COVID-19 and the 'great reset': responding to energy transition and sustainable development challenges in sub-Saharan Africa.

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by T. Acheampong and B. Menyeh

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COVID-19 and the 'Great Reset': Responding to Energy Transition and Sustainable Development Challenges in Sub-Saharan Africa

Theophilus Acheampong[*]*, Bridget Okyerebea Menyeh*[**]

Abstract

The coronavirus (COVID-19) pandemic has profoundly impacted economies, disrupted energy markets, and catalysed the pace of the energy transition with more ambitious 'green growth' initiatives being announced by several countries and regions. In the Sub-Saharan African (SSA) context, the pandemic has exacerbated the fragility of its economies, causing the region's first recession in many decades and its largest economic contraction on record. This article critically analyses what the energy transition means for developing Sub-Saharan Africa's energy and extractives industry – mining and oil and gas industry – and the attainment of the sustainable development goals (SDGs), specifically SDG 7 on affordable and clean energy, and SDG 13 on climate action. We undertake a state-of-play analysis on the attainment of these two SDGs in the sub-region, based on the following timescales: pre-pandemic (2000-2019), during the pandemic (2020-2021), and likely post-pandemic trajectory. Our findings show that fiscal constraints during the pandemic meant that several SSA countries could not implement adaptation and climate resilience measures, which were already struggling for funding pre-pandemic. Even more so, SSA also faces acute multidimensional energy poverty, made more onerous by the pandemic and prior economic dislocations such as the 2014-2017 commodities price slump. Nevertheless, in the context of the energy transition and attainment of the SDGs, SSA governments are increasingly prioritising their transition responses premised on using both conventional and renewable energy resources at their disposal. This approach also balances national priorities such as increasing energy access, industrialisation, and economic diversification. In an increasingly decarbonising world, SSA may have offer a higher 'transition risk premium' on oil and gas projects due increassing environmental, social, and governance (ESG) pressures, else it would struggle to find investors. The opposite is likely to be the case for mining, aside known country risk factors. Recognising that transitions can create winners and losers and magnify the struggles of vulnerable groups, policymarkers and industry stakeholders need to ensure that citizens are equipped with new skillsets to take up the new opportunities that the transition presents. Pursuing this requires strong coordination of energy and industrial policies at the Pan-African, regional and country levels.

1. Introduction

The coronavirus (COVID-19) pandemic and accompanying 'Great Lockdown' of 2020 has been a time and crisis like no other. Several bodies, including the IMF, forecasted one of the worst economic downturns since the Great Depression of the early 1930s.[1] The pandemic has

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[1] Gopinath, G. (2020). The great lockdown: Worst economic downturn since the great depression. *IMF blog*, *14*, 2020. Available: https://blogs.imf.org/2020/04/14/the-great-lockdown-worst-economic-downturn-since-the-great-depression/ (Accessed: 15 November 2021)

and continues to impact livelihoods and economies dramatically.[2] Globally, economic growth declined by 3.4% in 2020, according to IMF[3] and other estimates.[4] This contraction was much worse than witnessed during the 2008–09 financial crisis and one of the worst on record.[5] Output in the advanced economies — comprising United States, Euro Area, Japan and United Kingdom, among others — dropped by negative 4.6% real GDP in 2020 and negative -2.1% real GDP in emerging market and developing economies such as China, India, Russia and Brazil.[6] Likewise, in Sub-Saharan Africa (SSA), several economies saw a sharp slowdown in 2020 due to the pandemic. For example, whereas the IMF's World Economic Outlook in October 2019[7] predicted most SSA economies growing by more than 3% real GDP, this had changed to negative growth in most countries on the continent by the time it issued its April 2020[8] Outlook. The region witnessed a negative 3.3% growth in 2020, leading to its first recession in 25 years and eroding almost five years of progress in fighting poverty.[9] It was also estimated that the pandemic could drive about 40 million people into extreme poverty in Africa in 2020 alone.[10]

Many governments and multilateral institutions offered, and are still offering, considerable fiscal and monetary stimulus to mitigate the impacts of the pandemic.[11] The fiscal support encompasses credit policies and support packages for individuals and businesses, reduction in VAT, CIT, and control of non-priority expenditure.[12] The monetary and macro-financial policies included reductions in the policy rate and lowering the primary reserve requirement and capital conservation buffers of commercial banks, among others.[13] These interventions led to a recovery starting from the second half of 2020 – albeit fragile - and which is expected to gain more traction in 2021 and beyond as global COVID-19 vaccination efforts ramp up.

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[2] Ferraresi, M., Kotsogiannis, C., Rizzo, L., & Secomandi, R. (2020). The 'Great Lockdown' and its determinants. *Economics letters*, *197*, 109628.

[3] IMF (2021a). Global economy on firmer ground, but with divergent recoveries amid high uncertainty. Available: https://www.imf.org/en/Publications/WEO/Issues/2021/03/23/world-economic-outlook-april-2021 (Accessed: 15 November 2021).

[4] World Bank (2021). GDP growth (annual %). Available: https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG (Accessed: 15 November 2021)

[5] Ibid (n 3); Gill, I. (2020) *The world economy in 2020—the IMF gets it mostly right*, *Brookings*. Available at: https://www.brookings.edu/blog/future-development/2020/04/14/the-world-economy-in-2020-the-imf-gets-it-mostly-right (Accessed: 15 November 2021)

[6] IMF (2021b). Fault Lines Widen in the Global Recovery. Available: https://www.imf.org/en/Publications/WEO/Issues/2021/07/27/world-economic-outlook-update-july-2021 Accessed: 15 November 2021)

[7] IMF (2019). Sub-Saharan Africa Regional Economic Outlook: Navigating Uncertainty. Available: https://www.imf.org/en/Publications/REO/SSA/Issues/2019/10/01/sreo1019

[8] IMF (2020). World Economic Outlook, April 2020: The Great Lockdown. Available: https://www.imf.org/en/Publications/WEO/Issues/2020/04/14/weo-april-2020

[9] World Bank (2020). World Bank Confirms Economic Downturn in Sub-Saharan Africa, Outlines Key Polices Needed for Recovery. Available: https://www.worldbank.org/en/news/press-release/2020/10/08/world-bank-confirms-economic-downturn-in-sub-saharan-africa-outlines-key-polices-needed-for-recovery

[10] Ibid (n 8).

[11] Benmelech, E., & Tzur-Ilan, N. (2020). *The determinants of fiscal and monetary policies during the COVID-19 crisis* (No. w27461). National Bureau of Economic Research.; Wei, X., & Han, L. (2021). The impact of COVID-19 pandemic on transmission of monetary policy to financial markets. *International Review of Financial Analysis*, *74*, 101705. Fornaro, L., & Wolf, M. (2020). Covid-19 coronavirus and macroeconomic policy.; Padhan, R., & Prabheesh, K. P. (2021). The economics of COVID-19 pandemic: A survey. *Economic Analysis and Policy*, *70*, 220-237.

[12] Acheampong, T., Bokpin, A, G., Duho, K, C., & Cudjoe, F. (2021). 'Taxation and Ghana's Post-Covid Economic Recovery'. IMANI Centre for Policy and Education Paper. Available: https://doi.org/10.13140/RG.2.2.17789.69603

[13] Ibid (n 12)

However, economic growth continues to be impacted by uncertainties, including the spread of COVID-19 variants (largely delta variant) and the pace of global vaccine rollout. Additional constraints in many countries, including in SSA, include weak fiscal buffers and sovereign debt overhang, as well as rising inflationary pressures coupled with weak monetary policy response from central banks.

Nevertheless, improving economic prospects means a sustained demand for energy, including oil and related products, which also took a heavy tumbling during the pandemic. COVID-19 profoundly impacted and disrupted energy markets, including upstream oil and gas, power, and downstream industries, and catalysed the energy transition. We illustrate with four examples: Firstly, West Texas Intermediate (WTI), the benchmark for US oil, turned negative in April 2020 due to a sharp slump in demand. Secondly, the shocks from the pandemic also led to reductions in fossil fuel consumption and emissions in 2020, with global energy demand dropping by 5% to 7%[14], energy-related CO2 emissions by 5.4%[15] to 6.4%[16], and energy investment by an estimated 20% or almost US$400 billion.[17] Thirdly, oil cartel OPEC, which controls about 42% of global crude oil supply and 80% of crude oil reserves, in its 2020 and 2021 World Oil Outlook indicated that oil demand would plateau in the late 2030s.[18] Fourthly, various national governments, predominantly in the West, announced new net-zero targets and committed to using significant portions of their pandemic fiscal stimulus on green growth initiatives. For example, the United States announced a plan to achieve an up to 52% reduction in GHGs by 2030 from 2005 levels under the 'building back better' theme[19] . In contrast, the European Union also announced[20] a net-zero by 2050 pledge and new 'Green Deal' with EUR-600 billion (one-third of EUR1.8 trillion investments) funding from the NextGenerationEU Recovery Plan and the EU's seven-year budget.

These developments potentially reflect a lasting impact of the COVID-19 pandemic on the global economy and consumer habits. Long-lasting COVID-19 induced behavioural changes will structurally impact future consumption trends, including lower future oil demand. That is,

[14] Jiang, P., Van Fan, Y., & Klemeš, J. J. (2021). Impacts of COVID-19 on energy demand and consumption: Challenges, lessons and emerging opportunities. *Applied energy*, *285*, 116441.; Hoang, A. T., Nižetić, S., Olcer, A. I., Ong, H. C., Chen, W. H., Chong, C. T., ... & Nguyen, X. P. (2021). Impacts of COVID-19 pandemic on the global energy system and the shift progress to renewable energy: Opportunities, challenges, and policy implications. *Energy Policy*, *154*, 112322.; Broom, D. (2020). These 3 charts show what COVID-19 has done to global energy demand. Available at: https://www.weforum.org/agenda/2020/08/covid19-change-energy-electricity-use-lockdowns-falling-demand (Accessed: 15 November 2021).

[15] Tollefson. J. (2021a). *Carbon emissions rapidly rebounded following COVID pandemic dip*, *Nature.com*. Available at: https://doi.org/10.1038/d41586-021-03036-x (Accessed: 15 November 2021).

[16] Tollefson. J. (2021b). *COVID curbed carbon emissions in 2020 — but not by much*, *Nature.com*. Available at: https://doi.org/10.1038/d41586-021-00090-3 (Accessed: 15 November 2021).

[17] *IEA* (2021). *The Covid-19 crisis is causing the biggest fall in global energy investment in history*. Available at: https://www.iea.org/news/the-covid-19-crisis-is-causing-the-biggest-fall-in-global-energy-investment-in-history (Accessed: 15 November 2021).

[18] Lawler, A. (2021) *OPEC forecasts oil demand rebound before post-2035 plateau*, *Reuters*. Available at: https://www.reuters.com/business/energy/opec-sees-oil-demand-rebounding-then-plateauing-after-2035-2021-09-28 (Accessed: 15 November 2021).

[19] FACT SHEET: President Biden Sets 2030 Greenhouse Gas Pollution Reduction Target Aimed at Creating Good-Paying Union Jobs and Securing U.S. Leadership on Clean Energy Technologies | The White House (2021). Available at: https://www.whitehouse.gov/briefing-room/statements-releases/2021/04/22/fact-sheet-president-biden-sets-2030-greenhouse-gas-pollution-reduction-target-aimed-at-creating-good-paying-union-jobs-and-securing-u-s-leadership-on-clean-energy-technologies

[20] European Commission (2021). *A European Green Deal*. Available at: https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en (Accessed: 15 November 2021).

the pandemic catalysing the energy transition, which in some respect was already well underway before COVID-19, albeit at a slow pace.

However, in the SSA context, its energy and extractives sectors are also navigating through the pandemic-induced changes in energy demand and the energy transition. While the sub-region has so far avoided the worst health impacts of the COVID-19 pandemic — in terms of infections and deaths—, its predominantly primary commodities export-oriented economies and energy sector have been hit hard. Estimates show that only two of the 28 African upstream project sanctions expected pre-pandemic were approved in 2020.[21] Additionally, several sanctioned project start-ups were also postponed.[22] The Africa Energy Chamber in its 2021 outlook estimates that "CAPEX spending 2020 – 2021 outlook pre-COVID-19 was almost US$90 billion for 2020 and 2021 but has been significantly reduced to about US$60 billion due to project delays and cost cutting measures."[23] Large capital spending cuts and project delays were announced for several projects including Greater Tortue Ahmeyim LNG project offshore Mauritania and Senegal and the Rovuma LNG in Mozambique. In Ghana, we saw the indefinite postponement of Aker Energy's PECAN development in April 2020 and even before that a relatively underwhelming first competitive licensing round in 2019.

Energy poverty is rife on the continent with an estimated 730 million or 56% of the region's population lacking clean fuels and cooking facilities (SDG 7).[24] But there is an opportunity to leverage the sub-region's vast natural gas resources in addition to renewables to address this access deficit. IEA estimates[25] show that that US$5-trillion of investments per annum is required between 2021 and 2030, including in decarbonisation and renewable initiatives, to meet net-zero targets. This raises an interesting question: how can SSA position itself to attract a portion of these investments? Even 10% of the US$50-trillion investment coming into SSA will make much difference on the continent. To put it in comparative terms, this is three times (2.96X) of the combined US$1.69-trillion GDP of SSA as of end-2020; it could spur a major economic boom and sustainable long-term industrialisation.[26]

It is against this backdrop that we write this paper. Specifically, we assess the opportunities and challenges that the energy transition presents in using the region's vast resources, such as natural gas, to fuel the industrial and sustainable development of national economies. We narrow down our focus on SDG 7 — on affordable and clean energy—, and SDG 13, on climate action. We undertake a state-of-play analysis on the attainment of these two SDGs in the sub-region on the following timescales: pre-pandemic, during the pandemic and likely post-pandemic trajectory. The following broad research questions are examined:

[21] Berkove, D., Tesfay, N., Bostan, R., Bruce, R., Macri, S., & Fourie, T., (2021). *Navigating the storm: African energy review and outlook*. Available at: https://ihsmarkit.com/research-analysis/navigating-the-storm-african-energy-review-and-outlook.html (Accessed: 15 November 2021).
[22] Ibid (n 21)
[23] Africa Energy Chamber (2021). *Africa Energy Outlook 2021*. Available at: https://www.whyafrica.co.za/wp-content/uploads/2020/11/AEC-Outlook-2021.pdf (Accessed: 17 November 2021), at p.9
[24] IEA (2020). The Covid-19 crisis is reversing progress on energy access in Africa. Available: https://www.iea.org/articles/the-covid-19-crisis-is-reversing-progress-on-energy-access-in-africa
[25] IEA (2021). Net Zero by 2050. Available: https://www.iea.org/reports/net-zero-by-2050
[26] Acheampong, T. (2021). *Leveraging clean energy to drive industrialization in Sub-Saharan Africa: Imaginaries and Realities*. Available at: https://afripoli.org/leveraging-clean-energy-to-drive-industrialization-in-sub-saharan-africa-imaginaries-and-realities (Accessed: 15 November 2021).

(1) What are the energy transition risks on the continent by economy type – for example, oil exporters, other resource-intensive, fragile states and non-resource intensive countries?
(2) What are the roadblocks to post-COVID reform of energy policies and systems in the SSA region?
(3) What strategic responses can SSA governments adopt to address and mitigate transition risks.

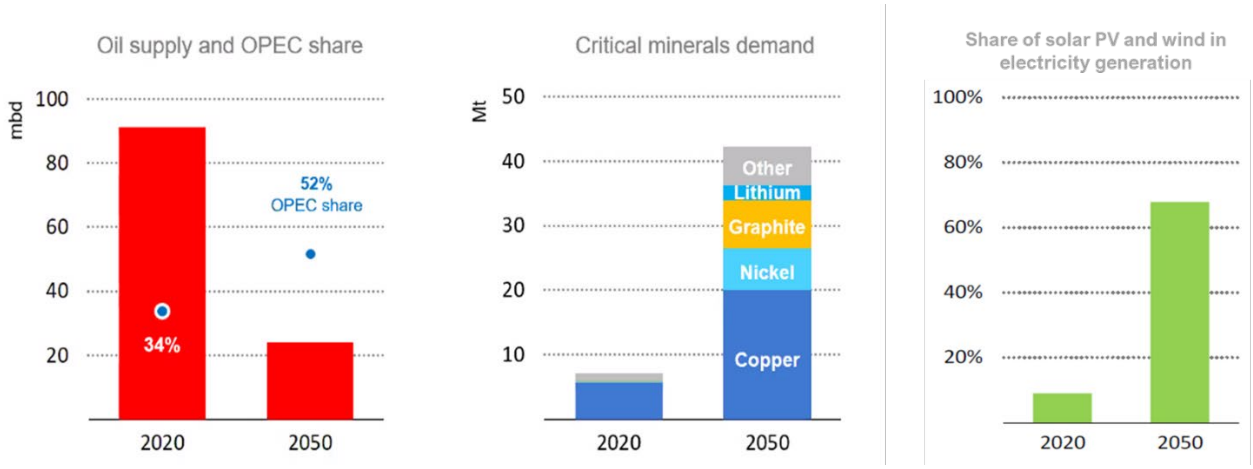
The rest of the paper is structured as follows. The next section discusses the literature on the energy transition and sustainable development goals (SDGs). Section 3 analyses energy transition risks in SSA and provides some strategic responses available to governments. We conclude and provide recommendations in Section 4.

2. The Energy Transition and Sustainable Development Goals (SDGs)

2.1 What is the Energy Transition?

The energy transition, a pathway toward transforming the global energy sector from fossil-based to zero-carbon, is well underway. The primary driver is the need to tackle the impacts of climate change, coupled by external pressures, such as consumer preferences and advances in technology and supported by policies. In essence, it was the science first and then people that forced the technology and governments to move. For example, oil's share of the global energy mix is forecast to drop from the current 90% to about 50% if the 1.5°C global warming target is to be attained by 2050[27] while demand for critical minerals such as copper and lithium are forecast to soar (Figure 1).

Figure 1 Change in oil supply shares and critical minerals demand



Source: IEA (2020). Available: https://www.iea.org/reports/net-zero-by-2050, at p.24
Note: mb/d = million barrels per day; Mt = million tonnes

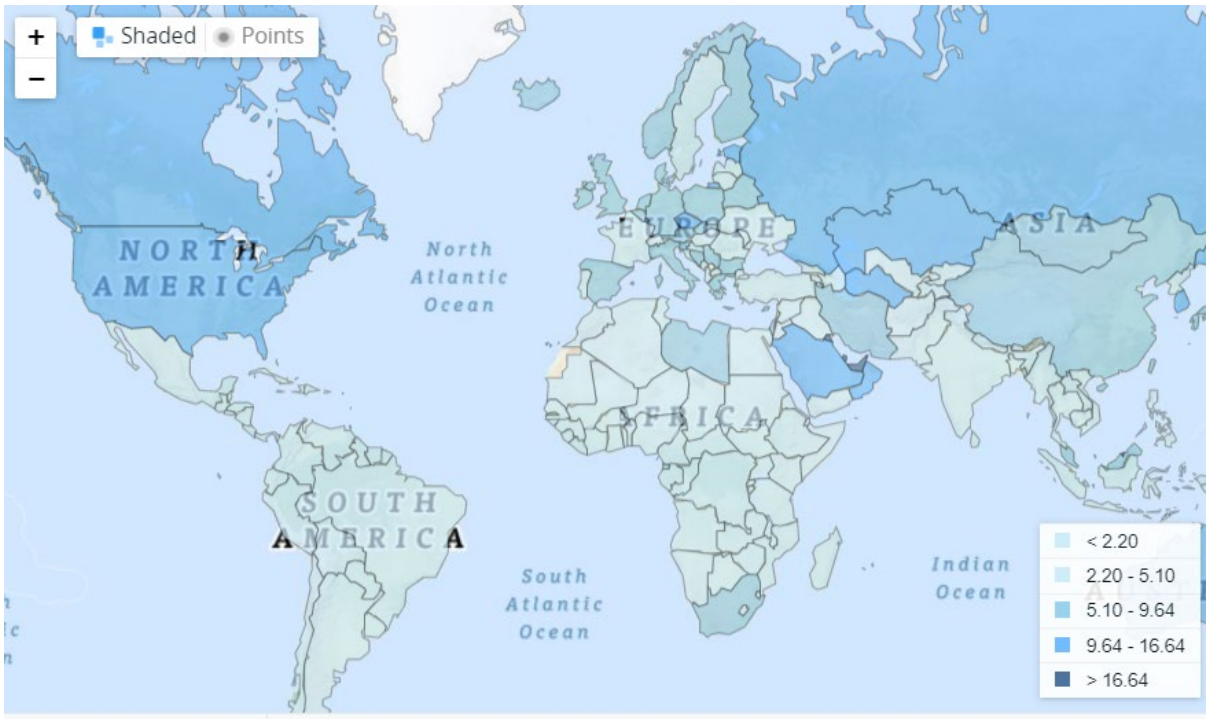
[27] Welsby, D., Price, J., Pye, S., & Ekins, P. (2021). Unextractable fossil fuels in a 1.5 C world. *Nature*, *597*(7875), 230-234.

In a bid to reach the 2050 net-zero CO2 targets, some of the key pillars for decarbonising the global energy system include "energy efficiency, behavioural changes, electrification, renewables, hydrogen and hydrogen-based fuels, bioenergy, carbon capture, utilisation and storage (CCUS)".[28] Implementing these measures is estimated to collectively lead to a 51% reduction in CO2 in 2050 from 2030 baseline.[29] Likewise, the energy transition momentum has picked up and will gain more momentum after the 2021 United Nations Climate Change Conference (COP26) in Glasgow, United Kingdom where countries such as India announced net-zeros pledges and new investments in clean technologies.[30] Also, more than 40 countries, including the United Kingdom, South Korea and Vietnam committed to phasing out unabated coal by the 2050s[31], and another 130 countries pledged[32] to halt and reverse forest-loss and land degradation by 2030.

Despite the foregoing developments, Africa's GHG emissions are among the lowest in the world on both a volume and per capita basis (Figure 2). For example, whereas the average United States citizen emitted 15.241 metric tons of CO2 per capita in 2018 and 7.405 metric ton of CO2 per capita in China, the average SSA citizen emitted less than one (0.8) metric ton of CO2 per capita in 2018. Thus, while SSA has historically contributed the least to climate change, it stands to face some of the biggest negative impacts.[33] For example, the UNFCCC estimates that "56% of the coastlines in Benin, Côte d'Ivoire, Senegal and Togo are eroding and this is expected to worsen in the future" with rising sea levels.[34] The imperative then is for a just transition that addresses the complexity of the global economic systems but also addresses inequality issues in especially developing countries such as SSA, many of whom are still largely commodities dependent.

[28] IEA (2021). Net Zero by 2050. Available: https://www.iea.org/reports/net-zero-by-2050, at p.64
[29] Ibid (n 27)
[30] Galway, N. et al. (2021). COP26 climate pledges: What scientists think so far, Nature.com. Available at: https://doi.org/10.1038/d41586-021-03034-z Accessed: 16 November 2021).
[31] Ibid (n 29)
[32] UKCOP26 (2021). Glasgow Leaders' Declaration on Forests and Land Use - UN Climate Change Conference (COP26) at the SEC – Glasgow 2021. Available at: https://ukcop26.org/glasgow-leaders-declaration-on-forests-and-land-use (Accessed: 16 November 2021).
[33] Serdeczny, O., Adams, S., Baarsch, F., Coumou, D., Robinson, A., Hare, W., ... & Reinhardt, J. (2017). Climate change impacts in Sub-Saharan Africa: from physical changes to their social repercussions. Regional Environmental Change, 17(6), 1585-1600.; Connolly-Boutin, L., & Smit, B. (2016). Climate change, food security, and livelihoods in sub-Saharan Africa. *Regional Environmental Change*, *16*(2), 385-399; Ayanlade, A., & Radeny, M. (2020). COVID-19 and food security in Sub-Saharan Africa: implications of lockdown during agricultural planting seasons. *npj Science of Food*, *4*(1), 1-6.
[34] UNFCCC (2020). *Climate Change Is an Increasing Threat to Africa t*. Available at: https://unfccc.int/news/climate-change-is-an-increasing-threat-to-africa (Accessed: 16 November 2021).

Figure 2 CO2 emissions (metric tons per capita), 2018



Source: World Bank. Available: https://data.worldbank.org/indicator/EN.ATM.CO2E.PC?view=map

2.2 SSA Socio-Economic Context: 50-plus Years of Extractives with Little to Show in Development Outcomes

The energy transition has major implications for extractives economies such as those prevalent in SSA. The review of the literature on extractives-led growth shows that many countries on the continent are still largely primary commodities producers and exporters with little to show by way of economic diversification (Figure 3). Besides, the evidence in several African countries also shows that extractives remain enclave activities with little spill-overs[35] into the wider economy despite recent attempts to correct this imbalance through local content participation[36] requirements. Most countries receiving IMF COVID-19 emergency financing and debt relief are in SSA; these economies have little resilience and very vulnerable to external shocks.[37]

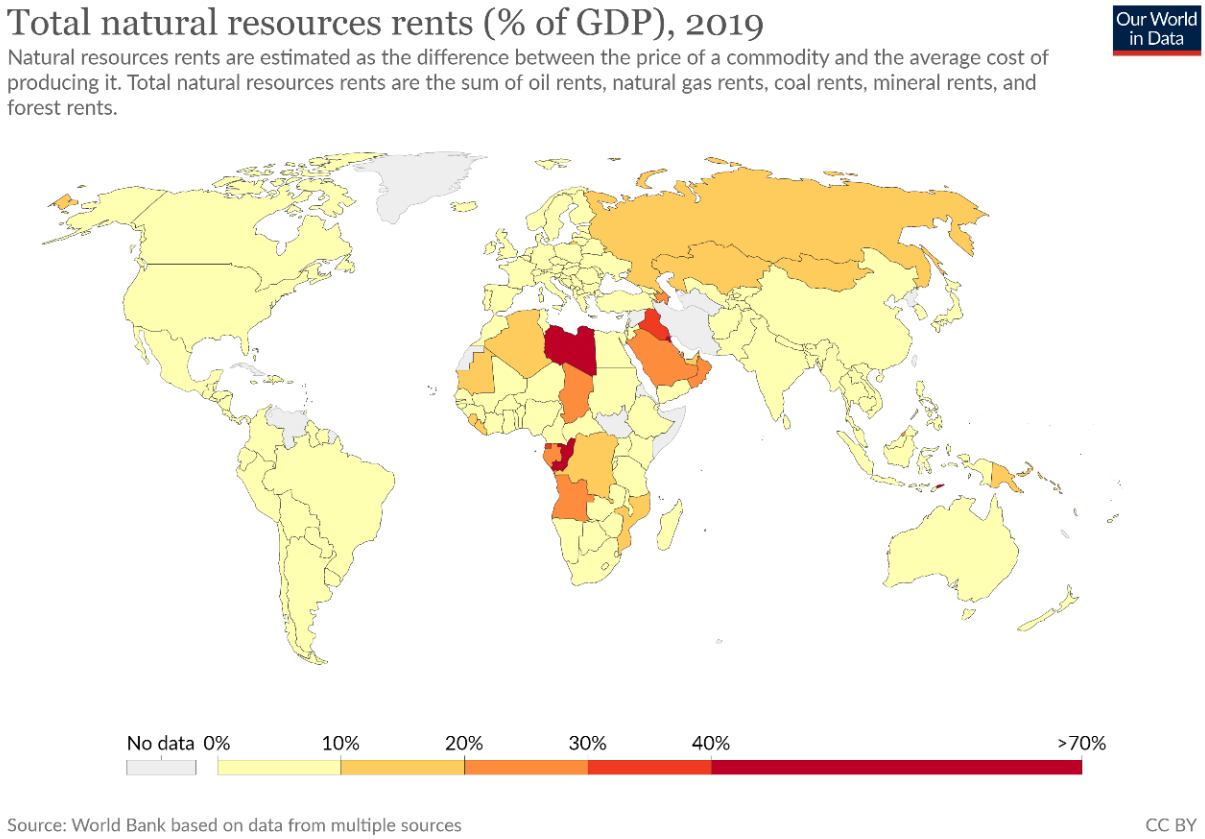
[35] Hansen, M. W., Buur, L., Mette Kjær, A., & Therkildsen, O. (2016, May). The economics and politics of local content in African extractives: lessons from Tanzania, Uganda and Mozambique. In *Forum for Development Studies* (Vol. 43, No. 2, pp. 201-228). Routledge.; Hansen, M. W. (2014). *From enclave to linkage economies? A review of the literature on linkages between extractive multinational corporations and local industry in Africa* (No. 2014: 02). DIIS Working Paper.; Morris, M., Kaplinsky, R., & Kaplan, D. (2011). " One thing leads to another commodities"-linkages and industrial development: a conceptual overview.

[36] Asiago, B. C. (2017). Rules of engagement: A review of regulatory instruments designed to promote and secure local content requirements in the Oil and Gas Sector. *Resources*, *6*(3), 46.; Ovadia, J. S. (2016). Local content policies and petro-development in Sub-Saharan Africa: A comparative analysis. *Resources Policy*, *49*, 20-30.; Acheampong, T., Ashong, M., & Svanikier, V. C. (2016). An assessment of local-content policies in oil and gas producing countries. *The Journal of World Energy Law & Business*, *9*(4), 282-302.

[37] IMF (2021). Countries Receiving Assistance and Debt Service Relief. Available: https://www.imf.org/en/Topics/imf-and-covid19/COVID-Lending-Tracker

Likewise, extractives have historically fuelled strife and corruption in several jurisdictions, including in SSA.[38] At the same time, local political elites engage in political patronage[39] and rent capture with less appetite for serious reforms (e.g., tax reform) due to easy petro-dollars. Nevertheless, many government programmes for countries are dependent on extractives revenues. For example, in the case of Ghana, oil revenues are critical to funding free primary and secondary education, providing healthcare, building roads and constructing rural agricultural facilities such as warehouses and silos.[40]

Figure 3 Total natural resources rent (as % of GDP), 2019



In this regard, the pace of the transition presents challenges as well as opportunities for several countries and economies. The speed at which the global economies 'walk' the ongoing energy

[38] Cotet, A. M., & Tsui, K. K. (2013). Oil and conflict: What does the cross country evidence really show?. *American Economic Journal: Macroeconomics*, *5*(1), 49-80.; Obi, C. (2010). Oil as the 'curse' of conflict in Africa: peering through the smoke and mirrors. *Review of African political economy*, *37*(126), 483-495.; Alao, A. (2007). *Natural resources and conflict in Africa: the tragedy of endowment* (Vol. 29). University Rochester Press.

[39] Bhattacharyya, S., & Mamo, N. (2021). Natural Resources and Conflict in Africa: What Do the Data Show?. *Economic Development and Cultural Change*, *69*(3), 903-950.

[40] Chinery, N. & Gyeyir, D. (2021). Energy transition and implication for Ghana's oil and gas industry. NRGI Energy Transition Dialogue for Civil Society and Media, 25 May 2021.; Ackah, I., Bobio, C., Graham, E., & Oppong, C. K. (2020). Balancing debt with sustainability? Fiscal policy and the future of petroleum revenue management in Ghana. *Energy Research & Social Science*, *67*, 101516.; Ackah, I., Lartey, A., Acheampong, T., Kyem, E., & Ketemepi, G. (2020). Between altruism and self-aggrandisement: Transparency, accountability and politics in Ghana's oil and gas sector. *Energy Research & Social Science*, *68*, 101536.

transition 'talk' is very critical and has implications for all economies more so given the potential asymmetric effects. That is, the pace of the energy transition will not be uniform across the world, more so in SSA, and especially when contrasted with the attainment of the SDGs.

Revenues of oil-producing countries in Africa are at risk from peak oil demand and the global energy transition. For example, an accelerated transition to renewables could cost Africa as much as US$1-trillion in lost oil export revenues over the next 20 years.[41] This raises an interesting philosophical question: how would African nations fund their development if they are to give up on exploring their natural resources (especially oil and gas) due to climate concerns? One potential implication of this is that countries with newfound hydrocarbon resources are likely to have a 30-year window to maximise the outcomes from these resources, while others with significant critical minerals could enjoy a new super-cycle. Latest analysis shows that the combination of soaring demand for metals and slower supply changes could push metals prices to reach unprecedented peaks for a long time, possibly even delaying the energy transition itself.[42]

2.3 How is the Energy Transition Connected to the Attainment of the SDGs?

The energy transition should ultimately foster sustainable development. As such, transition and decarbonisation strategies must at every point assess its contribution to the Sustainable Development Goals (SDGs). All the SDGs are inextricably linked however looking the at big picture, the energy transition should seek to uplift people from poverty, provide decent work and secure good health/well-being of all global citizens (Goals 1, 3 and 8) through development of industry that embeds innovation and systems that ensure responsible consumption and production (Goals 9 and 12). Finally, recognising the potential of transitions to create losers and winners as well as cost of inequalities to sustained development, the transition must be pursued in a just and inclusive manner to reduce all inequalities including gender and those with disabilities.

The strongest links, in our view, are to:

- Goal 1 (no poverty);
- Goal 3 (good health and well-being);
- Goal 5 (gender equality);
- Goal 7 (affordable and clean energy);
- Goal 8 (decent work and economic growth);
- Goal 9 (industry, innovation and infrastructure);
- Goal 10 (reduced inequalities);
- Goal 12 (Responsible consumption and production); and
- Goal 13 (climate action).

[41] Adeyemi, B. (2021). *Nigeria, other African oil-producing countries will lose $1tn oil revenue in 20 years – PWC* (2021). Available at: https://nairametrics.com/2021/01/07/nigeria-other-african-oil-producing-countries-will-lose-1tn-oil-revenue-in-20-years-pwc (Accessed: 16 November 2021).; Asu, F. (2021). *Nigeria, others'll lose $1tn oil revenue in 20 years – PwC*. Available at: https://punchng.com/nigeria-othersll-lose-1tn-oil-revenue-in-20-years-pwc (Accessed: 16 November 2021).

[42] Boer, L., Pescatori, A., & Stuermer, M. (2021). Energy Transition Metals. IMF Working Paper No. 2021/243. Available: https://www.imf.org/en/Publications/WP/Issues/2021/10/12/Energy-Transition-Metals-465899;

For the purposes of this paper and the rest of the discussion, we would like to narrow down to SDG 7 on affordable and clean energy, and SDG 13 on climate action. We undertake a state of play analysis on the attainment of these two SDGs in the sub-region on the following timescales: pre-pandemic, during the pandemic and likely post-pandemic trajectory. Table 1 shows the SDGs 7 and 13 targets, indicators, and accompanying discussion.[43]

[43] See also Nalule, V. & Acheampong, T. (2021). Energy Transition Indicators in African Countries: Managing the Possible Decline of Fossil Fuels and Tackling Energy Access Challenges. *The Journal of Sustainable Development, Law and Policy*, 12:1, 1-48.

Table 1 SDG 7 and 13 indicators tracking and outlook

SDG 7: Ensure access to affordable, reliable, sustainable and modern energy for all				
Target	**Indicator**	**Pre-COVID (2000-2019)**	**COVID-19 (2020-2021)**	**Post-COVID Outlook**
Target 7.1: Universal access to modern energy	• Indicator 7.1.1 - proportion of population with access to electricity • Indicator 7.1.2 - proportion of population with primary reliance on clean fuels and technology	• In 2000, 26% of SSA's 665 million population access to electricity (i.e.,74% did not have access). In 2019, 47% of SSA's 1.107 billion population had access to electricity (i.e., 53% did not have access). This represents a compounded annual growth rate (CAGR) of 2.9% in improving electricity access in the sub-region. Also, electricity access is mostly concentrated in the urban centres (78% in 2019). • In 2000, 9.3% of SSA's population had access to clean fuels and technologies for cooking. In 2019, this had merely risen to 14.3%. About 730 million of the continents population still lack access to clean fuels and facilities for cooking	• IEA estimates[44] indicate that almost 6% of SSA's population of that hitherto, already had electricity access were likely to lose the ability to afford basic electricity services during 2020. • The most affected populations were Nigeria, the Democratic Republic of the Congo and Niger.[45] • To safeguard livelihoods, many SSA governments during the pandemic, also provided short-term waivers or suspension of utility bills although many of the stimulus packages did not explicitly outline support for energy sector companies.[46] • Other research shows, for example, that 25% of informal urban households switched cooking fuel from LPG to wood	• Bridging the energy access gap remains a key priority for many African countries. • As highlighted in the 2022 Africa Energy Outlook, published by the Africa Energy Chamber, "to make energy poverty history by 2030", Africa's electricity generation capacity needs to expand rapidly by over 6% a year to support strong economic growth, foster industrialisation, and safeguard livelihoods."[48]

[44] IEA (2020). Electricity Market Report - December 2020- Report extract 2020 Regional focus: Africa. Available: https://www.iea.org/reports/electricity-market-report-december-2020/2020-regional-focus-africa
[45] Ibid (n 44)
[46] Akrofi, M. M., & Antwi, S. H. (2020). COVID-19 energy sector responses in Africa: A review of preliminary government interventions. Energy Research & Social Science, 68, 101681.
[48] Africa Energy Chamber (2021). The State of African Energy 2022 Report, at p.66

			or kerosene during COVID-19 lockdown.[47]	
Target 7.2: Increase global percentage of renewable energy	Indicator 7.2.1 - renewable energy share in the total final energy consumption[49]	• In 1990, renewable energy consumption constituted 71.13% of total final energy consumption, comprising mostly hydropower. This slightly reduced to 70.13% in 2015.	• Data for 2020-21 not available	• Various SSA countries have plans to increase the RE share (excluding hydro) in final energy consumption mix. This includes countries such as South Africa, Morocco, Kenya, Ghana, among others.[50]
Target 7.3: Double the improvement in energy efficiency	Indicator 7.3.1 - energy intensity measured in terms of primary energy and GDP	• Energy intensity of primary energy in 1990 was 2.76 kilowatt-hrs (kWh) per $2011 PPP GDP. This dropped to 1.96 kWh/$2011 PPP GDP in 2015, an absolute change of -0.81 kWh/$. • SSA remains the least efficient region with 5.6 MJ/USD GDP. Latin America & the Caribbean is the most efficient region with 3.4 MJ/USD GDP	• Data for 2020-21 not available	• Data not available
Target 7.A Promote access, technology and	7.A.1 - international financial flows to developing countries in support of clean energy research and	• SSA attracted 65% of global off-grid RE investments between 2007-2019, with most investments	• There was a 28% increase in international project finance for renewable energy deals from	• USD40 billion is needed through to 2050 for RE projects in Sub-Saharan Africa. This represents at a

[47] Shupler, M., Mwitari, J., Gohole, A., de Cuevas, R. A., Puzzolo, E., Čukić, I., ... & Pope, D. (2021). COVID-19 impacts on household energy & food security in a Kenyan informal settlement: The need for integrated approaches to the SDGs. *Renewable and Sustainable Energy Reviews*, *144*, 111018.

[49] This is measured as renewable energy (inclusive of solar, wind, geothermal, hydropower, bioenergy and marine sources) as a share of final (not primary) energy consumption. Energy mix includes electricity, transportation and cooking/heating fuels. See: https://sdg-tracker.org/energy

[50] See Alemzero, D., Acheampong, T., & Huaping, S. (2021). Prospects of wind energy deployment in Africa: Technical and economic analysis. *Renewable Energy*, 179, 652-666.; Acheampong, T., Menyeh, B.O., & Agbevivi, D.E. (2021). Ghana's Changing Electricity Supply Mix and Tariff Pricing Regime: Implications for the Energy Trilemma. *Oil, Gas & Energy Law*. OGEL 3 (2021).

investments in clean energy	development and renewable energy production, including in hybrid systems.	concentrated in East Africa.[51]	USD9.1 billion in 2019 to USD11 billion in 2020.[52]	fourfold increase compared to 2018 levels.[53]

SDG 13: Take urgent action to combat climate change and its impact

Target	Indicator	Pre-COVID (2000-2019)	COVID-19 (2020-2021)	Post-COVID Outlook
Target 13.1: Strengthen resilience and adaptive capacity to climate-related disasters	Indicator 13.1.1 - number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population	• Many SSA countries reported between 0.01 to 5 deaths and missing persons per 100,000 people per year persons due to all forms of natural disaster in 2017. Only one country (Sierra Leone) was in the 1-5 band in 2017.[54]	• Many SSA countries reported between 0.5 to 5 deaths and missing persons per 100,000 people per year persons due to all forms of natural disaster in 2020. However, nine countries including Liberia, Namibia, Niger, Zimbabwe and Kenya were in the 1-5 band in 2020.[55] • There were between 10,000 and 3 million internally displaced persons per SSA country from natural disasters in 2020 with many countries being in the upper quartile of this band.	• If nothing is done about climate change, then many SSA countries stand to be severely negatively impacted from rising sea levels to droughts, among others. This can significantly increase the death and mission persons rate beyond 2020 baseline levels.
	Indicator 13.1.2 - number of countries that adopt and implement national disaster risk reduction strategies in line with the Sendai Framework	• Almost all SSA countries have signed the Sendai Framework for Disaster Risk Reduction 2015–2030 and even developed five	• As was the case pre-COVID, many SSA governments struggled to implement disaster risk management services due to the lack of funding (and cuts in some cases) during the pandemic.	• One lesson from the COVID-19 pandemic is the need for integration and regulator update of disaster risk management strategies and plans.[59]

[51] IRENA and CPI (2020), Global Landscape of Renewable Energy Finance, 2020. International Renewable Energy Agency, Abu Dhabi, at p.9
[52] UNCTAD (2021). World Investment Report 2021. Available at: https://unctad.org/webflyer/world-investment-report-2021
[53] IRENA and CPI (2020), Global Landscape of Renewable Energy Finance, 2020. International Renewable Energy Agency, Abu Dhabi, at p.52
[54] See SDG Tracker.Org - https://sdg-tracker.org/climate-change
[55] Ibid (n 54)
[59] Ashraf, A. (2021). Lessons learned from COVID-19 response for disaster risk management. *Natural Hazards*, *107*(2), 2027-2032.

for Disaster Risk Reduction 2015–2030.	additional five targets for the continent.[56] • Studies indicate that 88% of countries had a national disaster risk management policy or legislation with benchmark to, for example, reduce disaster mortality, incorporate disaster risk management in their country's educational systems, among others.[57] • Several SSA countries score between 0.1 and 0.75 on the Sendai Framework.[58]		
Indicator 13.1.3 - the proportion of local governments that adopt and implement local disaster risk reduction strategies in line with national disaster risk reduction strategies.	• Many local governments have local disaster risk reduction strategies in line with national disaster risk reduction strategies but lacks funding to implement them. For example, the data shows that 276, 188 and 52 local governments in Ghana, Tanzania and South Africa have adopted these strategies.[60] • Nevertheless, the evidence base, suggests or indicates a clear lack of implementation	• As was the case pre-COVID, many SSA local governments struggled to implement disaster risk management services due to the lack of funding (and cuts in some cases) during the pandemic.	• The lack of effective decentralisation and financial/fiscal autonomy of many local governments in the sub-region means that many of these local disaster risk reduction strategies will struggle to be implemented despite the impacts of climate change being felt locally.

[56] van Niekerk, D., Coetzee, C., & Nemakonde, L. (2020). Implementing the Sendai Framework in Africa: Progress Against the Targets (2015–2018). *International Journal of Disaster Risk Science*, *11*(2), 179-189.
[57] Ibid (n 56)
[58] Ibid (n 54)
[60] Ibid (n 54)

		in many countries[61], and in some cases it is actually NGOs which are delivering the majority of disaster risk management services instead of the local governments.[62]		
Target 13.2: Integrate climate change measures into policy and planning	**Indicator 13.2.1 -** number of countries that have communicated the establishment or operationalisation of an integrated policy/strategy/plan which increases their ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development.	• Many countries in the sub-region have communicated establishing or operationalising of an integrated policy/strategy/plan which increases their ability to adapt to the adverse impacts of climate change. These are also found in their respective Nationally Determined Contributions (NDCs)/Intended Nationally Determined Contributions (INDCs) as per Article 4 of the 2015 Paris Agreement.[63] • However, many of these countries do not have the financial resources to operationalise or implement these plans. For example, a 2018 African NDCs gap analysis report shows that "mobilisation of finance, access to technology and requisite capacity as the top three needs or constraints to the	• Fiscal constraints during the pandemic meant that several SSA countries could not implement adaptation and climate resilience measures. • As expected, the COVID-19 pandemic and subsequent lockdowns led to reduction in emissions from some countries on the continent. For example, South Africa, which is one of the region's wealthiest economies, had its CO2 emissions dropping by a reported 20% during the pandemic.[66]	• Forecasts indicate that the pandemic only caused a temporary blip in CO2 emissions due to the economic slowdown. • Many assessments indicate CO2 emissions, including that from SSA, will continue to increase in a post-pandemic world and

[61] Van Niekerk, D., & Wentink, G. J. (2017). The capacity of personnel in disaster risk management in South African municipalities. *TD: The Journal for Transdisciplinary Research in Southern Africa*, *13*(1), 1-10.; Chatiza, K. (2019). Cyclone Idai in Zimbabwe: An analysis of policy implications for post-disaster institutional development to strengthen disaster risk management.

[62] Kita, S. M. (2017). "Government doesn't have the muscle": state, NGOs, local politics, and disaster risk governance in Malawi. *Risk, Hazards & Crisis in Public Policy*, *8*(3), 244-267.

[63] UNFCCC (2021). *Nationally Determined Contributions (NDCs).* Available at: https://unfccc.int/process-and-meetings/the-paris-agreement/nationally-determined-contributions-ndcs/nationally-determined-contributions-ndcs (Accessed: 17 November 2021).

[66] The Mail & Guardian (2020). *Covid-19 brings South Africa's daily carbon emissions down by 20%.* Available at: https://mg.co.za/coronavirus-essentials/2020-05-20-covid-19-brings-south-africas-daily-carbon-emissions-down-by-20 (Accessed: 17 November 2021).

		successful implementation of NDCs".[64] • SSA contributes less than 4% of carbon emissions globally (the lowest region globally). • CO2 greenhouse gas emissions in SSA was in 0.72 metric tons per capita 2000 and 0.76 in metric tons per capita in 2018.[65]		
Target 13.3: Build knowledge and capacity to meet climate change	**Indicator 13.3.1 -** number of countries that have integrated mitigation, adaptation, impact reduction and early warning into primary, secondary and tertiary curricula.	• Several SSA countries have integrated mitigation, adaptation, impact reduction and early warning into education curricula at all levels. For example, 74% of countries with legislation or policies on disaster risk management have incorporated these in country's educational systems at all levels.[67] • However, the resources to effectively teach these are often lacking.	• Whereas most European countries have mainstreaming of global citizenship and sustainable development in their teacher education processes, national education policies, and student assessments, only four (4) SSA countries had this as of 2020.[68] These were Burkina Faso, Democratic Republic of Congo, Malawi and Mauritius.[69]	
Target 13.A: Implement then UN Framework Convention on Climate Change	**Indicator 13.A.1** - the mobilised amount of United States dollars per year between 2020 and 2025 accountable towards the US$100 billion commitment.	• Developed countries at the United Nations climate summit in Copenhagen in 2009 committed to mobilising USD100-billion a year by 2020 to support developing countries in	• At COP26 in November 2021, the Organisation for Economic Co-operation and Development (OECD) indicated that the US$100 billion goal is likely to be met in 2023, and that developed countries are also	• The African Group of Negotiators on Climate Change at COP26 are reported to have indicated a need of US$1.3 trillion of finance a year to

[64] African Development Bank (2018). GAP ANALYSIS REPORT: African Nationally Determined Contributions (NDCs). Available: https://www.afdb.org/fileadmin/uploads/afdb/Documents/Generic-Documents/African_NDCs_Gap_Analysis_Report.pdf (Accessed: 17 November 2021), at p.ii

[65] World Bank - CO2 emissions (metric tons per capita) - Sub-Saharan Africa. Available: https://data.worldbank.org/indicator/EN.ATM.CO2E.PC?locations=ZG (Accessed: 17 November 2021).

[67] Ibid (n 56)

[68] Ibid (n 54)

[69] Ibid (n 54)

	climate mitigation and adaptation. This promise was again extended by five years through to 2025 at the 2015 Paris Climate Summit. • USD64-billion has provided between 2013 and 2019. The data also shows that between 2016- 2019, 43% of climate finance went to Asia while 26% went to Africa.[70] • Interestingly, about 79% of such funding provided in 2019 were bilateral and multilateral loans, namely concessional loans and other non-grant instruments.[71] A 2020 Oxfam report highlights that "The excessive use of loans and the provision of non-concessional finance in the name of climate assistance is an overlooked scandal."[72]	likely to mobilise more than US$100 billion per year thereafter.[73]	developing countries, made available from 2025.[74] • Africa needs USD240-billion a year to shift to clean energy, according to South African President Cyril Ramaphosa.[75] • Most of this funding must come from grant funding instead of the current loans.

Source: Authors' construct, based on data from World Bank, IEA, Sustainable Energy for All (SEforALL), and others

[70] OECD (2021a). *Forward-looking Scenarios of Climate Finance Provided and Mobilised by Developed Countries in 2021-2025: Technical Note*, Climate Finance and the USD 100 Billion Goal. OECD Publishing, Paris. Available at: https://doi.org/10.1787/a53aac3b-en.; OECD (2021b). Statement from OECD Secretary-General Mathias Cormann on climate finance in 2019 (Accessed: 17 November 2021). Available at: https://www.oecd.org/environment/statement-from-oecd-secretary-general-mathias-cormann-on-climate-finance-in-2019.htm (Accessed: 17 November 2021)

[71] Ibid (n 72);

[72] Oxfam (2020). CLIMATE FINANCE SHADOW REPORT 2020: ASSESSING PROGRESS TOWARDS THE $100 BILLION COMMITMENT. Available at: https://oxfamilibrary.openrepository.com/bitstream/handle/10546/621066/bp-climate-finance-shadow-report-2020-201020-en.pdf (Accessed: 17 November 2021), at p.3

[73] UKCOP26.org (2021). Climate Finance Delivery Plan: Meeting the US$100 Billion Goal. Available at: https://ukcop26.org/wp-content/uploads/2021/10/Climate-Finance-Delivery-Plan-1.pdf (Accessed: 17 November 2021)

[74] Ainger, J. (2021). *Africa Wants $1.3 Trillion Annual Climate Finance as Rich Nations Miss Target.* Available at: https://www.bloomberg.com/news/articles/2021-11-04/africa-wants-climate-finance-boost-as-rich-nations-miss-target (Accessed: 17 November 2021)

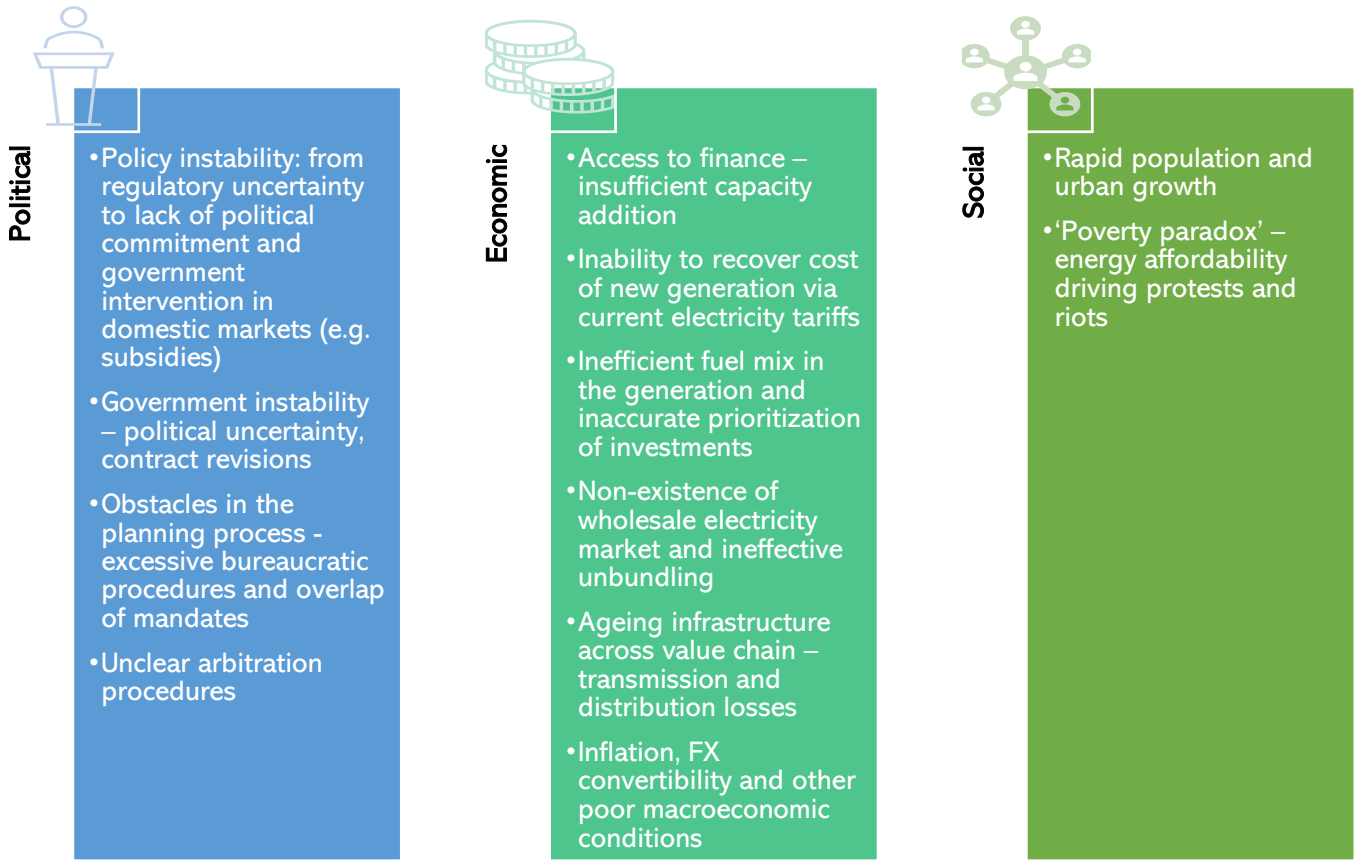
[75] Vecchiatto, P. (2021). *Africa Needs $240 Billion for Clean Energy Shift, Ramaphosa Says*. Available at: https://www.bloomberg.com/news/articles/2021-09-29/africa-needs-240b-to-transition-to-clean-energy-ramaphosa-says (Accessed: 17 November 2021).

3. Addressing Energy Transition Risks in Sub-Saharan Africa

3.1 What are the Roadblocks to Post-COVID Reform of Energy Policies and Systems in SSA?

A series of crisis, including not least the COVID-19 pandemic, have created political opportunities for reform of the sub-region's energy sectors. However, to understand the entry points for reform, one must diagnose the challenges or roadblocks. We highlight some of these roadblocks in Figure 4 below, categorised into political, economic and social.[76]

Figure 4 Energy sector roadblocks in SSA



Source: Author's construct

[76] For a detailed discussion of some of these points, see: Eberhard, A., Gratwick, K., Morella, E., & Antmann, P. (2016). *Independent power projects in Sub-Saharan Africa: Lessons from five key countries*. World Bank Publications; Acheampong, T., Menyeh, B.O., & Agbevivi, D.E. (2021). Ghana's Changing Electricity Supply Mix and Tariff Pricing Regime: Implications for the Energy Trilemma. *Oil, Gas & Energy Law*. OGEL 3 (2021)

3.2 Some Strategic Responses to the Energy Transition

The energy transition in Africa should be about prioritising economic diversification and not just about decarbonisation given that the region contributes the least to global GHGs and has a low economic resilience.

Below, we outline some steps that African governments could take to support their post-COVID-19 transition drive:

- **Mainstreaming SDGs in government policy planning and implementation** – By incorporating SDGs into planning, there can be specific and measurable indicators that measure the effectiveness of initiatives towards sustainable development. Doing this also ensures that there is little duplication of efforts across sectors as linkages can be established for greater efficiency in the use of resources.

- **Enabling access and affordability with a combination of conventional, especially natural gas, and RE generation:** The transition that Africa needs is one from lack of adequate energy to one that can foster development hence universal access is the destination. Research shows that a mix of grid and off-grid solutions are required. The importance of decentralised/distributed renewable energy generation systems such as minigrids are key for reaching communities where the grid has not or cannot reach. The power of natural gas in bridging the electricity access gap is well documented and the fast-tracking development of gas pipelines as well as sorting pricing issues will be a key determinant in the successful gas resources can be leveraged to address the electricity access challenge. Although gas as a fossil fuel has a not-so bad reputation, attracting financing will increasingly be a challenge given calls by agencies such as the IEA and others that that "there is no place for new coal, oil or gas exploration or supplies". Considering this, regional multilaterals such as AfDB can play a crucial role while Sovereign Wealth Funds can be leveraged to fund gas infrastructure. This requires a stable policy and regulatory environment to improve bankability of projects and deliver affordable power.

- **Pursuing electrification and clean cooking together:** Access to modern energy cooking services has over the years lagged electricity access efforts despite the multiple implications of this at the health, environment, and gender fronts. With the increasing availability of highly efficient electric cooking devices that are compatible with numerous African cuisines[77], the argument for promoting electric cooking both on affordability and cultural compatibility grounds is more strengthened. Coupling electricity planning with the requirements for cooking will enable governments to kill two birds with one stone.

- **Creating more sustainable industrial clusters by leveraging the African Continental Free Trade Area (AfCFTA).** As argued earlier, an issue that the pandemic has highlighted is the need for SSA to industrialise and diversify its economic base. Post-COVID economic strategies and funding must be geared towards the creation of linkages in both traditional resourced based industries such as mining and oil and gas, and also non-enclave type activities such as manufacturing of components for electric vehicles, solar PVs or wind turbines. In this vein,

[77] See Leary, J.; Menyeh, B.; Chapungu, V.; Troncoso, K. eCooking: Challenges and Opportunities from a Consumer Behaviour Perspective. Energies 2021, 14, 4345. https:// doi.org/10.3390/en14144345

leveraging the AfCFTA[78] which is the largest free trade area in the world, to position and manufacture for Africans and by Africans is imperative. For example, both Zambia and the Democratic Republic of Congo are key global producers[79] of copper and copper concentrates, both critical materials in batteries for electric vehicles (EVs). Demand for these critical minerals are forecasted[80] to soar on account of the energy transition. These concentrates can be used for battery cell manufacturing in these countries or other countries in the sub-region that have some competitive and comparative advantages – such as cheap electricity, labour, infrastructure, among others. Also, SSA countries, working together with the private sector, and non-state actors such as academic institutions and think tanks, must set up regional research and development (R&D) centres of excellence on the continent to contextualise and find new engineering and technical solutions to Africa's energy and industrialisation challenges. Recognising that transitions can create winners and losers and magnify the struggles of vulnerable groups[81], efforts must be made to ensure that the people are skilled to take up the new opportunities that the transition may present through capacity building and retraining – that is, fair and inclusive clean energy transitions. Pursuing these strategies would have a much wider catalytic economic impact in the sub-region. However, it requires strong coordination of energy and industrial policies at the Pan-African, regional and country level.[82]

4. Conclusions

The global energy system is changing as the world is moving to a low-carbon economy. This is primarily driven by advances in technology, new energy policies more so in a post-COVID-world, and evolving consumer preferences. Global governments, individuals and corporations are under pressure to tackle the existential threat of climate change. As the recently ended 2021 United Nations Climate Change Conference (COP26) in Glasgow, United Kingdom indicates: the developed world have to commit to pay for the carbon transition, and the world's poorest – mostly in the developing regions - need to be protected against the financial burden of climate change. Resources are key to addressing climate change.

[78] Maliszewska, M., & Ruta, M. (2020). The African Continental Free Trade Area: Economic and Distributional Effects. World Bank Group.; Abrego, M. L., de Zamaroczy, M. M., Gursoy, T., Nicholls, G. P., Perez-Saiz, H., & Rosas, J. N. (2020). *The African Continental Free Trade Area: Potential Economic Impact and Challenges*. International Monetary Fund.; Apiko, P., Woolfrey, S., & Byiers, B. (2020). The promise of the African Continental Free Trade Area (AfCFTA) (No. 287). ECDPM Discussion paper.; Obeng-Odoom, F. (2020). The African continental free trade area. *American Journal of Economics and Sociology*, *79*(1), 167-197.

[79] IEA (2021). The Role of Critical Minerals in Clean Energy Transitions. Available: https://www.iea.org/reports/the-role-of-critical-minerals-in-clean-energy-transitions (Accessed: 20 November 2021).; Hund, K., La Porta, D., Fabregas, T. P., Laing, T., & Drexhage, J. (2020). Minerals for climate action: the mineral intensity of the clean energy transition. *World Bank*.

[80] Boer, L., Pescatori, A., & Stuermer, M. (2021). Energy Transition Metals. IMF Working Paper No. 2021/243; Bouckley, E. (2021). Energy transition could see mineral demand run ahead of supply by end of decade Available at: https://www.spglobal.com/platts/en/market-insights/latest-news/metals/091721-energy-transition-could-see-mineral-demand-run-ahead-of-supply-by-end-of-decade (Accessed: 24 November 2021).

[81] Mayer, A., Smith, E. K., & Rodriguez, J. (2020). Concerned about coal: Security, dependence, and vulnerability among coal dependent communities in western Colorado. *Energy Research & Social Science*, *70*, 101680.; Carley, S., Evans, T. P., Graff, M., & Konisky, D. M. (2018). A framework for evaluating geographic disparities in energy transition vulnerability. *Nature Energy*, *3*(8), 621-627.

[82] Odijie, M. E. (2019). The need for industrial policy coordination in the African Continental Free Trade Area. *African Affairs*, *118*(470), 182-193.; Parshotam, A. (2018). Can the African Continental Free Trade Area offer a new beginning for trade in Africa?. Available at https://media.africaportal.org/documents/saia_sop_280_parshotam_20180611.pdf (Accessed: 17 November 2021).

In a report (White Paper) published last month to the Norwegian Parliament, the government said that "Norway's position as an energy nation will be further developed through new initiatives encompassing hydrogen, offshore wind, strengthening of the power grid and a low emissions oil and gas sector".[83] The government is keen on adopting all energy resources available at their disposal to create continued economic growth and new jobs. On the petroleum sector, the government says that "the petroleum sector will remain a significant factor in the Norwegian economy in the years to come, although not on the same scale as today. the government will facilitate long-term economic growth in the petroleum industry within the framework of our climate policy and our commitments under the Paris agreement."[84] The Norwegians don't say they will stop oil and gas extraction. Instead, they will focus on making the barrels have greener street credibility – aka low emissions.

SSA governments could learn a thing or two from the Norwegian approach. Decarbonisation should not just be about reducing emissions for its own sake. Instead, it crucially needs to be linked, we argue, in the African context to bridging the energy access gap and encouraging productive uses of energy to create new competitive industrial clusters - which can create jobs and sustain economies. SSA contributes less than 4% of carbon emissions globally (the lowest region globally). The continent also faces acute multidimensional energy poverty, made more onerous by the COVID-19 pandemic and prior economic dislocations such as the 2014-17 commodities price slump. SSA has one of the lowest energy intensity globally, and if its economies are to develop and create better jobs, that number needs to improve significantly. The framing of the energy transition narrative matters because there are millions of lives and jobs at stake, especially in developing countries

Governments are still keen on maximising the value of their oil and gas resources through the energy transition. However, it also not about individual country diversification but having an integrated African and costed diversification plan, anchored on the AfCFTA. To do this, SSA governments need to offer the right package of fiscal and regulatory incentives to continue attracting energy and extractives sector investments. We note that several countries have already taken steps to reform their fiscal and regulatory packages during the last commodities price downturn (2014-2017) and are now repeating the benefits with increased investments while others also increased the fiscal take.[85] For countries thinking of leveraging the transition to build new industrial clusters, such as the manufacture assembly of EVs and or battery components or assembly of wind turbines and solar panels, they would also need to offer the right package of tax incentives to both domestic and foreign investors. Governments must also undertake serious reforms to improve the business environment and overall country competitiveness, thereby enhancing efficiencies of scale and scope.

[83] Norwegian Government (2021). Government publishes White Paper on long term value creation from Norway's energy resources. Available at: https://www.norway.no/en/saudi-arabia/norway-sa/news-events/government-publishes-white-paper-on-long-term-value-creation-from-norways-energy-resources (Accessed: 17 November 2021).; Feder, J. (2021). Norway Will Boost Green Energy But Won't Stop Oil and Gas Development (2021). Available at: https://jpt.spe.org/norway-will-boost-green-energy-but-wont-stop-oil-and-gas-development (Accessed: 17 November 2021).

[84] Ibid (n 54)

[85] Nakhle, C., & Acheampong, T., (2020). Oil and Gas Fiscal Policies: The Impact of Oil Price, Investment and Production Trend. *Tax Notes International*, 100(2), 265-289.