



AFRICAN DEVELOPMENT BANK GROUP
GROUPE DE LA BANQUE AFRICAINE
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African Development Bank

Power, Energy, Climate and Green Growth Complex

FINANCING AFRICA'S ENERGY TRANSITION TO NET-ZERO

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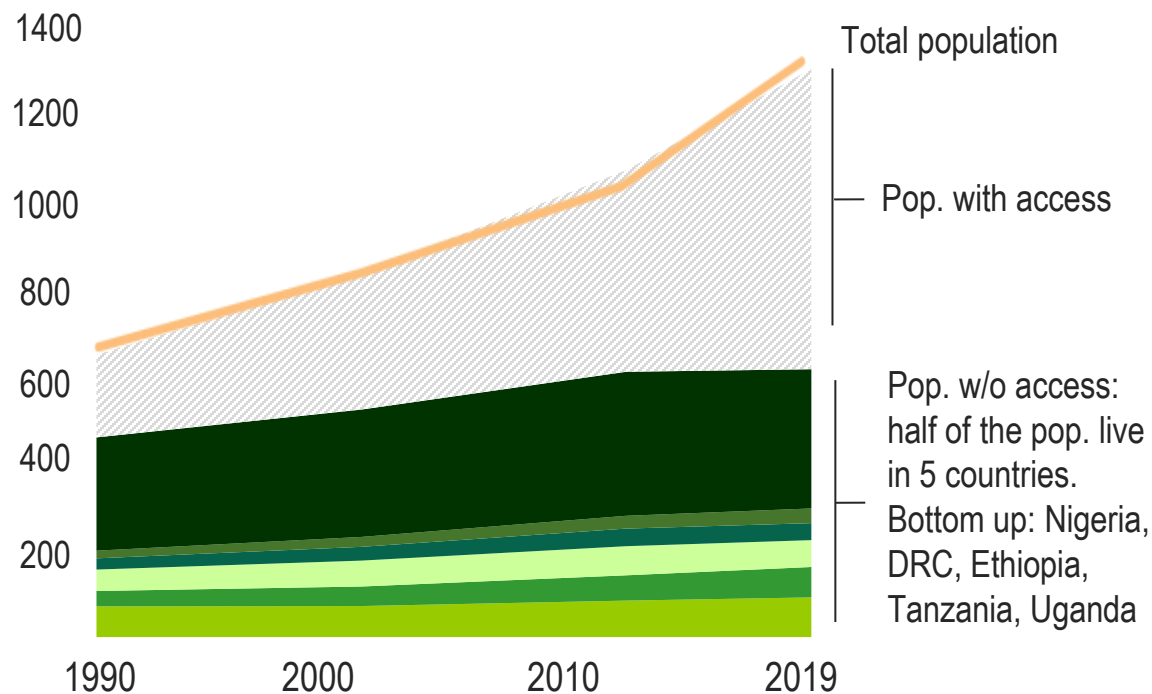


As Africa's population expands, the need for accelerated efforts to power the continent is greater than ever

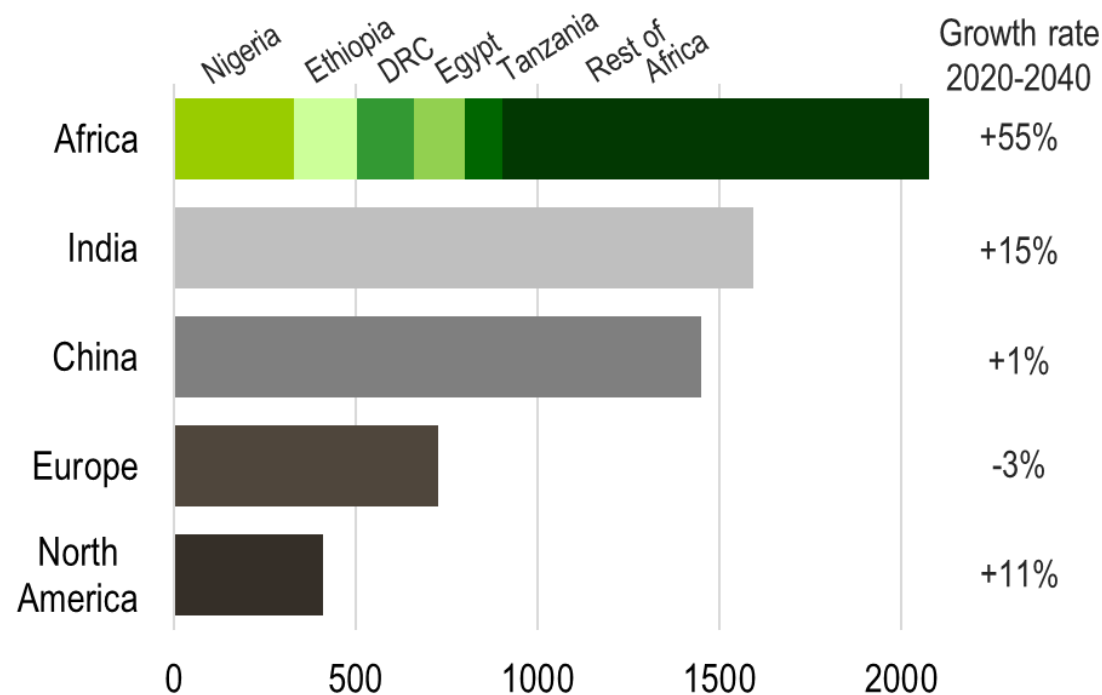
590 million people are still without access to electricity: this number has stabilized over the past 5 years, but increased by 2% in 2020

Africa will be home to more than 2 billion people by 2040, driven by the demographic growth of countries with the highest access deficit

Population in million



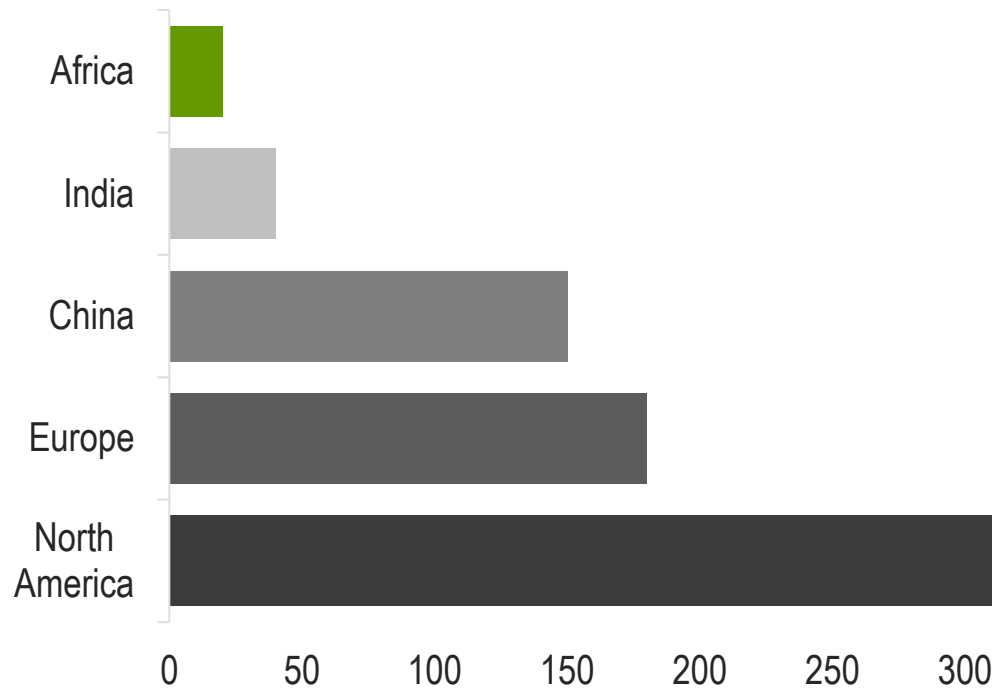
Population in million



Governments' ambitions to reach universal access by 2030 require a fivefold increase in power sector investment, mostly in low-carbon generation and grid networks

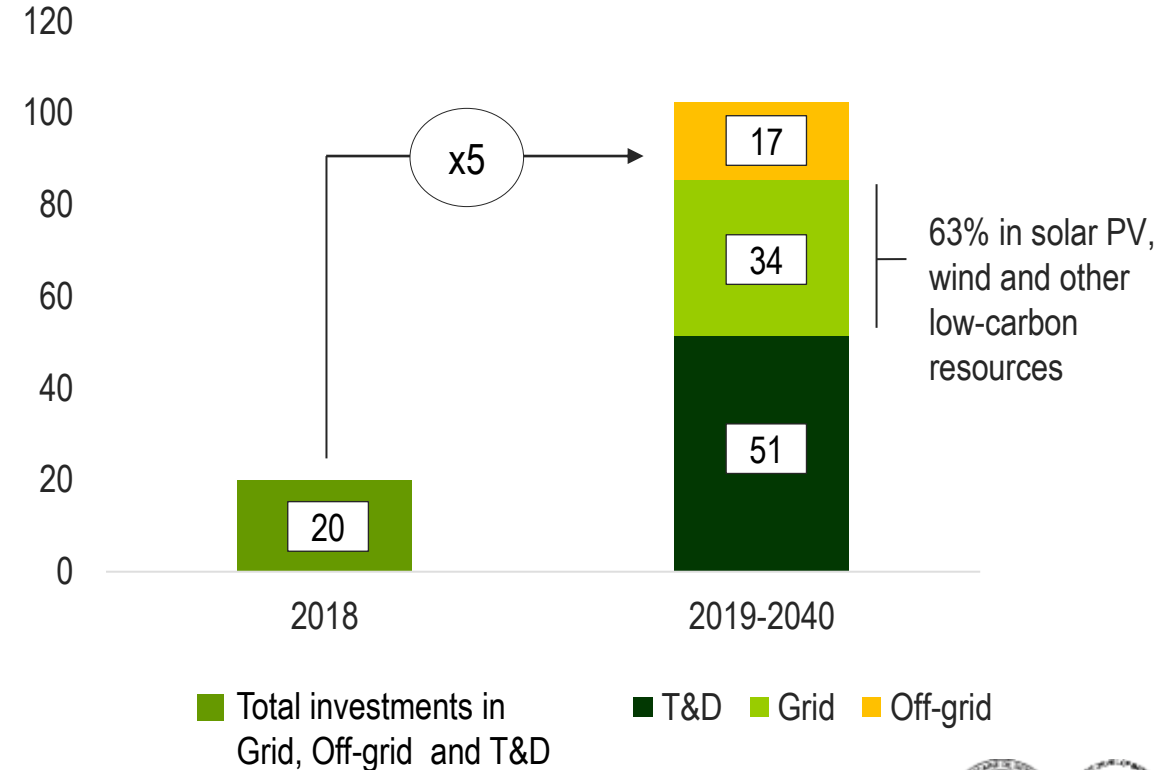
Investments in African power supply rank amongst the lowest in the world, and have shown little to no growth since 1990

Unit in USD per capita, 2018

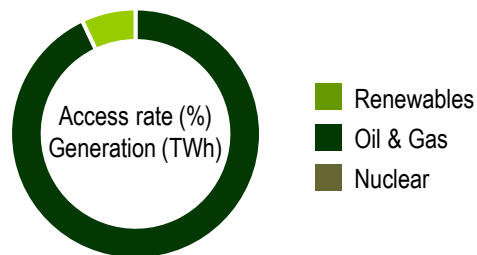


Making up for the current deficit of energy supply and maintaining grid infrastructure is projected to cost appr. USD 102 billion per year

Unit in USD billion, per annum



Africa's electricity generation mix varies across the sub-regions of the continent, shaping different energy transition pathways



West Africa

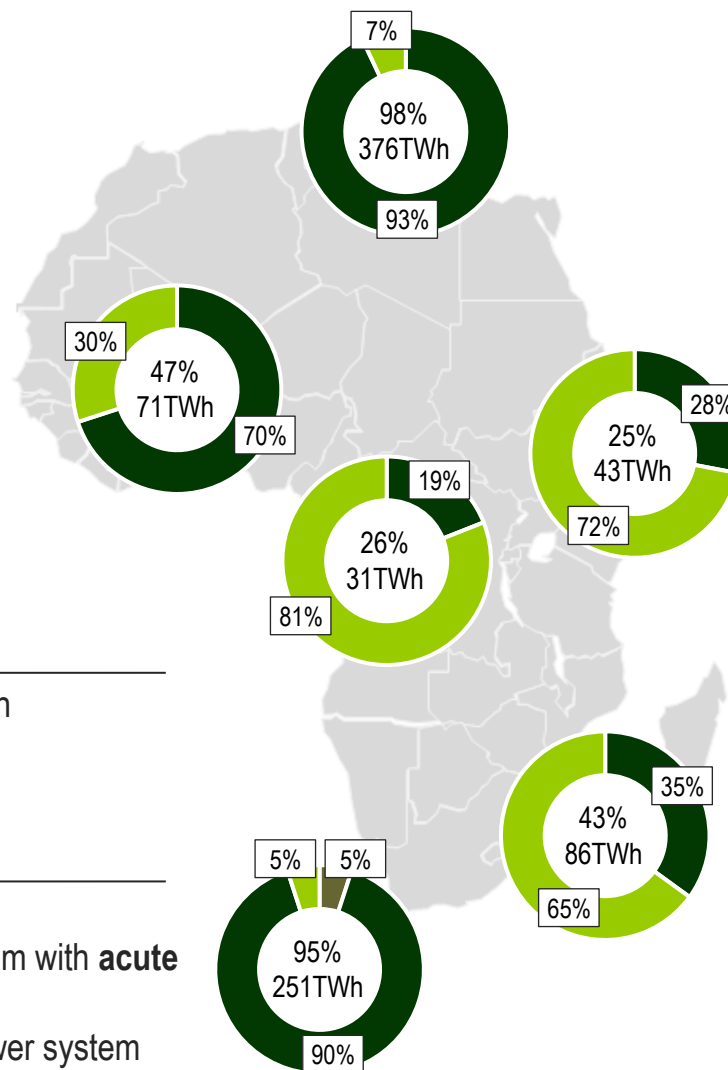
- Gas is the main source with 49% of total production
- Nigeria accounts for almost 50% of the total production of the region
- Unreliable grid supplemented by a growing off-grid sector

Central Africa

- Hydro is the main source with 77% of total production
- High dependence on aging assets

South Africa

- Coal is the main source, with 90% of total production
- Mature IPP market but poorly maintained power system with acute load shedding issues
- Increasing pressure to decarbonize the national power system



North Africa

- Gas is the main source with 77% of total production
- Growing emphasis on utility-scale solar, wind and green hydrogen

East Africa

- Hydro is the main source with 65% of total production, but geothermal production is growing in the Rift Valley
- Established off-grid solar sector that has been effective in establishing last-mile connections

Southern Africa (exc. South Africa)

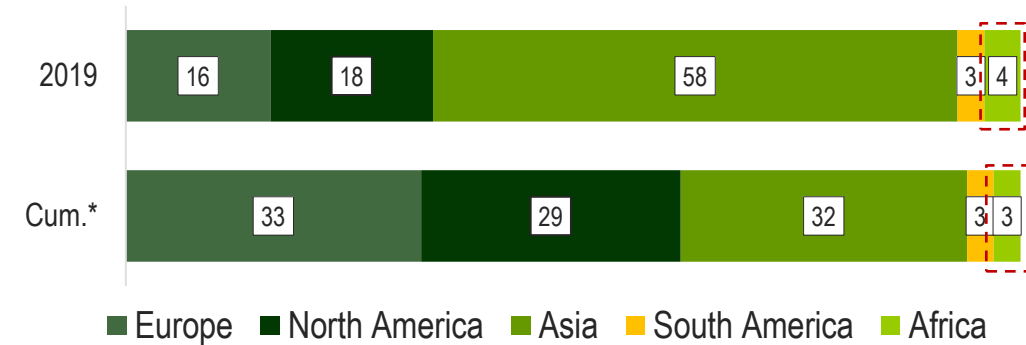
- Hydro is the main source with 64% of total production
- Mozambique and Tanzania account for 42% of the total production of the region
- Large and mostly untapped gas assets



Africa has marginally contributed to global GHG emissions, but structural transformations are projected to drive the continent's emissions growth over the next decades

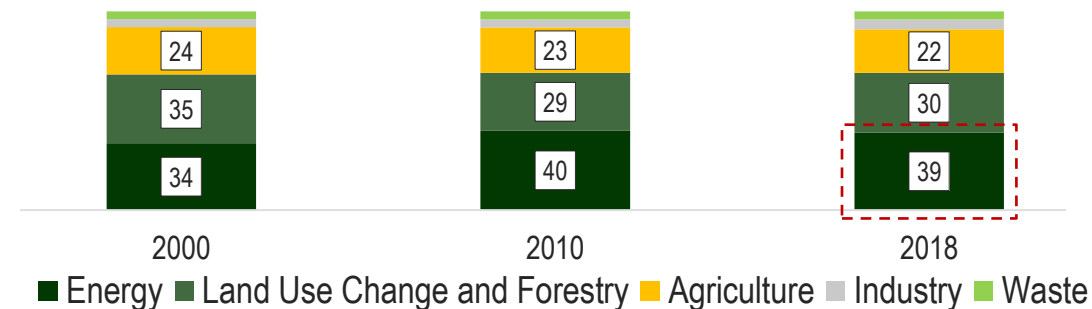
ACTUALS

Breakdown of global GHG emissions per region (%)



*Cumulative value as of April 2021. Total historical value goes back as far as data is available: 1750 for Europe, 1785 for North America, 1830 for Asia, and 1884 for Africa and South America

Breakdown of Africa's GHG emissions per sector (%)



PROJECTIONS

Trends and structural transformations

- 2.1B** people will live in Africa, up from 1.3bn in 2020 (2040)
- 59%** of the region's population will live in urban areas (2050)
- 43%** increase in investment in manufacturing (2030)
- 2.3x** growth in household consumption (2030)



Urbanization: housing demand for 900m additional urban residents by 2050



Electrification: 1.6TW needed by 2030 for 590+ million people

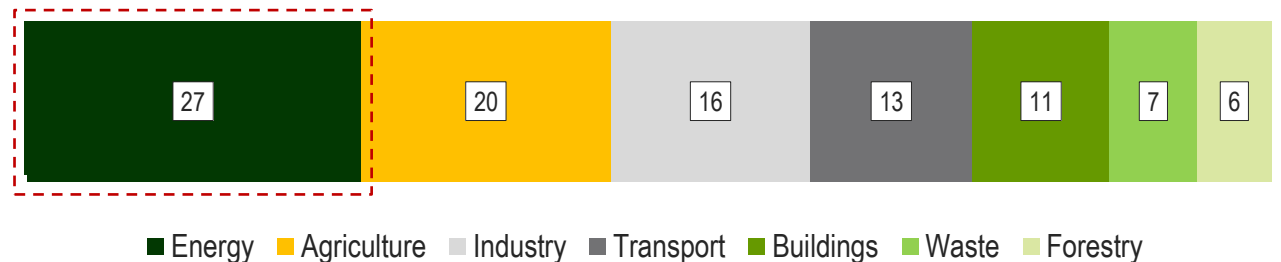


Industrialization: manufacturing growing faster than anywhere else in the world, with output set to grow by up to 10% p.a.



Land use change: 84% of deforestation to be driven by agriculture expansion to feed growing population

Breakdown of Africa's GHG emissions per sector in 2050 (%)

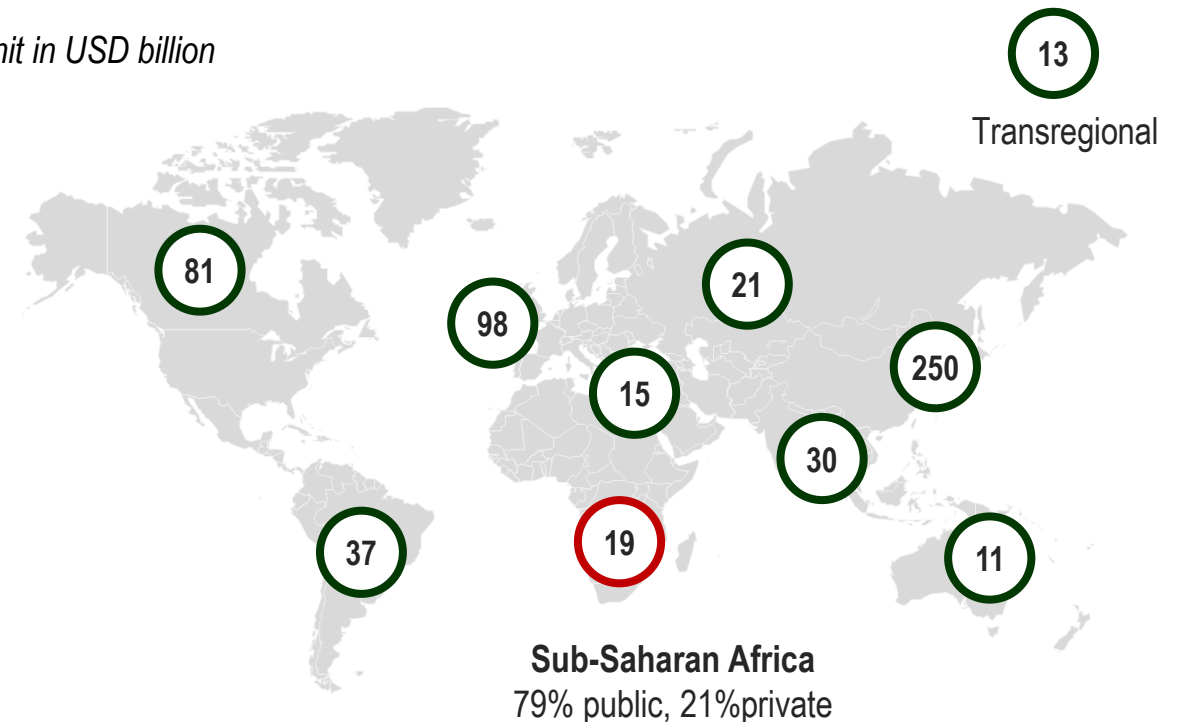


Financing Africa's energy transitions is critical as climate finance flows currently remain far below the continent's investment needs

- **Adaptation investment needs** for Africa are estimated to range **between USD 26bn and USD 41bn p.a.** between 2020 and 2030
- **The average global mitigation investment needs** to achieve Paris' 1.5°C target is estimated to range **between USD 1.6tn and USD 3.8tn p.a. until 2050 for energy systems alone.** While Africa faces a lower mitigation risk compared to other regions, significant investment is still required **to prevent lock-in to harmful or non-adapted technologies.**
- **A much larger volume of climate finance needs to be channeled to Sub-Saharan Africa, with more focus on adaptation:**
 - In 2017 and 2018, **Sub Saharan Africa received just over 3% of global climate finance**, amounting to approximately USD 19bn.
 - **Most global finance flows are directed to mitigation (93% in 2017-2018)**, leaving climate adaptation under-funded and under-represented
 - **30% of climate finance in Africa is dedicated to adaptation:** this represents the highest proportion than any other region in the world, but is still **insufficient to address the needs of the continent**
- **The private sector has a key role to play** in deploying low-carbon infrastructure and new technologies that meet Africa's access goals, but only represents 21% of climate finance channeled in Sub Saharan Africa

Destination of climate finance, average value per year*

Unit in USD billion



*Based on data from 2017 and 2018

Sources: The Global Landscape of Climate Finance, Climate Policy Initiative; AfDB analysis



In order to achieve a 1.5°C pathway while reaching universal electricity access, African countries will need to overcome a number of key challenges



RENEWABLE ENERGY

Increase the share of renewables as a proportion of total electricity mix, in line with the need for emissions cuts to reach a 1.5°C pathway

- **Map and scope the renewable potential** on a country-basis to demonstrate a clear pathway to increase renewable generation
- **Implement enabling policy and regulatory frameworks** to effectively deploy renewable energy at scale with proven technologies
- **Promote financial and fiscal mechanisms** to attract private investment



LOAD BALANCING

Switching to renewables can cause load balancing challenges for a grid system that does not have a reliable baseload

- **Identify the optimal renewable energy mix** based on natural endowment and least cost options
- **Map the Tx and Dx network requirements** for grid stability to highlight the requirements for a diverse, decentralized and interconnected grid at regional and/or country level, including optimal storage solutions



LAST MILE CONNECTIONS AND BANKABLE DEMAND

Increase the number of decentralized systems (mini grids, solar home systems, etc.) for households and productive use (C&I)

- **Align financial incentives and policies** (grid codes, connection subsidies, tax exemptions, etc.) to support a wide range of technology options that enable off-grid and mini-grid providers to reach the last mile
- **Identify high-potential C&I customers** to generate bankable demand



CLEAN COOKING

Polluting cooking fuels such as wood and kerosene continue to dominate households' cooking practice without sufficient alternatives

- **Outline and understand the optimal cooking fuel mix** in different locations that ensures access to clean cooking (e.g. biofuels, biomass, electric) alongside a low-emissions pathway
- **Identify potential anchor clients** such (e.g. industries) for clean cooking fuels to secure a minimum demand for clean cooking providers



The African Development Bank provides holistic support to its Regional Member Countries in their energy transitions whilst accelerating electrification efforts

FINANCE

- **Lending instruments** to provide long-term debt to public and private clients
- **Guarantees** to mitigate the risks attached to investments in Africa
- **Equity participation** to bring scarce risk capital to transformative projects
- **Blended finance solutions** to offer grants or concessional finance from Trust Funds hosted by the Bank, Special Funds (Sustainable Energy Fund for Africa, Facility for Energy Inclusion) and Climate Finance facilities (Green Climate Fund, Clean Technology Fund, etc.)
- Innovative solutions such as the **African Financial Alliance on Climate Change** and the **Adaptation Benefits Mechanism**

KNOWLEDGE, DIALOGUE AND SPECIAL INITIATIVES

- **Desert to Power** to build up to 10GW of new solar power capacity in the Sahel region
- **Great Green Wall Initiative** to deploy nature-based solutions to prevent desertification
- **Africa Energy Market Place** to bring together Governments, Private Sector and Development Partners to accelerate sector reforms and fast-track priority transactions
- **Electricity Regulatory Index** to diagnose countries' regulatory frameworks and identify key interventions promoting good sector governance and better integration of renewables

CAPACITY BUILDING

- **Africa NDC Hub** to support long-term planning for countries' energy transitions (Nationally Determined Contributions, Long-Term Strategy, etc.) ahead of their participations to the COPs and promote partnerships
- **ClimDev Special Fund-Africa** to support the generation of high-quality climate information in Africa and develop capacity building technical assistance for policymakers



Thank you

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