Alternatives to the economic rationalisation of renewable energy transitions: The Tsitsikamma Community Renewable Wind Farm Story

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Abstract

Within the climate mitigation discourse, renewable energy technology is understood as vital to reduce coal energy reliance. This discourse which is deeply anthropocentric in its approach understands 'green' energy transitions largely as reliant on reductionist techno-scientific 'solutions' and green economic growth rationalisation. If energy transitions are not engaged with critically, ongoing injustice and extractive relationships are likely to be perpetuated. The aim of this thesis is to show that alternative renewable energy transitions as responses to global warming need to be informed from a relational perspective. Values that are respectful, regenerative, and reciprocal to nature and each other constitute the concept of relationality. This study focused on the Tsitsikamma Community Wind Farm (TCWF) in the Eastern Cape (South Africa) as a site to explore the implementation of a renewable energy project. The site on which the wind farm is built has a colonial land dispossession narrative and the return of the Tsitsikamma Mfengu community to reclaimed land in 1994. The community was a willing partner in the investment of a wind energy public-private partnership. While the beneficiaries were promised improvements to their well-being, instead, the material well-being of this community remains unchanged and the commercial agricultural land degraded. The inequalities and the social-ecological relations of the past persist. The so-called 'win-win' rhetoric is an illusion in climate mitigation approaches and largely serves capital accumulation at the expense of community well-being and restoration of the soil. This study drew inspiration from Moore's (2003) world-ecology framing - history is part of rather than separate from the web of life - a non-dualist version of world history. In the research, a multi-sited ethnography was used and included tracing the relationships that recognised land history, memory (patterns of material nature of the land) and the entangled relationships between humans and non-humans. The conceptual framing and methodology illuminated erasures consistently overlooked in the anthropocentric climate discourses. As a consequence of those revelations openings for more relational and decolonial conceptualisation(s) based on the profound interrelatedness of life became evident. Relational energy transitions are needed in response to the climate crisis that consider the regenerative possibilities of nature-human interrelatedness. Through this argument, the study contributes an important insight for the uptake of methodology and analysis which transcends the 'resource' logic.

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List of Abbreviations and Acronyms

BRICS	Brazil, Russia, India, China and South Africa
CO_2	Carbon dioxide
COP	Conference of the Parties
CSIR	Council for Scientific and Industrial Research
DALRRD	Department of Agriculture, Land Reform and Rural Development
DEA	Department of Environment
DME	Department of Minerals and Energy
GTDFC	Gesturing Towards Decolonial Futures Collective
IPBES	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services
IPCC	Intergovernmental Panel on Climate Change
IPES	International Panel of Experts on Sustainable Food systems
IPP	Independent Power Producers
IRP	Integrated Resource Plan
kWh	a kilo-watt hour
MISTRA	Mapungubwe Institute for Strategic Reflection
MDB	Multilateral Development Bank
NGO	Non Governmental Organisation
NERSA	National Energy Regulator of South Africa
PPP	Public Private Partnerships
RDP	Reconstruction and Development Programme
REI4P	Renewable Energy Independent Power Producer Procurement Programme
RET	Renewable energy technology
SANBI	South African National Botanical Institute
SANEDI	South African National Energy Development Institute
SDGs	Sustainable Development Goals
SONA	State of the Nation Address

PPA	Purchase Power Agreement
TCWF	Tsitsikamma Community Wind Farm
TDT	Tsitsikamma Development Trust
TDT(M)	Tsitsikamma Development Trust (Mfengu)
UN	United Nations
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
WASA	Wind Atlas South Africa
WCED	World Commission on Environment and Development
WDT	Wittekleibosch Dairy Trust
WSC	Wall Street Consensus
WWF	World Wildlife Fund

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Preface

During the depth of the COVID-19 lockdown the third year of my five-year contract as a lecturer in the Sociology department at UCT started. As someone new to academia it was an overwhelming and challenging experience to make the adjustment to online teaching. But it was also a time to be creative, experiment and do things differently. In preparation for the second term of teaching the Poverty, Development and Globalisation course with a focus on sustainable development for second year students, I went on many online training sessions offered by the Centre for Innovation in Learning and Teaching (CILT). The students requested narrated slides and I started writing scripts for the lecture slide recordings. We were advised to keep the lecture slides short and punchy. It was not an easy task. Working on my PhD took a pause for most 2020. Towards the end of the course one of my students Sara wrote to me to ask whether I knew Ecoversities as my approach to course content resonated with Ecoversities. She was also quite excited that some of the scholars from material covered, were going to be in zoom sessions hosted by such persons as Arturo Escobar and Alnoor Ladha. She offered to link me with Ecoversities so that I could be put on their email list. My response was that I was not aware of Ecoversities and yes, I'd love to be put on their list. And so, I was introduced to Ecoversities. At moments when I was feeling quite depleted from the virtual teaching and assessment processes for 224 students, an invitation came from the Ecoversities email group. The invitation was for the "Wilds Beyond Climate Justice" a virtual global gathering. There I met fellow earth beings engaged in answering questions differently than I had been for more than 25 years working in the environmental and socio-economic justice field. The zoom sessions started with acknowledging the many struggles, the land, the ancestors, the non-human worlds, always expressing gratitude. It made me remember the opening of the World Peoples Conference of Climate Change and Rights of Mother in 2010, Cochabamba, Bolivia. There I witnessed a ceremony of the indigenous people's offering homage to the earth.

I studied Botany to learn about the plant world and ecosystems so I could be a member of the community who were raising the importance of maintaining and conserving biodiversity. The way I was taught botany was very much in line with Robin Kimmerer's experience, "reductionist, mechanistic and strictly objective" (2013: 42). Sometimes Khoekhoe and San peoples medicinal use of certain plants was mentioned on Taxonomy field trips when walking

in a nature reserve. But the way I taught ecology was largely without the interactions of human beings. I went on to do a Masters degree in Conversation Biology the focus of which was the links between people and nature. The approach addressed the impacts of humans on nature, which is largely destructive and results in the need for conservation. Engaging with people mostly entailed the management of the conflicts with people living around and outside of conservation areas. The scientific approaches rarely considered the many humans who have an interrelated and interconnected relationships with nature. I didn't pursue a profession in botany and/or conversation biology. Instead, after the completion of the degree and my minor dissertation on ways of mitigating marine litter blocking stormwater drains, I had my first job at an environmental justice NGO. Much of my focus was on revealing environmental injustices from experiences of people who were living in and around pollution and waste in informal settlements and from large-scale industries. The research, education and advocacy were mainly about waste minimization. When I moved to an environmental justice NGO in Johannesburg, the research, education, and advocacy centred on communities affected by mining. I worked primarily with marginalised South African communities to assist with struggles against waste and pollution from the mines and advocated for environmental justice approaches in national policies. Together with community leaders, so-called affected communities, allies in trade unions and other NGOs, we tried to influence policy and made demands for justice, reparations, restoration, compensation, and the use of cleaner technologies. We sometimes had the audience of government and were part of an environmental committee organised by the Chamber of Mines to hear our demands, but our cries did not change the material conditions of communities living around the mines, nor did the reductionist rehabilitation projects restore and regenerate the damaged earth and polluted water. My research interest shifted to a focus on a political economy analysis of multi-lateral environmental agreements, sustainable development and international and regional trade and environment agreements. This interest emerged when it was announced that South Africa would host the World Summit of Sustainable Development (WSSD) in 2002. Working at one of the leading environmental justice NGOs in Johannesburg at the time, I was invited to the ninth UN Commission on Sustainable Development in New York and asked to read the message from South African civil society and NGOs representing the Global South. Interestingly in the preparations for hosting the WSSD in South Africa the age-old debates and rift between environment and development was ignited; this created tensions in the NGO community. South Africa was a few years into its young democracy and for most people their hardships remained unchanged. I felt hopeful that the hosting the WSSD could catalyse government to pay deeper attention to the work required for redress and bring

improvements to people's lives. I left the NGO space and became a public servant in national government during the WSSD, working as a Senior Researcher for the WSSD Unit, which became the Directorate for Sustainable Development in the Department of Environmental Affairs. In that period, I participated in numerous multi-lateral institution sessions, such as the UN Commission of Sustainable Development, World Trade Organisation (WTO) Ministerial meeting, United Nations Environmental Programme (UNEP) Ministerial sessions, regional gatherings and supported colleagues in their preparations for the Conference of the Parties (COPs). It was a steep learning curve into global geo-politics and an entry into the neoliberal world-making. I had to equip myself with analytical tools beyond the local and national demands to address waste and pollution issues. The stakes certainly seemed much higher at the multi-lateral level. I intensely read and studied books and policy briefs written by analysts from the global South and liaised with NGO analysts, particular focused on WTO rules in trade and environment matters. I prepared policy positions, interpreted multi-lateral agreements, and raised awareness about the implications of the strategies of hegemonic discourse, prepared inputs for senior negotiators and ministers. The work was the harbinger of blocking and pushing back on policies that gave more power to the hegemonic countries and multi-national corporations, and it gave me first-hand exposure to strategies of power, interest and coloniality at play. This kind of insider work was sometimes exhilarating but mostly energy draining and involved a significant amount of travel abroad. I moved on from government to continue similar work on multilateral policy research and analysis with a foreign policy thinktank as an insider that still had links engaging with government policy processes and supporting analysis work but also as outsider to create alliances with labour and alter-globalisation movements. Working at the policy thinktank entailed writing many policy briefs, articles, book projects and designing and facilitating multi-stakeholder workshops. The engagement mostly involved political economy analysis. After almost ten years of living and working in Johannesburg and Pretoria, I returned to Cape Town. I came back to the world of NGOs, but my work remained internationally focused. In 2011, my second year back in Cape Town, my mother suffered a severe stroke which made her partly incapacitated, and she required assisted living. The stroke was devastating for both my mother and me. We had to make huge adjustments. Looking back, it was moment for me to slow down from my busyness. My energy had to be redirected to take care of my mother. I was working on a part-time basis for different NGOs in Cape Town on issues of anti-genetically modified organisms to economic justice to labour rights. My last leg was working for the Southern Africa part of a global campaign to dismantle corporate power at what is considered one of the most progressive left non-governmental organisations (NGOs)

in South Africa. I needed to retreat from the mobilisation, lobbying, advocacy, workshops, travelling, constant meetings and capitalist critiques.

For over 20 years I have been analysing hegemonic praxis in the global policy arena in environmental and sustainability field and making demands on governments for justice, redistribution, and equity. It was time to let go. I was almost in mid-forties, feeling unsettled and uncertain, especially about the relevance of the normative responses to the meta- crises facing the world. A friend sent me an advertisement for the Environmental Humanities PhD application; I decided to apply in the middle of things falling apart in my work, personal life and funding my salary at the NGO. I received a letter of acceptance and a scholarship offer, strangely on the 24 December 2014. I wasn't sure how I was going make it through being a full time student but excitedly accepted the officer. I applied for a second scholarship which I thankfully received. My research interest is in the mainstream responses to the climate crisis framed in mitigation and adaptation. I was particularly interested in BRICS (the emerging economies of Brazil, Russia, India, China, and South Africa) given these countries' fossil-fuel intensity and their interest in growing their economies. When I was working with a faith-based economic justice NGO, I was invited to be part of South Africa's BRICS academic team when South Africa hosted the fifth Summit in 2013. I also participated in the NGO Forum of the sixth BRICS Summit in 2014 in Brazil. This was my last year of advocacy work at big summits.

This PhD entailed a year of coursework and articles of two scholars intrigued me, Anna Tsing and Willian Cronon. After reading Tsing's (2012, 2013) articles *Unruly Edges: Mushroom as Companion Species* and *Sorting out commodities: How capitalist value is made through gifts* brought a whole different dimension to the way I learnt about fungi in Botany. The multispecies approach was embedded in an understanding of relationships. In Tsing's (2013) *Sorting out commodities: How capitalist value is made through gifts*; she asked an important question "How do we want be in the world". In the normative responses, this question is rarely asked. Cronon's (1995) chapter, *The trouble with the wilderness; or getting back to the wrong nature* revealed the paradoxes and irony in the conservation that I had been taught. The ecocide and genocide to create conservation areas were discursively erased so were indigenous ways and understanding of the non-worlds. I was drawn to read Cronon's (1983) book *Changes in the Land: Indians, Colonists and the Ecology of New England*. It was a remarkable account of revealing the settler colonial ways of being and Indigenous people's ways of being in New England (the present United States of America). Finding Jason Moore's (2003) paper *Putting*

Nature to Work: Anthropocene, Capitalocene, & the challenge of world-ecology, was an epiphanic moment that changed how I thought about the power and politics at play in the world. Moore's explanation of capitalism as a world-ecology deeply, made it clearer to me why sustainable development approaches and the demand to government I had been working on for so many years were a dead end. The environmental humanities course work and engagement introduced me to scholars I had never come across in my years of working in the numerous NGOs and with policy thinktanks. I found immense inspiration in the work of Jason Moore, Anna Tsing, William Cronon, Gilles Deleuze and Félix Guattari, Donna Haraway, Karan Barad, Walter Mignolo, William Cronon, Arturo Escobar, Cymene Howe, Dominic Boyer, Dani Nabudere, Imre Szeman, Rosi Braidotti, Isabelle Stengers, Bruno Latour, and many non-dualist thinkers. Their work assisted me in delving into ontological and epistemological dimensions of western modernity's thought, logic and ways of being in the world. These concepts had not previously been part of my vocabulary in the NGO and government world, and I initially had difficulty engaging with them. But it opened a whole different way of how I was going to do my PhD research and the beginning of my process of un/learning and "becoming". It was a process of learning without being taught. In this thesis I have entered the unknown, not following a formulaic approach. In thinking and doing the research I engaged with concepts and a theory of relational ontologies beyond dualisms in an organic way, I came across scholarly work and groups of people in the Ecoversities network in other parts of the world speaking and writing about becoming attuned to relationality and life-affirming ways. I realised that there were people already thinking, knowing, and living with the profound awareness of the fundamental interdependence of everything, living in the cracks of western modernity. Perhaps the work that is needed is to listen to the "otherwise" in both the human and non-human worlds. The listening was not possible in large mutli-stakeholder workshops and the myriads of conferences. This research process of the wind farm took me back to going to where people live to listen to their stories and to the land on which the wind farm stands. It also was a moment to look closely at how all the global policy social good claims in the climate mitigation arena were experienced on the ground.

Chapter One: Introduction


Figures 1 and 2: L – Tsitsikamma Community Wind Farm (TCWF) wind turbines in a smoky sky caused by veld fires in the Koukamma Municipal district in December 2016; R – TCWF wind turbines, with cattle grazing on the degraded soil of planted, fertilised pastures. (Photos by the author December 2016)

1.1 Introduction

In terms of geological epochs, the Anthropocene, the age of humans, is named that by scholars because there is evidence that humans are geological agents insofar as their burning of fossil fuels has made an indelible impact on the planet's stratigraphic record, resulting in climate change.[1] The accelerated burning of fossil fuel 'resources' since the western Industrial Revolution (c. 1760-1840) has caused the Earth's temperature to drastically increase (Jonsson 2015; Bonneuil & Fressoz 2016). The Anthropocene discourse places fossil fuel energy at the heart of global warming (Chakrabarty 2009; Morton 2013; Steffen et al**.** 2015; Bonneuil & Fressoz 2016). Climate mitigation is the key strategy adopted to address anthropogenic climate

[1] The term *Anthropocene* was coined by Crutzen and Stroemer to explain the capacity of the human species to transform the planetary elements and how it has reached an unprecedented scale, to the extent that human beings "have collectively become the 'geological agent' capable of changing the global climate through our emissions" (Jonsson 2015: 55).

change outlined in the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol. Mitigation is primarily concerned with technological advancements to reduce greenhouse gas emissions and fossil fuel dependency (IPCC Fourth Report 2007). Within the global climate mitigation discourse and the international climate change policy regime, renewable energy technologies are proposed as key 'solutions' for the reduction of carbon emissions (Crutzen & Schwägerl 2011; UN Sustainable Energy for All online). Conversion to the use of renewable energy sources has become a primary global goal in response to climate change. The mainstream approaches to reduce carbon and other greenhouse emissions are underpinned by 'green' technology advancements and market-based mechanisms. In addition, market-based schemes such as emission-trading were introduced in the Kyoto Protocol in order to create a further incentive to mitigation actions. Emissions trading popularly known as 'carbon trading', offsets carbon emissions through assigning a monetary value to the earth's shared atmosphere where emissions are bought and sold as a commodity (UNFCCC Secretariat online). Recently 'net zero' emission measures have been introduced in the climate mitigation regime to balance out the carbon emissions produced or cancel the emissions produced by greenhouse gases by 2050 (IEA 2021).

The dominant climate mitigation discourse, which is deeply anthropocentric in its approach understands 'green' energy transitions largely as reliant on techno-scientific 'solutions' and green economic growth aspirations. A focus on 'green' growth and development has been proposed as a means of decoupling growth from environmental degradation (UNEP 2011, World Bank 2012). It is assumed that shifting to 'green' energy will reduce the negative impacts of non-renewable fuels on the environment as well as stimulate green economic growth. Furthermore, it is assumed that this will result in a so-called 'win-win' outcome, contributing to climate change mitigation and the improvement of the well-being of people (Goodland & Daly 1996; WCED 1997; Klugman 2011; UNDP Human Development Report 2016; International Energy Agency 2017; United Nation Environment Programme 2017; OECD Development Matters Online; Herman 2021; IPCCC 2022). In this 'green' growth paradigm, renewable energy technologies are regarded as lucrative investment opportunities that will stimulate jobs and improve the well-being of people and the planet, especially in 'developing' countries (Klugman 2011; Garnaut 2014; UNDP Human Development Report 2016; United Nation Environment Programme 2017; Zeng et al. 2017; Melamu 2020).

In my work as a practitioner in the global geo-political arena of international environmental and trade policy, increasingly mainstream economic instruments fostered in energy sustainability appear to favour the development of energy markets, energy liberalisation, increasing competitiveness to attract investment and financialisation (the use of a range of financial instruments for profit-making). Global development trajectories to address climate change and meet Sustainable Development Goals (SDGs) have identified global finance as a critical 'development' partner (Gabor 2021). Howe (2015) points out that the wind energy investment arrangements, "depends upon a matrix of international state and corporate interests which are integrated into these models as consumers, financiers and development experts" (2015:234). Boyer (2014: 324) points out that centralised renewable energy systems appear to perpetuate the "dominant politics of transnational investment, grid extension, and electricity provision, orchestrated parastatal and electric utilities". As argued by Boyer (2011: 5) "close attention needs to be paid to the role that states, corporations and communities play in these so-called sustainable solutions". Crist (2016 :17) notably states the "Anthropocene supporters expect (hope) that the way forward will keep materialising in variants of progress such as green energy, economic development for all".

In South Africa the introduction on the Renewable Energy Independent Power Producer Procurement Programme (REI4P) in 2011 is a domestic manifestation of these trends. The REI4P is based on widening electricity markets through a competitive bidding process for private investors. It works through a process whereby independent power producers (IPPs) would obtain 20-year contracts to sell electricity to Eskom (South Africa's state-owned electricity utility) as the single buyer. It has been hailed for attracting a huge amount of direct foreign investment and is considered a success by the government. The REI4P requires that projects involve at least 40 per cent participation from South African entities, a minimum of 12 per cent black ownership (with a target of 20 per cent) and that at least 2.5 per cent of the project be owned by communities living within the 50 km radius (Baker, 2015b: 150). The REI4P has mandatory provisions for communities to hold equity shares between 2.5 per cent and 5 per cent so that marginalised communities exercise a degree of ownership in wind and solar farms (McDaid, 2014). Taking as a case study the Tsitsikamma Community Wind Farm

(TCWF) in Witkleibos[2], in the Eastern Cape South Africa, where this project appears to meet all the indicators in the policy world, this thesis problematises and investigates how the 'win-win' rhetoric in climate mitigation approaches unfolds on the ground. This community willingly partnered in a wind renewable energy public-private project, offered their reclaimed land to host the wind farm, participated in the making of the wind farm and has ownership shares.

1.2 Introducing South Africa's renewable energy pathway

This section introduces the changes in South Africa's energy sector under a system of state capitalism during the apartheid period into democracy and neoliberalism. South Africa, like many developing countries adopted the prescriptions of the Washington Consensus [3] in the post-apartheid period. This has had significant socio-economic, structural, and ecological implications. Scholars such as McDonald (2009), Greenberg (2008), Gentle (2009) Ruiters (2009) and others have focused on and discussed implications of early neoliberal underpinnings of the South African electricity sector for marginalised South Africans, mostly black people. This understanding of the early neoliberal underpinnings of the electricity sector is important in this thesis because it will assist in the analysis of the claims of community 'upliftment' and well-being in the present renewable investment projects (Department of Energy 2011, IPP Office 2014).

The implementation of renewable energy was first introduced under Renewable Energy Feed-in Tariff (REFIT) launched in 2009. The REFIT required the national state-owned electricity utility, Eskom, as the single buyer to purchase renewable energy from independent power producers at a predetermined price. The REFIT aimed at supporting the government's target

[2] Witkleibos (historically Wittekleibosch) is one of four areas reclaimed by the Tsitsikamme Mfengu and is the site of the wind farm (the other three areas are Snyklip, Doriskraal and Nuweplaas). Many community members refer to "Wittekleibosch", so I use "Witkleibos" to refer to the area but repeat the "Wittekleibosch" used by interviewees.

[3] At the global level the "Washington Consensus" was associated as an fundamental unprecedented large-scale shift of developing countries "global diffusion of free-market policies, organized around the resources and normative authority of international organizations, especially the International Monetary Fund (IMF) and World Bank" (Babbs & Kentkelenis 2021: 3). Neoliberalism became largely interchangeable with the Washington Consensus which enabled structural conditions for the realignments in global political and economic power toward dominant ideas of trade liberalisation, privatisation of state assets and financial deregulation (Harvey 2004; Babbs & Kentkelenis 2021)

of 10,000 GWh renewable energy in 2013 and promoting competitiveness for renewable energy (Department of Energy, 2003). However, the REFIT had very little traction because the price of coal was cheaper than purchasing renewable energy (Winkler 2005). REFIT was followed by Renewable Energy Independent Power Producer Procurement Programme (REI4P) in 2011 as the new policy imperative towards renewable energy and South Africa's commitment to climate mitigation. The REI4P has been a bold undertaking given the country's significant coal reserves and dependence on coal generated electricity.

The reliance on cheap and abundant supplies of coal-derived electric power is at the centre of South Africa's political, social, and economic history (McDonald 2009). During apartheid Eskom, accounted for 96% electricity generation. This was generated predominantly from coal. Eskom controlled the high voltage transmission grid and the distribution of 58.5% of electricity directly to end consumers (Greenberg 2009). This highly centralized system began being developed in the 1920s with the creation of South Africa's Electricity Supply Commission (ESCOM). This was established with the express aim of providing cheap energy to the railways and was then expanded to provide a national grid to transport coal (Gentle 2009). ESCOM self-described its role as to "render by the provision of power without profit, a worthy and ever-increasing contribution to the development of South Africa and the welfare of her peoples" (ESCOM 1948, cited in Christi 1984: 1 from Gentle 2009: 50). Municipalities purchased electricity for redistribution to consumers in cities and towns. Historically, the delivery of electricity was skewed to supporting industrial development and the provision of electricity on racial lines, and what Gentle (2009: 51) describes as racial Keynesian capitalism. As a result during the apartheid era most black South Africans did not have access to electricity. Apartheid was conceived as such that most black South Africans were forced to live on the outskirts of urban and rural areas which were not connected to the electricity grid, although some households had limited access.

In 1987, a fundamental change took place when ESCOM was replaced by the parastatal Eskom, which went on to operate the national grid. The underlying value of ESCOM's operations changed from "public interest" (albeit skewed to white South Africans and industrial development) to the corporate values of Eskom. Greenberg (2006) points out that South Africa's economic crisis of the 1980s was a catalyst for the apartheid government to plan for

the commercialisation and privatisation of Eskom. In this period, Eskom was ‘caught between excess capacity, high loan repayments and escalating operating costs (especially the price of coal and transport) and tried to recover the costs in the 1980s by increasing the tariffs above inflation’ (Greenberg, 2006). Corporatisation of Eskom commenced in 1987, and after the transition to democracy in 2001, the company was converted into a 100% state-owned parastatal, which meant that the ANC led South African Government became the sole shareholder. Gentle (2009: 51) argues that this marked the beginning of the neoliberal state “expand[ing] the terrain of commodification”, as opposed to state intervention, which constrained the commodification of processes such as electrification, rail and transport that were “deemed essential for capital accumulation”. But some political economists point out that the neoliberal underpinnings of South African energy services, particularly the supply of electricity, began before the official end of the apartheid regime and the beginning of the “democratic” South Africa in 1994 (McDonald 2009; Gentle 2009). South Africa’s adoption of the Washington Consensus market foundations in its macroeconomic policies to various degrees fostered its global integration (Freund 2018).

Under the corporatisation of Eskom, the electricity sector was separated into generation, transmission, and distribution. Despite the South African state and liberal analysts' claims about state ‘control’ of energy generation and consumption, the initial forms of neoliberalism in the electricity sector can be illustrated through privatisation plans and uneven pricing (McDonald 2009: 20-28). The privatisation of energy in South Africa took place in what McDonald (2009: 20) refers to “in the narrowest” sense of the term. This consisted of the “divestiture of state assets to private firms – the introduction of independent power producers (IPPs), the corporatisation of service providers, the contracting out of services, and the potential for future divestitures feature prominently in institutional reform models for the sector” (McDonald 2009: 20-28) In 2003-2004 the ruling party the ANC began to rethink this structure; however plans to ‘unbundle’ Eskom were shelved. McDonald (2009: 21), emphasizes that “a closer analysis suggests the opposite” rather than an unbundling, plans went forward for “private-sector involvement and increased commercialization” and this was “central to

restructuring all in the name of providing cheap and reliable sources to the MEC[4]-plus corporations. Political economists have the coined the MEC plus as extension of South Africa energy needed for intensive extractive industrial development post-apartheid (McDonald 2009, Bond 2009).

The neoliberal "reforms in the electricity sector" related to "pricing" entailed various measures such as "tariff structures, user fees, cut-off for non-payment and so called free-basic electricity" (McDonald 2009: 24). One of the neoliberal strategies that affected pricing was the introduction of electricity meters and the direct purchase of electricity units from the local municipality or from Eskom – in most low-income communities, electricity is purchased directly from Eskom. While free units and sliding tariffs are offered to low-income households, affordability remains a problem. The installation of electricity meters, McDonald (2009) claims, instituted a self-imposed "cut-off" for households unable to pay for electricity. Although low-income households received the free basic electricity and paid no service fee, the tariff rate is higher than the suburbanites (McDonald 2009: 24). Low-income households would have used proportionally a higher part of their incomes for electricity which meant they often had to under consume or were not able to pay their electricity bills (McDonald 2002). These policies particularly affected low-income households connected to the new grid, and the government's cost-recovery measures for the new infrastructure meant that cash-poor households paid a higher tariff than households in the suburbs (Greenberg 2006; Ruiters 2009). Furthermore, McDonald (2009: 16) highlights the fact that even when they had access, millions of people living in low-income households simply did not have regular incomes to "buy enough electricity" and were forced into making "tragic choices between buying electricity, water, food or clothes".

[4] Minerals Energy Complex (MEC) a set of industries and institutions developed around mining, energy, and the financial sector of South Africa's ecomomy (Fine and Rustomjee 1996). The book by Fine and Rustomjee, *The Political Economy of South Africa: From Minerals-energy Complex to Industrialisation* published in 1996 provides a detailed political economy analysis of South Africa's MEC.

After the transition to democracy the government had plans to "unbundle" Eskom (McDonald 2009) to reduce the fiscal burden on government, but trade union actions put these "unbundling" plans on hold, halting a plan to sell 30% of Eskom's existing generating capacity. Despite the trade unions' intervention, the government declared that 30% of all new capacity development was expected to come from IPPs (McDonald 2009). According to McDonald (2009: 21), the establishment of South African offices by large electricity multi-nationals such as International Power (UK), Cinergy and AES (USA), EDF (France) and Tractebel and Shell (Anglo-Dutch) signaled a recognition of significant investment potential.

The partnership between the Department of Energy and the Treasury to establish the IPP office in the Department of Energy to procure renewable energy electricity generation as well as gas and coal is the outcome of government's earlier plans from the 1998 White Paper of the Energy Policy. As the new policy imperative towards renewable energy and South Africa's commitment to climate mitigation, REI4P is spearheaded by the Department of Energy Resources (DoE), National Treasury and the Development Bank of Southern Africa (DBSA). The REI4P financing arrangement is organised through a Public Private Partnerships (PPPs) programme. In PPP financing arrangements, the private sector makes the commitment to finance, constructs and manages infrastructure development (Gabor 2021). The state and multilateral development bank (MDB) support the financing through standing guarantee (Gabor 2021). In this way the "blended finance" guarantees payments to the PPP investors (Gabor 2021: 430). According to the government the REI4P aims to contribute to job creation, social upliftment, and the broadening of economic ownership (Department of Energy 2011; IPP Office 2014).

Some commentators point out that the 2007 electricity crisis in South Africa paved the way for a deeper commitment towards renewable energy generation (Eberhard et al. 2014, WWF 2015). As mentioned, two of the major developmental components of the REI4P are 'community upliftment' through social and local economic development commitments from the investor and black economic empowerment (BEE). The criteria of the bidding process of REI4P instituted measures to improve the lives of communities within a 50km radius of the project such as job creation, enterprise development and socio-economic development (Davis et al. 2018; Eberhard et al. 2014).

South Africa's electricity crisis that began in 2007 has escalated with load-shedding as a frequent occurrence in South Africa. While energy transition discussions are taking place, concerns about extractive relations in renewable energy, neoliberal energy policies and considerations about access and affordability to electricity in renewable energy approaches emerging in the literature are under-conceptualised in renewable energy transitions. These concerns have motivated my enquiry into TCWF to explore 'win-win' claims and the implementation of South Africa's renewable policy.

1.3 Context of the local case study: Tsitsikamma Community Wind Farm (TCWF)

The wind farm offered a unique and useful case to look at implementation of the wider context of South Africa and its perpetual inequalities. The TCWF is particularly interesting because it is out in a place that has a colonial land dispossession narrative and the return of the Tsitsikamma Mfengu [5] to reclaimed land in 1994. Further, as mentioned the community was a willing partner in the investment of this wind energy PPP.

This wind farm is one of South Africa's first community-based wind farms and was initiated by the late Michael Mcebisi "Mike" Msizi (born in Witkleibos) and financed by Exxaro's clean energy company Cennergi through a cooperative and supportive arrangement with the community (Creamer 2012; Engineering New 2016; Van Wyngaardt 2016; Young 2016, 2017). The TCWF is particularly interesting and differs from other renewable energy projects in noteworthy ways. The initiator of the wind farm, the late Msizi, was exiled in Denmark during apartheid. There he became inspired by the Danish wind turbines and captivated by the idea that wind power could bring affordable electricity to the Tsitsikamma community. When he returned to South Africa in the mid-1990s, he shared his vision with the Tsitsikamma Mfengu community who had since resettled on the land. It is important to note that this wind

[5] I am learning basic Xhosa but have no command of the Xhosa language. Peires (2011) explains that the "word 'Mfengu' derives from a verb, *ukumfenguza*, which means 'wandering around homelessly looking for work.'" Peires uses "amaMfengu" to describe the people and "Mfengu", without the prefix, as an adjective. Peires points out that "revisionists tend to prefer 'Fingo' to demonstrate their conviction that the term was coined by the British colonist." In this study, I use the English construction of the terms "Mfengu" and "Xhosa". I use "Tsitsikamma Mfengu" to refer to the community.

farm is a first - the idea for it began before the South African government had a formal renewable energy policy in place and it was initiated in anticipation that electricity generated for local use by the wind farm could be sold back to the grid in the future. Under the Tsitsikamma Development Trust (TDT), the TCWF had an organised community partnership from the onset, unlike similar projects in which arbitrary communities within a 50 km radius might have to forge a relationship to "benefit" from the renewable energy investment projects. A third important point is the land on which the wind farm was built and operates is communally owned reclaimed land whereas most other projects are built on private commercial farms which are predominantly white owned in South Africa. Large-scale renewable energy infrastructure requires large tracts of land. In South Africa where land reform is unresolved little attention is paid to spatial implications required by large-scale renewable infrastructure in terms of land dispossession and changes in the land (McEwan 2017).

Since the advent of REI4P, South Africa has become one the leading global destinations for renewable energy investment (Baker 2015b). These solar and wind projects were awarded mostly to international/foreign energy corporations and energy parastatals (Baker 2015b). The complexity of how these renewable energy investment projects are playing out on the ground in rural areas in South Africa where most of the large-scale renewable energy projects are situated begs deeper inquiry. Concerns have emerged that the context of infrastructure development is becoming more closely tied to financialisation (Baker 2015b; Le Billion & Sommerville 2016; Gabor 2021). The social-political-ecological implications brought about through the creation of favourable investment conditions needs to be a point of focus in renewable energy projects such as the TCWF. With these complexities in mind, the key research question in this thesis is: how does the 'win-win' rhetoric used in climate mitigation approaches unfold in the wind farm located on the reclaimed land of the Tsitsikamma Mfengu?

1.4 Statement of the study problem

Within the climate mitigation discourse, renewable energy is understood as vital to curb the reliance on fossil fuels. It is understood as 'solutions' for climate change mitigation, community upliftment and economic growth. However the capitalist neoliberal logic of alternative 'green' energy investments is largely under-conceptualised. While renewable technology works towards reducing carbon emissions, these technologies are embedded in the

machinations of the dominant extractivist and productivist model. This study offers critical perspectives through which to engage with *how* green energy technofixes relate to the violence of colonial western modernity's way of being that has underpinned the creation of an energy intensive world. If energy transitions are not engaged with critically, ongoing inequalities, injustices and extractive relationships are likely to be perpetuated. Therefore, this study seeks to illuminate the importance of recognising multiple and plural ways of thinking, being, knowing, doing, and sensing in energy transitions.

To address my inquiry and burgeoning concerns of how the claims of the 'win-win' rhetoric unfold on the ground, this research was grounded in a case study, the TWCF. This allowed me to engage with local actors and to hear their stories, experiences and talk with them about their past and current expectations of the wind farm project. I reviewed relevant policy concerning renewable energy and enquired about the material nature of these. I explored the nature of public−private partnership investments and the conditions attached to these. Through my inquiry the complexities of favourable conditions for these renewable energy projects became evident. These complexities conjured up multiple aspects, concerns and paradoxes that require attention. These include land requirements for the 'green' energy infrastructures, the implications of including people into the investment agreements who were otherwise marginalised, and the global finances strategies of renewable projects explored in this thesis. The exploration raises concerns of how global financial flows in these investment agreement and strategies of capital accumulation are manifested in the 'green' energy solutions under the auspices of climate mitigation in the South Africa's renewable energy policy.

1.5 Research aims and objectives

1.5.1 Aim

The primary aim of this thesis is to investigate the claims of dominant techno-scientific approaches and investment strategies in renewable projects such as the TCWF espoused by the 'win-win' rhetoric of climate mitigation. A second, related aim, is to employ a non-dualist lens in the methodological investigation and analysis of renewable projects.

By employing a non-dualist methodological and analytical lens my argument is that it offers openings that might enhance 'our' ability to respond to the climate crisis in diverse and different ways. Such different responses would entail a more relational inquiry of energy transitions as alternatives to the dominant economic rationalisation and reductionist thinking in the so-called solutions to the climate crisis.

1.5.2 Research objectives

The specific objectives are as follows:

1. To explore the claims of 'green' thought in wind energy assumed to advance techno-scientific 'solutions' and community 'upliftment' through a focus on a case study of the TCWF

2. To synthesise a body of concepts and methods drawing on various diverse and interdisciplinary scholarly works that engage critically on 'green' energy transitions approaches premised on economic growth

3. To build on the work of post dualist scholars and use a non-dualist lens to analyse the 'win-win' climate mitigation rhetoric in the TCWF case study

4. To contribute to moving the debate beyond current anthropocentric consequences and pre-determined 'solution' orientated renewable energy projects

5. To contribute to conversations that engage in useful conceptual and methodological approaches that might open possibilities for relational energy transitions.

1.6 Conceptual framing and methodological approach

Mitchell's seminal book, *Carbon democracy*, reminds us that the political economy and geopolitical interests of historical coal-producing regions catapulted the world into a new "energetic metabolism", shaping cities and large-scale manufacturing (Mitchell 2009: 402). This view is echoed by Boyer (2014) who describes the extent to which the extraction of coal has influenced the global "fossil economy" in which we are living. Mitchell's political-economic analysis describes how western politics and statecraft are entangled with carbon-based fuels. He points out how the disruption of Keynesian statecraft opens the door for neoliberal policy in carbon-based fuels promoted by western governments and transnational corporations (Mitchell 2009). Numerous scholars have investigated the politics of power embedded in the implementation of renewable energy transitions in relation to development and green growth and/or a low carbon economy (Vargas 2020; Boyer 2014, 2019; Howe 2011, 2015; Boyer & Howe 2016; Crist 2016, Parenti 2016, Dunlap 2021). Increasingly literature on renewable energy investment projects and PPPs is focused on the need for energy justice and energy democracy (Burke & Stephens 2017; Sweeney & Treat, 2018; Satgar 2018). Extensive research exists on the historical use and political economy of fossil fuels for energy generation and how the 'discovery' of coal and oil have shaped 'modern society's' dependence on fossil fuels (Chakrabarty 2008; Mitchell 2009; Boyer 2011, 2014). However, within literature on energy transitions and the mitigation of climate change, few focus on the "productivist model" (Moore 2015a) and "resource logic" (Howe 2019, Szeman & Wentzel 2021) in energy transitions. Little attention has been paid to framing the climate crisis and energy transitions beyond the realms of economic production and endless human use (Szeman & Wentzel 2021).

This thesis has been inspired by Jason Moore's (2003) conception of 'world-ecology' in which he describes how history connects humans, non-human nature, and web of life relations in diverse and multi-layered relationships which are part of rather than separate from the web of life. Through the use of this concept, Moore offers a way of working beyond a dualist version of world history. Moore (2015b) argues that capitalism has been made possible by the appropriation of human and extra-human nature. The development of capitalism is long and well documented arising in the sixteenth century and moving exorably to its well-developed forms today in which accumulated capital continues to amplify production at the expense of what Moore (2017) terms 'Cheap Nature'. Cheap Nature is central to the endless accumulation

of capital, which can only "be adequately interpreted through a post-Cartesian frame that understands value as a way of organizing nature" (Moore 2017: 621) through the joining of capital, power, and life. In this way of organising nature, "frontiers are important in these processes because they offer new sites where cheap things can be seized – and the cheap work of humans and other natures can be coerced" suggest Patel and Moore (2020: 22). Through its frontiers, "capitalism controls a wider set of life - making relations that do[es] not appear[s] on an accountant's balance as profit and loss" (Patel & Moore 2020: 19). Frontiers are sites where power is exercised, not just economic power. They are sites where the strategies of cheapness and profit are "a practice, a violence that mobilizes all kinds of work - human and animal, botanical and geological-with as little compensation as possible" (Patel & Moore: 2020: 22).

The world-ecology, "is a framework for theorizing manifold forms of the human experience past, present and future" states Moore (2015b: 28). The inclusion of nature, non-human aspects, ecosystems, and humanity-in-nature relationships is central to exploring what could be learnt from this wind farm and what it may tell us about material nature of renewable energy projects. Chakrabarty (2009) calls for the breaching of the binary natural/humanity by including a more-than-human history to make sense of the crisis. Cronon (1983) reminds us to include human actors to understand cultural revolutions and to include ecological actors as well.

The dominant Anthropocene discourse situates all humans as the geological force that has contributed to climate change with our use of fossil fuels. In this holism, Moore emphasises the specificity of 'social' relations has been severed from a dialectal method (2015b: 9). Moore and Patel (2020: 56) say, "We are - living with the consequences of a civilization built on cheap energy, a reality verified by climate change. The global political economy of cheap fuel has not only wrought immense human suffering in its extraction but also, of course, remade planetary ecology". 'Green' thought scholars working within the dominant Anthropocene discourse consider global warming to be a consequence of coal energy reliance and thus they believe that the replacement of fossil-fuel energy with green energy technology is more sustainable and efficient. Scholars critical of 'green thought' suggest it narrowly focuses on the environmental impacts of humanity and/or capitalism on nature rather than an understanding of the implications of modernist relationships with nature constructed on the belief of human mastery over nature (Merchant 1980, 1985; Moore 2015a, 2015b; 2016). This world history,

which has separated humans from nature and where nature has become understood and made up of 'resources' subject to the control and use of humans has its roots in the fifteenth and sixteenth centuries in Europe (Merchant 1980; Moore 2015b, Mignolo 2013; Patel & Moore 2020). However, the concerns about the limitations of 'green' thought and 'solutions' to address the climate crisis entrench ways of thinking and being - Spahr (2015: 3) states: "Among them is the idea that if we just shut down the steam engines and coal plants (or their contemporary equivalents) while leaving intact the inequalities and the "gendered and racialized cosmologies" upon which capitalism depends, all will be well". Moore (2015b: 4) has argued the 'green' of capitalism as a world-ecology is entrenched in the dualisms of the Nature/Society binary, which at its core is complicit with the violence of modernity.

The conceptual and novel approach to methodology in this thesis is closely linked. It is an attempt to use a non-dualist framing as the researcher's worldview. The approach includes an analysis of the soil and land history, memory of the land on which the wind farm stands that begins with human relationships with the land prior to colonialization. Interestingly, "the concept of soil memory" (information the soil carries over time) of landscapes has become a scientific approach and developed as a theoretical and methodological basis to analyse soil evolution, the interaction with biospheres and human society (Targulian & Bronnikova 2018). The perception of the soil as a source of information, is recognised as an important pedology development from the fields of "paleopedology, and archaeological pedology" (Targulian & Bronnikova 2018: 230). The theoretical analysis of soil memory through multi-disciplinary studies is encouraged by Targulian and Bronnikova (2018: 241) who propose, together with "other memory blocks of geosystems", can access different kinds of environmental changes. While pedology is an earth science that investigates soil from an archaeological context, soil memory can be expanded to understand deeper social-ecological relationships with land (Styres 2011; Kimmerer 2013; 2019; Adams et al. 2020). Kimmerer (2013: 9) remind us that land and soil memory is not just about showing the "land that is broken but more importantly, our relationships to land … In other words, our relationship with land cannot heal until we hear its stories. But who will tell them?"

An important aspect of this research is that the inquiry traces the changes in the different humans' relationships and the material nature of the land. As Moore (2014b) said the understanding that human history is co-produced, a history of a specific type of human that put nature and other humans to work for capital accumulation and wealth, not only helps in

understanding the context of world capitalist ecology but makes visible the shadows of modernity's progress. The cuts and erasures of more symbiotic human-nature interrelatedness are overlooked by the Anthropocene discourses when there is no acknowledgment outside of the values of capitalist world-ecology.

The process of generating the methodological approach is supported by Barad's notions of intra-actions rather than interactions of the different actors. When bodies, matter, objects intra-act they do so in co-constitutive ways and not as separate independent entities (Barad 1996). Through intra-actions the ability to act arises within the relationships, which in and of itself changes, transforms, or emerges, according to Barad (1996). With a focus on the materiality of the relations of the wind farm, the actors include the land on which the wind farm stands, the Tsitsikamma Mfengu community, the investment and institutional energy actors and REI4P, the renewable energy policy. This thesis is particularly interested in "silent" actors and voices (De Sousa Santos 2006) those rendered invisible and/or non-credible and as subjects of capitalist machinations that is, the community members living in the location of the wind farm and the land. The intra-actions and how they are entangled constitute a material-discursive reality, where matter that is considered passive and minor can be seen as active and forceful in its intra-activities with other bodies (Barad 2003; Tachgui 2018). Studying entanglements of the intra-actions reveals how difference gets made and unmade. In this way examining the relationships in the wind farm and what might be learnt from these relationships is not primarily about 'good' or 'bad' renewable energy infrastructure and technology. Nor is it about the various power and interests of the different actors from pre-given perspectives such as in a political economy analysis. Relationships are made and unmade through intra-actions entangled or performativity with nature, land, technology, discourse, capital, power, amongst a range of material and discursive relationships. So, intra-actions mean giving up "either/or" thinking, cause and effect, individual agency, and subject-objective (Barad 2003). This thesis inspired by Barad's (2018) methodology which proposes that tracing the erasure of the violence of colonialism in their specific material entanglements through space, time, and matter is an embodied practice of re-membering what has been dismembered in settler colonialism trajectories.

Moore (2017: 621) states that "understanding capitalist origins – and the possible trajectories of twenty-first-century crisis – is treacherous work". Moore believes that "the stakes are too high for formulaic interpretations. We must go deeper" (2017: 622). In response to his call for going deeper this study, engages with a world-ecology framing which traces erasures by which means it becomes possible to make visible assumptions in modernity's rational and reductionist thought about renewable energy transitions. This research enquiry about how the 'win-win' rhetoric unfolds in the TCWF, followed a multi-sited ethnographic approach (Marcus 1995) and through the use of different source literature and disciplines, I generate a method to investigate the relations and values that co-produce patterns and relations of power and production in the wind farm of the reclaimed land of the Tsitsikamma Mfengu. By tracing the entanglements of the intra-actions of the different actors of the wind farm in space, time and matter, this analysis might reveal lessons and openings to respond differently to the climate crisis, through multiple, more-than human centred entry points.

1.7 Chapter outline

This first chapter has introduced the study problem, its importance, and conceptual underpinnings of the thesis. The rest of the thesis is organized as follows:

Chapter two is a literature review which explores literature raising critical concerns about current anthropocentric 'solutions', such as green energy transitions as a panacea for the climate change within the Anthropocene discourse. The problematic of 'green' 'energy' solutions arising from the literature leads to decolonial and relational scholarly works. These scholarly works foreground ontological and epistemological dimensions required for consideration in renewable energy transitions projects discussed in Chapter seven.

Chapter three provides more detail on the conceptual literature for the framing of this thesis and a non-dualist methodology generated in investigating the making of the TCWF. I explore the concepts utilised and tools of analysis employed for the data collected that arises from a paradigm in which dualist characterisations of society as an entity separate from the web of life/nature and are replaced by interconnected and interdependent concepts following a logic of *both/and* rather than *either/or*. The key concepts are used in a Moore's world-ecology framing as a method of analysis to trace the entanglements of the different human and non-

human actors in the making of the wind farm. I describe the exploration of soil, land history and memory of the wind farm inspired by Barad's thinking on tracing the erasure of the violence of colonialism in its specific material entanglements through space, time, and matter as an embodied practice of re-membering.

Chapter four provides the details of the case study and field work which entailed investigating multiple sites and multiple actors that co-constitute the relations connected to the wind farm. I situate the TCWF geographically. I discuss my fieldwork processes and findings from the community narratives and the energy institutional actors involved in the wind farm. My ethnographic experience brings to the fore the many views: the conversations of people's memories, desires, concerns, hopes and dreams about their return to this land surrounded by dairy farms and a wind farm. The chapter also focuses on the interviews on financing this capital-intensive project and motives for these renewable projects.

Chapter five provides an analysis of tracing the land history, memory through exploring the human and an ecological historical relationship to the land on which the wind farm stands. The chapter begins with exploring the Khoekhoe name of the Tsitsikamma territory and the relationship to the land of human inhabitants prior to colonial occupation in the seventeenth century and changes in the land to farming food, farming grass and at present farming wind. In this chapter the hidden shadows of modernity and the ghosts of the past are traced through soil and land history, memory (the material changes to the soil and landscapes through space, time, and matter). By tracing the entanglements of different relationships with land, this chapter re-turns to history and the memory of colonial conceptions of land ruled by control and mastery over nature that emerged from an ontology of dominance, separation, violence, and extraction. Western colonial conceptions of land are analysed together with examples of indigenous ways and communities' relational ontological praxis to assist with informing the present relationship of renewable wind energy and the land on which the wind farm stands.

Chapter six is an examination of the relationships of the energy actors and the material nature of REI4P that emerged as a frontier site for the renewable energy investments. I discuss the implications for community well-being and strategies of capital accumulation in these large-scale renewable projects. This chapter analyses the material nature of REI4P and investment

strategies in the form of PPPs. It reveals how the capitalist neoliberal logic of alternative 'green' energy interventions in investment models such as REI4P are embedded in the machinations of the extractivist productivist model through 'new' forms of financialisation for capital accumulation. The chapter reveals several contradictions and paradoxes of the frontier strategies and the resource logic at play in renewable energy investment projects under the guise of climate mitigation.

Chapter seven builds on the implications of TCWF, some of the narratives of the communities that expressed their values and relations to the land and the decolonial and relational literature. I analyse alternatives to mainstream 'green' energy development; in it the need for more relational theory and ways of being that de-centre modernity's mastery over nature narrative are explored and the focus is on life-sustaining values in energy transitions. It makes visible worlds that the dominant anthropocentric worldview displaces. It also explores insights from narratives and workshops with the community members on the expression of relational thinking. I bring attention to 'other' knowledges and the need for recalibrating approaches to nature and each other that are reciprocal, restorative, respectful. In this chapter I propose the need to be regenerative and life-affirming in responding to the climate crisis.

In Chapter eight, the conclusion, I provide an overview of findings of the implications of the current 'win-win' rhetoric on projects like the TCWF. I conclude with how the 'win-win' rhetoric on the climate mitigation unfolded though the implementation of REI4P in the TCWF, claims of the dominant techno-scientific approaches and investment strategies in renewable projects to mitigate climate change, improve community well-being are a fallacy. By employing a non-dualist lens in the analysis and methodological investigation of renewable projects, the conclusion suggests the present 'fix-it' approach with techno-scientific 'solutions' and 'green growth strategies in renewable energy transitions are locked into a paradigm of cheapness and profit. The climate mitigation approach within the Anthropocene discourse is entrenched in Cartesian dualism and founded on ideas of modernity's 'either/or' trade-offs as a way of thinking of energy transitions. Taking an both/and approach in this this thesis is not 'solution' orientated but presents an opening for conversations to think and respond differently so possibilities of relational energy transitions might emerge. The conclusion presents a modest invitation, encouraging conversations towards advocating for relational energy transitions.

Chapter Two: Literature review

A critical review of 'green' approaches to energy transitions

2.1 Introduction

In my initial survey of the literature, I focused on renewable energy transitions as they relate to climate mitigation. I searched the Greenfile, science and anthropology data bases, amongst others. It was labyrinth with so much out there on 'green' energy. Dominant environmental and 'green' discourses prescribe technology fixes to address climate change through the advancement of 'green' technology-centred approaches, such as geoengineering and transitions to renewable energy technologies (Steffen et al. 2007; Crutzen & Schwägerl 2011; UN Sustainable Energy for All online). Literature about the Anthropocene is ubiquitous across academic disciplines, civil society organisations, multi-lateral institutions, and policymaking institutions. Mainstream literature on human impacts on the environment covered aspects of population growth, green economic growth, market incentives for a low carbon economy, 'green' infrastructure and technology to name but a few. Paraphrasing Crist (2016: 15), some of the Anthropocene discourse's chief themes are: population increase projections will increase energy demands; economic growth and consumer culture will remain leading social models so that everyone can be affluent; "a more positive attitude about our prospects on a humanized planet needs to be embraced"; "major technology fixes will likely be needed, including engineering climate and life"; "and the path forward lies in humanity embracing a managerial mindset and active stewardship of Earth's natural systems".

The narrative of the Anthropocene discourse has in recent years been problematised (Tsing 2012; Baskin 2015; Moore 2015a, 2015b, 2016; Crist 2016; Haraway 2016). Moore states that "the problem is not the "Age of Humans" but the "Age of Capital", not Anthropocene, but *Capitalocene*" (2015a: 2). Moore emphasizes that the Anthropocene describes *'what'* is the cause of global warming but doesn't describe *'how'* it came about (2015a, 2015b). Baskin (2015) argues that these dominant responses and 'solutions' to global warming are heavily reliant on "planetary management and technophilia" such as geoengineering and other forms of 'green' technology. Howe (2014:383) uses the term "anthropocentric ecoauthority" to

describe the dominant approach to climate mitigation. She suggests that this discourse is "predicated on a series of experimental, scientific, and managerial truth claims regarding ecological and future forecasting in an era of global anthropogenic change" (Howe 2014:383).

The chapter focuses on emerging literature that emphasises the limitations and pitfalls of 'green' thought in Anthropocene discourse. Scholarly research critical of dominant green energy responses refers to the heavy reliance on planetary management logic of techno-scientific approaches embedded in the arguments of extractive logic (Baskin 2015; Moore 2015b; Bonneuil & Fressoz 2016; Crist 2016; Howe 2015, 2017; Szeman & Wentzel 2021). Attention has been drawn to the under-conceptualisation of land and spatial issues of large-scale renewable infrastructures (Huber & McCarthy 2017; McEwan 2017; Howe 2011, 2015; Boyer & Howe 2016; Vargas 2020; Dunlap 2017; 2021; Ramirez & Böhm 2021). Scholars express concerns about the organisation of renewable energy PPPs (Boyer 2014; Baker 2015a, 2015b; Boyer & Howe 2016; Gabor 2021; Vargas 2020) and trends in green energy financialisation have become contested (Le Billion & Sommerville 2016; Gabor 2021). Energy democracy demands (Burke & Stephens 2018; Satgar 2018) and energy justice demands (Stevis & Felli 2015; Sweeney & Treat 2020; Galgóczi, 2020) are advocated in response to some of these emerging concerns (Chilvers & Pallet 2018; Dunlap 2021). These critical perspectives of 'green' energy transitions reviewed in this chapter provide an exploratory basis for my analysis on how the policy claims in green energy transition 'solutions' to reduce emissions, stimulate 'green' economic growth and improve community well-being unfold the Tsitsikamma Community Wind Farm (TCWF) situation.

The critical perspectives that emerged led me to read scholarly work that recognises the ontological (way of being) and epistemological (way of knowing) dominance of modernity's relationships in response to the climate crisis. I drew on the thinking of relational scholars such as Moore (2015b), Patel and Moore (2020), Escobar (2018), Mignolo (2011b, 2017), Barad (1996, 2014, 2018), Howe (2015, 2019), Boyer (2014, 2019), Wynter (2015) Nabudere (2011a), Cronon (1983), Merchant (1980, 1992) Salleh (1997), Gibson-Graham (2007, 2014) and others. These scholars advocate for plural endeavours that emphasise the importance of convivial humanistic relations and new imaginaries in climate crisis responses. The exploration of relational and decolonial theories and my field work inspired me look at ways of thinking

and alternative values to the dominant Anthropocene discourse energy transitions that I will return to in my analysis in Chapter Seven. The ultimate aim of this chapter is to highlight the key debates emerging in renewable energy technology transitions and surface aspects of the multiple entanglements involved. These include land, the material nature of investment agreements, financing concerns and emerging aspects of energy justice and democracy in the context of expanding global capitalist neoliberal strategies. First the chapter explores the literature on these debates in 'green' energy developments. Then building on the emerging concerns of 'green' energy, the second part of the literature review draws on Moore's problematisation of 'green thought'. The third section reviews key scholarly work that is emerging in energy humanities, which bring post-humanist perspectives to energy research and debates.

2.2 Literature on emerging concerns of green energy transitions

This section reviews the multiple entanglements emerging in 'green' energy transitions debates. The diverse range of issues bring to the fore critical aspects in 'green' energy often overlooked in reductionist scholarly work. The aspects covered include land, the material nature of investment agreements, financing concerns and emerging aspects of energy justice and democracy. Reviewing these aspects may assist revealing the shadows of development and progress fostered in the 'win-win' rhetoric in climate mitigation.

2.2.1 Land and spatial concerns of renewable energy infrastructure

Land and spatial concerns are emerging as one of the key political uncertainties in renewable energy (Howe 2015; Burke & Stephens 2017; Huber & McCarthy 2017). Large-scale wind and solar renewable energy projects require large tracts of land, a fact Huber and McCarthy (2017) argue requires serious attention. They maintain the focus on energy transition "is far too often conceptualised in 'mechanical terms' – that is, 'the capacity to do work'" (Huber and McCarthy 2017: 656). Large tracts of land are required to support renewable energy infrastructures that collect wind and solar energy, and significant industrial technologies are needed on a large scale (Huber & McCarthy 2017). The spatial reconfiguration of social, political, and economic patterns of the large-scale renewable energy transitions "remain under-considered" (Burke & Stephens 2017: 86). Huber and McCarthy (2017: 658) point out that while renewable energy

sources may well be a shift from the "subterranean energy regime" that relies heavily on "underground stocks of energy and minerals", these systems will require massive industrial production to produce the technology and need to address the challenges of storage and transmission. Further, they highlight that the spatial and material conditions to maintain fossil fuel economy are immense. For example, scaling up wind power production required along the lines needed for a fossil fuel economy can only be done "through the construction of enormous wind farms in many of the most promising locations around the globe, with a corresponding network of transmission lines, substations and so forth" (Huber & McCarthy 2017: 664). Jacobson and Delucchi (2011) in Huber and McCarthy (2017: 664) estimated that "3.8 million wind turbines" alone are required "around the world, almost all of them new". They emphasise that the spatial intensive nature of solar and wind technology "beyond the subterranean energy regime toward renewables might elevate land as the centre of energy struggles" (Huber & McCarthy 2017: 666). Land appropriation in colonial settler states remains a point of contention in terms of struggles to reclaim land (McEwan 2017; French et el. 2020). Globally many communities in communal land territories are resisting appropriation by the extractivist economy (Escobar 2011a; Mignolo 2016; Dunlap 2017). With an increase in demand for land required to host large scale solar and wind infrastructures, human and non-human habitats may begin to compete with the immense spatial needs of renewable energy technology. The role of government in acquiring land to host these large-scale infrastructures, especially in settler colonial states, requires attention.

Substantial research into the neo-colonialism and neoliberal concerns of renewable energy transitions in land confiscation in the Isthmus of Tehuantepec in Oaxaca Mexico has been done (Howe 2011, 2015; Boyer & Howe 2016; Vargas 2020; Dunlap 2017; 2021; Ramirez & Böhm 2021). Research on renewable energy investments in the Isthmus of Tehuantepec by Howe and Boyer reveal that the geopolitical interest in renewable energy that proposes sustainable development in renewable energy initiatives has resulted in extractive relationships on indigenous peoples' land (Howe 2011, 2015; Boyer & Howe 2016, Boyer 2019; Howe 2019). Howe's (2011) study of renewable energy transitions shows that local communities have been alienated in a process that echoes economic coloniality, particularly as investments by Spanish corporations are reminiscent of the earlier Spanish colonisers. Howe's (2015) research on the introduction of wind energy in Latin America, especially in the Isthmus of Tehuantepec in Oaxaca, Mexico questions whether these renewable energy initiatives could have the same

impact as colonial and corporate extractivism, that is, benefiting "affluent patrons and regions" under the guise of "clean development" (2015: 234). Ramirez and Böhm (2021) describe the mega wind farm projects on the Isthmus of Tehuantepec as a process of *transactional colonialism*, which they interpret as an internal colonialism that, together with energy injustice, reinforces unequal economic transactions. Vargas (2020) writes about the role of the Mexican government in wind energy transactions on the Isthmus of Tehuantepec which instrumentalised a neoliberal paradigm through multiple legislative acts passed to encourage the development of 'efficient' and renewable energy through public-private investments. Vargas (2020: 3) describes the Mexican government as enforcing "ongoing settler-colonial logics of elimination" on poor, rural, indigenous land for capital accumulation, despite indigenous land being partially protected by legislation. Vargas (2020: 3) notes that "Indigenous land continues to be treated by settler states and international capitalist actors as *terra nullius* (in Latin: empty land)" open to land grabbing. Similar praxis is seen in other parts of the world, for example, wind energy development in Norway affects the indigenous Saami community (Normann 2020). While ancestral reindeer herding is protected by international law, the large-scale wind turbines are dispossessing herders of their pastural lands, a practice the Saami peoples have termed "green colonialism" (Normann 2020). In South Africa, land considered to be customary or communal often faces pressures to relinquish land for extractive economic activities such as mining. Land for renewable energy technologies and infrastructure may come with similar pressure under the auspices of the 'win-win' rhetoric at the expense of human and non-human needs for land, especially humans who have been historically marginalised in South Africa.

Currently in in South Africa, most REI4P projects are situated in rural areas where there is a high solar and/or wind intensity, on land appropriated under colonialism and apartheid. Large-scale renewable energy projects are predominantly on the private land owned by commercial white farmers who are benefiting financially from these renewable energy investments (McEwan 2017). McEwan (2017: 3) notes that the REI4P has largely overlooked historical land occupation and land appropriation, writing that "the discursive erasure of land within public debate about renewable energy is particularly notable given that the South African land question is of great political sensitivity". McEwan (2016: 5) explains that "IPPs thus need to secure agreements with landowners on transfer of ownership or lease rights for REI4P projects; as a consequence of prevailing land ownership patterns, these agreements serve the interests of commercial (mainly white) landowners". While McEwan's research is focused primarily on

solar energy projects in the Northern Cape, she observes that land "previously deemed to have low agricultural value escalates in value when positioned in the optimal zones for solar energy production" (2016: 5). She also notes that, "Landowners choosing to lease rather than to sell will receive the bulk of the lease payments for renewable energy projects, on average about 2% of the total revenues over the 20-year life of the project" (McEwan 2016: 5). Given the significant capital investment in these projects, the financial return is likely to be considerable. The TCWF stands out, given that community is a 9% shareholder in the wind farm and the wind farm is on reclaimed land (Forder in McEwan 2016), an initiative that is celebrated as a success story from the perspective of mainstream development.

Spatial concerns go beyond physical access to land needed for these renewable energy large-scale infrastructures, concerns about aesthetics, and the potential ruins at the end of these technologies' lifespans. The extent of decision-making and the power of corporate investors are likely to increase in the spaces of these renewable technologies (Korten 2001). McEwan (2017: 5) points out that in South Africa these renewable energy large-scale infrastructure projects create investment that entails "a need for an administrative authority comparable to that of the state, but requiring direction from new constellations of international, inter-governmental and nongovernmental actors" She (McEwan 2017*:* 5) states these zones form "multiple, overlapping or nested forms of sovereignty, where domestic and transnational jurisdictions collide", defined as "*extrastatecraft,* operating both outside of and in addition to statecraft". This important point by McEwan raises the alarm about the implications of investors and the material nature of investment agreements that undergird a capitalist neoliberal logic in 'green' energy alternatives. The implications of the global economic structural adjustments and deepening inequalities require wider investigation, especially the financing arrangements of renewable energy investments.

2.2.2 Material nature of Public Private Partnerships (PPPs) and investment conditions

Having examined debates around land for renewable energy projects – this section moves to another concern. This section focuses on the material nature of PPPs and the conditions existing in financing large-scale renewable energy technology.

The financial assistance that supports greener and cleaner technology in developing countries increasingly encourages public investment to leverage funds directly through private finance (Lohman 2011a; Bond 2012; Gabor 2021). Gabor (2021: 431) gives importance to this kind of private capital financing by statements such as, "how to construct investible development assets" and "investors are far more confident in returns when projects have a built-in set of users who are willing to pay". In this financial strategy a "de-risking state can be understood as a project that seeks to extend the infrastructural dependence of the state on private finance …" and transforms a range of infrastructure sectors into asset classes[6] such as water, housing, energy, health, education, transport, and even nature, "which is code for creating de-risking partnerships" (Gabor 2021: 436). New regimes and partnership efforts for development interventions with global finance is a 'development de-risking paradigm' which Gabor (2021: 433) conceptualizes as the "Wall Street Consensus" (WSC) presents a new paradigm to make 'development' investable. She points out that this is not simply an agenda to privatize (social) infrastructure, it is much more - the development of 'investible' projects requires changes in financial regulation and corporate governance that secures investment returns. The development of 'investible' projects requires a two-pronged strategy: (a) reorient the fiscal and monetary arm of the state into de-risking development asset classes, to ensure steady cash flows for investors; (b) re-engineer local financial systems in the image of US market-based finance to allow portfolio investors easy entry into, and exit from, new asset classes (Gabor 2021: 431).

[6] An asset class is a grouping of investments that exhibit similar characteristics and are subject to the same laws and regulations. In essence, it is a grouping of comparable financial securities. Historically the three main assets were equities (e.g., stocks), fixed income (e.g., bonds) and cash equivalents or money market instruments. Currently real estate, commodities, and currencies are common examples of asset classes (Investopedia.com, n.d).

According to Gabor (2021: 432) the material nature of PPPs in the de-risking development paradigm of the WSC protects bondholders from participating in debt renegotiations that poor and emerging countries require. Furthermore, it threatens developmental policy space by narrowing the state's scope for just energy transitions and putting in place mechanisms "where the burden of structural change does not disproportionately fall on the poor" (Gabor 2021: 432). Gabor (2021:432), also points out the implications of the de-risking state extend the infrastructural power of finance from monetary and fiscal policy to other areas of public policy; then its "industrial policy amounts to little more than planning and overseeing PPP projects". She (Gabor 2021: 253) notes that as the WSC epitomises a state-building project that puts "in place the institutional basis for a new regime for de-risking as accumulation". She argues this presents a new paradigm to make 'development' investable by which investors require "projects to have a built-in set of users who are willing to pay" (2021: 431).

Studies on political economy of renewable energy transitions through the increase of electricity markets and profit-making investment activities reveal several risks and complexities (Foster 2002; Howe 2011; Boyer 2014; Howe 2015). As pointed out by Boyer (2014) from the Mexican experience, renewable energy transition projects generally preclude access for the communities in which the renewable energy infrastructures are situated, because the generated energy is transmitted to the central grid. In Mexico renewable energy is also directly transmitted to industrial centres, mining companies and other commercial operations (Boyer & Howe 2016; Dunlap 2017, 2020). Mining companies and other commercial operations are the real beneficiaries of the expansion of energy production and not the people living around those territories (Boyer & Howe 2016, Dunlap 2021). Some community farmers have partnered with NGOs to develop community-owned wind endeavours and secure finances from public-private ownership for social development, but how these climate mitigation projects will change energy access for local communities remains to be seen (Boyer & Howe 2016). In South Africa, Baker (2015a: 256) raises concerns that while IPPs contribute to the diversification of the energy mix, "their introduction still contributes to an electricity-intensive model predicted in increased demand, with issues of affordability for low-income households unresolved". Under REI4P, all renewable energy is transmitted directly to the central grid and does not reach the 30% not connected to the grid (Baker 2015: 257).

An analysis of the experience of energy liberalization in Europe, showed that distributed generation and deregulation of energy markets poses severe problems to a sustainable energy transition (Meyer 2003). The article by Meyer (2003) argues the ideology of energy liberalisation does not appear to address energy security nor contributes to addressing global warming. It has mostly benefitted some consumers. In decentralised models, Morris (2014: 24) found that the current frameworks for renewable energy development "are biased in favour of property-ownership, for-profit business and individuals with economic means to shoulder the up-front cost associated with ownership", thereby perpetuating claims of a developing "local neoliberalism" in renewable energy transitions. Access and affordability of electricity for marginalised communities from renewable energy projects appears to be largely overlooked (Stephens & Burkes 2017). The corporatist private–public model of these wind farm infrastructures presents a conundrum in terms of access and affordability of electricity.

Howe's (2015: 232) analysis of Latin American energy transitions and climate change mitigations raises a fundamental and critical question, namely, "If energy production continues to prioritise destructive and displacing megaprojects, can governments, energy developers and communities balance the needs of local populations against the development desires of *neoliberlismo verde*?"[7]. She further underscores critical concerns about international economic investments "that purport[s] to enhance sustainable livelihoods both locally and globally", arguing that these renewable energy initiatives could have the same impact as colonial and corporate extractivism, that is, benefiting "affluent patrons and regions" under the guise of 'clean development' (Howe 2015: 234).

The Latin American experience reveals that, even with progressive governments which have nationalised their energy resources and directed resource profits towards local and national populations, "this kind of development depends upon a matrix of international state and corporate interests [and] are integrated into these models as consumers, financiers and development experts" (Howe 2015: 234). Gudynas (in Howe 2015: 234) says emphatically "whether in service to renewable energy production or more responsible hydrocarbon

[7] A Spanish phrase effectively meaning "green neoliberalism".

redistribution, extractivism, by any name, is development that ultimately depends upon 'the appropriation' and the exploitation of ecological 'resources'". Burke and Stephens (2018: 78) point out that NGOs, social movements, and grassroots and civil society organisations are raising concerns about renewable energy development that seem to be echoing historical conflicts around the development of technologies such as hydroelectric and nuclear power. They say it is critical to address centralised commodity-based energy models together with the "historical inequalities, neoliberal ideologies, alliances with large corporate profit interest, privatisation, market-driven and growth-based approaches and concentrations of political and economic power" (Burke & Stephens 2018: 79).

From this brief literature review, the emerging 'green' energy global financing arrangements raise several concerns. The conditions for investors to de-risk their investments, include implications for government's sovereignty especially in the geopolitical 'global south', access and affordability of electricity and job creation. 'Green' energy 'solutions' and the PPP investment arrangements remain embedded in the productivist growth model, potentially through 'new' forms of financialisation for capital accumulation discussed in the next section.

2.2.2 Green energy financialisation concerns

In an era with a shift in industrial capitalism and accumulation from dispossession (Harvey 2004) to shareholder financialisation capitalism and accumulation by de-risking raises concerns about the implications of 'new' forms of profit-making through financialization. In the climate financing measures an attempt to reduce greenhouse gas emission through emissions' trading has essentially drawn air pollution into the commodity circuit. Questions arise whether the range of reductionist market-based mechanisms primarily focused on reducing carbon will result in actual emission reductions. Moreover, might these market-based mechanisms not be partly 'new' forms of profit-making for corporation at the expense of planetary restoration of the carbon cycle and the energy needs of both humans and non-humans. These financialisation concerns are explored in the literature below.

Lohman (2011a) and Lohman and Hilyard (2014) have raised concerns about how financing models and global climate change policy mechanisms of adaptation and mitigation are

instrumental in the global financialisation of energy. Gabor (2021) points out that in 2013 UNDP consolidated the gap for renewable energy funding by identifying global institutional investors as key sources of financing.

Earlier market-based instruments such as carbon emission trading was introduced in the Kyoto Protocol. These market-based schemes were introduced to encourage industries to shift to more efficient technology to reduce greenhouse gas emissions in the global policy arena. In the popular Anthropocene discourse the idea of emission trading – commonly known as carbon-trading mechanisms - was introduced. The market-based emission-trading scheme permits, and credits are intended to encourage, fossil fuel-intensive industries to reduce their emissions and offset their carbon emissions (Lohman 2006, 2011b; Dalgaard 2013). According to the UNFCCC Secretariat, a core part of the 1997 Kyoto Protocol was that it offered flexibility as to how countries meet their emission targets as compensation for the costs incurred. These market-based instruments offer a "win-win" opportunity for energy transitions that would encourage high-use fossil fuel corporations to reduce their emissions while continuing to make profits (Dalgaard 2013). Under this trading scheme, "the government puts a cap or limit on what each industrial actor is allowed to emit, measured in carbon permits" (Dalgaard 2013: 84). The cap-and-trade mechanism allows companies that exceed their limit to purchase additional carbon credits from those with surplus credits. Economic rationality wholeheartedly supports the role of market-based initiatives, and studies suggest more effective regulatory frameworks from the state are a necessary condition of market-based mechanisms (Pollitt 2012; Fay 2013; Finon 2013). But, as Dalgaard (2013) contends, the primary market-based initiatives to promote low-carbon energy remain a conundrum as industries which buy credits do not reduce their own emissions below the cap. A more fundamental concern for Dalgaard (2013) is whether any "real" carbon reductions or "offsets" actually take place when climate mitigation is dependent on the actions and values of finance traders.

Le Billion and Sommerville (2016) notes that the extractive and agricultural sector are becoming more tightly interlinked through processes of financialisation. These ''modalities, processes and practices of financial economization that have reworked organizations' economic relations, labour and nature in particular geographical contexts and at particular historical conjunctures" are becoming apparent (Le Billion & Sommerville 2016: 213). In the

South African context Baker's (2015b: 148) analysis of the financialisation of the mineral-energy complex and introduction of the structure and finance of REI4P explored how ownership of South Africa's renewable energy sector is likely to "rest increasingly with financial investors as shareholdings become tradable financial assets" As noted by Le Billion and Sommerville (2016) the extractive and agricultural sectors are becoming more tightly interlinked through processes of financialisation. The state creates conditions for favourable investment which could be access to land, guaranteeing of the payments and fiscal measures to reduce the cost of the investments and changes in monetary and fiscal regulation that facilitates capital flows, amongst other instruments.

Le Billion and Sommerville (2016) further emphasise three main processes on making land and the extractive sector investable and they describe the tensions and contradictions emerging from these strategies. The first strategy involves the government marshalling narratives about profit-making returns for financiers and the developmental improvements. They note that "government often misrepresents investments as public revenues and compensation for disruption in local communities" (Le Billion & Sommerville 2016: 220). The second involves reforms at institutional level, "changing regulatory regimes and corporate governance that work to secure investor access", often at the expense of the local populations, and that offer various forms of control of the local elite (ibid.). The third set of processes provides restrictions of "labour and infrastructure enrolment as well as harnessing ancillary resources such as water and energy flows …" (Le Billion & Sommerville 2016: 220).

Baker (2015b: 147) is particularly concerned about the implications of "on-selling" shares given the trends of financialisation in the South African economy. She questions whether on-selling such as "to pension funds, insurance and other institutional investors" will potentially "contribute to trends of capital flight" through financial institutions listed in South Africa but with headquarters abroad (Baker 2015b:155). Baker (2015b) suspects that on-selling will result in a crisis of accumulation and the circulation of excess money in the system as consequence of speculation and the expansion of credit for profit. This study sought to investigate the financial arrangements proposed under the Renewable Energy Independent Power Producer Procurement Programme (REI4P) with the focus on financial arrangements of TCWF, given

that community has ownership shares. The financial concerns and profit-making strategies are analysed in Chapter Six.

2.2.4 Demands for energy democracy and justice

Energy democracy and justice demands have emerged from the concerns that renewable energy transitions will result in significant job loss and that the neoliberal energy markets would have detrimental implications for many marginalised communities facing electricity access and affordability challenges. Some of these demands include bottom-up participations, community ownership, job creation and more inclusive processes discussed in more detail below.

A growing body of literature has arisen to counter this "quick-fix", market-driven and technology-centred approach centred on the capitalist pathology (Lohman 2006; Bond 2012; Klein 2014). The multiple critiques of the UN global climate change-policy apparatus and of the political economy of neoliberal renewable energy transitions accuse it of reinforcing energy injustices (Friends of the Earth 2015; Klein 2014). NGOs, trade unions, social movements and many climate justice activists are making demands for energy democracy and energy justice in response to market-based and growth-driven approaches (Burke& Stephens 2018; Satgar 2018). Burke and Stephens (2018) point out that energy democracy discourse has its roots in various activist communities in Europe and the United States, such as anti-nuclear activism and concerns about the geopolitical instability of fossil fuels. They suggest that energy democracy can be understood as a contemporary expression of decentralised grassroots movements from the 1970s and 1980s which called for direct local action and visions of "technology democracy" (Burke & Stephens 2018: 78). They claim that democratic ownership is needed in which control of large-scale organisation, redistribution and investment requires that government occupies a key role in facilitating planning and owning energy systems (Burke & Stephens 2018). Burke and Stephens (2018: 79) state that advocates of energy democracy "recognise energy systems are inseparable from larger social and economic patterns and relationships and therefore energy democracy require[s] a careful, inclusive and strategic construction of alliances". They note that while energy democracy does not have a specific definition, "it is part of a process of ongoing struggles for economic and political democratization as expressed through the practical project of energy transitions" (Burke & Stephens 2018: 79). The authors posit that social movements working to address climate and economic crises are not only resisting fossil fuel use and the market-driven green economy

agenda but are also advocating for decentralised, democratised and community-based energy futures (Burke & Stephens 2018: 79).

The concept 'just transitions' has emerged as a critical strategy in decarbonisation processes (Stevis & Felli 2015; Galgóczi, 2020). The concept originated from trade unions in the Global North in relation to compensation and social protection as a consequence of the imminent job losses in energy transitions (Sweeney & Treat, 2018; Galgóczi, 2020). Since jobs and the workforce are touted as the biggest 'losers', the just transitions discourse expanded ensuring 'green jobs' embedded in 'win-win' rhetoric for labour and industries (Stevis & Felli 2015). As with energy democracy, just transitions are not homogenously understood. Concerns are emerging about the co-option of just transitions by transnational corporations and hegemonic countries to foster green growth (Stevis & Felli, 2015; Bainton et al. 2021).

In South Africa concerns have emerged that the liberalisation and privatisation of energy markets are likely to hinder just renewable energy transition (NUMSA 2012; Bode 2014; Baker 2015; Satgar 2018). In response to the REI4P, the trade union NUMSA (2012) proposed the need for "socially owned and democratic control of renewable energy". Similarly, Satgar (2018: 64) emphasises the critical importance of building politics around systemic alternatives led from below, so that radical democratic politics can emerge. Satgar (2018: 65) proposes that "a new democratic eco-socialist vision must affirm the web of life as central to anti-ecocidal politics". Satgar (2018: 341) asserts these systemic alternatives are needed for advancement "around food sovereignty, public transport, regulated reductions of carbon emissions, socially owned renewable energy and climate jobs". Like Satgar, Burke and Stephens (2018) emphasise that the politicisation of renewable energy transitions reflects an understanding that the transition from fossil-fuel-dominant systems offers an unprecedented opportunity for distributed energy politics and decentralised renewable transitions. Implicit in their understanding is that new technology presents an opportunity for deeper engagement and "re-imagining the construction of large-scale infrastructural technologies and investments*"* (Burke & Stephens 2018: 79). They argue that in this way, the form of politics about renewable energy can influence the possibility for more democratic futures, which can be achieved "by building alliances and an agenda of inclusivity, equity" and influence amongst communities involved with renewable transitions (Burke & Stephens 2018: 79).

However, Chilvers and Pallet (2018: 1) observe that the many calls for climate justice and energy democracy, especially by NGOs, labour organisations and climate justice advocates, are perhaps ill-defined, as they adopt relatively fixed and pre-determined meanings of both "democracy" and "publics" and attend to aspects of wider energy systems in compartmentalised ways. They point out that "most sources emphasize bottom-up, civic and community-based empowerment, ownership, and/or control over energy production and consumption" (Chilvers & Pallet 2018: 2). They stress that decision-making tools "are based on indicators to judge energy democracy along three dimensions of popular sovereignty, participatory governance and civic ownership" (Chilvers & Pallet 2018: 3). These participatory processes impose a residual realist standpoint, emphasising definitions and normativities of energy democracy to the exclusion of others while prescribing universal, pre-given evaluative principles (Chilvers & Pallet 2018). Collective public action and mass movement attempts to challenge power relations and obligations are locked into demands for community ownership, greater participation of the marginalised, energy sovereignty and the creation of green energy/jobs/policies, amongst other variants of anthropocentrism (Chilvers & Pallet 2018).

Dunlap (2021) is particularly critical of the energy justice and democracy frameworks advanced by the SDG 7 to "ensure modern energy for all", asserting that the environmental justice and "energy justice does not question the trajectory of techno-capitalist development; instead, it works to facilitate the inclusion of people" (Dunlap 2021: 5). Dunlap (2021: 5) argues further that these participatory processes involving indigenous or non-indigenous local communities are largely uninterested in "perspectives outside the dominant culture of modernity, industrial development and universal ideas of human rights". Likewise, the notion of increasing access for renewable energy technology (RET) does not critically interrogate the supply web of wind energy and life cycle (Dunlap 2021; Mejía-Montero et al. 2021). Fortier et al. (in Mejía-Montero et al. 2021: 1) say, "while RET may differ from their fossil fuel counterparts, the systems themselves invariably emerge within the same political and cultural economies". So, communities invariably get locked into the traditional focus of development planning in renewable energy landscapes in the 'techno-capitalist development' paradigm (Pasqualetti 2011, Dunlap 2017, 2021).

The concerns emerging in the literature on energy democracy and justice are relevant for my research inquiry, particularly in terms of the developmental parameters and claims of the REI4P. The REI4P entails commitment for community involvement, ownership, black economic empowerment, job creation and community upliftment.

2.3 Problematising 'green' thought in 'green' energy transitions

With the notion that 'green' energy and 'green' growth in mainstream climate mitigation discourse will address the climate crisis and improve the well-being of people, this section reviews the literature that problematises 'green thought'. It draws mainly on Moore's world history conceptualisation of humans' relationships with nature from the point of view of modernity and the implication for planetary systems. Moore and the scholarly work reviewed provide a foundational perspective on the limitations of 'green throught' in the Anthropocene discourse that are overlooked in the climate change and environmental responses.

Mainstream literature on human impacts on the environment covered aspects of population growth, green economic growth, market incentives for a low carbon economy, 'green' infrastructure and technology to name but a few. Paraphrasing Crist (2016: 15), some of the Anthropocene discourse's chief themes are: population increase projections will increase energy demands; economic growth and consumer culture will remain leading social models so that everyone can be affluent; "a more positive attitude about our prospects on a humanized planet needs to be embraced"; "major technology fixes will likely be needed, including engineering climate and life"; "and the path forward lies in humanity embracing a managerial mindset and active stewardship of Earth's natural systems".

The proposals to address the climate crisis are situated in the normativity of 'green thought' that Moore explains have embraced an environmental perspective that emphasizes the "environmental history *of* social relations (Nature-plus-Society), rather than modernity's social relations *as* producers and products of the web of life" (2015b: 40). Environmental concerns critical of the impacts of capitalism on nature from the perspective of 'green' thought, focus on the consequences of 'nature-as-resource', that sees nature as tap and sink (Moore 2015a, 2014). The advocacy efforts are concerned about what humanity or capitalism does to Nature, thus efforts are focused on planetary management 'solutions' (WCED 1997). Unseen in 'green

thought' is the essence of constitutive social relations rooted in human mastery over nature, in which the value of Cheap Nature (both human and non-human nature) is rendered exploitable and where some humans are 'potentially 'othered' in 'green thought'. Moore (2017: 598) also writes that:

> Green Arithmetic, in other words, offers a Human/Nature binary that can proceed only by converting the living, multi-species connections of humanity-in-nature and the web of life into dead abstractions – abstractions that connect to each other as cascades of consequences rather than constitutive relations.

The constitutive relations from a world history of dominance, violence, alienation, and separation made it possible to launch and sustain the process that "[put] the whole of nature to work for capital" says Moore (2015a: 3). The job of 'science' made nature eligible for capital accumulation and transformed Nature into extractable units, the job of the 'economy 'was to channel this alienation and separation through the cash nexus and the job of the 'state' was to enforce the cash nexus (Moore 2015a). In Moore's words, "it was a world-praxis of remaking the world in the image of capital – or should we say, in accord with the fantasies of capital" Moore (2015a. 3). Critics of Moore have stressed that his analysis of ecological Marxists "green materialism" dialectic, whose critique of the ecological crisis is based on the "alienation of labor and nature and the rift in the social metabolism" is rejected by Moore (Foster and Clark 2016:10). In this way they argue in Moore's broader rejection of anthropocentric ecological science "there is no reason to analyze the interpenetration, interchange, and mediation of nature-society relations" proffered in his one-dimensional perspective as a social-monist thinker (Foster and Clark 2016:10). They stress that way of thinking overlooks the contradiction "between an alienated humanity and alienated nature" and normalizes ecomoderminist ideology (ibid.). Nelson's (2016: online) critique of Moore stressed that despite his proximity to critical scholarship of the Society/Nature dualism, this scholarship remains "conspicuously absent" from his book, *Capitalism in the web of life*. Nelson further points that he struggles to derive his own terminology for 'nature as whole' and while he uses the term "*oikeios*" to describe that historical and dialectical relations are always within human and extra-human natures it is hard to read Moore's reading of "flow of flows".

The environmental-making of the world by the white modernist colonial human (man) has its roots in the fifteenth and sixteenth centuries in Europe when the understanding of the human relationship with the Earth changed from one of a holistic, organic cosmos to a mechanistic and exploitative relationship driven by "progress" (Merchant 1980, Frederici 2018). The end of feudalism in Europe led to internal and external colonialism and the rise of capitalism (Moore 2002). Moore describes three historical processes fundamental to the rise of the capitalism. The first process was human activity transformed into the labour power cash-nexus; in the second, land was conceived of as property; and in the third, a symbolic-knowledge regime was premised on separation – on *alienation* of the fundamental interdependence of everything that exists (Moore 2015a, 2015b). In the seventeenth century there was a sharp decline of atmospheric carbon dioxide (CO_2) (Koch 2019). Planetary transformation that occurred in the "Little Ice Age", a global climatic cooling phenomena, identified as the "Orbis Spike" (Lewis & Maslin 2015 in Davis et al. 2019: 3) has been overlooked in the Anthropocene discourse. Koch et al. (2019) assert that the massive extent of indigenous genocide on the arrival of the Europeans in the Americas led to a decline in carbon dioxide. They "estimate that 55 million indigenous people died following the European conquest of the Americas (beginning in 1492), leading to the abandonment and secondary vegetation succession of 56 million hectares of land" and a "decrease in regenerative human-driven fire techniques" (Koch et al. 2019: 24). Koch et al. (2019) suggest that land use changes in the sixteenth century significantly increased carbon stored on the land resulting in cooling phenomena. Their research concludes that the Colombian Exchange in 1492 contributed to earth system change before the industrial revolution (Koch et al. 2019: 30). During this period the impact was most severely felt in the Northern hemisphere and caused crop failures, chronic food crises and famines around the world (Moore 2002). At that time, the beginnings of the European land enclosures [8] caused a widespread shift from

[8] Land enclosures in Europe were a key element of the agricultural revolution and the beginning of transforming land into landed property. As stated by Nabudere (2011b: 29), "since land (or earth) was not the product of labour, it did not have money 'value'. It was sold or 'rented' by the landlord as landed property to receive annual revenue and became "fictitious capital" and was treated as a pure financial asset which was bought or sold according to the rent and price it yielded". Moore (2002: 312), points out that "Western Europe landlords responded to the agrarian crisis" during the feudal period by "enclosing common lands and shifting from arable to animal husbandry, especially sheep raising". Furthermore, according to Tsing (2012) the class hierarchical order was intensified by agricultural production, by which the nation state secured private property and constructed social class lines between communities, families and even individuals.

subsistence to commodity production (Moore 2002; Nadubere 2011b; Tsing 2012). As Moore puts it (2022: 161),

> Cheapness as world-historical strategy joined imperial power, racism, patriarchy, and accumulation to enable the greatest environment-making revolution since the dawn of settled agriculture some 8,000 years earlier. This environment-making revolution pivoted on the ways that the ruling abstractions of Civilization and Savagery, or what today we call Society and Nature, joined with financialized imperialism to create, and expand the world proletariat, dramatically in the two centuries after 1550.

Modernity's ontology of separation as stated by Patel and Moore (2020: 202) not only "describe and categorize the world but *served practically* to dominate and cheapen the lives of nearly all humans and the rest of nature". Conquest, productivity, and plunder became common sense and commonplace (Patel & Moore 2020). The Society and Nature binary reflects real abstractions that both describe the world and make it, according to Patel and Moore (2020). These abstractions or generalisations are statements of ontology and epistemology, therefore there they are invisible, and their violence is hidden (Patel & Moore 2020). The Anthropocene discourse undermines alternative human relations and 'our' place in nature and the web of life (Shiva 2005; Mignolo 2017; Crist 2016). As stated by Crist (2016: 22),

> *What remains unstated in the trend of reifications that characterise the Anthropocene discourse (projections of rising human numbers, continued economic development, expanding technological projects and incursions, and deepening the biodiversity crisis) is the abdication of freedom that reifying the trends affirm: the freedom of humanity to choose a different way of inhabiting the Earth is tacitly absent.*

A key part of modernity's process privileges substances and matter as things that can be isolated rather than seeing the relationships between substances and matter (Merchant 1980, Cronon 1983; Moore 2015a, 2015b; Escobar 2019; Patel & Moore 2020; Szeman & Wentzel 2021). Cronon's book *Changes in the land* (1983) describes changes to the New England landscape between the 1600s and 1800s, at the time of European settlement. Cronon asserts that on arrival, the colonists saw a land of plenty and sought "merchantable commodities", but "seeing landscapes in terms of commodities meant something else as well: it treated members

of an ecosystem as isolated extractable units" (1983: 21). Mignolo (2011: 3) points out that "modernity is a complex narrative whose point of origin is Europe", this narrative in constructed on "celebrating the achievements of Western civilisation while hiding its darker side, that of coloniality". The concept coloniality was coined by Peruvian sociologist Anibal Quijano (2007), who explains the ongoing nature of human exceptionalism, privileging "whiteness" and Western hegemonic discourse in global power at present (Mignolo 2011a, 2016). The colonial nature of being continues to be "invasive, ongoing and invisible to settler societies" say French et al. (2020: 2). Crist (2026: 18) points out that in the Anthropocene, the "other" (indigenous people, people of colour, women, and nonhuman worlds) has been de facto silenced. The history of modern science embedded in the core notions of rationality and efficiency has rendered 'other' ways of being and knowledge primitive and inferior (De Sousa Santos 2006, Crist 2016).

As mentioned, the TCWF is particularly interesting case study to explore because the wind farm is on reclaimed land that has a history of dispossession and colonisation. These scholars bring a different perspective to the understanding of the nature of the climate crisis beyond the view of reductionist technology fixes and economic rationality in terms of the 'green' growth aspirations which will 'fix' the problem. The literature begins to show that the problem is much deeper than burning of fossil fuels.

2.4 Energy Humanities

The field of Energy Humanities is emerging and enabling critical perspectives of understanding modernity's human relations to energy, beyond utilitarian human-centric perspectives to become clearer. These scholarly works are bringing to the fore fundamental questions about a world dominated by western modernity's views and capitalist extractive relations to energy.

In the Energy Humanities literature, Boyer's critical overview and genealogy of anthropology's engagement with energy begins with first generation and second-generation anthropology energy research. First generation described by White which generally started in the 1940s. White (1943: 343 in Boyer (310-311) theorises that, "Everything in the universe may be described in terms of energy […]. The civilisations and cultures of mankind, also, may be regarded as form or organisation of energy". White alludes to the fact that "humanity constantly develops new sources of energy to satisfy human needs, capabilities, and improvements" (Boyer 2014: 311). Historically, these energy sources were mostly about closed systems, which posed barriers to analysing human societies. Richard Adams (in Boyer 2014

[313]) advocated for a shift to the "holistic study of larger societies" and made a call for "anthropologists to take a more active role in the critical investigation of energy flows". Second-generation of anthropology energy analysis focused on the consequences of the extractive fossil fuel model (particularly coal mining and oil extraction); it drew energy into "wider debates over the rights of indigenous communities, environmental impacts, and resource exploitation, debates that remain central features of the anthropology of energy today" (Boyer 2014: 313). The research was primarily designed to help improve relationships with indigenous peoples, government, and corporations.

Boyer (2014, 2019) notes that third generation anthropology energy analysis offers different perspectives, particularly in terms of the conceptual turn in the humanities that is focused on the "anti-anthropocentric". This puts anthropology in an "awkward position" says Boyer as it has traditionally been highly anthropocentric (2014: 318). He refers to key post-humanist thinkers who challenge human supremacy and mastery over other forms of life – key protagonists include Latour, Haraway, Harman and Morton (Boyer 2014). Boyer is motivated by "the necessity of constituting new worldviews and modes of action appropriate to the recognition of ecological interdependency and inter-responsibility" (Boyer 2014: 319). He alludes to the importance that the anti-anthropocentric turn brings to the humanities. He refers to Morton's, call to "change our view from anthropocentrism to ecocentrism" (Morton 2002 in Boyer 2014: 319-319). In line with this way of thinking, Escobar (2011) refers to Berry's call for a new "ecozoic era" which proposes a radical discontinuity of the humans and non-humans' separation as the basis of critique of modernity. Escobar writes, "along with ideas of separate self and of an economic domain are disembedded from social life, this discontinuity - is at most central to modern ontology (modernity) or worldview" (2011: 138). Ecocentrism is also advocated by Merchant (1985) in the sustainability discourse, through facilitating an understanding of the interrelationship between humans and non-humans in reciprocal ways. This would propose a shift away from the separation in the dominant modernist world view. The multi-species approach suggested by Tsing (2014: 28) extends across disciplines in a way in which "we can learn about how humans and other species come into ways of life through a web of social relations." She suggests an approach to studying human and non-human social worlds by exploring an assemblage and tracing the connections across form, biology, history, connecting the interactions between human and non-humans (Tsing 2012, 2014). Drawing on Tsing's (2014: 40) approach to multi-species and 'more-than-human-sociality' research, she

suggests “we might learn from their “both-and” skills in elaborating on how social relations make up our world”. Szeman and Boyer (2017) advocate energy humanities as a critical response to the climate crisis. They propose “at the heart of energy humanities is a political project unlike any we’ve encountered before; there may have been coal capitalism, and oil capitalism; there cannot be a solar and wind capitalism” (Szeman & Boyer 2017: 7). They (Szeman & Boyer 2017) suggest that a radical sociopolitical revolution is necessary, but questions of what that might look like are central to the ongoing engagement to enhance “our” ability to respond differently to the contemporary global climate crisis.

Interestingly Moore (2014: 289) writes, “Even when our philosophical position regards humans as part of nature, the narrative rules, methodological premises, and theoretical frames of world-historical scholars often remain within the confines of a modernist view of nature as external” (Moore 2014: 289). Moore (2015b) emphasises this because critical scholars undertheorize “how nature matters to capitalism not merely as output, but as constitutive relations” (Moore 2014: 289). Moore (2016b) states that while post-Cartesian thinking beyond human-nature dualism has enjoyed wide acceptance, it remains broadly philosophical, and its analytical and methodological implications are still to be taken up. Even critical scholars such as Harvey (2004) with his sense of neoliberalism, Moore (2014) emphasizes, sees nature largely as an output as opposed to a constitutive relation necessary for the accumulation of capitalism. Nature is simply seen as available “stuff waiting to be sold and used” (Szeman & Wentzel 2021: 509) under the logic of capitalism (and socialism, for that matter). Moore’s proposition is that “it would do well to depart the either/or polemics that have long characterized transition and crisis debates” (2017: 621).

The review energy humanities literature and the eccentric perspectives begins to highlight contentions of ‘green’ energy which is embedded in a way of thinking that sees nature as at an output for human energy needs and economic growth aspirations. History has shown in this way thinking and being there are always ‘winners’ and ‘losers’. Yet the climate mitigation ‘solutions’ offer ‘win-win’ scenario in current green ‘energy’ scenarios. I will return to these critical scholarly theories of the policy claims of the ‘win-win’ climate mitigation discourse and manifestations in South African renewable energy policy approach in the TCWF in chapter seven.

2.5 Conclusion

This chapter highlighted the key debates emerging in renewable energy technology in a way that showed multiple entanglements involved. A focus on land, the material nature of investment agreements, financing concerns and emerging aspects of energy justice and democracy in the context of expanding global capitalist neoliberal strategies was critical for thinking through the conceptual framework and methodology for this study.

In this literature review, several concerns and questions were highlighted about current anthropocentric 'solutions' emerging from green energy transitions. These critical scholars question the nature of renewable energy transitions as a key 'solution' anchored in the eco-modernist green growth trajectory. Concerns are particularly raised about green energy 'developments' that are enmeshed in the matrix of international states and investors and private sector finance interests. These raise questions about the implications for community well-being. Studies on wind energy farms in Mexico have indicated some of the implications for local communities and the emerging land struggles from the green growth aspirations of 'development' finance. Concern about the nature of PPPs and investment conditions have alluded to the diminishing sovereignty and decision-making of the State to implement energy transitions and drive industrial development processes.

The critiques of renewable energy transitions orchestrated through the state and political economy processes in these techno-scientific approaches and financing strategies, have proposed alternatives to ensure energy justice and energy democracy. The utilitarian, human-centred approaches of energy democracy and energy justice are highly critical of the managerial neoliberal capitalists' frameworks and the neo-colonial consequences. However, some scholars have shown that these critiques do not fundamentally question the role of the state, the legal systems, the political economy institutions that entrench the extractive relationships emerging in current renewable energy projects. These critical scholars' question that 'green' energy alternatives are locked into western modernity's anthropocentric actionable worldview and dualist thinking of a Society/Nature binary. Moore (2015b) argues that the anthropocentric worldview of 'green' thought ignores relations of power, profit and re/production that emerged in the sixteenth century, when the essence of constitutive social relations rooted in human mastery over nature was established. As Crist (2016) states, the Anthropocene discourse fails to make space for alternative framings of humanity and the place

of humans and their actions in the web of life. Drawing on this literature, this thesis experiments with methodology and engages with a "both/and" approach through acknowledgement of both human and non-human actors of the wind farm on the reclaimed land of Tsitsikamma Mfengu to the investigate the positivist claims of this wind farm story. The next chapter presents the conceptual framing for a non-dualist approach and its methodology.

Chapter Three: A world-ecology conceptual framing and methodology for tracing the entanglements between the different actors of the wind farm

> *The plantations were built on cheap land and labour; steam engines developed at pitheads of coal mines; the Fordist assembly lines were worthless without cheap oil, steel and coal.*

(Moore 2016: 92)

3.1 Introduction

In the previous chapter, the review of the literature about the limits of an Anthropocentric discourse in which 'humanity' is viewed as a unified geopolitical force acting on planetary systems, is an important starting point for a discussion about the conceptual framework of this thesis. Emerging concerns about the reductionist 'green' techno-scientific orientation widely touted as a way of addressing the climate crisis were prominently foregrounded by leading scholars in the field.

This chapter is preparatory to the research design and methodological approach. Concepts utilised and tools of analysis employed for the data collected arise from a paradigm in which dualist characterisations of society as an entity separate from the web of life/nature are replaced by interconnected and interdependent concepts. Moore (2015b) states that the Anthropocene discourse is embedded in the well-worn dualism that has separated human relations from the web of life into binary conceptions such as 'Civilisation and Savage' and 'Society and Nature'. Moore (2015a, 2015b, 2016) explains that these "binaries" have been integral to the act of putting the whole of nature to work for capital. Patel and Moore (2017) have capitalised the *"S"* and *"N*" in *Society and Nature* to reflect the abstractions that both describe the world and make it. They refer to these abstractions or generalisations as statements of ontology and epistemology. They are invisible, and their violence is hidden in the dualisms is embedded in an ontology of separation, extraction and domination (Mignolo 2013,2017; Haraway 2016; French et al 2020; Ladha & Murphy 2022). Moore (2015b: 3) describes how ontologically, a dualist frame externalises 'Nature' as something to be "coded, quantified and rationalised to service economic growth, social development, or some other higher good. This is capitalism

as a project". Moreover, he argues that dualism of Nature/Society at the core *is* complicit in the violence of modernity (2015b).

Green thought in green energy premises is locked into the Nature/Society binary or separation. Moore (2015b: 19) explains that the construct of Nature/Society is thoroughly modern with the notion that "social relations (humans without nature) can be analysed separately from ecological relations (nature without humans)" and presents an "ontological counterpoint to the real and concrete separation of the direct producers from the means of production" in the web of life. From this perspective productivist relationships with nature, together with modernist scientific practice, are closely bound to the waves of primitive accumulation in the rise of capitalism from modernity's scientific revolutions to capitalism's neoliberal iterations (Moore 2015b). However, Moore stresses the limit if "green thought", is that it is fixated on environmental consequences of what "humanity *does* to nature", constructing an apocalypse and collapse narrative of nature. Consequently, the rhetoric of environmental politics grapples with an "either/or position: sustainability or collapse" (Moore 2015b: 5). An alternative framing posed by Moore "begins with neither 'human' nor 'nature' but with the relations that co-produce manifold configurations of humanity-in-nature, organisms, and environments, life, land, water, and air" (Moore 2015b: 5). He (2015b: 5) continues,

> *'History' in this sense, is the history of 'double internality': humanity-in-nature/nature-in-humanity. (And yes, there is a longer history of earth and all the rest that precedes humans). In this double internality, everything that humans do is already joined with extra-humanity and the web of life: nature as whole that includes humans.*

The challenge for critical scholars and environmentalists is to see how "humanity as a natural force allows new connections between human nature, global power, and production in the web of life" (Moore 2015b: 25). Moore emphasises that this question cannot be answered in the well-worn Cartesian dualist frame because "it constrains our vision of possible contours and deepening contradictions of the century ahead" (2015b: 25).

Drawing on Moore's work that encourages thinking beyond dualism, in this chapter the arguments adduced emphasise the limits of the current conceptualisations of 'green' thought and the 'win-win' rhetoric of 'green' energy in the climate mitigation discourse.

Based on the foregoing literature review I have chosen Moore's world-ecology conceptual framing as a way of thinking about human history and the microcosm of world history as it manifests itself in the TCWF. A world-ecology paradigm frames history as part of, rather than separate from, the web of life and in this way, it is possible to avoid a dualist version of history. A world-ecology approach compels scholars to pay attention to "how relations of power, production, and reproduction work through the web of life" (Patel & Moore 2020: 38). This framing is not a theory but rather a perspective to be adopted with a consequent method. As Moore (2015b: 28) explains,

> *World-ecology is a method of bounding and bundling the human/extra-human/web of life relations - a manifold and multi-layered relation that encompasses everything from the micro-biome to the biosphere. And it is a framework for theorizing manifold forms of the human experience past, present and future.*

I contend there is a need to recalibrate relational energy transitions in response to the climate crisis that embodies an understanding of interconnectedness and interdependency. It is necessary to counter dualistic thinking which posits nature as external, 'something out there' in renewable energy projects.

In order to re-think pervasive dualistic thinking, I propose three premises as foundational and essential to bridging the Nature/Society the divide the in the Anthropocene discourse towards enhancing our ability to respond differently. Firstly an awareness of soil and land history memory and the appropriation of "cheap nature" (both human nature and the natural world) is necessary in the analysis of "green" energy transitions. Secondly, green energy solutions when considered as alternatives to fossil fuel energy continue to mirror social-ecological relations of the extractivist, productivist resource logic. Thirdly in considering renewable energy transitions it is necessary to acknowledge the multiplicity of entanglements between human nature and nature underpinned by the intertwined forces of capital, power, and nature that

created a capitalist world-ecology and conceals more relational values based on alternative framings of the place of humans and their actions in the web of life.

Moore's call (2021:154) for an understanding of the cause of climate crisis is clear when he says it "must be tackled on the terrain of world history". This thesis draws on the concepts used in a world-ecology framing as a method of analysis to trace the entanglements of the different human and non-human actors in the making of the wind farm. Exploring the soil and land history memory is inspired by Barad's thinking (2018) on tracing the erasure of the violence of colonialism in its specific material entanglements through space, time, and matter as an embodied practice of re-membering. I conceptualise a method to show the relations and values that co-produce patterns and relations of power and production within nature (both human and non-human) on the wind farm of the reclaimed land of the Tsitsikamma Mfengu. This is made explicit through surfacing the interconnectedness and interdependencies of human/extra-human/web of life relations in the making of this wind farm.

To gain an understanding of social-ecological relations and values, the stakes and materiality between multiple actors in the wind farm, the research methodology I experimented with were pluralistic literature (including history and science) and multi-disciplinary approaches. A multi-sited ethnography extends the field to include to multiple sites of observation and beyond dichotomies of global and local, public, and private, the "lifeworld" and the "system" (Marcus 1995). The multi-sited ethnography involved engagement and observation in spaces such as Witkleibos (where the wind farm is situated) and other Tsitsikamma Mfengu 'locations' to Kareedouw and Gqerbha (previously Port Elizabeth) to Pretoria – and between multiple spaces and time periods at different levels (Chapter 4). Four categories of actors played a role in the research: (1) the land that hosts the wind farm infrastructure; (2) the amaMfengu community in Witkleibos and the surrounding Mfengu areas, who gave permission for the wind farm to be built on their reclaimed land; (3) the main energy investor actors at the financial and institutional level Cennergi, Exxaro's clean energy company; Watt Energy, the BEE partner; the Tsitsikamma Development Trust (TDT); Eskom; and government departments (across different tiers); and (4) the material nature of the renewable energy policy, REI4P (because without the policy the wind farm could not be built) (Figure 3).

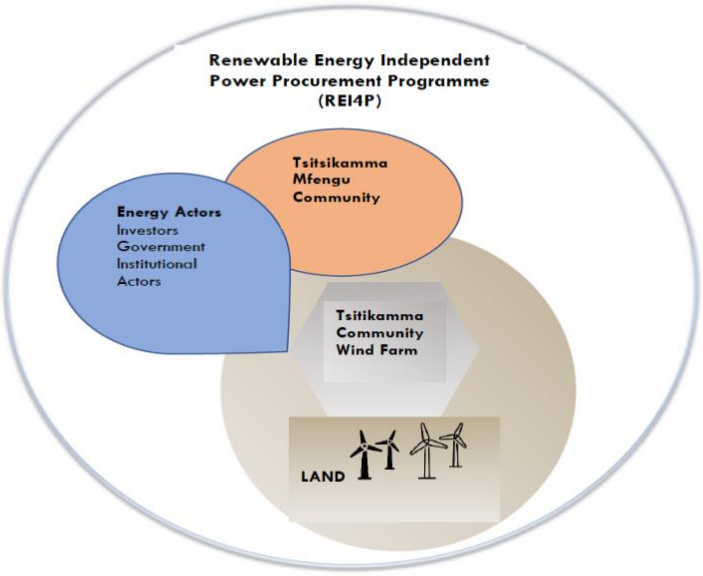


Figure 3: Illustration of actors of the Tsitsikamma Community Wind Farm (by author).

The tools used to analyse the memory of the land that hosts the wind farm enabled an exploration of an ecological historical account of the land and soil. Memory of the soil and land relations were also gathered from narratives in conversation with community members. The green energy solutions considered as alternatives to fossil fuel energy and how the 'win-win' rhetoric of climate mitigation approaches was investigated through conversations and interviews with financial and institutional energy actors. I draw on Moore's understanding and concept of 'Cheap Natures' (explained below) to analyse strategies of capital accumulation through its machinations of neoliberalism in renewable energy projects such as the TCWF. I also draw on Moore's use of the concept *oikeios* [9] that presumes "humanity has always been unified with the rest of nature in a flow of flows" but what changes is their relationship to nature (Moore 2015b: 12).

[9] *Oikeios* is creative, generative, and multi-layered experiences of species and environment. It "names the relations through which humans act — are acted upon by the whole of nature — in our environment-making (Moore 2015b: 4). Moore posits that *oikeios* offers a bridge between a philosophical claim and historical method. He (2015b: 12) states: "The bridge works by inverting the premise of most environmental thought in humanities and the social sciences. Rather than presume humanities' separation, in the recent or distant past, the *oikeios* presumes that humanity has always been unified with the rest of nature in a flow of flows. What changes are the ways that specific aspects of humanity, such as civilisations 'fit' within nature".

In this study, engaging with soil land history, memory through a world-ecology framing is seeking to delve deeper by making visible the violence of the ontolological-politcal assumptions of modernity's rationalist and reductionist thought in renewable energy transitions. Through tracing the entanglements of the different actors of the wind farm across space, time and matter, this analysis should create openings to respond differently to the climate crisis.

3.2 Conceptual framing and methods

3.2.1 Land history memory

Barad (2014) tells us that the past is never finished and cannot be erased and through re-turning to history, memory is a way of tracing erasure. Barad (2018: 213) suggests that "raising questions of history, memory and politics" that are collectively rooted in and invested in particular conceptions of time and being is essential to evoke "possibilities of justice-to-come". She (2018: 223) proposes "travel hopping" as a way to trace erasures. This involves "the embodied labour of cutting through/undoing colonialist thinking in an attempt to come to terms with the unfathomable violence of colonialism in their specific material entanglements". She continues to argue that tracing the entanglements is not linear in its sense of human historical events, instead this approach traces space, time, and matter as phenomena that can reveal differences and patterns in the entanglements through what she terms *spacetimemattering* (Barad 2014, 2018). Barad (2018: 213) writes that "the tracing of entanglements of violent histories of colonialism (with its practices of erasure and avoidance)" is an "integral part of an embodied practice of re-membering" and that it,

> *… is not about going back to what was, but rather about the material reconfiguring of spacetimemattering in ways that attempt to do justice to account for the devastation wrought as well as to produce openings, new possible histories by which time-beings might find ways to endure.*

Moore (2015b: 10) also refers to the importance of "history and theory that informs knowledge of historical-geographical patterns". These may be patterns of large and small space and of different lengths of time. They include patterns of class, race, and gender as well as other patterns that "can be made more sensible through a method that seeks to pinpoint the rules and

patterns of reproducing power and wealth, production and reproduction, in specific historical systems … and specific historical natures…" (2015b:10). Moore (2015b) suggests the concept *oikeios* as a way to understand capital accumulation and transformation of the earth. For Moore (2015b: 10) *oikeios* allows him to name relational processes implicit in geographical thought since the 1970s,

> *The first is that capital incessantly drives towards the 'annihilation of space by time' … The second is Lefebvre's powerful observation that capital not only occupies, but also produces, space … Accumulation crises do not only produce spatial restructuring after the fact; they are in themselves products and producers of spatial configurations whose contradictions have reached a boiling point.*

As I experiment with the concept *oikeios,* the thesis neither starts with 'humans' nor 'nature' but with the history of 'humanity-in-nature/nature-in-humanity'. The particular focus on the space and place of the land and soil of the wind farm shows the relationships that were co-produced and what these relations tell us about present renewable energy transitions.

In this thesis, paying attention to 'spacetimemattering', that is the configuration of matter/materiality in the wind farm, and the forces that reproduced the material-cultural worlds through which human and non-human worlds interact is a critical part of the method of tracing the past erasure and present social relations' specific complexities. Moore (2015b: 11) states that "social relations are spatial relations, relations within the web of life". But while all species "build environments" and are "ecosystem engineers", "some engineers are more powerful than others". The exploration of the land that hosts the wind farm allows a move from modernity's environmental histories to modernity's projects and processes as an 'environment-making process' of human and non-human relationships.

The focus on the 'environment-making process' and patterns of the changes on the land that came to host the wind farm is expanded by the scholarship of land-based learnings (Davies et al 2019; Stryres 2019; French et al. 2020). The pedagogy of *Land* grounded in "spiritually dynamic, organically fluid and [a] relational place" (Styres 2019: 722) is not intended to reflect Western hierarchical categorisation or to negate the integration of Western knowledge but is

informed by how relational practice can be "(re)membered, (re)claimed, (re)constructed and (re)generated within diverse contexts" (Styres 2019: 722) (Chapter 6). Through examining the 'environment-making process' and the social-ecological relations of the land of the wind farm my intention is to illuminate the specific differentiations within world-historical patterns, which Moore (2015b: 12) calls *historical natures.* Moore (2015b: 12) suggests illuminating the patterns and specifics is especially useful even when the topic seems far removed such as dealing with concerns of labour and financialisation in capitalism's neoliberal trajectories. He makes a very important point that "dualism does not allow for specificity in our understanding of social relations" because human differentiation is contrary of *oikeios* presumption of humanities relational reciprocal relationship with the rest of nature (2015b: 12). This brings me to the importance of Moore's analysis of the "rise of capitalism and capital accumulation" through the appropriation of "cheap natures" in the next section.

3.2.2 The appropriation of "cheap natures"

Moore (2017) emphasises that the environmental history of modernity's relations rather than modernity's environmental histories is central to understanding the origins of capitalism and the contemporary crisis. The basis of capital accumulation by appropriation is unpaid work that arises out of the rate of exploitation, but it "depends on the fruits of appropriation derived from Cheap Natures, understood primarily as the "Four Cheaps" of labour-power, food, energy, and raw materials" (Moore 2015a: 10). Moore's use of appropriation offers a useful context for the study that differs slightly from that of Marx [1818-1883] that deployed appropriation with the exploitation of wage-labour. Moore (2015a: 10) explains that appropriation and accumulation is based on "those human and extra-economic processes that identify, secure and channel unpaid work outside the commodity system in the circuit of capital". Patel and Moore (2017) expand this to "seven cheap things": nature, money, work, care, food, energy, and lives. Capitalism as world-ecology intertwined with power, profit, and life, relates to values of domination and appropriation of both human, for example women, slaves, indigenous and black/brown people, and extra-human natures, such as forests, soils, or rivers, for capital accumulation (Moore 2014; 2015a, 2015b, 2016). Thus, appropriating unpaid work of uncommodified human and non-human natures territorially and in symbolic forms into labour productivity and commodity production is underpinned by 'cheapness' and profit accumulation (Moore 2014, 2015a, 2015b, 2016; Patel & Moore 2017).

Moore (2017: 621) writes,

> *The centrality of Cheap Nature in the endless accumulation of capital can, then, be adequately interpreted only through a post-Cartesian frame that understands value as a way of organizing nature. In this, the law of value is co-produced through the web of life. The law of value is a law of Cheap Nature.*

The strategy of cheapness is "a practice, a violence" that exploits human and animal, botanical and geological work with little or no compensation (Moore & Patel 2020: 22).

As Moore puts it (2022: 161),

> *Cheapness as world-historical strategy joined imperial power, racism, patriarchy, and accumulation to enable the greatest environment-making revolution since the dawn of settled agriculture some 8,000 years earlier. This environment-making revolution pivoted on the ways that the ruling abstractions of Civilization and Savagery, or what today we call Society and Nature, joined with financialized imperialism to create and expand the world proletariat, dramatically in the two centuries after 1550.*

Cheap nature is necessary for contemporary capital accumulation by appropriation of unpaid work that arises from the exploitation of nature – of both the natural world and human nature (Moore & Patel 2020). As long as sources of cheap nature and cheap labour (of those historically excluded from humanity) are available, capitalism will appropriate them and crystallise them into value (Moore 2016). In relation to modern energy generation the shift to 'cheap' coal and then oil and gas fundamentally shaped the "energy metabolism" with the rise of so-called civilisation, shaping cities, manufacturing, transport and so forth (Chakrabarty 2008; Mitchell 2009). Chakrabarty (2008: 208) writes that "The mansion of modern freedom stands on the ever-expanding base of fossil-fuel use. Most of our freedoms so far have been energy intensive".

In this context frontier-making has a long history of mechanisation premised on the appropriation and extraction of cheap nature, using a combination of mapping and "productivity and plunder" (Moore 2016). In this thesis the understanding of frontiers is used

in a broader context than settler colonialism frontier-making in terms of appropriating land and expansion. It it draws on Moore's understanding that entails the separation and alienation of the knowledge regime that turned units of Nature into substances for capital and empire (Moore 2015b, 2016). It also applies to Patel and Moore's (2020: 18) understanding that "frontiers are frontiers because they encounter all kinds of nature – humans included. They are always, then, about reducing the cost of doing business". Patel and Moore (2020: 22) suggest that "a frontier is a site where crisis encourages new strategies for profit"; frontiers are important in these processes because they offer new sites where "cheap things can be seized – and the cheap work of humans and other natures can be coerced".

In *Friction*, Tsing (2005: 32) describes a frontier as "an imaginative project capable of moulding both places and process … it is a place of desire … one cannot but explore and exploit it. Frontiers have their own technologies of space and time". She (2005: 33) writes that "the frontier is not a philosophy but rather a series of historically nonlinear leaps and skirmishes that come together to create their intensification and proliferation". Mignolo (2017: 13-14) also foregrounds frontier thinking with Western epistemology because it is territorial, writing that "territorial epistemology presupposes 'the frontier' rather than the border … Territorial epistemology (modern and postmodern) cannot be decolonial; it is an imperial epistemology …". Frontier-making in this context illustrates imperial strategies and tactics in response to the dominant techno-scientific fixes and planetary management which is important in the analysis of the entanglements of the actors in TCWF, specifically in terms of land geographies (Chapter 5).

3.2.3 The machinations of the productivist model: Neoliberalism, capitalisation and financialisation

Late-stage capitalism, when neoliberalism's organisers use 'cheap nature' to revive capital accumulation, happened through strategies of capitalisation and financialisation (Harvey 2004; Moore 2014; 2015b, 2016). Moore (2014) adds that critical scholars such as Harvey see nature largely as an output as opposed to a constitutive relation necessary for the accumulation of capitalism. He writes, "Even when our philosophical position regards humans as part of nature, the narrative rules, methodological premises, and theoretical frames of world-historical scholars often remain within the confines of a modernist view of nature as external" (Moore

2014: 289). This is because critical scholars undertheorize "how nature matters to capitalism not merely as output, but as constitutive relations" (Moore 2014: 289). Moore reminds us that since the early nineteenth century capitalism has been adept at overcoming the actual and potential bottleneck to the rising price of the 'Four Cheap Natures' (labour-power, food, energy, and raw materials).

Moore (2014: 300) points out five dimensions that revived cheap labour through the neoliberal project in 1973. The first was repression of wages due to labour productivity deceleration in the 'Global North'. The second was the "falling rate of profit in the American industry" that Moore writes, was "a tectonic shift in world history that entailed the simultaneous de-industrialization of core zones and the rapid industrialization of the Global South" (Arrighi et al., 2003 in Moore 2014: 300). Third, "the global factory depended upon the great global enclosure" (Arrighi, 2000 in Moore 2014: 300); these "global enclosures, realized through structural adjustment programmes and market liberalization, restructured agrarian class relations worldwide, dispossessing hundreds of millions of peasants worldwide". The fourth is what Moore calls the "femitariat"; this was the doubling of woman workers which "represented an even greater expansion of the female proletariat, adding paid work on top of unpaid work on an unprecedented scale" (Moore 2014: 300). Finally — and crucial to the analysis in this thesis is "cheap labor was made possible through a new regime of "'forced underconsumption'" (Arrighi, 2009 in Moore 2014: 300). According to Moore (2014: 300) "hunger and nutrient deficiencies today affect nearly three billion people" not only from the dispossession of 'global enclosures' but the expanded proletariat simply does not have enough money to purchase food. As noted in South Africa the neoliberalism of electricity took place through narrow forms of privatisation and price related to tariffs dramatically affected mostly black people's access to electricity (McDonald 2009). Moreover, McDonald (2009) points out that technology instruments such as electricity meters triggered "self-imposed" cut offs, simply because the proletariat does not have enough money to pay for electricity but must make choices about paying for food, transport, education and other needs to live.

Moore (2014) postulates that the frontiers which sustained the agricultural revolutions for the last five hundred years have largely vanished. Also, "by 2003, the world-ecological surplus had stopped rising, and began to decline", which signaled the crisis of neoliberalism as a way

of organizing Cheap Nature (Moore 2014: 300). The question posed by Moore now is whether we have exhausted the obvious sources of Cheap Nature (2016: 113). While answering this question is beyond the scope of this thesis, it is my hope that this thesis contributes to a methodology that illuminates the strategies of 'cheapness' and profit-making opportunities under the guise of the 'win-win' rhetoric of the climate mitigation discourse in a way that opens possibilities for different responses towards the production and reproduction of life.

To understand that nature matters to capitalism as a constitutive relation, Moore (2014; 2021) explains Cheap Nature as a triple register that is *economic*, *geocultural* and *political*. From an economic perspective, cheapness is in relation to price, when the 'Four Cheaps' are cheap and abundant, capital accumulation is robust. When the 'Four Cheaps' are not readily available and they become expensive, then a depression ensues and there is a stagnation in capital accumulation (Moore 2014). From a geo-cultural perspective related to the ethical-political, devaluation relates to the cheap lives and labour of women, nature, and colonies (Moore 2021). Sexism and racism are geocultural strategies of devaluation in the interest of driving down labour costs (Moore 2021). Cheap Nature as a political project relates to the creation of markets under capitalism which is secured under political forces of "imperial domination" (Moore (2021: 17)

In the climate mitigation discourse, green energy is advanced as a solution to fossil fuel energy – but green thought is centred on a belief that environmental consequences result from what humanity *does* to nature, rather than human organisation and its relationships in the web of life. Hence, the conceptualisation of Cheap Nature and its triple register as a set of relationships intertwined with capital, power and nature that co-produces the law of values through the web of life is useful. That concept can be used to interrogate the 'win-win' rhetoric in the sustainability and climate mitigation discourse in TCWF beyond a political economic analysis. Working with the world-ecology conceptual framing in this thesis is an attempt to shift away from the either/or polemic and draw on a both/and approach to show how the workings of productivist, extractivist and the resource logic might be embedded in renewable transitions through new and creative forms of financialisation. But this inquiry also develops openings for disruption of the hegemonic discourse at play in the climate crisis that might enhance 'our' ability to respond differently. Pignarre and Stengers (2011: 30) write that capitalism's infernal

alternatives must be named "in a way that allows its type of power to be encountered" so that new and different conceptual languages can become a "material force" (Marx 1970 [1873]: 137 in Moore 2015b: 4). The methodological framework in the next section dicusses the approach in this thesis that might contribute to surfacing how land and memory as 'material force' can allow capitalism's power to be encountered.

3.3 A methodological framework for TCWF as a site of inquiry for tracing history [10], memory and the present entanglements of the actors'

This section contains an explanation of how each of the four categories of the entanglements of different actors in the TCWF were investigated, following the materiality of relations that flows between multiple levels – from the milestone UNFCCC COP gatherings to Pretoria to Kareedouw to Witkleibos and other Tsitsikamma Mfengu areas – and between multiple spaces and time periods at different levels. For ease of explanation, each of the four actors is explained separately, but it is important to keep in mind their interconnectedness and interrelatedness.

As part of tracing the entanglement of different actors I recorded personal narratives and stories through conversations and semi-structured interviews (both one-on-one and group) and collated visual data through photography and the use of photo story. Data were also gathered from historical materials and literature (including secondary archival material, soil science academic papers that reported conducted experiments, wind energy technology infrastructure documents, aerial time-series photos, and newspaper articles). A critical part of my methodology was to return to the community to discuss the findings in a series of co-organised workshops with the members of the community (discussed in chapter 4).

[10] History is interpreted as Moore's double internality: "humanity-in-nature/nature in humanity" where everything humans do is connected to nature and the web of life.

3.3.1 Entanglements of the land that hosts the wind farm infrastructure

A focus on the memory of the land history allowed the tracing of patterns and details to emerge about how the Tsitsikamma Mfengu came to live on the land and the changes in the relationships with land and soil from farming food, then grass for dairy cattle, culminating in farming wind. I analysed archival material and secondary research about the history of the land and how the amaMfengu came to live on the land for the wind farm (Figure 4). My key sources for archival material came from Jannecke's (2005) doctoral dissertation, *Communal identity and historical claims to land in South Africa: The cases of the Clarkson Moravian Mission and the Tsitsikamma Mfengu*, and a book by Young (2016) *Just imagine: The story of Mike Msizi, the Tsikamma Mfengu and the Tsitsikamma Community Wind Farm*.

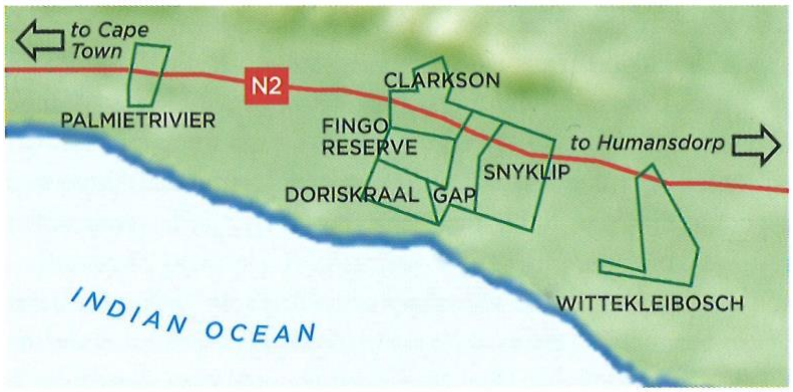


Figure 4: Map of the four settlements of the Tsitsikamma Mfengu. The Fingo Reserve is presently called Ekuphumleni, popularly know as Guava Juice. Wittekleibosch is where the wind farm is located. (Source Young 2016: 135).

The land reclamation of the Tsitsikamma Mfengu was a historical milestone in 1994, a month before the end of apartheid and the beginnings of a change to the so-called democratic state. In my project proposal, my intention was to explore land issues of twenty years past, that is prior to 1994 when Tsitsikamma Mfengu were forcibly removed, to twenty years after they returned. At the beginning of my field work I encountered a tourism-focused project run by the Tsitsikamma Forest Village Trust on the Bloukrans River (the boundary between the Western

and Eastern Cape provinces) (Tsitsikamma area Figure 5) that had a "Khoi-San" cultural centre attached to it.[11]

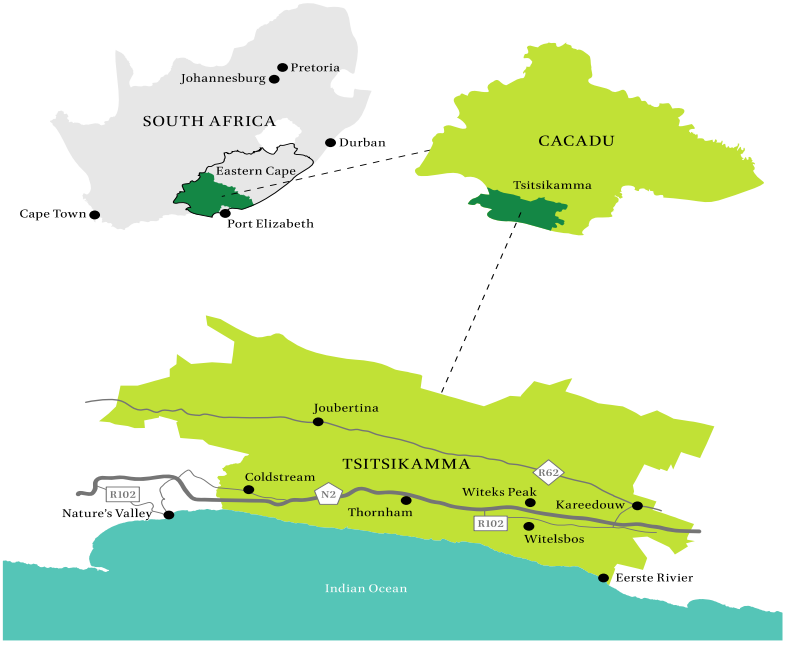


Figure 5: Map of locating the Tsitsikamma geographical area in South Africa (Redrawn for International Development Policy journal: The Lives and Afterlives of Extraction special editon, upcoming chapter. Original Source: Tsitsikamma Travel [online])

This triggered my curiosity about historical changes in the land/landscape that had initially been home to the nomadic Khoekhoe, then the Dutch and British colonists, then the Tsitsikamma Mfengu people and then white South Africans. The land history and memory prompted my immersion into the social relations of soil and land on which the wind farm stands through a process of 're-membering'. I listened to the stories and narratives from the mostly elderly people that reside on the reclaimed Tsitsikamma Mfengu areas about changes to the soil and how people had related to the land before they were forcibly removed. Listening to their stories and narratives of the land embodied the importance of re-membering (Styres 2019).

[11] The Tsitsikamma Forest Village Trust is in disarray as a result of alleged financial fraud by the community leaders appointed to oversee the Trust; the community beneficiaries have taken legal action against these community leaders (Hellman and Derman 2008; Beyers and Fay 2015, 2016 and Jordan 2018).

At the UCT Summer School in 2017, I had a conversation with Michael de Jongh, who had published *A forgotten first people: The southern Cape Hessequa* in 2016. In a map of Cape Khoekhoe distribution in his book, it is apparent that the Hessequa, Gouriqua or Attaqua peoples resided in the Tsitsikamma area prior to colonial occupation, Figure 6 (De Jongh 2016: 26).

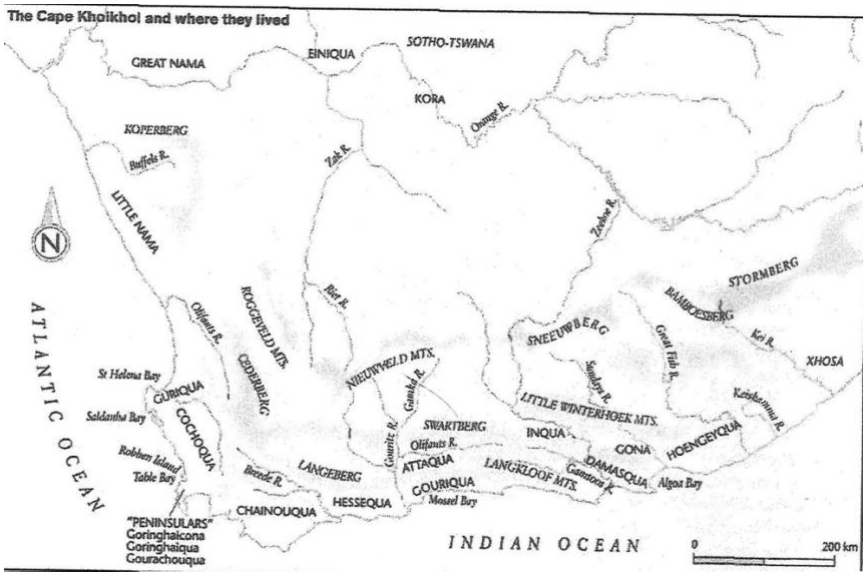


Figure 6: Cape Khoekhoe distribution (Original Source Giliomee & Mbenga 2007:20 in De Jongh 2016: 26).

The Tsitsikamma territory is one of the few places that has maintained its pre-colonial name, being derived from the Khoekhoe reference to *tsau-* or *tsou* (well) plus *kamma* ('water' or 'river') (Raeper 1979: 450) and is translatable as "the sound of plenty sparkling waters" (Morton in Young 2016: 34). The area has many rivers and high rainfall, and water featured prominently in Khoekhoe territory names, as did names derived from plants and animals – all important references to what was needed to sustain their lives (Raeper 1979: 450). Through the process of 'travel hopping', a way to trace erasures of the violence of colonial narratives and their histories that are hidden in the shadows of 'development' and 'progress'' I used a multi-disciplinary approach.

I considered there was a chance that the material reconfiguration of the landscape and soil might produce insights about the nature of the soil that hosts the wind farm and how changes in soil might influence current commercial activities on the land. I researched historical texts about the Tsitsikamma area and its rivers, soil, fauna, and flora and obtained time-series maps

to illustrate changes in the land from the 1950s to the 1980s and from the 2000s to the present. I drew information from ecological studies of soil changes (physical, nutrient, and chemical) caused by agricultural and commercial land use, mostly dairy farming, and forestry. I reviewed recent studies that measured and mapped wind speed that thereby facilitated the establishment of the renewable energy wind farms in the area and of the land as a designated 'energy zone' for renewable energy investments. Exploring the history of the land from an ecological perspective and investigating how people had lived there prior to their displacement offered a sense of their aspirations to farm the land but exposed the downside of returning to the land with its depleted soil.

3.3.2 The entanglements of the amaMfengu community in Witkleibos and the surrounding Mfengu areas

As I listened to community members' narratives, stories, and conversations about their relationship to the land and their hopes and desires I realised that listening offered a way to re-member what had been dismembered (French et al. 2020). The narratives of the community inspired an inquiry about the history of the ecological changes to the Tsitsikamma land, how people lived there before and after the arrival of the settlers, their relationship to the land, and how people's values and aspirations affected land use and the nature of the land.

The oral narratives were broadly an ethnographic enquiry with Tsitsikamma Mfengu community members from Witkleibos, where the wind turbines were erected and the TCWF substation is hosted. Narrators also came from Snykip, Ekuphumleni (popularly called Guava Juice) and Nuweplaas. Most community members, and the families who were displaced from Doriskraal now live in the location, Guava Juice. Some of the Mfengu community also live in a small town called Clarkson, historically a Moravian mission station. The narratives broadly engaged with four themes, the first was a deeper understanding of people's relationship to the land, in which narratives engaged with how they had lived on the land before being displaced in 1977. Questions included: *Did they farm? If so, what did they farm? What were the ecological conditions of the land? Did they have good access to 'resources' such as water, seeds, land, and soil? What type of homes did they live in? How did they cook? What did they use for lighting*? The second theme recalled their experiences of forced removal and living in the 'black homelands' under the Apartheid government. The third theme addressed people's expectations on returning to Tsitsikamma, and the fourth theme addressed community

perspectives and expectations of the wind farm. The conversations happened mostly in isiXhosa through interpretation. Some community members also spoke in Afrikaans and English.

My ethnographical experience provided a sense of what Mignolo (2011b) describes as the dark side of western modernity – the neglected social and political relations that are not visible to the logic of development and progress (see Chapter 4). At the same time, it gave me insight into people's desires, hopes and dreams beyond their current extractivist and accumulative relationship to the land (see Chapter 5) while also revealing their current conflicts and complexities.

3.3.3 Energy-investor actors at the financial and institutional level

Interviews with the energy actors provided political insight into their interest and role in renewable energy in South Africa. In this research, the partnerships, claims and local socioeconomic development commitments described in the renewable energy policy and their implementation in the TCWF are also analysed through the lens of government and investors (Chapter six). Drawing inspiration from Haraway (2014), to begin to make a change we must go into the "belly of the monster" to seek allies in unlikely places and "return to the old in order 'to create the new'". Haraway writes about doing this in a "multiple snakeness"[12] way and of "allow[ing] yourself to stay with the trouble". Having worked at a range of South African NGOs and national government, I had a wide network and experience talking with and listening to people. In engaging with the energy investor and with government, I had to practice deep listening. My contacts in national government assisted me with access to relevant officials. I had Interviews with Cennergi, the key energy investor and Exxaro's clean energy company, at the operating site of the wind farm and with executive staff in Pretoria. In Pretoria I met with national government officials and with Thomas Gardner, the first director of Cennergi, central

[12] During a medicine and conscious dance class in 2015, I drew the "snake" animal card: "The snake has inspired more cults and mysteries than any other animal throughout human history. The snakes manifest divine energy, it is worshipped, feared, respected and adored as god of light and darkness and male and female energy. It is the symbol of pure alchemy and has been attributed with underlying creative power and potential that controls and supports the Earth and cosmos (penetrating and surrounding the planet) the force of chaos and feminine power. It is the energy and protects the energy."

to getting the TCWF off the ground. My interview with Mr Gardner led to opportunities to talk to current Cennergi executives. While it was not possible to meet the current Cennergi executive director in Pretoria, we arranged a telephone interview when I was back in Cape Town. During my second fieldwork visit I had an in-depth interview with the Cennergi Human Resources Manager at the substation. Cennergi prepared a confidentiality letter for me to sign when I was there in December 2016, but I did not sign this as it would have hampered my freedom to present my research. However, as I only intended to use publicly available financial and other information that they were willing to disclose, the confidentially letter was not necessary.

I interviewed members of the TDT, which owns 9% of the TCWF shares. The other black economic empowerment (BEE) partner was Watt Energy (the company created by the late Mike Msizi and his then-partner Mark Scheepers), which owned 16% of the shares, but the company was liquidated after Mr Msizi's death.

3.3.4 Tracing the materiality of the REI4P policy framework

My interviews with officials from National Treasury and the IPP's office offered insights into the logic behind the REI4P model. An initial telephone conversation to set up a face-to-face interview with senior officials from the Department of Energy did not occur, as key officials were not available. I was, however, referred to the country's electricity plan, the Integrated Resource Plan for Electricity (IRP) 2010–2030, which revealed that the country's coal and nuclear targets dwarf its renewable targets. The political decision for the South African government to embark on renewable energy and the neoliberal nature of REI4P is unpacked in Chapter six.

At the national level, the Department of Energy is responsible for implementing and monitoring REI4P projects. National Treasury was also instrumental in the design of REI4P and in setting up the IPP Office. At the provincial level, the Eastern Cape Department of Economic Development and Environmental Affairs (DEDEA) and Department of Rural Development are key. DEDEA was mostly involved in training and facilitating local businesses in procurement procedures and opportunities, so it was not necessary to speak with them beyond my initial contact. At the local level, the Tsitsikamma reclaimed land falls within the KouKamma Municipality in the Eastern Cape, so it was important that I got their insights into the wind

farm. I had face-to-face interviews with the Municipal Manager, the Integrated Planning Development (IDP) Director and the Director of Strategic Development collectively. In Pretoria, I spoke to Independent Power Producer (IPP) officials and officials from National Treasury, who preferred to remain anonymous.

My conversations with national and local government were to determine their views about the adoption of the renewable energy policy in South Africa. The questions explored how political support to mitigate climate change through REI4P might contribute to local well-being and climate mitigation through the policy imperative and how they saw their role in achieving this goal. The analysis on REI4P also included scholarly papers, policy documents, newspaper articles, speeches by the President and other analytical documents.

3.4 Conclusion

This chapter demonstrated why and how the conceptual framing and methodology that leverages Moore's world-ecology approach is a useful analytical tool for this thesis inquiry. The world-ecology concept and method compel the researcher to pay attention to how relations of capital, power and nature work through the web-life as consecutive relations to accumulate capital through the appropriation of 'Cheap Nature'. As proposed by Moore, humanity's organisation that allows new connections between human nature, global power, and production in the web of life cannot be answered from the framework of Cartesian dualism. The Society/Nature binary at the core of modernity's violence is overlooked because of its ontological dominance. The limits of green-thought focus of what 'humanity does to nature' rather than what modernity's relations do to nature. Even critical scholars who regard humans as part of nature, see nature largely as an output as opposed to a constitutive relation necessary for the accumulation of capitalism. Thus, according to Moore (2014) the methodological premises and theoretical frames of world-historical scholars often take a modernist view of nature as external in explanations about implications of neoliberalism in climate crisis.

The development and acceptance of the analytical and methodological implications of understanding the civilisational crisis as a singular crisis with manifold and multi-layered relations with everything from "the micro-biome to the biosphere" (Moore 2015b) is necessary to design a relational energy transitions praxis in response to the climate crisis. The generating

methodologies that embody an understanding of interconnectedness and interdependency (humanity-in-nature/nature-in-humanity) to counter dualisms is required in the diagnosis of the climate crisis and current green energy techno-scientific fix. The philosophical analytical underpinning in this thesis embraces Moore's call that an understanding of the cause of climate crisis "must be tackled on the terrain of world history" (Moore 2021). A world history such as he suggests should trace the waves of primitive accumulation from enclosures to various forms of neoliberal strategies underpinned by the relations and law of values of appropriating 'Cheap Natures' in the analysis of 'green' energy transitions.

In this chapter I have explained my inspirations for methodological and analytical tools to trace the entanglements of the relationships of the different actors in the case of the Tsitsikamma wind farm. As discussed, the approach connects the human/extra-human/web of life relationships to the four elements in the making of the wind farm. The tools to trace the entanglements between human and non-human actors in the making of the wind farm, draws on Barad's conceptualisation of space, time and matter (*spacetimemattering*), but not in the linear sense of human historical events as phenomena that reveal differentiations and patterns in the entanglements of the different actors, both human and non-human (land and soil in this case). The law of value based on the law of 'Cheap Nature' is used to show how strategies of 'cheapness' and 'profit' are a violent practice that mobilises all kinds of work – both human and non-human. The machinations of the productivist model in capitalism, with its relationships to nature, expands on cheap nature underpinned by Moore's triple register, that is economic in relation to the price of cheap nature, geocultural in relation to cheapening life and political in relation to securing hegemonic and imperial power in the analysis chapters.

My conceptual foundations and methodological approach in this case study aim to enhance our thinking and capability to re-imagine and re-story present narratives of renewable transitions. Borrowing from Stengers (in Tachgui 2018: 220), I am optimistic that the analytical and methodological implications of the research approach will activate the power of wonder, which "has a double meaning of wondering and wonder". As Tachgui (2018: 220) writes, "it is the power of wonder that is important … power to cause us to think, feel and wonder" in ways that respond differently to the climate crisis. The next chapter explains the case study, the field work undertaken and the research of the different actors.

Chapter Four: Tsitikamma Community Wind Farm Case study and field work

Figure 7: Witkleibos sign-post on the R102. (Photo by the author, 2015)

4.1 Introduction

In August 2015 I travelled to the Eastern Cape to investigate the feasibility of studying a wind farm there for my PhD study. My first visit was to a site of the Wesley-Ciskei [13] project still in its beginning stages of the construction process at the time of my visit. I met the director of InnoWind [14] who explained that a group of small-scale farmers in the area had approached them to offer their communal land to host a wind farm. We discussed some of the inherent

[13] The renewable energy wind project in Wesley (named after the founder of the Wesleyan Methodist Church, John Wesley), a small location along the R72 in the Amathole Municipal District in the former Ciskei,

[14] InnoWind and Just Energy were the investors. InnoWind, was a renewable energy company linked to the French energy global utility, EDF. Innowind is now called EDF Renewables [South Africa] which comes from the EDF *Energies Nouvelles*, the renewable energy arm of the global utility EDF (online).

challenges of South Africa's renewable policy parameters in terms of the large tracts of land required for wind farms and the administrative obstacles to the use of state land for large-scale renewable energy infrastructures. I then visited the Tsitsikamma Community Wind Farm (TCWF) which was under construction. Earth had been moved, trees and vegetation had been uprooted, and huge trucks and wind turbines were moving in (Figure 7). It was not easy to find Witkleibos, I drove up and down the gravel road alongside the construction (Figure 8). Eventually I saw a slight left turn and drove over the steel cattle grid. I found a rather desolate place with mainly Reconstruction and Development Programme (RDP) [15] houses (Figure 9).

Figure 8: Tsitsikamma Community Wind Farm under construction. (Photo by the author, 2015).

In 2016, following extensive communication with leadership of the Tsitsikamma Development Trust (TDT), organisation, and administration, I drove to Tsitsikamma to start my fieldwork. Working through the community structures was an important protocol. I asked for permission to conduct the ethnographical multi-sited study in this community.

[15] The Reconstruction and Development Programme (RDP) was implemented by the African Nation Congress (ANC) in 1994. RDP houses were cheap houses built from 1994 to 2001 with a government subsidy for some of the millions of South Africans who did not yet have adequate housing.

Figure 9: Entrance to Witkleibos prior to building the windfarm. (Photo by the author, 2015).

This chapter is a discussion of the fieldwork processes and findings from the community and the energy actors involved in the wind farm. Most of the narratives were gathered in 2016. I returned in 2017 to run a series of workshops with the community members to share my initial findings. But more importantly the community engagement was about learning, unlearning, and thinking together (both the community members and I) about the implications and possible openings to build their confidence on engagement of the wind farm. This chapter shows that several paradoxes and contradictions are evident in this community that offered their reclaimed land to host a wind farm. In the chapter are descriptions of some of the motives of the financial and institutional energy actors involved.

4.2 Situating the Case Study: The Tsitsikamma Mfengu community narratives on their land relations and hopes of the wind farm

The oral narratives were broadly an ethnographic enquiry with Tsitsikamma Mfengu community members from Witkleibos, where the wind turbines were erected and the TCWF substation is hosted (Figure 10 and Figure 11). I was assisted by Lifa Mizisi and Lungelwa

Lorraine Kamfer who were unemployed at the time with the isiXhosa translations during the conversations. Lungelwa had been unable to complete her university degree and Lifa had been temporarily employed in the construction of the wind farm. They were both very familiar with people living in Witkleibos and the dynamics of the community. Narrators also came from Snykip, Ekuphumleni (popularly called Guava Juice) and Nuweplaas. Most of the community members who were displaced from Doriskrsaal live in the location Guava Juice. I also spoke to some of the Mfengu community who live in a small town called Clarkson, historically a Moravian mission station.

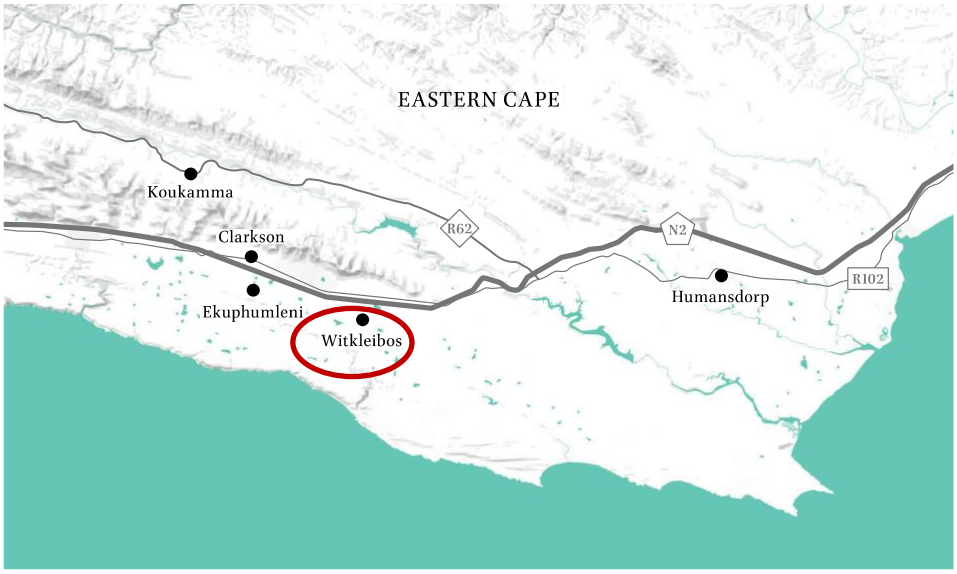


Figure 10: Physical map of part of the south-eastern Cape. Witkleibos is circled in red. (Redrawn for International Development Policy journal: The Lives and Afterlives of Extraction special editon, upcoming chapter. Original Source: Wego.here [online]

Figure 11: Physical location of Witkleibos settlement (in the white circle) surrounded by commercial dairy farms, pine forest plantation and wind turbines (Source: Google Maps: Dowloaded 22 April 2018)

With Lungelwa and Lifa's assistance and presence, community members were open to speak with me, especially those who were closely involved in the wind farm. My ethnographic experience helped me see many sides; the conversations gave me insight into people's memories, desires, concerns, hopes and dreams about their return to this land surrounded by dairy farms and a wind farm. I identified common themes from in-depth, detailed narratives and explanations. Three clusters emerged. These were: (1) Living well with multiple forms of kinship before being displaced in 1977; (2) Returning to a 'location' post 1994 and induced capitalist neoliberal ideologies and (3) 'Inclusive' community participation in the wind farm process.

4.2.1 Living well with multiple forms of kinship before being displaced in 1977

When I asked the Tsitsikamma Mfengu community members how they had lived before they were displaced in 1977, to my surprise the elders reminisced about their previous pastoralist and vegetable-farming activities on their small holdings. They grew a variety of crops, including potatoes, mealies (maize), sweet potatoes, pumpkins and beans, and families had their own cattle, goats, sheep, pigs, and chickens. The narrators described the soil as being full of nutrients and said the "land was fertile". Their stories described living with an abundance of food rather that scarcity and living in harmony with each other and land. Sally Buyiswa, born in Snyklip in 1932, recalled, "*the ground was fertile, and we used cow manure, and the land was very rich, so it was easy to grow vegetables".* They ate healthily and only purchased what they could not grow themselves. As Noble Songongo from Witkleibos explained, "*People were healthy at that time because they were eating healthy food from the gardens, from the fields. The only thing our old people worried about was to buy coffee, sugar, the rest of the crops grew up here. Mielies and beans, we planted those things."* Echoing Mr Songongo, Princess Msizi explained that before 1977, "*People did not have to buy food like they have to buy food now. We were eating food that we planted. We took mielies to Humansdorp to make mielie meal. We enjoyed our life*". Food was mostly produced to feed themselves, but surplus crops were sometimes sold. As mentioned by Monica Msizi (Mike Msizi's mother who was born in Kareedouw and married to Daniel Mulungi Msizi from Wittekleibosch): "*You could sell if you had done well that year, but mostly for own consumption. Everyone was ploughing, we got ploughs, oxen, and we did our ploughing ourselves. There were no tractors, but we did manage to plant … We had everything, vegetables and cattle…".* Mr Gumede from Nuweplaas that was still under the land claim, described in a similar way in Afrikaans. "*Ja ja, ons se groot mense het geplant daai tyd. Kyk die ou mense het geplant, hulle het hulle lande gehand, elk een het sy land wat hy ploeg en hy plant vir hom, en ons ...so het ons kinders groot geraak verstaan jy. So ons het net daai tyd...ons het...hulle diere gehad en al daai soort van goete … "(*"Yes, yes our elderly people planted in that time. Look our old people planted, they use to have land, everyone ploughed their and planted and that is how we grew up do you understand. So in that time we had animals and that sort of things …").

The community had exchange points for crops where surplus crops could be taken. Princess Msizi recalled that they also had food storage places called *idadla;* they would take mealies or samp to a particular *idadla* and take sweet potatoes to another. She said, "*We would not really sell – if someone does not have, we would just give you, and you would know where to go to get food. No one in the community would lack anything because we would know where the place was to get vegetables*. The late Jacob Olifant also mentioned, "*We used to have an exchange at that time. If I had more of that, I would exchange. Maybe I had potatoes and the other one had carrots, then we would do an exchange. We don't sell, we sort of exchange*".

Houses had no running water, and water was accessed from streams and from underground. Their farming was rain-fed. Princess Msizi shared, "*We got water from the streams. If we were many, we would have to sit and wait till the water came up again and would take that water. There was no need to water our crops because there was enough rain, and the land was rich".* Their homes, built from mud, clay and straw and repaired with grass and sticks, were described as big, with many rooms. Sally Buyiswa recalled that "*We had a huge house made with soil, we made bricks for the outside with mud and sticks and cow dung..."*

Cooking was done using wood and/or primus stoves, mostly outside, using firewood and coal to heat the house. For lights they used a *finya futhi* (paraffin lamp). Dorina Njenje who was born in Witkleibos and lived in Gqeberha (previously Port Elizabeth) explained that "We used to collect wood in the forest and make a fire and cook. There were no stoves here, we used to cook." Jacob Olifant remembered that "…*they would make a fire outside and use the coal to keep the house warm, and they would use those lamps with paraffin"*. He noted that he was still using a paraffin lamp because of load shedding.

When I spoke to Mr Duna, the Chairperson of the Witkeibos Dairy Trust, whose father came from Witkleibos, he said that when they returned to the land, they asked the government to allocate one thousand square meters per family, but the government said "*No, it will be too costly*". He illustrated the idea of having neighbours share pipelines and electricity and where the gate could be placed to connect the neighbours. In his words:

> *So people would be having their tomatoes, cabbages, potatoes, whatever in front of the yard, this side also and then the cattle will be left to move to*

perhaps or goats or whatever, here. The people will be… our children will be used to going through this, seeing the garden, seeing what is happening, seeing these beautiful onions in the garden…

Despite not having the convenience of electricity or running water, the narratives emphasised that the wellbeing of the community was far better then, than now. Energy use was closely linked to what was available in the surrounding environment, (though they may not have been conscious that their energy needs and the materials they used to build their houses were more sustainable than using cement). Many had returned in the hope of regaining their smallholdings, plots of 4.5 morgen (3.87 hectares) (Figure 12). Instead, they returned to vacant lands of the commercial dairy farms. They had to become partners in joint-venture with commercial dairy farmers. The Tsitsikamma region was quite isolated before massive transport infrastructures were built, and it became clear that this community had survived together well through co-operation and solidarity in the violence of Apartheid South Africa before their removal to the then Ciskei homeland.

Figure 12: Aerial Photo of Wittekleibosch smallholdings in 1954. (Obtained from DALRRD - National Geo-spatial Information).

4.2.2 Returning to a 'location' and induced into capitalist neoliberal ideologies

The community beneficiaries who returned after apartheid were placed on "vacant" land and not where they or their families had lived and farmed prior to their forced removal. Effectively a "location" (an area "occupied" by black people in South Africa with inferior infrastructure) was created. On the surface, some form of redistributive justice appears to have taken place through the land reclamation process: some of the former white-owned farmhouses are now occupied by Tsitsikamma Mfengu, and 6 000 hectares of land were returned. But on their return, many spoke about their struggles to meet their food, health, electricity, and other needs despite having reclaimed the land and living next to wind turbines that generate revenue and electricity. Also, it became clear that there were conflicts and complexities in the hierarchies in this community, especially between community leadership structures and the community members.

The land beneficiaries were compelled to enter a joint venture with the dairy farmers, who stayed to maintain the commercial dairy farming activities because the returnees did not have the necessary skills to do so. A 50:50 joint venture was established whereby the commercial farm receives 50% of the profit and the other 50% is divided among the community beneficiaries by the Trust. According to a dairy trust member, the payouts are between R3 000 and R5 000 per household per year to elderly residents, depending on the profits accumulated. Monies are given to the elderly, used for improvements in the community and sometimes for food parcels. The joint venture was intended to last for ten years while community members learned how to manage the dairy farms. The joint venture has been in place since the land claim and very few community members have been trained in the operations of the dairy farm. The few dairy farms left continue to rent the land from the TDT.

Those who returned to the land were given small, poorly constructed brick houses built on vacant land on the dairy farms. The TDT built some houses and then applied for a government grant to build RDP houses. The RDP houses are on a fraction of what people lived on before they were displaced, which was almost 4 hectares of land per family (Figure 13). They have no bathrooms, and the toilets are outside pit latrines (Figure 14). People who returned live in hardship. The houses consist of a lounge and kitchenette and two other rooms, some had no

electricity, and some have asbestos roofs without ceiling lining. When the claim went through the land was largely deforested and replaced with monoculture pine forest and pastures for the dairy farms. The soil is degraded making it challenging for people to cultivate their own food crops. They are far from schools, children walk a long distance, and no public transport is available. The access to these locations is challenging with poor quality gravel roads replete with huge potholes (Figure 15).

Figure 13: RDP houses, grass and wind turbines. (Photo by the author, 2016).

Figure 14: RDP houses with water tanks, pit latrine toilets, goats and wind turbines. (Photo by the author, 2016).

Figure 15: Entrance in to Witkleibos after rains. (Photo by the author, 2016).

In a newspaper article, one of the elders Msiboti Magaba, 104 years old at the time said, "*My heart wants to go farming, but my body can't anymore*" (Jordan 2014). Jordan's article emphasises that all Magaba wanted was to "return to his fields once the claim was settled" and be a stock farmer. But because the land of the amaMfengu claim incorporated 15 forestry farms

and 19 privately owned dairy farms (Jordan, 2014), they had rights but no decision-making power over the land (Jannecke 2006). The white farmers have continued operating their large-scale commercial dairy farm intiatives, while the Mfengu community in settlements on the vacant lands are largely dependent on income from social grants and remittances and pay-outs from the joint venture in the form of money or food. Jannecke (2008) also notes that the relatively insecure employment and rights of the farmworkers (Khoekhoe descendants) on the leased dairy farms are overlooked.

The TDT office, which also previously belonged to a white farmer, has no running water inside, so outside toilets have to be used (Figure 16), and the property is strewn with dilapidated infrastructure and disused equipment. The tractors outside the TDT office are no longer in use (Figures 17).

Figure 16: The TDT office and its outside toilet. (Photo by the author, 2017).

Figure 17: Broken tractors outside the TDT office. (Photo by the author, 2017)

One of the major ironies of the land that hosts the wind farm is that the community does not have proper access to electricity. Eskom's centralised grid system meant that REI4P PPPs had to sell their electricity directly to Eskom. The houses which have electricity were only connected in 2008, fourteen years after 1994, when South Africa became a democratic state. This community's connection to the grid came about mostly through intense lobbying with Eskom by the late Mike Msizi. Pre-paid electricity meters were introduced in 2007. This device became very popular with utility managers because they could avoid non-payment problems altogether by forcing households to pay for their electricity in advance. Having enough money to pay for electricity is a huge challenge for many poor households in South Africa (McDonald 2009). The houses on the Tsitsikamma Mfengu's reclaimed land have an electricity meter in the front room with a plug and many leads and wires webbed around the meter (Figure 4.11).

Figure 18: An electricity meter in a house in Snyklip. (Photo by the author, 2016)

A Snyklip resident said she finds it difficult to access electricity because it is too expensive. Though electricity has been provided by the government, the resident said:

> *You can switch it on even if it is with R10, and it finishes, there is not much to it, because the stove and things like that use a lot of electricity. You see, we have these small boxes, and you cannot use the four-plate stove, it uses a lot of electricity, and it also makes the electricity trip, so we use the small ones – well I do, I have the small one and most of the time I can use the gas.*

A community member from Witkleibos added that "Electricity is from the wind farms, but no light in our houses, still in darkness".

4.2.3 'Inclusive' community participation in the wind farm process

The idea of the wind farm brought a great deal of hope to the community, particularly as they had no electricity when many returned post-1994 and electricity is expensive. Mike's legacy remains alive in the community. Mike was very influential in the community; he was a political exile and worked for the South African Trade Union (SATCU) and African National Congress (ANC) office in Copenhagen. When he returned to South Africa, he continued work in politics and became a local government councillor. Together with Mark Scheepers they started the company Watt Energy in which Msizi held 70% shares and Scheepers was the 30% minority

shareholder. To enable the project to move forward the Eastern Cape Community Wind Energy Development Association (ECCWEDA) was formed, with Msizi as the chairperson. When he returned from exile in Denmark in the mid 1990s he pursued the idea and shared his vision of a wind farm with the Tsitsikamma Mfengu. From my conversation with Tony Nonkonyana, who was involved in the early stages of the wind farm in 2008, recalls Msizi excitedly explaining that while he was in exile in Denmark, "*the most outstanding was the wind farms, where electricity was generated through turbines*" and "*how the wind blew his clothing at the Ntaba Kop, his child home in Tsitsikamma*".

The community had to be convinced about the benefits of the wind farm, and concerns were raised about not having access to the land once the wind farm was built. Community members also needed assurances that their cattle would not be affected. They were promised a kraal. The narratives from the community members emphasised that lots of promises were made. They were promised that the wind farms would "*bring solar geysers, build libraries and playing fields for children*." Education was an important aspect, and they were promised improved skills, employment, and jobs. Many said they felt they were genuinely part of the discussions on plans for the wind farm and were kept informed when Msizi was alive. Many meetings were organised by him to consult with the communities. Some community members were even taken to the Darling Wind Farm near Cape Town to see how a renewable energy wind farm works and went to meetings in Johannesburg. Noble Songongo was one of the community members who went to Johannesburg. He recalls,

> *Msizi used to call a lot of meetings here, explain to us what the wind farm is, how it works and what the people will benefit from it and all that. He went as much as to take people from here to Cape Town to these wind farms in Cape Town, so when they came back, they saw all these things up there. He took us now to Johannesburg to get more information about this wind farm. Fortunately, I was one of those that went to Johannesburg. It was the first time in my life travelling by plane, I was so fortunate ….*

Msizi's mother, Monica also mentioned extensive consultations took place, but,

> *There was some resistance from the people, they did not know what the wind farm was all about. But this is community land, people are very concerned about whatever you do. You had to explain yourself, and me and my husband*

> *had to support him very much, going to people trying to explain…He said the wind farm is something that you get naturally and is also a good thing for the area. Plus, the benefit will be if you can sell to Eskom, then you can improve the place you are staying, and he always promised that there will be a fair dispensation … Our kids will be educated and with the money we can build clinics, schools and see that our living conditions improve. And that is what me and my husband had to preach to elderly people, and he was going around trying to inform people about his plan. Eventually people consented to it and so it was a good plan, but unfortunately, he is not here anymore to see.*

Almost, everyone felt that *UMcebisi ebesebenza kakuhle nabantu* ("Mcebisi worked very well with people"). Once the deal was struck some of the community members were unclear about all the implications, particularly about access to the land where the turbines would be built and how they would benefit. Tensions between the residents and the various leadership structures were evident. Confusion about the land arrangement for the wind farm became apparent. One the previous chairperson's of TDT at the time of the wind farm development was accused of indirectly selling the land. He said the agreement was to lease the land to Cennergi and the project would rent the land. Each wind turbine required 20 m^2 and the project has 31 wind turbines. He mentioned in addition that the TDT took out a loan to obtain extra shares, but it was made clear that the land was not to be used for collateral because the land was communally owned.

In 2017, when I returned to organize the workshops on my initial findings, tensions regarding the land rental payments escalated. The Witkleibos community structures, the Witkleibos Development Trust, Witkleibos and the Witkleibos Area Management Committee (WAMC) threatened to stop the operations of the wind farm, because they wanted the land-leasing monies from the wind turbines to go directly to the Witkleibos structures and not via the coffers of the TDT.

One of the community members in Witkleibos where the wind farm is situated, said:

> *We don't have land because we are surrounded by these turbines, you see. Now we have a problem of land to build houses for the people. Or to give sites for the people so that they can build their own houses. So, you see, those things come now, eish... we didn't see this coming. Because we were so excited for the project itself, that it's going to generate money for us and all that.*

It was sometimes difficult to understand the decision-making structures of the Tsistikamma Mfengu and their roles and responsibilities. On the one hand, participatory democratic structures appeared to be in place at the community level. The TDT serve as custodians of the land on behalf of the beneficiaries. Street committees called *lisolomsie* are in place, and each of the four areas has an Area Management Committee (AMC). For example, in Witkleibos it is the WAMC. Land beneficiaries from the community are voted onto these structures, and many prominent community members who live in towns and cities outside of the Tsitsikamma are voted on as well. These structures appear to have a significant degree of autonomy and self-governance. On the other hand, it is clear from my interviews that there are serious problems with how the structures operate and with the undemocratic relations imposed by capitalist productivism with the land.

The community's expectations of the wind farm also ignited broader issues around public services needed besides access to electricity. I learnt that the reclaimed land, although communally owned under the land reform, is demarcated as private farmland. The TDT was responsible for a wider set of services such as water, general maintenance, waste collection, amongst other services. A community member noted that government no longer had a vested interest in helping the community:

> *On a municipality side, first of all the Tsitsikamma itself, it's private land. Now that gives us a problem on the municipality side. You'll know, you'll understand that when we talk of municipality or we talk of government, government doesn't want to play a role where it's not going to benefit anything. Because Tsitsikamma doesn't have services that you have to pay to the municipality, you see… we don't pay rates, water and all those kinds of things.*

Essentially the TDT fulfill the functions of a municipality. But The Trust, AMC and *lisolomsie* community structures do not have the capacity and/or resources to service the areas. Community members say the municipality wants the Trust to come to a financial arrangement with them to "do things", but negotiations and discussions on the topic rarely happen because many trust members live in other parts of the Eastern Cape. Familiar in land restitution literature in South Africa, there is a disjuncture between resources needed manage the land and legal structures, the issue of service provision on privately held restituted land is unresolved and tensions between central planning and these localised structures of restituted land was apparent (Horby et al. 2017; Weinberg 2021). Issues were raised on changing oversight of the land in the four areas from the Trust to Communal Property Associations (CPA). The CPA Act of 28 of 1996, is a model for "group ownership (as an additional or alternative model to individual title)" (Kingwell 2017: 56). The key diffence between trusts and CPAs is that in a trust the land is held by the trust on behalf of others and in a CPA, communities are allowed hold and manage the property themselves (Kingwell 2017; Weinberg 2021).

The Witkleibos Dairy Trust also pays rent to the TDT for land use. These funds are meant to be used for the provision of services, as the reclaimed land is private, and the households do not pay rates to the municipality. The TDT is both steward of the land collectively owned by the Tsitsikamma Mfengu beneficiaries and a shareholder of TCWF. The lack of public services is a major concern for the community, most notably the poor state of the toilets, the need for easy access to clean drinking water and, ironically, the high cost of electricity. Community members did not expect their land to become a location, and they feel that they were "*thrown in the middle of nowhere*" (pers. comm.).

4.3 Partnerships with corporatist private-public model and capitalist philanthropy

The wind farm required substantial financing. When Msizi was seeking finance for the wind farm, initially it was hoped that the finance could be obtained from Denmark. In the project development the Danes were not prepared to take the full financial risk and provide the capital needed to build the wind farm without Eskom as a guaranteed buyer. Exxaro (a South African

large coal and heavy minerals mining corporation) came on board to support the project. They came into the picture by coincidence when the Danish Oil and Natural Gas Energy (DONG), Denmark's power utility, sent representatives to South Africa to look for a partner in carbon credits, and Exxaro had carbon credits to trade. The Danish Embassy introduced Msizi to Thomas Garner who was responsible for energy business development in Exxaro from 2008 to 2012 (Young, 2015). Garner explained in our interview in Pretoria that, "*Exxaro saw at that stage that coal will not be the energy source of the future, there's a low carbon future coming. This whole climate change thing, and we need to get ready for that. So as part of that we looked at energy as a business, to say why don't we go into cleaner energy".* Garner further elaborated that, "[*w*]*e then did a lot of work on, I studied the UNFCCC's whole carbon trading mechanisms, all of those things. And as part of that we started looking at cleaner energy projects".* He explained that they started their first-co-generation projects, producing electricity in combination with useful heat at one their projects, Namaqwasands, a heavy minerals sand smelting business in Langebaan in the Western Cape. They utilized off gas flared from the furnaces in engines to create electricity. He pointed out the results were, "…*more reliable energy. Higher energy efficiency for the business. Lower energy cost, and a lower carbon footprint".* He mentioned that though it was a tough project, they registered it for carbon credits and went through the whole UN process. Garner also explained that they had developed a wind energy project in the Brand se Baai area and a mine that was part of the Namakwa Sands project along the West Coast in the Western Cape. He pointed out that*, "the reason we looked at developing a wind farm there is because we owned the land, it's in the Western Cape, there should be enough wind. And, we put up an 80m measuring mast there and we started measuring and we started as Exxaro to develop this wind farm, did the feasibility study."*

When Garner met with Msizi and his business partner from Watt Energy it was clear that they needed a South African business partner to finance the project. He said, *"…Mike didn't have the capital to build a wind farm… he then put up a 15 meter mast at Witkleibos, started measuring the wind and then they did a small, what they called a pre-feasibility study...we then looked at it and with our knowledge of wind farms, saying guys this could be a great wind farm… I'm a mechanical engineer with a mining background, but I'm also a bit of a philanthropist …"*

Exxaro partnered with Watt Energy (Black Economic Empowerment (BEE) energy company that was formed by Msizi as the major partner and Scheepers the minor partner) as well the Danish consortium. At the time of this partnership (2009), uncertainty prevailed over the future of renewable energy in South Africa, as there were no guarantees that Eskom would buy the electricity generated by the wind farm. In 2009, Mike's dream almost came true through his partnership with the Danish government and several other partners at a signing ceremony in Witkleibos to launch the wind farm project (Figures 19 & 20). The signatories were Exxaro, Watt Energy, DONG, European Energy, Vestas, the Danish Embassy and two financial institutions (Export Credit Agency (EKF), which is Danish, and the Investment Fund for Developing Countries) (Young, 2015: 175).

Figure 19: Community members attending the launch of the TCWF. (Source: Young 2016: 176).

Figure 20: Community member participation in thr making of the wind farm. Photo's taken in the at the TDT office. (Photo by author 2017).

Exxaro agreed to fund the entire project and became the major shareholder of the TCWF, in anticipation that TCWF would sell electricity to the grid in future. Exxaro went ahead and through their subsidiary company Cennergi, took 75% of the shareholding rights of the project, Watt Energy 16% and the Tsitsikamma Development Trust (TDT) 9%. The TDT shareholding was secured through a loan of R45 million. Exxaro took out the loan on behalf of the community because the land required for the wind farm is communally owned and cannot be used for collateral. While there was joint agreement between partners, Gardner remarked, *"we paid for everything".* Exxaro partnered with Tata Power (an Indian corporation) that had experience in wind power, and which set up a 50-50 joint venture in their energy company, Cennergi (Creamer 2012). Vestas Wind Systems, a Danish company was selected as the turbine supplier. In sum, the TCWF stakeholders were initially Msizi's Watt Energy (16%, fulfilling the black ownership commitment), Cennergi (75%) and the Tsitsikamma Development Trust (9%, community and black ownership). In the 16% share initially owned by Watt Energy, the late Msizi held 70%, and 30% was held by his minority partner (see initial structure of TCWF Figure 21).

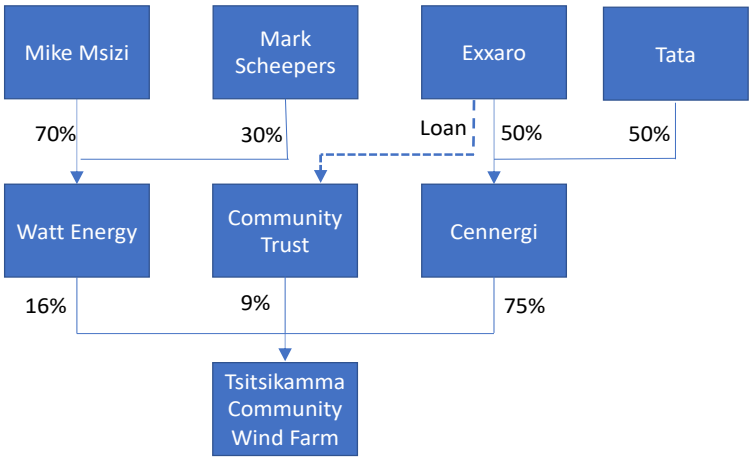


Figure 21: Initial Structure of the Tsitikamma Community Wind Farm. (Original diagram by Neil Horn).

The key element of the publication of the Department of Energy's Integrated Resources Plan (IRP 2010) on 22 October 2010, was that South Africa's energy future would include renewable energy and new energy generation could be delivered through PPPs with Independent Power Producers. All the elements were in place to build the wind farm, and construction began in 2015 (Figure 21).

Figure 22. The Tsitsikamma Community Wind Farm signpost with the logos initial partners. (Photo by the author, 2016).

Exxaro's Garner emphasised that the good part of the TCWF story is that,

> *The Tsitsikamma Development Trust or the landowner has a 9% shareholding ... 2.5% of that 9% is interest free, and the rest is repayable and carries interest. So, we gave all the money, and we acted like a bank, and they must give it back to us over time.*

The 2.5% community ownership is a legally required cost carried by the investor. The loan for the additional 6.5% was R45 million, and the interest on the loan must be paid back before dividends can be distributed to the community shareholders. Exxaro was also willing to put immediate funding into the community. Garner explained to me that Exxaro's chairman's fund was willing to donate about R1.2 million *"so that we can rent a bus so that the children can go to school. Because they had to walk 12 kilometres to school".* Exxaro also renovated the TDT office in Witkleibos, built a crèche and a cattle kraal. Those who were relocated received new houses, which also caused some divisions as these houses were built with bathrooms, geysers, and toilets. In general, most of the community members had felt that allowing the wind farm to be built on the reclaimed land would improve community well-being.

4.4 Extending investor 'development' decision-making in renewable energy zones

During my field work I stayed in the town of Kareedouw, where the Koukamma municipality is situated. I arranged a meeting with the Municipal Manager Mr Nkulhlu at the time and had a group discussion with him, the Integrated Planning Development (IDP) Director and the Director of Strategic Development. The Koukamma municipality recognized that the TCWF created immense economic development opportunities and was optimistic this could be a "successful" project. The Eastern Cape is considered the poorest province in South Africa in terms of per capita income (StatsSA 2019). Many cash-strapped municipalities in the Eastern Cape have welcomed REI4P for its potential local economic "development" opportunities. However, concerns were raised about the IPP's approach to meeting their 'development' commitments. The former KouKamma Municipal Manager pointed out that local government does not have a say in the IPP plans prior to their bids, "… [*f*]*or instance, they come already defined that it would only benefit communities within a 50km radius where the project is. Now for the municipality you can see that this could benefit communities further but whenever you raise this, they refer to the international agreement with government. Then you are seen as tampering with obligations that they have"*. Furthermore, he stressed the potential increase in migration to these wind energy zones, as some communities are left out of the 50km radius. He highlighted the pressure it would put on the municipality to deal with an influx of people. It would affect the water supply and increase the challenges of sanitation and housing.

Moreover, the Koukamma municipality IDP director felt strongly that the IPP's plans should relate to the IDP plan at the levels of principles and practice. These plans are aligned with the national macroeconomic growth prescripts focused on attracting higher investments, improving competitiveness, and expanding production and exports (National Development Plan, 2012: 17). He mentioned, for example, that the agricultural sector is a key economic hub: "*Your dairy, your vegetation, your crop growing and so on. So, their plans as an independent power producers must also speak to that particular area which is agriculture"*.

A wind farm was launched in 2015 at Oyster Bay in a neighbouring municipality in the Eastern Cape, and the Executive Mayor of the Kouga Local Municipality in their newsletter commended the wind farm as being "more than an area with massive turbines pumping energy back into the national grid. It is an integral part of the community where it is located. Through the wind farm, the people of Umzamowethu now have a clinic waiting room facility, as well as extra classrooms and a computer lab at the local school (Kouga Local Municipality 2015).

In my interview with Johan Viljoen, the Human Resources and Social economic development (SED) and local economic development (LED) Manager of Cennergi, it appeared that their proposed plans were in line with Koukamma Municipality. He mentioned that "… *43% of the economic activity in this area is agriculturally based", so their plans are designed around agriculture. The strategy will be based on short-term crops, like tomatoes and cabbage, medium-term crops, like nuts, citrus. Cattle farming and then processing; dairy, or it could be a honey bush factory"*. He also pointed out the importance of partnering with local government: *"In Koukamma, they've got a honey bush strategy as well. We've got our own ideas of the honey bush, so it seems it will make sense for us to work together, for the development of that value chain"*. He alluded to these plans and said they were recommendations and once the development plans had been agreed upon by the community leadership, the community would become involved in the decision-making process and the managing of funds from the profits of the wind farm. *"At this stage through the community structures will be informed about the income benefits"*. Viljoen emphasized that, "*Because job creation is not really a benefit of the wind farms. Income is the benefit*". He added, "… *in terms of the Department of Energy, what they say is that if you focus on everybody simultaneously you will dilute the impact. So the expectations from you are to maybe start with the area closest to your operation, but then prove that in a period of 20 years you will touch the lives of all the people in the 50 km".*

The Coastal Six wind farms are part of neighbouring Kouga municipality. In another part of the Eastern Cape, there are five wind farms known together as the 'Big Five' where Cennergi owns another wind farm. Viljoen, initiated a process towards a consolidated approach with the five other wind farms in the vicinity and Coastal Six because all of them were in similar situations regarding the SED and LED responsibility. Viljoen stressed this was challenging initially as nobody wanted to share information and it took about a year and half to set up an

information exchange process. It was not a not fluid process with the other IPPs: "*Because all six companies, they have different governance systems and they've got overseas shareholders, they come with their own processes. So, it's not that easy …* ". This initiative was communicated to the IPP office to the extent that the IPP office had requested investors to inform them on how the projects cooperate. He gave an example of how things can go wrong in Bedford where there is the group of the Big Five wind farms. All projects are working with the same communities. He mentioned they have maths and science from different sources applied to the same children and the same schools. In his words, "*So, you leave your community rather confused, and exhausted, because I will be doing, afternoon classes, somebody else will be doing Saturday classes*".

The implications of how these projects were to change the material well-being of the "beneficiaries of the community" seemed removed from the IPP officials who are meant to monitor and evaluate the developmental benefits. The IPPs' focus is mainly on the mechanics of spending profits to the advantage of local economic development. The assumptions are the LED and SED will take place in the communities from the percentage of the profits that is invested back into the community. The IPP official said, "*So it's not that complicated … they will operate for 20 years … They take the amount that they commit to – 1.5 to 2%, whatever that is. Then they take the amount they receive and make that available for the community".*

4.5 Widening energy privatisation in South Africa through REI4P

During my interviews with treasury government officials in Pretoria in November 2016, they noted that COP 17 held in Durban, South Africa in 2011 provided a major impetus to establishing the REI4P. The Treasury official said that "*My understanding from the readings I did, it was quite fortuitous timing in terms of the climate change conference happening here in Durban, when COP came-up.*" I asked if there was a trend towards IPPs generating electricity in South Africa. The response was:

> *I would think so, and it comes from the White Paper in 1998.*[16] *It's not a bad thing, and the reason I say that is we have relied heavily on one public utility. Because it is like a monopoly status, the disciplinary mechanisms for them to be efficient was the MYPD [Multiyear Price Determination] process, but it has not really been effective and historically [Eskom] is too big to fail.*

They compared the state of Eskom to the banking crisis in 2008:

> *It is almost like the banking crisis in the States, you have to bail them out because you need them. It is similar in a way with Eskom. Bringing in private providers, it has shown that everything is better – the rate of return and all the risk has been passed on to the private partner, and they are still doing it cheaper than Eskom.*

The official continued: "An advantage of the shift to the IPPs is that you are purchasing the product, which is electricity. While Eskom owns that asset, it is not about ownership of the asset anymore." This shift from state capitalism to neoliberal capitalism ostensibly reduces the state's financial burden to build and maintain large infrastructure, and capital can be sourced through private sector investment. The treasury official also stressed that "Delays in Eskom generation are huge compared to the IPPs – they deliver; they reduce cost." For Treasury, "It is about passing the risk – with Eskom, the risk unfortunately is on us as the fiscus and the taxpayer at the end of the day. If you contract a private provider, the risk is on them."

Eskom is experiencing a huge debt crisis and is struggling to supply electricity to the country, evidenced by frequent load-shedding. New power stations operated by Eskom currently have huge cost overruns and old coal power stations are reaching the end of their operational life, so an important consideration for the South African government is how to pass on the financial risk of generating more electricity. The Medupi and Kusile coal power stations generate power

[16] The White Paper of Energy Policy of the Republic of South Africa, December 1998 (55), states that "Government realises that competitive models and private sector participation hold the promise of benefits for electricity consumers and will therefore be closely following developments in countries implementing these new arrangements."

at a cost of about R1,30 per Kwh, much higher than the cost of renewable energy supplied by private producers, which, according to the Treasury official, comes in at about 82 cents per Kwh. The official also raised the concern that, "*Medupe and Kusile are massively over budget, over time. Now remember, that excess cost is going to be passed on to the electricity users, and over a period if you amplify that, it is going to cost you billions*".

Treasury officials interviewed also emphasised that South Africa must provide attractive terms for investors and put a price cap in place in the electricity purchase agreement. The price came down dramatically from bid window 1 to bid window 4, *"…* [*t*]*he price is now 69c per KhW it was a 67% decline. It was R2 something and coal is ranged at 82c per khW so it is cheaper than coal. And we would not have had this if we didn't take the risk and offer those terms to attract the investor. The thing is because of the policy uncertainty in the country we are not really a prime destination for foreign investment."* (Pers comm. 2016). Interestingly in analysis of the material nature of REI4P (discussed in detail in Chapter Six), South Africa has become prime destination on renewable energy investment projects. In 2017 after my interviews with investors and the the various government official, went back to the community to enagage in my intitial observations and findings.

4.6 Workshops: Remembering ways of living on the land and the visibility of ongoing violence

A feature of my methodology was to return to the community and present my initial thoughts and findings of the community narratives as well as what emerged from the energy investors and government officials. Rather than the researcher organising a workshop to present pre-determined ideas on energy needs, use and concerns in the TCWF, co-organising these sessions with the community members was a collaborative process both in terms of organizing these workshops in the "middle of nowhere" and workshop process. The workshop was a space to learn, think and imagine together about alternative values to renewable energy transitions and how energy transitions can be reimagined and what it might look like (Chapter Seven). The workshops were organized in collaboration with Witkleibos Development Trust (WDT) members who offered administrative, logistical support and the use of its multi-purpose hall for the Witkleibos workshops. Nelly Msizi, the WDT administrator was an exceptional

organiser and was very aware of the dynamics and politics at play in the community. She also assisted with workshops in Guava Juice. As Snyklip is quite remote, we arranged transport for community members to join the Guava Juice workshops, the costs of which were covered by my limited workshop budget. The workshops involved preparing food and cooking and everyone contributing where they could.

Invitations were sent to the Municipal Manager and Cennergi. The municipality did not respond and the Cennergi were addressing the land rental crisis with the community leadership and were not able to participate.

We set up the hall and seated the chairs in a circle, as opposed to seating people in rows. An important part of the engagement was creating a space in which to speak, listen and think together: everyone sat in a circle. The workshop provided an opportunity to voice troubles and concerns about the wind farm processes and promises. Speaking in English, Afrikaans and/or isiXhosa, various issues were explored, including difficulties with access to electricity, living without streetlights, educational challenges and the need for jobs and skills. Key among the concerns were the poor state of the houses and urgent need for infrastructure improvements, particularly toilets. The desire for land that could be farmed and/or for plots on which to grow vegetables was also raised, as was the need for cattle fencing and a footbridge to Cennergi (at the time, the only access to Cennergi was by vehicle across a stream and past a manned security boom). Participants also wanted a better understanding of the benefits of the wind farm. Many of the issues that were raised reinforced the narratives in individual stories.

In the workshop discussions communities from Witkleibos, Guava Juice and Snyklip described the challenges they faced to meet their needs for well-being and dignity. The community had previously experienced ways of living that included food crop exchanges and gifting, purchasing only what could not be cultivated and taking from the land what was needed, but they now required money for almost all their needs. Of critical concern is that they are no longer able to cultivate food on the land. The damaged soil makes it difficult to cultivate food in small food gardens.

In one exercise, participants discussed their values and relation to the land with each other, looking at how they lived with the land and what they had valued before they were displaced, identifying their most important values from the past. This was followed by a discussion of present values and how things had changed since their return, and the participants then elaborated on past and present conditions by writing on Post-its in isiXhosa, English or Afrikaans (Figure 23).

Figure 23: Photo of Post-its from one of the Witkleibos workshops. (Photo by the author, 2017).

From the Witkleibos workshops post-its they said, for example, on remembering the past before they were forcibly removed, that they had lived with joy, eating the food they cultivated. *Sasiphila kamnandi sivuna singalambi, usitya into oyithandayo. Nyama, maqanda ingasokoli* ("*We lived with joy, we used to get food from the garden, and we did not go hungry. Meat, eggs, we did not struggle*"). *Ukulima ngenkomo ("Farming/ploughing with cows").* One participant recalled sharing in the community, "*People were sharing back then, people farmed for themselves, they worked for themselves*". There was a sense of respect especially for the elders, "*Milking cows, underground water, ploughing and respect for the elders"*. "*Wake-up*

early in the morning make food for our parents. We enjoyed that, life was good, people were not starving. We enjoyed ploughing and milking cows". There was a harmony in the community, "*We had no electricity, made fire with wood. We fetched water in the river. Now we drink purified water*". "*Land ownership, schools, churches, ploughing. Live in harmony, respect for each other*".

Some points that were raised at the Guava Juice workshops about the past: *" ... we used to cook with wood, we used to freely plough vegetables, meat from our own animals, we were in our own houses and we had free water from the rivers".* "*Voorheen het ons lekker gebly en ons oupa/ouma se grond was lekker geploeg. Maar nou gras groei meer as groente en ons het kos lekker geoes". ("In the past we lived well, and our grandpa/grandma's ground was well ploughed, and we cultivated food nicely. But now grass is growing more than vegetables").* "In the past were using some woods but now we have electricity". *"Walk long distances to school to town only on month end". "Fetch firewood to cook/keep houses warm." "We used to cook with wood, we used to freely plough vegetables, meat from our own animals, we were in our own houses, water we had free from the rivers". "No electricity, make fire with wood. Fetch water in the river. No purified water". "Samka saya eQoboqobo 1977 sasihleli kamnandi apha emhlabeni ngexesha lengcinezelo sabuya ngo1995 sabekwa apha". ("We left to Qoboqobo in 1977, we lived well here in Mhlabeni during the time of apartheid, and we came back in 1995 and they put us here").* Interestingly these points were similar to the views from the narratives.

In the present many residents described the challenges they faced to meet their needs for well-being and dignity. Many said it now required money for almost all their needs. "*Yonke into ifuna imali engasonelisiyo kubiza imali, izinto ziyenyuka yonke imihla".* ("*Everything needs money that does not fulfil us, everything costs money, things get expensive each and every day*"). "*Ngoku asikaboni nto sibona intlupheko ngoku. Umhlaba uwrongo awuhlumisi, ivege siyayithenga". ("Now we have not experienced anything, we experience poverty. The land is not good, it does not allow for the vegetables to grow, we have to buy*"). Of great concern is that they are no longer able to cultivate food on the land, and while the joint venture established commercial dairy farming, the damaged soil makes it difficult to cultivate plants. "*Ngoku siyalamba kuba asilimi"*. ("*Now we go hungry because we do not farm*"). "*Ngoku asiwaboni*

amakhowa Ngenxa yalemozulu". ("*Now we do not see the mushrooms because of the weather*"). *A "sisalimi nje ngaqala".* ("*We are not farming like before*").

During the initial consultations, the community was promised solar geysers but one of the elder women said, "*Solar geyser would be fine, but we don't have bathrooms*." In the conversation that followed, people described how they heated water to wash themselves, boiling water in a kettle or on an electric or gas stove and washing in plastic baths and/or using a bucket in a common room. Adding a bathroom to the house seemed more important than having solar geysers, and our engagement in the workshop emphasised dignity and the need to address poor sanitation and outside toilets. They also said: "*We moved out of our land, everything changed. We come in no man's land. We have no toilets; we suffer with work and water – we must get at Kouga or Koukamma Municipality*." Although the community has access to electricity, the cost of electricity is high, and they have other financial priorities. "*We cook with electricity but paying. Now we buy our vegetables. Now we have to buy meat*." "*At present we are using money to go to the shops. We are growing grass, not food*."

"*We are growing grass, not food*" sparked my interest in the changes on this land. The workshop was not solution orientated though I was asked to compile some the concerns and themes that emerged from the workshop and send it to the key investors, the TDT and community members. The workshop provided an embodied space to remember what was dismembered and invisible in the in capitalist productivist and neoliberal ideological impositions (Figure 24). The narratives, stories, imaginaries were a moment to remember and reflect on care, kinship, well-being and abundance, even amid the violence of colonialism and Apartheid.

Figure 24: Drawings from some of the participants and how the feel living on the reclaimed land. (Photo by the author, 2017).

4.7 Conclusion

This chapter situated the TWCF geographically and socio-ecologically. It described the narratives of the Tsitsikamma Mfengu community on their relations to the land prior to their removal and expectations of the wind farm. These showed how on returning to their reclaimed land they were coerced by capitalist neoliberal ideologies. They could not return as small-holder farmers but rather became beneficiaries of the commercial dairy farms that had been established after their forced removal and later the wind farm which was constructed. The chapter has shown a struggling community, despite being included in these commercial activities. Even if they had permission to cultivate, the narratives revealed that the soil is degraded, making cultivation difficult. . This chapter also outlined the nature of the public private partnership and philanthropic role played by Exarro through their clean energy company Cennergi in the community. While the TWCF is widely celebrated, the paradoxes in the set up became more apparent through this research. The next chapter focuses on how the soil became degraded, its implications and the emerging paradoxes of soil, land history memory of the wind farm.

Chapter Five: Soil and Land history memory of wind farm in Tsitsikamma

> *The replacement of Indians by predominantly Europeans in New England was as much an ecological as a cultural revolution, and the human side cannot be fully understood until it is embedded in an ecological one. Doing so requires a history, not only of human actors, conflicts, and economies, but ecosystems as well.*

Cronon 1983: 6

5.1 Introduction

The community narratives embodied concerns about the health of the soil and the land on which they once lived with abundance. A significant change in the materiality of the land was that grass is being grown and not food. The surface of the land and soil changes mentioned in the narratives of the interviewees together with the emergence of the pedagogy of land as a relational place (Cronon 1993; Davies et al 2019; Stryres 2019; French et al. 2020) encouraged me to trace the changes in the soil and land on which the wind farm stands. The colonised territories of the Mfengu, their history and their land claim have been substantially researched by scholars such as Mostert (1992), Jannecke (2005, 2006, 2008), Legssick (2010), Peires (2011) and Laban (2020). However, they focus primarily on the human histories of the colonists, wars, racism and violence and the many complexities of the contestations of the historical human institutional actors involved. These studies while critical of the land implications of colonialism and apartheid presume a dualist framing of human history separate from the web of life. Moore's world-ecology conceptualization and Barad's idea of 'travel hopping' to trace the entanglements between human interactions and the land as way of making visible the human and non-human "ghosts" of the past led me to focus elsewhere. Hidden in the shadows of modernity are the ghosts of the past. In this chapter the soil and land history, memory (the material changes to the soil and landscapes through space, time, and matter) is discussed. It does so through the lens of understanding the different human relationships to the land in Tsitsikamma over time and space (See Table 1 for overview of soil and land history,

memory). Through an analysis the changes in the land are traced; from the Tsitikamma as territory that was first inhabited by the Khoekhoe (also referred to as 'Khoi' or 'Khoinkhoin')[17] and who had a more relational connection to the occupied land, then to a site of food farming, then grass farming and most recently a farm for wind. Tracing entanglements in this chapter re-turns to history and the memory of colonial conceptions of land ruled by control and mastery over nature that emerged from an ontology of dominance, separation, violence, and extraction. The organization of land into enclosures and property underpinned by plunder, mastery and capitalist productivity requires an understanding the 'law' of value as way of organizing Cheap Nature for endless capital accumulation (Moore 2015b). In this chapter western colonial conceptions of land are analysed together with examples of indigenous ways and communities' relational ontological praxis.

Table 1: Overview illustrating the Land history memory that hosts the wind farm in Tsitsikamma (compiled by author).

Timeline	**Territory/Occupation**	**Social-Ecological Relations and Values**
Relational values with land		
Pre- 1652/Pre-European Settler-Colonialism	In Tsitsikamma ("the sound of sparkling water) territory of Khoekhoe (also referred to as 'Khoi' or 'Khoinkhoin', linages of the Hessequa, Gouriqua or Attaqua (De Jongh 2016)	Nomadic pastoralists. Land was valued in terms of pasturage, dietary requirements and what could be foraged from the ecosystem (De Jongh 2016:28). Khoekhoe and San's philosophy towards land embodied the understanding that "… the land is not ours; we belong to the land" (Van Wyk 2016:36)

[17] In De Jongh (2016: 3 -5) refers to Bernard who points out "both contemporary Nama and Korana folk use the compound collective term '*Khoenkhoen'* to describe themselves…". He further points out that that construction of Khoisan, although popularly used is an artificial European construction, neither a Khoekhoe (Khoi) nor Bushman (San) word and it is unlikely to translate as 'people that gather food' – thus excluding the herders. In this text I will use the term Khoekhoe and only use Khoisan with reference to work from other writers.

Colonial land occupation and dispossession		
17th & 18th Centuries marks the first wave of settler colonialism in south of Africa by the Dutch	Dutch occupation, colonists appropriated the land inhabited by the Khoekhoe and San peoples. The displacement of the Khoekhoe and San people was legislated first by Dutch property law that treated the land as *terra nullius* (in Latin: empty land) *and* occupied the land (Viljoen et al 2008).	Private property laws Farming monoculture, concentrated on fixed land and required permanent settlements (Cronon 1983). By the time the Dutch and English moved further inland in the 1800s, Khoekhoe and San culture had been decimated by colonial genocide, ecocide and disease (Jannecke 2005; Laban 2020)
18th and 19th centuries mark the second wave of settler Colonialism with the myriad of British Frontier Wars	Following land appropriation, the Dutch, later the British imposed the Caledon Code (1809), effectively legalised land appropriation and formally dispossessed the Khoekhoe and San people access to and use of all land outside of the mission stations (Jannecke 2005) Moving further inland the British colonisers targeted the Xhosa people's territories, expanding the eastern British frontier beyond the Fish River	Expansion for settler colonial extractive commercial activities and land occupation. In Tsitsikamma area's nutrient-rich soil and dense forests encouraged the commercial activities of settler colonists, who cultivated crops and farmed timber (Young 2016).
1806 – 1910 British reoccupies Cape Colony	Frontier wars in Xhosa and Zulu territories results in many displaced, coined by the British as 'Fingo' or Mfengu refugees.	Mfengu's had different categories. There were those who became loyal subjects of the colony and those who remained "wanderers", seeking refuge in other Xhosa groups. British granted appropriated land to Mfengu's that assisted them in Frontier wars.

Land for subsistence food farming		
1837 Land Grant to Tsitsikamma Mfengu	The British granted them land in four areas of Tsitsikamma in 1837. These areas were Snyklip, Doriskraal, Palmiet River and **Wittekleibosch (now "Witkleibos", where the wind farm is situated).** Some Mfengu settled at Moravian Missionery in Clarkson (previously Koksbosch) (Holmes 1994; Jannecke 2008, Young 2016).	Pastoralist-cultivators The local chief had autonomous control over access to land, afforded land use rights (Jannecke 2005) A village organised by "territorial authority through the the clan, the lineage, the household as a collective (Mafeje 2003). Sociopolitical units held together by kinship ties and neighbourliness (Mafeje 2003: 6).
Land for farming grass for dairy farms		
In 1910 the Union of South Africa is formed and in 1913 the Native Land Act is passed In 1931 South Africa becomes a sovereign state and several Apartheid legislations were put in place. This included is 1950 Group Areas Act and 1951 Bantu Authorities Act	Enacts land demarcations where people that were defined as 'native' were prohibited from purchasing land outside the demarcated 'scheduled native areas. Tsitsikamma Mfengu initially is largely unaffected on granted land.	Segregation in land occupation according to race in the whole of South Africa
1961 South Africa becomes a Republic. By 1977 Tsitsikamma Mfengu areas demarcated a 'Black spot'	"Black spots" – were areas/land occupied by black people which the Apartheid government deemed illegal near white areas. The Tsitsikamma Mfengu were forcibly removed, and the land was sold to 19 Dairy farmers	Tsitsikamma Mfengu disentangled once again from the land where they lived land to sustained themselves to a 'homeland' in the Ciskei. The land changes to growing planted pastures for large-cattle and commercial dairy farming

1994 one-month prior elections, Tsitsikamma Mfengu reclaim 6000 hectres of 'their' land	Many Tsitsikamma Mfengu return to reclaimed but under capitalist productivist conditions. Reclaimed areas this includes Witkleibos, and three more Tsitsikamma Mfengu community areas, called Snykip, Doriskraal and Nuweplaas. People that previously lived in Dorsikraal, presently live in a location called Ekuphumleni (popularly called Guava Juice). Some also live in a settlement called Clarkson, which was historically a Moravian Mission Station.	Living in location on the vacant land of dairy farms Obliged to form joint venture with the dairy farmer who choose to stay. No longer Pastoralist-cultivators Land managed by Tsitsikamma Development Trust (TDT) Land beneficiaries offered some remuneration from the dairy farms either in money and/or food.
Land for farming wind		
2009 the community agrees to offers part the land for wind farm and becomes a shareholder in the TCWF	Mfengu's areas become residential locations with Some animal farming & limited crop cultivation.	Live in residential locations on the land with damaged soil in capitalist profit making dairy farms and wind farm. Some animal farming & limited crop cultivation Surrounded by several other wind farms

5.2 From reciprocal and symbiotic to colonial hierarchical, propertied, and commodified land relationships

In this section I explore the soil and land history memory often untold in the story of development and progress. I draw on Cronon (1983: 6) when he says, "The replacement of Indians by predominantly Europeans in New England was as much an ecological as a cultural revolution…". I trace the transformation of the land that was once territory of the Khoekhoe through analysing the different human-land relations over space, time and matter. I pay attention to the matter/materiality of the land on which the farm stands. I show how the forces

that produced the material-cultural worlds through which humans and non-human worlds intra-act might reveal the past erasures and specific complexities of the present social-ecological relations on wind farm.

5.2.1 Differentiation and specifics of human-land relations

The Tsitiskamma was inhabited by the Khoekhoe. In the south of 'Africa' in the seventeenth and eighteenth centuries the first wave of colonists appropriated the land inhabited by the Khoekhoe and San peoples. Their way of living was described as egalitarian ways of being (Jannecke 2005; De Jongh 2016; van Wyk 2016). Mobility was important to their way of life and as nomadic pastoralists, the Khoekhoe moved around with their cattle looking for suitable grazing land and water, and foraged food and herbs from the natural environment, (Jannecke, 2005). De Jongh says that while different Khoekhoe communities had their territories, however "land demarcation was still quite fluid" (2016:28). Land was valued in terms of pasturage, dietary requirements and what could be foraged from the ecosystem (De Jongh 2016:28). "Land was never owned by individuals, or even by the chief, … and thus inalienable, it never could be sold" (De Jongh 2016: 28). Van Wyk suggests (2016) that the Khoekhoe and San's philosophy towards land embodied the understanding that "… the land is not ours, we belong to the land". Moreover, De Jongh explains that the KhoeKhoe way of being was not based on the possession of the land and was organised along the basis on small kin groups (2016: 80).

The settler-colonists arrived in the south of Africa with their Eurocentric relationships to land that transformed land into 'landed-property' (Nabudere 2011). In a different setting when the colonist's arrived in the America's, settler colonists saw a land of plenty and sought "merchantable commodities" from which to extract monetary wealth when they arrived in the 'New World' (Cronon 1983: 21). Interestingly, Cronon points out the English colonists tuned to "fixity" (fixed land settlements) and the 'Indian' "mobility" (fluid settlement) was not only the cause of major conflict but also had far-reaching ecological consequences for diversity, abundance, and stability and for the 'Indians' (Native Americans) way of life. The way settler farmers, cowboys and ranchers in the 'New World' cultivated crops was by mining the nutrients in the soil which had accumulated over thousands of years and "sold the products of transplanted species back to the Old World at cut-prices" says Friedman (2000) in Moore (2015: 247). The settler colonists were particularly accustomed to monocropping and fixed

property (Moore 2015b). This meant that they ploughed the same land over and over, which depleted the soil (Cronon 1983; Moore 2015b).

In the south of Africa, according to Jannecke (2005) and Laban (2020) by the time the Dutch and English moved further inland in the 1800s, Khoekhoe and San culture had been decimated by colonial genocide, ecocide and disease. The displacement of the Khoekhoe and San people was legislated first by Dutch property law, whose cartography treated the land as *terra nullius* (in Latin: *empty land*) and occupied the land (Viljoen et al. 2008). Following the Dutch land appropriation, later the British imposed the Caledon Code (1809), which "effectively legalised land appropriation" and "formally dispossessed them of access to and use of all land outside of the mission stations" (Jannecke 2005: 126). The Khoekhoe could no longer practise their way of being, fundamentally and unalterably affecting how they lived with the land and organised their communities and social life. After the land had been appropriated, many Khoekhoe and San became labourers on colonists' farms to survive, a legacy that has continued into contemporary large-scale commercial agriculture, where many descendants of the Khoekhoe and San work as labourers on their dispossessed territories. By the early nineteenth century, a majority of the surviving dispossessed Khoekhoe and San peoples of the Cape Colony had taken refuge in mission stations (Jannecke 2005). However, Jannecke (2005) stresses the fact that numerous Khoekhoe and San resisted and were not all in the service of colonists – some remained pastoralists and hunter gatherers on remnants of unappropriated land, in kloofs and on the secluded parts of colonial farms.

When the colonists arrived in Tsitsikamma in the early 1800s, the area's rivers, dense forest, mountains, and botanical diversity were of great appeal to them (Young 2016). The Tsitsikamma landscape has two ecosystems. Firstly, the dense indigenous forest of the western part, over the Storms River, which contains diverse hardwood forests, and secondly, the more open, fynbos landscape of the eastern part. The Tsitsikamma area's nutrient-rich soil and dense forests encouraged the commercial wood cutting activities and farming of settler colonists (Young 2016). Young (2016) noted that the "land was well-watered by the Kareedouw and Tsitsikamma mountains, but the soil was not remotely suitable for cattle" (2016: 26). It is noteworthy that the early colonists knew the land was not suitable for large-scale cattle farming. The natural rangeland consisted of diverse natural vegetation and coarse grasses that

had low productivity (slow growth) and low grazing capacity (Swanepoel et al. 2013, 2014, 2015). As herders and pastoralists, the Khoekhoe may have passed through from time to time to water themselves and their cattle, but they were never fixed in one place (De Jongh 2016).

5.2.2 Colonial frontier-making in the Tsitsikamma

In the second wave of colonial expansion in South Africa in the eighteenth and nineteenth centuries, the colonisers targeted the Xhosa people's territories with a myriad of frontier wars, expanding the eastern British frontier beyond the Fish River (Jannecke 2005; Legassick 2010; Peires 2011). Jannecke provides a detailed account of the origin of the amaMfengu in the context of the 1835 Frontier War. Historical accounts of this brief engagement remain contested, but this study elaborates on how the Mfengu came to settle in Tsitsikamma and how their relationship to the territory of this land emerged.

The Mfengus came to live in this territory, which was "given" to them by the British colonial authorities. The Tsitikamma Mfengu's historical occupation of this land is contested and disputed. The colonial understanding of the Mfengu is that they were refugees from the Mfecane carnage in Natal (1815–1840) and they settled among the Gcaleka Xhosa, where they were treated as slaves (Jannecke 2005). The British claim they emancipated a group of Mfengu from the Gcaleka Xhosa: "in short, according to the colonial account, after being 'liberated' from the oppressive Gcaleka, the 'Fingoes' were henceforth considered the subjects of the Queen of Britain" (Jannecke 2005: 142). In this version of history, the "Fingoes" crossed the Kei River and settled in Peddie, just above the Fish River, where the British colonial authorities gave the first land grants to the "Fingoes" (Jannecke 2005: 142). Jannecke points out that the Mfengu were generally "given" land by the British for their support during the 1835 Eastern Cape Frontier War (Jannecke 2005: 145). According to Peires (2011: 57), many of the Mfengu were displaced Xhosa-speaking people, with others coming from KwaZulu-Natal. Many marginalised Xhosa people, dispossessed by British cattle raids and land seizures, were labelled Mfengu or Fingoes by the British. In a revisionist history, Jannecke (2005: 140) explains that the paramount chief, Hintsa Gcaleka Xhosa, refused to support the British forces in their quest to expand the colony beyond the Fish River, which led to a full-scale war that ultimately resulted in the death of Chief Hintsa. Jannecke (2005: 145). asserts that the Mfengu appeared as group intermediaries on the colonial scene in this volatile situation, proving to be loyal and

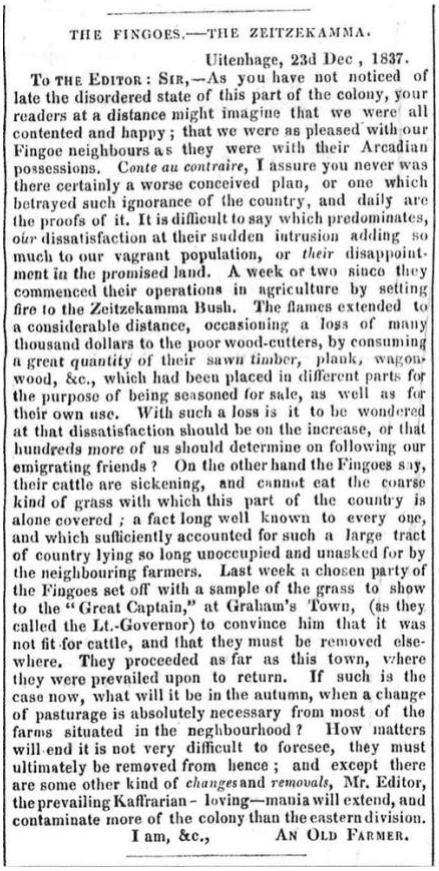
dependable military allies of the colony in subsequent frontier wars. Moreover, the British offer of appropriated land between the Fish River and the Keiskamma River was considered an effective buffer between the colonists and the problematic Xhosa who still resisted British occupation The Mfengu also provided the colonists with servants and farm labour (Jannecke 2005)).

There were different categories of Mfengu: broadly, those who became loyal subjects of the colony and those who remained "wanderers", seeking refuge in other Xhosa groups (Jannecke 2005). But this is a deeply complex and contested history out of the ambit of this thesis. Of particular importance in the Tsitsikamma, however, is that Mfengu headmen appointed by colonial officials received Tsitsikamma land grants from the British colonial authorities for services rendered in the 1835 Frontier War (Jannecke 2008: 200). The Tsitsikamma Mfengu who came from Peddie were not employed in colonial service and did not want to be; instead of having them "wander", the British granted them land in four areas of Tsitsikamma in 1837. These areas were Snyklip, Doriskraal, Palmiet River and Wittekleibosch (now "Witkleibos", where the wind farm is situated) (Figure 25). Some Mfengu settled in Clarkson (previously Koksbosch) but were not given land rights. Through a Deed of Grant in 1841, the British authorities allocated a portion of Clarkson to the Moravian mission, while the remainder of the land was used by the Tsitsikamma Mfengu, who had arrived there before the missionaries (Young 2016).

Figure 25: Map of Historical Mfengu Land (1977). (Source: Fakudze, 2000).

Although some amaMfengu resided in Clarkson, the Mfengu areas were separate from Clarkson. The Moravian mission stations were modelled on nineteenth-century European villages, encouraging trade, artisans, and small-scale farming (Holmes 1994), and "native inhabitants" were encouraged to settle on "unoccupied" land (Holmes 1994). Mission "inhabitants" were "educated" and were encouraged to create livelihoods under Christianity and the missionary way of life (Jannecke 2005). The Moravian project required converts to be disciplined and industrious, cultivating neatly fenced garden plots (Jannecke 2005). Soil fertilisation with manure was important to crop farming before seeds could be sown, and missionary discourse itself was predicated on a seeding metaphor. The missionary approach in Tsitsikamma was to be based on "steadily preparing the soil used for cultivation by first fertilising it" so that "the fruit bear seeds" and can "grow into branches of the vine" (Jannecke 2005:161).

According to Jannecke (2005), despite the Mfengu being established pastoralist-cultivators, the missionaries described the Mfengu as refusing to fertilise the soil and having no regard for the land, allowing it to go barren. The British decision to grant the Tsitsikamma land to the Mfengu did not sit well with the local colonists. In a letter to the *Graham's Town Journal* (*sic*) in 1838 (Figure 26), a colonial farmer lamented that the Mfengu had burnt bush in the Tsitsikamma area for agricultural purposes, causing thousands of dollars (sic) in losses to the wood-cutting industry (Young 2016: 27). Tsitikamma Mfengu continued a pastoralist-cultivators' relationship to the land, food farming and animal husbandry amid the Moravian missionary and colonial antagonism.



THE FINGOES.—THE ZEITZEKAMMA.

Uitenhage, 23d Dec , 1837.

To the Editor: Sir,—As you have not noticed of late the disordered state of this part of the colony, your readers at a distance might imagine that we were all contented and happy; that we were as pleased with our Fingoe neighbours as they were with their Arcadian possessions. *Conte au contraire*, I assure you never was there certainly a worse conceived plan, or one which betrayed such ignorance of the country, and daily are the proofs of it. It is difficult to say which predominates, *our* dissatisfaction at their sudden intrusion adding so much to our vagrant population, or *their* disappointment in the promised land. A week or two since they commenced their operations in agriculture by setting fire to the Zeitzekamma Bush. The flames extended to a considerable distance, occasioning a loss of many thousand dollars to the poor wood-cutters, by consuming a great *quantity* of their sawn *timber*, plank, wagon-wood, &c., which had been placed in different parts for the purpose of being seasoned for sale, as well as for their own use. With such a loss is it to be wondered at that dissatisfaction should be on the increase, or that hundreds more of us should determine on following our emigrating friends? On the other hand the Fingoes say, their cattle are sickening, and cannot eat the coarse kind of grass with which this part of the country is alone covered; a fact long well known to every one, and which sufficiently accounted for such a large tract of country lying so long unoccupied and unasked for by the neighbouring farmers. Last week a chosen party of the Fingoes set off with a sample of the grass to show to the "Great Captain," at Graham's Town, (as they called the Lt.-Governor) to convince him that it was not fit for cattle, and that they must be removed elsewhere. They proceeded as far as this town, where they were prevailed upon to return. If such is the case now, what will it be in the autumn, when a change of pasturage is absolutely necessary from most of the farms situated in the neghbourhood? How matters will end it is not very difficult to foresee, they must ultimately be removed from hence; and except there are some other kind of *changes* and *removals*, Mr. Editor, the prevailing Kaffrarian-loving—mania will extend, and contaminate more of the colony than the eastern division.

I am, &c., An Old Farmer.

Figure 26: Letter to the Graham's Town Journal in 1838. (Original source in Young 2016: 27).

Prior to the colonial settlers' arrival, the amaXhosa were pastoralist cultivators. Some anthropological and sociological scholars have described crop cultivation by the so-called African peasantry in this way. These descriptions mainly consider how colonialism affected crop cultivation and animal husbandry, collaborations with the colonists and crop-sharing arrangements (particularly maize cultivation) (Bundy 1972; Van Onselen 1996; Hammel 2011). What is absent in these scholarly works, however, are any detailed descriptions of the amaXhosa's relational ecological knowledge in the lived environment. While I provide some examples of the amaXhosa cultivation approach here, the relational values of indigenous cosmologies are explored in Chapter Seven. These examples provide some the specifics that were different to settler colonial practices. For example, when maize made its initial appearance in southern African farms and gardens, it was not "as a protagonist, but as part of a supporting cast that fit into seasonal cycles or specific soil niches between the older staple crops, or alongside other New World émigrés such as cassava, beans, or pumpkins" in African cultivation explains McCann (2001: 255). In *Braiding sweetgrass: Indigenous wisdom,*

scientific knowledge and the teachings of plants, Kimmerer explains the indigenous planting process of the "Three Sisters" – corn, beans and squash – and how they grow collaboratively. As legumes, the beans have roots with nodules that facilitate nitrogen fixation. Kimmerer (2013: 127) continues, "These glistening nodules house the Rhizobium bacteria, the nitrogen fixers. [18] Rhizobium can only convert nitrogen under a special set of circumstances". Traditional Three Sisters gardens flourished without insecticides, and "polycultures – fields with many species of plants – are less susceptible to pest outbreaks than monocultures" (Kimmerer 2013: 131). Planting Three Sisters crops was also practised by the amaXhosa and many other African cultures to cultivate maize as a staple food. Various traditions were practised in the cultivation of their crops. Hammel notes that Xhosa women burnt and ground bones to plant with oats to produce a much better, softer crop (2011: 41).

Herds of cattle, goats and sheep grazed on indigenous plants rather than on cultivated pastures on fixed areas of land. In *Shaping natural history and settler society*, Hammel (2011: 44) points out that the British colonist Barbers observed that ostriches and the sheep, goats and cattle of the African inhabitants grazed on *Stapelias*, a genus of low-growing, spineless succulent plant found predominantly in South Africa (SANBI online). Domestic sheep and goats along the Tarka River, one of the sources of the Great Fish River, were observed eating *Lessertia flexuosa* (from the family *Leguminosae-papilionoideae*) (Hammel 2011: 44).

So, independent of the Moravian mission's agricultural influence and the colonists at large, the amaMfengu's crops and animals flourished on the land granted to them by British authorities. The Mfengu cultivated crops on the soils of Snyklip, Doriskraal and Wittekleibosch and were considered by the British to be quite adaptable and industrious (Young 2016). One surprised missionary recorded that, "At Wittekleibosch there were large fields of wheat and maize that were doing well … Some of these natives are rich, possessing 40–60 heads of cattle, 3–4 000 sheep and goats …" (Young in Jannecke 2005: 217-218). These historical accounts resonate

[18] Plants acquire nitrogen, mainly in the form of nitrates that are produced in the soil by bacteria that oxidize ammonium. Nitrogen fixation an energy intensive process for the bacteria, which is mostly found in soil rich in organic material. Leguminous plants such as peas and beans have roots with nodules composed of in-built nitrogen fixing bacteria and have symbiotic relationships, the bacteria provide the legume with fixed nitrogen and the legume provides the bacteria with fixed carbohydrates. Symbiotic nitrogen is also way of improving the protein yield of crops (Campbell 1990: 730-732).

with the narratives from my fieldwork that described living with an abundance of food and harmony with each other and the land. It also resonates with Kimmerer's (2013: 140) relational understanding of cultivation, when she says, "soil and plants will not meet their responsibility to feed and nourish us unless we meet ours". Kimmerer (2013: 140) notes that the "corn, beans and squash are fully domesticated; they rely on us to create the conditions under which the grow".

Following primarily traditional pastoral cultivating practices, the amaMfengu community co-existed alongside the burgeoning economic activity of the colonists, in which forestry, monocrop cultivation, cattle and wool were central (Young 2016). The amaMfengu community was isolated for years during the apartheid era by the steep kloofs that carry the rivers of the Tsitsikamma region to the sea. The construction of new bridges, roads and railway lines fostering connectivity ironically played a role in exposing this community to apartheid (Young 2016). The amaMfengu lived on this land as a self-reliant and self-sufficient community until they were forcibly removed in 1977, when the area they lived in was considered a "Black spot" by the apartheid government (SA History online) (Figure 27).[19]

They were moved to Keiskammahoek (over 400 km away, in the Ciskei homeland). In a newspaper article, the removal was described as the "Mfengu land grab", in which 4 000 inhabitants were forcibly moved from the land stretching over the Tsitsikamma "to a remote section of drought-savaged Ciskei territory 450 km away", where conditions for agriculture were harsh and it was difficult to establish the crop cultivation systems they had once practised (Barkhuizen 1994: 79). Like colonisation the apartheid government benefitted from 'cheap land' appropriating land almost without cost to advance industrial agriculture (Nabudere 2011).

[19] "Black spots" – were areas/land occupied by black people which the Apartheid government deemed illegal near white areas (South Africa History online)

Figure 27: Aerial Photo of Wittkleibosch in 1961. (Obtained from DALRRD - National Geo-spatial Information).

5.3 Changes in Tsitsikamma landscape and soil memory

This section shows how human mastery over the land has far-reaching ecological implications. With the use of inter-disciplinary, world-history, and soil science literature as well as aerial maps and photo stories, I make visible the hidden changes of the land. This begins to reveal the oversights of reductionist thinking in climate mitigation.

5.3.1 Growing planted pastures for commercial dairy farming

After the Tsitsikamma Mfengu were forcibly removed, the apartheid government sold this land to white dairy farmers, and 19 dairy farms were established (Figure 28) Archival notes show that the compensation paid to the amaMfengu for their lost crops and the death or forced sale

of their cattle was minimal.[20] Because the natural rangeland in the southern Cape region (consisting of diverse natural vegetation) was neither 'productive' (due to slow growth) nor good for grazing, it was replaced with non-endemic grasses (Swanepoel et al. 2013, 2014, 2015).

Figure 28: Aerial Photo of Wittkleibosch in 1980. (Obtained from DALRRD - National Geo-spatial Information).

The introduction of the non-endemic grasses supplanted vegetable production to support the Jersey and/or Friesland dairy production, which became the most important agricultural activity in the area (Swanepoel et al. 2014) (Figures 29 & 30).

[20] South African History online archive. Edited notes about the forced removal of the Mfengu people from the Tsitsikama/Humansdorp District to Keiskammahoek in the Ciskei in 1977 (South Africa History 1977).

Figure 29: Aerial Photo of Wittkleibosch in 2000. (Obtained from DALRRD - National Geo-spatial Information).

Figure 30: Cows from the dairy farms. (Photo by the author, 2017).

Although the land was not suitable for herds of cattle on a commercial scale, the farmers planted kikuyu *(Pennisetum clandistinium)* and ryegrass *(Lollium spp)*.[21] The land that was initially home to the Khoekhoe, colonised by the Dutch and British and then granted by the British to the Tsitskamma Mfengu is now covered in non-indigenous grass. Swanepoel et al. (2013) examined the physical quality of the podzolic (sandy) soil where the natural rangeland had been replaced with irrigated, minimum-till kikuyu-ryegrass pastures. A study of the soil quality was conducted in the southern coastal region, from Stormsvlei in the Western Cape to Van Stadens River in the Eastern Cape (see Fig. 5.6) (Swanepoel et al. 2014). This region is bordered by the Tsitsikamma, Outeniqua and Langeberg Mountain ranges to the north and by the Indian Ocean to the south (Swanepoel et al. 2014, 2015). The soil quality, in the planted pastures was compared to "virgin" soil in the Outeniqua.

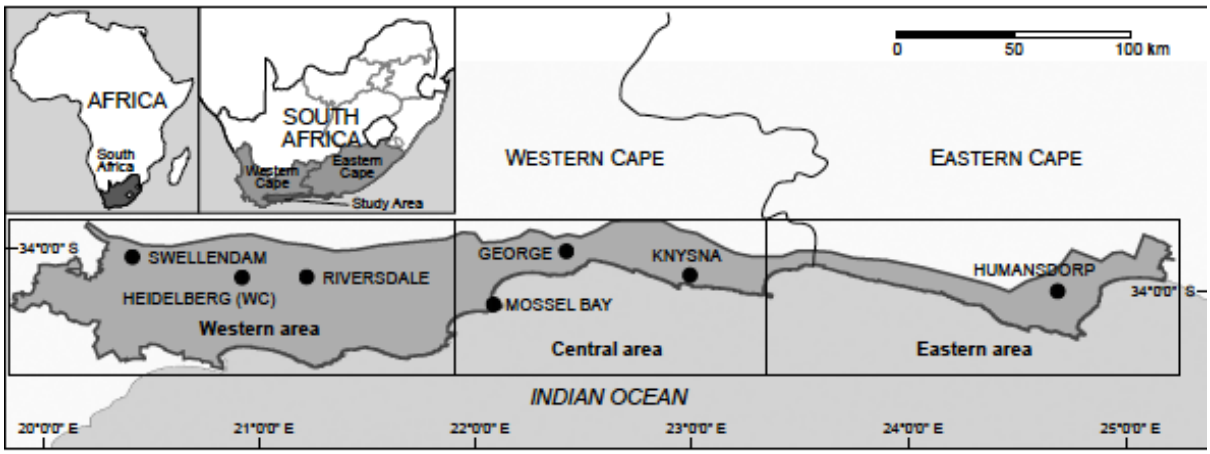


Figure 31: The southern Cape region of South Africa, which was subdivided into western, central and eastern districts for a soil fertility survey of minimum-tillage kikuyu-ryegrass pastures. (Source: Swanepoel et al. 2015: 114).

The study found that the southern Cape region's fine sandy soil leads to compaction (Swanepoel et al. 2014). The dominant kikuyu species grown for milk production is seasonally restricted and is a low-nutritional herbage, which farmers have addressed by using kikuyu as a

[21] The pasture system, predominately based on kikuyu (*Pennisetum clandistinium*), is annually over-sown with annual or perennial rye grass (*Lolium multiflorum* and *Lolium perenne*, respectively (Botha 2003 in Swanepoel et al. 2014: 232). Swanepoel et al. explain that "the mixed pasture sward is usually achieved using no-tillage implements, but shallow- or deep-tillage (conventional) implements are also used occasionally. When ryegrasses are established in pure swards, herbicides and no tillage seed drills are used" (2014: 232).

pasture base and incorporating different rye grass species to improve the seasonal above-ground phytomass production and nutritional value (Swanepoel et al. 2014). The study found that irrigation, fertiliser use, and intensive grazing has increased the soil's organic matter. But the study also found that the "conversion to the minimum-till kikuyu-rye grass has degraded the dynamic condition of podzolic soil over 19 years in terms of physical resistance and soil microstructure strength" (Swanepoel et al. 2013**:** 22). The soil memory comparison between the native soils in the Outeniqua and the introduced planted pastures, using the physical soil indicator (the microstructure of the soil under the permanent kikuyu-rye pastures) showed degradation of the soil. These studies suggest that the extensive use of fertilisers and the application of lime and fertiliser guidelines, originally developed for conventionally tilled pastures, have increased the pH. Higher levels of exchangeable calcium and magnesium have made the soils more alkaline. The authors raised concerns about the increased levels of phosphorous and zinc in the soil, which could build up to toxic levels if left unattended and could cause "deleterious effects on ecosystem health or sustainability of pasture production" (Swanepoel et al. 2015: 122) in the long term. This research raised concerns about the use and abuse of fertilisers on artificial pastures (Swanepoel et al**.** 2015). The introduction of fertilizers was a momentous innovation in the scientific agricultural revolutions that led the introduction of large-scale commercial agriculture in the colonies (Moore 2002, Nabudure 2011). The use of chemicals or fertilisers stimulated the 'artificial reduction' of the natural cycles of the productions of crops to increase capital accumulation (Nabudure 2011).

Interestingly Cronon's illustrated the settler colonists in 'New England' farmed large numbers of domesticated animals on relatively small tracts of land. He pointed out that the weight of the cattle "had the effect of compacting soil particles that resulted in hardening the soil and reducing the amount of oxygen it contained" (Cronon 1983: 146). Furthermore, he writes that the impact affected the "root growth of higher plants, lowered their ability to absorb nutrients and water, and encouraged the formation of toxic chemical compounds" (Cronon 1983: 146). Cronon explains that soil compaction, created the conditions that were "less hospitable to plant life and eventually lowered the soils' carrying capacity for water" (Cronon 1983: 146). The pre-colonial Indian women had only their hoes and their own hands to turn the soil as not to stir it too deeply (Cronon 1983). The colonists' forms of agriculture both grazing and ploughing with oxen and horse stirred the soil more deeply and contributed to the "destruction of native species and created an entirely new habitat populated mainly by domesticated species, and in

some sense represented the most complete ecological transformation of the New England landscape" (Cronon 1983: 147). The agricultural revolution through productivity and plunder in combination with 'cheap labour' "was an extraordinary development in human history; no civilization had relocated its agro-ecological heartland from one continent to another" says Moore (2015b: 246). He adds, "… it was the beginnings of industrial agriculture through deploying power, capital and science to appropriate the wealth of a continent" (Moore 2015b: 246). This was central to the production of Cheap Food through displacing the 'Indians' and importing slaves in the 19th century. This extra-ordinary agricultural revolution was stimulated through labour productivity. Labour productivity surged in the big cereals such as maize and wheat (Moore 2015b), creating the first wave of "Cheap Food". But the 'first' industrial agricultural model had exhausted itself, mostly because of its "soil mining" strategy (Moore 2015b: 248). The long Green Revolution that began in the United States in 1930s, created the second agricultural revolution extending the 'Cheap Food' regime. In this phase the increased use of fertilisers and pesticides was also the start of a "petrochemical-hybrid complex" that systematically combines "new plants [such as hybrid maize] fertilisers, pesticides and irrigation schemes" (Moore 2015b: 251). Fertilizers were necessary to replenish the depleted soils. Moore (2015b) underscores, farming became *petro-farming.* Two important transitions from the fertilizer and pesticide-herbicide revolutions ensued. The first was that capitalist agriculture became massively inefficient in its energy use and second that agriculture became the leading agent in toxification and pollution (Moore 2015: 252). According to Moore (2015b) the 'long Green Revolution' owed its production to quality land, water access and labour-power relations at little or no cost to capital accumulation. The extensive use of fertilizers is significantly contributing to the degradation of soils. Thus, industrial agriculture is contributing to the loss of soil that it depends on for capital accumulation. Moreover the 'petro-farming' is contributing significantly to climate change (IPES 2016; IPCC 2020).

5.3.2 Reclaiming degraded land?

In 1994, month before the South Africa's democratic election, eight thousand hectares were 'returned' the Tsitsikamma Mfengu on 25 March 1994, prior to the publication of the Restitution of Land Rights Act No. 22 of 1994 (Jannecke 2006: 194). Jannecke (2008) describes "strategies of representation" deployed by the Tsitsikamma Exile Association (TEA) to reclaim the appropriated land they had been granted by the British. She argues that these strategies constituted "a unified ethnic community aimed at legitimating Fingo/Mfengu claims

of entitlement to the land in the Tsitsikamma" (Jannecke 2008: 454). She adds, the land claim orchestrated for the return of the "Fingo/Mfengu ancestral land" omitted the history of selective "Fingo" headmen appointed by colonial officials, and that they received this land grant for services rendered during the 1835 Frontier war (2006: 200). The complexities surrounding the Tsitsikamma Mfengu's land claim are unresolved and are beyond the ambit of this thesis. Tensions and mixed expectations were present at the onset of the land claim, as expressed in an article in the *New York Times* about this historical land. Mr Mtselu, a trustee of the 600 Mfengu families stated, "Restoring land to the displaced of South Africa turns out to be surprisingly easy. The real problem is restoring people to the land … 'They want to hear nothing of farming'" (Keller 1994). In a 1994 *Sunday Times* article entitled "Returning Mfengu's are not happy with Tsitsikamma land deal – nor the departing farmers", both parties expressed their dissatisfaction with the compensation provided by the state. The R1.96 million compensation was deemed insufficient by the Mfengu to "build viable lives for 506 families and their descendants" (Barkhuizen 1994), while the white farmers were dissatisfied with their compensation after building up "untamed land" with their "sweat and tears" (Barkhuizen 1994). The farmers were paid R35.72 million for land they had bought from "the government at the average of R230 per hectares with 100 percent subsidies" in 1977 (Barkhuizen 1994: 79). The article points out that one of the main reasons the farmers had agreed to sell was "because they have no guarantees of their future after the elections" (Barkhuizen 1994: 79).

The irony of this restitution is that the reclaimed land was unavailable to the claimants for small-scale/subsistence farming because a condition of the transfer was the continuation of commercial dairy farming and capitalist productivity (Jannecke 2006). As previously mentioned, the Mfengu's land claim incorporated of 19 privately owned dairy farmers, 15 forestry farms (Jordan 2014). Thus, part of the land claim arrangement was that land be "leased out to the very same dairy farmers associated with the apartheid state", so "Witkleibos, Snyklip, Doriskraal and the Fingo reserve and Gap held in the Trust by the TDT (M) was not available for agriculture and residential use" (Jannecke 2006: 211). Many of the beneficiaries wanted to return the land and as seen the compromise was a return to live on the 'vacant' lands of the wind farm. On land that is "growing grass not food".

It is important to emphasise that the very land damaged by industrial agricultural practices for commercial dairy farming, which uses large amounts of fertilisers and herbicides contributes significantly to climate change and now hosts the renewable energy infrastructures considered part of a 'successful' climate mitigation strategy (Figure 32).

Figure 32: Present-day dairy farm on the Tsitsikamma Mfengu reclaimed land. (Photo by the author, 2017).

5.3.3 Soil memory of the land that hosts the wind farms

The soil, damaged by the removal of natural vegetation and subjected to intense industrial agricultural fertilisation, has most recently been displaced by a concrete gravity slab to support the wind turbines. The concrete supporting the wind turbines in this damaged soil presents further dilemmas for the land and soil. When I presented some of my findings at an Environmental Humanities seminar series in 2018, a conservation biology student working on wind turbines raised concerns about the lifecycle of the concrete, which will require replacement in about twenty years. A wind turbine's main components are its foundation, tower, rotor blades and nacelle [22] (Martínez et al. 2009). Constructing the wind turbine infrastructures and concrete platform required the removal of tons of soil. The life cycle of a

[22] The nacelle is the cover of the wind turbine composite material. It houses the components of the turbine, responsible for converting the mechanical rotational energy into electrical power (Martínez et al. 2008: 668-669).

wind turbine's concrete tower is typically twenty years, and while studies have shown that wind turbines emit less carbon dioxide overall than coal power, they are not completely without environmental effects (Martínez et al. 2009; Berndt 2015; Van Zyl 2015). According to Martínez et al. (2009: 668) "the base has a volume of 270 m^3 of concrete and a total weight of 700 t and uses 25 t of iron for the reinforcing bars". It is assumed that in the decommissioning process, the foundations will be left in place and be covered with a layer of 20–30 cm of organic soil. The concrete and steel reinforcements in these foundations contribute core material components of onshore turbines. These structures contribute to global warming emissions. According to Berndt (2015: 608), reinforced concrete foundations contribute to 24% of the global warming emissions of the material components of a 2 MW onshore turbine. Berndt (2015: 613) suggests that engineering solutions could help control cement emissions, such as replacing some of the cement with blast furnace slag and/or fly ash without compromising performance. However, these concrete slabs will still have to be replaced over time, and processes are required for their eventual decommissioning in about twenty years. The fibre content of spent blades makes recycling difficult, and these blades are piling up in landfills (Figure 33) (Martin 2020). The piles of blades in this landfill are an indication of the ruins of the wind farm infrastructures after its twenty-year lifespan. While the material of decommissioning the coal power station will be different to decommissioning wind turbines, what remains similar is that the ruins of the 'green' energy technology to feed an energy intensive fossil economy will take up space at the expense of both human and non-human worlds. Scientific reductionist thinkers may argue that an absolute carbon footprint [23] of electricity generated from wind energy is 1 to 2%; this is substantially less than coal and other fossil fuels (Peach 2021). My intention is to focus attention on both the ongoing and new connections in human nature reductionist thinking that make invisible "the inner connections that conduct the flow of power, capital and energy" (Moore 2015: 7). The carbon footprint is limited to calculating individual market-orientated responsibility for environmental destruction without gauging broader relationships "between human nature, global power and production and the web of life" (Moore 2015: 7).

[23] In the words of Moore (2015: 6) on how he sees the analogy of the carbon footprint, "For a broader public concerned with climate and sustainability a cognate consensus now reigns: humanity makes a footprint on the earth that must be reduced. Is the image of nature passive mud and dirt – a place where one leaves a footprint – really the best metaphor to capture the vitality of the web of life? I think we can do better."

Figure 33: Fragments of wind turbine blades await burial at the Casper Regional Landfill in Wyoming. (Photographer: Benjamin Rasmussen for Bloomberg Green [Online]).

The soil and land history memory has revealed the wind farm considered as a cleaner and green energy generating source, is hosted on land crafted in the *technics* of capital, empire, and frontier science of modern agriculture's petro-chemical complex. The emissions are from large-scale industrial agriculture and the components of the wind farm are overlooked in the reductionist carbon offset schemes of the PPP. Moreover, the soil and land history memory make visible the flaws and limitations of the reductionist approaches in the climate mitigation. It overlooks how large-scale agriculture production that has historically mined soil nutrients and soil replenished by fertilizers is reaching stagnation and damaged the soil, according to Moore (2015b).

At the same time the geological tipping point of nature has been reached because of the capitalist world ecology is the producer of geohistorical change affecting agriculture production through droughts and floods. The *productivist model* of the capitalist world ecology that regards – "nature as tap" for ever-increasing resource extraction and "nature as sink" a place to dump waste whether in the air, land, sea and rivers and the air is both the product of climate crisis and producer of the bioshpheric planetary change (Moore 2015b).

Tracing the land use changes soil and land history, memory of the wind turbine infrastructure that has been inserted on the damaged soil of industrial agriculture also makes visible the geo-historical and geo-cultural perspectives of 'Cheap Nature'. European land enclosures caused a widespread shift from subsistence to commodity production and the process degraded the soil (Moore 2002; Nabudere 2011). The historical geography of land enclosures and the private property regime of large-scale commercial agriculture also shaped agrarian class relations in which the white colonists became the 'owners of the land' and the black/brown peoples became labourers of the land (Tsing 2012). These social relations are still present in South Africa today. The historical land occupation, appropriation, race and gender relations has been largely unnoticed in current renewable energy projects. The ethical-political devaluation of 'cheap lives' that is, the lives of humans who were considered part of nature (women, slaves, indigenous and black/brown people's) therefore rendered exploitable, remain intact. As pointed out by Moore (2021) sexism and racism are geocultural strategies of devaluation in the interest of driving down labour costs that result in under consumption and increasing the proletariat. Salleh (1997) reminds us that the surplus labour of workers is never fully compensated. It was evident in the narratives and the workshop that despite this community having reclaimed land and being in partnership with the dairy farm and the wind farm, money was needed for everything ("electricity is from the wind farms, but no light in our houses, still in darkness" and "we are growing grass not food").

5.4 Conclusion

This chapter showed through tracing the entanglements of the soil and land history memory of the land that hosts the wind farm, the material colonisation of the land and soil of the Tsitsikamma in the past is part of a historical continuum that extends into the present. The soil of the land that hosts the wind farm infrastructure has been degraded from the plunder, mastery and capitalist productive arrangements historically enacted upon it. So, while the TCWF is considered a "model" wind farm, the changes in the land and degradation of the soil raise concerns about responses to climate change through sociotechnical imaginaries of the "renewable", within the sustainable and climate mitigation 'win-win' rhetoric. In the eyes of developmental logic, the infrastructure of the Tsitsikamma Community Wind Farm (TCWF) is a sign of progress and technological advancement, proof of humanity's attempts to mitigate climate change through technological innovation. But current South African renewable energy

transitions predominantly ignore the issues of historical land occupation and appropriation, and the implications of many of the so-called financially lucrative renewable wind energy projects are situated on land historically appropriated and given to white farmers under apartheid. Furthermore, the contribution of large-scale industrial agricultural farms to the climate crisis is overlooked on the farmlands that host such wind energy infrastructures. Similarly, the concrete infrastructure of the wind farms contributes significant carbon dioxide emissions, and the twenty-year life cycle and eventual decommissioning has not been factored into mainstream discussion about the ecological implications of the renewable energy solutions. Ironically, the very soil damaged from industrial agricultural practice (replacing natural rangeland with planted pastures and extensively using fertiliser, thereby contributing significantly to climate change) is now the land that hosts the renewable energy infrastructures that are a response to climate change.

Moreover, the reparations of the Mfengu for their forced removal through the land restitution have not changed the material conditions of the community in ways that improve their well-being. Their hardship as well as that of the farmworkers on the dairy farms remain in place. The reparations and restitution of the land has induced this community into capitalist productivism of the dairy farms and the wind farms is essentially maintaining their disentanglement from the land. The reclaimed arrangement offered no option for reciprocal soil restoration.

Tracing the entanglement of the changes in the land through travel hopping elicited western modernity's relationships, colonial narratives and histories that hide in the shadows of development and progress based on interdependence of 'plunder and productivity'. Moreover, tracing of entanglements and changes of the Tsitsikamma landscape over time and space also elicited an understanding of different relationships to the land understood by the people who inhabited it prior to the appropriation and dispossession. It reveals a different way of relating to land and the embodied values related to restoration and regenerative values with land. The land history and memory on which the wind farm stands showed both the past entanglements with land-based relationships of reciprocity, care, respect and solidarity within the community and the violence of colonial and apartheid extractive, mastery and capital accumulative productive relationship that degraded the soil. Thus, foregrounding the changes in the

materiality of the land through tracing these entanglements between human interactions the provided critical insights to the invisible violence in green energy ‘solutions’ in the Anthropocene discourse to both humans and non-humans that modernity’s reductionist and rational thought is unable to see. This community expressed optimism that the wind farm would bring improvements to the community living in ‘locations’ on degraded soil of the reclaimed land; their material well-being has deteriorated even though they are partners in commercial dairy farms and wind farm. This community that offered their reclaimed land to host a wind farm has difficulties affording electricity, despite being surrounded by a wind farm.

The next chapter takes a deeper look at the implementation the REI4P model and the strategies of accumulation emerging in ‘green’ energy investment PPPs.

Chapter Six: Windscapes: Renewable energy public private partnership frontier-making

> *'We have to start by asking routinely whether private capital, rather than government funding or donor aid, can finance a project. If the conditions are not right for private investment, we need to work with our partners to de-risk projects, sectors, and entire countries.'*

(Jim Yong Kim, World Bank Group President in Daniela Gabor's article titled "The Wall Street" Consensus" 2021: 429)

6.1 Introduction

'Energy zones', 'energy business', 'bank loans', 'community shares and ownership', 'outsourcing', 'management service agreements', 'public benefit organisation', 'tax benefits', 'dividends', 'census and asset mapping', 'overseas shareholders', 'job creation through project development' and, of course, 'climate change mitigation' …. These are some of the phrases and terms regularly used in conversations with national government departments, independent power producer (IPP) officials, municipalities, corporate investors, and community leadership to explain South Africa's renewable energy programme.

In the previous chapter through tracing the changes of the land on which the wind farm stands, I showed the different social-ecological human relationships to the land. The soil and land history memory elicited both the past reciprocal and the present exploitative relationships. This chapter examines motives and perspectives of institutional and financial energy actors indirectly and directly involved in the Tsitsikamma Community Wind Farm (TCWF). The community's expectations in this renewable energy partnership were that the wind farm would bring improvements to their well-being (Li 2007). The Integrated Development Plan's (IDP) director from the Koukamma Municipality in my interview pointed out, "*Communities, especially where the wind farm is taking place, they are expecting huge things, they want to see a different future … they are expecting upgraded roads, better roads than the roads they are driving on, they want to see better houses"*. Exarro's investment in this project saw it as an

opportunity to assist this struggling community and provided them with a school bus, built a creche and cattle kraal, amongst other initiatives as part of their corporate philanthropy at the early stages of the project. Moreover, the Renewable Energy Independent Power Producer Procurement Programme (REI4P) provided the institutional framework and investment parameters for 'development' at the local levels where renewable energy projects are situated in South Africa. Interrogating renewable energy policies and processes that insert a neoliberal agenda under the mantle of climate mitigation is critical to illuminating novel forms of capital accumulation in the present-day neoliberal world order (Vargas 2020; Dunlap 2017; Howe 2015, 2011, 2019). This chapter analyses the material nature of the REI4P and investment strategies in the form PPPs. It argues that 'green' energy interventions and investment models such as the REI4P are guided by a neoliberal logic and embedded with the machinations of an extractivist and productivist approach. This produces 'new' forms of financialisation for capital accumulation. The chapter reveals several contradictions and paradoxes of the frontier strategies and resource logic at play in renewable energy investment projects under the guise of climate mitigation. It does so through the framing of the capitalist world-ecology embedded 'cheapness' and profit. South Africa's renewable energy policy under the REI4P created territories for large-scale wind energy infrastructures in "windscapes" that repeated strategies of capitalist landscape "resource" extraction and exploitation (Howe 2011; Nixon 2011; Moore 2016). Present-day neoliberal economic growth bounded by market-oriented technology-advancement policies and international investment processes is tantamount to frontier making, as its focus is on strategies for profit and 'cheapness' (Harvey 2004; Tsing 2005; Moore 2015a, 2015b, 2016; Patel & Moore 2020). These strategies of appropriating cheap nature are advanced through 'resourcing' the land and the wind as territories for capitalisation and financialisation in the Tsitsikamma.

Further, it argues that the REI4P exemplifies the South African government's neoliberal aspirations in relation to the privatisation of energy (in the narrow sense) and uneven pricing that affects access and affordability for the majority of South Africans. Moreover, modes of neoliberal "economic inclusion" affect communities that have a financial interest in the profitability of a project which makes electricity more expensive and inaccessible. Even with a wind farm on their reclaimed land, the lived reality of the community that gave permission for the wind farm to be installed on the reclaimed land, remains unchanged.

6.2 Windscapes: 'Resourcing' the wind into the commodity circuit

The value of wind and 'resourcing' strategies in terms of a South African renewable energy pathway are discussed in this section. I explore the strategies of 'resourcing' the wind into the commodity circuit while knowing the wind and sun cannot be physically enclosed. As pointed out by Howe (2014: 382) the value of wind farms "has been carefully metered in terms of both their profits and their greater ethical possibilities in the global reduction of greenhouse gases". Dualist thinking and ideas of mastery over nature have underpinned western imperialism and the colonial logic of extraction (Cronon 1983; Moore 2014). Within this, Patel and Moore (2020) remind us that conquest, productivity, and plunder became common sense and commonplace According to Patel and Moore (2020: 63) Cartesian dualism shaped emergent knowledge regimes and 'the modern logics of power as well as thought'. Frontier-making was central to the colonial capitalist project through measuring and mapping of 'resources' (Moore 2015b, Patel & Moore 2020).

6.2.1 Mapping and measuring windscapes

In the exploration of wind energy in South Africa, the state science research institute, the Council for Scientific and Industrial Research (CSIR), the Danish research institute on wind energy, Risø DTU National Laboratory for Sustainable Energy (Risø DTU), corporations, and local government mapped geographical zones to identify high solar and wind intensity areas. (see Figure 34 which shows high wind intensity areas). The Danish companies were instrumental in supporting the development of a wind atlas that mapped wind levels to assist decision-making about future energy facilities (Young 2016: 177). Risø DTU partnered with several South African research institutes, including the CSIR, to carry out the Wind Atlas Programme (Young 2016: 177).

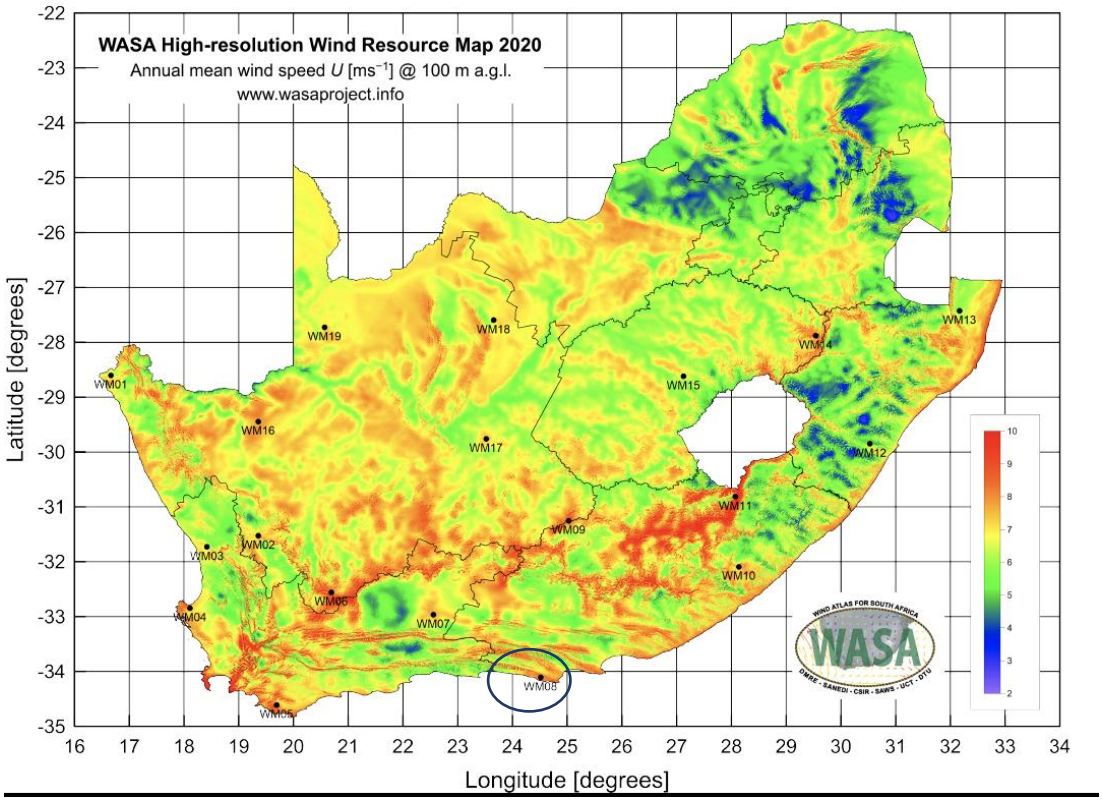


Figure 34: Wind Atlas South Africa (WASA) High Resolution Wind Resource Map and high wind intensity areas. Red to Yellow indicate areas with optimal wind speeds. WM108 (circled) shows the location of the TCWF. (Source: SANEDI, WASA project).

In the Tsitsikamma, the Koukamma Municipality was also preparing themselves for the investment opportunities that renewable energy would bring. The municipal manager explained that they did their own research into how natural resources "can be converted into energy products" in preparation for the issuing of licenses by the national government. The former Koukamma municipal manager, stressed that wind energy is confined to the coastal belt and the 'energy zones' are demarcated there because that is "*where wind energy exists"* (Sabelo Nkulhlu, pers. comm.). McEwan (2016) noted that renewable energy became part of the Strategic Infrastructure Project for energy, (SIP8), in line with the National Infrastructure Plan that was adopted in 2012. A strategic environmental assessment was carried out by the CSIR to facilitate the zoning of the geographical areas most suitable for the roll-out of wind and solar energy projects to support the electricity grid network. The CSIR mapped and the SEA identified renewable energy development zones (REDZ) (McEwan 2017:6) (see Figure 35). The different colours in the figure represent corridors for REDZ that are close to the grid.

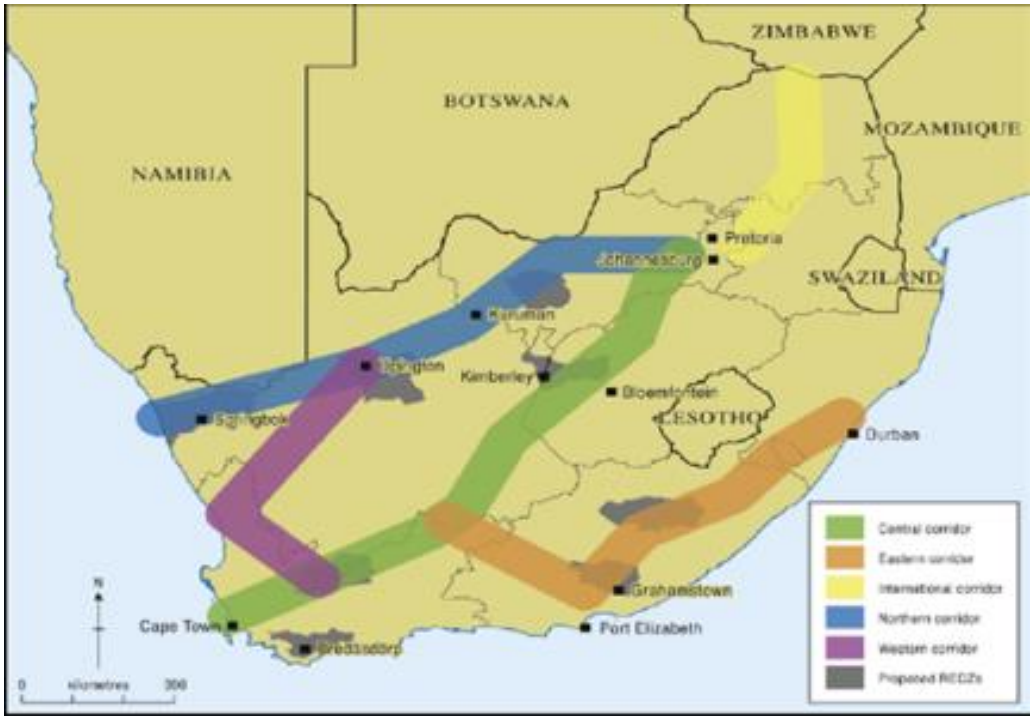


Figure 35: Proposed Renewable Energy Development Zones (REDZs) and preliminary electricity grid infrastructure (EGI) corridors. (Adapted from McEwan 2016)

In the Eastern Cape, these geographical areas were demarcated as wind 'energy zones' by the state. Near the TCWF, I mentioned five other wind farms are operating, together making up what is known as the Coastal Six. In essence, studies spearheaded by scientific research institutions, national government corporations and the local municipality measured wind speeds and zoned the "windscapes" along the Eastern Cape coast as suitable for large-scale wind farms. While the sun and wind cannot be physically extracted, it is the land geography and typology of wind intensity that make the landscapes eligible to become 'windscapes' (Dracklé & Krauss 2011; Boyer & Howe 2016; Howe 2019). As pointed out by Patel and Moore (2020) following the strategies of frontier-making, the capitalist state has also used mapping and planning to identify productivist spaces.

Garner (in Young 2015: 177) put the opportunity of wind power in perspective when the REI4P established,

> *With a buyer guaranteed for the power, Exxaro put up an 80m testing mast at Witkleibos. We are miners! We ran a process of developing the wind farm. We had two 80m measurements and we had the 62m Risø /CSIR mast in the*

> *south site. And then you start building a model. If you take that back to mining, you drill holes into this resource, this is how you create your mine plan. Here we drill holes up into the sky, to see what is happening in this space. You use that to choose a turbine. There are three classes of wind, different flows, different qualities, and massive shock loads. You model all of that, and then you go out on the open market to find a wind turbine supplier: tell us what you will charge us?*

In Howe's (2019: 23) research in Oaxaca's Isthmus of Tehuantepec she notes

> *Isthmus wind, like wind everywhere, is a negotiation between gases that are compelled across space and time by combinations of heat and cold differentials floating over land and sea, pressured shifts in directionality and potency. This is the physicality of the wind, its material life and its ontological being.*

The material nature of wind is changing, as pointed out by Howe (2019: 23-24): "wind is increasingly cast as a valuable commodity, and as its powers are rapidly industrialized, so too does it undergo a reformulation of what it is". Howe (2019: 23) states that wind is now taken up as a renewable "resource," or as "clean energy". In Oaxaca's Isthmus of Tehuantepec the Mexican government, like the South African government, values wind as a source of renewable energy with the potential to contribute to local and national development. Howe (2017: 228) points out that the Mexican Ministry of Energy sees the winds of Oaxaca as,

> *... an opportunity to reduce emissions without compromising national economic development; an opportunity to contribute to climate mitigation; an opportunity to attract investments to Mexico; an opportunity to develop local capabilities; an opportunity for technology development; an opportunity to increase the nation's global competitiveness.*

Existing and planned wind farms in South Africa are not on the scale of wind farms on the Isthmus of Tehuantepec, where one wind park alone contains hundreds of wind farm turbines (Howe 2011). However, the wind farms have in common that "their value has been carefully

metered in terms of both their profits and their greater ethical possibilities in the global reduction of greenhouse gases" (Howe, 2014: 382). In South Africa some of the most capital-intensive commercial agricultural land is optimally located on land for both wind and solar energy. These localities make it financially viable for commercial farmers to lease their land to host renewable energy infrastructure. The privately owned commercial agriculture farms in these optimal wind and sun energy zones have escalated in value and landowners are choosing to lease their land and receive rental payments from hosting the renewable energy infrastructure over the 20-year life of the project (McEwan 2017). It is also important to note the privately owned land of these farms, does not only provide the spatial requirements, but private property also creates conditions to protect these infrastructures investments from proletariat, vandalism and/or any uprising (Patel & Moore 2020).

Statecraft and technologies of power together make territories and the biosphere accessible, legible, knowable, and utilizable, termed by Parenti (2016) as 'geopower". This is where the State and Geography meet as a place of 'nature's use value', points out Parenti (2016). Increasingly with the interest in renewable wind energy, the use value of wind and its powers are formed by land and by the desire for technological management (Howe 2019). As pointed out by Patel and Moore (2020) following the strategies of frontier-making, the capitalist state has also used mapping and planning to identify productivist spaces. In the REI4P process, the allocation land and wind speeds had to be carefully measured to intensify the proliferation of 'windscapes'.

This use value as argued by Moore is based on the 'law of value' of cheap nature (2015b, 2016). Through frontier science the domination and mastery of nature makes possible the colonial project of measuring and mapping the landscape for sources of wind, a "windscape". So, wind as 'resource' becomes enmeshed in capital, power, and nature that follows the logic of epistemic frontier–making. Patel and Moore (2020: 22) say "a frontier is a site where crisis encourages new strategies for profit and where cheap things are seized". As previously mentioned, "cheap is a strategy, a practice, a violence that mobilizes all kinds of work - human and animal, botanical and geological - with as little compensation as possible" (Patel & Moore: 2020: 22). There is a desire for technology to manage the power of the wind and "while the wind may have always mattered, it has now come to matter in different ways" (Howe 2019:

25). Abrams (2009) reminds us of the need to re-member Indigenous ideas of the notions of wind as spirit derived from an awareness of breath for all beings and energetic relationships. Howe (2019: 25) adds,

> *For the ancient Greeks, Aeolis was the god of wind; across the isthmus, it is energía eólica—wind energy—that has come to occupy lands and sky. By definition, aeolian imprints are those effects of wind upon geological and meteorological phenomena. But the winds that create ventifactual contours also shape people and places.*

Those in search of renewable energy have cast wind and sun as exploitable, a 'resource'. Countries in the so-called global South are often identified as having an abundance of these 'resources'. For example, Zeng et al. (2017: 870) state BRICS countries hold significant potential for renewable transitions given the "exploitable renewable resources such as wind energy, solar energy and hydropower". These large-scale wind energy infrastructures that follow the logic of epistemic frontier "resourcing", in which "windscapes" repeat strategies of capitalist landscape "resource" extraction and exploitation and perpetuate a wider set of extractivist relations (Howe & Boyer 2016; Howe 2019) that deepen inequalities. Strategies of profitability through "cheapness", measuring and mapping 'resources', in this case the land and the wind, follow similar processes to petropolitics in the form of *aeolian extractivism* (Howe 2019). Moore (2015, 2016) says frontier-making has a long history of mechanisation premised on the appropriation of "Cheap Nature" (*sic*) using a combination of "productivity and plunder". But distinct from colonial frontier making, however, is the shift to capital accumulation which occurred through capitalisation and financialisation rather than appropriation (Moore 2016).

6.2.2 Creating frontiers through favourable conditions for investors

Investors need the "state to identify, map and secure cheap nature" (Patel & Moore 2020:86). They also need the state to ensure favourable conditions from PPPs. It is important to consider the role of the state which guarantees the reproduction of capitalism's accumulation regime, as the capitalist mode of reproduction cannot be reproduced purely through market relations (Jessop 2013). The treasury officials interviewed emphasised that South Africa must provide attractive terms for investors. In terms of the renewable energy PPPs the government put a

price cap in place in the electricity purchase agreement, which made the price of purchasing electricity from the IPPs cheaper than coal. The treasury official argued "we would not have had this if we didn't take the risk and offer those terms to attract the investor. The thing is because of the policy uncertainty in the country we are not really a prime destination for foreign investment*"* (Pers comm. 2016).

Remarkably, South Africa became a prime investment opportunity for renewable energy Baker (2015b). Baker (2015b: 150) also points out that the finance structure under REI4P has complex ownership structures "involving international, national, private and public players, black and local community shareholders" (Figure 36).

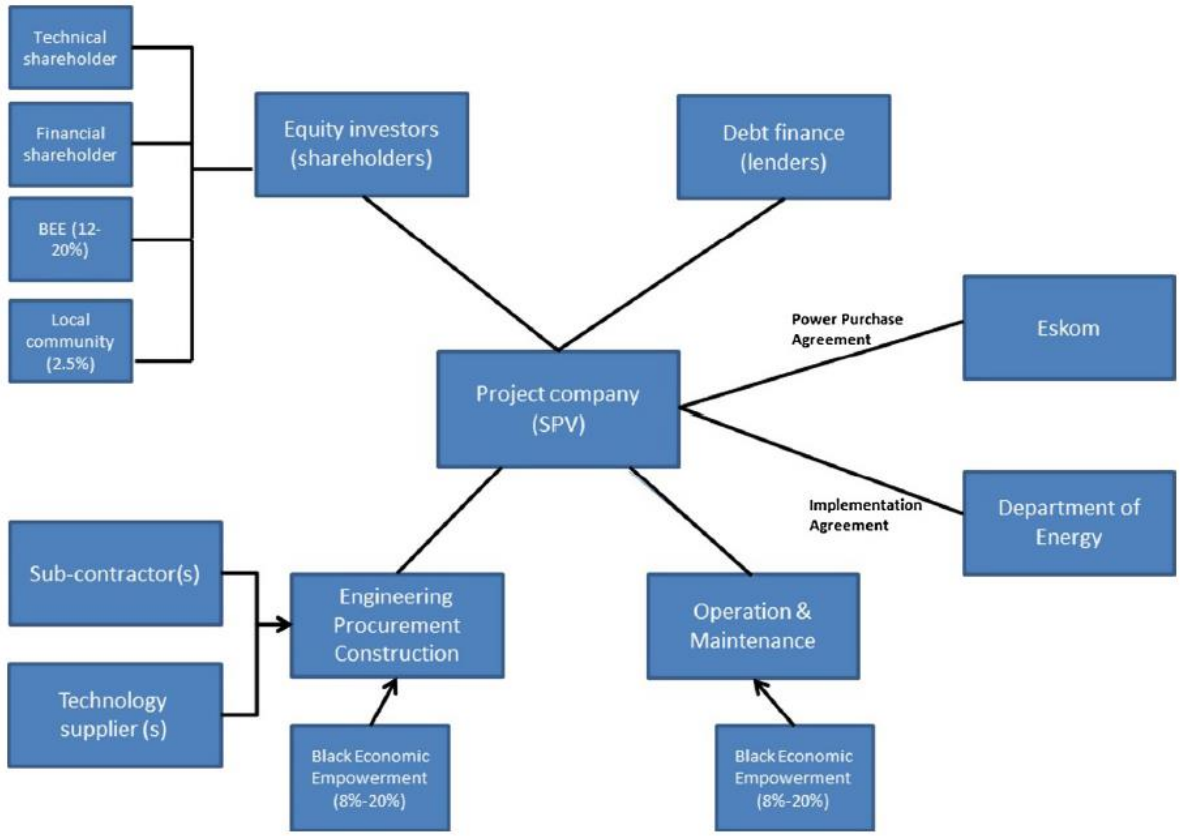


Figure 36: The structure of project finance under REI4P. The structure of project finance under REI4P. (Original Source: Baker 2015b: 151).

Infrastructure for the extractive and agricultural sector are becoming more tightly interlinked through processes of financialization (Le Billion & Sommerville 2016). Financializaton modalities, processes and practices involve changing the organisation of economic relations, labour relations and nature (Le Billion & Sommerville 2016; Gabor 2021). This finance strategy that extends the infrastructural dependence of the state on private finance, involves transforming a range of infrastructure sectors into asset classes such as water, housing, energy, health, education, transport and even nature. The creation of these asset classes allows a steady flow of cash for investors and portfolio investors easy entry into, and exit from, new asset classes (Gabor 2021). In the South African context Baker's (2015b: 148) analysis of the financialization of the mineral-energy complex and introduction of the structure and finance of REI4P explored how ownership of South Africa's renewable energy sector is likely to "rest increasingly with financial investors as shareholdings become tradable financial assets".

In sum, the state creates conditions for favourable investment which could be access to land, guaranteeing of the payments and fiscal measures to reduce the cost of the investments and changes in monetary and fiscal regulation that facilitate capital flows (Le Billion & Sommerville 2016; Gabor 2021). Gabor (2021: 431) states that the development of 'investible' projects requires a two-pronged strategy: one, the reorienting of the fiscal and monetary arm of the state into de-risking development asset classes so that there are steady cash flows for investors; and two, the re-engineering of local financial systems in the image of US market-based finance to allow portfolio investors easy entry into, and exit from, new asset classes. Thus, as observed by Le Billion and Sommerville (2016), governments would have to marshal narratives about the attractive returns for financiers and the supposed social benefits. The REI4P has been hailed for attracting a huge amount of direct foreign investment and is considered a success by government. President Cyril Ramaphosa said in his 2020 State of the Nation Address that government was in the process of finalising the fourth round of REI4P and that bidding would open soon for the fifth round. In his words,

> *We will open bid window 5 of the renewable energy independent power producers and work with producers to accelerate the completion of window 4 projects. We will negotiate supplementary power purchase agreements to acquire additional capacity from existing wind and solar plants. (SONA 2020)*

One of the key contradictions, pointed out by Le Billion and Sommerville (2016) is that government often misrepresent investments as public revenues and compensation for disruption in local communities. In an era where 'Cheap Natures' are being depleted new strategies of financial engineering for capital accumulation are critical. In late-stage capitalism's neoliberal phase an immense amount of surplus capital has been generated (surpluses of financial capital lacking outlets of productive and profitable investment) in amounts of trillions of dollars (Harvey 2004). In a report (Harris et al 2012: np) about Bain & Company (an international corporate finance consultancy company), titled, *"A world awash with money: Capital trends through 2020,* they point out that,

> *The rate of growth of world output of goods and services has seen an extended slowdown over recent decades, while the volume of global financial assets has expanded at a rapid pace. By 2010, global capital had swollen to some $600 trillion, tripling over the past two decades. Today, total financial assets are nearly 10 times the value of the global output of all goods and services.*

Patel and Moore (2020: 88) say,

> *The ever-increasing sophistication of financial engineering emerges not as 'the rise of the quants'*[24] *but as the outcome of centuries of accumulation, each with its distinctive ways of organizing capital, power, and nature.*

Baker (2015b: 147) is particularly concerned about the implications of "on-selling" shares, given the trends of financialisation in the South African economy. She asks the question "Will on-selling, potentially to pension funds, insurance and other institutional investors, contribute to trends of capital flight via financial institutions that have headquarters abroad, even if they may also be listed in South Africa" Baker (2015b: 155). She clearly suspects that on-selling will result in a crisis of accumulation and the circulation of excess money in the system as a consequence of speculation and the expansion of credit for profit.

[24] Quants is shorthand for an expert in analysis and management of quantitative data.

Investors consider on-selling as a mechanism to redistribute returns and create a secondary market in debt and equity which will in turn generate further investment into renewable energy to reduce capital cost (Baker 2015b). Interestingly in TCWF, the 16% shares initially owned by Watt Energy that were purchased through a loan by Cennergi was listed on one of South Africa's stock exchanges and purchased by Kruger International, an asset management company in October 2020 in partnership with GAIA Fund Managers (GFM), an investment manager specialising in agriculture and infrastructure[25] (Cairns 2020). These shares were incorporated in the investment holding company GAIA Fund 1 (GF1), a parent entity that does not conduct any business operations. The purpose of the holding company is to hold stock or membership interest in other companies. On the 12th of October 2020 Kruger International, unit trust company, stated in a press release that preference shares would be bought from their various funds and that proceeds of the listing would be "used by the Fund to buy a 16% indirect shareholding in the Tsitsikamma Community Wind Farm" (Kruger International online)The funding structure of GAIA Fund Managers and Kruger International allows for direct investment into the renewable project within a collective investment scheme structure. Kruger International bought the preference shares issued by the GAIA Fund. A *Citywire* article praised the unit trust access to infrastructure project, saying, "one of South Africa's economic imperatives is to encourage more private investment into infrastructure projects (Cairns 2020). As the government has run out of money to finance this kind of development, capital has to be sourced from elsewhere". Curious to understand this share purchase in the TCWF, I consulted a finance expert. They were able to explain the complex financial engineering involved in the new structure of the TCWF, the 16% is now owned by RE Times of which 70% is part the Msizi Trust and 30% is part of the TCWF Investment SPV (see Fig 37). While this could be further elaborated on such as involving the vehicles for selling and buying the shares on the stock exchange, this is beyond the scope of this chapter.

[25] I consulted a finance specialist to assist me with understanding and to explain the change in the shareholding arrangement of the TCWF. Kruger International is a unit trust company that bought shares in October 2020. While Kruger International bought the issued preference shares in GAIA Fund 1, those shares (along with the GAIA ordinary shares) trade on the stock exchange, so may have changed hands.

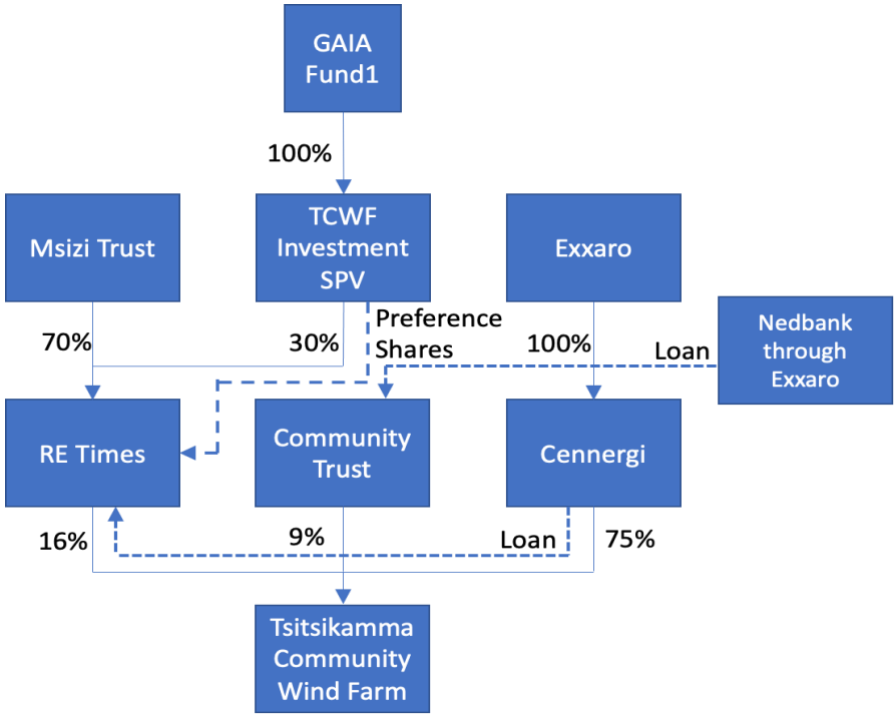


Figure 37: Current structure of the TCWF (Thank you to Neil Horne for the assistance with this diagram)

In summary, RE Times, which is essentially a shell company, acquired 16 per cent of the TCWF. Msizi's widow and son own 70 per cent of RE Times and the other 30 per cent, which was previously owned by the minority shareholder, Watt Energy, has been put into the TCWF Investment Special Purpose Vehicle (SPV). So, there is 11.2% BEE ownership and community ownership is 9%, meeting the BEE ownership criteria. However, this raises concerns about the *illusion* of BEE, and Baker (2015a: 254) notes that the "BEE has primarily resulted in the enrichment of an unproductive black elite with limited trickle-down potential, rather than a tool for genuine socio-economic transformation".

6.2.3 Inclusivity of the 'othered' into the capital ecology

The Tsitsikamma Wind farm under the REI4P is particularly interesting as it shows a twist in these different forms of neoliberal capitalisation and financialization in South Africa under the auspices of "inclusive growth". South African state policies promote redistribution through the economic inclusion of the historically marginalised under the auspices of "inclusive growth" to ensure greater market ownership by the black population. In the post-colonial and post-

apartheid era government-facilitated capital accumulation encompasses ways of incorporating the previously marginalised through market shareholding and ownership, procuring services from black-owned businesses and other forms of BEE as forms of active participation into the economic matrix and redistribution. The South African government favours economic growth and "inclusive economic development" as a means of redistributing the "wealth" of the country, considered to be largely in the hands of the white minority (NDP 2012). In line with this policy imperative the REI4P requires a minimum 40% South African entity participation, 12% black ownership (with a target of 20%) and 2.5% ownership by communities living within a 50 km radius (Baker 2015b: 150). The Treasury official I interviewed stated that "The big thing is compliance with BEE regulation … So IPPs must comply with laws and regulations passed by departments that are applicable. It must show black economic empowerment."

Government and multi-national energy corporations facilitated the loans process through banks and other financial institutions to ensure community and BEE ownership in these REI4Ps. The TCWF is regarded as a 'success' in terms of 'inclusive' capitalist economic development as the land has been redistributed and is collectively owned by Tsitsikamma Mfengu beneficiaries. As previously mentioned, (Chapter five) this wind farm is unique because it is developed on reclaimed land as opposed to the rest of the renewable project infrastructures, which are hosted on the private land of mostly white farmers (McEwan 2017). The other aspect considered a 'success' of the TCWF is that the community has more shares than the minimum 2.5% legal requirement. The IPP official further clarified the community ownership arrangement in my interviews, "[*i*]*t is 2,5%? It differs so if you own 40% but that would be the extreme. So, they are not all the same, it is not a standard. And some of it is on a loan basis, so they will have to pay it back and so on and some of it is not so there is a whole mix. But community ownership does exist."* The investor may borrow money to fund the project, but for the community that 2.5% is interest free shares. The official added, *"it obviously works like any other business, if you take out a loan you will have to pay the loan first and then you are going to get the money right!"*

Exxaro acted like a bank and took out the loan on behalf of the TDT so that they could have a larger shareholding stake despite having no collateral as their land cannot be used for collateral. The 2.5% community ownership is the legal requirement cost which is carried by the investor.

The loan for the 6.5% and the interest will be carried by the TDT. I pointed out to Mr Garner that it was very generous of Exxaro to carry the cost and provide the loan. He responded, *" ... very generous. You don't often get that".*

The Tsitsikamma Development Trust (TDT) is one of the TCWF shareholders as well as being the custodian of the land where the wind farm infrastructures are located. Because the TDT is the legal shareholder and the land is registered in the name of the TDT, the wind farm income goes into the TDT account and must be distributed from there. As illustrated in the case study confusion about the financial arrangements has caused tensions within the community. Quarrels have emerged about the rental income from the wind turbines. Witkleibos structures (the Witkleibos Dairy Trust, Witkleibos Development Trust (WDT) and the Witkleibos Area Committee) have objected to the rental funds going directly to the TDT. Distrust of the role of the TDT regarding the management of funds emerged. Part of the distrust stems from the historical arrangement during the land claim to create a new management control mechanism over the land where:

> *the four Mfengu communities of Tsitsikamma will have complete control and ownership of their land, to freely utilise the land, enter into agreements with service providers, commercial farmers, government and parastatal organisations, whilst retaining the benefits of the TDT(M) as an umbrella administrative body"* (Mfengu Development Plan approved in 2001).

The current arrangement makes the Tsitsikamma Development Trust (the Mfengu) the title deed holder of the community ownership.

For the investor their partnership is with TDT as the landowner, as stressed by Mr Garner, "The land belongs to all of them. Yeah so, the TDT is the landowner, not the WDT … you see, so ... and at the end if you do that, I mean it's just not fair. So, what's going to happen, you see ... let's say there's now a great investment in aquaculture at Doriskraal, and they make seven times more money than the wind turbines. What's going to happen then?". He further says, "So, it's a struggle between capitalism as a ... as a way of thinking versus socialism as a way of thinking. So, because they've got community structures which is set up in that way where the TDT owns the land and the way the TDT makes their money out of the wind turbines is number one out

of lease ... so the project leases the land from them, every month there's a payment to them." Mr Garner also indicated the project will offer much, especially in terms of the financial arrangement and returns to the community, "In our bid we promised to spend 2.1% of the money on socioeconomic development and enterprise development. So, 1.5% is SED and 0.6% is enterprise development. So, to give you an idea of that, it's R20000 per day for 20 years". Garner further states, "So, on top of the dividends that the community will get, they will also get that. And that's in a 50km radius. So, it doesn't include only the Mfengus, it includes the 50km radius". Potentially a significant amount of money will be administered by Cennergi, together with the TCWF Trust that represent the communities within the 50km radius, the TDT and the Kou-Kamma and Kouga municipality.

The TDT is a shareholder of TCWF as well as its landlord. But for Mfengu communities living in poverty-stricken conditions, despite the rhetoric of the perceived benefit of the monetarisation of their reclaimed land, their improved well-being is yet to be realised. The 45 million South Africa Rands loan with interest will need to be paid back before dividends can be distributed to the community shareholders. Le Billion and Sommerville (2016) say that these regulatory reforms often benefit and create various forms of control of the local elite, often at the expense of local populations. Furthermore, questions arise about the *illusion* of BEE.

6.3 Implications of renewable energy neoliberalism under the REI4P

As discussed in the introduction, the neoliberal underpinnings in electricity generation were well entrenched in post-1994 South Africa through narrow forms of privatisation and uneven pricing. The government declared that 30% of all *new* electricity capacity development was expected to come from independent power producers (IPPs). The REI4P is undoubtedly the implementation of this policy imperative. Furthermore, the different cost recovery and user pays strategies have significant implications in term of access and affordability for many South Africans who are affected by their inability to pay for electricity. This section explores the concerns about high energy tariffs, despite the claim of the REI4P investments are likely to lower the costs of these infrastructure development and in turn lower the cost of electricity. Drawing on the TCWF experience this section examines the claims of job creation from

large-scale renewable investment projects in South Africa. Lastly, I discuss the implications of REI4P embedded in the de-risking paradigm.

6.3.1 High electricity tariffs: Ensuring a steady cash flow for Renewable Energy IPPs

The government has stipulated that the introduction of IPPs should effectively make the price of electricity cheaper and reduce the risk to the government. From the government's perspective the risk of infrastructure is on the investor and not the fiscus of the government. In addition, the purchase price of renewable energy is much cheaper than coal. In my interview, a Treasury official on the introduction of IPPs said that,

> *…Bringing in private providers, it has shown that everything is better – the rate of return and all the risk has been passed on to the private partner, and they are still doing it cheaper than Eskom.*

Eskom has raised concerns about the high cost of purchasing electricity from IPPs (Njobeni 2017). The state has guaranteed the payment to IPPs for a 20-year investment. Eskom argues that paying the IPPs is quite expensive, but the Treasury official pointed out that Eskom gets all the IPP's costs back in tariffs. A particular component of the electricity legislation for IPPs guarantees the (NERSA) National Energy Regulator of South Africa) (costs, and Eskom carries no risk because the cost is passed on to the consumer. Eskom is a fiscal burden and the introduction of the IPPs passes on the risk to the investor. As explained by the Treasury official,

> *In your electricity price there is a component in there for the IPPs. So, Eskom will collect that and pay to the IPPs. The debt is guaranteed by government in the event Eskom can't pay, but I don't see how Eskom can default unless everyone stops paying their electricity bill.*

An Eskom report shows that electricity tariffs have been increasing above the consumer purchase index (CPI) since 2003 (see Figure 38) (Eskom 2007), and a *Daily Maverick* article states that "electricity tariffs have shot up to "177% in a decade" (Haffajee 2020). The article points out the drastic increase in the costs of water and electricity are so high "that they are now the biggest inflation drivers (Haffajee 2020).

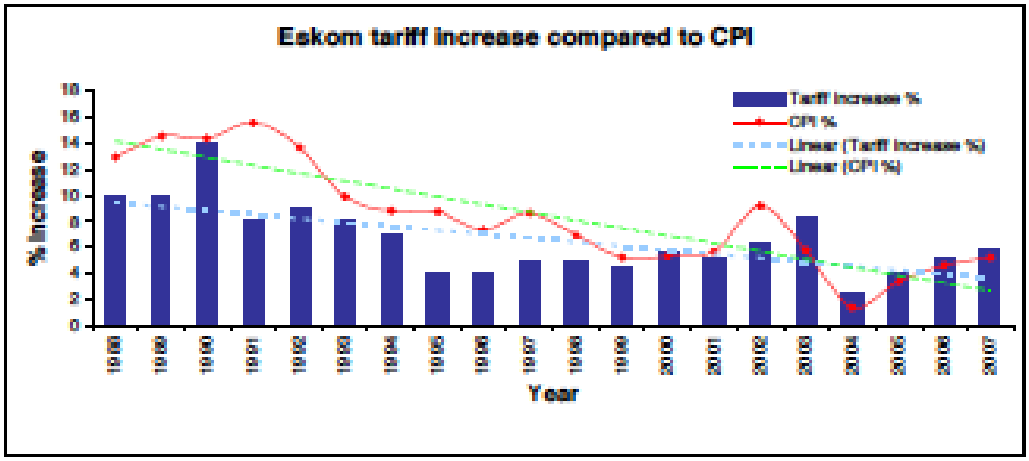


Figure 38: Tariff increases relative to the Consumer Price Index (CPI). (Source: Eskom: 2007: 16)

Tariff costs of securing the PPA with the investor and the service of the IPPs are passed on to the consumer through the tariff structures. Besides the dramatic increase in electricity prices because the centralised electricity generation in South Africa has become unreliable and expensive for households across different socioeconomic levels; larger consumers have started to generate their own electricity. They are going "off the grid" (IPP official and Treasury officials, pers. comm.). As pointed out by the IPP official, the reality of increased electricity costs and unreliable electricity supply,

> *... is encouraging renewables without government and Eskom, under another programme and initiative and also because of market signals from Eskom that energy prices are increasing – and the experience of energy provided from Eskom has not been reliable in the past. So, what we are seeing, and it is not quite quantified, because it happens in very distributive ways, such as rooftop PV [photovoltaic] for instance ... the government buildings, private sector are using 300 megawatts of which we are aware are generating their own electricity.*

Another official stressed that "mines are thinking about generating their own electricity in a big way. They are a huge consumer … as technology improves and storage improves, they will invest in generating their own electricity." The IPP office modelled PV renewable energy technology with improved storage and found it would be cheaper than the power that will be generated by Medupi and Kusile combined.

South Africa's ongoing adoption of neoliberal austerity reforms through cost cutting had implications for municipalities, making municipalitys highly dependent on the revenue they receive from electricity distribution for their operational costs. The treasury official stressed,

> *Municipalities are going to be big losers as well if they don't adapt. Historically you will find municipalities use their levy to subsidise other municipal functions – Treasury did studies on this. So the tariff is used as a source of revenue not just to maintain their electricity infrastructure but to pay for other things. Now what's been happening is that a lot of the wealthier customers are going off grid. They are losing more.*

As mentioned, besides the dramatic increase in electricity prices and frequent loadshedding, larger consumers have started to generate their own electricity. The IPP official pointed out the reality of increased electricity costs and unreliable electricity supply:

> *… is encouraging renewables without government and Eskom, under another programme and initiative and because of market signals from Eskom that energy prices are increasing – and the experience of energy provided from Eskom has not been reliable in the past. So, what we are seeing, and it is not quite quantified, because it happens in very distributive ways, such as rooftop PV [photovoltaic] for instance … the government buildings, private sector is using 300 megawatts of which we are aware generating their own electricity.*

The Treasury official also noted that,

> *International trends are going that way. Bear in mind there will be massive disruptions in this sector, and as government we have to prepare ourselves*

> *for that, a lot of work still has to be done. Eskom is going to lose out, and with decentralisation in many countries … We are not going to need transmission lines anymore more, because communities are going to pull out their own non-grid solar panels and wind and generate their own electricity, especially as battery technology improves.*

In essence, the treasury official was inferring that electricity "consumers" will in future no longer buy electricity from Eskom, and centralised transmission lines were likely to become redundant. Government would have to manage the disruptions that come with this burgeoning decentralisation. Ironically the electricity crisis in South Africa has created a perverse incentive for big electricity users to go off the grid. When NERSA drafted a regulation for licensing procedures and a registration fee for renewable energy this caused an outcry from businesses and households intent on generating their own electricity (SABC News 2018). In his 2021 State of the Nation Address, the President heeded the complaints and announced that small-scale energy generation under the cap for renewable energy installation that does not require licenses was increased to 100 MW. The President also announced that municipalities in good financial standing would be able to procure electricity from IPPs (SONA 2020), bypassing Eskom. In this case Eskom will experience further revenue loss if municipalities start to purchase their electricity directly from IPPs. Paradoxically, while this unintended decentralisation has emerged because of Eskom's inability to provide a reliable supply of electricity, the price of its electricity has dramatically increased. Given that the majority of South Africans live in poverty-stricken conditions with minimal government support to facilitate access to, and payment for, public goods and services, it is unlikely that many communities will be able to access "modern" off-the-grid renewable technologies. The implication is that the lower demand from large energy users will mean that both Eskom and municipalities will have to increase tariffs to cover their expenses.

Households connected to the grid are likely to continue to underconsume electricity and institute a self-imposed "cut-off" for households if unable to pay for electricity (McDonald 2009). One key element of neoliberalism is that its proponents induce underconsumption of the world's 'poor' and working class (Harvey 2004). I have also mentioned that the introduction of neoliberalism in South Africa's electricity sector, the narrow forms of

privatisation and pricing, has been devastating to the marginalised people in South Africa where many people struggle to pay for electricity (MacDonald 2009). Even the Mfengu community that are partners in the wind farm project have difficulties affording electricity. The narrow focus by the state on cost savings through reducing public expenditure, overlooks the ability of consumers to afford electricity. In a workshop in the Witkleibos community it was pointed out that elderly people paid less. Participants said they mostly needed electricity for an electric stove, fridge, iron, and TV. Many households that had access to electricity used gas stoves because electricity was expensive, and the units ran out quickly. Participants complained that the price of electricity had increased dramatically. In a sense the neoliberal pro-capital move by state is likely to entrench local neoliberalism in renewable energy transitions, which Morris (2014: 24) contends is biased in favour of property-ownership, for-profit business, and individuals with economic means to shoulder the up-front cost associated with ownership thereby exacerbating the present extreme disparities in South Africa.

6.3.2 The Falsehoods of Local Job Creation in IPP driven Renewable Energy Projects

Job creation and local socioeconomic improvement are substantial expectations of the community that offered their land to build a wind farm. In the discourses of energy democracy and just transitions, 'green' jobs are a core demand in the decarbonisation process (Stevis & Felli 2015; Galgóczi, 2020). Given the high levels of unemployment in South Africa, job creation features high in the government's development agenda. The 2020 State of the Nation Address, by President Ramaphosa focused on jobs: "Without growth there will be no jobs, and without jobs there will be no meaningful improvement in the lives of our people. This SONA is, therefore, about inclusive growth" (SONA 2020). An important part of REI4P as a PPP is to commit the private sector investors to fulfil commitments for local SED and enterprise development within the 50km radius of these renewable energy projects. The government regards the private sector as a channel for job creation in South Africa.

The government created mandatory provisions for community shareholding and the portion of the revenue is needed to support socioeconomic development. This involves a wide range of activities, including rural development, the environment, infrastructure, business enterprises, reconstruction of underdeveloped areas, development programmes for women and youth, education, healthcare, arts and culture, and sports. In the South African context many

communities where these renewable projects are situated hope these investments will improve the lives of people who would otherwise be destined to material neglect and high intensity struggle to survive. This is because of the multi-level governmental (national, provincial and local) inability to adequately provide biopolitical needs such as health, education, and suitable infrastructure, amongst others. A *Daily Marverick* article, reveals an example of a wind farm where millions of rand are wasted focused on "earning BEE and compliance" at the expense of "meaningful human development" on the ground (van Dieman 2022a). In a prior article by van Dieman, he wrote about the unsuitable nature of the projects implemented. For example, the article indicates that an expensive industrial was machine was installed in the laundromat project where the building did not have the appropriate electricity capacity to run the machine, the equipment remained unused since 2016 (van Dieman 2022b).

As far as jobs from renewable energy projects are concerned, construction of these large infrastructures does not appear to absorb surplus labour. Harvey's concept of a "spatio-temporal" fix required by capital to deal with the problem of surplus, through "temporal" investment of long-term capital projects or social expenditures and spatially through opening up new markets, new production capacities and new resource, social and labour possibilities elsewhere" and/or a combination of both temporal and spatial displacements, does not seem applicable in these PPPs. Very few long-term jobs are created in the development and operation of renewable energy infrastructures in South Africa (McDaid 2016). According to Mr Viljoen, the Human Resources and SED and LED Manager of Cennergi pointed out, proposed jobs in renewable energy will not be from wind farms but from the projects that will emerge. Mr Viljoen stressed that,

> *Job creation is not really a benefit of the wind farms. Income is the benefit. The income will be structured around job creation, education, and healthcare. Jobs will be created from agriculture, tourism, amongst other projects. These projects are about developing businesses, which in turn will create jobs.*

The operation of the TCWF wind farm has been outsourced. The outsourcing of services is one the strategies in the neoliberal paradigm to save costs in government institutions and business operations by cutting costs for non-essential services to create efficiency. The wind turbines were made by the Danish energy company *Vestas*. According to Mr Viljoen, "We've

outsourced to Vestas the operations of the wind farm, and the maintenance is outsourced to Three Energy. And then Danny's [the operations manager of the TCWF] doing the management of services through a management service agreement."

He stressed that,

> *Building a wind farm is a very specialised process. You've got people from Denmark coming into the construction, and at that stage the community is quite involved. Once the wind farm is there, there's not really … it's a very small structure. It's not a lot of things that you can involve them in.*

While job creation is a key policy imperative for the South African government because the country has a high technical skills deficit, the investor needs to carry out the operations in a cost-effective way. So, when the Cennergi HR manager says there are no jobs in renewable energy because it is very specialised, he means there are no jobs for the many unemployed South Africans because the production of these renewable technologies requires high-tech skills which are locally unavailable. Cheap Natures have rendered black peoples subject to low-skill laborious exploitative jobs. The only jobs that were available for the community were short term in the labour-intensive, construction phase. Some of the young adults employed in the construction phase pointed out that the wind turbine construction only provided short-term work and that they had been promised training for different skills, which never materialised. One young man recalled,

> *The jobs were not what I had mind. When we came here, we were pulling cables, big cables … 600 mm, that's how big they were, and they were heavy. We were pulling those, actually we were doing construction work, we were also working holes, pulling cables, that was the type of work. It was very hard labour.*

Strategies to reduce or even discount wage-labour altogether, include the outsourcing of services, the use of technology, incorporating the use of the 'free' labour of the wind, changes in financial regulation and corporate governance that secures the investment, as in the de-risking by the accumulation paradigm, favourable conditions for investors reduce their risk to

meet the profit-making goals. Huber and McCarthy (2017) point out significant space and land is needed to host these large-scale infrastructures and the production of the technology and transmission will require some human labour. The PPPs under REI4P raise an important question about who will be making the technology, where will the human labour and the materials needed to make the renewable technology come from? The globalised industrial capitalism that was dependent on Cheap Nature has shifted to financialization strategies to accumulate capital (Moore 2014). The disappearance and rising price of Cheap Nature changes has catalyzed strategies of accumulation, liberalisation of capital flows, automation, information technology, debt driven speculative investment. Gabor (2021) says it is a shift from accumulation by dispossession (Harvey 2004) to accumulation by de-risking.

6.3.3 De-risking paradigm

In the material nature of the REI4P, reducing the risk of institutional investors in financing renewable energy projects is critical in the investment strategy. The state must create favourable conditions for these public-private investors that insure a "built-in set of users who are willing to pay" (Gabor 2021: 431) for the investors to reduce their risks. De-risking involves reforms at institutional level, changing regulatory regimes and corporate governance that work to secure investor access. The REI4P is materially constructed as an investable development project within the de-risking framework. As argued by Gabor (2021), a key element of the de-risking paradigm is to re-engineer local financial systems in the image of US market-based finance to allow portfolio investors easy entry into, and exit from, new asset classes. REI4P is essentially creating a frontier for 'cheap money' to land and creating 'new' forms of capital accumulation.

The creation of favourable conditions for the private sector means severely indebted countries would need to facilitate the financial de-risking of the investor (Gabor 2021). Moreover, Gabor (2020: 434) states, "the inclusion of institutional investors, from hedge and pension funds to insurance companies and sovereign wealth funds, and asset managers as critical stakeholders, upgraded the de-risking renewables strategy into a full-blown, ambitious 'development as de-risking' paradigm". In this way the risk is transferred to the balance sheet of the state (Gabor 2021). According to Garbor (2020) the 'development as de-risking paradigm', puts "states under pressure to institutionally codify risk-proofing arrangements, guaranteeing private

financial profits in the name of aligning sustainable projects with the preferred risk/return profile of institutional investors …" (Gabor 2021: 453).

Gabor (2021) emphasised the financial engineering of de-risking - the state extends the infrastructural power of finance from monetary and fiscal policy to other areas of public policy thus narrowing the scope for a 'green' developmental state, as its industrial policy amounts to little more than planning and overseeing PPP projects. She warns that the de-risking by accumulation paradigm has detrimental implications by placing the burden on the 'poor'.

So unknown to the Tsitsikamma Mfengu community they are participating in an investment project that is making the cost of electricity more expensive.

6.4 Conclusion

This chapter has shown the 'green' energy solutions and PPP investment models such as REI4P are embedded in the machinations of the productivist model through 'new' forms of financialization. The REI4P follows the 'resource' and commodity logic of frontier-making in the capitalist world ecology underpinned by 'cheapness' and profit. One of the key transformations of the Cartesian scientific revolution is mapping and measuring as part of colonial projects. While wind can be extracted, the wind has been carefully mapped and measured to become part of the commodity circuit. Although the initial idea of the wind farm included providing electricity for the community, the nature of REI4P was designed to transmit electricity to the central grid with Eskom as the single buyer. Furthermore, the complex financing strategies that have been designed to ensure favourable conditions for the investor, bring into question the reductionist approach, decarbonisation, and improving the well-being of the communities surrounding these infrastructure investments. Even though REI4P has instituted redistributive measures such as BEE shareholding, community ownership and local economic development commitments, the material conditions of the community remain unchanged. The REI4P is constructed within an 'investable project' de-risking paradigm. The ongoing structural violence of capitalist modernity persists, despite the 'noble' intentions of addressing climate change and community well-being. The material nature of REI4P has made

visible the invasiveness of modernity's alienating social relations that persist in patterns of accumulation through ways of thinking and the strategies that foster 'cheapness' and profit.

These strategies and tactics illuminate the "capitalist sorcery" (Pignare & Stengers 2011) that has enticed the globalised community (and the Tsitsikamma community) into believing that neoliberal renewable energy policies will mitigate climate change, bring economic development, and improve the well-being of poverty-stricken communities. The introduction of renewable energy under REI4P and its application to the TCWF have demonstrated that 'green' energy strategies of accumulation foster ongoing inequalities experienced on the ground – even as a shareholder, the community had no guarantees that their well-being and dignity would be uplifted. An analysis through the world ecology lens shows that these renewable investment projects are organised in ways in which financialised capitalism appears to control a wider set of life-making arrangements that continue to work for capital accumulation.

The next chapter is a discussion about a different and more relational response to energy transitions.

Chapter Seven: An exploration of decolonial and relational theories and praxis: Towards possibilities of relational energy transitions

> *As the industrial world reduces the earth to lunar conditions, the humans also lose the sublimity of our inner lives. We cannot, therefore, maintain a viable, sustainable economy by merely mitigating or adjusting to the consequences of the industrial devastation while at the same time maintaining the exploitative systems.*

(Nabudere 2011a: 15)

7.1 Introduction

The analysis of the making of the Tsitsikamma Community Wind Farm (TCWF) made clear the intrinsic connectedness of the relationships in the capitalist world in respect of the ecology in the web of life. For capital accumulation to thrive, capital, power and nature are entwined through constitutive (necessary for the existence of) relationships in the capitalist world ecology. These relationships benefit some at the expense of others through the 'law value of Cheap Nature' (Moore 2015a, 2015b). As postulated by Patel and Moore (2020: 202), "Our cheap things didn't magically make themselves. They emerged through a violent alchemy of ideas, conquest, and commerce in the modern world". These alienating relationships are obscured by the productivist-extractivist way of organising nature to work for capital (Moore 2015a, 2015b, 2016). Even though wealth redistributive strategies are necessary, these strategies such as economic inclusion in South Africa's policies uphold modernity's relations in its attempt to provide more equity in capitalism (Patel & Moore 2020; Ladha &Murphy 2022). The monetary gain from extractive profit means that someone or something is exploited elsewhere, so only a few benefit financially and materially at the expense of others. This is because western modernity's objectifying epistemology, which is reductionist, rationalist and rooted in Cartesian dualism, serves to gloss over many inconvenient facts that capitalism thrives at the expense of others. Chapters five and six have shown that current green technology responses to the climate crisis are entrenched in the dualist ontology of western modernity.

However, humans and all their institutions are embedded in nature; the differences are the violence of colonial and western modernity's ways of being that centre relationships based on hierarchies, domination, seizure, plunder and the commodification of almost everything in life (Tsing 2012; Mignolo 2013; Moore 2015b; Haraway 2016; Escobar 2018; Davis et.al 2019; Patel & Moore 2020; Ladha & Murphy 2022). When dimensions of and questions about ontology and epistemology of dualist claims are pointed out, they are revealed to have untenable assumptions. The analysis in this chapter draws inspiration from the thinking and work of *Gesturing Towards Decolonial Futures Collective* (GTDFC) (2019), an arts/research collective. Their decolonial perspective expresses the state of being in the world and the ongoingness of the challenges faced. GTDFC state that their decolonizing perspective is "informed and inspired by indigenous analyses and practices that affirm that our current global problems are not related to lack of knowledge, but an inherently violent modern-colonial habit of being" (2019: 3).

This study shows that the 'win-win' rhetoric in climate mitigation approaches, such as these large renewable energy wind technology and infrastructures exemplify, is designed according to relationships that emanate from a western history of capitalism. In terms of that economic paradigm the capitalist world-ecology is embedded in the ontological-political assumptions of western modernity and primary dualism. Exploitative relationships are maintained despite the good intentions to mitigate climate change, stimulate 'green' economic growth, and improve the well-being of subaltern communities. The outcomes are 'win-win' for capital accumulation. Thus, as put by Nabudere (2011a: 15), responding to the climate crisis cannot merely be about "mitigating or 'adjusting' … while at the same time maintaining the exploitative systems".

In this study, with all the contradictions, paradoxes, and co-options, amid the conversations with "marginalised voices" of the community and the land, different stories emerged about self-sufficiency, care of and reciprocity towards each other and the soil of the land of the wind farm. These 'other' relationships and values, including ecological, spiritual, cultural, or aesthetic are overlooked in the Anthropocene discourse (Salleh 2010; Crist 2016; Szeman & Wentzel 2021; de la Cadena & Blaser 2018). Thus, there are two key aspects in my argument which may be summed up as - relational energy transitions need to be part of how we address the climate crisis and post-Cartesian/dualist methodologies embedded in both/and ways of thinking/researching is needed to explore different responses energy transitions.

This chapter is concerned with making visible other worlds, displaced by the dominant anthropocentric worldview. The intention here is to recognise the importance of 'other' knowledges and the need for recalibrating approaches to nature and each other that are reciprocal, restorative, regenerative and respectful. We need to be regenerative and life-affirming in responding to the climate crisis. This chapter first focuses on how within renewable energy transitions there is a need to acknowledge the multiplicity of entanglements between human and non-human nature based on relational and convivial ways of being, thinking, knowing, and doing. Dualist thinking and consequently dualist being have enabled us to disentangle ourselves into separate entities from each other and the land. It has undermined spiritual and relational interactions with land that respect its "more-than-economic value" (Gibson-Graham 2016; Davis et al. 2019). A second focus of this chapter is to show how relational values and approaches are undermined and erased in the dominant Anthropocene techno-fix, market-centred discourse in renewable energy transitions.

This chapter begins with exploration and learnings from the relational and decolonial theory and praxis in the context of this study to suggest alternatives to the economic rationalisation of current energy transitions. Then it reflects on the yearning of relationality by mostly the elders on the reclaimed land of the wind farm and the relational values that arose from re-membering what was discarded. This part explores insights from narratives and workshops with the community members on their expression of relational thinking. The reflection on the values led me to read more in non-dualist worldviews, explored in the section on indigenous cosmologies, ecofeminism, black ecologies and geographies that might assist with more life-affirming relational energy ways, opposite to reductionist and rationalist approaches. The last sections draw on some examples of 'emerging more-than-economic values' alternatives in energy transitions.

7.2 Learning from Relational and Decolonial Theory and Praxis

The post-Cartesian approach taken in this thesis was experimental, neither focusing primarily on human actors nor on non-human worlds separately but analysing the entanglements between the different actors and their relationships in the making of the TCWF – multiple entanglements. While departing from the 'either/or' polemic and applying a 'both/and' approach, the way of tracing the relationships of entanglements through space, time, and matter by 'travel hopping' made visible the differences and patterns in the relationships of the different

actors. The changes documented on the land on which the wind farm stands allowed attention to be paid to re-membering both reciprocal and regenerative relationships with the land and the relationships from the colonial history of exploitation and appropriation of nature. The ongoing plunder and exploitative relationships on the degraded soil from decades of industrial agriculture was plain to see as was the insertion of tons of concrete to support the wind farm infrastructure - all of which contribute to greenhouse gas emissions (Salleh 2010). The financial and institutional actors in the energy business were revealed as manipulative in respect of the financial engineering that the PPPs use to finance renewable energy infrastructure within the paradigm of accumulation through de-risking (Gabor 2021). Most of all attention was drawn to the dismal living conditions of the Tsitsikamma Mfengu living on the reclaimed land despite being shareholders in the wind farm and surrounded by wind energy infrastructure.

While the TCWF story presented the ongoing extractivist relations in green energy developments, at the same time it presented openings for different responses. The narratives and stories from the community revealed re-membering reciprocity and regenerative relationships with the soil, land, and each other. This concept of re-membering and my exploration in decolonial and relational literature has led to further reading on relational values, principles and practices emerging from indigenous worldviews and 'other' more relational ways of being that de-centre modernity's mastery over nature. Engaging with knowledge of relational and convivial ways of being, Gibson-Graham (2014: 92) asks, "might we move out of center stage and learn to act *with* human and nonhuman others, negotiating our being-in common in ways that enhance well-being for all? ".

This section returns and builds on the insights raised and presented in chapter two. Scholars that were engaged recognise that the dominant world order is premised on modernity's ontological and epistemological framing and is at the core of the multiple crises facing the world (Mignolo 2011; 2017; Barad 2014, 2018; Moore 2015a, 2015b, Escobar 2018; 2020; Moore & Patel 2020; Ladha & Murphy 2022). Central to these scholars' argument are that the roots of the crises lie in the core assumption of 'onto-epistemic dualism' or the intrinsic separation of things (Merchant 1980; Shiva 2005; Escobar 2011,2017, 2018, 2020; Moore 2015b; Moore & Patel 2020; Ladha & Murphy 2022). Their philosophical and ontological positions inform a relational and decolonial world-making praxis. As Escobar (2020: 49)

suggests alternatives to the "one-world story" underpinned by coloniality are needed in order to displace the "centrality of this dualist ontology, while broadening the space for non-dualist ontologies". The emergence of scholarly critique that situate the dominant approaches of techno-scientific 'green' energy 'solutions' and economic rationalisations, within the Society /Nature binary of ontological separation in which nature is regarded primarily as a 'resource' is the core of the analysis of this thesis (Moore 2015b; Schulz 2017; Szeman & Wentzel 2021: 509). In investigating the claims of 'win-win' rhetoric of the climate mitigation implications of the dominant techno-scientific reductionist and rational economic thinking in TCWF were revealed. The exploration of relational and decolonial scholarly theories and methodologies in this chapter may with the assistance of these theories make visible the limitations of techno-scientific green energy discourse and present openings for different responses.

Scholars who support relational perspectives pay close attention to power relations, politics, materiality, and exclusions (Chilvers & Pallet 2018: 1). Relational approaches are characterised by a politics in which the agency of those who are 'othered' – "invisibilised, marginalised, depoliticised – and engagement of more-than-human worlds" (Gibson-Graham 2014: 81) are recognised. Relational ontologies and constructivism in science and technology studies (STS), new materialism, geography and cognate disciplines in social sciences and humanities have become increasingly popular (Boyer 2014; Chilvers & Pallet 2018; Åsberg & Braidotti 2018; Chilvers & Kearnes 2019; Szeman & Boyer 2017; Szeman & Wentzel 2021). Åsberg and Braidotti (2018: 3) write that these theories and methodologies "bring things together, new stories and modes of worldly relationality, allowing for their reconfigurations and reconstitutions". These sometimes irreverent works debunk economic rationality, science reductionism and an all too "human" focus and question "the universal role, mastery, and nature of human nature" (Åsberg & Braidotti 2018: 3).

This brief conceptual overview of relational thought offers insights that radically alter normative approaches to the material practices, technologies, and broader constitutional practice of public participation (Chilvers & Kearnes 2019). The authors suggest the "co-productionist turn in social studies of participation" is an important shift (Chilvers & Kearnes 2019: 4). Co-production brings together collective knowledge from diverse and different actors. However, Chilvers & Kearnes (2019: 4) point out these perspectives have "thus far

remained largely confined within the analytical-interpretive tradition of STS" (Chilvers & Kearnes 2019: 4). In fact, STS approaches have "tended to shy away from the necessary work of intervening and reflexively engaging with systems, institutions, and practices of participation" (ibid.). Here it is important to stress how several shortcomings and contradictions are emerging within relational approaches in new materialism and post-humanism. It remains important to express the type of human in the dominant culture of modernity and consumerism. As shown in Chapter Five, those humans who lived in their territories prior to being disentangled by the violence of colonialism and modernity's way of being were centred in life-affirming and life-sustaining relationships.

Emergent concerns in scholarship regarding the more-than-human turn, and associated methodological approaches, make clear the importance of delineating what is meant by the broad category 'human'. The characterization of humans as one universal, unified identity is challenged in this work. It challenges the idea that all humans act with a force that disrupts nature and causes environmental destruction because behaviour and consumption has been problematised (Wynter 2015; Moore; 2015b; Davis et al. 2019; Buscher 2022). Conflating humans into a homogenous category like this, avoids the questions of who is the human in the Anthropocene? The concern is that some of the methodologies that have emerged, which decentre the human, overlook the structurally negative implications of colonialism and the historical rise of capitalism that has been devastating for humans 'othered' into savagery and regarded as nature and thus rendered exploitable (Tsing 2015; Moore; 2015b; 2016). These concerns espouse the idea that some of the analysis renders ahistorical and apolitical perspectives as well as homogenising the human and flattens out power differentials (Davis et al 2019; Braidotti 2019; Szeman & Wentzel 2021, Buscher 2022). Wynter (2015), Moore (2015b, 2016, 2017), and others remind us that Humanity does not exist in a homogeneous unity While all of us are complicit in the dominant capitalist order, it is important to specify which human is being referred to within 'more-than-human' theories and approaches because all humans are not responsible (Tsing 2012; Moore 2015b,2020; Haraway 2016; Davis et al 2019). Wynter (2015: 193) describes human mastery and dominance as a form of "being human in the purely biocentric terms of our present globally hegemonic, monohumanist and secular Western, yet no less genre-specific, now (neo)Liberal conception as Man (2) [sic]". This version of the human premises the heteropatriarchal, white supremacist and colonialist social orders prevalent in the world today as those which perpetuate the production of non-

relationality (Escobar et al. 2021). In the Anthropocene discourse all other relationships and values, including ecological, spiritual, cultural, or aesthetic, are disregarded (Crist, 2016; Szeman& Wentzel, 2021). This discourse overlooks modernity's social relations and 'how new connections between human nature, global power and production, and the web of life' work (Moore, 2015b, 25).

Decoloniality explained by Mignolo (2017:16) is "delinking from the colonial matrix of power". It is embodied in relational praxis that delinks with and refuses the colonial structures of power and building and being in the world 'otherwise' (Mignolo 2013, 2014). It does not mean the absence of colonialism, which Mignolo (2017) believes may never disappear, but is about a quest to dismantle dualisms and recognise multiple and plural ways of thinking, being, knowing, doing, and sensing. Decoloniality in this sense is delinking from the notions of the Anthropocene discourse. As Crist (2016, 25) notes, [the Anthropocene discourse] offers 'a techno-scientific pitch for its rationalization […]'. It fails to make space for alternative framings of humanity and the place of humans and their actions in the web of life (Crist, 2016). De Sousa Santos (2006), situates the reductionist and rationalist way of being in mainstream development thinking, shaped as the one domain with five monocultures. These monocultures are knowledge, linear time, classification, universal and the global and capitalist productive efficiency. The way of thinking and being is rooted in (1) separation and superiority, (2) human centeredness, merit, and innocence and (3) "linear progress and the possibility of continuity" (GTDFC 2019: 3). Mignolo (2017: 13) expands that this way of thinking signifies "territorial epistemology presupposes 'the frontier' rather than the border …". He stresses that "territorial epistemology (modern and postmodern) cannot be decolonial; it is an imperial epistemology. Modern epistemology was built precisely to make sense of, justify, and legitimize coloniality".

Thus, decolonial and relational scholars propose that the global problems need to be confronted by engaging with the ontological and epistemological dimensions. Escobar emphasises the importance of acknowledging epistemologies of the South and the political ontologies of "contemporary knowledges and struggles orientated towards defence of life and the pluriverse" (2020: 53). In this way social and ecological devastation caused by dualistic conceptions can be illuminated, in particular "those that divide nature and culture, humans and non-humans, the individual and the communal, mind and body, and so forth" (Escobar 2020: 53). Ladha and

Murphy (2022) offer "polyculture" as an antidote to the domain of monocultures. To paraphrase Ladha and Murphy (2022: 117-118), polyculture acknowledges and honours "the many ways of knowing, sensing and being; the plurality of tongues", it embraces "'fugitive epistemologies'[1] that will not conform to silos and parameters". They emphasise that embracing of polyculture "must include our more-than-human relations" [that] "open ourselves to an omnicentric worldview connected to the wholeness …" (Ladha & Murphy 2022: 118).

This study pays attention to 'silent voices' - that is, the community and the land. Using the world-ecology framing made it possible to illuminate both the violence of colonial and modernity's way of being and relational values that were overlooked and erased. Interestingly Patel and Moore (2020: 1931) point out that "there isn't a word in English for the process of making life, though such words are found in a range of other languages". They use the idea of *oikeios* to denote this. In the *oikeios*, humanity is unified with nature in a flow of flows (Moore: 2015b). Patel and Moore (2020:13) refer to other languages that have concepts of the interconnectedness and interrelatedness of life:

> *The Anishinaabeg, whose original lands extended widely across north-eastern North America, have 'minobimaatisiiwin', which means 'the good life' but also 'a continuous rebirth' of reciprocal and cyclical relations between humans and other life. Southern African Bantu languages have 'ubuntu', human fulfilment through togetherness, and the Shona language has the further idea of 'ukama', a 'relatedness to the entire cosmos,' including the biophysical world. Similar interpretations exist of the Chinese 'shi-shi wu-ai' and the Maori 'mauri'.*

The relational and decolonial theory and praxis discussed here draws attention to a shifting praxis from the utilitarian, techno-fix, economic rationalisation to an understanding of more ecocentric/life-centric energy flows. These energy flows show that the praxis of restoration, reciprocity and regeneration has been undertaken. The concept of 'restoration' used here is about re-membering and recognising how the violence of a capitalist world ecology was made. Restoration implies the enhancing of the ability and capacity to learn and interact with the web of life differently than in the established and received way. In this we may also become both capable of designing a way of life that contributes to restoring the carbon cycle though different ways of cultivating energy needs and restoring life-affirming ways of being in practice (Salleh

1987; Guynas 2011; Nabudere 2011a, Mignolo 2016; Escobar 2011, 2018; Patel & Moore 2017). Reciprocity is understood as beyond simple mutual exchange and rather about paying homage to earth and human relationships that symbolically and materially give back to the earth (Álvarez & Coolsaet 2020). An important part of reciprocity is about our responsibility to co-create human and non-human worlds as our fate is intertwined (Salleh 1997, Nabudere 2011a; Kimmer 2013; Davis et al 2019). Davis et al. (2019: 8) emphasise that thought, and actions need to be generated towards "multispecies wellbeing". Regeneration or regenerative praxis epitomises being in relationship with oneself, other human and non-human worlds in life affirming ways (Merchant 1995; Salleh 1997; and Kimmerer 2013). Regenerative praxis is about the production and reproduction of life and the well-being of all; it is opposite to growth. Indigenous cosmologies and knowledges embody these relational values. As Salleh (1997:159) notes, "most indigenous men and women already share those links but are they willing to show us how …".

7.2.1 Yearning for Relationality on the Reclaimed Land

The process of listening to the stories of the mostly elderly women presented in chapters four and five drew attention to the importance of re-membering relationships with the land (Styres, 2019). As noted by French et al. (2020: 4) in the context of the storied and journeyed connections of us in relationship to others and the land, "pathways of cultivation of conscious actions" will arise that disrupt and problematise hegemonic dualist thinking. The Tsitsikamma Mfengu cannot to be compared to communities involved in ontological struggles that are about autonomy of different political organisation and delinking from the state spheres, banks, and corporations such as the Zapatistas (Mignolo 2016). My engagement with many of the elders in the community and the expression in the workshops embodied relational praxis, which I make visible in the section through returning to their narratives.

The land, soil, and the ground prior to the forced removals in 1977 was described as fertile, rich and in reciprocal relationship with those that cultivated it. Noble Songongo, remembered, people were eating healthy food from their gardens and foraged from the field, so *as I said, people at that time were healthy, because we were eating healthy food.* People ate what they planted and didn't have to buy food, they only purchased what they could not grow. Seeds were either bought at the co-operative or the community cultivated their own seeds. As remembered

by Busiwa Dlamini (born 1946 in Kareedouw and came to Tsitsikamma by marriage), *the seeds we would buy from the ko-operasie [co-operative] or we make our own seeds from the vegetables that we grew.* Water came from the river, the rain and the ground and the crops were rainfed. Princess Msizi remembered: *We got water from the streams. If we were many, we would have to sit and wait till the water came up again and would take that water. There was no need to water our crops because there was enough rain, and the land was rich.*

Maize (mielies) was taken to the co-operative in Humansdorp for grinding meal, *the mielie [maize] pap, mielie meal, that porridge; we used to plant mielies here and take that mielies to Humansdorp where we grind it to make mielie meal.* The Mfengu Tsitsikamma communities also had exchange points where extra crops could be taken. These food storage places were called an *idadla;* they would take mealies or samp to a particular *idadla* and take sweet potatoes to another. In this way not only needy community members could obtain vegetables but everyone in the community.

The past memory of cultivating food on this land also embodied relational perspectives of sustenance, self-reliance, and a sense of reciprocal living. The living conditions prior to displacement also proffered elements of Gibson-Graham's *diverse economy*, focused on localised non-capitalist community economies through which the "economic 'others' sustain material survival and well-being" (2007: 150). Gibson-Graham experimented with the processes of the mainstream economy – market transactions, wage labour and capitalist enterprise. In these modes of *transaction* of goods, services and finances, there are different modes of remuneration of *labour* and different kinds of *enterprises* that enacted non-capitalist relations (Gibson-Graham 2007). In these *transactional* exchanges, Gibson-Graham (2007) found alternative markets through co-op exchanges, barter, and local trading systems and through non-market ones, including gifts and indigenous exchange.

Gibson-Graham (2007) refers to labour that was *alternatively compensated* with in-kind, reciprocal labour, self-employment, and unpaid labour – housework, family care and neighbourhood networks. As mentioned, everyone in the community had small plots which they ploughed to cultivate vegetables. They worked on the land themselves. Gibson-Graham

also points out the practice of *alternative capitalist strategies* through their environmental and social ethic, as well as using non-capitalist business approaches (Gibson-Graham 2007).

In the cracks of the violence of Apartheid, the commercial farming capitalist activities, a practice, and way of being showed the non-capitalist relationships in the Tsitsikamma Mfengu According to Styres (2019), listening to the stories embodies the importance of re-membering. These expressed relations of "everyday practice of making kin" such as care, solidarity work, reflexivity, creativity, amongst other relational praxis. (Davis et al. 2019: 15). Mignolo suggests these kinds of diverse and/or sustainable economies are based on the re-emerging conceptions of conviviality rather than on development, growth, and accumulation. More attention needs to be paid to the work and struggles of populations around the world working towards achieving sustainable economies, which are "at the service of well-being rather than being better" (Mignolo 2016: 3).

In the process of re-membering and recalling some of the narratives from workshops and listening to those who were connected to the land and had knowledge of the land changes, illuminated the present condition of the soil and land and that of the community. Their well-being and the well-being of the land was no longer supported. *Ngoku asiwaboni amakhowa Ngenxa yalemozulu.* ("Now we do not see the mushrooms because of the weather." "It is very dry." *Asisalimi nje ngaqala* ("We are not farming like before"). *Ngoku asikaboni nto sibona intlupheko ngoku. Umhlaba uwrongo awuhlumisi, ivege siyayithenga* ("Now we have not experienced anything, we experience poverty. The land is not good, it does not allow for the vegetables to grow, we have to buy"). "We moved out of our land everything changed". "We cook with electricity but paying. Now we buy our vegetables. Now we have to buy meat. We stay in municipality houses. Now we have to pay for water." "Now we must buy from the shop electricity. Present we are using money to go to the shops. We are growing grass not food."

The statement "Now we do not see the mushrooms because of the weather" reflects the state of the degraded soil and land. The use and abuse of soil that has been plundered could be seen as a revolt of earth's metabolism. The mushroom fungi are no longer present to perform their role in decomposition, regeneration, and distribution of nutrients within ecological systems in the soil (Tsing 2012, 2015). While the soil is affected by climate change, capitalism's

relationships with the soil through human mastery and use of fertilizers have affected the life of the soil health and soil diversity. “We are growing grass not food” resonates with this community’s desires to have land on which to cultivate food. It made me think how the food we eat is vital for sustenance and body energy. Energy is vital to life. The energy of the sun is harnessed by plants through photosynthesis. The role of microorganisms in the soil and water bodies and the collection of living beings is to provide sustenance in the soil for all human and non-human beings Diverse healthy soil yields better tasting and more nutritional food that provides us with energy and improved health and well-being (Shiva 2016). As advocated by Richard Adams in 1975 a more critical research of energy flows and a focus on renewable energy sources such as solar energy is needed to “not only reduce dependence of non-renewable energy sources but to construct forms of energy needs for our own nutrition and that of other species” (Boyer 2014: 313).

At present this community has been subjected to the machinations of capitalism in the web of life in which they need money for everything. They are trapped in the matrix of neoliberalism that is not serving them nor serving the life on the land. The co-option of the community into financial investments in the dairy and wind farms overlooked not only their energy needs but also their desire to autonomously cultivate their own food and restore the soil. The politics, power relations, materiality, and exclusions of the neoliberal arrangements of the land claim in 1994 by the state, denied the community autonomy and decision making, even though their rights were restored on the land. But even if the land was available for cultivating food and they were allowed to farm, the soil damaged by the large-scale dairy farms stifles the food cultivation. This once self-sufficient community that had cultivated food in a regenerative way was forced to be embedded in capitalist productivist relationships to the land.

Thinking with the land and the soil opens ways to work beyond predominant ‘solutions’ to address the global ecological climate change and energy crisis in which this crisis is largely reduced to a single element, namely reducing carbon emissions and the proposed techno-fix solutions. Under the rubric of climate mitigation, economic development and the improvement of community well-being, discrete and deterministic approaches to electricity generation and private investment excluded marginalized, disempowered local communities and disregards other perspectives.

In a recent Presidential Climate Commission (PCC) Report, "A Framework for Just Transition in South Africa" (PCC 2022: 7), claims are made to build "the resilience of the economy and people through affordable, decentralised, diversely owned renewable energy systems; conservation of natural resources; equitable access of water resources; an environment that is not harmful to one's health and well-being; and sustainable, equitable, inclusive land use for all, especially for the most vulnerable". The report is centred on the principles of 'distributive justice', 'restorative justice' and 'procedural justice' (PCC 2022). In the report, distributive justice broadly suggests risk and opportunities in just transitions should be fairly distributed and the 'poor' and working class must not carry the overall burden. Thus, the transitions must be embedded in skills, assets, and opportunities for workers to participate in industries. The report encourages corporate responsibility and promotion of a green industrial economy. Restorative justice, restoring the historical damage to people is about redress to heal the land and people. The report specifically mentions improving ecosystems and increasing community ownership. Other aspects include increasing energy security, eliminating energy poverty, creating opportunities to rehabilitate degraded land, air, and water systems. The report also emphasises decentralised energy systems, net zero emissions, economic inclusion, ownership, participation, equitable access, land distribution and BEE. Procedural justice focuses on empowerment of workers, community, and small business. A key aspect is support in the transitions to define their own development and livelihoods. This procedural justice principle involves assisting communities to understand what just transitions entail and support their active participation, collaboration, and inclusivity in the policy process to support the design and implementation of just transitions.

But given a world dominated by techno-capitalist development, the increasing dependence on private capital to finance 'development' projects and the ongoing neoliberal conditions required for market-based finance to accommodate portfolio investors that manage the trillions infrastructure asset classes, it is unlikely that claims will be met in a corporatist-capitalist model of renewable energy development. As seen on the TCWF under the REI4P model where the policy imperatives of land redress, participation, inclusivity, ownership, and philanthropic corporate responsibility were met but in reality, the hardship in these communities remain. While the PCC report is recent, bestowing local 'development' commitments to improve the lives of the marginalised is proving to be elusive, as reported in an article in which millions were wasted in failed initiatives of wind farms (van Dieman 2022). Bollier and Helfrich (2019:

36) stress “the physical pathologies of capitalism – ecological destruction, inequality, exclusion – do not stem only from soulless corporations and cynical politicians. They derive from a deeper more fundamental problem – a fallacious understanding of reality itself”. This reality is embedded in world-praxis that remade the “world in the image of capital” or as Moore states in accordance to the “fantasies of capital” (Moore 2015a: 3).

In the modern sense our focus on energy is referred to in mechanical terms, that is its ability of energy do work. The discovery of stockpiles of carbon in wood, coal, and oil, according to Chakrabarty (2008), has shaped modern society and our ‘freedoms’ given rise to our so-called civilisation, shaping cities, manufacturing, transport and so forth. This ‘discovery’ has created the dependence on fossil fuels and the intense ‘energy metabolism’ of the world economy (Mitchell 2009, 2013). As pointed out by Patel and Moore (2020), we are living with climate change as the consequence of the cheap energy. This thesis has attempted to show that green energy is not the silver bullet to address the climate crisis. Green technology advancements, orchestrated within the capitalist web of life, do not change the values and social relations that made the plantations and coal deposits in the first place (Moore 2016; 2021). In fact, the capitalist world economy perpetuates the cheapening of lives; it maintains race, class, and gender relations through new forms of green energy mastery and capital accumulation. The so-called climate solutions of renewable energy embody the logics of cheap nature by which unpaid work, wind and sun has become to matter as part of the commodity circuit that fundamentally supports ongoing capital accumulation. Furthermore, the case of the TCWF shows that renewable energy investment projects and PPPs do not meet the energy needs and ensure electricity access and affordability for all; marginalised communities are excluded (Howe 2011, 2015; Baker 2015b; Baskin 2015; Dunlap 2017; Boyer 2019). Moore (2021) considers the response garnered in the international climate change policy regime as instituting climate apartheid, climate class and climate racism.

While the ontology and epistemology of modernity undergirds separation of humanity from nature, “history is made not through the separation of humans from nature but through their evolving, diverse configurations” (Patel & Moore 2020:20). These “human relations of power and difference, production and reproduction, not only produce nature; they are products of nature” (Patel & Moore 2020: 20) Thus, the dominant capitalist relationships with nature have

not only produced the climate crisis but are products of the crisis. This is because capitalism as an ecology is a set of relationships integrating capital, power, and nature as constitutive relationships (Moore 2015b). This constitutive relationship for modernity's progress manifests as economic prosperity, well-being, and social stability for some at the expense of others (Ladha and Murphy 2022). Patel and Moore (2020: 20) emphasise the fact that "Everything that humans make is coproduced with the rest of nature: food, clothing, homes and workplaces, roads and railways and airports, even phones and apps". Capitalism's world-ecology through its joining of power, capital and nature is based on domination, mastery, extractisvism stated differently – capitalism's world ecology creates further inequalities of not only proletariat and femitariat[26] but also biotariat[27] that is the extra-human nature that gets put to work (Moore 2021). In renewable energy transitions wind, like land has become incorporated in the capitalist commodity circuit. Agendas of environmental justice and energy justice that manifest in SGD7, Dunlap (2021: 5) contends "mirrors colonial (missionary) enlightenment…" impositions. Furthermore, he stressed the "SDG7 agenda necessitates enormous amounts of resource extraction, horrendous labor conditions and homogenizes cultural diversities and distracts from post-development aspirations that might generate and use electricity in a different way than proposed—or implied—by SDG7" (Dunlap 2021: 5). He points out while people should have the convenience of electricity should they desire, these participatory processes that include indigenous or non-indigenous local communities are largely uninterested in "perspectives outside the dominant culture of modernity, industrial development and universal ideas of human rights". While the 'green' energy techno-scientific trajectory involves participatory processes these processes are largely apathetic to ways of thinking and being outside of western modernity's dominant culture.

Mignolo (in Schulz 2017: 129) emphasises the need to disrupt "hegemonic discourses centred on Western-centric ontological and epistemological frames which continue to silence and subalternise other ways of knowing and being". Contemporary climate change solutions for

[26] Moore (2021: 3) explains "the Femitariat is "the overwhelmingly feminized relations of overwhelmingly unpaid social-reproductive work".

[27] Biotariat, understood as the quantum of extra-human nature put to work for capital and empire. Moore (2021: 3) writes "Biotariat includes all the things we think of when we hear 'ecosystem services' but also includes many humans, who are devalued on the grounds of the ruling abstraction Nature: above all through race, nationality, gender, sexuality, and so forth."

climate mitigation and adaptation raise another fundamental question: "What if the way we respond to the crisis is part of the crisis?" (Emergence Network). Escobar (2020: 49) urges us to see the need for alternatives to the "one-world story" underpinned by coloniality, that can displace the "centrality of this dualist ontology, while broadening the space for non-dualist ontologies". Schulz (2017: 138) argues that there is a need to re-interpret all literature according to its Anthropocentric origins and their bias through decoloniality. Schulz (2017) emphasises focusing on decoloniality, meaning that we need to listen carefully, and that western scholars should make better use of their privileged position in the world rather than uncritically following the Anthropocene discourse. Schulz (2017) suggests that 'border thinking' can inspire and enhance our thinking towards pluriversality. The essence of border thinking is "dwelling *in* the borderlands, metaphorically as well as in concrete material terms, to create new cultural and political imaginaries in a position of being-in-between" (Anzaldua in Schulz 2017: 132). Schulz (2017: 134) suggests that border thinking requires a "heightened sense of enchantment, a willingness to engage in mystical narratives that tell us about ourselves and others, of the living and non-living worlds". This does not mean that border thinking is anti-scientific. Rather, it means that it requires us to practice "epistemic disobedience" by directing attention toward the "ideological, geo-political and body-political location of the subject that speaks" (Mignolo in Schulz 2017: 133). Schulz (2017: 133) posits that border thinking seems to be a suitable approach for combining different aspects of political ecology and decoloniality as openings to "a pluriversal view of more-than-human ontologies". Border thinking assists in an understanding of decoloniality as "delinking from the ways of knowing and the ways of being that trap us into the promises of modernity and the tentacles of coloniality" (Mignolo 2017: 16).

In Howe and Pandian's small essays (2020: 20) they too propose plural perceptions to provoke a different imagination of the Anthropocene as a whole, that might open different possibilities for action. Howe and Pandian (2020) suggest, for example, imagining what the destruction of forests for mineral 'resources' would be if conceived from an enduring indigenous relationship with land and forest as sentient. Also imagine how our sense of human power might "shift if we acknowledged the animals and other living beings from whom we borrow our capacities, or the photosynthesis that imbues the planet with so much of its available energy?" (Howe & Pandian 2020: 20). Escobar (2011:139) states that by "emphasising the profound relationality of all life, these newer tendencies" show "there are indeed relational world views or ontologies

for which the world is always multiple – pluriverse". As argued by Barad (2018: 213) "raising questions of history, memory and politics" that are collectively rooted in and invested in particular conceptions of time and being is essential to evoke "possibilities of justice-to-come".

7.2.2 Towards recalibrating life-affirming relational energy ways

Davis et al. (2019) advocate for a more prominent recognition of black, brown, and indigenous peoples' quest to dismantle dualisms. In their words, "we must recognise that numerous Black, Brown and Indigenous people [who] have for many years practiced [sic] non-binary conceptions of the human and nonhuman relationships" (Davis et al. 2019: 10). Wynter and McKittrick (in Davies et al. 2019: 7) say that in the depth of violence and at the edges of the plantations, black embodiment of the land within the slave plot "became the focus of resistance to the overriding system of the plantation economy". "Relational modes of being, multiple forms of kinship, and non-binary ways of engaging the world that foster ethics of care, equity, resilience, creativity and sustainability" can be found within the plot (Davies et al. 2019: 8). The Tsitikamma Mfengu's relationship to the land, even if they were 'given' the land by the colonists in many ways resonates with 'black embodiment' within the 'slave plot'. Interestingly, Davis points out the indigenous West African concept of "good use" that underpins the "the socioecological ethos of the enslaved" is "founded on the belief that land is a source of spiritual and material nourishment connecting families to past, present, and future" (2019:8). They state, "contrary to the idea of "rational use" motivating colonial expansion which promoted the seizure, enclosure, privatization, intense cultivation, and commodification of land as a means of European accumulation, "good use" principles assigned moral, spiritual, and relational meanings to land that assured its more-than-economic value. Land was sacred …" (Davis et al. 2019: 8).

With reference to the South American indigenous contemporary struggles and resistance to 'development, Escobar (2011: 139) argues that these struggles reflect the "defense and activation of relational communities and world views", which are not ideological struggles but can be regarded as "ontological struggles" These struggles refer to "different ways of imagining life, to another mode of existence" (Escobar 2011: 139). For example, living well in harmony with nature draws on the values of South American Indigenous knowledges based on Andean traditions, namely "*suma qamaña* in Aymara", Bolivia and *samak kawsay* in Quenchua, Ecuador – translated as *buen vivir* in Spanish, meaning "living well" (Mignolo

2016: 3). The relationship to *Pachamama* (Mother Earth) is fostered through "communal organisation and wholeness of land and territory" (Mignolo 2016: 3). "Pachamama is energy, both material and spiritual energy; it is fertility, it is energy that receives light from the sun and water from the rain in order to constantly regenerate life" (Mignolo 2016: 13). He points out "Pachamama in Aymara is related to indigenous communal organisation and the wholeness of land and territory" and it is misunderstood if simply translated as Mother Earth (Mignolo 2016: 130). "Wholeness of land" is an understanding of a "harmonious balance between material and spiritual components", in which social and ecological conceptions based on community are linked to the "Andean concept of *ayllu;* well-being" which is not only focused on people but with the rest of nature (Gudynas 2011: 444). This Earth is understood as an embodiment of the complex forces and energies that engender and regenerate life.

Buen vivir have been well explored in terms of alternatives to 'development' fixated on growth and human progress (Mignolo 2016; Acosta 2013; Escobar 2011; Guynas 2011). Gudynas (2011: 444) refers to the work of Simón Yampara, an Aymara sociologist who describes *suma qamaña* as not being restricted to the "well-being of property ownership and consumption" but as a "harmonious balance between material and spiritual components" possible in both a social and ecological context in the production and reproduction of life. *Buen vivir* is the quintessence of ecocentrism and the alternative to anthropocentric capitalist development. In essence *buen vivir* is a 'plural endeavour' that can be linked to critical positions in modernity discourses of classical development (Gudynas 2011; Escobar 2011; Mignolo 2016). Prada (2013:145) describes *buen vivir* as an alternative to development, an indigenous cosmovision of coexistence with nature. In this way of being, humans live with an understanding of their interconnectedness with nature, they do not produce an overabundance but for their needs and local use and demonstrate local democratic participatory approaches. *Buen vivir* is about displacing the centrality of humans as the sole subjects endowed with political representation, disengaging from development, rejecting colonialism, and embracing the embodiment of ecocentrism to sustain life (Gudynas 2011, Mignolo 2016).

Nabudere's (2011a) concept of Afrikology provides insight into the worldview of wholeness and holism that emerged from the African people of ancient times. He points out that in ancient Egypt, knowledge was understood as "self-creating in the process of becoming and self-

begetting, [and] began to set the epistemological basis of knowledge creation and its ontological propagation in an organic way" (Nabudere 2011a: 18). Autonomy is central to self-creating living systems asserts Escobar (2018). Nabudere also suggests that the African dictum of *ubuntu*, "I am because you are, or I exist because you exist", affirms the originality of Ptah, the Egyptian primordial deity of self-creation. Ubuntu "is premised on very specific understanding of personhood" in which the full development of personhood comes with shared identity and an individual's humanity fostered through a network of relationships (Ogude 2018: 1). Ogude (2018: 6) explains that Ubuntu's idea of personhood is not simply about the interdependence between human beings, "but also with the broader world, physical and spiritual …" and in this way personhood is "a process of being and becoming". In the self-created creator, the process of the emergence of consciousness is interrelated with becoming aware of one's surroundings and environment, and "the heart becomes the centre of consciousness and conception of things around" (Nabudere 2011a: 18). Reason and logic are the basis of sensory information that reports to the heart, and the tongue releases what the heart thinks, thus emphasising the importance of connecting to our senses as a way of exploring knowledge with the earth's bio intelligence (GTDFC 2019).

From an ecofeminist perspective the interconnection between reproduction of material needs from nature and the production of social life and spiritual relationship are inseparable (Merchant 1992). Ecofeminist relationality acts to resolve the contradictions between production and reproduction. Eco-feminists share an understanding of how nature relates to energy flows and cycles, in which no surplus is produced and there is an ever-turning embodiment of internal relations and restoration (Salleh 1997). A conscious attention to maintaining the "ecological rhythms in which we are implicated brings new meaning as well as political notions such as 'internal security'" (Salleh 1997: 155). Energy flows and cycles cultivate relationships that reaffirm life, reclaiming planetary cycles of carbon, water, nitrogen, phosphorous and more and approaching nature as a subject in its own right (Salleh 1997: 156). Salleh (1997: 56) also draws attention to a "trans-species" ethic in the understanding of bioenergetics that is useful for our contemporary era, an ethic that encompasses "an organically living lifespan, birth and death; temporal phasing of organic growth, sexuality, cooperation of meeting of organic needs; stability of social order and integration of social groups". In terms of relational energy transition, ecofeminist Salleh (1997) offers a bioenergetic invitation that explores an understanding of nature's way of relating to energy flows and cycles. Salleh's

bioenergetic understanding presents a shift from extractive notions of energy use that maintain *productivist* models to a shared energising force between the human species and the rest of our ecosystems. She writes that these areas are described in almost every culture and are described as "women's holding labour", thereby giving women a unique vantage point from which to help create an ecocentric ethic (Salleh 1997: 157).

In responses to the climate crisis, there is need for acknowledgment and listening to indigenous people, black and brown people, anti-colonial, and abolitionist movements who support ways of being in wholeness, communal and life-centric living. Tracing the entanglements of the land on which the farm stands was a way of remembering how capitalism's ecology has made the world. It was a way of making visible erasures and a way of encouraging "our capacity to think and act as well relate with the web of life differently" (Moore & Patel 2020: 207). This will require taking responsibility, "the ability to respond" (Anzaldúa in Barad 2014: 183).

> *To address the past (and future), to speak with ghosts, is not to entertain or reconstruct some narrative of the way it was, but to respond, to be responsible, to take responsibility for that which we inherit (from the past and the future), for the entangled relationalities of inheritance that 'we' are, to acknowledge and be responsive to the noncontemporaneity of the present, to put oneself at risk, to risk oneself (which is never one or self), to open oneself up to indeterminacy in moving towards what is to-come.*

Anzaldúa metaphor of "dwelling in the borderlands" to open up new political imaginaries, means 'we' needs to enhance our ability to respond differently, so, 'we' "*to put oneself at risk, to risk oneself (which is never one or self), to open oneself up to indeterminacy in moving towards what is to-come".* In this next section the emergence of new and different imaginaries are explored in energy transitions beyond reductionist and economic rationalist thinking and way of being towards the social production life,

7.3 The emergence of 'more-than-economic values' alternatives

Escobar (2018) emphasizes that these contemporary conjunctions of social and ecological devastation bring to the fore the need for critical inquiries of western modernity's ontological dominance. Indigenous cosmovisions, black ecologies and the more-than-human worlds draw attention to the importance of relationality and the radical interdependence of all life. As argued by Davis et al (2019: 8) "such, humans were responsible for its protection through the enactment of spiritual rituals and other practices to assure its use for collective benefit". Escobar (2018: 4) presents the notion of relationality in terms of ontological design as a means to contribute towards a transition from the "hegemony of modernity's one world ontology to pluriverse of socionatural configurations …". In the context of transitions, he invites "designs for the pluriverse" as a tool for reimagining and reconstructing local worlds.

Kinder (2021) offers an entrancing account of a solar infrastructure in a Canadian indigenous community leveraged against extractivist, colonial infrastructures. The installation of a 20.8 KW/h solar energy unit in a community health centre involved the indigenous Lubicon Cree community in the design and construction whereby the solar panels were integrated into the environment in a manner that considered the social and cultural role in the community beyond simply fuelling the health centre (Kinder 2021). The partnership between Lubicon Cree energy justice activist Melina Laboucan-Massimo and the Tiny House Warriors arose from solidarity in the face of the violence enacted in the extractive zones against indigenous women and was informed by energy justice towards energy self-sufficiency. The Lubicon Cree's territory was subjected to logging and large-scale gas and oil in the Canadian tar sands area (Amnesty International 2003). They have coined the concept 'solarity' as a form of solidarity among the human and nonhuman world; it describes a relation towards the sun that reorients our collective energy imaginaries from one of scarcity to one of abundance" (Kinder 2021: 64). Kinder (2021: 73) explains that:

> *Solarities do not simply name a technological relation to the sun, but rather, a broader social relation reoriented from stock back to flow, and these interlinked renewable energy infrastructure initiatives mutually inform each other. Through this expanded, relational understanding of energy infrastructure, Indigenous solarities mediate relations and modulate energy futures between extractive foreclosure and post-extractive possibility.*

Solar panels themselves have material requirements tied to extraction that have been framed in terms of "green extractivism" (Kinder 2021: 64). Like wind energy extractivism in the era of green energy capitalism, it is critical to raise the understanding of these material infrastructure modes as emergent and dynamic in a way that may disrupt present modes of energy transitions underpinned by 'resource' and extractivist logics. As an alternative, 'Sacred Earth Solar' is about transition that explicitly articulates the cultural, material, and political narratives to express and embody care for both human and non-human worlds and involves the community (Kinder 2021: 69). In this way the acknowledgement and recognition of the extactivist relations in the so-called green energy 'solution' garners the relational energy democracy underpinned by life affirming practices.

Indigenous solarities express principles of indigenous feminism based on social reproduction of life and have at their centre the maintenance of good relations between human and more-than-human kin. Kinder (2021: 70) writes that "an expanded notion of social reproduction in these terms illuminates the relationship between land and the more-than-human world centered by Indigenous solarities", a form of social reproduction that is tied to land-based practices, knowledges and theories categorically disrupted and threatened by extractive processes.

Furthermore, Kinder (2021) proposes that indigenous solarities are a kind of futurism that fuse solar technologies with indigenous epistemologies and ways of being to foster a just decolonial energy future. In thinking about how we might build a climate-resilient future, contemporary architecture and design theory needs to consider low technology and indigenous knowledge systems (Flemming 2020; Kinder 2021). Indigenous resistance to extractivism is not only being against western modernity but standing for something greater – "the continuation of life on a planet ravaged by capitalism" (Kinder 2021: 72).

Gibson-Graham (2014: 92) writes that "there are many more elements of the complex social technical assemblages that are bringing this new energy sector into being". The language and lexicon of indigenous communities, community economies and sustainable economies "that articulate the concerns of more-than-human interdependence is an important actant in these world-making preformations as are the collective subjects that are being produced through

collaborative and collective practices …" (Gibson-Graham 2014: 92). They provide examples of 'Solar Citizens' and solar cooperatives in Australia of different energy socio-technical assemblages that are non-capitalist and embody more-than-human relations. In the Solar Citizens project, the government programme provided "cash rebates on the purchasing and installation of solar panels, renewable certificates, and guaranteed energy tariffs, while energy fed the grid" (Gibson-Graham 2014: 87). These solar panels were placed mainly in households in rural areas and on the outskirts of the city through government subsidies (Gibson-Graham 2014: 88). When the subsidies came to an end, different mechanisms for accessing and financing solar energy emerged. Gibson-Graham presented an example in which a Californian solar company installed solar panels for free and arrangements were made "with a local Credit Union for the system to be paid off over ten years" (2014: 88). In this way the producer and consumer of energy serviced this debt, saving on energy cost as more energy was generated from the solar system than needed and could be sold back into the grid (Gibson-Graham 2014). The Solar Citizens movement in solar rooftop was all about generating clean energy with collective 'investors' "taking back control of their energy needs" (Gibson-Graham 2014: 88). This not only focused on the 'middle class' but all social classes including those in so-called poorer neighbourhoods. As stated by Gibson-Graham (2014:88):

> *Solar energy "prosumers" (producers/consumers) are exercising their calculative agencies that make visible their interdependence with a variety of human and non-human others: the sun and its daily and seasonal rhythms, with the technologies of solar capture and their financing, with the national grid and its demands and price fluctuations, and household energy use.*

Solar Cooperatives are another interesting post-capitalist approach initiated by labour unions in coal mining areas in Australia (Gibson-Graham 2014). They point out with the decrease in employment in manufacturing and heavy industry sector, a group experimented with setting up a cooperative linked to the renewable energy sector. This group of workers formed "Australia's first workers' cooperative for 'green' manufacturing, called Earthworker Cooperatives" (Gibson-Graham 2014: 89). Their plan was to manufacture solar water units and a full range of 'green' technologies, locating the manufacturing plant in the established coal-mining areas. Gibson-Graham (2014) pointed out that the business model had an interesting marketing and distribution strategy that combined diverse economies. The solar hot water systems included an "in-kind payment in negotiation between unions and employers as part of the Enterprise

Bargaining Agreements" (Gibson-Graham 2014: 89). Discussions on surplus distributions were democratically decided, including that some of the surplus would be invested back into the cooperative creating more work and a research fund, and a percentage would go towards a social justice project to assist low-income families and older citizens to install solar hot water systems. Gibson-Graham (2014) underscores the fact that this promising initiative by the labour movement had to navigate the complex politics of the workers in the coal sector. They point out that miners are locked into the socio-technical assemblages of exploitative working conditions in a coal mine and appear reluctant to think ahead about the future of the planet. Many would prefer to find jobs on the next mine or factory. In contrast the 'Earthworker' initiative employs a worker-controlled business model that allows surplus to be harnessed toward expanding a sustainable production sector that contributes to the well-being of people and the planet (Gibson-Graham 2014: 90). They further point out that they have designed "socio-technical assemblages that reduce living cost, generate jobs with a livable wage, care for earth others and acknowledge our interdependence with future generations" (Gibson-Graham 2014: 90). They emphasise that "these kinds of assemblages make community economies more viable" (Gibson-Graham 2014: 90).

7.4 Conclusion

The world-ecology approach illuminated the fact that green energy technology responses to the climate crisis are entrenched in the dualist ontology of western modernity's relations and objectifying epistemology of reductionist and rationalist thought. The decolonial and relational scholars centre on Cartesian dualisms as problems that underlie an entire structure of institutions and practice through which a western modernist worldview idea is enacted with the intrinsic separation of things that occludes relationality (Moore 2015b; Mignolo 2016; Patel & Moore 2017; Escobar 2018). Tracing the relationships of the different actors in the making of the TCWF brought to the fore dimensions and questions of ontology and epistemology, beyond dualisms. It showed that the productivist extractivist way of thinking and being undergirds a relationship that organises nature to work for capital, as postulated by Moore (2015b, 2016). Stories emerged about self-sufficiency, care and reciprocity with each other and the soil of the land of the wind farm amongst the elderly in the community. In these the erasure of the relational connections to the land was re-membered. In my exploration of the material of decolonial and relational scholars, recognition was made that numerous black, brown, and

Indigenous people have practised non-dualism conceptions of human and non-human ways of being, thinking, knowing and doing, based on the profound awareness of interdependence and inter-relatedness of life. Escobar (2018) emphasised that all transitional thinking needs to be attuned to Earth; renewable energy transitions need to consider the multiplicity of entanglements between human and non-human nature based on relational and convivial ways of being, knowing and doing. In recalibrating the relational practice of energy flows and cycles, indigenous cosmologies are essential to foregrounding thinking that will shift the dominant utilitarian understanding of energy needs and use in climate change discourses. The challenge remains of how we might become capable of designing a relational life- and world-making praxis.

In Anthropocene discourse renewable energy transitions based on relational values and approaches are concealed and undermined in the dominant techno-fix and market-based climate mitigation approaches. This chapter has provided examples of relational renewable energy praxis in solar energy that might help us in learning to act with human and nonhuman others, negotiating in ways that enhance the well-being for all in energy transitions (Gibson-Graham 2014). Escobar (2011: 139) states, "We need to stop burdening the Earth with the dualisms of the past centuries, and acknowledge the radical interrelatedness, openness, and plurality that inhabit it". Recalibrating relationships based on lifecentric values and principles of reciprocity, restoration and regeneration explored in this chapter, together with the praxis of non-capitalist more-than-human relations, opens possibilities to cultivate a politics of multiplicity and relationality towards more-than-economic value post-extractive energy futures. The concluding chapter of this thesis is a modest invitation to contribute to the design of other worlds and knowledges. It requires the diversity and multiplicity of social practices in opposition to the exclusive credibility of hegemonic practices in energy transitions.

Chapter Eight: Conclusion

> *Change will need resources and space to develop. There is no roadmap for a class struggle that simultaneously reinvents humans' relations with and within the web life. If we are made by capitalism's ecology, then we can be remade only as we in turn practice new ways of producing and caring for one another together, a praxis of redoing, rethinking, reliving our basic relations.*
>
> (Patel & Moore 2020: 206)

> *If we do not have a clear perspective of capitalism, we become contextually irrelevant. However, if all we have is a critique of the dominant system, we in turn become spiritually and creatively impoverished. This is why post capitalism* [28] *is a necessary discourse for the collective imaginary.*
>
> (Ladha & Murphy 2022: 7)

8.1 Introduction

This thesis investigated the pervasive ways in which the 'win-win' rhetoric used in climate mitigation approaches and claims of South Africa's renewable energy policy unfolded in the context of the wind farm on the reclaimed land of the Tsitsikamma Mfengu. In the case of TCWF despite the corporate philanthropy, community participation, communally owned land, and community shareholding, the wellbeing and dignity of this community remains unchanged. Although renewable energy technologies are important in working towards reducing the world's dependence on fossil fuels, however they are not the panacea. The earth's temperature is increasing despite the myriad interventions under the rubric of climate mitigation and adaptation. Scientists and climate justice activists fear governments, corporations and society

[28] I draw on the book of Alnoor Ladha and Lynn Murphy, *Post capitalist philanthropy: Healing wealth in the time of* collapse (2022: 6), "Post capitalism is not simply another 'ism' to replace previous ideologies. It is not a euphemism for socialism or anarchism or Nordic capitalism, although it may contain some elements of each. Post capitalism is a conceptual container for social pluralities based on shared values that stem from an experience of the shortcomings of the existing system and the lived experience of life-centric alternatives".

are not sufficiently implementing the ‘solutions’ and recommendations in the ecoauthority (Howe 2014) reports such as the IPCCC reports.

Firstly, by investigating how the ‘win-win’ rhetoric in climate mitigation unfolded through the implementation of REI4P in the TCWF, this thesis problematised the claims of the dominant techno-scientific approaches and investment strategies in renewable projects. Secondly, by employing a non-dualist lens in the analysis and methodological investigation of renewable projects, this study suggests the present ‘fix-it’ approach with techno-scientific ‘solutions’ and ‘green growth strategies in renewable energy transitions are locked into a paradigm of cheapness and profit. Conceptually and methodologically, the thesis followed a world-ecology framing and traced the intra-actions of entanglements of the wind farm as a phenomenon through which relationships emerged in both the human and non-human actors. Tracing the interrelatedness of human and non-human actors was important to draw on the complexities beyond a political economy analysis. This thesis demonstrated how ‘green’ energy thinking which is a key climate mitigation approach within the Anthropocene discourse is entrenched in Cartesian dualism and founded on ideas of ‘either/or’ trade-offs as a way of thinking of energy transitions in which mainstraim economic growth and development trumps social-ecological well-being of humans and non-human worlds.

The earth is becoming more inhospitable to human life and the rise in temperatures and the degradation of the earth is leading to mass species extinction. The ongoing destruction of the earth may become irreparable, if we do not understand that capitalist modernity as constitutive relations has organised the world for almost all humans and non-humans to work for capital accumulation and that is at the core of the problem. The design of green techno-scientific approaches and financing strategies is shaped by an ontology of human mastery over nature and driven by profit-making priorities. The ideas of ‘progress’ and mastery over nature which have their roots in the historical rise of capitalism in Europe (sixteenth century) eventuated in relentless colonialism. In the colonial period conquest, plunder and productivity became common sense and commonplace (Patel & Moore 2020). In line with scholarly writing on the topic this thesis made visible the shadows of modernity, that is, the colonial narratives and histories hidden in the shadows of ‘development’ and ‘progress’ (Merchant 1980; Cronon

1983; Mignolo 2013; Barad 2018; Patel & Moore 2020, French et al.2020, Szeman & Wenzel 2021).

Achieving the thesis aims, had five objectives discussed below in the findings. The first was to explore the claims of 'green' thought in wind energy assumed to advance techno-scientific 'solutions' and community 'upliftment' through a focus on a case study of the TCWF. The second aim was to synthesise a body of concepts drawing on various diverse and interdisciplinary scholarly works that engage critically on 'green' energy transitions approaches premised on economic growth. The third objective was to build on the work of post dualist scholars and use a non-dualist lens to analyse the 'win-win' climate mitigation rhetoric in the TCWF case study. The non-dualist approach in this thesis made space for the inclusion of history, memory of the land and ecosystems of Tsitsikamma and showed how the historical geographical patterns of the past are present in renewable energy projects such as the TCWF. The fourth objective was to contribute to moving the debate beyond current anthropocentric consequences and 'solution' orientated renewable energy projects through incorporating a relational lens. The fifth objective was to contribute to conversations that engage in useful conceptual and methodological approaches that might open possibilities for relational energy transitions. This thesis is not 'solution' orientated but presents an opening for conversations to think and respond differently so possibilities of relational energy transitions might emerge.

8.2 Key findings of this thesis

The key findings of the thesis are discussed in this section. I elaborate on the significance of the application of non-dualist methodologies to make visible the violence hidden in the dualism of modernity's ontological and epistemological worldview. With the non-dualist methodologies generated in this thesis, the complicity of 'green thought' and the violence of ongoing extractive thinking and 'resource logic' of 'cheap nature' in renewable energy technology is revealed as 'new forms of capital accumulation.

8.2.1 A non-dualist lens on the implications of 'green' thought

Objective one sought to explore diverse literature to find a useful conceptual lens and approach and method for researching renewable energy projects. Intrigued by Moore and Barad's conceptual thinking I took to a different scholarly angle to the familiar qualitative approaches

and political economy approaches and experimented with their conceptualizations to explore the TCWF. I drew on post-Cartesian or non-dualist approaches (Moore 2014, 2015b, 2016) and through the evidence in this case study obtained a sense of the implications of so-called sustainable energy projects experienced in the reality of this community and the land on which the wind farm stands. A non-dualist history described in Moore's (2015b) world-ecology as a "'unified' theory of historical capitalism and historical nature" has been used in this thesis in order to trace changes in the land on which the wind farm stands and to engage with the material relationships of the different actors (both human and non-human) in the making of the wind farm. Coupled with Moore's (2003, 2014, 2015b, 2016) world-ecology framework, Barad's (1996, 2014, 2018) approach to tracing differences and patterns in the entanglements between human intra-actions and the land on which the wind farm stands as a phenomenon through spacetimemattering, has illuminated multiple human intra-actions to the land of the Tsitsikamma that traces both humans and non-humans over space, time, and matter. The history of land dispossession of this wind farm encouraged me to trace the colonial settler and ecological landscape history. By analysing the changes in soil and land history though an approach of tracing, memory in Chapter 5, it became clear that there were changes in human interactions with the land and how it shifted from reciprocal and symbiotic to colonial hierarchical, propertied, and commodified (through settler colonialism). The invasive, violent and extractivist approach of settler colonialism in the land changes resonated with Cronon's (1983) observation of how settler colonists saw the 'land of plenty', this extractivist approach in many ways continues in the context of wind farming in the present. The past displacement of Khoekhoe and San peoples from land on which their lives depended, subjected them to becoming farm labourers, and many were forced to live on missionary stations. The extension of British frontiers displaced many Xhosa and Zulu territories. Over the colonial and apartheid period the landscape of Tsitsikamma changed to mostly commercial farming activities and forestry. The Mfengu who were granted the land by the British in the Tsitsikamma after living there for over a century, were forcibly removed by the apartheid government which sold the land to commercial dairy farmers who replaced the natural grassland with planted pastures. A series of studies by Swanepoel et al. (2013, 2014, 2015) have shown that the micro-structure of the soil has been affected by excessive use of fertilizers on dairy pastures. At present the Tsitsikamma has become a frontier for wind farms with wind energy infrastructures inserted into soils which have been degraded by large scale commercial agriculture. The historical geographical patterns of enclosures and the transformation of the land into landed-property that shaped agrarian class and discriminatory relations remain in the present in South Africa. While

Tsitsikamma Mfengu have reclaimed the land, they have no decision-making over the land use and find themselves hemmed in maintaining neoliberal capitalist productivity and financialisation as the only option. As De Sousa Santos (2006), Gibson-Graham (2007) and De Sousa Santos and Meneses (2020) have shown self-sustaining, non-capitalist relationships such as those embedded in the regenerative farming practiced by the Tsitikamma Mfengu communities prior to their forced removal under apartheid are often rendered invisible and non – credible.

Cronon, wrote of how colonists "treated members of an ecosystem as isolated extractable units" (1983: 21). In sum the extractivist relations of the past are visible in the present visible from for large-scale commercial dairy farms and depleted soil nutrients that were replaced with fertilizer, black people are extracted as labourers, the forest was extracted for commercial forestry and replaced with pine plantations, the materials of the wind energy infrastructures are obtained through extractive relations and at present the wind has become incorporated into the commodity circuit for electricity generation.

Amid the violence of colonialism and apartheid, the tracing of the entanglements of soil and land history, memory on which the wind farm stands brought to the fore past land-based relationships of reciprocity, care, regeneration, and solidarity within the community to the land. Stories and narratives about the time prior to the displacement of Tsitikamma Mfengu community, who were pastoralist-cultivators, show they were a largely self-reliant and self-sufficient. To my surprise many reminisced about their previous food-farming activities, in which they had cultivated vegetables and farmed livestock on their small holdings. They had places of food crop exchanges and the community had lived in abundance rather that scarcity. The narrators described the soil as "fertile" and full of nutrients. These narratives echoed a way of relating to the land and a re-membering of a time in which life encompassed symbiotic relationships. In the words of French et al. (2020: 19) it reflected "needing each other to survive", ubuntu, a human fulfilment through togetherness. Listening to the stories of mostly the elderly in the community embodies the importance of re-membering, that which settler colonialism wishes to dismember and occlude (Barad 2014, 2018, Davis et al. 2019, French et al. 2020) and which remain omitted within the rubric of current energy projects. I found that

there existed these different reciprocal relations pre-apartheid and that these have been ignored in the context of the land claim and its trajectory in the wind farm.

8.2.2 Making visible the hidden violence of ‘green’ thought

In addressing objective two, chapter 6 explored the implications of ‘green' thinking in capitalism as a world-ecology is not only complicit with the violence of modernity’s ongoing ‘resource’ logic of Cheap Nature but embeds ‘new’ forms capital accumulation. The key implications of these specific findings are outlined below:

8.2.2.1 ‘Resourcing’ the wind into a commodity

Historical colonial land dispossession, extractive productivist, and spatial concerns of large-scale ‘green’ energy technology are under-conceptualised in renewable energy projects in South Africa. The South African government’s renewable energy policy under the REI4P has created frontiers for large-scale wind energy infrastructures to harness the wind driven by ‘cheapness’ and profit. While wind energy in South Africa is not at scale of the wind parks in Oaxaca, Mexico, building on the work of Howe and Boyer (2016) this study argues that wind energy projects follow the logic of frontier “resourcing”, where “windscapes” repeat strategies of capitalist landscape “resource” extraction and exploitation and perpetuate a wider set of extractivist relations which Howe and Boyer (2016) refer to as aeolian extractivism. Central to colonial frontier-making is ‘measuring and mapping ‘resources (Moore 2015b, Patel & Moore 2020). The material nature of wind has changed and has been cast as a valuable commodity to produce wind energy at an industrial scale (Howe 2019). As shown in this thesis the scientific institutions, corporations, government departments followed processes of measuring and mapping ‘places’ of solar and wind intensity in South Africa. Within this process, ‘cheap’ land (plundered by industrial agriculture) has gained value when situated in high solar and wind intense areas under the REI4P.

Wind energy is much more than the harnessing of the wind. It involves constitutive relationships to produce the technology through exploitation, creating favourable investment, accessing the land, and selling energy to those who can pay. The extractive nature of these arrangements can be understood in the irony that despite being surrounded by wind turbines,

many people in the community face challenges accessing electricity. The materials needed to make the wind turbines are obtained through extractive relations. The strategies of profitability through cheapness and measuring and mapping resources postulated in Moore's (2016b) world-ecology framing persist. Capitalism's constitutive relationship is adept at finding new strategies for accumulation. Distinct from colonial frontier making, however, is the shift to capital accumulation which occurs through capitalisation and financialization. Projects such as REI4P are embedded in the capital accumulation by a de-risking investment model (Gabor 2021) rather accumulation through dispossession (Harvey 2004).

8.2.2.2 The emergence of 'new' forms of financialisation renewable energy investment models

Investment models and PPPs such as REI4P are constructed in 'new' forms of financialisation and capital accumulation. During the research a department of treasury official pointed out that risks of the infrastructure development in these renewable energy projects lie with the investor, rather than the state, but that the state must create favourable conditions to reduce the financial risk and ensure returns on the investment. The material nature of the REI4P is designed to reduce the risk of investors in financing renewable energy projects through a PPP constructed within a de-risking paradigm. Social economic development, local economic development, and enterprise development commitments within REI4P have increased the scope of investors in local 'development' decision-making in municipalities where these wind farms are located. In line with Le Billion and Sommerville (2016) reforms at institutional level, changing regulatory regimes and corporate governance structures that work to secure investor access are central to creating attractive investable projects. The de-risking state thus extends the infrastructural power of financing PPPs from monetary and fiscal policy to other areas of public policy, which will have implications for countries' local industrial policy. It may limit the government's scope for just energy transitions as pointed out by Gabor (2021).

The TCWF is one of six wind farms in the vicinity. The REI4P has attracted significant foreign investment. The Treasury officials pointed out that the state stands guarantee for these renewable energy PPPs. The payment cost from Eskom for electricity generated from these PPPs is allocated in consumer electricity tariffs. While the government believes this investment relieves the fiscus from large-scale infrastructure expenditure and theoretically reduces the cost

of electricity, paradoxically the cost of electricity has increased dramatically in South Africa. Also, it is evident that the globalised economy has over-accumulated capital that requires investments and investment agreements such as REI4P - yet another strategy for cheap money to land and benefit from the 'new' forms of financialisation to accumulate capital. Gabor (2021) has pointed out that this investment strategy is a state-building project that puts in place the institutional basis for a new regime of de-risking as accumulation.

In the TCWF, 16% shares previously owned by Watt Energy (the key BEE component of the TCWF) was indirectly bought by Kruger International, a unit trust company in partnership with GAIA Fund Managers (GFM), an investment manager specialising in agriculture and infrastructure and trading on the stock exchange. The proceeds from the sale of these shares were invested in a special purpose vehicle (SPV), TCWF Investment SPV, a company whose sole purpose is to acquire a 30% stake in a private company called RE Times. RE Times used the proceeds of the SPV's investment to acquire 16% of the TCWF. These complex financial arrangements relay Baker's concerns about the implications of "on-selling" shares given the trends of financialisation in the South African economy. While the complexity of the capital flows are outside the ambit of this thesis, as stated by Gabor (2021) the inclusion of institutional investors, from hedge and pension funds to insurance companies and sovereign wealth funds, and asset managers as critical stakeholders has "upgraded the de-risking renewables strategy into a full-blown, ambitious development as de-risking paradigm where the risk is transferred to the balance sheet of the state" because the state assets stand guarantee for the investment. The favourable conditions for the 'development of investable projects requires strategies for re-engineering local financial systems to allow portfolio investors easy movement of capital of the new asset classes (Gabor 2021). In the case of the TCWF, Kruger International, a unit trust company, in partnership with GAIA Fund Managers (GFM), was able to purchase the 16% shares that was originally purchased by Watt Energy through a loan from Exarro. Unknown to this community they partnered in an investment project, constructed in the 'development as de-risking' paradigm that is contributing to the increase in the cost of electricity and 'new' forms of capital accumulation through complex financial engineering, as well as transforming the infrastructure sector such as water, housing, energy, health, education, transport, and even nature into asset classes.

8.2.2.3 Strategies to decouple economic growth from environmental destruction in 'green' energy

The green growth paradigm and green energy strategies attempt to decouple economic growth from environmental destruction through finding ways to increase efficiency and reduce emissions. Market-based schemes have been introduced such as emission-trading to offset carbon emissions. Recently 'net zero' emission measures have been introduced in the climate mitigation regime to balance out the carbon emissions produced or cancel the emissions produced by greenhouse gases by 2050 (IEA 2021). As shown in this study Exxaro has benefitted from the carbon trading system through their clean energy projects and has sold carbon credits to DONG (Danish energy parastatal). In this way of addressing the climate crisis with a focus on the consequences of emissions from the predominant use of coal energy, the 'solutions' posed are the replacement of fossil fuel technology with green energy technology within the paradigm of cheapness and profit. The contribution of carbon emissions from fertilizer used on the large-scale commercial dairy farms has not been factored into the reductionist 'green' approach of the renewable energy projects' carbon offset process. The emissions from the tons of cement supporting the wind farm infrastructure have also not been calculated the carbon offsets.

Like the Anthropocene discourse, 'green' thought tends to frame humanity as a homogenous unity. The bio-economic, rational, liberal, and secular human grounded on heteropatriarchal, white supremacist and the social orders of coloniality has been naturalised (Merchant 1980; Cronon 1983; Wynter 2015, Crist 2016; Moore 2016, 2017; Mignolo 2017; Escobar et al. 2021). So 'green growth', green energy and green technology maintain the Human/Nature binary that can only proceed from the perspective that all humans in the web of life impact on nature through cascades of consequences rather than the constitutive relationships of modernity. A fundamental flaw of 'green' thought is that it overlooks modernity's progress as constitutive relationships which manifests in economic prosperity, well-being and social good for a few at the expense of others and planetary restoration. This way of thinking supports the notion that trade-offs are required in these so-called sustainable 'green' solutions in which economic values trump all other aspects of social-ecological relations. So, the inequalities and the exploitative social-ecological relations of the past persist.

8.2.2.4 The falsehood of 'green' job creation and inclusive economic growth

While promised, very few jobs have emerged from the development of renewable energy projects such as the TCWF. The jobs that did manifest for the unemployed, mostly black people living around these projects were short-term and labour-intensive. While investors are required to stimulate local economic and enterprise development through the REI4P commitments, these commitments have not culminated in jobs for local communities. (McDaid 2016). This research revealed very few job opportunities in renewable energy in South Africa. These projects are mostly implemented by foreign investors, so the operations, maintenance, and management come from the personnel of these companies and are mostly outsourced.

The research showed how those previously left outside the economic prosperity of capital accumulation were included as partners in the REI4P model. The REI4P has created complex ownership structures that include black and local shareholders through the South African government's BEE regulation. The REI4P has strict criteria for BEE compliance but becoming a shareholder requires obtaining finance mostly through taking loans. Neoliberal assumptions emphasise market efficiency and, in this case, fostered the economic inclusion of the previously marginalised into capitalism's financialised arrangements and the trickle-down logic that results in a socio-technical illusion of renewable energy to improve the well-being of the communities living within a 50km radius wind farm.

The world-ecology perspective and non-dualist methodological approach made visible the fact that the Tsitsikamma Mfengu, who themselves were historically perceived as only partly human and separate from 'Society' (Humanity) and whose lives were rendered exploitable have become part of inclusive politics and economics. While this may be considered as redistribution of wealth, few people in this community have materially benefitted. As stated by Patel and Moore (2020: 209) "the process of reparations will [need] to involve active historical debates". It will be important to engage on how 'cheapness' from a geo-cultural perspective is related to the ethical-political devaluation of cheap lives and the labour of women, nature and colonies are integral for capital accumulation to thrive (Moore 2020). In South Africa, many of the women of colour living in the rural areas where these wind farms are situated are farmworkers and domestic workers for landowners from the historically appropriated

commercial farms. Sexism and racism stem from these geo-cultural strategies of devaluation in the interest of driving down labour costs so those humans historically exploited remain in low paid and precarious jobs (Mies 1986; Moore 2021). Furthermore, not only are job opportunities limited in these green energy PPPs but Cheap Nature as a political project and the creation of 'new' markets are institutionalised in new forms of financialisation in so-called sustainable development projects requires deeper exploration, especially emerging discourse of just energy transitions.

In essence the findings in this section show the implications for community life and the ongoing extractive social-ecological relation within 'green' techno-scientific fixes. The so-called 'win-win' rhetoric in climate mitigation continues to work for capital accumulation at the expense of other humans and nature. At present most of the people living on the land are dependent on remittances, government social grants and occasional dividend pay-outs from the dairy farm commercial joint ventures as well as potential dividends from the wind farm once the community trust pays the loan for their 9% shares. The lives of the farm workers working and living on the dairy farms, many of whom are descendants of the Khoekhoe, remain precarious. Only a few people in this community are materially benefiting from capitalist-technology industrial development, while the majority's well-being suffers. This community placed on 'vacant lands' of the dairy farms require money to purchase almost everything they need to survive. Even though this wind farm is hosted on reclaimed land, involved community participation, has some community ownership and the support of a philanthropic corporation, the poverty-stricken material conditions of this community remain unchanged. In sum the hardship of people's lives remains unchanged as are the relations to the soil which are still extractive.

8.3 Towards emerging pluriversal possibilities and openings of relationality in energy transitions

This thesis both illuminated the erasures of the anthropocentric climate discourses in which the extractivist modes of production and 'resource' logic are ongoing and remains at the core of renewable energy projects under such policies as REI4P and showed possible openings for different energy transition responses. Objective four sought to move the debate beyond the

normative response through the recognition and engagement of human actors, particularly those who were relegated to Nature in the Human/Nature binary and non-human actors. In this case tracing the soil and land, history memory of Tsitsikamma, made important contributions to remembering sustainability as a life-sustaining praxis.

This exploration was inspired by scholars who recognize the roots of the climate crisis from an ontological dimension of capitalism's modernity values undergirded by separation, dominance, extractivism and hierarchies. I drew on Moore (2015b, 2016) and Barad (1996, 2014, 2018) together with scholars such as Merchant (1980, 1992), Cronon (1983), Salleh (1997), Nabudere (2011a); Tsing (2012), Gibson-Graham (2007, 2014), Davis et al (2019)., French et al (2018), Crist (2016), Szeman and Wenzel (2021), De Sousa Santos (2006), Escobar (2018, 2020) and Mignolo (2011, 2013, 2017) amongst others who contributed to conceptual openings that might foster relational energy transitions as discussed in Chapter seven. Their theoretical and methodological propositions underpin the importance of integrating the non-human worlds and humans in the web of life through an understanding of relationality. These relational perspectives foreground the place of humans and their actions in the web of life based on profound interdependency and interrelatedness to sustain life. They pose re-claiming human histories and cultures which were discursively erased, as well as indigenous ways and past communal and collective practices which may offer alternative responses to the contemporary crisis. Moore's (2015b) idea of oikeios, expresses the idea of 'humanity unified with nature in a flow of flows'. Interestingly as pointed out by Patel and Moore (2020) there is no word in English to describe the process of making life, though in many other languages, especially indigenous cosmologies such words are found. I referred to South American indigenous knowledge based on Andean traditions, namely *suma qamaña* in Aymara, Bolivia and *samak kawsay* in Quenchua, Ecuador – translated as *buen vivir* in Spanish, meaning "living well". These ideas have been well explored in terms of alternatives to 'development' fostered through communal organisation and wholeness of land and territory (Mignolo 2016, Guynas 2011, Escobar 2011).

Davis et al. (2019) calls for the dismantling of dualisms through recognising that numerous Black, Brown, and indigenous people who have for many years practised non-binary conceptions of the human and nonhuman relationship in black geographies and black

ecologies. Gibson-Graham (2014) reminds us that the ladder of development that places capitalism at its pinnacle, ignores non-capitalist adaptation and survival modes. They advocate the practice of 'alternative capitalist' strategies through their environmental and social ethic, as well as using non-capitalist approaches. In essence what emerged from the non-dualist approach was both a range of paradoxes in the so-called 'win-win' rhetoric in renewable energy climate mitigation approaches and possible openings for more relational and decolonial conceptualisation(s) in energy transitions based on life-sustaining values. Thus, through illuminating the coloniality, the ongoing 'othering' and underlying violence complicit in modernity towards the Tsitsikamma Mfengu community who were willing partners in the capitalist extractivist investment project with the belief of improvements, the engagement with decolonial and relational concepts drew attention to convivial humanistic relations and new imaginaries. Convivial humanistic relations and new imaginaries embody the need for life-sustaining alternatives in energy transitions that are based on profound interdependence or relationality in energy futures. This way of thinking moves the debate beyond current anthropocentric normative responses to the climate crisis and capitalism's consequences and critiques of renewable energy projects through incorporating a relational lens focused on the entanglements of humans and non-humans in the web of life.

This chapter draws to a close in the final finding on the need to facilitate conversations towards alternative framings of humanity and the place of humans and 'our' actions in the web of life.

8.4 An invitation for 'courageous conversations' on relational energy transitions

Objective five recommends conversations to contribute to engaging in useful conceptual and methodological approaches that can open possibilities for relational energy transitions. This thesis suggests that energy transition in South Africa, especially in the face of the electricity crisis and the high levels of inequality, requires a focus on re-thinking our relationships to meet energy needs. As a settler colonial state, this will require space and engagement that recognizes the capitalist modernity's ontological dominance. The space will be needed to learn from repeated mistakes and allow experimentation with diverse conceptual and methodological approaches to make different mistakes. This space would need to allow different questions and

that bring different answers. Building this proposal, Patel & Moore (2020: 211) also state, "Never under capitalism have the majority been asked about the world we would like to live in". Renewable energy transitions within a paradigm of 'green' thought, underpinned by 'sustainability or collapse' largely overlooks the constitutive relationships of modernity's ontological dimensions rooted in separation, domination, and exploitation within the capitalist productivist extractivism and the resource logic, While the demands for justice and redistribution are important, they remain humancentric rather than lifecentric. Furthermore, as put by Patel and Moore (2020), "understanding the full range of damage caused by capitalism's ecology on whom and what the damage was inflicted will require not just money but reimaging nonmonetary redistribution". From the wisdom of the late Bruno Latour [1947-2022], we need to be "ecologising" not "modernising" (2013).

The need to recalibrate and imagine an understanding of earth democracy (Shiva 2005) earth care (GTDFC 2019), and earth justice (Ladha & Murphy 2022) is critical to relational energy transitions and the restoration of planetary systems. As pointed out by Kenyan novelist and critic Ngũgĩ wa Thiong'o, "They knew how to take but not to give back to the soil" (in Szeman & Wenzel 2020: 508). This work will entail a focus on re-thinking and re-imagining our relationships of food, water and energy flows with the soil and the non-human worlds. As explained in chapter seven, restoration is not returning to some pristine state, nor returning past lives or restoring what was taken away. Borrowing from Escobar (2011), restoration, is about bringing to light the site of harmony and interconnectedness of human–nature relationality in which to consider human relations and energy as 'flow of flows'.

8.5 Conclusion

The extractive and 'resource logic' in the dominant techno-scientific reductionist approaches of 'green thought' under the guise of capital accumulation cannot fix the climate crisis. This is because the green energy technology in the techno-industrial capitalist complex undergirds constitutive relationships in which some benefit at the expense of others (both human and non-humans) as shown in the TCWF case. In other words, for capitalism's constitutive relationships that integrate power, capital, and nature (human and non- human nature arrangements) to thrive, it needs to maintain power, violence, and inequality. The financial gain from the investors through extracting and accumulating profit, happens at the expense of the exploitation

of human nature and nature elsewhere. So as proposed by Moore (2015b) the problem with 'green thought' is that it is concerned about environmental consequences of what humanity or capitalism does to nature, rather than the consequence of modernity's ontology.

The novel approach to methodology in this thesis is an insightful contribution to analytical and methodological implications using non-dualist framing. It took up Moore's (2017: 621) proposition that "it would do well to depart from the either/or polemics that have long characterized transition and crisis debates". Including an analysis of the soil and land history, memory of the land on which the wind farm stands begin with remembering human relationships with the land prior to colonialisation and understanding human history that co-produced history through specific types of humans. The reductionist and rationalist thinkers put nature and other humans to work for capital accumulation and wealth and what was not made visible were the shadows of modernity's progress. The cuts and erasures of more symbiotic human-nature interrelatedness are overlooked in the Anthropocene discourse. The findings from this study on decoloniality and relationality thinking and being might provide openings for using language for relationships which is reciprocal, regenerative and life-sustaining to address the climate crisis through relational energy transitions.

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