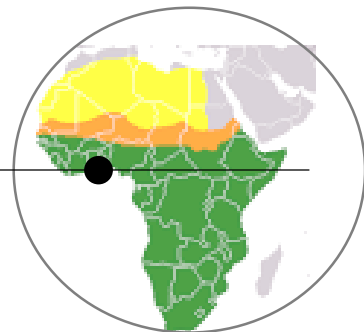




Lighting up and powering Africa with the African Development Bank

Financing and investment opportunities for energy in Africa

Tokyo, Japan, 14 February 2019

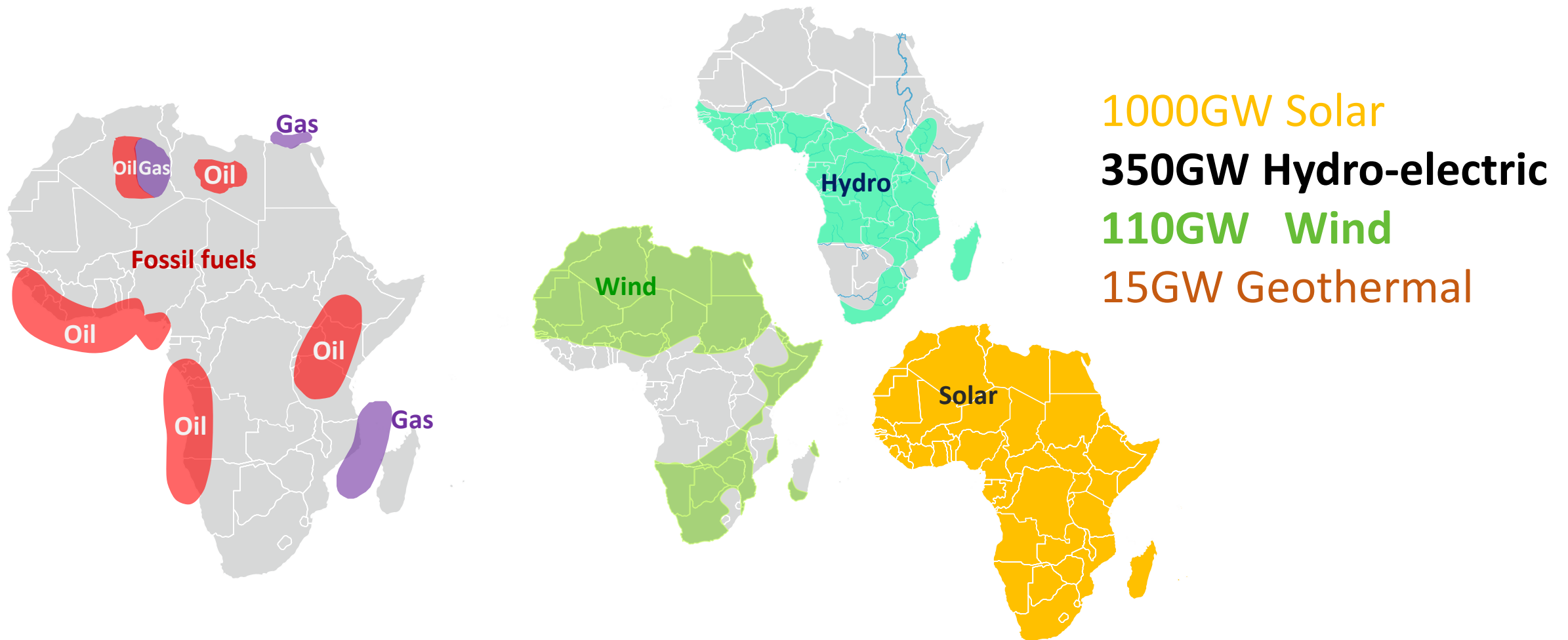


Dr. Anthony Nyong

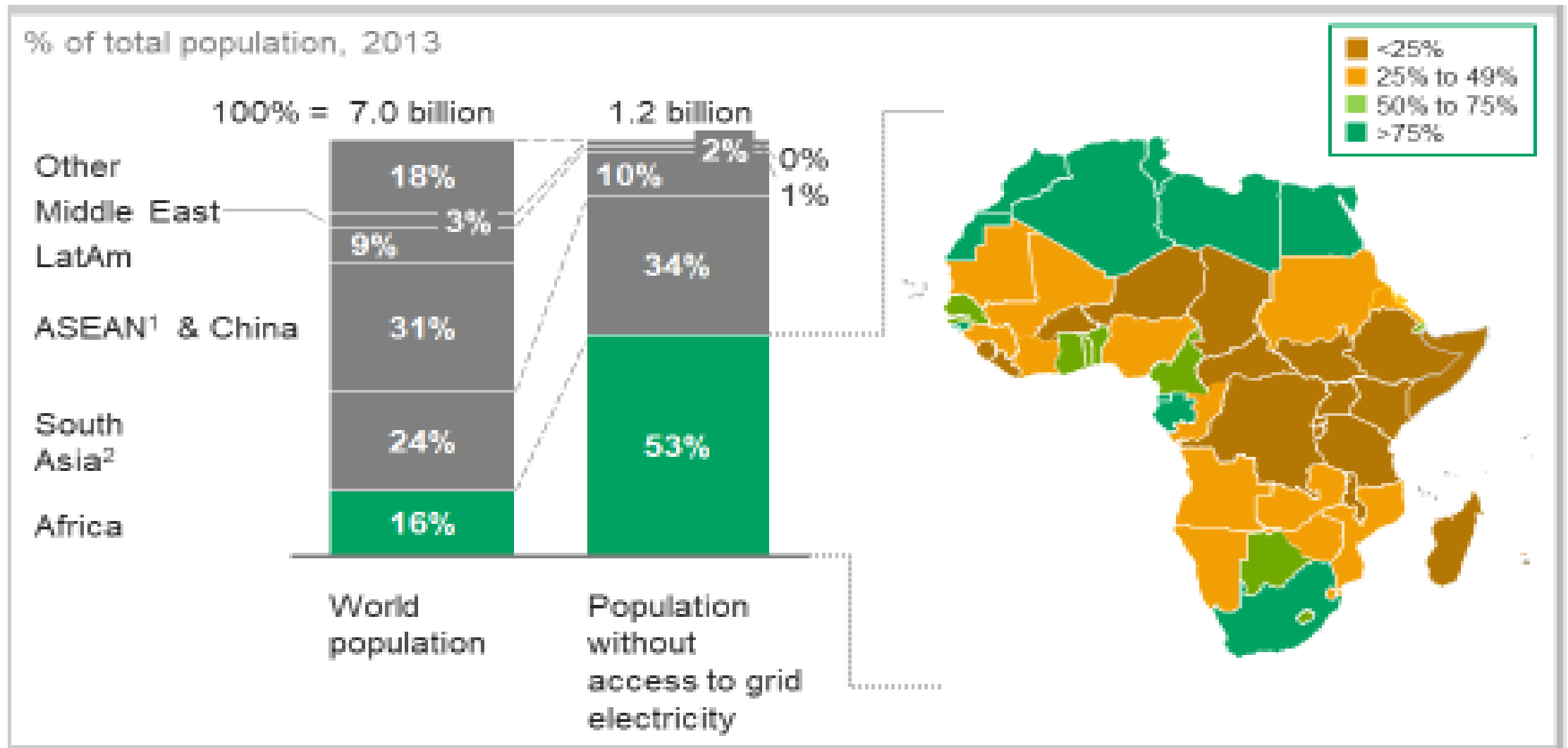
Director for Climate Finance, Climate Change and Green Growth
Power, Energy, Climate Change and Green Growth Complex
African Development Bank

The Energy Context

Africa is Rich in Energy Resources...



High Unmet Energy Demand



1 Association of Southeast Asian Nations.

2 Bangladesh, DPR Korea, India, Mongolia, Nepal, Pakistan, Sri Lanka, Other Asia.

Africa's Energy Paradox

Situation

- ❑ About 600 million African people (60% of the population) have no access to electricity (AfDB).
- ❑ African consumers and small businesses spend \$17 billion a year on kerosene lamps and candles (WB).

Potential

- ❑ 93% of Africa's natural and renewable energy resources remain untapped
- ❑ Renewable energy technologies now provide economical solutions for off-grid and mini-grid electrification in remote areas (IRENA).

USD 32Billion Per Annum Investment Opportunities in Renewable Energy in Africa by 2030

AfDB's New Deal on Energy for Africa

AfDB central
convening role
among energy
related institutions

Strong relationships
with African
countries

Successful
partnerships
between DFIs, and
with the public &
private sector

A prerequisite for
achieving the High
5s across Africa

Key Elements



On-grid generation to
add 160 GW of new
capacity



On-grid transmission
& distribution that
will create 130 million
new connections



Off-grid connections
to add 75 million new
connections



Access to clean
cooking energy for
around 150 million
households



AfDB's 7 Strategies for Energy

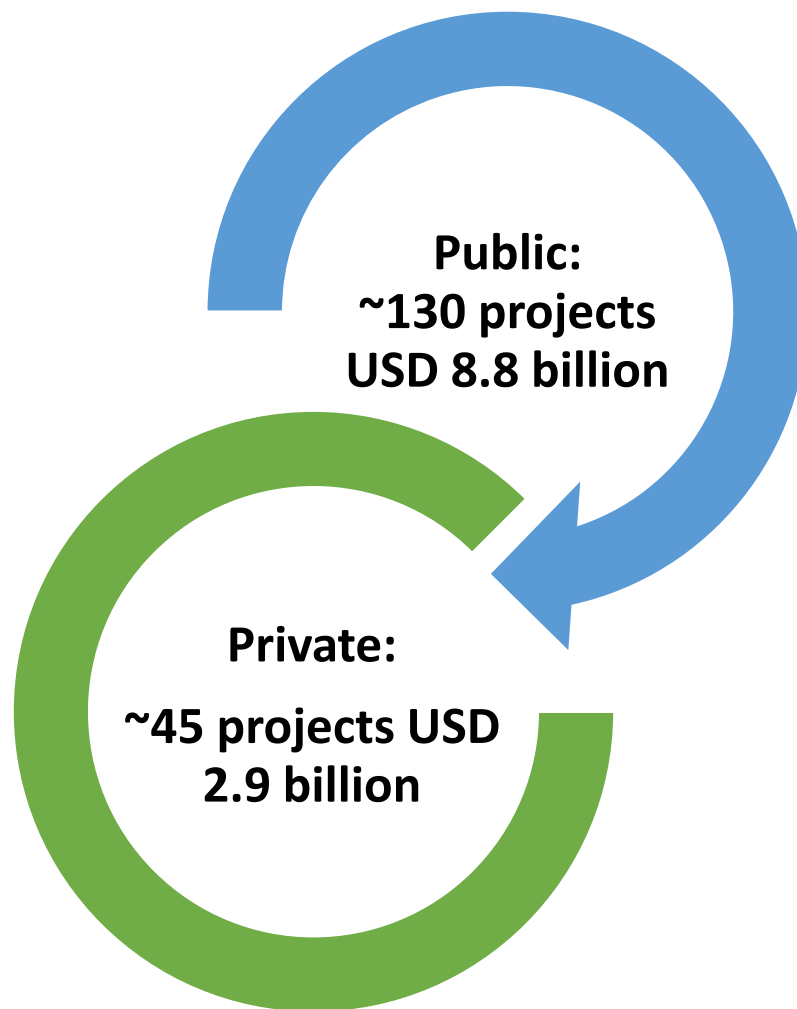


1. Setting up the right enabling policy environment
2. Enabling utility companies for success
3. Dramatically increase the number of bankable energy projects
4. Increasing funding pool to deliver new projects
5. Supporting bottom of the pyramid energy access programmes
6. Accelerating major regional projects and driving integration
7. Rolling out waves of country wide energy transformations

The African Development Bank's interventions cover all facets of the energy sector

Utility-scale Power Generation	<ul style="list-style-type: none">• 800 MW Midelt Solar Complex in Morocco (approved in 2017).• Nachtigal 400 MW Hydro Power Plant in Cameroon (approved 2017).
Off-grid & Mini-grid	<ul style="list-style-type: none">• Technical assistance to address barriers to scaling-up of private sector mini-grids and solar home systems (e.g. GMG-MDP, TA to support Togo CIZO project).• Financing of private sector investors (e.g. Pilot Receivables financing off-grid project).
Investments in Private Equity & Debt Funds	<ul style="list-style-type: none">• The Facility for Energy Inclusion (FEI) for which the Bank approved a USD 100 million anchor investment to close funding gaps in the small-scale energy infrastructure sector and catalyze growth in last-mile energy access solutions.
Project Preparation Support	<ul style="list-style-type: none">• The Bank's SEFA has approved 12 projects in 2017 that aim to bring additional 166 MW and leverage USD 340 million.
Power transmission including crucial regional interconnectors	<ul style="list-style-type: none">• Cameroon-Chad Power Interconnection (approved in 2017).• Guinea-Mali Power Interconnection (approved in 2017).• Nigeria-Niger-Burkina Faso-Mali Power Interconnection (approved in 2017).
Last Mile Electricity Access	<ul style="list-style-type: none">• Rwanda – Scaling-Up Energy Access• Kenya – Last Mile connectivity

AfDB's Active Energy Portfolio (projects under implementation) Amounts to ~USD 11.7 Billion

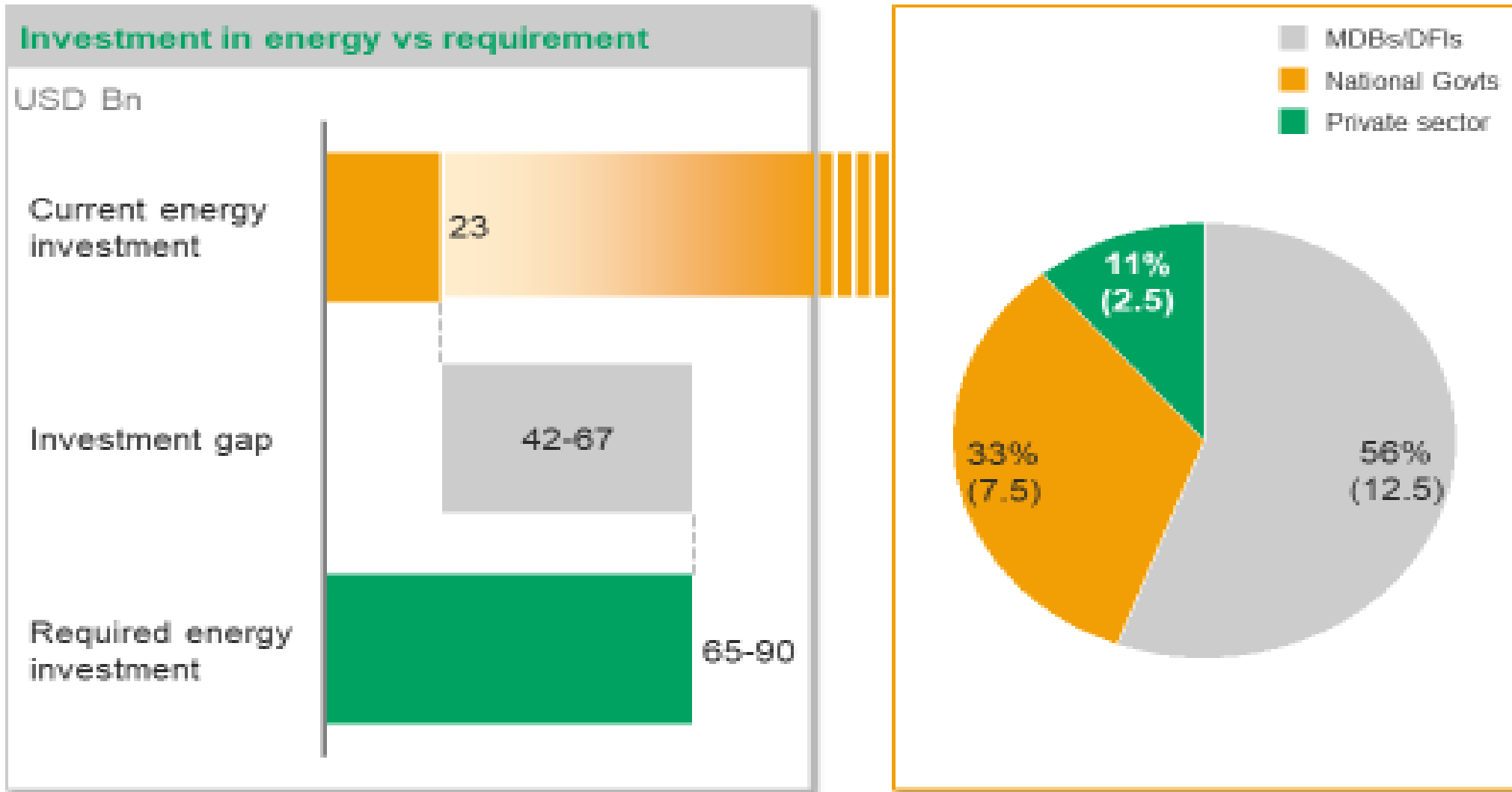


Over the last 3 years, AfDB's investments in support of energy amounted to USD 4.5 billion

- USD 4.5 billion: AfDB Financing in Energy Since the Launch of the New Deal on Energy
- 80% of Investments through public sector lending and 20% through private sector.
- About 80% of investments focused on infrastructure investments while policy-based lending represents 20%.
- Achieving the New Deal on Energy for Africa requires a significant increase of private sector investments.
- The Bank's investment in Renewable Energy in 2017 was 100% renewables.

Financing Africa's Energy

Investment Gap in Energy



In addition to AfDB resources, a variety of climate facilities support our work



Global instrument for low-carbon, climate-resilient development



Champion of the global commons, global UN treaty instrument



UN fund to help developing countries achieve adaptation and mitigation



Unique mechanism for private investment in small- and medium-scale renewables, energy efficiency



Fund for African readiness for climate-resilient, low-carbon development



Fund for innovative water projects in Africa



Multi-donor trust fund to support rural water supply and sanitation programmes



Fund to support climate change adaptation in vulnerable communities in developing countries



Multi-donor fund to support agriculture infrastructure projects

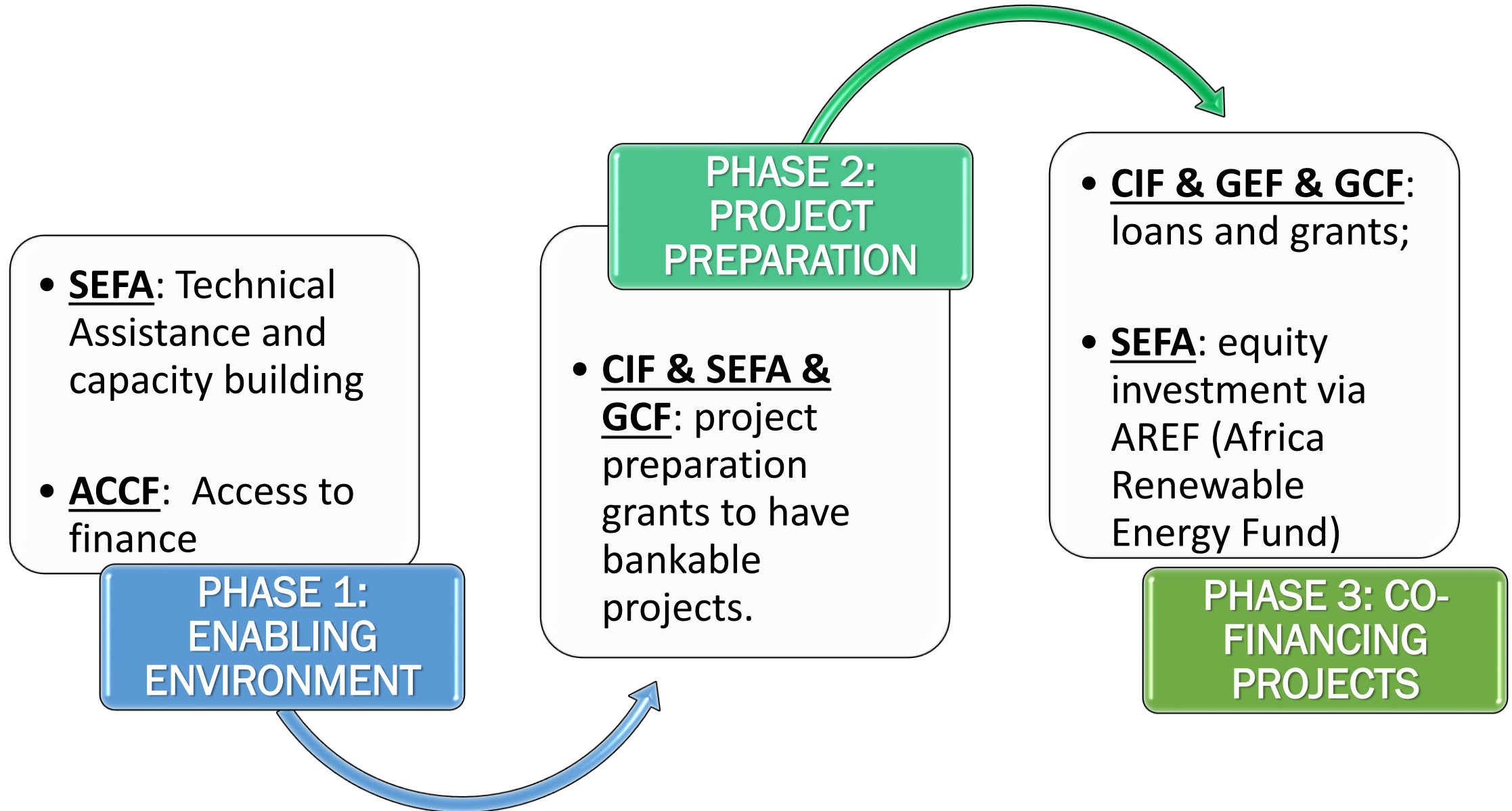


Multi-donor fund for information on climate-resilient development

Significant development impacts are expected from the Bank's Investments

- Operations approved over the 2016-2018 period will contribute towards:
 - Additional **1,843 MW** installed generation capacity, of which **1,703 MW** from renewable energy sources.
 - Construction/rehabilitation of **4,280 km** of transmission lines, of which **2,580 km** for regional interconnections, along with **31,314 km** of distribution lines and associated substations/transformers.
 - Enabling **2.4 million** additional electricity connections, which will provide electricity access to around **11.5 million people** - 80% on-grid and 20% off-grid (Solar Home Systems and Green Mini Grids).

AfDB: Addressing the needs with RE Finance Instruments



AfDB Project Examples Addressing the Needs....

Lake Turkana Project

- **Partial Risk Guarantee**

(covered government's performance linked to possible delays in the construction of auxiliary infrastructure)

- **Subordinated Debt**

(improved the risk profile of more averse commercial financiers)

Africa Renewable Energy Fund

- *Reimbursable Grant*

(to undertake project feasibility pre-investment to mitigate technology risk)

- *Junior Equity*

(stimulated the participation of other investors in the fund by rewarding their return)

Special Initiatives

Off-grid & Mini-Grid: Off-grid Revolution

Support the development of green mini-grids and solar home systems through technical assistance and whole village electrification initiatives— e.g. pilot in Togo in 2018

- **Develop country-wide off-grid programmes**
 - Create enabling environment to attract private sector investors (DESCOs) for solar home systems deployment at scale
 - Mobilize finance and develop public private partnership models for “community infrastructure”
 - Lower consumer prices (concessional loans)
 - Ensure formal adoption of international quality standards
- **Address market barriers to scale-up of mini-grids across Africa**
 - Build on Green Mini Grid Market Development Program

Financing of private sector investors – e.g. Pilot Receivables financing off-grid project in Côte d’Ivoire in 2018

- **Providing finance and exploring innovative finance instruments for DESCOs to grow and expand their business in new countries**
 - Building partnerships to develop securitization vehicles to finance DESCOs
- **Mobilizing climate finance**
- **Leveraging technology**



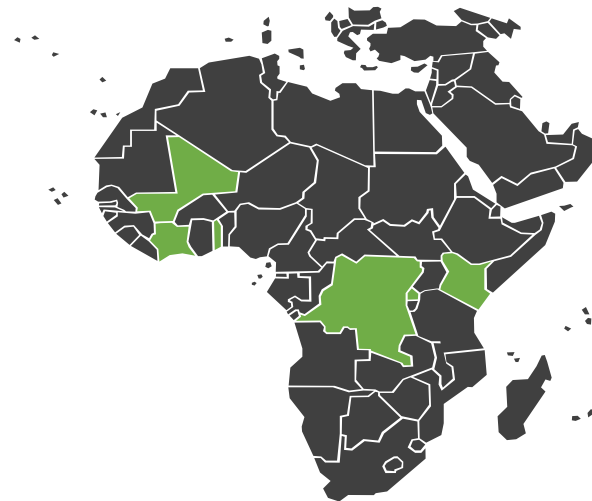
Off-grid & Mini-Grid: **DESCOs Financing Program to unlock local investment**

The DESCOs Programme is a flagship project of AfDB in collaboration with the EU to showcase the pivotal role of blended finance in unlocking local private investment for sustainable development

Programme's Specific Objectives:

- Scaling up DESCOs growth
- Crowding in local FIs
- Mobilizing local currency funding
- Developing securitization

- ***EUR 50 million EFSD second loss cover***
- ***EUR 6 million Technical Assistance grant***



Indicative Pipeline:

- 100% in LDC countries
- 60% in fragile countries

Partnerships:

- Off-grid Industry Association and Consumer Protection Standard: GOGLA
- Expert institutions in securitizations



HOW IT WORKS



REFERENCE LIBRARY

APPLY FOR HELP

SEARCH

Providing a complete information service for developers
of green mini-grids (GMGs) in Africa.



- Launched in October 2016
- Addresses RE mini-grid project developers
- Online technical assistance on activities
- Knowledge products and tutorials

PE & Debt Funds: The Facility for Energy Inclusion (FEI)

FEI is a flagship initiative of the African Development Bank

Fund Strategy	<ul style="list-style-type: none">• AfDB launched FEI to close funding gaps in the sector and catalyze growth in last-mile energy access• FEI is debt financing platform for small-scale projects in order to<ul style="list-style-type: none">- Aggregate public and private capital- Structure bankable and replicable transactions- Accelerate access to clean energy across Africa
Anchor Investor	<ul style="list-style-type: none">• In December 2017, the AfDB Board approved \$100m seed financing• Flexible Funding Package of \$50m equity and \$50m debt• Aims to directly leverage up to \$400m in co-investments from public sector and commercial investors
Development Impact	<ul style="list-style-type: none">• FEI will provide high-quality clean power for households and businesses,• Replacing diesel, wood, and kerosene to improve environmental and health outcomes• Economic benefits through savings and income• Job creation for distribution, construction, operations
Structure	<ul style="list-style-type: none">• The overarching FEI initiative as been structured as two windows in order to :<ul style="list-style-type: none">- different market segments: household vs project scale energy solutions- investment instruments: consumer finance and working capital vs project lending- investor bases: meet different investor agendas

Off-Grid Energy Access Fund

- \$100m off-grid energy
- \$58m first close in August
- SHS, mini-grid & wider ecosystem
- Secured lending for consumer credit and inventory finance



FEI On-Grid Fund

- \$400m re project finance
- \$70m contributed by AfDB
- Small scale IPPs, C&I and mini-grids
- Investment limit at \$30m or 25MW
- Project and corporate debt



Desert-to-Power

Leveraging the solar potential in 11 countries of the Sahel-Sahara region by 2025

Objectives

- **10 GW** additional solar capacity
- **250 million** people connected including 160 million through on grid and 90 million through off-grid/mini-grid solutions

Implementation modalities

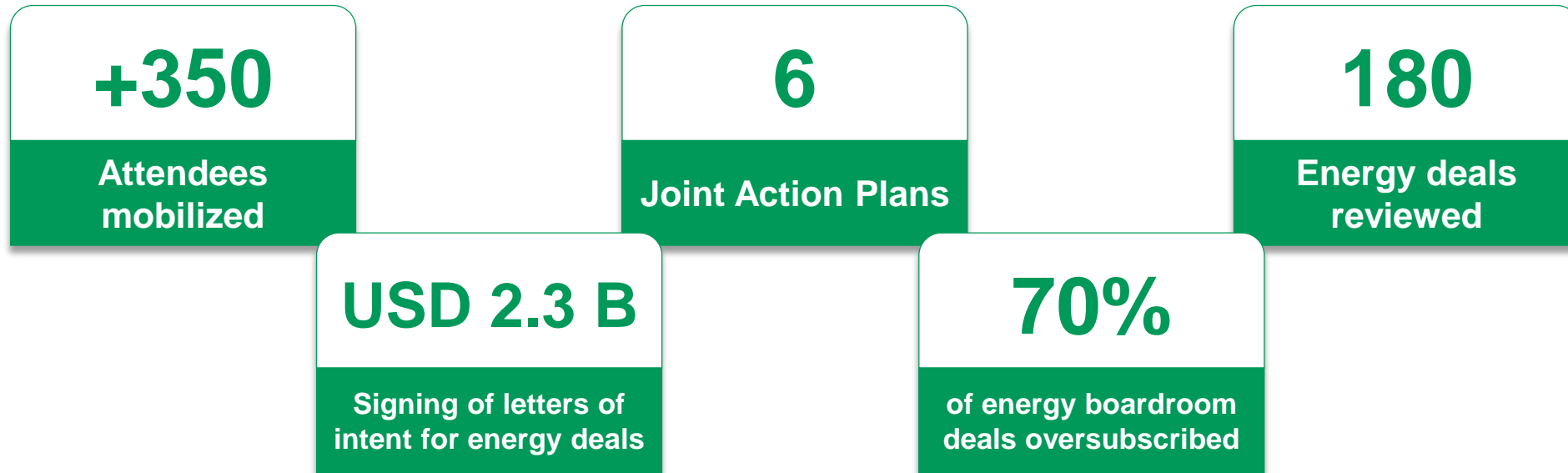
- Raising public and private funds for energy/ agriculture nexus in particular from climate funds
- Promotion of PPP best practices
- Increasing local content, promoting local development opportunities (solar for irrigation, water pumping, livestock)
- Lols for cooperation on program signed with GCF, Africa 50 and MASEN

Ongoing activities

- First solar programme being supported in Burkina Faso (Yeleen Solar Program: approved in 2018)
- Joint business development missions with partners started in Q1 2018

The Africa Energy Market Place (AEMP)

Key outcomes from the AEMP track at the recent Africa investment Forum



Support Needed for AEMP:

- Provide dedicated support to Government for in-country implementation & coordination of AEMP Action Plan
- Provide TA support for certain specific actions identified in the Action Plans
- Support with the identification of investment opportunities for AIF

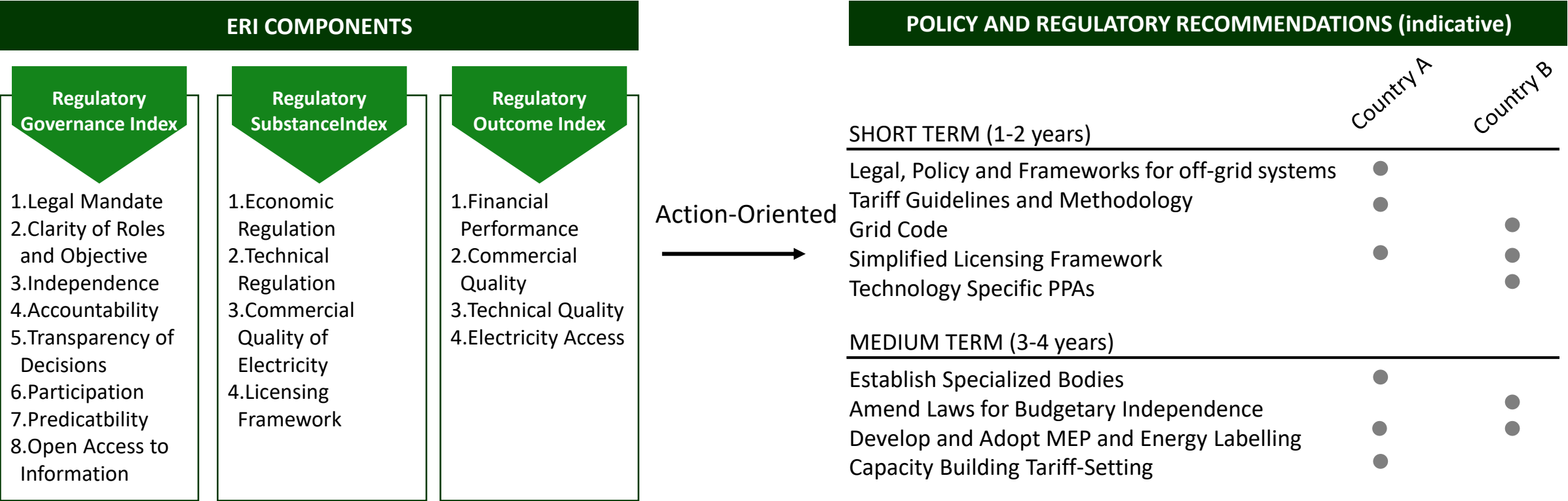
Energy Deals at AIF Outcomes

Outcomes of AfDB Energy Deals at the Africa Investment Forum (AIF)							
Deal	Country(ies)	Technology	Size (MW)	Global Project Cost (USD)	Investment Ask @ AIF (USD)	Commitment Type	Description of Outcomes
Thermal Projects	Angola & Cameroon	Combined Cycle Thermal	1000	1.5 Billion	1.5 Billion	LOI	The African Development Bank and Aenergy signed funding for some projects that we have in Angola and Cameroons for energy generation in energy sales projects to public entities. The estimated overall amount for the funding of the projects in Angola and Cameroon is \$1.5 billion (€1.3 billion)
ECG Distribution	Ghana	Renewables	TBD	800 Million	500 Million	LOI	L.O.I to arrange \$USD 500M in Development finance capital signed by the African Development Bank and Aenergy (the Concessionaire) to invest new capital expenditure towards reducing generation losses and at the same time expand access for the Electricity Company of Ghana (ECG). Standard Bank will arrange US\$ 300 million of commercial banking finance, bringing the total amount to US\$ 800 million. This amount will supplement the investments of Aenergy and its partners.
Enara	Egypt	Solar	200	200 Million	150 Million	LOI	
Off-grid Blended Finance Facility	Ethiopia	Off-Grid Programme	N/A	100 Million	100 Million	LOI	The African Development Bank bank signed a Letter Of Interest for a US\$100 million blended finance facility for Ethiopia’s off-grid programme. The programme, co-financed by both the bank and the European Union, intends to support the country’s off-grid sector and run alongside the National Electrification Plan, which targets up to 5.7 million household connections by 2025.
Tulu Moye	Ethiopia	Geothermal	50	245 Million	90 Million	LOI	
Sahofika	Madagascar	Hydro	192	868 Million	526 Million	LOI	
Batoka Gorge	Zambia	Hydro	2400	4 – 6 Billion	12 Million	Verbal Commitments from Development Partners	AfDB as MLA sought commitment from partners towards funding project preparation to the tune of \$12million. At the end of the session, a total of \$12million new funding is expected. All preparation funds are expected to be committed by Q1 2019, enabling the initiation of the procurement process of the transaction advisor soon thereafter. Financial close planned for mid 2020.

7 Countries | USD 8 - 10 Billion Projects Value | 4 GW | 1 Off-Grid Programme

The Energy Regulatory Index (ERI)

ERI provides detailed findings on how local regulatory systems are performing. ERI aims to incite action.

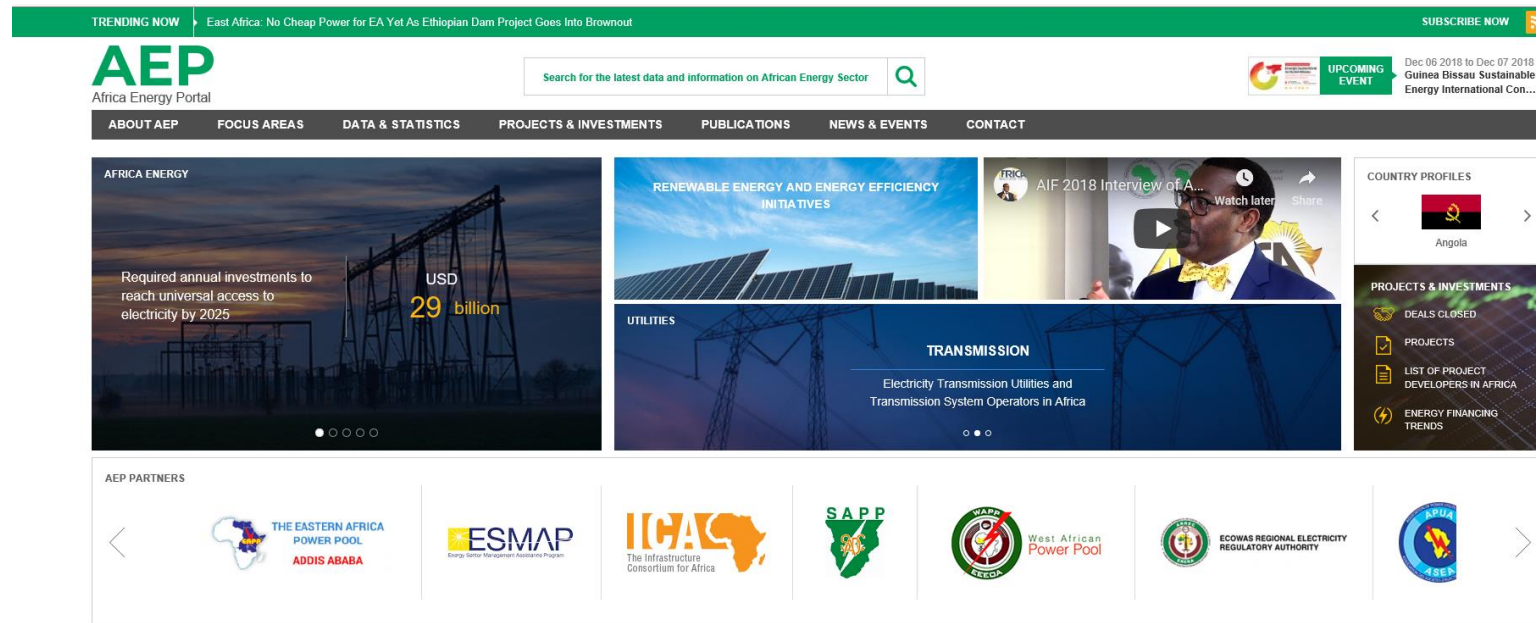


ERI 2018 publication is available here: https://www.afdb.org/fileadmin/uploads/afdb/Documents/Generic-Documents/Electricity_Regulatory_Index_2018.pdf

The Africa Energy Portal (AEP)

The AEP intends to become the reference knowledge portal for Africa's energy sector

- Launched in November 2018, the Africa Energy Portal aims to become a one-stop knowledge and resource hub for the energy sector in Africa.
- Sourcing data and all relevant energy statistics, information, articles and publications on the African energy sector in a systematic manner requires a dedicated team of full-time “knowledge officers”.



Explore Data | For more details, please go to the [DATABASE](#)

<https://africa-energy-portal.org/>

Sustainable Utility transformation (SUT)

Improved Sector Governance

- Embedded Advisors
- Performance –based (Management) Contracts
- Utility/IPP/PPP performance benchmarking, and information exchange
- Adoption of governance best practices

Least-Cost Integrated Resource Planning

- Identify gaps & constraints.
- Agree on one conservative/realistic least-cost plan
- Include transition to green growth; with adequate base-load capacity & operational reserves
- Allocate roles for Utility/Government and private sector

Human Capital Development

- Build on SEFA, APUA, & AFD for Africa Network of Centers of Excellence in Electricity
- ANCEE 2.0
- Scaled-up support to Power Pools & Regional Economic Communities
- Establishment of Diaspora Networks/Funds

Sector Reforms & Financial Sustainability

- Review past reforms vs current situation, identify lessons learned
- Optimize utility balance sheets and develop realistic reform roadmap
- Focus on Transmission and Distribution utility performance
- Improve asset management capacity

Smart Partnerships

- Leverage the Bank's Network to access Climate Finance and Trust for studies, TA and investments
- Collaboration with DFIs
- Follow a prioritized approach based on country readiness opportunities for alignment with partners will be sought.

The Africa NDC Hub

Established at COP23 as a response to the call by African countries for support towards the implementation of their NDCs.

The Hub aims to support African countries with the **effective delivery of their Paris Agreement commitments** in accordance with their own development priorities.

The Africa NDC Hub serves as a collaborative platform and resource pool for **efficient and effective delivery of NDC targets.**

The Africa NDC Hub is a growing partnership with **15 member institutions** as of November 2018



Goal

To meet the Mitigation and Adaptation Goal of the Paris Agreement



Specific Purpose

To help African countries achieve their NDC Targets by 2030



Expected Outcomes



Outcome 1

Fostering Long term Climate Action



Outcome 2

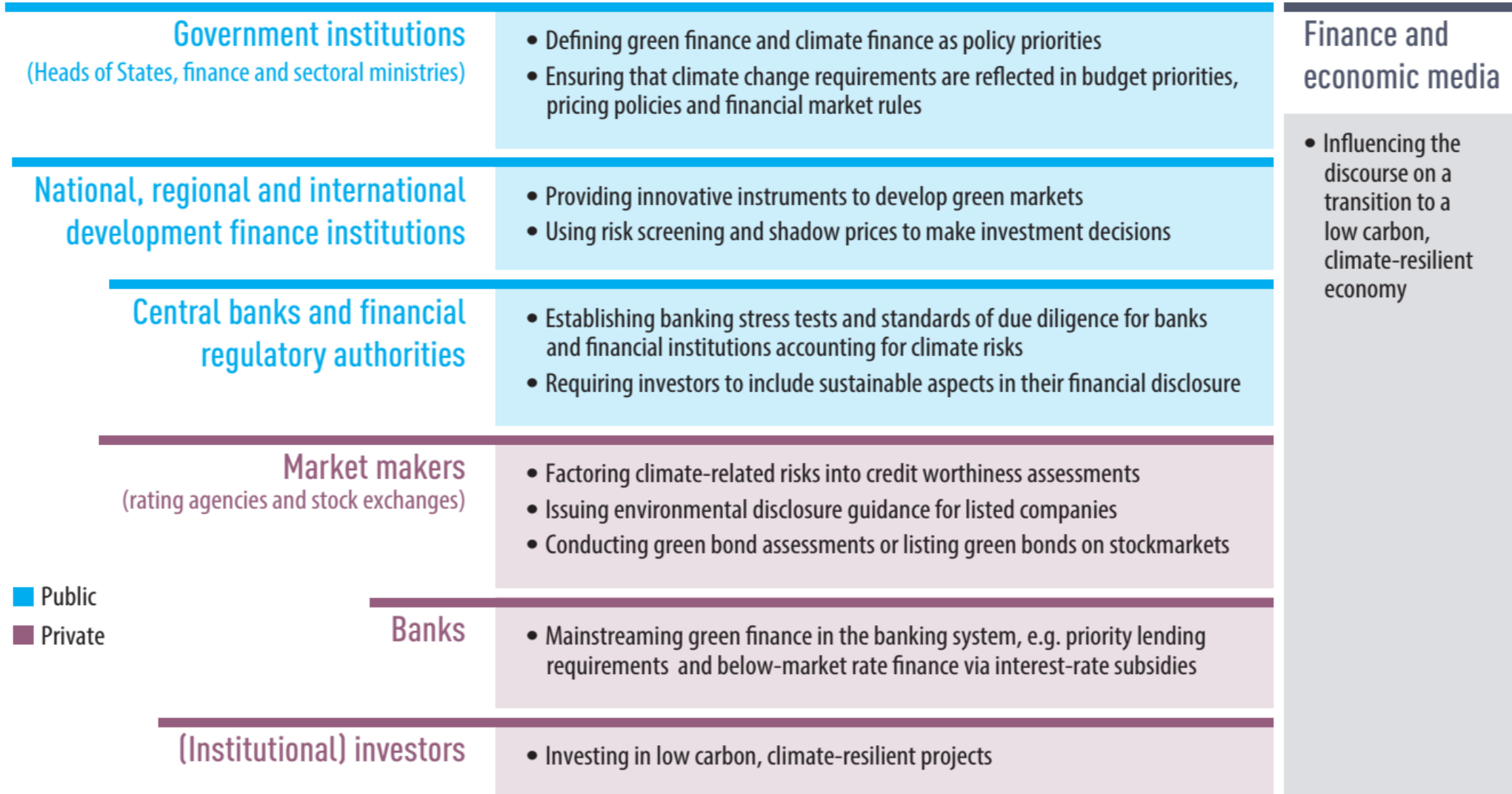
Mobilizing Means of Implementation



Outcome 3

Advocacy, Partnerships and Outreach

African Financial Alliance on Climate Change



Sample Projects

MOROCCO

NOOR I CONCENTRATED SOLAR POWER PROJECT

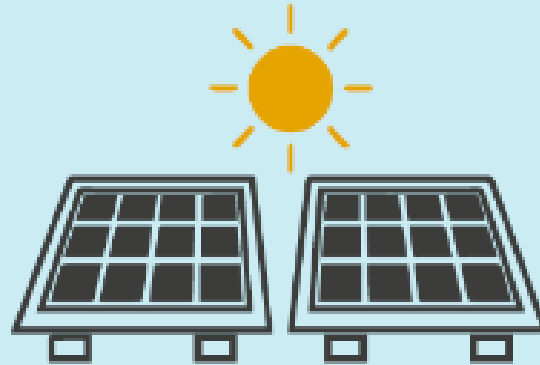
CTF USD 100M, AfDB USD 240M

Purpose: To initiate the development of Concentrated Solar Power (CSP) technology by carrying out Phase I of the Ouarzazate Power Station (125 to 160 MW)

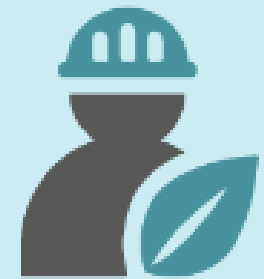
Key results:



217,000 tons CO₂
avoided in 2017 alone



Over **814 GWh** of **clean energy**
produced and delivered through the
national electric grid since 2016



More than
2,000 green jobs
created

VIDEOS: <https://www.youtube.com/watch?v=WGCYlogzjcl> <https://vimeo.com/186462316>
<https://vimeo.com/189664383> <https://youtu.be/X-x8tm6l6ZM>

MOROCCO

NOOR II AND III CONCENTRATED SOLAR POWER PROJECT (MENA REGION IP)

CTF USD 119M, AfDB USD 140M

Purpose: To reduce Morocco's energy dependence on external markets by developing concentrated solar power (350 MW)

Key results:



Estimated **GHG emissions reductions** on track to take effect **in 2019**



Construction of NOOR II and NOOR III **facilities nearing completion**



At least **6,687 green jobs** created through construction of NOOR II and Noor III facilities

Key expected results: Reduce national energy dependence and volume of fuel imports at the national level; increase share of renewable energies in electricity generation by 30%; and around 0.5 million tons of CO₂ emissions saved per year

MOROCCO

ONE WIND ENERGY PROGRAM

CTF USD 125M, AfDB USD 512M

Purpose: To contribute to energy supply security through the diversification of energy sources, reduction in greenhouse gas emissions, and the harmonization of rural and urban access rates

Key results:



Wind farm
construction
ongoing in 2018



Over **75,000 new households**
from **2,590 villages connected to the grid**
through the program's leveraged co-financing

Key expected results: Three wind farms constructed with total installed capacity of 750 MW (250 MW per wind farm); increased capacity of hybrid hydro storage systems by 350 MW; and an estimated 86,000 new rural household grid connections through leveraged co-financing

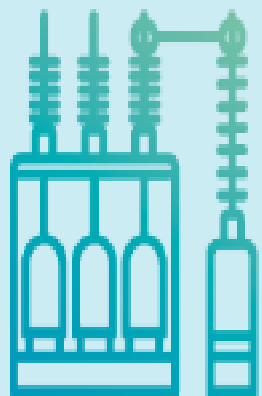
SOUTH AFRICA

ESKOM RENEWABLES SUPPORT PROJECTS: SERE WIND FARM

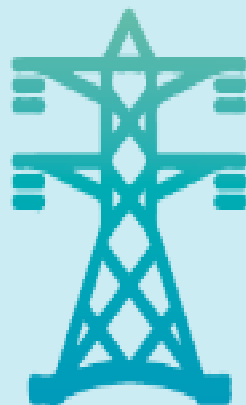
CTF USD 42.33M, AfDB USD 265M

Purpose: To facilitate the accelerated development of large-scale renewable energy production capacity in support of the long-term carbon mitigation strategy of South Africa

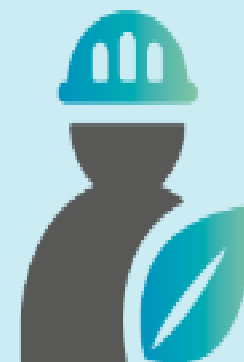
Key results:



100 MW
of installed
capacity



315,000 MWh
of annual
production



Over
400 green
jobs created

SOUTH AFRICA

SUSTAINABLE ENERGY ACCELERATION PROGRAM: XINA SOLAR ONE PROJECT

CTF USD 41.5M AfDB USD 100M

Purpose: To add new, reliable, dispatchable solar energy generation capacity, thus closing the energy supply gap, reducing dependence on coal, saving carbon emissions, generating local employment, and building a domestic solar power industry

Key expected results: 100 MW renewable energy generation capacity installed. Reduction of 400,000 tons of CO₂ eq per year. Creation of over 1,400 green jobs. Save ESKOM approximately 188,000 tons of coal per year

NIGERIA

LINE OF CREDIT FOR RENEWABLE ENERGY AND ENERGY EFFICIENCY PROJECT

CTF USD 1.25M, AfDB USD 48.75M

Purpose: To support a local bank to finance on-lending to small and medium enterprises and renewable energy/energy efficiency projects in Nigeria

Key expected results: Between 10 and 15 loans extended to small and medium enterprises and renewable energy/energy efficiency projects; 158,500 tons of CO₂ eq reductions per year, and increase in installed capacity by 107 MW

KENYA

DPSP II: CONCESSIONAL FINANCE PROGRAM FOR GEOTHERMAL GENERATION:
35MW Geothermal IPP Project

CTF USD 20M, AfDB USD 29.5M

Purpose: To support socio-economic development in Kenya by increasing installed energy capacity, diversifying the country's energy mix with geothermal power, and fostering private sector development

Key expected results: Increase installed geothermal energy capacity by 35 MW; increase average annual energy production by 291 GWh per year; approximately 95,100 tons CO₂ eq in GHG emissions savings per year; and creation of over 300 green jobs

*Let us work together to light up and
power Africa*

Thank you!

AFRICAN DEVELOPMENT BANK



AFRICAN DEVELOPMENT BANK GROUP

