all the challenges described in Chapter Seven – was over. Although

the recommendations in the Report were not finally implemented in their entirety, elements were taken forward while the contents of the Report informed Mainstream's engagement with both its host community and the Hantam Local Municipality. This Report should therefore be seen as a Mainstream document.

In developing the plan, Tshikululu went on a two-day fieldwork trip to Loeriesfontein, during which its staff conducted interviews with people it identified as key stakeholders and informants; the Report team also drew on documents and reports addressing socio-economic issues in the area, including StatsSA's 2007 Community Survey, the national census of 2011, and the IDP, Local Economic Development (LED) plan and Annual Reports of the Hantam Local Municipality. Significantly they used data on socio-economic conditions for the municipality as a whole, not those pertaining to Loeriesfontein specifically; this explains some differences between their data and the 2019 survey data that I have relied on in my account. In the end, the consultancy produced a 44-page report that is divided into six sections: 1) Introduction, 2) Socio-economic development commitment, 3) Community assessment, 4) Socio-economic development strategy, 5) Programme management, and 6) Monitoring, evaluation and reporting (Tshikululu, 2013).

Tshikululu's assessment of socioeconomic conditions in Loeriesfontein in 2011 corresponds broadly with what I have described in previous chapters. It identified drug and alcohol abuse as common problems and highlighted the challenges of both teenage pregnancy and domestic violence. The latter was identified as under-reported and "[a]n organisation working specifically in the area of domestic violence would therefore serve a valuable role in the Loeriesfontein community and its surrounds" (2013:27). The assessment of local educational achievements, based on the 2011 census data for the Hantam Local Municipality rather than Loeriesfontein-specific data, was more bleak than my assessment in Chapter Six. The Report described educational attainments as reasonably high in the area, but noted that the rate of participation, particularly in primary school and tertiary education, was extremely low (Tshikululu, 2013) – a finding that differs from what the 2019 household survey found for Loeriesfontein itself. Tshikululu suggested that limited activity in the area of early childhood development (ECD) might be one of the reasons explaining the low participation rate in primary schools in the local municipality and in response proposed strengthening ECD initiatives.

The Report also identified the lack of parental support for teenagers as a factor in the high drop-out rate in high schools, along with "limited opportunities at tertiary level and pressure to enter the economy in an unskilled capacity" (Tshikululu, 2013:24). Its assessment of parenting skills was harsh:

> many parents are not sufficiently present in the lives of their children, *spending significant amounts of time and money in local shebeens, and often being motivated to have children in the first place only by the prospect of receiving the associated grant from the government*. Therefore, any intervention that sought to provide more effective support to learners should also address their parents, creating a greater level of awareness of their roles and responsibilities in their children's education and the consequences of not fulfilling these (Tshikululu, 2013:23, emphasis added).

Implicit in the above judgement is that without parental involvement, the effectiveness of external interventions targeting childhood development would be limited. However, no evidence was provided for the claims with regard to poor parenting.

The Report also drew a clear link between the low levels of education they found and the local economy, noting how the former impacted negatively on growth prospects for the town, with the two operating in a mutually reinforcing cycle "where economic prospects do not incentivise educational pursuit, and where marginal educational outcomes further inhibit the growth of the economy" (2013:17). Due to the local economy being anchored in the agricultural sector, the Report asserted that the youth viewed their long-term prospects as limited to the agricultural sector and were therefore not incentivised to finish school, resulting in "a characteristically under-skilled labour force with marginal ability to attract the kind of economic activities that will add value – both in terms of skills and income – to local workers" (Tshikululu, 2013:17).

The approach to socioeconomic development

The Tshikululu Report adopted a 20-year view of Mainstream's community development responsibilities, in line with the PPA (purchasing power agreement) that Mainstream had entered into with Eskom. Community development was to have "a positive socio-economic impact in the community", involving "a sustainable impact and leaving a lasting social legacy" (2013:6). The Report used vague phases such as the need for "initiatives to empower local citizens" while also identifying certain functionings (to use Sen's term) as particularly important, including the need to "invest in jobs-skills training programmes targeting the community's vulnerable and unemployed", with "rapidly upskilling youth populations" the top priority (2013:29). Early on then, a need to equip young people in Loeriesfontein with the necessary skills to compete in the labour market was identified as important. However, as I have shown

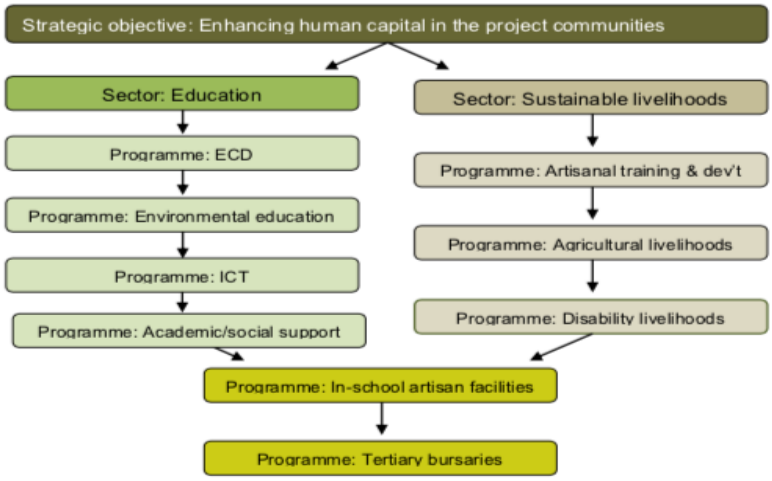
in Chapter Seven, very few local people actually benefited during the construction phase from skills training programmes.

Tshikululu did not define exactly how they understood "sustainable development" but drew on the "sustainable livelihoods" framework popularised by international donor agencies such as the British Department for International Development (DfID), with its emphasis on mobilising community "capitals" (natural, social, human, financial, physical) (DfID, nd). Drawing on mainstream understandings of economic development in the agricultural sector, they viewed "development" as involving a progression towards participation in the market economy that takes place over four phases: the survival phase; the subsistence phase; the livelihoods phase and the commercial phase. They also stress that funding should not be made available on an ad-hoc basis for "pet projects" but should be channelled through NGOs and worthy local institutions such as schools and the clinic (Tshikululu, 2013:6).

The socioeconomic development strategy

Based on the above assessment, Tshikululu developed a socioeconomic development strategy which was broken down into two distinct phases and targeted two main areas: education and sustainable livelihoods (Tshikululu, 2013). Figure 8.1 below shows how Tshikululu represented this strategy graphically.

Figure 8.1: The Tshikululu socioeconomic development strategy for Loeriesfontein



(Source: Tshikululu, 2013:23)

Phase one was aimed at meeting the immediate needs of the community as a base on which to conduct future interventions. With bulk infrastructure such as the sewage system, electricity

and water supply in place in Loeriesfontein, Tshikululu identified a youth centre where young people could socialise in a supervised environment as the greatest infrastructural need in the town. The Report also identified the need for a "victims support room" for victims of domestic violence and playground equipment at the Loeriesfontein Primary School. Phase two was presented as building on the base provided by phase one, to add "socio-economic value" to the community on a self-sustaining basis. The focus here would be on building the community's "human capital" within the education and sustainable livelihoods sectors.

The educational strategy was aimed at "improving local educational outcomes and improving the local skills base and income-generation capacity" (Tshikululu, 2013:21). Environmental education was targeted for children in primary school, with the aim of exposing young people to the environment with the hope of instilling an appreciation of it in them. Both in-classroom and experiential programmes were identified for support in Loeriesfontein, but without details on how this would be taken forward. Regarding Information Communication Technology (ICT), the Report noted that the use of devices such as tablets could lead to significantly improved educational outcomes when used effectively and that ICT affords "individual learners more agency in terms of their development" (Tshikululu, 2013:26). The Report also envisaged student bursaries for tertiary education and an in-school artisanal training programme. Finally, the Hantam Community Education Trust, a non-profit organisation running a school and range of community education projects outside Colesberg in the Northern Cape, was identified as a potential partner in the education sector.[43]

The long-term strategy was for "sustainable livelihoods" through growing and diversifying economic activities in Loeriesfontein. To do this, three groups of people were identified for targeted intervention – people with disabilities, women and the youth. These groups were to be provided with "tailored skills-development programmes in order to increase the likelihood of employment, while creating other income streams through sustainable agricultural livelihoods projects". The pairing of groups with programmes is telling. The youth were to be provided with artisanal skills, women to be channelled towards sustainable agricultural livelihoods, while "persons with disabilities" were to be supported in undefined "livelihoods and jobs-skills development initiatives" (Tshikululu, 2013:32). The main idea was to move the community along the four stages of the sustainable development continuum described above.

[43] Despite its name, the Hantam Community Education Trust is not located in the Hantam Local Municipality but some 680 kilometres away. It began as a play school in 1989 and has grown into a comprehensive educational and development centre (Hill, 2016).

> The Bidder will seek to partner with established agricultural development organisations to introduce sustainable agricultural livelihoods programmes in the beneficiary community, with the objectives of reducing local food insecurity, providing individual income-generation opportunities … (Tshikululu, 2013:31).

8.1.2 Mainstream's social investment strategy (2014 – 2015)

In February 2014, Mainstream gave a presentation to NERSA as part of the bidding process which drew on the Tshikululu community development strategy. This presentation also gave projections of the considerable amounts of money available for this. It reported that once in operation, the two wind farms were projected to generate R228m and R222m each towards socioeconomic development and R92m and R89m each for enterprise development, over a period of 20 years. On top of this the two community trusts were expected to receive R509m and R497m in dividends (Mainstream, 2014a, 2014b). Combined, the two wind farms were thus projected to generate R1.6 billion for investment in the local community over a twenty-year period: R450m for socioeconomic development, R181m for enterprise development and just over R1b in capital for the community trusts. In the same presentation, Mainstream noted that it had already invested R75,000 in a Women's Vegetable Tunnel Farming Project and R80,000 towards computers and technology for the local high school (Mainstream, 2014a).

It is clear that Mainstream's presentation to NERSA in the bidding phase drew on the Tshikululu Report and some of the projects that were initiated later, such as the "victim support room" and the playground attached to Loeriesfontein Primary School, were first mooted in the Tshikululu report. Tshikululu also envisaged that it would be the implementation agent of Mainstream's SED fund, at a cost of 15% per annum of the Fund's revenue. However, for reasons that are not known, it was not kept on as the implementation agent. Instead, another company, Tushiyah Advisory Services, was appointed to implement the enterprise development plan during the construction phase (2015-2017).

In March 2015 Mainstream presented their Social Investment Strategy for the Loeriesfontein' community to the Hantam Local Municipality Council. At this meeting Mainstream proposed dividing activities into three categories: short to medium term (0-1 years), medium term (1-3 years), and long-term (over 5, 10 and 20 years). It also provided figures for ED projects and the community trust, based on the expected revenue from just the one wind farm. (See Table 8.1 below.) While the figures for socio-economic and enterprise development were comparable with the figures it had presented to NERSA a year before, the projection for the community

trust was significantly lower than that presented to NERSA, but still startling for a cash-strapped municipality with a total budget in 2018/2019 of R164m (Hantam Local Municipality, 2018).

Table 8.1: Estimated amounts available for ED investment in Loeriesfontein

Criteria	**Amount**	**Estimated value (R Million)**
Socio-economic development	1.5% of revenue	R291
Enterprise development	0.6% of revenue	R117
Community Trust dividends	5% of revenue	R214
Total Value		R622

(Source: Mainstream, 2015a)

The Council was asked to propose projects that it felt addressed critical needs while Mainstream would "propose projects from Tshikululu assessments and ED Plan in the Implementation Agreement" (Mainstream, 2015a:20). However, the projects had to be within a 50km radius of the two wind farms, in keeping with the provisions of the REIPPPP. This was where it became apparent to the Council that only the community of Loeriesfontein would benefit from the wind farm investment, something that the Mayor felt was unfair (Municipal Manager, interview, 12 May 2018). At this meeting Mainstream also made its commitment to construct a jungle gym at Loeriesfontein Primary School (Mainstream, 2015a). As previously noted, this meeting raised expectations and generated tensions within the municipality. Mainstream thought that the responsibility for proposing projects should be taken up by the ward committee in Loeriesfontein, whereas the municipal manager, and by extension the Hantam Mayor, regarded this as improper, because, he argued, the role of the ward committee was to provide oversight, not to take the lead within the municipality on community participation and proposing development projects. These differences were part of the background to the two community protests described in Chapter Seven.

8.2 Project Implementation 2016 – 2019

This section reviews the community development initiatives that were on the table between 2016 and 2019, against the backdrop of strained relationships between Mainstream, the Hantam Local Municipality and the community.

8.2.1 "Goodwill" projects during the construction phase (2015/16)

As already discussed in Chapter Seven, in 2016, in the build-up to the second community protest, Mainstream was accused of making insufficient social investment in the community of Loeriesfontein. In its response to this accusation, the company stated that: "Any social investment being made during construction is purely based on goodwill of the contractors working in the area and is at their total discretion through sponsorships" (Mainstream, 2016:7). However, this is not strictly accurate. As already described in chapters one and five, community development is a binding responsibility for renewable energy projects, not a voluntary corporate social responsibility type of initiative, nor a matter of goodwill. However, because of the way the funding mechanism for community development works, the implementation of these initiatives is only required once the renewable energy project starts generating revenue in the commercial operations phase, not in the construction phase.

Faced with mounting pressure to complete the wind farms on time but also to resolve the community tensions in 2015 and 2016, Mainstream converted some of their planned projects for the operations phase into "goodwill" projects in the course of 2015/16. Table 8.2 below presents a list of the goodwill projects Mainstream identified in its response to the community grievances presented to it in 2016, while Table 8.3 gives a summary of company initiatives and donations by the various contractors and sub-contractors associated with the construction of the two wind farms in this time.

Table 8.2: Total "goodwill" projects by April 2016

Project	**Cost**
Loeriesfontein Primary School jungle gym installation	R 43 000
Loeriesfontein High School Hostel bedroom refurbish	R 83 000
Loeriesfontein High School Back to School Roadshow, donation of textbooks	R 22 500
Loeriesfontein Primary School transport sponsorship for sports activities	R 32 000
Loeriesfontein Primary School Science Site Visit	In kind
Supplier: Development of Taxi Transport Company	Not specified
Supplier: Development of Waste Recycling Company	over R 600 000
Total investment by April 2016	**+ R 780 500**

(Source: Mainstream, 2016)

As indicated in Table 8.3 below, Mainstream and the main contractors, Murray and Roberts and Siemens made most of the community donations. Mainstream sponsored the salaries of two maths and science teachers in the high school and sponsored awards at its annual prizegiving event. It also sponsored the salaries of two additional teachers for the primary school and donated a taxi to the primary school (Mainstream, 2017a). Siemens donated four

laptop computers and 10 desktop computers to the primary school as well as four wrist watches and four scientific calculators for the primary school's top achievers in 2016 (Mainstream, 2017a). It also donated four laptop computers to the high school while the high school received a "face lift", with cracked walls repaired and painted courtesy of Mainstream. Siemens and Concor organised a life skills workshop for workers (Mainstream, 2017a). Skills training was conducted by Tjeka Training which accredited six shutter hands (Gr3) and 24 concrete hands (Gr2), training a total of 32 individuals. Concor's initiatives and donations were road grading and transport- its beneficiary were the local municipality and the Ramblers Rugby Team.

Table 8.3: Company initiatives and donations

Company	**Initiative**	**Donations**
Mainstream	Teacher supplementation programme (Maths & science teachers) Enterprise development programme Temporary water solution	Soccer kits & trophy to local club; water, energy drinks & transport for high school athletics team; laptops & desktops to the high school; drama outfits, first aid bags; playground equipment, paint for the high school refurbishment.
Murray and Roberts		Transport; sanitary towels
Siemens	Work readiness programme	4 laptops, scientific calculators wrist bands to primary school top achievers;
Concor	Work readiness programme Road grading	Transport for local team to rugby matches
Fairwind		Diesel, swimming pool, geyser and gym with machines for temporary skilled workers
E-cat		Blankets to elderly residents
DHL		Food parcels

(Source: Mainstream, 2017a)

Many of these goodwill projects reflected the priorities of community members selected to serve on what was initially called a Social Ills Committee or members of the ward committee. Initiated by Mainstream, the Social Ills Committee was formed in 2016 specifically to discuss "social ills" including truancy, alcohol abuse and public disorder (Maria, interview, 4 May 2018) which were seen to have sprouted during the construction phase in the community. It consisted of representatives from the police, health and social welfare sectors as well as the school principals (Zama, interview, 9 October 2018). Local contracts to provide some of the services in these projects went to well-connected individuals. For instance, the contract for the supplier for the development of the Taxi Transport project listed in Table 8.2 went to an influential individual in the community, the ward committee member mentioned by the ward councillor in Chapter Seven. The contract for waste recycling (cable offcuts) also went to an influential individual in the local community

8.2.2 Mainstream's Community Prospectus, 2015 – 2017

At the start of the construction phase, Mainstream's economic development team initiated a fresh process of community engagement to come up with its actual socioeconomic development plan for the town. Here too the team worked with people they regarded as key role players in the community and searched for potential stakeholder groups in the NGO/non-profit sector in Loeriesfontein. As noted previously, these consultations served to raise expectations within the community. This process resulted in what Mainstream called its "Community Prospectus", titled "Loeriesfontein Community: Working Together", in 2015. Table 8.4 below lists major projects in place in 2017 that were identified in the Prospectus.

Table 8.4: Mainstream's economic development team's list of planned projects, 2017

Project Name	Focus Area	Duration
1) Loeriesfontein Primary School Teacher Support	Education	2017-2020
2) Literacy Programme at Loeriesfontein Primary and High School	Education	2017-2020
3) Early Childhood Development Capacity Building Programme	Education	2017-2020
4) School's Renewable Energy Awareness Programme	Education	2017
5) Establishment of Anti-substance Abuse Programme	Social Welfare	2017-2020
6) Driver's license programme	Skills development	2017
7) Loeriesfontein Water (Temporary Solution)	Infrastructure	Once off
8) Loeriesfontein Youth Initiative	Youth Development	2017
9) Victim Support Room	Social Welfare	2017

(Source: Mainstream, 2017b)

Most of the projects identified in the Community Prospectus were aimed at small enterprises and at least two of these materialised through a supplier development initiative during construction: the taxi business linked to one of the ward committee member and a cable recycling business. Neither of these business had been identified in Tshikululu's original report but came about as a result of engagements between Mainstream's economic development team and the key stakeholders they identified in the community. The driver's license programme was initiated in July 2018 and targeted 25 community members to obtain code 10 and 14 driver's licences. This is an example of a worthy initiative in terms of general skills development that had the potential to have had a much larger impact had it been initiated before the construction phase, so that those who passed the driver's text would have been better equipped to compete for the more skilled jobs on offer.

Zama joined Mainstream as a Project Officer for Loeriesfontein 2 and Khobab Wind Farms in March 2017 and, in the aftermath of the protests described in the previous chapter, walked into an environment with many unresolved issues.[44] No community meetings had been held since the April 2016 community protest and relations among Mainstream, the ANC-led local municipality and the DA ward councillor (who had retained the ward in the 2016 local government elections) were strained. Zama told me that she had thought that her previous job as a project officer for a wind farm in Molteno, Eastern Cape had been difficult, as it had involved three communities that had to share the funds allocated to socioeconomic development from one wind farm. However, in 2018 she reflected that "at some point I felt this was the worst community compared to the community that I've worked, even with the municipality" (interview, 9 October 2018). She also noted how initially local people were cautious in their dealings with her, because she was not from Loeriesfontein but an *inkommer* (interview, 9 October 2018). In fact, an auxiliary position was created by Mainstream to facilitate community buy-in with the aim that she would train this person to take over from her one day.

Although she managed to develop good relationships within the community, when I interviewed her in 2018 the heightened expectations in both the local municipality and the Loeriesfontein community around the community development projects, and the unresolved issues from the construction period were still impacting the implementation of projects negatively:

> What happened during construction still comes up now in our meetings, and what so-and-so said in their initial meetings in the beginning still comes to me now, when we had our meetings, to say: 'This person said to us, x,y and z'. So it became difficult for me because you could see that there is nothing (interview, 9 October 2018).

Many of these projects did not require the participation or approval of the municipality but the involvement of relevant stakeholders and their constituencies. They were driven in a top-down manner by the "Social Ills/Community Empowerment Committee.

8.2.3 Community projects in the commercial operations phase from 2018

In 2018, by which time they had entered the operations phase, the two wind farms were reported to have made available R17.2m for socioeconomic development and R6.8m for

[44] Zama is a pseudonym for an individual hired by Mainstream as the implementation manager (Project officer).

enterprise development, making a total of R24m. (This information was reported at a community feedback meeting, 2018.) Table 8.5 below lists the projects Mainstream reported it had funded for the year 2017/2018. Many of the initiatives listed had been identified earlier in the Tshikululu Report and the Community Prospectus and were carried out by Senze Consulting and Loeriesfontein Work and Grow Primary Cooperative. As with the other committees before it, both these entities' approach to development is top-down and the criteria for how initiatives are carried out is opaque.

Table 8.5: Socioeconomic development projects funded by Mainstream in 2018/19

Project	**Focus area**
1) Funded 3 early childhood development practitioners 2) Constructed Isibindi park, the Primary School playground	Early Childhood development
3) Funded 3 primary school teachers 4) Donated 48 books to the primary school	Education
5) Funded 1 high school teacher	Education
6) Funded the employment of 2 youths employed for literacy programme in primary school 7) Funded the employment of health care youth workers	Youth Initiatives
8) Awarded one bursary for tertiary education	Higher Education
9) Funded the drought relief for 195 farmers	Agriculture
10) Funded the training and support of 26 level 2 security	Skills development
11) Funded the employment of 1 social worker and 1 auxiliary worker 12) Funded 7 student accommodation, provided food	Social development

(Source, Mainstream, 2017b)

Initiatives planned to take place from 2018 onward are presented in Table 8.6 below. These projects focus mainly on infrastructural developments that could be regarded as the responsibility of the local and provincial governments. I have not been able to access details as to the amounts involved.

Table 8.6: List of planned projects from 2018

Project Name	**Focus Area**	**Year**
1) Agricultural Capacity Building Programme	Agriculture	2018
2) Renovations at Community Health Care Centres (Mortuary, Fencing, Flood Lightening, Painting)	Infrastructure (health)	2018/2019
3) Multi-Purpose Community Centre	Infrastructure	2018/2019
4) High School Infrastructure Repairs	Infrastructure (education)	2018
5) Renovations of Sports Facilities in town	Infrastructure (sport)	2018/2019
6) Upgrading of roads to hospital and police station	Infrastructure (roads)	2019/2020
7) Bursary / Skills Fund	Higher education	From 2018

(Source: Mainstream, 2017b)

8.2.4 The Community Trust

As described in Chapter Six, community ownership is facilitated through a community trust which will start accruing substantial amounts of money once the debt for financing its 5% share in the renewable energy project has been repaid. The final amount that will accrue to the two trusts (one per wind farm) as their capital is not yet certain, with estimates varying between R214m and R509m for just one of the trusts, as noted above. Whatever the final amount turns out to be, this is a very significant source of capital for community development and the issue of who is responsible for managing the funds and how decisions are to be made about the initiatives to support will be a very important issue to regulate effectively, to ensure transparency and accountability. The trusts will have boards of trustees with both local community and independent representation, but the detail as to their precise composition and terms of references is an issue for further research and monitoring.

What is critical is that these funds are utilised for the benefit of those most in need, and that this should extend not only to the town of Loeriesfontein but to the surrounding towns in the municipality, which is currently not the case. In spreading the benefits the challenge of political jostling and capture by local patronage networks described in this and previous chapters needs to be avoided. In Chapter Nine I make an argument for maximising the potential of these funds to contribute substantially to the eradication of poverty by mobilising all or some of them for direct cash transfers to those households most in need in the town – the great majority.

Notwithstanding some of the practical problems which can be anticipated with direct cash transfers at the level of the household, this targets the site of basic social reproduction, where critical financial decisions around nutrition, health and education get made, as argued in Chapter Two. (See Fakier & Cock, 2009; 2018). These funds could also be directed towards further supporting and extending the free basic services provided by the state, through its policies on free basic electricity and water provision at the household level.

8.3 Assessment of challenges

8.3.1 (Mis)communication, (mis)entry and mismanaging community expectations

In the interview I had with Zama in October 2018 I asked her what she thought had gone wrong with community development in Loeriesfontein. Her position in the company and the fact that she had not been caught up in the 2015/16 protests meant she was well placed to reflect on why Mainstream had found itself at loggerheads with the broader community. In her view there were three main reasons for the problems around project implementation, all of which could be traced back to the disjuncture between community expectations and company priorities already described: an ill-informed community entry, the selective sharing of information and inconsistencies in the delivery of information (interview, 9 October 2018).

With regard to the first issue, as already described above, Mainstream entered the community of Loeriesfontein through multiple points via Tshikululu, Murray and Roberts and its sub-contractors and their own economic development team. These teams interacted at different points with a range of stakeholders, including the Loeriesfontein ward councillor and the Council and officials of the Hantam Local Municipality, and presented their own plans and proposals for community development to them. The problems this caused have been detailed above. According to Zama there should have been a single entry point to the community and the participation of the broader community should have been involved from the start.

Regarding expectations, Zama reflected that in this process of community engagement, Mainstream's economic development team shared information selectively while making certain commitments that raised misplaced expectations (interview, 9 October 2018). This is similar to what has been described for the early phases of the development of the SKA radio astronomy project at around the same time. (On this see Gastrow & Oppelt, 2019; Butler, 2018; Terblanche, 2020); it is also a general problem that was identified by Wlokas et al, (2012). Zama noted that both information and expectations have to be managed very carefully, so as not to create false hope:

> if you come here and say I have this project, and this project is going to cost R20 billion, the minute you say R20 billion without finishing your sentence and say over 20 years, they already think the R20 billion is here now. And they send me SMSs saying 'Give us the billions'. But that's something that has been communicated in the beginning. And if you say 'Where do you get this [information]', they have proof, they have printed

> the presentation. They have copies of that presentation. It's not like they are making up these numbers (interview, 9 October 2018).

The significance of heightened expectations in driving frustrations in poor communities should not be underestimated. According to the Chairman of the local Business Chamber initially people in Loeriesfontein thought that Mainstream would solve all their problems (interview, 10 May 2018). However, Mainstream did not have a strategy for managing expectations and thus neglected this crucial aspect of communication.

In the context of a small town information is power – it enables people to position themselves and act. Information can also get "lost in translation". Regarding expectations, Zama emphasised the importance of constant and consistent communication:

> With expectations, they [the community] just need to know your process. You need to communicate continuously, what is the process, what is it that we have, this is the amount of money that we have for this particular project, this is how we do it. If you want to participate, you don't have to disclose amounts that is only communicated to one person, you make it public, put up notices. You don't give people different information (interview, 9 October 2018).

An example of inconsistencies in information was the differences in the amounts of the funding available for community development in Loeriesfontein that were in circulation. While Mainstream's presentation to NERSA in 2014 had projected a combined total of R1.6 billion, (over a 20-year period) its 2015 presentation to the Hantam Local Municipality Mainstream presented figures for the community trust that were still considerable but significantly less.

My own observations during my field work in 2017 and 2018 were that the allegations of favouritism regarding the awarding of contract services were very divisive within the community while broader community participation in decision-making around community development was minimal. Thomas, one of my community participants, expressed this thus:

> I understand that they can't do everything in the one year or two years, so I understand that they have to stretch a little, make money again, then they put back in the community, make money again, put back in the community. That part I understand …. The part on umm…just that they help just certain people but not everyone. This year for example, let's say Bernie has a contract, she gets 3 to 4 contracts and you also have a company, you get one contract for two years. How does that work? And some

> of the people are complaining. We all have companies. They can give, why not give each one a contract even though they help them out if they need something. You see, help them out with a bakkie or something and let them pay it back (interview, 10 May 2018).

During my field work a prominent member of the community registered frustrations regarding this situation with both the IPP Officer and the then Minister of Energy, Jeff Radebe. In an email sent to both parties, this person accused Mainstream and officials from Hantam Local Municipality of deciding on behalf of the community what developmental projects to pursue, wanting to control the SED and ED funds and not sharing information regarding the socioeconomic development spend (personal communication, 2018). He told me that in response, an official in the IPP Office had accused him of jeopardising development in the community and threatened that the IPPs "will walk away and go to other communities" (interview, key informant, 2018).

Another challenge impeding community development in Loeriesfontein is Mainstream's high staff turnover. The former councillor reflected on this thus:

> There is no transfer of what happened before. So we can agree on something, next month they have somebody else, then you have to start afresh. And the person who left didn't tell the person who starts: this is where they left off and this is where we are. So, that is problematic to me. As well as their criteria [for SED and ED funding] – that's problematic (interview, 7 May 2018).

The former councillor also identified a problem with how the national government communicated the role of local government (municipalities) in the REIPPPP;

> If government could've just said in the beginning: listen here, municipality, you are just a role player, you are not the one dictating the terms. You are standing in line just like any other department; give your list, your wish list ,we'll see what we [the IPP] can do and that's it. But you don't dictate the terms and say: I want to be in control of the money, I want to decide which projects, under which wards. They have the idea now. It say the beneficiaries: Loeriesfontein. It doesn't say the beneficiaries: the municipality (interview, 7 May 2018).

Her comments point to the shortcomings of the 50 kilometre radius requirement for identifying the local "host" community to benefit from the community development components of the

REIPPPP scorecard, in a local municipality the size of the Hantam Local Municipality, with many socio-economic and service delivery challenges. The small towns that were excluded by this requirement felt unfairly treated, and the ground was set for conflict over roles and deciding how the funds should be spent between the council and local officials based in Calvinia and the councillor and ward committee in Loeriesfontein.

8.4 Conclusion

This chapter has described how community development plans used in the bidding process by the developers of the two wind farms outside Loeriesfontein were initially introduced and implemented in a difficult context in terms of high expectations and party-political tensions in the runup to the 2016 local government elections. These problems were not helped by the fact that the construction of the two wind farms involved a number of different role players who entered the community at different points and engaged with different local stakeholders.

Other significant shortcomings in the selection of projects to support that I have identified in this chapter are the lack of real popular involvement in setting priorities, the monopolisation of development projects by local elites and the limited understanding of sustainable development informing the community development projects. While many of the projects have targeted areas of need, the pressure on the IPPs to spend the funds they are required to allocate for socioeconomic and enterprise development and to provide quarterly reports to the IPP Office means that they favour once-off projects, with tangible products and quantifiable outputs (laptops, playground equipment, paint, vehicles), particularly in the sectors of education, healthcare and social welfare. These projects are not developed holistically and fall short of advancing the model of sustainable development for a small Karoo town like Loeriesfontein that I developed in Chapter Two. This model is designed to circumvent party politics and local elite capture and brings the household into the centre of the understanding of sustainability and development.

In my concluding chapter I build on this assessment to reflect further on the contribution the renewable energy sector could make to sustainable development in its host communities in the Northern Cape, as a necessary component of the just transition to a low-carbon economy in South Africa.

Chapter Nine: Conclusion: Forward to a just transition

My study of the contribution of renewable energy to sustainable development, decent work and the just transition to a low-carbon economy was designed around two overarching research questions. The first concerned the extent to which the REIPPPP is making a contribution to sustainable development in the host communities where the infrastructure is being developed, firstly through decent work and then through local community development. My second overarching research question broadened the focus to ask what light the answer to the first question sheds on national debates on the meaning of a "just transition". This raises questions about the nature of sustainable development in South Africa and what a just transition to a carbon-neutral energy dispensation (i.e. an energy transition) requires. As noted in Chapter Two the just transition is both a destination that needs to be aligned with the moral imperatives of the "sustainable development space" defined by Holden et al. (2016) and a set of processes to get there. Furthermore, the understanding of the just transition in contemporary debates has to be broadened to include renewable energy's host communities and not just the communities whose livelihoods are dependent on the exploitation of fossil fuels.

Walker and Chinigò (2018) have argued that in the Northern Cape Karoo, a uniquely endowed region, investments in major national projects in astronomy and energy generation have placed the natural resources of this marginalised region on South Africa's national development agenda. However, there are questions about the extent to which local communities are benefiting from these investments. Questions about meaningful participation and holistic community development in this marginalised area have challenged me to think about what the just transition in terms of renewable energy should involve in Loeriesfontein in particular and other Karoo towns more generally. My conclusion is that it must contribute to sustainable development by focusing on poverty reduction, not just at the aggregate level but at the level of the household, and by making community participation in community development projects central, while respecting the environmental conditions of the Karoo. The issue of scale at the point of intervention is important because, as noted by Basiago (1999) and Peet (1999), community projects can be developmental but not sustainable. There is also the danger that in concentrating on individual development projects in particular service sectors (e.g. education, health), renewable energy companies are taking over state functions.

In this final chapter I review my findings and the conclusions and proposals around policy and further research emanating from them. My discussion is divided into four sections. In the first

section I briefly revisit my research design. In the second section I review the key themes emerging from my research findings, through an overview of chapters four to eight. In the third section I consider my model for sustainable development and how a truly just transition to renewable energy could provide a pathway to a more sustainable future in Loeriesfontein and the Hantam Local Municipality more broadly. In the fourth section I address some key policy and research recommendations arising out of my study.

9.1 Research design

In 2012 Wlokas et al. called for research on the emerging renewable energy sector that looked into "who beneficiaries are; how to assess communities without raising expectations; what are possible community development contributions; and how is implementation capacity ensured, either institutionally or through community structures" (2012:48). This case study is the first detailed empirical study that addresses these issues over all three phases of wind farm development: the bid process of the wind farms outside Loeriesfontein in (2011 - 2013); the construction phase (2015 - 2017); and the commercial operational phase (from 2017 on).

In order to address my two overarching research questions and the sub-questions flowing from them, I have used the development of the two wind farms outside the small Karoo town of Loeriesfontein as a case study of the contribution that this investment in renewable energy has made to local employment creation, both during and after construction, as well as to sustainable development in this small town more generally. This has involved an analysis of the wind farms' contribution to decent work, as defined by the ILO, as well as the extent to which their community development initiatives have advanced local sustainable development, here also taking note of the potential of the community trusts which have yet to become realities in the community. It has also involved an analysis of who has benefitted from the projects that have been initiated and the role of local politics and patronage networks.

To answer my research questions, I adopted a multi-pronged research methodology. This centred on an extensive review of the literature and relevant policy documents as well as sustained fieldwork over a period of four years. In this time I interviewed key players in the debate on the just transition at the national level as well as local informants, spent time in Loeriesfontein and drew on a household survey. During my field work I encountered both gatekeepers and people who were open and ready to address my questions. The gatekeeping from a nascent renewable energy industry may be understandable from the point of view of

the companies involved, considering the level of investment which is at stake. However, greater transparency is essential for the just transition to be realised – its absence is indicative of a general lack of trust and accountability around decision-making processes across all levels. Greater transparency would not only facilitate acceptance of renewable energy by the general public, but is also a prerequisite for meaningful cooperation between renewable energy companies and their "host" communities.

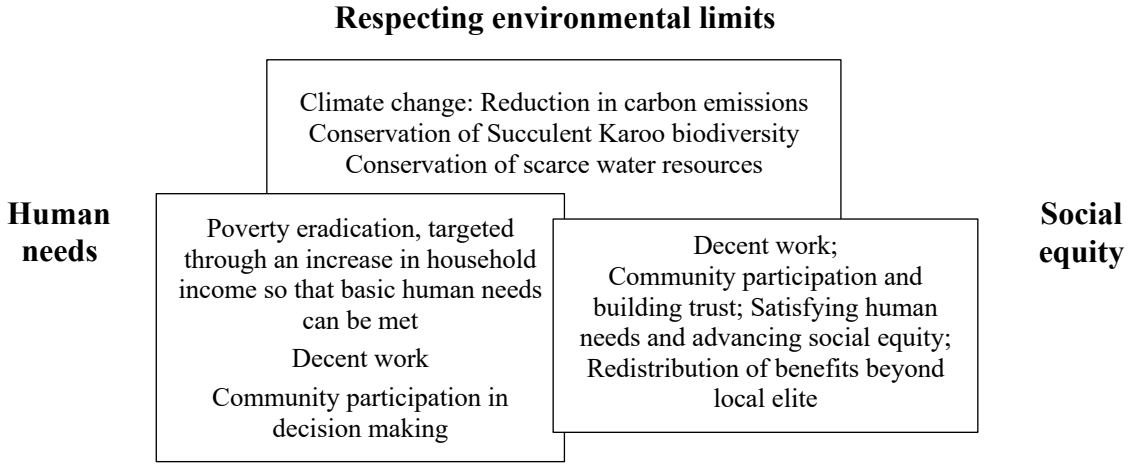
My research design also involved developing a conceptual framework with several main planks. A major plank is the understanding of sustainable development I have developed for my case study, drawing on Holden et al.'s (2016) model that is underpinned by the three interlocking moral imperatives of satisfying human needs, ensuring social equity and respecting environmental limits. Another major plank comes from my analysis of the MEC, understood as a particular nexus of capital, the state and infrastructure bequeathed to the ANC government in 1994, which the post-apartheid state has failed to unbundle or extend strategically to enact broader political goals (Hecht, 1998). This can be explained in part because of the opportunities for accumulation for the new political elite within it.

All three of Holden et al.'s "moral imperatives" can be seen as essential for the just transition in South Africa, which must extend not only to the coal-producing regions but also to the regions where renewable energy is produced. In relation to my study, the transition to a low-carbon economy through investment in renewable energy can be seen as an appropriate response to the need to respect environmental limits at the national and planetary levels; in pursuit of this objective, however, the Holden et al. model insists that human needs have to be satisfied and social equity ensured as well, which is where issues related to decent work and the empowerment of households in the communities hosting the country's investment in renewable energy become important.

Holden et al. also argue that addressing the three imperatives for sustainable development in practice requires prioritising a limited number of key goals with measurable indicators. In Chapter Two I briefly discussed the application of their model to the arid to semi-arid environment of the Karoo, indicating the key players that needed to be engaged (household, community, IPP) (see Figure 2.2). Significant features of the social-ecological context of the town of Loeriesfontein itself were identified in Chapter Six, while limitations and shortcomings in the IPP's contribution to local job creation and community development were discussed in chapters seven and eight. Based on this discussion (reviewed further below) eight broad sustainable development goals or themes emerge for the renewable energy sector to target in this small Karoo town, all linked to the three "moral imperatives" that shape what Holden et al.

(2016) have defined as the sustainable development space: the reduction in carbon emissions; the conservation of the biodiversity of the Succulent Karoo; the conservation of scarce water resources; local poverty eradication, targeted through an increase in household income so that basic human needs can be met; the provision of decent work; the promotion of community participation in decision-making; building trust in the renewable energy sector in the community, and the redistribution of the benefits of community development beyond the local elite. Figure 9.1 below lays out a schematic representation of these eight broad goals, aligned to the moral imperatives of the sustainable development space, I return to these issues in section 9.2 below.

Figure 9.1: Promoting sustainable development through renewable energy



9.2 Overview of key findings

In answering my first overarching research question this case study shows that the IPP is falling short of advancing sustainable development in the areas where it has control, i.e. job creation and community development. Although the work it offers provides better conditions than most other jobs in the area, work is temporary and investment in skills creation is not a priority; moreover employment numbers are inflated through the "job-year" formulation. Furthermore, community development projects are identified in a top-down fashion and tend to be once-off, box- ticking exercises designed primarily to meet compliance requirements. Potential for significant injections of funds into community development lies in the community trusts, but this potential still needs to be realised and guarded against future elite capture (discussed further below).

This study thus deepens national debates on the meaning of a just transition by showing the need to incorporate host communities such as Loeriesfontein into the discussion (the other side of the coin) and to go beyond the narrow focus on the energy transition to renewables, to align this process with the goals of sustainable development as defined in this dissertation.

9.2.1 The MEC and constraints on the just transition to a low-carbon economy

Chapter four sets the scene for South Africa's halting transition to a low-carbon economy since the transition to democracy in 1994, by locating the development of the energy sector and the establishment of Eskom as the national utility in its historical context. Though the electricity generation system developed initially in the late 19th and early 20th centuries in a decentralised fashion to meet the energy demands of the mining sector, its subsequent centralisation was guided by government policy, with the private sector also playing an active part before 1948. Initial impetus towards centralisation came from the railway sector, with the issue of national control over the energy supply coming to the fore in 1923 with the formation of Eskom. The integration of key infrastructure at the national level was central to South Africa's industrialisation path in the 20th century, driven by the MEC in which state-owned enterprises have played a key role.

The state electricity utility only became a vertically integrated monopoly in 1948, with the expropriation of VFPC assets and financial help from the Anglo American mining company, then one of the country's biggest consumers of electricity and owner of most of the coal mines supplying Eskom's power stations. The relationship between Eskom, VFPC and Anglo American was complex, reflecting an intricate interplay of financial, economic and political interests. To account for this, I have drawn on Hecht's (1998) notions of technopolitics and technopolitical regimes. These concepts are useful for understanding Eskom's relationship with the political class at the time and the manner in which it was able to emerge out of various crises, including that around tariff increases in the late 1970s, which led to the establishment of the De Villiers Commission in 1983. Its recommendations necessitated changes in Eskom's management structure, tariffs forecasting and expansion programme, on the basis of which Eskom was able to engineer a survival strategy in anticipation of the transition to a democratic government in the 1990s.

In Chapter Five I analysed the role of Eskom in the post-apartheid government's developmental agenda, within the constraints set by the MEC. After 1994 the MEC was able to accommodate the new political elite but the economic benefits of democracy were not broadened, in part because of the way in which the economy was structured and the

weaknesses of the productive forces (Fine, 1995; Fine & Rustomjee, 1998). The transition to democracy, characterised by Von Holdt (2002) as requiring a "triple transition", presented various dilemmas to the new government which were reflected in the struggles over macroeconomic policy, starting with the RDP in 1994 and intensifying with the shift to GEAR in 1996. The nexus of state and capital encapsulated in the MEC offered opportunities for accumulation by the new black elite, including business people who were close to the ruling ANC, without leading to fundamental improvements in the socioeconomic conditions of the black majority. At the same time, the labour movement and other Alliance partners were pushing for the nationalisation of state-owned enterprises, against prevailing global currents in favour of privatisation, a push which was helped by Eskom's robust balance sheet and operational performance at the time. This history is generally overlooked in analyses of the introduction of renewable energy in South Africa that only start with the 2003 *White Paper on Renewable Energy* or President Zuma's commitments to cut GHG emissions at the Copenhagen Climate Change Conference in 2009.

The technopolitics at play in the concerns of the labour unions around the introduction of renewable energy into South Africa's energy mix informed their mobilisation behind calls for a just transition that recognised the threats facing workers and their communities in the coal sector. NUMSA and NUM registered these concerns as early as 2011. NUMSA's attempt to interdict the signing of the PPAs in 2018 was viewed by proponents of renewable energy as evidence of organised labour being against the transition to a low-carbon economy, but what they were actually demanding was that the transition should be just, although their understanding of this was narrowly focused on workers and communities in the coal sector. Historically, state-owned enterprises have played an important role as engines of development as well as providing secure employment for workers, as was the case under apartheid, and trade unions are sceptical of the extent to which private companies, especially foreign-owned companies, can and will advance these goals when profit making is the core motive.

Thus, although the Zuma administration put "sustainable development" on the national development agenda with the NDP (2012), NUMSA (and later NUM) put the demand for a "just transition" in the transitioning to a low-carbon economy firmly on the policy agenda. However, what was missing in these national debates were the voices of people in the host communities where these renewable energy projects were to be constructed. The crux of the just transition is thus how to democratise the social and economic benefits from this new system of energy generation and accumulation not only in Mpumalanga but also in the historically marginalised communities where the renewable energy infrastructure is being built, in a way that

reconstitutes the technopolitics around the energy sector as a whole. This double thrust extends the demand for social justice to both sides of the "just transition coin".

At the same time, by the time renewable energy was introduced in South Africa's energy mix in 2011, Eskom's plant performances had deteriorated (as was predicted in the 1998 *Energy White Paper*) and its balance sheet was precarious due to its new-build programme which was becoming bogged down by corruption. Given that the sole buyer of the electricity generated by renewable energy IPPs is Eskom, the renewable energy industry has thus been inserted into the MEC's system of accumulation. In Chapter Five I also show that a pattern is emerging of BBBEE shareholding in renewable energy IPPs benefitting companies and individuals who have close proximity to the ruling political elite.

Together with the coal suppliers, the IPPs form part of Eskom's primary cost drivers, and are open to attacks by the labour unions. I also show that the renewable energy industry was reluctant to embrace community development because of the manner in which it was introduced, viewing these elements of the REIPPPP bid scorecard as a "grudge purchase" and compliance burden. This was unfortunate because, within the constraints of the national energy system and beyond the debate on the cost of electricity, the social and economic development components of the REIPPPP offer a path for community development in host communities that desperately need it. This could be compared to what the Mining Charter aimed to do for the mining industry in the early 2000s.

9.2.2 Renewable energy and sustainable local development in Loeriesfontein

In chapters six to eight I explored local community issues and needs and how the renewable energy sector is positioned to address them. In Chapter Six I set the scene by looking at the history, ecology and current developmental challenges in the Northern Cape before reviewing socio-economic conditions in the town of Loeriesfontein itself and providing an overview of the development of the two wind farms outside the town. My discussion of socio-economic conditions in Loeriesfontein reveals the significance of the household as a site where severe levels of poverty in the town manifest and are reproduced. Although state investment in basic services, social grants and community work programmes has contributed to alleviating the situation, in 40 per cent of households, monthly per capita income is below the upper bound poverty line. Poverty eradication at the household level is thus one of the most pressing community needs in Loeriesfontein. By way of illustrating the importance of this, in June 2020 Khobab Wind Farm reported on its website that one of its projects had served an estimated 4 500 meals to children in Loeriesfontein over the 2018 December and 2019 March school

holiday periods (Mainstream, 2019). While this initiative can be praised for meeting the basic need of food provision for hungry children, without which other "functionings" (in Sen's terms) cannot be realised, the ability to provide for children's nutrition should be something that families can exercise at the level of the household.

Local job creation is also important for boosting household income. What my study has shown, however, is that the contribution of the renewable energy sector towards this in its host communities is very limited. In Chapter Six, the main finding with regard to the "local content" requirements of the REIPPPP is that this and its associated job creation spinoffs are not occurring in Loeriesfontein – the components and equipment are manufactured elsewhere and transported to the town. In Chapter Seven, which explores the contribution of the wind farms to decent work locally, my main finding with regard to employment creation is that, given local labour market conditions in Loeriesfontein and the nature of renewable energy production itself, this is very limited. The construction phase of the wind farms generated local jobs which were both direct and indirect (for instance, the local supermarket had to increase its staff and a liquor store opened). However, the bulk of the jobs offered locally were short-term and low-skilled. In the context of the local labour market, it can be said that the employment created during the construction period met some of the core requirements of the ILO's decent work framework at a basic level, with more competitive wages compared to what the local labour market offers. However, as a number of my participants noted, social dialogue and meaningful investment in skills development were not significant concerns.

Moreover, the number of local jobs created during the construction phase does not only show the limitations of job creation in host communities but also challenges the metrics used to measure job creation. My findings show that the inadequacy of the concept of "job-years" for measuring actual jobs created. This is an issue for future research, which should focus on the changing types and patterns of work and who is accessing them over the operational as well as the construction period, as well as in the local-content enterprises and manufacturing. supply-chains. In answer to my third research sub question, however, it is also evident that the town of Loeriesfontein is not well placed to benefit directly from the proposed investments in renewable energy and will not be until its youthful population is better positioned in terms of education and skills to benefit more meaningfully from the limited opportunities that are on offer.

9.2.3 Community development

Chapter Eight addressed questions about the extent to which the renewable energy sector is making a contribution to sustainable development more broadly defined, and who has benefited. My research covers the first few years of the rollout of community development projects so this is an issue for monitoring and further research. That noted, a number of important issues have emerged. Firstly, the community projects currently in place are responding to identifiable community needs in the areas of education, healthcare, and social services. However, many of these projects are addressing shortcomings in the state departments responsible for these services, which are failing to provide effective services in these sectors. Secondly, the choice of projects is heavily influenced by local political dynamics and struggles within the local municipality over control of the community development funds. At the level of the host community, the ward committee has become a site where the local council seeks to exert its control over the community development agenda. Like the political contestation at the national level, political interference impacts community development projects at the point where municipal approval is required.

This is a systemic problem across the country, with local government struggling to deliver basic services and local politicians angling to control municipal resources for personal gain and to grease patronage networks. However, in the case of the renewable energy programme, the REIPPPP is also not well designed for conditions in the Karoo, where local municipalities cover very large geographical areas and include several small, widely dispersed towns, all facing similar socio-economic challenges.

A third issue that has emerged thus centres on the design of the REIPPPP with regard to its community development components. The 50km-radius rule used to identify the local community that is to benefit from these elements of the scorecard is not an appropriate mechanism. In my case the Hantam Local Municipality regards it as unfair and prejudicial to the development of its other towns in favour of Loeriesfontein. This also sets up unproductive dynamics within the council.

To circumvent this political interference, community development projects have been designed by Mainstream's community development team to be sector-based and driven by a specially constituted committee comprising selected community members from the various sectors, in particular education, healthcare, social development, safety and security. However, the current compliance regime around community development that is built into the REIPPPP also encourages a box-ticking exercise. Renewable energy IPPs are required to report on a

quarterly basis on their community development spend but this is an impediment to meaningful community engagement. Faced with the prospects of political interference and under pressure to spend the money that has been committed, renewable energy companies such as Mainstream are likely to support projects in particular sectors in which they have established relations and tangible progress can be shown in short reporting cycles.

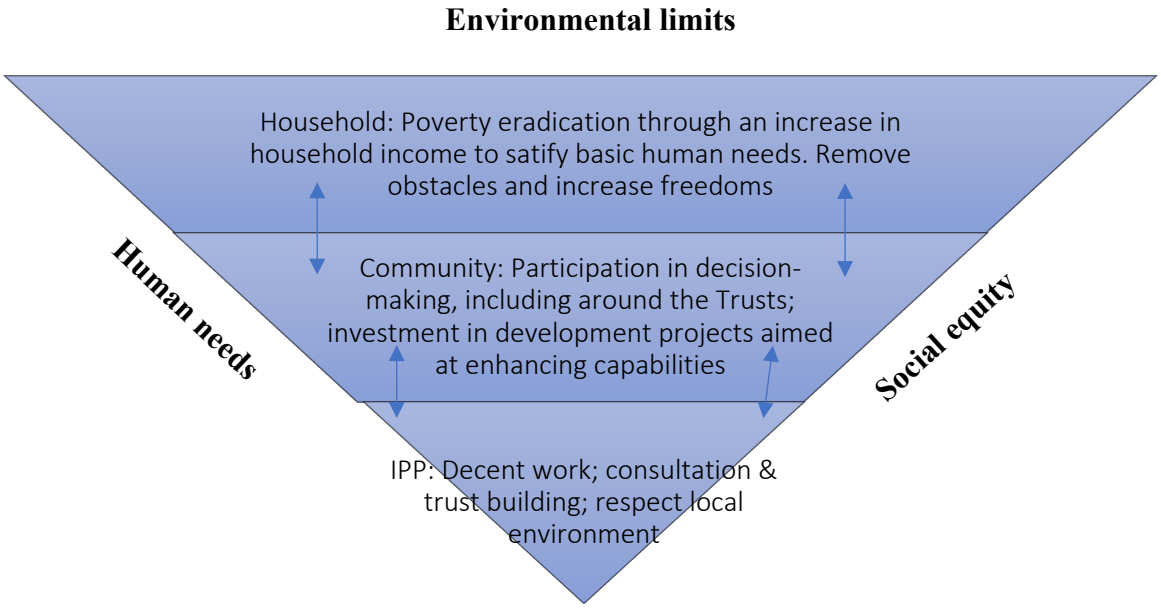
Although this might look good on the public relations front, in the long run this approach to community development is unsustainable and may lead to alienation from the broader community and a deepening of divisions as the political landscape shifts with local and national government elections. Furthermore, after the construction phase, the current community development projects prioritised in Loeriesfontein, with their emphasis on investment in education, are in danger of leaving out a sizeable proportion of the unemployed youth who are economically inactive.

9.3 Proposal for a pathway towards sustainable development

Working with the conceptual framework laid out in Chapter Two, I have developed a model for sustainable development that I regard as well-suited to taking forward the just transition to a low-carbon economy in my case study site. The schematic representation of this model, already shown in Chapter Two, is reproduced below as Figure 9.2; it needs to be read in conjunction with Figure 9.1 above, so that the eight goals identified in that figure are aligned with the three levels shown schematically in Figure 9.2. This identifies the IPP, local community and household as three important levels which need to interact with each other but puts the household rather than the IPP at the top, as the primary unit (within the host community) to benefit from the funds available for community development through the REIPPPP.

Three issues identified from Chapter Five onwards which have influenced the core features of this model are firstly, the combination of stringent compliance requirements but a weak monitoring regime by the IPP Office; secondly, the role of local patronage politics and the lack of meaningful community participation, and thirdly, the structure of the local economy in Loeriesfontein, characterised by poverty, inequality, unemployment and marginalisation. This model recognises and responds to the material conditions in local households. It also recognises the importance of building trust and transparency and expanding benefits beyond Loeriesfontein, while building on the actual projects which are already in place

Figure 9.2: A model for the contribution of renewable energy to sustainable development



9.3.1 Towards sustainable development: social dialogue, direct cash transfers and development projects

It is difficult to ignore the simmering tensions which have coalesced around issues of trust and transparency and have affected cooperation and community participation. The issues of a trust deficit and lack of transparency which have been glossed over for the sake of completing the two winds farms are an appropriate starting point for my discussion. As such, a prerequisite for a just transition and sustainable development in Loeriesfontein is meaningful social dialogue and, if necessary, the appointment of an independent mediator should be considered to facilitate this process. Social dialogue in one of the four pillars in the decent work framework, and it ought to be conducted in good faith by the parties involved to iron out differences and come to some mutual understanding on a way forward with regard to maximising the impact of the substantial funds already available for community development.

The second step I propose for consideration is to institute a clear separation of the two wind farms' revenue streams, with the community development share of the revenue from one of the farms being dedicated to the funding of social overhead capital projects (some of which are already in place), and the share from the other wind farm being used for monthly or quarterly direct cash transfer to local households, targeting those in the greatest need in the

first instance. As described in Chapter Eight, the community projects that are already in place are concentrated in the education, health, social welfare, and sports and arts sectors. I argue that the potential of these projects to support functionings and thus enhance human capabilities would be more fully realised if they were linked in a much more considered way with the empowerment of households to make their own choices around how to allocate funds to improve the wellbeing of household members. There is little long-term gain from having a sports field in the community if individual households cannot afford the equipment needed to take part in sporting activities children are not sufficiently nourished to participate.

Meaningful community development in Loeriesfontein must be linked to improving household's material conditions. This is because poverty and inequality are produced and reproduced at that level. Strategically, by shifting and driving community development at the level of the household one can also circumvent and remove the influence of local party politics. While unequal power relations in the household need to be acknowledged, the household is a primary site for social reproduction. The objective is to empower the household by removing obstacles to their participating actively in the local economy while also having a voice regarding the community development projects that will be implemented. This is consistent with Sen's ideas of development as freedom at the heart of my conception of sustainable development

Direct cash transfers have the potential to address two of the three moral imperatives shown in Figure 9.2: the satisfaction of human needs and ensuring social equity. The objective here is to remove obstacles which hinder people's functionings. Direct cash transfers will give individual households the ability to satisfy immediate needs and enhance functionings related to their living conditions. Once functioning are satisfied, capabilities and notions of freedom will be realised in the positive sense: "what real opportunities you have regarding the life you lead" (Sen 1987:36; Holden et al., 2016). In other words, the capability approach starts from a 'narrow' interpretation and focuses on basic human development issues (security of income, education and health) and from there shifts to a 'broad' interpretation to included principles such as freedom, equity and sustainability.

By targeting the household several of the sustainable development goals identified in Figure 9.1 can be addressed, including poverty eradication, targeted through an increase in household income (so that basic human needs can be met), and the redistribution of the benefits of community development beyond the local elite (ensuring social equity). The local economy also stands to benefit as the direct cash transfers are likely to be spent locally, thereby increasing demand for certain goods and services. The model is developmental in light of the correlation of chronic poverty in children's homes with poor educational outcomes (Allias

et al., 2019), and the correlation between direct money transfers and increased household spending on children's needs and education (Lundberg et al,1997; Rangel, 2006; Martinez, 2013; Patel, 2011).

The precise mechanism for ensuring that cash transfers to households reach those most in need is an important issue for further research and local dialogue. Perhaps the most controversial aspect of my proposal is that a threshold should be put in place so that the principle of direct transfers is well aligned with poverty eradication at the household level. Household income could be used as a criterion to determine the allocation of direct cash transfers on an equitable basis, to advantage the most disadvantaged households in a way that is consistent with the "fair equality of opportunity" principle (Rawls, 1999 in Holden, et al., 2016). The aim is to lift households out of bare survival, however, so the income threshold at which households would qualify should not be set too low.

I also propose two urban development projects for further consideration, both of which could be used for job creation and benefit the wider community while extending the direct benefits of renewable energy to the host community. The first is the installation of solar geysers and panels on all houses in Loeriesfontein. Based on a feasibility study which could be conducted in-house by Mainstream, this short- to medium-term project should be considered together with the training of unemployed youth in Loeriesfontein so that they would be the ones equipped to install these solar geysers and panels. The second project, which could be considered either before or after the first, is the development of a solar-powered wireless community network for the roll-out of internet service.[45] Both these projects would complement initiatives directed at creating awareness about the benefits of renewable energy in the broader community. Moreover, these projects could be used as employment creation projects, where positions are open to all, under conditions of fair equality (the 'fair equality of opportunity principle') (Rawls, 1999 in Holden, et al., 2016) and the jobs involved meet the standards set by the ILO's four pillars of decent work.

It is my contention that a combination of direct cash transfers to households and community projects that benefit the broader community would deal with the sustainable development goals of promoting community participation and consultation and trust-building and help to remove

[45] The Centre of Excellence at the University of the Western Cape specialising in Information and Communication Technology for Development (ICT4D) with and for marginalised communities has developed the Zenzeleni Network Project which provides a model of what is possible. This is a fully fledged Internet Service Provider (ISP), equipped with an Internet and Voice-over Internet Protocol gateway, run by community managers. My thanks to Gomolemo Segabutle for the idea.

the problems around patronage networks and elite capture seen in local municipal politics. The cash transfer proposal would also be further boosted if the funds available from the community trusts in the future are used in this way, thereby extending the model for at least 30 years. However, the prerequisites of trust and transparency in the design and implementation of the model mentioned above would have to be taken seriously.

9.3.2 A pipeline for sustainable development in the wider Hantam municipality

Here I turn to the potential contribution to community development in the wider Hantam Local Municipality of the further renewable energy projects being developed outside Loeriesfontein, given the limitations of the 50km-radius rule for identifying host communities in the context of the Northern Cape Karoo. This is also something for more work as well as wide consultation locally and within the renewable energy sector. However, in the event that the four wind farms currently proposed for construction are conferred preferred bidder status in a single bid window (bid window 6), serious consideration should be given to developing mechanisms to distribute their community development spend on an equitable basis among all the towns in the local municipality. For instance, one of the farms could be attached to the town of Nieuwoudtville, another to the town of Brandvlei and two to the biggest town in the Hantan Local Municipality, Calvinia. This arrangement would be logistically feasible since the developer of all four wind farms is Mainstream but it would need to be persuaded of the benefits of this and agree to the proposal. A further question which would need to be addressed would be how best to amend the regulatory framework so that it could accommodate this arrangement, but this should not be difficult, given the spread of local advantages it would bring.

With regard to the solar farm currently under construction outside Loeriesfontein (under the 4th bid window), consideration should be given to its socioeconomic and enterprise development fund being shared between Loeriesfontein and the wider municipality. Again, the questions which would arise would be how to achieve this through the regulatory framework and how to get the developer, Solar Capital, to be agreeable to the proposal. In Loeriesfontein itself, it is important that the community development spend from the solar farm should be aligned with my recommendations and model on sustainable development. It is also important that its community development responsibilities should be developed in cooperation, not competition, with Mainstream. Again, social dialogue will play a crucial role in taking these ideas forward.

In offering these proposals for consideration it is my hope that the wider distribution of community development projects and benefits would help neutralise the destructive local

politics identified as a problem in this dissertation and address the issues of needs and social equity in the wider Local Municipality; it could also stem the threat of internal migration within the municipality that is posed by the concentration of resources from the local development responsibilities of the renewable energy sector in Loeriesfontein. These proposals give content to three of the ILO's just transition guidelines that are most relevant at the level of local communities: 1) the importance of strong social consensus on the goal and pathways to sustainability; 2) the need for coherent policies across the economic, environmental, social, education/training and labour portfolios as a framework (pathway) for a just transition and 3) the recognition that there is "no one size that fits all". Policies and programmes need to be designed in line with the specific conditions (ILO, 2015:6).

9.4 Policy and research recommendations

The findings from this study have a bearing on four elements of the REIPPPP that are important in themselves and for the debate on the just transition in South `Africa more broadly, namely: job creation; socio-economic development; enterprise development and the community trusts. Given that the programme is still in its first decade (2011 - 2021) and has been disrupted by political wrangling since its inception, questions have been raised about the impact of its socio-economic development initiatives in local communities (Wlokas, 2012; Stands, 2015). This case study shows that at a local level much more work needs to be done to refine the community development components of the programme and to empower local communities to realise their full potential.

At the level of the community I have four broad sets of inter-related policy and research recommendations to make in this regard. The first two concern employment creation. Firstly, the measurement of job creation in terms of "job-years" should be abandoned, while further research needs to be conducted on the actual number of jobs created locally through the different renewable energy technologies. Regarding the bidding process, bidders should provide an estimate of the number of actual jobs expected to be created across the different skills levels, without this having a bearing on the points in the scorecard. Secondly, from the time the preferred bidders are announced and the necessary contracts are signed, local communities need to be adequately prepared for the construction phase, through investment in training programmes and a serious attempt to maximise local job creation in line with the job estimates submitted. Further research is also needed to see how this second recommendation could be made to work effectively in practice. Here the Construction Education & Training

Authority (CETA) and the relevant Technical Vocational Education and Training colleges (TVET) should be involved to see what role they could play in the areas of training and skills development.

The third recommendation is that the socio-economic development and enterprise development components of the scorecard should be collapsed into one category, "community development", with the IPPs required to contribute a standard percentage of the revenue from their wind and solar projects towards this. McDaid (2016) found that the approach of renewable energy IPPs to socioeconomic development falls back on a corporate social investment (CSI) approach. As emphasised in Chapter One, the commitments to local development in the host community are not CSI projects: they are funded through income from revenue and project shareholders include the community trusts. My fourth recommendation is with regards to changing the REIPPPP to amend the 50-km radius to be more flexible in relation to the local geographies around host communities. In the Hantam Local Municipality it is clearly counter-productive.

In terms of related research, mechanisms for ensuring direct cash transfers are directed equitably towards local households should be investigated. Consideration should also be given to bidders having to provide evidence of local development needs and preferences as part of the bidding process. This evidence could be obtained through a well-designed, standardised household survey; post construction, participatory research methods could be employed to come up with community projects instead of the broad-stroke community development plans currently in place. This is for two reasons. One, it is clear that the municipal IDPs that the bidding companies rely upon for their community development plans do not provide up-to-date data at household level that can be used to track and measure development outcomes over time. Two, the community should be part of the development of their own community development plans and a well-designed survey could identify areas of need without raising undue community expectations.

Moreover, the first year of the renewable energy project's commercial operations could be usefully spent on planning and community participation related to community development, drawing on participatory research methods. This is because the renewable energy IPPs are working with revenue estimates in their initial planning around community development projects and the funding for these projects does not become available for at least a year from the start of the commercial operations phase. Organised this way, the renewable energy IPPs could base the community development programme on the results of the household survey, in consultation with the local community, while also identifying the capacity needed for project

implementation once the funds become available. Once community development projects are agreed upon, preferably with goals and targets, they should be publicly available.

With regards to the monitoring and evaluation of the community development initiatives that are undertaken, I recommend that quarterly reporting be done away with even during the construction period. Renewable energy IPPs direct considerable amounts of resources to this compliance exercise, which can be better utilised elsewhere. For example, instead of spending time on preparing their quarterly reports, the community development team of the renewable energy IPPs could use the time building community relationships and conducting community report-back and planning meetings.

Finally, with regard to the community trusts, I have identified this as an area for further research and careful policy development. Significant sums of money will begin to accrue to these trusts once their loans have been paid off, and it is imperative that strong institutions and checks and balances be in place if they are to realise the potential that has been identified for them. The first step is the appointment of the trustees through a process that is as transparent as possible and it will be essential that the financial statements of these trusts are provided to all community members. Serious lessons can be drawn from very negative experiences in the mining industry in this regard, such as the infamous “D-account” case in North West Province, in which substantial amounts of money from mining company royalties in a community trust account went missing under the watch of the North West Provincial Government (Mataboge, 2013). If the revenue from community trusts is to be directed towards direct cash transfers as proposed above, then further research is needed to look at how this could be implemented in line with the moral imperatives of satisfying human needs and advancing social equity that define the sustainable development space.

9.5 Conclusion

This dissertation has explored the role of investment of renewable energy to the just transition and sustainable development in South Africa, and Loeriesfontein in particular. It has shown that current debates on the meaning of the just transition are incomplete because they address only one side of the coin – the communities and workers in the coal-mining regions of the country – and overlook the claims of the communities in the areas where renewable energy projects are being rolled out. It is my hope that my focus on the concerns in these host communities will contribute to deepening the debate on the nature of the just transition, by

showing the importance of including these historically marginalised host communities in policy development and implementation and of understanding the specific environments in which they live in that process.

The Hantam Local Municipality is at the forefront of renewable energy generation in the Northern Cape. The challenges and difficulties of the transition to a low-carbon economy are to be expected, considering the role the MEC has played in the country's development trajectory. However, given the scale of the investments in renewable energy in this municipality and the revenue these projects are expected to generate, there is no reason why poverty could not be significantly reduced, if not largely eradicated, in this municipality in the next 20 years and beyond, if the community development commitments attached to the transition to renewable energy are harnessed to the goals of sustainable development as set out in my conceptual framework. Notwithstanding the importance of the transition to a low-carbon economy, and the urgency with which it should be conducted, achieving this transition cannot be at the expense of satisfying human needs and advancing social equity, in tandem with respecting local environmental limits, by the renewable energy sector.

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---1960 - 1969 - The years of blossoming - "And then there was one"

---1950 - 1959 - The years of Growth - "The wonder years"

---1940-1949 - The years of suffering - "Into the darkness"

---1930 - 1939 - Roots were Established - "All that glitters is gold"

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Interviews

Pseudonym/name/position	Date of interview
Mbulelwa	5 December 2017
Marco	5 December 2017
Hlubi-Majola	5 June 2018
Cosatu researcher	6 June 2018
Chris Yelland	4 June 2019
Matshela Koko	5 June 2019
SAWEA CEO	11 December 2019
Municipal manager	12 May 2018
Gerald	6 May 2018
Ward councillor	28 November 2017; 7 May 2018
School principal 1	25 November 2017
School principal 2	3 May 2018
Community development worker	10 May 2018
Police	8 May 2018
Chairperson of the Business Chamber (Lawyer)	10 May 2018
Paul	10 September 2018
Zama	9 October 2018
Menzi	26 February 2019
Former workers (pseudonyms)	
Denzil	10 May 2018
Zorzi	10 May 2018
Thomas	4 May 2018
Frank	8 May 2018
Kossie	6 May 2018
Buta	8 May 2018
Peter	6 May 2018
Knox	9 May 2018
Thabo	10 May 2018
Tom	5 May 2018 10 May 2018

Appendices

Appendix 1: Inception trip

From left to right: Niell Schoeman, Davide Chinigò, Boitumelo (Tumi) Malope, Stephanie Borchardt, Monene Mogashoa, Charmaine Manyani, Zukiswa Zantsi, Renelle Terblanche

Appendix 2: Research Ethics letter

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APPROVED WITH STIPULATIONS
REC Humanities New Application Form

17 November 2017

Project number: SOC-2017-1601

Project title: The Contribution of Renewable Energy to 'Decent Work' and Local Sustainable Development: A Case Study of Wind Farms in Loeriesfontein Northern Cape, South Africa

Dear Mr Boitumelo Malope

Your REC Humanities New Application Form submitted on **25 October 2017** was reviewed by the REC: Humanities and approved with stipulations.

Ethics approval period: 17 October 2017 - 16 October 2020

Protocol approval date (Humanities)	Protocol expiration date (Humanities)
17 October 2017	**16 October 2020**

REC STIPULATIONS:

The researcher may proceed with the envisaged research provided that the following stipulations, relevant to the approval of the project are adhered to or addressed:

The researcher is requested to upload the Permission Letters once he has received them. **[Response Required]**

HOW TO RESPOND

Appendix 3: Title deed handover in Loeriesfontein, May 2019, Namakwa District Municipality

Description: Title deed recipients with the Mayor and MEC

Description: One of the title deed recipients with the Mayor of Hantam Local Municipality, Swartz Roger Nieldo (Black suit jacket) , the Northern Cape MEC for Co-operative Governance, Human Settlements and Traditional Affairs, Bentley Vass (Blue suit jacket)

Appendix 4: Informed consent form

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STELLENBOSCH UNIVERSITY
CONSENT TO PARTICIPATE IN RESEARCH

Good day. My name is Boitumelo (Tumi) Malope I am a PhD student in the Department of Sociology and Social Anthropology, Stellenbosch University, South Africa. I would like to invite you to participate in a research project I am undertaking for my degree. The title of my project is **The Contribution of Renewable Energy to 'Decent Work' and Local Sustainable Development: A Case Study of Wind Farms in Loeriesfontein Northern Cape, South Africa.** The aim of this study is to explore the role of investment in renewable energy in local development. If you wish to participate, this interview can be conducted in a language you are fluent and comfortable in.

As part of this study I wish to collect information from people like yourself who are working in this area and/or are knowledgeable about issues in the area. Please take some time to go through the information presented here, which explains what this will involve. Please feel free to ask me questions if you would like more explanation or information about any aspect of my study. You may also contact my supervisor, Prof Cherryl Walker (contact details below).

Your participation is **entirely voluntary,** and you are free not to participate if you prefer. If you say no, this will not affect you negatively in any way whatsoever. If you do agree to take part and want to stop at any point, you are also free to do so, again without any negative consequences.

If you agree to take part, I will ask you to respond to some questions and engage in a conversation with me, in which you draw on your experiences and knowledge about the issues related to my study. There are no right or wrong answers–I am interested in what you think about the issues. Our conversation should take approximately 45 minutes to one hour.

Before I start the interview, I need your agreement, by means of your signature (or orally if you prefer), that you are aware of the following.

1. There are no foreseeable risks to you in taking part in my study. There will also be no direct benefit to you, including no payment of money for agreeing to take part. However, I expect that my study will add to our understanding of the role of investment in renewable energy on local development

2. You will not be identified by name in my study and your identity will remain confidential and be protected through the use of a pseudonym/made-up name unless you give me permission to use your name or you are responding in your official capacity and the information presented is part of the public record. In that case I will make sure I respect the requirements of your institution around this.

3. If you agree, I would like to record my discussion with you. This makes it easier for me to be sure my notes from our discussion are accurate. If you agree to being recorded, you may still ask for the recorder to be switched off at any time during the interview. The recordings are intended for research purposes only and will be kept secure and not given to anybody else in the community or other unauthorised people.

4. All the data I collect will be stored securely and only used for legitimate research purposes. The data may be archived/stored as part of the records of the Research Chair of my supervisor (the SARChI Research Chair in The Sociology of Land, Environment and Sustainable Development) but it will not be available to unauthorised persons and your personal details will not be kept.

5. The results of my study may be published in an academic publication at a later stage. As with the dissertation, unless you have given permission for your name to be used, your identity will remain confidential in any such publication, through the use of codes or pseudonyms.

If you have any questions or concerns about the research, please feel free to contact me or my supervisor:

Researcher: Boitumelo Malope, tel: 073 430 6632; e-mail: tumi.malope@gmail.com

My supervisor: Prof. Cherryl Walker, Department of Sociology & Social Anthropology, Stellenbosch University, Private Bag XI Matieland 7602, South Africa;(tel: 021 808 2420; e-mail: cjwalker@sun.ac.za).

RIGHTS OF RESEARCH PARTICIPANTS: You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study. If you have questions regarding your rights as a research participant, contact Ms Maléne Fouché [mfouche@sun.ac.za; 021 808 4622] at the Division for Research Development.
You have the right to receive a copy of the Information and Consent form if you wish.

If you are willing to participate in this study please sign the attached Declaration of Consent and hand it to the researcher.

DECLARATION BY PARTICIPANT

By signing below, I ……..……. agree to take part in a research study entitled **The Contribution of Renewable Energy to 'Decent Work' and Local Sustainable Development: A Case Study of Wind Farms in Loeriesfontein Northern Cape, South Africa** and conducted by Boitumelo Malope a PhD student in the Department of Sociology and Social Anthropology at Stellenbosch University.

I declare that:

- I have read the attached information leaflet and it is written in a language with which I am fluent and comfortable.
- I have had a chance to ask questions and all my questions have been adequately answered.
- I understand that taking part in this study is **voluntary** and I have not been pressurised to take part.
- I may choose to leave the study at any time and will not be penalised or prejudiced in any way.
- I may be asked to leave the study before it has finished, if the researcher feels it is in my best interests, or if I do not follow the study plan, as agreed to.
- All issues related to privacy and the confidentiality and use of the information I provide have been explained to my satisfaction.

Signed on (date) ……...……...
Signature of participant
OR
VERBAL CONSENT GIVEN (Researcher to tick if appropriate)

SIGNATURE OF RESEARCHER

I declare that I explained the information given in this document to _____ *[He*/she] was encouraged and given ample time to ask me any questions. This conversation was conducted in [*Afrikaans/English*] and a translator was used.

_____ _____
Signature of Researcher **Date**

Appendix 5: Interview schedule for key informants

Topic to be covered

Theme 1: Energy policy,

1. How has the electricity policy evolved in relation to Eskom?

2. What is the difference in energy policy between the Apartheid regime and post 1994?

Theme 2: Renewable energy

1. What is your opinion on the debates on the REIPPPP?

2. What is the future of renewables in relation to Eskom?

Theme 3: Decent work,

1. What is your understanding of "decent work"?

2. Do you think your work qualifies as "decent work"?

Theme 4: Sustainable development

1. What is your understanding of sustainable development?

Theme 5: The just transition in South Africa

1. What is your understanding of the "just transition"?

Appendix 6: Letter of confirmation of student status

UNIVERSITEIT STELLENBOSCH UNIVERSITY

Departement Sosiologie & Sosiale Antropologie
Department of Sociology and Social Anthropology

11 May 2018

Dear friend

RE: BOITUMELO (TUMI) MALOPE, PhD STUDENT

This is to confirm that Mr Malope is a registered student at Stellenbosch University, currently enrolled for a PhD (Sociology) in my SARChI Research Chair on the Sociology of Land, Environment and Sustainable Development (www.cosmopolitankaroo.co.za), under my supervision. His student number is 21525269 and the title of his Senate-approved research proposal is: **The Contribution of Renewable Energy to 'Decent Work' and Local Sustainable Development: A Case Study of Wind Farms in Loeriesfontein, Northern Cape, South Africa.** His proposal has also been approved by the Research Ethics Committee of the University (OC-2017-1601).

Your assistance towards his study, including through meeting with him and making available whatever data you can that will enhance the quality of his research) will be greatly appreciated. Should you have any queries please feel free to contact me at my email address (cjwalker@sun.ac.za) or via the Department of Sociology and Social Anthropology (021 808 2420).

Kind regards
Cherryl Walker (Prof)

SARChI Research Chair in the Sociology of Land, Environment & Sustainable Development
Department of Sociology and Social Anthropology
Stellenbosch University
P Bag XI
Stellenbosch 7602

Appendix 7: Questions to Mainstream

Thank you for your response. It would be interesting to know what are the factual errors? I'm however still waiting for answers to my questions sent on June 28 (see below)

Construction

1.How many local people were employed by the main contractor and subcontractor during construction?
2.What was the criteria of their selection? Or what disqualified them from being selected?
3. How many received training with certificates. This must be equated with on the job training?
4. Allegation around H[redacted] being racist, from your side what were issues and how were they resolved?
5. Strikes: when did all the strikes/ marches occur and what were the cause and how were they resolved?

Operations

1.How many meetings were held with the community during 2018 regarding SED and ED programmes?
2. How many ED are in operations and what services do they offer?
3. Is it true that Mainstream's former Country Manager, [redacted], now heads Loerisfontein Work & Grow Primary Co-operative (Zenzai)?
4. Allegations of divide and rule, that some proposal are funded and others rejected, moveover that Zenzai dictates which projects to pursue without consultation?
5. what was the SED and ED spend for 2018, for both farms?

Reagards
Tumi

Appendix 8: Interview schedule for former workers

Topics to be covered

Section 1: Biographical data

Section 2: Employment History

Section 3: Employment during construction

1. Details of how worked for
2. Description of a general day at work

Section 4: Views on “decent work”

Section 5: Dreams and hopes for the future, including for Loeriesfontein

Appendix 9: Non-disclosure agreement

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Non-disclosure agreement

This document hereby confirms that I
…….. agree not to disclose personal information of informants that I learn through my work as a research assistant/ translator for Boitumelo James Malope to anybody not authorised to oversee the fieldwork. I will treat all information as confidential and will ensure the full anonymity of all informants.

……
……
Signature Date