Financing renewable energy to promote economic growth in Namibia: Policy options and strategies - lessons and experience from other countries

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Questions posed

- ❖ What must be put in place for Namibia to become a hub for Southern Africa? (E.g., Dubai case)
  - AfDB assumes an energy hub for Southern Africa
- ❖ Is there a clear framework for renewables? How can it be improved or enhanced, or developed if it does not exist?
  - AfDB assumes that the emphasis is on "improved and enhanced"
- ❖ What policy options and strategies are available for Namibia for optimal growth?
  - AfDB assumes "in the context of developing the energy sector and energy resources
- ❖ What funding options are available for such investments?

SWOT analysis Namibia as an Energy HUB in (Southern) Africa

Strengths

- World class wind
- World Class solar
- Gas and oil appear to be present in commercial quantities

Weaknesses

- Relative remoteness and global remoteness
- Very limited talent pool (in relation to potential needs), due to low population
- Significant investments in ports will be needed
- Water supply could be an issue

Opportunities

- Namibia is a safe country in relation to energy security
- EU Carbon Border Adjustment Mechanism
- Dual use water infrastructure can de developed on the back of energy investments
- Couple growth in RE production with energy access

Threats

- Slow start >>> Global opportunities are taken by “fast movers” with advantages, i.e. closer to markets
- “Energy security”
- South Africa as a competitor and market

SWOT analysis Is there a clear framework for renewables? How can it be improved or enhanced, or developed if it does not exist?

Strengths

- Cost-reflective consumer tariffs
- Good regulatory system with established regulator – ECB
- Modified single-buyer system
- World-class plans for Green Hydrogen

Weaknesses

- Limited talent pool (in relation to potential needs), due to low population
- Size of the market – potentially very hard to attract investors (Green Hydrogen notwithstanding)
- Can equality be secured?
- Not strong enough Interconnectors with Angola, South Africa, Botswana and Zambia

Opportunities

- Further room for regulatory development - Namibia is not ranked first on ELECTRICITY REGULATORY INDEX (ERI) FOR AFRICA (AfDB)
- EU Carbon Border Adjustment Mechanism
- Enhancing electrification rates - on-grid and off-grid – requires more power in the system and creative thinking also in regulation
- "Electrify All" entails moving Namibia towards e-mobility and e-fuels = without regulation & incentives not likely to happen

Threats

- Large issues around transmission and grid stability. Expanding transmission and rewarding grid stability need enhancements

The Case of Denmark; a country of 6 million people with powerful neighbors

- Two large wind turbine manufacturers are based in Denmark
- Two large off-shore developers are Danish CIP and Orsted (DONG)
  - In 2019, the Danish wind industry directly employed **33,159 people**, over 2 per cent of all private employment in Denmark. Indirectly, the wind industry supports a further 63,000 jobs in adjacent industries.
- In 2020, 50% of the electricity consumed by the Danish power sector came from variable renewable energy (VRE) sources, making it the country with the highest VRE share in its power system. During some days, VRE production even exceeded demand, and as a result the power system ran on 100% VRE while the rest was exported.

The Case of Denmark; a country of 6 million people with powerful neighbors – Part Two >> What can be learned?

- Consistent flexible regulations
  - As needs for support declined (first turbines were 250 - 300 kW) incentives were scaled back, but agreements were always honored
  - 8000 hours of full-load subsidies
- Government fiat was used
  - (Middelgrunden) Economic benefits were directed toward ordinary citizens
- Utilities had an obligation to strengthen distribution and transmission networks >>>>>>>> costs were "socialized" i.e. put on everyone's bills
- Balancing of demand and supply was and is still done by investments in powerful interconnectors with neighboring countries
  - E.g. excess wind power flows to Norway during the night, during the day Norway sends (saved) hydro-based power back
  - Regional markets expanded: NordPool provides day-ahead and intraday trading

What policy options and strategies are available for Namibia for optimal growth?

- Investment in interconnectors and transmission (grid-stability)
  - Trading of energy / power is a driver of VRE development
- Make incentives and support structures time-bound and results-bound
- Try very hard to capture benefits for the local population
  - Local-content rules tend to inflate costs and "act as a brake"
  - Preference for local consumers of energy and not local equipment manufacturers
    - I.e., scale-up local content and local employment rules over time
- Local focus on solutions drives skills' development and thence later exports
  - E.g., Windhoek as Africa's vehicle-to-grid (V2G) frontrunner will create skills, markets and opportunities for Namibian companies

Final word

- No-one demands energy! Energy is in demand for what it can do.
  - Energy provides heat and cooling, motion (transportation), chemicals and fertilizers, and so forth
- The implication is that there are significant risks associated with policies that increase costs
  - If costs are increased the benefits must be equal or greater!

What funding options are available for such investments?

- What Multilateral Banks offer, exemplified by the African Development Bank

THE AFRICAN DEVELOPMENT BANK IN KEY FIGURES

1964
year when the AfDB was established

81
member countries, incl. all 54 African countries

125
percent capital increase in 2019

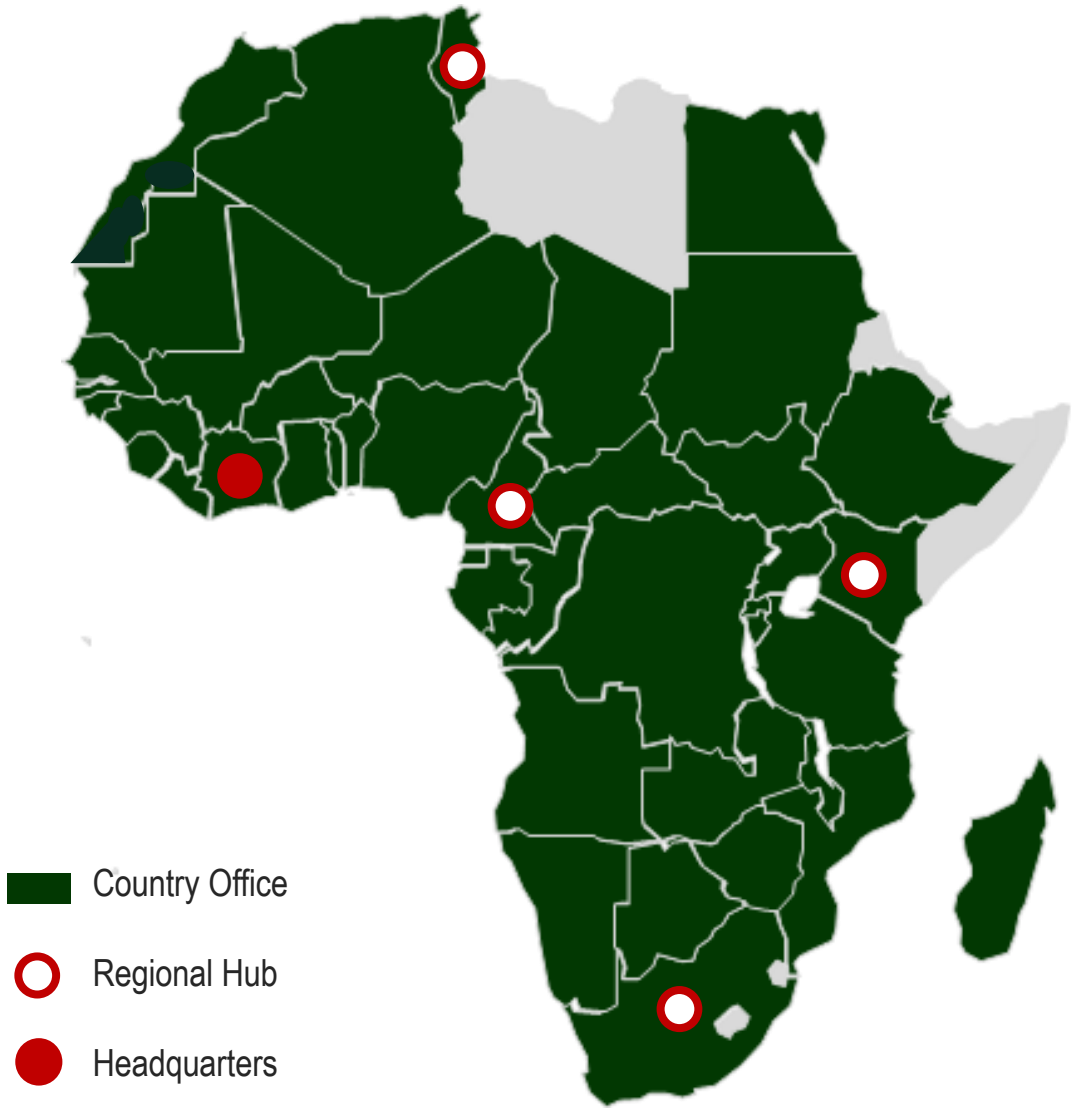
209
billion dollar of authorized capital

AAA
ratings with a stable outlook from all main rating agencies

26
billion dollars of outstanding loans with an attractive pricing

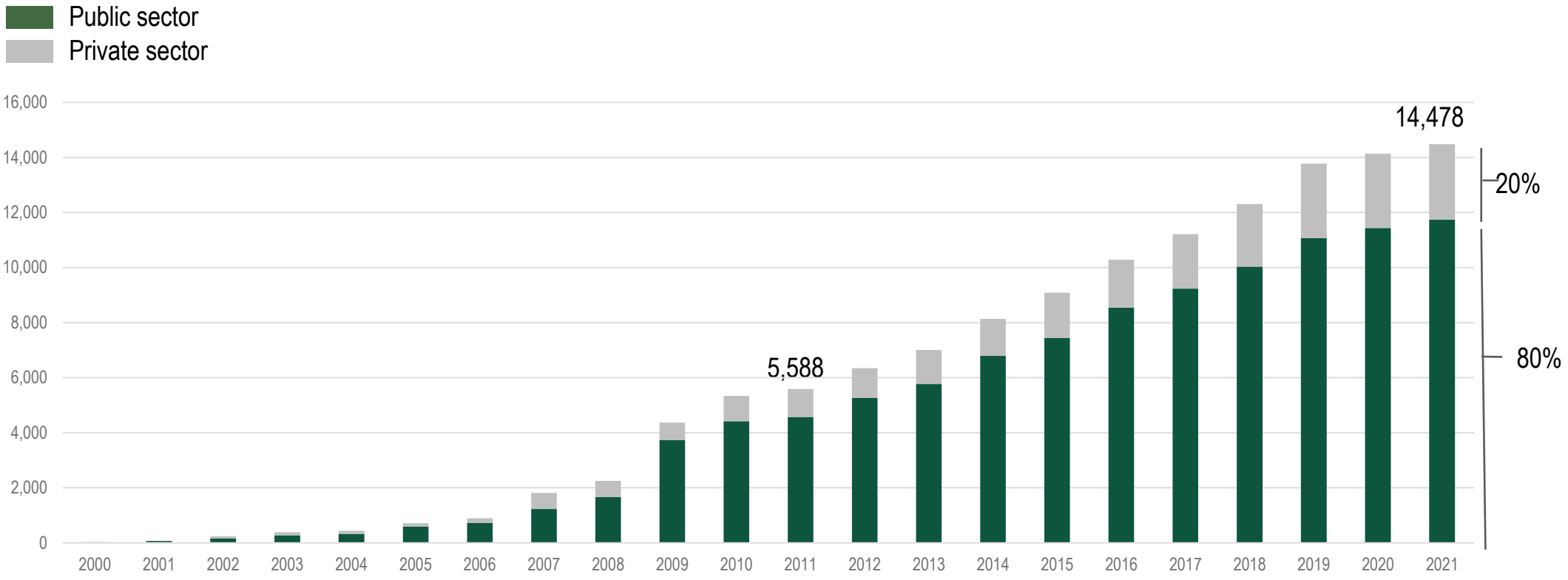
5
strategic priorities to accelerate Africa's development

6.2
billion dollars of approvals in 2021 for public and private sector operations



OVERVIEW OF BANK ENERGY INVESTMENTS (2000-2021)

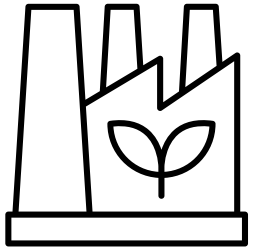
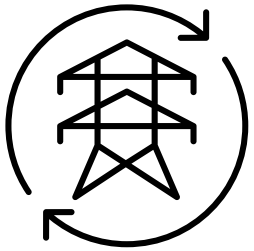
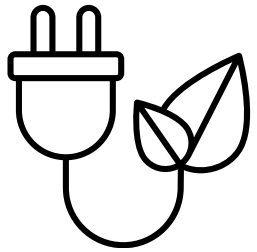
*Total cumulated approvals, in UA millions**



~UA 14.48 billion committed to energy sector projects since 2000, of which ~UA 11.74 billion for the public sector and ~UA 2.74 billion for the private sector

THE BANK IS INVESTING ACROSS THE ENTIRE POWER SECTOR VALUE CHAIN

Expected impacts of 2016-2021 AfDB energy commitments

POWER GENERATION	TRANSMISSION & DISTRIBUTION	ACCESS TO ELECTRICITY
		
3 GW of which **2.3 GW** from renewable energy	**+ 7,700 km** of transmission lines, of which 3,700 are regional interconnections **+ 72,000 km** of distribution lines	**+ 20 million people** through grid and off-grid systems

Sector & Financing Expertise of the AfDB accros the whole energy sector value chain

New focus areas

UTILITY TRANSFORMATION
- Financial sustainable sector
- Cost reflective tariffs
- Supportive regulatory environment

ENERGY EFFICIENCY
- Commercial/Industrial
- Public buildings & street lighting
- Efficient appliances

CLEAN COOKING
- Enabling environment
- Integration in energy access programs
- LPG & new business models (Pay-Go)

Source: AfDB portfolio analysis

FINANCIAL INSTRUMENTS FOR THE PUBLIC AND THE PRIVATE SECTOR

- **The African Development Bank is Africa's premier development financial institution** with the mission to spur sustainable economic development and social progress in its Regional Member Countries (RMCs). The Bank is **rated AAA by top agencies** and presents 0% risk weighting under Basel II.
- The Bank achieves this objective by:
  - **Mobilizing and allocating resources** for investments in Africa in the form of a wide range of instruments customized to the projects and clients;
  - **Providing policy advisory and technical assistance** to support development efforts.
- Beyond financial products, **the offer of the African Development Bank comes with value add:**
  - **African markets**: decades of experience as one of the largest multilateral source of guarantee, debt and equity financing in African markets;
  - **Full cycle capital access**: we can leverage the Bank's funds and seamlessly deliver financial products according to company maturity;
  - **Sector experience**: deep technical knowledge and expertise, with access to energy specialists based across the continent;
  - **Patient capital**: long-term investment horizon with impact capital;
  - **International network**: with a diversified network across stakeholders, we can introduce companies to co-investors, potential clients, and other strategic partners.

LENDING INSTRUMENTS
Providing long-term debt to public and private sectors

GUARANTEES
Mitigating the risks attached to investments in Africa

EQUITY PARTICIPATION
Bringing scarce risk capital to transformative projects

SPECIAL FUNDS
Providing specific solutions for investments in the renewable energy market

LENDING INSTRUMENTS: PUBLIC SECTOR

LENDING | GUARANTEES | EQUITY | SPECIAL FUNDS

FULLY FLEXIBLE LOANS FOR MIDDLE INCOME COUNTRIES

(Loans with Sovereign Guarantee)

Eligibility	Regional Member Countries and Public Sector Companies with sovereign guarantee in ADB or Blend countries
Maturity	Up to 25 years
Grace Period	Up to 8 years
Pricing Formula	Base rate + 0.80% + maturity premium
Base Rate	Floating (6m Libor/Euribor, 3m Jibar)
Maturity Premiums	Up to 0.20%
Interest Rate Features	Free initial option to fix + Option to fix, unfix and re-fix for a fee at any time, cap and collar
Currency Conversion	Option to change currency at any time
Currencies	EUR, USD, ZAR, JPY, LCY

Example: the Noor Ouarzazate I CSP project in Morocco

The Noor Ouarzazate Solar Complex, has a targeted total capacity of **580MW across 4 power plants**. This project led to a significant **increase in the share of renewable energy in Morocco's energy supply**.

The Noor Ouarzazate I power plant is developed using concentrated parabolic trough solar thermal power plant (CSP) technology with an installed capacity of 160 MW and an estimated annual output of 500 GWh, guaranteeing **a steady supply of power to more than half a million Moroccans**.

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LENDING INSTRUMENTS TO THE PRIVATE SECTOR (1/2)

LENDING | GUARANTEES | EQUITY | SPECIAL FUNDS

STANDARD PRIVATE SECTOR LOANS
(Line of credit, Project Finance, Corporate Loan)

Eligibility	Public Sector Companies of ADB, Blend countries without a sovereign guarantee; and Private Companies in all Regional Member Countries
Maturity	Up to 15 years
Grace Period	Up to 5 years
Pricing Formula	Base rate + lending margin
Base Rate	Floating
Maturity Premiums	N/A
Interest Rate Features	Free option to fix up to disbursed amount for the maturity of the loan
Currency Conversion	N/A – but available in Bank's lending currencies & LCY
Currencies	EUR, USD, JPY, ZAR, LCY

Example 1: the Nachtigal 420 MW Hydro IPP in Cameroon

Jointly **developed with the Republic of Cameroon, EDF and IFC**, the project will **increase national installed capacity by 33%,** which will help meet the national demand for additional power. The Bank provided a **USD 150m loan with 18 years tenor for a total cost of USD 1.2bn.**

Example 2: the 100 MW Redstone CSP Project in South Africa

Design, construction, operation, and maintenance of a **100 MW CSP plant with a 12-hour molten salt central tower storage** technology, which will enable the project to meet peak electricity demand in the absence of sun. The Bank provided a **ZAR 3bn loan with 19 years tenor for a total cost of ZAR 11.05bn.**

LENDING INSTRUMENTS TO THE PRIVATE SECTOR (2/2)

LENDING | GUARANTEES | EQUITY | SPECIAL FUNDS

ELIGIBILITY CRITERIA

1. The Project Company must be **incorporated in an African country**;
2. The project must be **environmentally sound** and comply with **AfDB's environmental guidelines and the regulations** of the respective country;
3. Sponsors must have satisfactory **track-record** and **financial capacity**;
4. Evidence of adequate **management skills**;
5. The project must be **financially viable**;
6. The project must aim to **maximize development impact** in line with the country's strategic priorities.

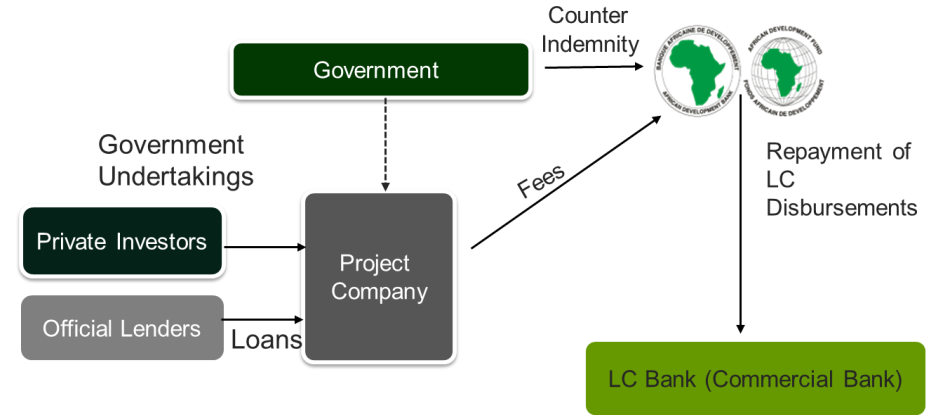
	INVESTMENT CYCLE (appr. 6 months)	
	Steps	Outcomes
Identification	**1-Origination**	Business development Eligibility assessment
	2-Exploratory review	Preliminary Note approval
Preparation	**3-Concept review**	Concept Note approval
	4-Appraisal review	Project Appraisal Report approval
	5-Final review	Board approval
	6-Closing and first disbursement	Conclude negotiations Finalize Term Sheet Conclude legal documentation First disbursement and handover to Portfolio Management

GUARANTEES PROGRAM TO MITIGATE HIGH-RISK PERCEPTION IN AFRICA

LENDING | GUARANTEES | EQUITY | SPECIAL FUNDS

- The **Partial Risk Guarantee (PRG) is a financial guarantee that covers sovereign and political risks**, when payment default is caused by a government or a government-owned entity's failure to meet specified contractual obligations to the project.
- The **Partial Credit Guarantee (PCG) supports private sector entities** and covers commercial debt service on scheduled payments of commercial debt, against all risks or specific events of default.
- **Benefits:**
  - Supports mobilization of long-term resources;
  - Mitigates lending risks;
  - Crowds in private sector financing.
- **Key features of our guarantees**:
  - The tenor is the same as underlying guaranteed debt;
  - The guarantee is irrevocable and on-demand, with a payment that indemnifies without waiting for trial and legal actions;
  - The amount is only equal to a portion of the debt covered (up to 50%).

Mechanism of Partial Risk Guarantees



Mechanism of Partial Credit Guarantees

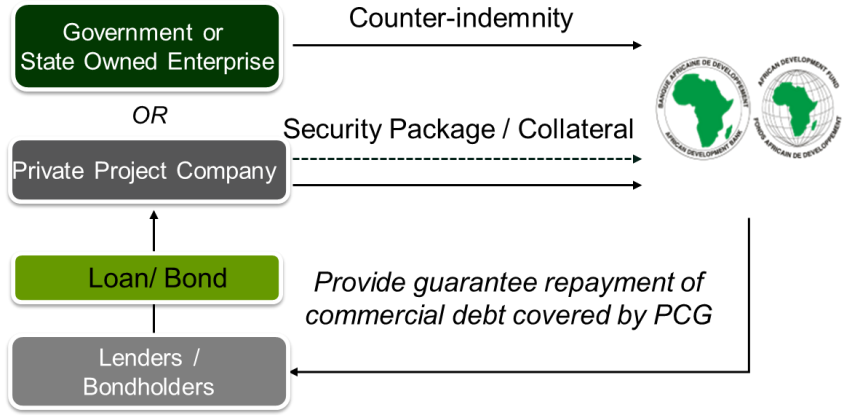


Table ES.1. Indicative ACT Financing Plan for South Africa (US$, millions)

IP Components	ACT	MDB			Country Counterparts	Private Sector	Others	Total
		IBRD	IFC	AfDB				
Project 1: Retiring and Replacing Coal-based Power Generation Capacity								
Component A: Decommissioning	**10**	100		40				**150**
Component B: Repurposing and capacity replacement	**230**	375	70	165	300	860		**2,000**
Component C: Socioeconomic impact mitigation	**110**	90						**200**
Project 2: Mpumalanga Community Development Project								
Community-Driven Development	**100**	5		5		15	30	**155**
Project 3: Energy Efficiency, Distributed Generation, and Community Generation Programs								
Energy Efficiency and distributed generation	**50**	5		45				**100**
IP total	**500**	**570**	**70**	**255**	**300**	**875**	**30**	**2,605**

EQUITY CONTRIBUTIONS TO CATALYZE INVESTMENTS

LENDING | GUARANTEES | **EQUITY** | SPECIAL FUNDS

Examples: Private Equity portfolio of the Bank targeting clean energy projects

Name	AREF AFRICA RENEWABLE ENERGY FUND	INSPIRED EVOLUTION Investment Management EVOLUTION II FUND	CLIMATE INVESTOR 1 CONSTRUCTION EQUITY FUND (CEF)	ARCH EMERGING MARKETS PARTNERS LTD. AFRICA RENEWABLE POWER FUND (ARPF)	AREF II	AGG AfricaGoGreen Fund	SPARK+ AFRICA
Geography	SSA with East Africa focus (excl. South Africa)	SSA (70%) & South Africa (30%)	East Africa(60%) & North Africa (40%)	SSA with East & West Africa focus (excl. South Africa)	Angola, Cameroon, Kenya, Madagascar, Uganda & Zambia	West Africa (60%), rest of Africa (40%)	SSA
Focus	10-50 MW RE projects	On-grid RE; Distributed RE; Resource efficient infra.	Small to medium RE projects	On-grid RE Distributed RE	Medium size (< 50 MW) RE projects	Energy Efficiency businesses	Clean cooking
Technologies	Small hydro, wind, geothermal, solar, biomass	Low carbon, clean & sustainable energy generation	Run-of-river hydro, onshore wind, solar, geothermal	Run-of-river hydro, wind, geothermal, solar, biomass	Run-off-river hydro, solar, storage & hybrid solutions, wind	Green appliances and industrial processes, green buildings, e-mobility and storage	Biomass stoves, advanced biomass fuels, LPG & ethanol, and biogas systems
AfDB share	USD 25.5 m junior equity	USD 20 m ordinary equity	USD 32.5m ordinary equity	USD 25m ordinary equity	USD 20 m junior equity by CTF & SEFA	USD 10 m ordinary equity & USD 10 m SEFA junior equity	USD 10 m SEFA ordinary equity

THE SUSTAINABLE ENERGY FUND FOR AFRICA (SEFA)

LENDING | GUARANTEES | EQUITY | **SPECIAL FUNDS**

Sustainable Energy Fund for Africa

- **Special Fund providing catalytic finance to unlock private sector investments in clean energy (converted from trust fund in Q4 2019)**
- **Total Capitalization of ~US$ 425 million since launch in 2012, with ~US$ 300 million raised since conversion, 9 donors**
- **Key achievements include sponsoring new commercial finance vehicles, *Africa Renewable Energy Fund* and *Facility for Energy Inclusion***
- **Cumulative Portfolio of 68 operations for a total commitment of ~ US$160 million, representing a US$ 4 billion investment pipeline**
- **Flexible financial instruments beyond TA grants, including junior equity, concessional debt and results-based finance**

Objective Contributing to universal access to affordable, reliable, sustainable, and modern energy services for all in Africa, in line with the AfDB New Deal on Energy for Africa and the Sustainable Development Goal 7

Green baseload Increasing the penetration of renewable energy in power systems, with a focus on power system stability and alternatives to fossil-fuel baseload generation options.

Green mini-grids Accelerating electricity access to underserved populations through private-sector led isolated/independent mini-grid systems.

Energy efficiency Improving the efficiency of energy services through enabling frameworks and new business models, also including clean cooking and small-solar technologies.

Policy Advisory

Program Design

Project preparation

Capacity Development

Catalytic finance

7.5 million new electricity connections

3,000 MW new RE capacity

1,000,000 MWh/year energy savings

USD 5 billion Investment mobilized

THE FACILITY FOR ENERGY INCLUSION (FEI)

LENDING | GUARANTEES | EQUITY | **SPECIAL FUNDS**

- The **Facility for Energy Inclusion (FEI) is a USD 500m debt financing platform** anchored by the African Development Bank via the Sustainable Energy Fund for Africa (SEFA)
- **FEI targets small-scale projects from private sector companies** to provide tailored debt instruments that are adapted to the industry (i.e., local currency loans).
- The facility is split into 2 different funds, with the objective of:
  - **Aggregate capital**;
  - **Structure bankable projects**;
  - **Accelerate development of electricity access solutions** using clean energy.

FEI On-Grid

- **Instruments**:
  - Loans in project finance structures (senior and subordinated) in EUR, USD or local currency, with a tenor up to 15 years and up to USD 30m
  - Technical Assistance using reimbursable grants for late-stage projects
- **Eligibility:**
  - Companies and SPVs domiciled in Africa
  - Small-scale renewable energy projects (< 25 MW IPPs, mini-grids, captive commercial & industrial projects)

FEI Off-Grid (OGEF)

- **Instruments**:
  - Debt for working capital, inventory finance and consumer finance from USD 2m to USD 20m
  - Corporate, secured or senior loans to SPVs in asset-backed structures (securitization)
  - EUR, USD or local currency, with a tenor ranging from 1 to 5 years
- **Eligibility:**
  - Companies and SPVs domiciled in Africa
  - SHS providers and operators, distributed energy equipment manufacturers

AktivCo

USD 31 million split into 5 loans to AktivCo Burkina Faso, Chad, Cameroon, Cote d'Ivoire, Niger to provide power to telecom towers

Bboxx Rwanda

USD 8m loan in Rwandan Francs secured by inventory, to finance consumer receivables.

A few words on Green Hydrogen

As Africa's premium financing institution, the Bank has multiple roles

- Massive need to raise awareness and educate public and private sector (starting within the Bank)
- Develop national and regional strategies, linked to LTS and NDCs – GH2 has the potential to help Africa, more than any other continent, leapfrog a fossil fueled development pathway
- Support the development of commercial models, contracts and agreements (ALFS)
- Lead, convene, support industry associations – eg African Green Hydrogen Association
- Mobilize public sector finance from donors, international climate funds (CIF included), bilateral donors etc and private sector to invest: Directly for Green hydrogen projects; Indirectly for associated investments in supply chain; Wind, solar, hydro and geothermal energy generation projects; Dual-use potable water solutions; Industrial development; Transport; Ports
- Goal: To Ensure Africa becomes a supplier of green hydrogen to the global north in a just and equitable manner

Progress to date

- CIF funded study
- Supporting African Green Hydrogen Alliance (Launched at CoP 27)
- Received and reviewed proposals including Namibia GH2; GH2 to ammonia to fertilizer in Zimbabwe
- Convened African Green Hydrogen Forum in Abj:
  - Global hydrogen demand is expected to increase sevenfold by 2050, requiring USD 450-900 billion in cumulative investment.
  - Global import market for hydrogen and its derivatives is expected to grow by 5-6 times between 2030 and 2050 to reach 100-180 million tonnes by 2050.
  - There is a need to localize green hydrogen value chains, thus creating jobs for African countries while addressing knowledge gaps.
  - Governments should adopt inclusive approaches to ensure communities benefit from green hydrogen investments.
- GH2 event coming up at CoP27