THE NET ZERO RACE: IMPLICATIONS FOR AFRICA'S DEVELOPMENT AND SUSTAINABILITY

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ABSTRACT

This article discusses the Race to Zero campaign and its implications on development and sustainability in Africa. It leverages a climate justice, energy justice and just transition lens to assess the equity and inclusiveness of the Race to Zero campaign, as it relates to Africa. The article reveals that the Race to Zero campaign, as it stands, fails to address the urgent conditions of African countries as they cope with the current climate crisis and as they aim to transition to clean energy by 2050. It highlights the Africa- exclusive nature of the campaign and then addresses the implications of the tone-deaf approach on the development trajectory of the continent. The paper recommends government leaders, business leaders and climate champions expand the Race to Zero initiative to address some of the gaps highlighted and urges African countries to take advantage of economic and technological opportunities that can propel them towards reduced greenhouse gas emissions while promoting sustainable development.

Keywords: net zero, Africa, sustainable development, climate justice

1. INTRODUCTION

1.1 Climate change in Africa today

Between October 2020 and April 2023, East Africa faced its worst drought in 40 years.[1] In countries most affected, such as Kenya, Somalia and Ethiopia, 'tens of thousands died, crops shrivelled [and] livestock starved'.[2] Somalia alone was estimated to have accounted for 43,000

1 Laura Paddison 'Catastrophic drought that's pushed millions into crisis made 100 times more likely by climate change, analysis finds'(CNN)< www.cnn.com/2023/04/27/africa/drought-horn-of-africa-climate-change-intl/index.html#:~:text=Catastrophic%20drought%20that's%20pushed%20millions,by%20climate%20change%2C%20analysis%20finds&text='The%20village%20of%20El%20Gel,worst%20drought%20in%20four%20decades> accessed 20 June 20223.

2 Laura Paddison 'Catastrophic drought that's pushed millions into crisis made 100 times more likely by climate change, analysis finds' (CNN 2023) < www.cnn.com/2023/04/27/africa/drought-horn-of-africa-

deaths as a result of this drought.[3] These natural disasters have not been isolated to the east, in March of 2023, Cyclone Freddy ripped through Mozambique, Madagascar, Réunion island and Zimbabwe at an intensity never before seen in the Southern African region - resulting in over 350,000 displacements in Malawi alone.[4] It is said that Africa's 30 deadliest weather disasters in history have all occurred since 2022 and climate change is the greatest cause.[5]

Studies by climate research institutions such as the World Weather Attribution Group (WWA) have found that 'climate change has made events like the current drought [in East Africa] much stronger and more likely'.[6] A supplementary study from May 2022 also found that 'greenhouse gas and aerosol emissions are at least in part responsible for the observed increase in rainfall' that caused severe flooding in South Africa and subsequently killed 544 people.[7] Similarly, the severe flooding in West Africa that displaced about 1.3 million people last year was found to have been made '80 times more likely' by human-caused climate change.'[8] Climate change has not only had damaging effects on the physical condition of Africa and its people, but it also continues to make detrimental effects on the continent's emerging economies. A report from the United Nations Office for Disaster Risk Reduction found that climate catastrophes between 2015 and 2021 'cost Africa 12.3% of its GDP', due to the 'disruptions to national, regional and international markets.'[9]

Although especially vulnerable to the side effects of climate change, Africa is not the only region at risk. Inspired by the Paris Agreement and in response to this global climate crisis,

climate-change-intl/index.html#:~:text=Catastrophic%20drought%20that's%20pushed%20millions,by%20climate%20change%2C%20analysis%20finds&text='The%20village%20of%20El%20Gel,worst%20drought%20in%20four%20decades> accessed 20 June 20223.

3 Nosmot Gbadamosi 'Climate Change Wreaks Havoc in Southern Africa' (Foreign Policy 2023) < foreignpolicy.com/2023/03/22/africa-cyclone-freddy-climate-change-extreme-weather/> accessed 20 June 2023.

4 Nosmot Gbadamosi 'Climate Change Wreaks Havoc in Southern Africa' (Foreign Policy 2023) < foreignpolicy.com/2023/03/22/africa-cyclone-freddy-climate-change-extreme-weather/> accessed 20 June 2023.

5 Jeff Masters 'Five of Africa's top 30 deadliest weather disasters have occurred since 2022' (Yale Climate Connections 2023) <yaleclimateconnections.org/2023/05/five-of-africas-top-30-deadliest-weather-disasters-have-occurred-since-2022/> accessed 20 June 2023.

6 Jeff Masters 'Five of Africa's top 30 deadliest weather disasters have occurred since 2022' (Yale Climate Connections 2023) <yaleclimateconnections.org/2023/05/five-of-africas-top-30-deadliest-weather-disasters-have-occurred-since-2022/> accessed 20 June 2023.

7 Jeff Masters 'Five of Africa's top 30 deadliest weather disasters have occurred since 2022' (Yale Climate Connections 2023) <yaleclimateconnections.org/2023/05/five-of-africas-top-30-deadliest-weather-disasters-have-occurred-since-2022/> accessed 20 June 2023.

8 Ayesha Tandon 'West Africa's deadly rainfall in 2022 made 80 times more likely by climate change' (Carbon Brief 2022) < www.carbonbrief.org/west-africas-deadly-rainfall-in-2022-made-80-times-more-likely-by-climate-change/> accessed 20 June 2023.

9 Jeff Masters 'Five of Africa's top 30 deadliest weather disasters have occurred since 2022' (Yale Climate Connections 2023) <yaleclimateconnections.org/2023/05/five-of-africas-top-30-deadliest-weather-disasters-have-occurred-since-2022/> accessed 20 June 2023.

governments, corporations, and world leaders have made a goal to reach net-zero global greenhouse gas (GHG) emissions by 2050 to reverse the deleterious effects of climate change.

This paper introduces the global Race to Zero (RtZ) campaign and assesses whether it assumes climate justice, energy justice and just transition lenses in its founding structure and its eventual application and discusses the overall implications of the initiative on African development. The paper sheds light on how the net zero movement fails to address unique African challenges and conditions and identifies the current and potential consequences of such failures.

2. LEGAL AND CONCEPTUAL FRAMEWORKS

2.1 Conceptual Frameworks

Race to Zero Campaign

'Net-zero' is a hotly trending topic, it is at the forefront of private companies' ESG strategies and is widely discussed among domestic and international governance bodies.[10] Net-zero is a carbon neutrality target that aims for all greenhouse gas emissions to be reduced to zero (or as close to zero as possible), with any additional emissions being reabsorbed by carbon sinks, by the year 2050.[11] Informed by climate research, the Paris Agreement (PA) calls for a global warming limit of 1.5 degrees Celsius in order to 'preserve a liveable planet'.[12] As a means to maintaining the 1.5-degree ceiling, the PA mandates a 45% global reduction of greenhouse gas emissions by 2030 and by 2050- all GHG emissions have to be reduced to zero.[13]

The RtZ campaign, formalised by the United Nations (UN), is 'a global campaign to rally leadership and support from businesses [and] cities [...] for a healthy zero carbon recovery.'[14] The requirements to sign on to the campaign are known as the 5Ps:

1. Pledge – make a pledge to reach net zero by 2050 at the latest
2. Plan – publicly disclose a transition plan that outlines how the criteria will be met
3. Proceed – take immediate action
4. Publish – publicly report against your targets

10 Jennifer Fergesen 'The complicated popularity of net zero emissions climate targets' (Time Magazine 17 October 2022) < https://time.com/6213439/what-are-net-zero-emissions/> accessed 14 July 2023.

11 'For a livable climate: Net-zero commitments must be backed by credible action' (United Nations) < www.un.org/en/climatechange/net-zero-coalition> accessed 20 May 2023; A carbon sink is any natural or human made thing that absorbs carbon from the atmosphere.

12 'For a livable climate: Net-zero commitments must be backed by credible action' (United Nations) < www.un.org/en/climatechange/net-zero-coalition> accessed 20 May 2023.

13 'For a livable climate: Net-zero commitments must be backed by credible action' (United Nations) < www.un.org/en/climatechange/net-zero-coalition> accessed 20 May 2023.

14 'Race to zero campaign' (United Nations Climate Change) < https://unfccc.int/climate-action/race-to-zero-campaign> accessed 10 June 2023.

5. Persuade – align external policy and engagement to new goals[15]

Achieving net zero by 2050 is argued to be the only option to save our planet as we know it, but the global push has received its fair share of scepticism and critiques.[16] Some industry leaders have raised contestations that (i) 2050 is not an aggressive enough target and, instead, emissions reduction initiatives should aim to be fully operational now, (ii) the enigmatic definitions and requirements of 'net' in 'Net Zero' make it difficult to hold stakeholders accountable to their pledges and that (iii) the initiative may be too western-centric to address the concerns of a global audience.[17]

Climate Justice

The climate justice movement recognises that 'climate change […] disproportionately affect[s] those in the Global South, who did very little to contribute to creating the problem of climate change in the first instance. Those with the least ability to respond to the impacts of climate change – the poor and non-white people, including island nations and indigenous peoples – bear the brunt of its effects.'[18] More specifically, it notes that climate change 'exacerbates [existing] inequitable social conditions' putting already marginalised populations in more extreme circumstances of need.[19] Some of the key claims of the climate justice movement are (i) people's participation in climate-mitigation decisions and (ii) legislative efforts that address disproportionate climate harm inflicted on impoverished and non-white communities.[20]

Energy Justice

In the 2010s, the energy justice movement emerged under the larger climate justice initiative. Its main tenents are that an energy-just world ensures that the responsibilities, burdens and

15 Race to zero campaign' (United Nations Climate Change) < https://unfccc.int/climate-action/race-to-zero-campaign> accessed 10 June 2023.

16 James Dyke, Robert Watson, Wolfgang Knorr 'Climate scientists: concept of net zero is a dangerous trap' (The Conversation 22 April 2022) < https://theconversation.com/climate-scientists-concept-of-net-zero-is-a-dangerous-trap-157368> accessed 10 June 2023.

17 James Dyke, Robert Watson, Wolfgang Knorr 'Climate scientists: concept of net zero is a dangerous trap' (The Conversation 22 April 2022) < https://theconversation.com/climate-scientists-concept-of-net-zero-is-a-dangerous-trap-157368> accessed 10 June 2023; Tina Gerardt 'The problem with net zero' (Sierra Magazine 10 November 2021) < https://www.sierraclub.org/sierra/problem-net-zero-cop26-climate-talks> accessed 21 June 2023; Cristina Animashaun 'Are net zero climate targets just hot air?' (Vox 29 October 2011) < https://www.vox.com/22737140/un-cop26-climate-change-net-zero-emissions-carbon-offsets> accessed 11 July 2023; Rose M Mutiso 'Net-zero plans exclude Africa' (Nature 02 November 2022) < https://www.nature.com/articles/d41586-022-03475-0#:~:text=Energy%2Dtransition%20plans%20leave%20out,billion%20people%20on%20the%20continent.&text=Mutiso-,Rose%20M.,Growth%20Hub%20in%20London%2C%20UK.> accessed 22 June 2023.

18 'Energy Justice Workbook' (Initiative for Energy Justice) <https://iejusa.org/section-1-defining-energy-justice/> accessed 09 July 2023.

19 Daisy Simmons 'What is 'climate justice'?' (Yale Climate Connections 2020) < yaleclimateconnections.org/2020/07/what-is-climate-justice/> accessed 28 May 2023.

20 'Energy Justice Workbook' (Initiative for Energy Justice) <https://iejusa.org/section-1-defining-energy-justice/> accessed 09 July 2023.

privileges of energy consumption and production are justly distributed.[21] It also emphasises the importance of collaborative and participatory decision-making between communities, governments and private enterprises concerning any matters that affect people's environment, development, energy consumption and energy access.[22] Its main claims are that there should be (i) equitable access to the economic benefits of renewable energy systems (ii) that communities should have the right to make decisions regarding energy production and consumption and that there should be (iii) equitable access to low-cost and clean energy.[23]

Just Transition

Defined by the International Labour Organisation as 'greening the economy in a way that is as fair and inclusive as possible to everyone concerned, creating decent work opportunities and leaving no one behind' the concept intends to champion an economically, socially and politically equitable transition to renewable energy sources as it relates to the net-zero agenda.[24] The African Development Bank's (AfDB) definition of a just transition 'affirms Africa's right to development and industrialisation based on the Paris Agreement- negotiated language of equity and the principle of common but different responsibilities and respective capabilities'.[25] Thus, the AfDB ultimately argues that a just transition ought to provide different timelines, goals and expectations for African nations, individually, based on their capacities and needs.

This paper leverages the conceptual tenents of climate justice and energy justice and just transition as frameworks to assess the inclusive and equitable nature of the RtZ as it pertains to the continent of Africa and its citizens.

2.2 Legal frameworks

Although this paper does not seek to utilize a legal framework to assess the effectiveness and equity of the RtZ campaign it would be remiss not to identify the numerous legal norms that reinforce African's rights to healthy and favourable environments that promote sustainable development within their respective communities. These norms serve as guidelines for initiatives, like the RtZ campaign, to ensure that any efforts are carried out equitably while protecting and promoting the rights of the individuals and peoples affected.

The prominent international treaty regarding climate change is the Paris Agreement (PA). Adopted by the UN on 12 December 2015, the PA's main aim is to hold the increase in the

21 Energy Justice Workbook' (Initiative for Energy Justice) <https://iejusa.org/section-1-defining-energy-justice/> accessed 09 July 2023.

22 'Energy Justice Workbook' (Initiative for Energy Justice) <https://iejusa.org/section-1-defining-energy-justice/> accessed 09 July 2023.

23 'Energy Justice Workbook' (Initiative for Energy Justice) <https://iejusa.org/section-1-defining-energy-justice/> accessed 09 July 2023.

24 'What is the just transition? And why is it important? (UNDP 3 November 2022) https://climatepromise.undp.org/news-and-stories/what-just-transition-and-why-it-important accessed 20 June 2023.

25 'Just transition initiative to address climate change in the African context' (African Development Bank Group) < https://www.afdb.org/en/topics-and-sectors/initiatives-partnerships/climate-investment-funds-cif/just-transition-initiative> accessed 22 June 2023.

global average temperature below 2 degrees Celsius and ultimately drive it down to 1.5 degrees in order to reverse the ongoing climate crisis.[26] Although the PA does not explicitly reinforce individuals' rights to a healthy environment it does buttress that any action taken towards climate change should 'consider the respective obligations on human rights, the right to health, [...] of indigenous peoples, local communities, migrants, children, persons with disabilities and people in vulnerable situations and their right to development as well as gender equity' essentially advocating for a climate justice approach to climate change mitigation efforts.[27] Today, the treaty has been ratified by 195 state parties, with only Iran, Yemen and Libya not having ratified.[28] Although the primary objective of the PA is to strengthen the global response to climate change, the PA notes that such an objective must be accomplished within the context of sustainable development efforts and the fight to eradicate global poverty.[29] It also notes that the Agreement must be carried out in a manner that reflects equity, 'common and different responsibilities and respective capabilities in light of different national circumstances'.[30] Strongly encouraging 'developed' countries' to 'take the lead' on GHG mitigation efforts, and to take responsibility to support developing countries to effectively implement the articles of the PA.[31] Thus, the agreement calls for an approach to GHG emissions reductions that is not only sensitive to the realities of developing nations but that also mandates relevant and equitable expectations, timelines and sufficient support for such nations in a manner that is line with climate justice principles.

Additionally, the African Charter on Human and Peoples' Rights (Charter) also reinforces similar rights to equitable and sustainable development as well as a healthy and favourable environment.[32] Furthermore, the Rio Declaration on Environment and Development, although not a legally binding treaty reaffirms the importance of giving priority to the unique needs of developing nations that are especially environmentally vulnerable while eradicating poverty and promoting sustainable and equitable development.[33] Lastly, the Draft Convention on the Right to Development (Draft), although not yet adopted by the UN, draws attention to international requirements to protect the environment, promote sustainable development and ensure equitable realisation of such rights, through the framework of the duty to cooperate,

26 Paris Agreement (adopted 12 December 2015, entered into force 4 November 2016) art 2(1a); 'What is the Paris Agreement' (United Nations Climate Change) <https://unfccc.int/process-and-meetings/the-paris-agreement> accessed 10 July 2023.

27 Paris Agreement (adopted 12 December 2015, entered into force 4 November 2016) preamble.

28 'Paris Agreement status of ratification' (United Nations Climate Change) < https://unfccc.int/process/the-paris-agreement/status-of-ratification> accessed 10 July 2023.

29 Paris Agreement (adopted 12 December 2015, entered into force 4 November 2016) art 2(1).

30 Paris Agreement (adopted 12 December 2015, entered into force 4 November 2016) art 2(2).

31 Paris Agreement (adopted 12 December 2015, entered into force 4 November 2016) arts 3 & 4(4).

32 African Charter on Human and Peoples' Rights (adopted 27 June 1981, entered into force 21 October 1986) arts 22 & 24.

33 Rio Declaration on Environment and Development (adopted 14 June 1992) UN Doc A/CONF.151/26 (1992) principles 3, 5 &6.

highlighting state parties' 'responsibility for the creation of international conditions favourable to the realisation of the right to development for all'.[34]

As previously noted, this paper does not intend to provide a legal analysis of the legitimacy of the RtZ, however, the norms identify best practices and legal obligations for how climate mitigation efforts ought to be conducted, with respect to the sustainable development of developing countries, and provide crucial lenses by which to consider the efficacy of the RtZ.

3. PROGRESS ON NET-ZERO

3.1 Where we are globally

A coalition of 193 states plus the European Union (EU), businesses, and international institutions have opted-in to the RtZ campaign. Businesses have individually established and published their own net-zero targets, while state parties have made their commitments via Nationally Determined Contributions (NDC) fulfilling the requirement of the Paris Agreement.[35]

To date, global net zero targets account for a future reduction of approximately 76% of global emissions, still short of the 100% target.[36] In fact, most net-zero strategies lack so much urgency that 'current national climate plans would lead to a sizeable increase of almost 11% in greenhouse gas emissions by 2030'.[37] The world is off track to reach its 2030 and 2050 goals with its current plans, and climate leaders have been putting pressure on countries to make more ambitious climate targets and invest more funding into such projects.[38] The World Resource Institute (WRI) has found that 'energy consumption is by far the biggest source of human-caused greenhouse gas emissions' which is estimated to be a global contribution of 75%.[39] Thus, while the energy sector is the biggest focus of the RtZ campaign, the energy sectors that are receiving the most pressure to transition to renewable energy sources are industry and building. Today, approximately 37% of global energy is consumed by the industrial sector for things like steel, aluminium, and paper manufacturing.[40] The second leading consumer of energy is buildings

34 The Draft Convention on the Right to Development (15 December 1994) art 13.

35 'Net Zero Tracker 2023' <zerotracker.net/> accessed 21 June 2023.

36 Kelly Levin, Taryn Fransen, Clea Schumer, Chantal Davis, Sophie Boehm 'What Does Net Zero Emissions Mean? 8 Common Questions, Answered' (World Resource Institute 2023) < www.wri.org/insights/net-zero-ghg-emissions-questions-answered> accessed 15 June 2023.

37 'For a livable climate: Net-zero commitments must be backed by credible action' (United Nations) < www.un.org/en/climatechange/net-zero-coalition> accessed 20 May 2023.

38 'The Closing Window – climate crisis calls for a rapid transformation of societies' (UN Environment Program: Emissions Gap Report 2022) < wedocs.unep.org/bitstream/handle/20.500.11822/40932/EGR2022_ESEN.pdf?sequence=8> accessed 25 May 2023.

39 Mengpin Ge, Johannes Friederichand Leando Vigna '4 Charts explain greenhouse gas emissions by countries and sectors' (World Resource Institute 6 Februrary 2020) <https://www.wri.org/insights/4-charts-explain-greenhouse-gas-emissions-countries-and-sectors#:~:text=Energy%20consumption%20is%20by%20far,37.6%20GtCO2e)%20worldwide.> accessed 12 July 2023.

40 'Industry' (International Energy Agency) < https://www.iea.org/energy-system/industry> accessed 12 July 2023.

(or electricity needed to power buildings), with about 30% of global energy being used for lighting, heating, appliances and equipment, electricity consumption significantly drives up total energy consumption.[41]

3.2 Africa

The RtZ, has garnered global participation, accordingly, the African continent is also active in net-zero efforts. Today, 54 out of 55 African countries have signed the PA and have set net zero targets of their own.[42] The peculiarity lies in the disparate contribution to climate change and GHG emissions between the African continent and the rest of the world. Today, 50% of the world's GHG emissions come from seven nation-states: China, the United States, India, the EU, Indonesia, the Russian Federation and Brazil.[43] In fact, the entire African continent is responsible for only two to three percent of the world's GHG emissions, while countries in the Global North, like Germany for example produces the same amount of emissions despite their comparatively minuscule population and geographic size.[44] Indeed, eight of the ten most climate-vulnerable nations (Chad, Central African Republic, Eritrea, Democratic Republic of Congo, Guinea Bissau, Sudan, Afghanistan, Somalia, Liberia, Mali, Yemen, Congo, Uganda) with low levels of climate readiness and high levels of fragility to climate disasters, are located on the African continent.[45]

Although African states have made pledges to reduce GHG emissions, only two have explicitly committed to reaching net-zero by 2050 – South Africa and Malawi, suggesting that there may be some disconnect between the RtZ and Africa's energy priorities and capabilities.[46] Leveraging a climate justice and energy justice lens, the following section will explore ways in which the RtZ fails to address the African condition, and African priorities eventually offering

41 'Buildings (International Energy Agency) < https://www.iea.org/energy-system/buildings> accessed 12 July 2023.

42 United Nations Treaty Collection' (United Nations) < treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVII-7-d&chapter=27&clang=_en> accessed 26 June 2023.

43 'For a livable climate: Net-zero commitments must be backed by credible action' (United Nations) < www.un.org/en/climatechange/net-zero-coalition> accessed 20 May 2023; Richard Munang 'Paris Agreement on climate change: One year later, how is Africa fairing?' (Africa Renewal 2017) < www.un.org/africarenewal/magazine/may-july-2017/paris-agreement-climate-change-one-year-later-how-africa-faring#:~:text=And%20implementation%20has%20since%20started,%2C%20Tunisia%2C%20Uganda%20and%20Zambia.> accessed 26 June 2023.

44 Jason Mitchell 'The dilemma: How can Africa industrialise and reach net zero?' (Investment Monitor 2021) www.investmentmonitor.ai/sectors/energy/the-dilemma-how-can-africa-industrialise-and-reach-net-zero/ accessed 20 May 2023.

45 'Rankings' (ND Gain 2023) < gain.nd.edu/our-work/country-index/rankings/ > accessed 30 June 2023; The 10 most vulnerable countries to climate change are Niger, Somalia, Chad, Guinea-Bissau, Sudan, Liberia, Mali, Central African Republic, Eritrea, Rwanda and the DRC.

46 Lily Odarno 'Where is Sub-Saharan Africa in the race to net-zero?' (Euractiv 7 June 2021) < https://www.euractiv.com/section/climate-environment/opinion/where-is-sub-saharan-africa-in-the-race-to-net-zero/ https://www.euractiv.com/section/climate-environment/opinion/where-is-sub-saharan-africa-in-the-race-to-net-zero/> accessed 14 July 2023.

some explanations as to why African participation is lagging. It then expands on how such failures hinder the development of African countries.

4. THE RTZ GAPS

4.1 Africans experience energy poverty

One of the great ironies of the net zero agenda is that for a 'global' strategy it is completely tone deaf to most of the pressing realities of the African region. Today, 'more than 640 million Africans have no access to energy' resulting in an electricity penetration rate of only 40%., while roughly 87% of the global population has access to electricity, ranking the African region with the lowest electricity access rate in the world.[47] Even in the continent's largest economies, 'the average person uses less than 200 kilowatt- hours of electricity per year – not enough to power a refrigerator.'[48] As previously discussed, electricity usage is one of the largest energy consumption sectors, globally, therefore many African nations are already at, or close to, net zero due to their unelectrified nature.[49] Thus, the RtZ seems to be ignorant, or possibly indifferent, to the reality that Africans have virtually no over-consumption of energy to curb.

The reality of Africa's energy poverty crisis highlights the RtZ's failure to be inclusive of the present conditions of the continent. A net-zero strategy that was developed with a climate justice and energy justice lens would not call for a *global* transition towards renewable sources as the panacea to the climate crisis but would more thoughtfully press countries guilty of energy over-consumption to reduce energy consumption, transition to cleaner energy sources and include a secondary, but equal, goal of electrifying energy poverty zones with renewable energy sources. As it stands, the RtZ's priority goal is only relevant to rich developed nations – excluding any meaningful consideration of the African continent.

4.2 There is no Africa-specific data

The priority to transition from fossil fuel based to renewable based energy is not only irrelevant to the African continent but there is also an alarming lack of Africa-specific data used to inform the RtZ. In order to craft appropriate timelines, technology options and infrastructure investments for the clean energy transition, accurate energy systems modelling is crucial.[50] Currently, however, very little analytical precision is applied to the modelling efforts of African

47 Jason Mitchell 'The dilemma: How can Africa industrialise and reach net zero?' (Investment Monitor 29 October 2021) <www.investmentmonitor.ai/sectors/energy/the-dilemma-how-can-africa-industrialise-and-reach-net-zero/> accessed 30 June 2023.

48 Rose M Mutiso 'Net-zero plans exclude Africa' (Nature 02 November 2022) < www.nature.com/articles/d41586-022-03475-0> accessed 21 June 2023.

49 Jason Mitchell 'The dilemma: How can Africa industrialise and reach net zero?' (Investment Monitor 29 October 2021) <www.investmentmonitor.ai/sectors/energy/the-dilemma-how-can-africa-industrialise-and-reach-net-zero/> accessed 30 June 2023.

50 Energy modelling is the process of building computer models of energy systems of physical spaces such as buildings or cities in order to analyse them; www.energyforgrowth.org/report/who-decides-africas-net-zero-pathways/

economies; by grouping African countries together, sometimes even African and Middle-Eastern countries, discrepancies in resource availability and socio-economic conditions are overlooked.[51] Furthermore, the organisations that conduct energy modelling and house some of the world's leading experts are usually non-African institutions, leaving the contextually-relevant questions unanswered.[52] Thus, the existing models that leverage data from other regions that lack 'insight on local markets' and make incomplete inferences about the continent's future growth have significant representation issues that impede their functionality in Africa. Considering Africa's development goals, the continent is most likely to increase GHG emissions over time, not reduce them.[53] Thus, because many models focus on decarbonisation as the main goal, assuming Africa's energy consumption would decrease, and do not lay out models for low-emissions development they fail to be relevant to the African trajectory and ultimately endanger the potential success of the net-zero agenda.[54]

Consequentially, the same knowledge gap exists with respect to Africa's current role in the carbon cycle – whether it is ultimately a net carbon sink or a source of atmospheric carbon.[55] Considering most 'continental assessments of Africa's carbon dynamics are model-based' and since 'much of that research [...] has concentrated in North America and Eurasia [...] Africa has by far been neglected in these studies.[56] Data regarding Africa's carbon contributions is crucial insofar as any targeted net-zero strategy has to account for carbon emissions versus carbon off-sets in order to truly evaluate one's total emissions. Without this data African countries are left unable to accurately contribute to the RtZ agenda.

The lack of African-specific data for modelling and carbon accounting not only underscores the exclusive nature of the global approach to the RtZ, but it is also an indicator of the failure of the campaign to leverage a climate justice approach – one that champions all people's participation and inclusion in climate-mitigation decisions. Such a failure threatens to leave Africa behind as the rest of the world moves forward in the renewable energy transition.

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51 Lauren Calver et al. 'Who decides Africa's Net Zero Pathways? Five ways to fix how we model African energy transitions and why it matters for climate and development' (Energy for Growth Hub 17 October 2022) <www.energyforgrowth.org/report/who-decides-africas-net-zero-pathways/> accessed 23 July 2023.

52 Lauren Calver et al. 'Who decides Africa's Net Zero Pathways? Five ways to fix how we model African energy transitions and why it matters for climate and development' (Energy for Growth Hub 17 October 2022) <www.energyforgrowth.org/report/who-decides-africas-net-zero-pathways/> accessed 23 July 2023.

53 Rose M Mutiso 'Net-zero plans exclude Africa' (Nature 02 November 2022) < www.nature.com/articles/d41586-022-03475-0> accessed 21 June 2023.

54 Rose M Mutiso 'Net-zero plans exclude Africa' (Nature 02 November 2022) < www.nature.com/articles/d41586-022-03475-0> accessed 21 June 2023.

55 Williams, C.A., Hanan, N.P., Neff, J.C. *et al.* 'Africa and the Global Carbon Cycle' (2007) Carbon Balance Manage < https://cbmjournal.biomedcentral.com/articles/10.1186/1750-0680-2-3#citeas> accessed 11 July 2023 1.

56 Williams, C.A., Hanan, N.P., Neff, J.C. *et al.* 'Africa and the Global Carbon Cycle' (2007) Carbon Balance Manage < https://cbmjournal.biomedcentral.com/articles/10.1186/1750-0680-2-3#citeas> accessed 11 July 2023 1.

4.3 RtZ is remiss of a clear cooperative plan for development alongside emissions reductions

Beyond overlooking Africa's energy poverty and the inadequate data sources for energy modelling, the RtZ also prioritises carbon emission mitigation efforts without carefully considering the implications for Africa's industrialisation and development through the process. The global push for GHG emissions reductions ought to be balanced with initiatives to support countries recuperating from climate disasters, pushing emerging economies towards development, and providing new electricity for the 50 percent of Africans that are still in need. Because the RtZ fails to sufficiently address these contending interests and the complex road ahead, there is no clear consensus on the most important next steps for the continent. Some African leaders argue that instead of prioritizing mitigation efforts for African countries, save South Africa, 'adaptation financing and loss and damage compensation' should be prioritized in its place.[57] Others, instead, emphasize the importance of maintaining a mixed portfolio of fossil fuel and clean energy sources on the continent as 'African countries need space to industrialise, and the energy mix that will allow them to do this is fundamental.[58] It is crucial that the international community pay attention to Africa's interests as failing to do so leaves some of the most crucial aspects of the energy transition unaddressed which 'risks condemning 1.4 billion people to economic underdevelopment.'[59]

As noted, climate justice, energy justice and just transition approaches all hinge on the equitable inclusion, participation, and economic benefit of all people and communities. An absence of a sustainable development scheme leaves stakeholders to craft, possibly contending, approaches that seems most fitting to them, risking perpetuating the climate injustice that African citizens are subject to, and ultimately failing to reach global GHG mitigation targets for 2050.

4.5 Conclusion

The disparaging truth is that the net zero race offers itself as a data-driven plan for the world while leaving out more than one billion people from Africa.[60] It is clear that in its creation the RtZ was intended to be a monumental global solution for the ongoing climate crisis, however, the reality of the campaign is that it offers a solution that is only cognisant of the conditions and interests of developed richer nations. By positioning a transition to clean energy as one of the most urgent climate solutions, it leaves out countries, like most on the African continent, that

57 Mo Ibrahim 'What Climate Justice Means for Africa' (Project Syndicate 12 September 2022) < https://www.project-syndicate.org/magazine/what-climate-justice-means-for-africa-by-mo-ibrahim-2022-08> accessed 25 July 2023.

58 Kingsley Ighobor 'A just transition to renewable energy in Africa' (31 October 2022 United Nations Organisation Africa Renewal) <https://www.un.org/africarenewal/magazine/november-2022/just-transition-renewable-energy-%C2%Aoafrica> accessed July 22 2023.

59 Mo Ibrahim 'What Climate Justice Means for Africa' (Project Syndicate12 September 2022) < https://www.project-syndicate.org/magazine/what-climate-justice-means-for-africa-by-mo-ibrahim-2022-08> accessed 25 July 2023.

60 Lauren Calver et al. 'Who decides Africa's Net Zero Pathways? Five ways to fix how we model African energy transitions and why it matters for climate and development' (Energy for Growth Hub 17 October 2022) www.energyforgrowth.org/report/who-decides-africas-net-zero-pathways/.

do not have an energy-overconsumption issue, but in fact, are struggling with meeting the basic needs for energy and electricity in their countries. What most African countries need urgently is (i) climate adaptation and recuperation resources and support, as they grapple with the daily costs of climate change so harshly inflicted on them, as well as (ii) the construction of energy plants to reduce energy poverty in the region. Although it is possible that African countries focus on developing clean energy plants to meet the energy needs of the continent the RtZ fails to note the financial burden of doing so and provides no clear path for promoting investment in Africa's energy sector.

5. THREATENING AFRICA'S DEVELOPMENT TRAJECTORY

The world's youngest, and fastest-growing, population lives on the African continent.[61] With urban cities and brilliant technology start-ups also popping up all over the region, the growth of the continent is hard to ignore.[62] The continent's average urbanisation rate sits comfortably at 3.2 per cent, well ahead of the global average of 2 per cent. [63] The last few decades, African nations have been pushing towards development and urbanisation, and although temporarily slowed down due to the pandemic, the continent's economic growth rate is expected to pick back up to 3.9 percent by 2025.[64] It is expected that by 2035 the continent's population will double to 810 million inhabitants, the equivalent of annually adding a city the size of Lagos to the region.[65]

Thus, the question remains, how does the net zero race impact African countries' path toward economic growth and poverty reduction? Unlike their peers in the Global North, African countries are tasked with the challenge of industrialising without increasing carbon emissions.[66] Indeed, the RtZ campaign's failure to leverage a climate justice, energy justice and just transition approach has created an arguably Africa- ignorant campaign making an emissions-conscious

61 Mayowa Kuyoro et al. 'Reimaging Economic growth in Africa: turning diversity into opportunity' (McKinsey Global Institute 5 June 2023) <www.mckinsey.com/mgi/our-research/reimagining-economic-growth-in-africa-turning-diversity-into-opportunity> accessed 9 July 2023.

62 Mayowa Kuyoro et al. 'Reimaging Economic growth in Africa: turning diversity into opportunity' (McKinsey Global Institute 5 June 2023) <www.mckinsey.com/mgi/our-research/reimagining-economic-growth-in-africa-turning-diversity-into-opportunity> accessed 9 July 2023.

63 Jason Mitchell 'The dilemma: how can Africa industrialise and reach net zero?' (Investment Monitor 29 October 2021) www.investmentmonitor.ai/sectors/energy/the-dilemma-how-can-africa-industrialise-and-reach-net-zero/ accessed 10 May 2023.

64 'The World Bank in Africa' (World Bank April 2023) <www.worldbank.org/en/region/afr/overview#:~:text=The%20World%20Bank%20in%20Africa,debt%20contribute%20to%20this%20decline> accessed July 9 2023.

65 Jason Mitchell 'The dilemma: how can Africa industrialise and reach net zero?' (Investment Monitor 29 October 2021) www.investmentmonitor.ai/sectors/energy/the-dilemma-how-can-africa-industrialise-and-reach-net-zero/ accessed 10 May 2023.

66 Jason Mitchell 'The dilemma: how can Africa industrialise and reach net zero?' (Investment Monitor 29 October 2021) www.investmentmonitor.ai/sectors/energy/the-dilemma-how-can-africa-industrialise-and-reach-net-zero/ accessed 10 May 2023.

industrialisation process even more challenging. This section will unpack how the RtZ's failure to address Africa's energy poverty, leverage inclusive and accurate data for net-zero planning and prioritisation, and address the manifold yet equally urgent interests of climate resilience and industrialisation impacts Africa's development trajectory.

5.1 The natural gas debate

As previously mentioned, Africa carries the heavy burden of 'green' industrialisation. Thus, a notable contemporary debate regarding how to power Africa's development rests on the topic of natural gas and its possible recognition as a 'green' energy source. Today, of the officially recognised renewable energy types, natural gas is not included.[67] However, natural gas is a much cleaner source of energy than traditional non-renewable energy sources, like oil and coal, as it emits approximately half CO2 and overall GHG emissions.[68] In fact, these same 'clean burning properties of natural gas' catalysed 'increased natural gas for electricity generation and as [a] transportation fuel for fleet vehicles in the United States'.[69] The African continent holds large natural gas reserves, about 13 percent of the world's total, but has the lowest per-capita use of any other region.[70]

Considering that African representatives and leaders have repeatedly pointed out the unfair burden on the continent to develop without using fossil fuels and to transition to clean energy sources under unrealistic timelines, the argument to use natural gas to power Africa's development emerged.[71] The position, however, is not without its fair share of resistance. In fact, there has been such strong opposition to the use of natural gas to power Africa's development, that during the COP 26 conference in 2021, 25 developed nations' governments and development finance institutions (DFI) pledged to end funding for all fossil fuel initiatives, including natural

67 'Renewables' (International Energy Agency) < https://www.iea.org/energy-system/renewables> accessed 23 June 2023; 'What is renewable energy' (United Nations Climate Action) < https://www.un.org/en/climatechange/what-is-renewable-energy> accessed 23 June 2023.

68 'Natural gas explained' (U.S. Energy Information Administration) < https://www.eia.gov/energyexplained/natural-gas/natural-gas-and-the-environment.php#:~:text=Natural%20gas%20is%20a%20relatively,an%20equal%20amount%20of%20energy.> accessed 17 July 2023; David Christianson 'Net zero is a problem for African development' (Tralac 22 March 2022) https://www.tralac.org/blog/article/15569-net-zero-is-a-problem-for-african-development.html#:~:text='The%20possibility%20of%20a%20global,developmental%20possibilities%20of%20these%20resources accessed 17 July 2023.

69 'Natural gas explained' (U.S. Energy Information Administration) < https://www.eia.gov/energyexplained/natural-gas/natural-gas-and-the-environment.php#:~:text=Natural%20gas%20is%20a%20relatively,an%20equal%20amount%20of%20energy.> accessed 17 July 2023.

70 Alex Lawler 'Africa must use its gas reserves drive the economy, industry officials say' (Reuters 1 November 2022) https://www.reuters.com/business/energy/africa-must-use-its-gas-reserves-drive-economy-industry-officials-say-2022-11-01/ accessed 20 July 2023.

71 David Christianson 'Net zero is a problem for African development' (Tralac 22 March 2022) https://www.tralac.org/blog/article/15569-net-zero-is-a-problem-for-african-development.html#:~:text=The%20possibility%20of%20a%20global,developmental%20possibilities%20of%20these%20resources accessed 17 July 2023.

gas, by the end of 2022.[72] Additionally, the World Bank, which makes up about 50 percent of climate financing for developing countries, stopped investing in oil and gas in 2019.[73] While the commitment to defund oil and fossil fuel investments on the continent seems to be a promising step for climate change, in reality, its overall value to GHG emissions efforts is negligible, and in the process it deters almost all additional investors from funding energy projects in Africa while doing nothing to stop private funding of fossil fuel plants in developed countries, like China and the USA.[74] In fact, if Africa 'tripled the use of natural gas for energy generation, it will contribute 0.67 percent to global emissions.'[75] The strategy to use natural gas as an oil and coal alternative is not uniquely African. South Korea has intentionally increased the investment and use of natural gas to 'buy them time to transition to a net zero economy'.[76] Thus, the minimum that African governments request is that natural gas be temporarily recognised as a 'green fuel', so they can catch up with the energy needs of their citizens.[77] The non-existent strategy of net zero has translated into the non-existent strategy of contesting positions like the natural gas debate – not saying a plan cannot be contrived in the future but it perpetuates nebulous debates where stakeholders cannot get on the same page.

5.2 Africa needs money

Although the cost of renewable energy is at a historic low, a transition to 100 percent renewable energy sources is no small financial feat.[78] The United Nations Development Program (UNDP)

72 David Christianson 'Net zero is a problem for African development' (Tralac 22 March 2022) https://www.tralac.org/blog/article/15569-net-zero-is-a-problem-for-african-development.html#:~:text=The%20possibility%20of%20a%20global,developmental%20possibilities%20of%20these%20resources accessed 17 July 2023.

73 David Christianson 'Net zero is a problem for African development' (Tralac 22 March 2022) https://www.tralac.org/blog/article/15569-net-zero-is-a-problem-for-african-development.html#:~:text=The%20possibility%20of%20a%20global,developmental%20possibilities%20of%20these%20resources accessed 17 July 2023.

74 David Christianson 'Net zero is a problem for African development' (Tralac 22 March 2022) https://www.tralac.org/blog/article/15569-net-zero-is-a-problem-for-african-development.html#:~:text=The%20possibility%20of%20a%20global,developmental%20possibilities%20of%20these%20resources accessed 17 July 2023.

75 Kingsley Ighobor 'A just transition to renewable energy in Africa' (31 October 2022 United Nations Organisation Africa Renewal) <https://www.un.org/africarenewal/magazine/november-2022/just-transition-renewable-energy-%C2%A0africa> accessed July 22 2023.

76 Eric Yep & Charles Lee 'Feature : South Korea's move to label LNG as green fuel buys time for energy transition' (S&P Global 07 January 2022) < https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/energy-transition/010722-south-koreas-move-to-label-lng-as-green-fuel-buys-time-for-energy-transition> accessed 17 July 2023.

77 Eric Yep & Charles Lee 'Feature : South Korea's move to label LNG as green fuel buys time for energy transition' (S&P Global 07 January 2022) < https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/energy-transition/010722-south-koreas-move-to-label-lng-as-green-fuel-buys-time-for-energy-transition> accessed 17 July 2023.

78 'Cost of renewable energy' (Inspire Clean Energy) <https://www.inspirecleanenergy.com/blog/clean-energy-101/cost-of-renewable-energy> accessed 15 July 2023.

estimates that the net zero transition in Africa will cost about $1.7 trillion USD by 2030 alone.[79] In order to build reliable energy supplies for the continent, it is estimated that there will need to be an annual $120bn USD of investment in the continent until 2040.[80] Today, Africa's energy sector is ranked the worst in the world, yet it only accounts for 4 percent of the global electricity investment, despite having 17 percent of the world's population.[81]

The reality is that African countries do not have the capital to fund these energy projects, and the expectation that African nations meet these multi-trillion-USD funding requirements in time to reach the 2050 goal is an unfair and possibly unrealistic expectation. Especially as we consider the dire financial constraints Africa nations are facing due to divestment of DFI discussed in the previous section.

5.3 Africa is dependent on the hydrocarbon exports

Another deleterious outcome of the Western-centric and enigmatic RtZ is that there has been no acknowledgement of how to subvert the inimical effects on the African exportation market. Hydrocarbon exports; such as coal, petroleum, natural gas and tar; account for 48.5 percent of total African exports - unequivocally positioning the RtZ as a threat to the development possibilities of this continent.[82] Again, the transition away from fossil fuel use is an absolute requirement to mitigate the effects of climate change, but the issue is that the RtZ does little to nothing to address the impending future economic impacts of crushing 50 percent of the continent's exports. Furthermore, the development and economic opportunities that hydrocarbon exports can provide to developing nations cannot be minimized. Other middle eastern nations, like Qatar, have demonstrated how 'hydrocarbon wealth has the potential to offer a head-start in economic development'.[83] As mentioned above, the RtZ has not only led to the defunding of natural gas projects but all other hydrocarbon exports. Additional stakeholders like the UK's Commonwealth Development Corporation, who has about 50 percent of their portfolio in Africa, committed to stanching investment in fossil fuel projects.[84]

79 Maxwell Gomera & Ahunna Eziakonwa 'Africa needs carbon markets' (UNDP 16 June 2022) < https://climatepromise.undp.org/news-and-stories/africa-needs-carbon-markets#:~:text=It%20will%20be%20expensive.,expected%20to%20cover%20these%20costs.> accessed 30 June 2023.

80 Jason Mitchell 'The dilemma: How can Africa industrialise and reach net zero?' (Investment Monitor 29 October 2021) <www.investmentmonitor.ai/sectors/energy/the-dilemma-how-can-africa-industrialise-and-reach-net-zero/> accessed 30 June 2023.

81 Jason Mitchell 'The dilemma: How can Africa industrialise and reach net zero?' (Investment Monitor 29 October 2021) <www.investmentmonitor.ai/sectors/energy/the-dilemma-how-can-africa-industrialise-and-reach-net-zero/> accessed 30 June 2023.

82 Leo Holtz & Chris Heitzig 'The effects of the global energy transition in Africa: disruption and opportunity' (Brookings 12 February 2021) < https://www.brookings.edu/articles/the-effects-of-the-global-energy-transition-in-africa-disruption-and-opportunity/#:~:text=Exports%20of%20hydrocarbon%20fossil%20fuels,export%20composition%20and%20trading%20partners.> accessed 12 July 2023.

83 'Economy of Qatar' (Britannica) <https://www.britannica.com/place/Qatar/Economy> accessed 12 July 2023.

84 David Christianson 'Net zero is a problem for African development' (Tralac 22 March 2022) https://www.tralac.org/blog/article/15569-net-zero-is-a-problem-for-african-development.html#:~:text=The%20possibility%20of%20a%20global,developmental%20possibilities%20of%20these%20resources accessed 17

The RtZ risks cutting 50% of Africa's exportation market without proactively promoting alternative markets for investment. So, then the question at hand is how is a continent so rife with poverty meant to transition to new economic opportunities in such a short period of time.

5.4 The undue burden on African states

Not only have developed nations seemed passive about the natural gas usage of non-African countries, while also failing to address the looming economic cost of jettisoning hydrocarbon exports from Africa, but others have been explicitly hypocritical in their approach to fossil fuel amelioration. As demonstrated, the RtZ has permitted developed states to place disproportionate and hypocritical pressure on Africa to transition to clean energy sources in a way that they have failed to do so, themselves. For example, while the United States (US) publicly harangued Nigeria for proposals to build 20 oil plants, to reduce the country's energy poverty, the US has approximately 1900 of those same plants in operation today.[85] Such a scenario begs the question, 'are GHG emissions reductions really the target of these developed states, or could there be an alternative agenda'? Similarly, after developed states made commitments against natural gas investment in Africa during the COP 26 conference (as discussed in section 4.2.2), by the time the COP27 conference rolled around, the same developed nations were pushing African states to drill for gas to alleviate the economic hardship and resources constraints brought about by the Russia-Ukraine war.[86] Such reasoning is almost directly contradictory to the pledges made the year prior. Considering the entire 'continent of Africa's fossil fuel consumption per capita is 3.585 kWh while the USA's is 62.356 kWh, nearly twenty times higher,' it's confounding why developed states feel so compelled to dictate the behaviour of African states.[87] Although African leaders are on board to address the climate crisis, they have repeatedly noted the additional time their countries need to transition to clean energy sources, and the responsibility of developed states to take proportionate accountability for their contribution to the climate crisis, and rightfully lead by example.[88]

5.5 Conclusion

The tone-deaf nature of the RtZ has had multiple effects on the development cadence of the African continent. African countries have been left without the financing, data or support to execute a global target that does little to acknowledge the most pressing climate issues of their

July 2023.

85 David Christianson 'Net zero is a problem for African development' (Tralac 22 March 2022) https://www.tralac.org/blog/article/15569-net-zero-is-a-problem-for-african-development.html#:~:text=The%20possibility%20of%20a%20global,developmental%20possibilities%20of%20these%20resources accessed 17 July 2023.

86 Fiona Harvey 'Let Africa exploit its natural gas reserves, says Mary Robin' (The Guardian 7 June 2022) <https://www.theguardian.com/environment/2022/jun/07/let-africa-exploit-natural-gas-reserves-mary-robinson> accessed 16 July 2023.

87 Jason Mitchell 'The dilemma: how can Africa industrialise and reach net zero?' (Investment Monitor 29 October 2021) www.investmentmonitor.ai/sectors/energy/the-dilemma-how-can-africa-industrialise-and-reach-net-zero/ accessed 10 May 2023.

88 Shola Lawal 'The world needs to quit oil and gas. Africa has an idea: rich countries first' (11 Nov 2021) https://www.nytimes.com/2021/11/09/climate/africa-fossil-fuel-gas-cop26.html accessed 23 June 2023.

region. African countries are also left without a clear path to develop their states, addressing the existing energy poverty concerns, alongside promoting a clean energy transition. Secondly, African states have lost funding for and have been pressured into avoiding the use of natural gas as an intermediary clean energy source, while richer countries continue to leverage natural gas at incomparable rates with no clear plan to reduce their own natural gas usage. Thus, African countries have unjustly been tasked with leading the charge for natural gas devolvement, at the risk of throwing African people into deeper poverty and crisis, while nations who actually emit significant levels of GHG emissions are left to use natural gas sources as they desire.

6. RECOMMENDATIONS

As discussed, the RtZ, although an ambitious and inspiring initiative, fails the African continent in numerous ways. Arguably, only addressing the conditions and priorities of richer developed nations, it fails to address the African continent's most pressing climate issues while also failing to prioritise green industrialisation on the continent. The outcome of such failures is that Africa's development and economic growth are jeopardized. The international community, however, can take steps to address these concerns and present a more inclusive approach to a clean energy transition.

6.1 Make the RtZ more inclusive

The first step that could be taken is that government, and corporate leaders across the global can reconvene to draft more thoughtful strategies for the RtZ campaign. Leveraging international norms and best practices from climate leaders, the RtZ guiding principles can be drafted through climate justice and just transition lenses, thus addressing the currently ignored issues such as: climate and adaptation financing, green industrialisation and development and clean energy investment.

6.1.2 Invest in Africa-centred research and better modelling

The clean-energy transition will not be possible if Africa is not on board, and if they are not included. Thus, if more inclusive net-zero approaches are to be drafted, leaders ought to be equipped with relevant and informative data that speaks to the condition of African countries individually and accurately. Therefore, it is crucial to expand access to essential Africa-specific data. Climate researchers, energy modellers and environmental engineers dedicated to the clean energy transition should be funded to work on Africa-specific projects and should be from African countries themselves so they can collect data that is relevant, and cognizant of the local conditions. Secondly, more collaborations, ranging from research partnerships to scholar exchanges and joint initiatives across institutions and regions are needed. These must be equal partnerships, where researchers push African governments and development partners to invest in building local expertise.

6.1.3 Increase finance for renewable energy sources on the continent

Africa needs funding, as it stands no African country can independently financially support the clean energy transition. Thus, governments of richer nations and DFI's ought to replace the finance contracts once held for non-renewable energy sources with contracts financing the development of clean energy plants.

6.1.4 Rich states first

As discussed, richer developed nations bear the major responsibility of today's climate crisis, and should, accordingly, assume the greater responsibility in amending the harm done to the planet and people. Thus, richer nations that have the resources and the capital to shift to clean energy now should expedite their energy transition. The longer such a transition takes, the longer people on the African continent suffer the deleterious effects of climate change.

6.2 Promote economic opportunities and international partnerships

Beyond making the RtZ more inclusive for African states, it is crucial that African states take advantage of new economic and partnership opportunities as early as possible. The current dependence on hydrocarbon exports is not a feasible economic strategy for the future, and the African people need robust economies to fund further development initiatives to not only address energy poverty but also do so through sustainable solutions.

6.2.1 Leap Frog to clean energy

Considering most African countries are still in the process of building out sufficient energy plants and grids to meet the needs of their citizens, African countries have a unique opportunity on their journey to development – to skip over a heavy investment in fossil fuels, which they would have to transition away from again soon, and instead jump right in to clean energy investment. This would not only allow African states to address energy poverty and continue industrialisation, but it also promotes the decreased cost of renewable energy technologies. Currently, however, African countries are not positioned to leapfrog to renewables by 2050, let alone 2030.[89] Thus, it will take a concerted effort from investment partners, governments, independent companies, and scientists to push African countries and corporations in this direction. Private corporations, like Kenya's Safaricom, standout as local examples in this arena. The mobile technology giant has not only set their own net-zero targets, but they have independently invested in solar and wind energy to power their electricity grids across the country.[90]

89 Jason Mitchell 'The dilemma: how can Africa industrialise and reach net zero?' (Investment Monitor 29 October 2021) www.investmentmonitor.ai/sectors/energy/the-dilemma-how-can-africa-industrialise-and-reach-net-zero/ accessed 10 May 2023.

90 'Route to Net Zero – the African perspective' (Carbon Trust 15 December 2021) https://www.carbontrust.com/news-and-insights/news/route-to-net-zero-the-african-perspective accessed Jul 15 2023.

6.2.3 Re-assess exportation priorities

As hydrocarbon exports continue to decrease across the continent it is crucial that African states pivot their trading investments to minerals and metals that support the international shift to renewable energy. The most significant industry in the net-zero debate is mining, 'mining and minerals are the lifeblood of the technologies that will make Net Zero possible.'[91] One clear focus is electric transport, with electric vehicles having 'six times the metal input' of traditional vehicles, African countries are crucial sources of metals needed to produce lithium-ion batterie for electric vehicles such as cobalt, manganese, and phosphorus, lithium, iron, copper, and graphite.[92]African countries ought to seek out business opportunities that offer economic benefit while also supporting the overall transition to clean energy.

91 Route to Net Zero – the African perspective' (Carbon Trust 15 December 2021) <https://www.carbontrust.com/news-and-insights/news/route-to-net-zero-the-african-perspective> accessed Jul 15 2023.

92 'Africa's mineral wealth: a catalyst for electric vehicle value chain' (Africa Executive) <https://africa-executive.com/thought-leadership/africas-mineral-wealth-a-catalyst-for-electric-vehicle-value-chain/#:~:text=Africa%20supplies%20a%20significant%20portion,iron%2C%20copper%2C%20and%20graphite> accessed 15 July 2023.