Scaling-Up Renewable Energy in Africa

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Just 0.6% of total global renewable energy investment went to Africa in 2021

Global renewable energy asset investment by region



1 November 9, 2022

Clean energy investment in Africa has sunk to an 11-year low

Renewable energy asset investment by technology, Africa



2 November 9, 2022

Investment is concentrated in just a handful of major markets

Africa renewable energy asset finance by country



Source: BloombergNEF.

3 November 9, 2022



West and East Africa have attracted the majority of clean energy investment

Africa renewable energy asset finance by country excluding major markets of South Africa, Morocco, Kenya, and Egypt



Sub-regions in Africa



Source: BloombergNEF. Note: renewable energy includes small hydro (up to 50MW), wind, solar, geothermal and biomass and waste. Asset finance includes equity and debt.

South Africa, Egypt, Morocco, and Kenya accounted for nearly three-quarters of all investment since 2010

Top 10 African countries for cumulative renewable energy investment, 2010-2020

\$ billion

South Africa South Africa 22.3 Cote d'Ivoire Morocco 9.1 Egypt 6.9 Nigeria Morocco Kenva 6.6 Ethiopia 2.0 Egypt Zimbabwe 1.5 Gabon Tanzania Angola 1.0 Nigeria 0.9 Kenya Uganda 0.8 Chad Senegal 0.8

Top 10 African countries for renewable energy investment, 2021

\$ million



BloombergNEF

Source: BloombergNEF. Note: renewable energy includes small hydro (up to 50MW), wind, solar, geothermal and biomass and waste. Asset finance includes equity and debt.

Over half of Sub-Saharan Africans still lack access to electricity

Electrification rates of emerging markets



6 November 9, 2022

Energy access is steadily growing, in certain regions

National electrification rates by African region, and select markets



Source: World Bank, BloombergNEF. Note: Colored range shows minimum and maximum national electrification rates in region. Note: North Africa region not included, the World Bank reports this region has reached full electricity access as of 2020.

Africa electricity supply growth has slowed

Power-generating capacity by region (left-hand axis) and year-on-year growth rate (right-hand axis)



Sub-regions in Africa



Source: BloombergNEF.



Fossil fuels meet three-quarters of Africa's electricity demand

Annual power generation by technology in Africa



Share of annual power generation by technology in Africa



Source: BloombergNEF.

Fossil fuel plants are particularly concentrated in the North, South, and West Africa

Share of electricity generation from fossil fuels in Africa by region

100% 100% 80% 80% 60% 60% 40% 40% 20% 20% 0% 0% 2010 2012 2014 2018 2020 2016 2020 2010 2012 2014 2016 2018 North -South — East — Central -----West

Source: BloombergNEF. Note: renewable energy share includes large hydro, small hydro, solar, wind, biomass & waste and geothermal.

Share of electricity generation from renewables (including hydro) in Africa by region

Fossil fuels meet three-quarters of Africa's electricity demand

Share of electricity generation from fossil fuels, 2021



Source: BloombergNEF.



Reliance on fossil fuels poses challenges as energy prices grow

Annual fossil fuel subsidies in Africa by technology



Source: BloombergNEF, OECD, IISD.

Share of total fossil fuel subsidies in Africa by country, 2020



12 November 9, 2022

Africa has abundant natural resources for renewable energy development

Solar potential by region (kWh/KW), 2022



Source: Global Solar Atlas.



Solar is expanding, but slowly



Installed capacity by technology in Africa

Share of installed capacity by technology in Africa



Source: BloombergNEF.

November 9, 2022 14

Solar is steadily growing its share in new capacity additions

Annual net capacity additions and retirements by technology in Africa



Cumulative net capacity change in Africa by technology and region, 2010-2021

Source: BloombergNEF.

Solar capacity highest in South Africa, Egypt, Morocco

Top 10 countries in Africa for solar, by installed capacity in 2021



Source: BloombergNEF.

More African countries are adopting renewable energy

Number of African countries with over 1MW installed per year, 2012-2021

Number of countries



17 November 9, 2022

Solar was the top technology for new capacity added in 11 African countries in 2021

Top technology as measured in new capacity additions in 2021, by country



Source: BloombergNEF. Note: 'None' refers to countries which did not add any capacity in 2021. Climatescope covers 42 countries in Africa. For more details and full country list see www.global-climatescope.org



Inadequate policies limit investment opportunities

Climatescope policy score vs. 5-year clean energy asset finance

5yr investment (\$ billion)



Source: BloombergNEF. Note: China not included. India, Brazil Vietnam, Mexico and Chile were omitted to facilitate visualization, but are included in the trendlines. The emerging markets trendline includes Africa.

Inadequate policies limit investment opportunities

African nations with auctions, feed-in tariffs or both policies in force



Share of African countries where renewable

energy policy is present

Source: BloombergNEF. Note: Based on BNEF's Climatescope database which covers 42 African countries.

Rural electrification targets will require both on- and off-grid solutions

Availability of energy access policies in African countries, 2021



Priority level for energy access and rural electrification technologies among African countries, 2021



Share of countries

Source: BloombergNEF. Note: Based on BNEF's Climatescope database which covers 42 African countries.

Scaling renewable energy investment: Ensuring consistent procurement

Share of annual contracted volumes through renewable energy auctions and tenders by region



Source: BloombergNEF's Global Clean Energy Auctions Tracker.

Scaling renewable energy investment: Ensuring consistent procurement

Brazil annual wind and solar capacity contracted via auctions



Source: BloombergNEF.

Scaling renewable energy investment: Ensuring consistent procurement

South Africa 2019 Integrated Resource Plan renewable energy capacity allocation



Annual renewable energy investment, South Africa



Source: BloombergNEF.

24 November 9, 2022

Source: IRP 2019, BloombergNEF.

Planning grid expansion and electricity access

Availability of transparent grid extension plans by region, 2021

33% 48% 56% 74% Yes 81% Somewhat 38% No 28% No 33% Somewhat Yes 17% 29% 10% Not covered 24% 11% 9% 10% Africa Asia Pacific Middle East Europe Americas

Source: BloombergNEF. Note: Based on Climatescope survey indicator 'Transparent grid extension plan'. Climatescope covers 132 countries globally including 42 countries in Africa. For more details and full country list see www.global-climatescope.org

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Availability of transparent grid extension

plans in Africa by country, 2021

Planning grid expansion and electricity access

Vietnam solar/wind capacity additions



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Planning grid expansion and electricity access

Electrification rates by country



27 November 9, 2022

Activating domestic clean energy investors

Renewable energy asset finance for renewable energy projects in Africa by investor type



Domestic capital supplied in support of renewables, 2017-2021



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Luiza Demôro Idemoro@bloomberg.net

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