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Unlocking Opportunities in Renewable Energy Technologies in Africa: The Role of Development Financial Institutions

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Climate change and global warming are undeniably undermining global development with developing or emerging economies being the worse hit in this unfortunate development. In recent times, it has become necessary to adopt effective adaptation measures that mitigate the impact of climate change on the social, political, and economic environment. A global shift to low-carbon energy technologies through the gradual integration of renewable energy resources in the global energy mix has been generally proposed. Whilst legal and regulatory initiatives are indeed crucial in driving this global energy transition, it is equally imperative that the necessary capital is unlocked to finance the construction, development, and expansion of renewable energy projects in Africa. This paper focused on examining the impact of renewable energy technologies on climate change mitigation, and analysed the role of Development Financial Institutions (DFIs) in unlocking the vast opportunities associated with renewable energy technologies or projects, with a view to driving the clean energy transition in Africa.

Keywords: Climate Change, Global Warming, Renewable Energy Technologies, Development Financial Institutions, Financing.

1. INTRODUCTION

Climate change is undoubtedly the most severe environmental challenge facing the planet in the 21st

century.[1] It has been widely recognized as a global challenge and a common concern for mankind[2] as well as a challenge for sustainable development.[3] Professor Richard Lazarus aptly describes climate change as an all-encompassing and complex "super-wicked' problem.[4] Climate change is largely caused by rapid increase in global greenhouse gas (GHGs) emissions and the incessant burning of fossil fuels, particularly by large-scale industrial and commercial activities.[5] Whilst explaining the main cause of climate change globally, the Supreme Court of the United States in Massachusetts et al v Environmental Protection Agency[6]

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1 Feulner G, 'Global challenges: Climate change' (2017). Global Challenges 5

2 See United Nations, General Assembly Thematic Debate on Climate Change as a Global Challenge" Statement by Mr. Sha Zukang, Under-Secretary- General for Economic and Social Affairs to the General Assembly Thematic Debate on 'Climate Change as a Global Challenge" New York, (1 August 2007) <https://www.un.org/en/development/desa/usg/ statements/uncategorized/2007/08/general-assembly-thematic-debate-on- climate-change-as-a-global-challenge.html> accessed 19 May, 2020.

3 The World Bank 'Climate Change is a challenge for sustainable development' (World bank report, 2014),<https://www.worldbank.org/en/news/speech/2014/01-/15/climate-change-is-challenge-for -sustainable develop- ment> accessed on 19 May, 2020

4 Lazarus RJ, 'Super wicked problems and climate change: Restraining the present to liberate the future.' (2008) 94 Cornell L. Rev 1153.

5 IPCC "Summary for Policymakers. In: Global Warming of 1.5°C' (IPCC Special Report) (cited in Masson- Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.)]", (2018) 4, available at <https://- www.ipcc.ch/site/assets/uploads/sites/2/2019/06/SR15_Full_Report_High_Res.pdf>, accessed 14 June, 2021.

6 548 U.S at 1. In this case, the Supreme court of the United States of America (USA) held that the Environmental Protection Agency (EPA)-the body in charge of environmental protection and emissions control in United States - can regulate greenhouse gases, such as carbon dioxide as air pollutants under the Clean Air Act (CAA). Pursuant to the CAA, the EPA is empowered to issue standards applicable to the emission of air pollutants which cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare". The full decision of the Supreme Court of the United States is available at <https

noted that respected and reliable scientific opinion already reveals that "a well-documented rise in global temperature and attendant climatological and environmental changes have resulted from a significant increase in the atmospheric concentration of greenhouse gases".

Given the extent of the problems occasioned by climate change and global warming, various governments across the globe have convened international conferences and intergovernmental negotiations.[7] on a periodic and regular interval, to examine the nature, cause and effects of climate change on the social, political, and economic environment whilst proposing pragmatic and practical options towards resolving this vexed global challenge. From the Intergovernmental Panel on Climate Change set up in 1988 by the General Assembly of the United Nations (UN) to the recent Conference of Parties (COP) held in 2015 in Paris, the core global climate conversation is focused on a) protecting the "climate system for present and future generations"[8] b) reducing global emissions by setting global emission reduction targets and c) tackling climate change by stabilizing average global temperature at well below 2 degrees Celsius above pre-industrial levels and limiting the temperature increase to 1.5 degrees Celsius above pre-industrial levels.[9]

In furtherance of the foregoing climate specific objectives, several Sustainable Development Goals (SDGs)[10]

://www.supremecourt.gov/opinions/06-pdf/05-1120.pdf>, (last accessed 14 June, 2020).

7 It is imperative to note that an international conference is a platform for sha- ring latest and innovative ideas with peers and senior group of people from difference parts of the world and is often organized by international organization on regular intervals. Intergovernmental negotiations, on the other hand, are usually negotiations convened and organized by government of individual states on a global platform.

8 Paragraph 23 of the preamble to the United Nations Framework Convention on Climate Change (UNFCC or the Convention). It should be noted that the Convention was adopted by the UN General Assembly on 9 May 1992 and came into force on 21 March 1994.

9 Article 2 of the Paris Climate Agreement. Worthy of note is that the Agreement was adopted at the 21st COP held in Paris, France

10 GA Res 70/1, *Transforming our world: the 2030 Agenda for Sustainable Development* (1 October 2015). The SDGs, adopted by all United Nations Member States in 2015, replaced the hitherto Millennium Development Goals (2000-2015) as the new blueprint for global development containing

target promoting a climate friendly global environment, particularly the strident call for "access to affordable, reliable, sustainable and modern energy for all"[11] by 2030 and demands that an "urgent action be taken to combat climate change and its impact".[12] International legal efforts have equally been deployed towards mobilizing international co-operation on tackling climate change and clean energy revolution. Accordingly, the United Nations General Assembly once declared 2012 as the International Year of Sustainable Energy for All, specifically stipulating the global Sustainable Energy for All (SE4ALL) as including a) the universal access to energy services b) doubling of the rate of energy efficiency improvement and c) doubling renewable energy[13] in the global energy mix from 15 to 30 per cent".[14]

In achieving the above specific objectives, one of the preferred approaches is the adoption of and investment in low-carbon technologies and climate resilient

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in total 17 Sustainable Development Goals (SDGs) with climate-specific goals. see generally UN, *Sustainable Development Goals*, 2015 available at <https://sustainabledevelopment.un.org/sdgs>, accessed 22 March 2020.

11 Goal 7 of the Sustainable Development Goals.

12 Goal 13 of the Sustainable Development Goals.

13 Inger Andersen, Executive Director of the UN Environmental Programme- (UNEP) emphasized the urgency, need, and importance of investment in renewable energy technology to the energy transition when it clearly noted that "*Investing in renewable energy is investing in a sustainable and profitable future, as the last decade of incredible growth in renewables has shown. But we cannot afford to be complacent. Global power sector emissions have risen about 10% over this period. It is clear that we need to rapidly step up the pace of the global switch to renewables if we are to meet international climate and developmental goals see* Frankfurt School FS- UNEP Collaborating Centre for Climate and Sustainable Energy Finance "Global trends in Renewable Energy Investment 2019" United Nations Environment Programme, 6, 2019 available at <https://wedocs.unep.org-/bitstream/handle/20.500.11822/29752/GTR2019.pdf>, accessed 4th June, 2020

14 Sustainable Energy for All: A Vision Statement by Ban Ki-moon, Secretary-General of the United Nations (United Nations, November 2011) 4, available at <https://www.seforall.org/sites/default/files/gathercontent/SG-_Sustainable_Energy_for_All_vision.pdf>, accessed on 21 June, 2020. The Vision Statement articulates the imperative for sustainable development and the provision of sustainable energy in the creation of new business and market opportunities, new jobs and new possibilities for human advancement in the 21st century and called for urgent action from all countries and sectors to take policy and investment decisions in the transition to low-emission technologies and achievement of a brighter energy future.

infrastructure(s) globally. In sum, this option essentially involves an investment in a mix of energy efficient and technology development that lowers gas flaring, air pollution and GHG emissions and largely includes renewable energy technologies.

It is generally accepted that GHGs[15] largely emanate from human-induced or anthropogenic activities that lead to global warming[16] and ultimately identified as the chief contributor of climate change.[17] From shifting weather patterns that threaten food production, melting ice caps resulting in rising sea levels, and increased risk of catastrophic flooding to the consequential adverse impact on plants, animals, and the human ecosystem, the United Nations stressed that the impacts of climate change are indeed global in scope and unprecedented in scale.[18] Accordingly and based on numerous years of serious

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[15] The major sources of GHGs include but not limited to carbon dioxide (CO2), methane, nitrous oxide and fluorinated gases. Pertinently, CO2 is the domi-nant of all the sources of GHGs.

[16] Nevitt MP. On Environmental Law, Climate Change, & National Security Law. Harv. Envtl. L. Rev.. 2020;44:321.available at <SSRN-id3456258.pdf≥, (last accessed on 21 May, 2020) where the author notes the convergence between the historically disparate fields of environmental law, climate change and national security and argues in favor of a massive investment in scalable energy transformation to secure a more livable future and protect sovereignty and national security.

[17] Climate change is a change in either the average climate or climate variability that persists over an extended period. Climate change results in an increase in the global temperatures thereby causing the earth surface to warm (global warming). It results from anthropogenic greenhouse gas emissions driven largely by economic and population growth which led to atmospheric concentrations of carbon dioxide, methane and nitrous oxide in the atmosphere. The effects of these GHGs have been detected on the climate system and are the dominant cause of the observed warming since the mid-20th century see Chris Riedy 'Climate Change", Paper prepared at the Institute for Sustainable Futures, University of Technology Sydney (August 2016) 1, available at <https://www.researchgate.net/publication /311301385-Climate_Change>, (last accessed at 20 May, 2020).

[18] United Nations, 'Climate Change' <https://www.un.org/en/sect ions/issues-depth/climate-change/≥ accessed 15 June, 2020. See also Alina Bradfrod and Stephanie Pappas 'Effects of Global Warming' (2017) Live Science <https://www.livescience.com/37057-global-warming-effects.html>, accessed 15 June, 2020. In this article, the authors provided a systemic scientific, social and economic analysis of the effects of global warming with the aid of relevant statistics.

intellectual research, the following basic scientific links are well-established: a) the concentration of GHGs in the earth's atmosphere is directly linked to the average global temperature on Earth; b) the concentration has been rising steadily, and mean global temperatures along with it, since the time of the industrial revolution; and c) the most abundant GHG, accounting for about two-thirds of GHGs carbon dioxide(CO_2) is largely the products of burning fuels.[19]

Reducing GHGs energy-related emissions with a view to limiting climate change is at the heart of the global energy transition. Pertinently, renewable energy is at the core of climate change mitigation. It is currently estimated that renewable energy and energy efficiency measures can potentially achieve 90 per cent of the required carbon reductions, with two-thirds coming from renewable energy alone by 2050.[20]Also, renewable energy is projected to constitute the largest source of energy supply under the Renewable Energy (RE) Roadmap 2050[21] ultimately representing two-thirds of the global energy mix.[22]

The foregoing projections undoubtedly represent ambitious targets considering the current level of integration

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[19] ibid

[20] International Renewable Energy Agency, "Climate Policy drives shift to Renewable Energy" (REA 2017) available at <https://irena.org// media/ Files/IRENA/Agency/Topics/ClimateChange/IRENA_Climate_policy_2017.pdf> accessed 14 June, 2020

[21] The Renewable Energy (RE) Map was issued by the International Renewable Energy Agency(IRENA) which sets out the clear pathway and roadmap for global energy transformation and energy transition and acceleration of energy. The IRENA is an intergovernmental organization that supports countries in their transition to a sustainable energy future and serves as a principal platform for international co-operation, a centre of excellence and a repository of policy, technology, resource and financial knowledge on renewable energy. IRENA essentially promotes the widespread adoption and sustainable use of all forms of renewable energy, including bioenergy, geothermal, hydropower, ocean, solar and wind energy in the pursuit of sustainable development, energy access, energy security and low-carbon economic growth and prosperity.

[22] Id at 3. It is imperative to mention that the attainment of this target will require an increase in renewables' share of about 1.2% per year in final energy terms (approximately an eightfold acceleration compared to the recent figures).

of renewable energy projects and the fact that renewables constituted only about 28 per cent of the global energy mix as of Q1 2020.[23] The attainment of these targets, for instance, will require significant financial investments[24] over a sustained period to drive the global energy transition from fossil fuels to clean technology, particularly the sustained investment in and deployment of renewable energy technologies.

Africa has a critical role to play in this global energy transition program. This is particularly true considering the fact that Africa currently suffers from immense energy poverty/deficit,[25] and there is an urgent need to significantly close this energy access gap. Africa should aim to increase its share of renewables by aggressive investment in critical renewable energy projects as opposed to injection of investible capital in fossil-fuels dominated projects to achieve this objective. Consequently, sustainable financing of renewable energy project development in Africa must be prioritized. Availability of sustainable and accessible finance will be crucial in accelerating the rapid development of renewable energy technologies/projects in Africa with a view to reducing the energy poverty and increasing access to energy.

Notably, it is typical for private companies developing alternative renewable energy technologies' solutions to obtain the required capital through an equity financing from individual, corporate, and institutional investors (such as pension funds, hedge funds, insurance companies and private equity firms) and debt financing obtained from local

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[23] International Energy Agency, 'Global Energy Review' (2020) 25 <https://iea.blob.core.windows.net/assets/7e802f6a-0b30-4714-abb1-46f21a 7a9530/Global_Energy_Review_2020.pdf>, accessed 16 June, 2021.

[24] International Energy Agency "Global Energy Review Renewables Report' (*IEA Report* 2020) <https://www.iea.org/reports/global-energy-review-2020/renewables>, accessed 16thJune, 2021.

[25] It is currently estimated that about two-thirds(2/3) of the population equivalent to 620 million people do nothave access to electricity and an approximately 730 million people only depend on traditional solid biomass for cooking see. Isaiah Mohammed "Energy Poverty amidst Abundant Generation Capacity: Africa in perspective., available at <https://www.renewableenergyworld.com/storage/energy-poverty-amidst-abundant-generation-capacity-africa-in-perspective/#gref>, accessed 16thJune, 2021.

commercial banks and infrastructure-focused development banks. Notwithstanding the foregoing, it is vital that Development Financial Institutions (DFIs) play a critical financing role by providing the necessary capital for renewable energy development in Africa. The underlying objectives of the capital injection will essentially be to bridge the financing gap(that is, the gap between the required and available capital) and subsequently unlock the potential of investment in renewable energy technologies in Africa.

This article seeks to examine the relationship between renewable energy technologies and the climate change adaptation and mitigation in Africa whilst emphasizing the impact of rapid development of these projects on climate change adaptation and the gradual, yet steady shift towards a cleaner and environment-friendly energy source. Given the capital-intensive nature of renewable energy projects, this article stresses the importance of increased financing and funding for such projects of this nature and specifically assesses the critical role of the Development Financial Institutions (DFIs) – a special kind of financial institutions – in unlocking the huge capital for the achievement of the objectives. The paper finds that the DFIs, given their developmental mandate and objectives, not only have a fundamental corporate objective of promoting renewable energy projects of this nature but also possesses the required social capital and financial wherewithal to finance the development of this project. The article therefore argues that the DFIs, although currently active in this space in recent times, must actively play a leading and strategic financing role together with commercial banks in the promotion of renewable energy projects development in Africa.

In terms of structure, section 1 introduces the objectives of this paper, section 2 examines the nature of renewable energy technologies in the context of climate change mitigation and sustainable development, section 3 gives a brief overview of the nature and scope of DFIS and accordingly assesses the strategic role of DFIs in unlocking the required capital to support the sustainable development of renewable energy projects in Africa. Section 4 therefore concludes this paper.

2. FINANCING RENEWABLE ENERGY PROJECTS IN AFRICA

Put simply, renewable energy technologies are built primarily from naturally-occurring and self-replenishing energy sources such as wind, sun, biomass, geothermal, and water. For a rather long period, the global economy has heavily depended on fossil fuels, particularly those sourced from oil, coal and gas, as its main energy source(s) for transport, industrial and domestic activities and power generation, albeit with its attendant contribution to increase in global GHGs emissions and the resultant climate change/global warming.

In recent years, renewables have increasingly been deployed globally displacing fossil fuels (particularly in the power sector) and offering the benefit of lower emissions of carbon and other types of greenhouse gases.[26] Generally, renewables are beneficial (when compared to carbon- dominated energy sources) in terms of energy efficiency[27] and reduction of environmental pollution.[28]

Despite the widely accepted environmental benefit of renewable energy technologies in the global energy transition and fight against climate change, the fact remains that most renewable energy projects often require significant upfront

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[26] As of 2018, the contribution of renewable energy sources to the world total energy supply increased to 13.5 and has steadily been growing at an average annual growth rate of 2.0% in the period from 2000 to 2010 and 3.3% in 2010 to 2019. See International Energy Agency, Renewables Information: Overview, available at <https://www.iea.org/reports/renewables-information-overview> , (last accessed at 9th September, 2020).

[27] Energy efficiency is the concept of utilizing less amount of energy to perform the same task – that is, eliminating energy waste. In other words, it is the method of reduction of energy consumption by utilization of less energy to attain the same amount of useful output.

[28] Bruce S. International law and renewable energy: Facilitating sustainable energy for all. Melb. J. Int'l L.. 2013;14:18. Available at <https://law.unimelb.edu.au/data/assets/pdf_file/0011/1687439/02Bruce1.pdf>, accessed on 21 June, 2020. The author argues that eradication of energy poverty and aversion of dangerous climate change will require a global energy revolution in favour of low-carbon sources and therefore proposed that a dynamic international energy law order-especially incorporation of declaration on renewable energy principles - is indeed critical to the global energy transition.

capital and huge operational and financial costs. Notwithstanding this, it is without doubt that clean or renewable energy projects is spreading across Africa, buoyed by policy incentives, donor-backed auction schemes and de-risking mechanisms and several renewable energy projects, particularly the utility-scale solar projects, are already seeing the light of the day.[29]

As of 2018, eighteen (18) countries in Africa received over than $10 million in clean energy funding and it is anticipated that a large pipeline of renewable energy projects, especially solar photovoltaic, solar home systems, commercial and industrial solar and renewable hybrid microgrids, are expected to grow very fast in coming years.[30] It is therefore critical to sustain this growing momentum by opening vista of financing options to these projects and gradually eliminate the various impediments to their bankability and commercial viability.

There are a number of financing options available for renewable energy project development across the globe. These options range from equity investment, debt financing, mezzanine finance, grants from governments/corporates, crowdfunding and private equity/venture capital, amongst others. Given the urgent need to aggressively pursue widespread renewable energy projects development in Africa, it is thus critical that the required financing is unlocked, made available by investors and accessible to the developers.

3. OVERVIEW OF DEVELOPMENT FINANCIAL INSTITUTIONS

Preliminarily, DFIs are legally independent and government-supported financial institutions with explicit official missions

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[29] Bloomberg NEF "Sub-Saharan Africa Market Outlook" (March 2020) 5, available at http://global-climatescope.org/assets/data/docs/updates/2020-02-06-sub-saharan-africa-market-outlook-2020.pdf (last accessed 16th June, 2020).

[30] ibid.

to promote public policy objectives.[31] In other words, they are specialized development banks set up by governments to support the public and private sectors.[32] DFIs can be bilateral, serving to implement their government's foreign development and co-operation policy, or multilateral, backed by multiple governments to serve one or multiple regions.[33] The DFIs are only similar to commercial banks in that they play financial intermediation role. They are however different from commercial banks on the basis of the commercial reasons or objectives underpinning their financial intermediation role. An attempt to distinguish DFIs from other financial institutions resulted in the prescription of three minimum criteria. As such, an institution is a DFI where it

a) Is a legally independent and self-sustaining financial institution
b) Pursues public policy objectives and c) enjoys government support.[34]

Globally, there are a number of DFIs with social, political and developmental mandates. They include the following; African Development Bank (AfDB),[35] African

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[31] Ojo O, 'Unlocking Opportunities In Renewable Energy Technologies In Africa: The Role Of Development Financial Institutions' (SSRN 3775964 2021) <https://www.idfc.org/wp-content/uploads/2019/07/nse_development_financing_research_report_no-1-2.pdf> accessed 20 May, 2020

[32] Aakif Merchant, 'How development finance institutions engage in blended finance' (2019) <https://www.convergence. finance/news-and-events/news/7GHDALorzVgedYo85N8XJK/view> accessed on 21 June, 2020)

[33] ibid.

[34] Jiajun Xu(n 13)

[35] The African Development Bank Group (AfDB) is a multilateral development institution comprising three major member entities- the African Development Bank, African Development Fund and the Nigeria Trust Fund. Its core mission is to provide assistance to regional members countries with a view to assisting them achieve their development goals. In sum, the overarching objectives of AfDB is to spur sustainable economic development and social progress in its regional member countries, improve the living conditions of the members of the African continent through its various financing initiatives/partnership and ultimately contribute to poverty reduction in the continent. See African Development Bank Group,

Finance Corporation (AFC)[36], African Import and Export Bank (Afrexim),[37] International Development Association (IDA),[38] International Financial Corporation (IFC),[39] International Bank for Reconstruction and Development(IBRD),[40] and Multilateral Investment Guarantee Agency.[41]

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available at <https://www.afdb.org/en/about/mission-strategy>, accessed 20 June, 2020

[36] The African Finance Corporation is an independent, majority private sector owned, multi-lateral African financial institution, created by sovereign African states to provide pragmatic solutions to Africa's infrastructure deficit and challenging operating environment, by developing and financing infrastructure, natural resources and industrial assets for enhanced productivity and economic growth of African states. Its primary mandate is to provide capital for the development and financing of projects in the core infrastructural sectors of Power, Natural Resources (Oil, Gas and Mining), Heavy Industry, Transport and Telecommunications. See African Finance Corporation, available at <https://www.africafc.org/Who-We-Are/An-Overview.aspx>, (last accessed June 20,2020).

[37] The African Import and Export Bank is a multilateral bank established in 1993 by African governments, African private and institutional investors as well as non-African financial institutions and private investors for the purpose of financing, promoting and expanding intra-African and extra-African trade. See African Import and Export Bank, available at <https://www.afreximbank.com/>, (last accessed June 20, 2020).

[38] Established in 1960, the IDA is a member of the World Bank Group whose primary aim is to reduce poverty by providing loans and grants for programs that boost economic growth, reduce inequalities and improve people's living conditions. It typically provides grants and lends money on concessional terms, sometimes at zero or very low interest charge. See International Development Association 'Investing in Growth, Resilience and Opportunity" September 2019, available at <https://ida.worldbank.org/sites/default/files/pdfs/ida-main-brochure-september-9-26-2019.pdf>last acessed on 20 June, 2020.

[39] IFC is also a member of the World Bank Group and undoubtedly the largest global development financial institution focused exclusively on the private sector in developing countries. In partnering with the private sector in developing countries, the IFC applies its financial resources, technical expertise, global experience and innovative thinking to overcome financial, operational and other challenges. See International Finance Corporation, available at <https://www.ifc.org/wps/wcm/connect/corpextcontent/ifcexternal_corporate_site/home>, last accessed 20 June, 2020.

[40] Established in 1944 immediately after the World War II, IBRD is a global development bank owned by 189 member countries- known as the largest development bank- with the global mission to provide loans, guarantees, risk management products and advisory services to middle-income and credit-worthy countries in reduction of poverty and development of sustainable projects, as well as coordinating responses to regional and global challenges. See International Bank for Reconstruction and

It is imperative to note that the primary objective(s) behind the establishment of the institutions, having global, regional and sub-regional outlook, is to support and promote the design, construction, development, operation, and maintenance of social and economic projects with meaningful developmental impact on countries/nations of the world. In addition, the striking features of these DFIs are that

a) They are generally funded via equity contribution from member states and shareholders, debt issuances and grants from developmental partners and
b) Provide financing (particularly loans) to borrowers for projects on concessional terms.[42]

4. STRATEGIC ROLE OF DEVELOPMENT FINANCIAL INSTITUTIONS

It is imperative to note that most renewable energy projects have historically been financed by the equity investment, debt investment, hybrid financing and other key financing sources. These financing options often have their peculiar features. In the case of an equity investment, the investor will typically be entitled to a shareholding stake in the target company proportional to its total investment amount and additionally be conferred with the right to appoint and nominate directors and be actively involved in the decision-making process of such company. Prior to such investment, the purpose of such equity investment amount will often be clearly delineated as an investment in expansion and

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Development, available at <https://www.worldbank.org/en/who-we-are/ibrd>, accessed 20 June, 2020

[41] The Multilateral Investment Guarantee Agency is a member of the World Bank Group with the core mandate of promoting cross-border investment in developing countries by providing guarantees (especially political risk insurance and credit enhancement) to investments against non-commercial risks. In addition, it assists investors to obtain access to funding sources with improved financial terms and conditions see Multilateral Investment Guarantee Agency, available at <https://www.miga.org/about-us>, accessed at 20 June, 2020.

[42] Geoffrey Adonu 'Unlocking Climate Finance in Africa: The Role of African Multilateral Development Banks'2020 *Gravitas Review of Business and Property Law*, 11/1, 96.

development of renewable energy projects. Whilst equity investment constitutes a sustainable long-term investment in a company, it comes with the attendant risk of early investors' exit, investors' potential dissatisfaction with the management of the company and low or delayed dividends pay-out, which will ultimately have a deleterious impact of any renewable projects benefitting from such equity investment.

On the other hand, debt investment often involves an injection of large sums of money or capital in the form of loans from commercial banks, pension funds, insurance companies and other private sector investors for a fixed and defined term - the purpose of which is application of same towards expansion and expansion of renewable energy projects. These loans are either advanced on a secured or unsecured basis, with a growing lenders' preference for advancement of only secured debt facilities. Undoubtedly, loans constitute a reliable source of capital for renewable energy projects. However, these loans often contain unduly restrictive covenants and also bear exorbitant and prohibitive interest rates that will likely constitute a serious dip in the expected returns of investment and a huge disincentive to potential investors. In addition, the renewable projects assets and other assets owned by the project company may also be susceptible to sale and diminution by the lenders being the subject of any security in the event of failure of repayment of principal and the accrued interest.

Notwithstanding the historical availability of capital from these financing sources and considering their downsides, there is no doubt that DFIs are nevertheless uniquely positioned to access huge investible capital and thereafter invest them in the development of renewable energy projects. This is especially true considering their developmental outlook and mandate towards the social, economic, and political development of developing countries or emerging economies, massive support from states and developmental partners and concessional lending philosophy. Premised on the foregoing, DFIs can access massive funds and huge capital from both local and international sources. Therefore, it will be useful to leverage and channel the massive funds and huge capital available to DFIs to bridge the rather yawning infrastructural gap in the energy sector, especially the renewable energy sub-sector, in Africa.

It is currently estimated that Africa's infrastructure needs (inclusive of renewable or clean energy infrastructure) are between $130 and $170 billion per year with a financing gap in the range of $67.6-$107.5 billion.[43]

This current infrastructural deficit in Africa presents a unique opportunity for investment in climate-resilient, clean-energy and renewable energy projects in Africa. It also offers a rare opportunity for Africa to play a crucial part in the global clean energy transition by allocating sufficient capital to cleaner energy alternatives as against conventional energy options. In achieving this and compared to other available financing options, DFIs will indeed play the most important role in mobilizing and raising the capital required for financing the construction, promotion, development and expansion of renewable energy projects in Africa. Large, available, investible capital on its balance sheet and from other sources can indeed be allocated towards the development of renewable energy projects in Africa.

4.1 Direct Provision of finance for renewable energy projects

Whilst it is now clear that some DFIs already have in place climate change mitigation and adaptation measures as top priority on its global developmental agenda, it is also critical for these DFIs to set aside sufficient capital for financing the development of renewable energy projects in Africa. By way of recommendation, the DFIs may decide to set up a special investment fund earmarked solely for financing and investment in clean energy and renewable energy projects in Africa.

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[43] AfDB, 'Africa's Infrastructure: Great Potential but little impact on inclusive growth' (*African Economic Outlook* 2018) 64 <https://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/2018AEO/African_Economic_Outlook_2018_-_EN_Chapter3.pdf> accessed 21 June, 2020), Genevieve Jesse and Payce Madden, 'Africa's infrastructure needs are an investment opportunity" (*Brookings* 2019) <https://www.brookings.edu/blog/africa-in-focus/2019/06/27/figures-of-the-week-africas-infrastructure-needs-are-an-investment-opportunity/>, accessed on 21 June, 2020. It has equally been well documented that high-quality infrastructure is indeed critical to and has positive impact on economic growth and inclusive social development of any continent.

In recent years and as of 2019, statistics amply abound on the number of renewable energy projects already financed by DFIs mostly through the provision of loans and grants. By way of examples, the IFC recently partnered with Gaia Energy to set up two funds viz. InfraVentures, a USD150 million global infrastructure development fund and the USD137 million Finland-IFC blended finance for climate program to provide funding for wind energy and renewable energy projects, particularly wind energy projects, in North, West and East Africa.[44] In addition, it is also common knowledge that AfDB increased its renewable power share of its energy portfolio to 95 per cent from 59 per cent since 2015 and has further committed to mobilise sufficient capital towards green energy projects in Africa.[45] Amongst other projects, AfDB, in participation with IFC and the Norwegian Agency for Development, successfully provided US$53.7m for the construction of Segou solar power plant in Mali.[46]

Moreover, some form of loan syndication arrangement may be forged between DFIs and local commercial lenders to provide debt facilities, perhaps at a low-interest rates with better terms, to energy companies whose commercial objectives center solely on investment in large scale and massive renewable energy projects in Africa. In this regard, the DFIs can co-lend senior debt with commercial banks and allocate the risks among a broader group of lenders, thereby limiting each bank's risk taking.[47] The DFI's participation in

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[44] Hannah Kreiger, 'IFC funding for African Renewable Energy Projects" *ICLG.com*, available at <https://iclg.com/alb/8725-ifc-funding-for-african- renewable-energy-projects>, (last accessed on 22 June, 2020).

[45] James Gavin 'Financing power projects in Africa: From pipe dream to project bankability' (*Energy Net Africa* 2017) <https://www.res-west.com/article/financing-power-projects-africa-pipe-dream-project-bank-ability> accessed 22 June, 2020

[46] Fidelis John 'Mali to begin construction of segou solar photovoltaic power plant', (*Construction Review Online* 2019) <https://constructionreviewonline.com/2019/07/mali-to-beginconstruction-of-segou-solar-photovoltaic-power-plant/> accessed 22 June, 2020.

[47] International Renewable Energy Agency, 'Unlocking Renewable EnergyIn- vestment: The Role of Risk Mitigation and Structured Finance" (*REA* 2016)13 <https://www.irena.org/documentdownloads/publications/ire- na _risk_mitigation_and_structured_finance_2016.pdf> accessed 21 June, 200

such arrangement comes with its added significant benefits including the local commercial banks piggybacking on DFI's high credit rating, strong relationship with government, risk mitigation capacity and strong experience in renewable energy project finance.[48] The provision of financing by the DFIs to these projects must be approached only from the perspective that the ultimate objective is to drive the global transition to low-carbon energy source and promote increased investment in clean energy projects in Africa.

4.2 De-risking the Renewable Energy Projects[49]

Another strategic role of DFIs is to leverage on its privileged investor's status to de-risk renewable energy projects and make it more commercially attractive to private investors and commercial lenders. Given its relative infancy and heavy capital investment, renewable energy projects are generally considered to bean expensive and high-risk investments due to a handful of project/market risks.[50] Understandably, private investors will only typically invest in projects potentially profitable and guaranteeing reasonable return on investment while commercial lenders will only lend to bankable projects with an assurance of repayment of loans with the accrued interests thereon. As such, the DFIs can de-risk the renewable energy projects by co-financing with commercial lenders - perhaps be subordinated to commercial lenders in terms of loans repayment or subscribe to equity of the project company specifically set up to execute these projects. With this special arrangement(often uniquely structured with the assistance of experienced legal, technical,

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[48] Id at 41-42

[49] International Renewable Energy Agency, *ibid*, United Nations Development Programme "De-risking Renewable Energy Investment. A Framework to Support Policymakers in Selecting Public Instruments to Promote Renewable Energy Investment in Developing Countries. New York, NY, December 1, 2020, Samuel Obbie Banda " Three De-risking tools to attract private investors", (February 26, 2019) available at <https://www.esi- africa.com/industry-sectors/renewable-energy/three-de-risking-tools-to- att-ract-private-investors/>,accessed on 18 June, 2020.

[50] Id 13. These project risks take the form of political, policy and regulatory ri- sks, currency, counterparty, grid and transmission link risk, currency, liquidity and refinancing risk and resource risks et al.

and financial advisers), the available, hitherto inaccessible, capital in the hands of commercial lenders or private investors for renewable energy project development can be unlocked to develop critical renewable energy projects in Africa.

4.3 Provision of guarantee for these projects

Aside the provision of financing on favorable, concessional basis (as demonstrated above), it is also increasingly common for DFIs to provide a wide array of credit enhancements or security instruments in financing these projects in Africa. Considering the typical risks[51] associated with energy project development, it is typical for lenders and investors to demand for and obtain some form of comfort from third parties in relation to loans repayment and return on their investment.

As it is typical of most credit enhancement tools, they add significant benefits to the project and to the various stakeholders in the project development, including but not limited to widening the scope of the financing options open to the project company, reducing debt pricing and lengthening the tenor of the debt.[52] In this regard, it is thus recommended- particularly because DFIs' participation in such projects through the provision of credit enhancement tools will greatly enhance the projects' bankability- that DFIs also execute relevant credit enhancement tools or instruments necessary for renewable energy projects development in Africa. These credit instruments may come in the form of partial risk guarantees, credit guarantee, liquidity guarantee and political risk insurance.

It is imperative to note that guarantees generally seek to mitigate political, policy, regulatory, currency and credit risks of projects and are typically issued by public entities such as governments and international financial institutions. To the extent that DFIs can issue these forms of credit enhancement instruments, it is important for the DFIs to

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[51] id (n 48)

[52] African Legal Support Facility, 'Understanding Power Project Financing' 128.

promptly and as required issue them to guarantee greenfield and brownfield renewable energy project development in Africa. These guarantees typically offer an effective way of mitigating and minimizing these investment risks, thereby making these projects less risky and incentivizing fresh private capital allocation to renewable energy projects in Africa.

5. CONCLUSION

Achieving a low-carbon energy transition is undoubtedly top on the agenda of most countries relentlessly in pursuit of achievement of the SDGs. Investment, development, and expansion of renewable energy technologies is indeed extremely crucial in this transitional phase. As demonstrated above, the DFIs have a critical role to play in unlocking the required capital for sustainable renewable energy project development in Africa given its strategic developmental mandate. As such, DFIs must rise to this occasion in championing renewable energy projects development in Africa in this global energy transitional period with a view to minimizing the adverse impact of climate change and ultimately reducing the electrification access gap. Whilst there is ample evidence that certain DFIs have actively financed and are still financing the construction and development of key renewable energy projects in Africa especially wind and solar power projects, it is hoped that more DFIs will leave obscurity and actively play strategic financing role in renewable energy projects/technology development in Africa. The multiplier benefits of this development including but not limited to increased electrification of areas in Africa, reduction in GHG emissions, minimization of the negative impact of global warming and the active promotion of clean energy economy, will become more evident in Africa in the near future.