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Towards a Sustainable Energy Future: Evaluation of the AfDB's Support for Renewable Energy (2012–2021)

Summary Report



AFRICAN DEVELOPMENT BANK GROUP

October 2023

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Towards a Sustainable Energy Future: Evaluation of the AfDB's Support for Renewable Energy (2012–2021) – Summary Report

IDEV Sector Evaluation, October 2023

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About the AfDB

The overarching objective of the African Development Bank Group is to spur sustainable economic development and social progress in its regional member countries (RMCs), thus contributing to poverty reduction. The Bank Group achieves this objective by mobilizing and allocating resources for investment in RMCs and providing policy advice and technical assistance to support development efforts.

About Independent Development Evaluation (IDEV)

The mission of Independent Development Evaluation at the AfDB is to enhance the development effectiveness of the institution in its regional member countries through independent and instrumental evaluations and partnerships for sharing knowledge.

Independent Development Evaluation (IDEV)

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Abbreviations and Acronyms

ADE	Aide à la Décision Economique	Mt	Megatons
AEP	African Energy Portal	NDC	Nationally Determined Contribution
AEMP	Africa Energy Market Place	NDEA	New Deal on Energy for Africa
AfDB	African Development Bank Group	ONEE	National Office of Electricity and Drinking Water
ANSER	Rural Electrification Agency	PA	Paris Agreement
ARE	Energy Regulatory Agency	PAGASE	Power Sector Improvement and Governance Support Project
AREI	African RE Initiative	PERN	Renewable Energy and Energy Efficiency Department
AU	African Union	PESA	Office of the Vice President, PEVP
CCS	Country Case Study	PESD	Power Systems Development Department
Cluster	Cluster Evaluation	PESR	Energy Financial Solutions, Policy and Regulations Department
CO	Country Office	PEVP	Vice Presidency for Power, Energy, Climate and Green Growth
COP	Conference of the Parties	PICU	Infrastructure and Urban Development Department
CPG	Core Partners Group	PMEDE	Project for the Development of Electricity Supply for Domestic Consumption and Exportation
CSP	Country Strategy Paper	PORTF	Portfolio Review
ECNR	African Natural Resources and Investment Centre	PPA	Power Purchase Agreement
EIRR	Economic Internal Rate of Return	PRA	Project Results Assessment
ENPV	Expected Net Present Value	PV	Photovoltaics
ERI	Electricity Regulatory Index	RE	Renewable Energy
FIRM	Resource Mobilization and Partnerships Department	RDGE	East Africa Regional Development and Business Delivery Office
FIRR	Financial Internal Rate of Return	RDGN	North Africa Regional Development and Business Delivery Office
IDEV	Independent Development Evaluation (at the AfDB)	RDGS	Southern Africa Regional Development and Business Delivery Office
IEA	International Energy Agency	RDGW	West Africa Regional Development and Business Delivery Office
IFC	International Finance Corporation	RDNG	Nigeria Country Department
INTV	Interviews	RDRI	Regional Integration Coordination Office
IPP	Independent Power Producer	RISF	Regional Integration Strategic Framework
IRENA	International Renewable Energy Agency	RISP	Regional Integration Strategy Paper
KNOWL	Evaluation Knowledge Product		
L&PR	Literature and Policy Review		
LCOE	Levelized Cost of Energy		
LTWP	Lake Turkana Wind Power		
MASEN	Moroccan Agency for Sustainable Energy		
MDG	Millennium Development Goal		

RMC	Regional Member Country	TW/GW/MW	Tera/Giga/Mega Watt
ROE	Return on Equity	TWh/GWh/MWh	Tera/Giga/Mega Watt Hour
SAP	Systems Applications and Products	UA*	Unit of Account
SDG	Sustainable Development Goal	UN	United Nations
SEFA	Sustainable Energy Fund for Africa	UNFCCC	United Nations Framework Convention on Climate Change
SNDR	Delivery, Performance Management and Results Department	USD	United States Dollar
SNEL	National Electricity Company	VRE	Variable Renewable Energy
SNSC	Safeguards and Compliance Department	WACC	Weighted Average Cost of Capital
SNSP	Strategy and Operational Policies Department	ZESCO	Zambia Electricity Supply Corporation
ToR	Terms of Reference		

*1 Unit of Account (UA) = 1.40 United States Dollars (USD) as of December 2021

Renewable Energy: Definitions

The energy sector is a complex system of interdependent components, and the introduction of sources of renewable energy (RE) affects many aspects of the system. The objectives of adding RE are to increase cost-effective energy generation, increase energy independence and security, and combat climate change. Additionally, decentralized energy solutions aim to provide access to energy and promote productive uses in rural/remote areas. To assess the effectiveness of support for RE, it is essential to monitor the increase in RE capacity (measured in GW and GWh), the growth of RE's share of total electricity production, and the increase in access to electricity provided through decentralized RE solutions.

Terms such as renewable, sustainable, modern, and clean are often used interchangeably to describe distinct concepts.

Energy	Energy is considered renewable if its source can replenish itself within the human lifetime. This renewal occurs primarily through sunlight, either directly (photo-voltaic or PV) or indirectly (wind); through water (hydropower); and through biomass, without depleting natural resources.
Sustainable	Energy is sustainable when it “meets the needs of the present without compromising the ability of future generations to meet their own needs.” Sustainable energy considers environment-related elements, such as greenhouse gas emissions, as well as social and economic factors, like addressing energy poverty. RE sources like wind, hydro, and solar are generally more sustainable than fossil fuels, which emit CO ₂ and other pollutants that pose threats to current and future generations through climate change. However, certain RE projects, such as excessive deforestation for biofuel production, can cause significant environmental damage.
Modern	Modern energy refers to the energy that is derived from petroleum, electricity, or other commercially available forms of energy that offer higher heating or energy content value than traditional biomass. Access to modern energy involves transitioning from solid biomass (e.g., firewood, charcoal) to liquid fuels (e.g., ethanol, kerosene) or gaseous fuels (e.g., LPG, natural gas) or electricity for cooking. Access to modern energy also involves connecting to the national grid. It is important to note that energy can be modern without being sustainable or renewable. However, it is crucial to highlight that the current widely accepted definition of “access to modern electricity” is a minimum threshold of 100 kilowatt-hours (kWh) per person annually in urban areas. In rural areas, the threshold is lower, at half the amount.
Clean	Clean energy is a relative concept that acknowledges that all forms of energy consumption have an impact. It is important to note that no sources of energy on Earth have zero impact. However, certain sources have less impact than others. The magnitude of impact depends on various factors, including CO ₂ emissions, spatial impact, biodiversity, and visual impact. As a result, the term “clean energy” is frequently used to convey the notion of “cleaner energy.” In this context, rural electrification is sometimes regarded as providing clean(er) energy. This is because it enables the replacement of kerosene lamps and candles with electric lightbulbs.

In several of the interviews organized for this evaluation, discussions arose due to the lack of clarity about what constitutes renewable energy. This suggests that terms such as green, renewable, clean, modern, energy, and electricity need to be clearly defined and understood by all stakeholders. Indeed, in this context, not only financial assistance but also non-lending support—capacity building, expertise development, and other complementary measures—play a significant role in promoting RE.



Executive Summary

Background

As part of its 2021 work program, the African Development Bank Group (AfDB or “the Bank”)’s Independent Development Evaluation (IDEV) undertook an evaluation of the Bank’s support for renewable energy (RE) over 2012–2021. The evaluation focused on accountability and learning, drawing lessons and recommendations to better inform the design and implementation of future RE interventions at the Bank. This report summarizes the findings, conclusions, and lessons that emerged from the evaluation.

An adequate, reliable, and affordable energy supply is vital to economic growth and better living standards. RE is an important contributor to this goal. However, some key challenges remain for African countries.

The international context for renewable energy

Various global strategies and initiatives have emerged in recent decades to address climate change and promote RE. These include the African Union’s Agenda 2063, the sustainable development goals (SDGs) set in 2015 to be achieved in 2030, the Paris Agreement, and the Glasgow Climate Pact adopted at COP26 in 2021. Other significant policies and initiatives are the Kyoto Protocol, which was adopted in 1997, and the United Nations millennium development goals (MDGs), set in 2000 to be achieved by 2015. Development partners have integrated RE into their actions and strategies and continue to refine their approach. While no established, stable approach to RE guarantees unequivocal success, these actors are actively working towards the common goal of universal access to energy and the transition to a sustainable, low-carbon growth path and greener economy.

The AfDB’s support for renewable energy in Africa

Strategic orientation. The AfDB has several strategic documents that guide its work to reconcile Africa’s natural strengths, economic opportunities, and development needs with global climate change goals. These include the Ten-Year Strategy 2013–2022, the High 5s for Transforming Africa, the New Deal on Energy for Africa (NDEA) 2016–2025, the Climate Change Action Plan II 2016–2020, the Energy Sector Policy of 2012, and the 2022 Amendment to the Energy Sector Policy that stipulated that the Bank would no longer finance coal projects. These strategic documents prioritize investments in areas such as energy access, RE generation, the policy environment, utilities, funding pools, and regional integration. They aim to achieve the SDGs, align with the Paris Agreement, and promote inclusive, green, and sustainable economic growth in Africa.

The AfDB’s RE portfolio. Almost half (49%) of the UA 8 billion invested by the AfDB in the energy sector from 2012 to 2021 was allocated to RE through 156 interventions to deploy RE in RMCs. The value of annual net approvals for RE fluctuated over 2012–2021, with large volumes recorded in 2012, 2014, and 2018, and volumes averaging approximately UA 250 million in the other years. Two-thirds of the volume of the Bank’s support for RE over the period was allocated to grid-connected power generation; technical assistance and advisory services¹ accounted for 22%. Over 2012–2021, 63% of the total net amount approved in investments in power generation was allocated to RE generation capacity. The percentage was higher (85%) between 2016 and 2021.

At the regional level, Southern Africa was the largest recipient of the Bank's support for RE. Southern Africa received approximately 28% of all support, amounting to around UA 1 billion. Next came North Africa (23%) and East Africa (17%). Central Africa and West Africa received the least amount of RE support from the AfDB (approximately 11% each). A notable proportion of the AfDB's RE support (approximately 11%) was allocated to multinational interventions designed to promote regional cooperation in RE. Countries such as Angola, Kenya, Morocco, Nigeria, Rwanda, and South Africa were the leading recipients of AfDB's support for RE interventions; transition states also benefitted significantly. Most of the interventions in the Bank's RE portfolio approved over 2012–2021 remain active (64% of all 156 interventions approved for 2012–2021). The portfolio includes 32 newly approved projects and 68 ongoing projects. Completed/closed projects make up about 32% and projects that were approved but were abandoned or terminated constitute 4%. Note that the construction timeline for hydropower, wind, and solar (except photovoltaic) plants is longer than for conventional technologies, primarily due to land acquisition challenges, the need for environmental approvals, and delays in reaching financial closure.

The Bank Group's African Development Bank (ADB) window accounts for nearly two-thirds of the Bank's total RE commitments; guarantees are gaining importance. Africa's private power sector received a significant share of the Bank's RE support in 2012–2021 (32%), mainly in countries with supportive governance, such as Kenya, Morocco, and South Africa. The private sector is more engaged in such countries.

Purpose and scope of the evaluation

The objective of this evaluation is to inform the Bank's strategies and operational approach to the RE sector. The evaluation identifies emerging trends in the sector, assesses how the Bank has responded to these trends, takes stock of the results of the Bank's support, and draws lessons for future work.

The evaluation's purpose is twofold: accountability (the retrospective dimension) and learning (the prospective dimension).

The scope of the evaluation is the AfDB's support for RE generation in the power sector. In this independent evaluation, RE covers geothermal, hydropower, solar power, and wind power. The evaluation assesses AfDB interventions that were approved and implemented over 2012–2021. The interventions include investment projects and enabling environment-related interventions (institutional strengthening, technical assistance, and project preparation). The evaluation focused on both utility-grid-scale RE and smaller-scale, decentralized energy access solutions. The evaluation period coincides with the AfDB's Energy Sector Policy (from 2012 onwards) and overlaps with the NDEA (2016–2025).

The evaluation addressed the following questions:

Q1. To what extent did the Bank's interventions align with clients' priority RE needs as they navigated changing RE markets and expanding global initiatives?

Q2. To what extent did the Bank's interventions align with the Bank's wider policy frameworks and with other interventions implemented by the Bank, and to what extent were they coordinated with and complementary to the interventions of governments and other development organizations?

Q3. To what extent was the Bank's support for RE effective at addressing barriers, mobilizing finance, leveraging experience and partnerships, and achieving the results expected for developing RE in order to meet RMCs' energy and environmental needs?

Q4. To what extent did the Bank's support for RE deliver, or is likely to deliver, results in an economic and timely way?

Q5. How sustainable are the results of the Bank's assistance for RE?

Methodology

The evaluation was designed to meet accountability and learning objectives while generating lessons to improve the design and implementation of RE interventions, new and ongoing. The evaluation employed a theory-based approach and a mix of quantitative and qualitative methods. It evaluated performance at four levels (interventions, clusters, countries, and strategies), taking into account contextual, policy, governance, and organizational influences on the Bank's performance at each level. The findings were generated by triangulating information from multiple lines of evidence gleaned from a literature and policy review, a portfolio review, country case studies,² cluster evaluations, and intervention analytical grids. Data collection methods include desk-based research, key informant interviews, and visits to intervention sites. As for the case studies, the evaluation team carefully selected countries according to a set of criteria that ensured adequate representation of diverse regions and country contexts. These criteria encompassed factors such as the population's access to electricity, the significance of renewables in the energy mix, the potential of renewables, the challenges posed by fragile situations, and the deployment of RE technologies.

The evaluation used a four-point rating scale³ for each evaluation criteria, namely, relevance, coherence, effectiveness, efficiency, and sustainability. The evaluation's overall performance rating is derived from an assessment of these five criteria along a six-point scale.⁴

The evaluation encountered some limitations, including the limited quality of the Bank's project database (SAP), the small number of completed interventions, the inclusion of policy-based operations whose components went beyond RE, and the difficulty in classifying operations that focused on multiple RE technologies. Various strategies were used to address the limitations. The use of multiple lines of evidence, systematic triangulation, and the validation of emerging conclusions ensured the robustness of the evaluation's findings.

Findings

Relevance

EQ1. To what extent did the Bank's interventions align with clients' priority RE needs as they navigated changing RE markets and expanding global initiatives?

Strategic and operational alignment: The evaluation found that the Bank's system has successfully adapted to evolving international concerns and pressures, initially prioritizing universal access to reliable energy and later shifting focus to RE. Positive findings emerged regarding the Bank's adaptation over time and in different country contexts, and on the evolution of its instruments, for example, by providing financial guarantees, differentiating its approach for fragile states, and adjusting interventions' design. However, the evaluation found room for improvement in the articulation of the Bank's RE approach at the strategic, regional, and country levels and in the Bank's role in shaping countries' RE strategies through policy dialogue. The evaluation found that the AfDB's pivotal role in the development of several energy sector strategic documents (policies, strategies, and initiatives) demonstrated the Bank's strong commitment to RE. However, stakeholders pointed to a lack of action plans to complement the AfDB's strategic documents on RE: this hindered the deployment of RE. Additionally, at the regional level, the evaluation found that the evolution of the AfDB's regional strategic documents over time did not show a clear path to increasing support for RE. A review of the wording and budgets of regional integration strategy papers (RISPs)⁵ developed for the Bank's five regions over the evaluation period shows explicit support for RE to have been limited. Furthermore, the direction taken by a given RISP was found to depend strongly on the team responsible for preparing and negotiating that RISP. At the country level, the evaluation found that because country strategy papers were very much aligned with country priorities, a limited focus on RE within national priorities could constrain the Bank's support for RE. While some RMCs, such as Egypt, Ghana, Kenya, Morocco, and South Africa,

had a national RE development plan, others did not. The Bank strategically aims to align its support for RE with the priorities of national governments, but its role in influencing these priorities through policy dialogue was found to be limited. This may lead to a mismatch between the Bank's overall RE ambitions and implementation at country level.

Quality of design: Overall, the evaluation found that the objectives and design of the Bank's RE interventions were aligned with the priorities of RMCs and beneficiaries' needs. Interventions' design was found to be globally relevant, despite some shortcomings in the technical design of wind projects and the integration of climate change in hydropower projects. Several projects' design was based on comprehensive feasibility studies and data collection, but some designs needed to be revised during implementation due to geological challenges, a lack of data, or the relocation of dam sites. Additionally, feasibility studies displayed shortcomings in technical and financial aspects. These included (i) paying insufficient attention to the challenges of integrating intermittent production (such as solar and wind projects) into the energy grid and (ii) overlooking financial risks such as the impact of government subsidies on the national budget and the vulnerability of off-takers' solvency. Moreover, the feasibility studies sometimes failed to sufficiently address the risks associated with venturing into new markets. Finally, although the Bank's strategic documents underlined the importance of strengthening all components of the energy system—e.g., governance, human capacity development, and private sector participation—to increase the use of RE, the evaluation found that in the countries reviewed, only 14% of technical assistance activities and advisory services supplied through the Bank's support focused on developing RE.

Adaptation: The evaluation found that the Bank actively drove key initiatives aimed at providing substantial non-lending support to scale up energy sector investments and build resilience: SEFA is a notable example. The evaluation highlighted the Bank's ability to adapt to the increasing role

of the private sector in RE and the evolution of its instruments. Notably, guarantees emerged as a risk mitigation instrument crucial to expanding private sector investments in on-grid generation. To some extent, the AfDB has deployed a differentiated approach in transition states, with more project preparation support. Furthermore, the evaluation identified instances where an intervention's design was adjusted appropriately in response to a changing environment (e.g., the XINA One Project in South Africa; the Uganda Achwa II Project). Finally, the evaluation noted the presence of innovative RE interventions within the Bank's portfolio (e.g., the Côte d'Ivoire securitization mechanism for solar home systems, a pioneering attempt at wellhead steam-based securitization in Kenya and Morocco, and the first AfDB-funded solar independent power producer in Cameroon).

On balance, the relevance of the Bank's support for RE is rated as satisfactory despite important shortcomings.

Coherence

EQ2. To what extent did the Bank's interventions align with the Bank's wider policy frameworks and with other interventions implemented by the Bank, and to what extent were they coordinated with and complementary to the interventions of governments and other development organizations?

Internal coherence: The evaluation found that the Bank's support for RE objectives was in line with the ascribed corporate sector policies (i.e., the Energy Sector Policy (2012) and the NDEA) and concurrent key priorities, like the High 5s, the Ten-Year Strategy, and the Development and Business Delivery Model. In particular, the portfolio review found that the Bank's RE portfolio included significant hydropower projects, which introduces an intricate interplay between energy and water considerations albeit with potential negative externalities.

External coherence: Aligning the Bank's support for RE with national RE programs involved

discussions with RMCs and other development partners, but government officials and development partners raised concerns about the technical and financial skills of AfDB country teams compared to International Finance Corporation (IFC) staff. This was partly attributed to limited levels of specialized human resources in the Bank's country offices. Weak coordination was identified in specific countries, including Côte d'Ivoire, the Democratic Republic of Congo, and Morocco, where stakeholders mentioned the small number of meetings or low involvement on the part of the AfDB. At the intervention level, the evaluation found effective coordination and interaction between the Bank and other donors. Furthermore, the evaluation found that the Bank exhibited exemplary leadership and coordination with other partners at the Headquarters level. However, the evaluation also found a lack of awareness of Headquarters initiatives by staff and stakeholders at the country and regional level.

Overall, the Bank's support for RE demonstrated a satisfactory level of coherence.

Effectiveness

EQ3. To what extent was the Bank's support for RE effective at addressing barriers, mobilizing finance, leveraging experience and partnerships, and achieving the results expected for developing RE in order to meet RMCs' energy and environmental needs?

Lending operations: The Bank's support for RE was found to contribute (or be likely to contribute) to the objectives and targets of SDG7 and Agenda 2063 at the country level, primarily by increasing RE-based generation capacity. However, the evaluation found that the expected outcomes at the continental level were not being delivered at the desired pace and fell short of the Bank's ambitious targets. For example, data from the AfDB's Energy Complex revealed that between 2016 and 2020, the Bank's support achieved only 14% of the 22 GW of installed power generation capacity targeted by NDEA for 2025 (16% of the 14 GW installed RE-based generation

capacity targeted for 2025). The case study countries ranged widely in terms of the share of RE in their electricity generation and the population's access to electricity. Despite this, project-level evaluations demonstrated that completed projects had met or, for a few exceptions, had exceeded the main expected output (new installed capacity in GW) with 102% of achievement. However, the evaluation found that challenges related to a lack of supporting infrastructure, such as storage and transmission lines, limited the achievement of the expected outcomes in some cases (e.g., the Achwa II Hydropower Project in Uganda, Lake Turkana Wind Power Project in Kenya).

Enabling and hindering factors: The evaluation pointed out the importance of national policies and instruments as enabling factors for the deployment of RE in RMCs. It also identified hindering factors to RE development, including inadequate financing, intermittency, transmission construction delays, political and economic uncertainty, and land acquisition challenges. The evaluation found that the Bank had taken steps to address these barriers through financing arrangements, project restructuring, and knowledge sharing.

Non-lending operations: The Bank's non-lending support for RE was found to be uneven. Perceptions of the Bank's role as a knowledge broker, advisor, and convener varied across countries. While the evaluation highlighted the Bank's potential to trigger a catalytic effect in its support for RE development in different countries, the evaluation also found mixed views on the Bank's effectiveness and impact. The Bank has a proven track record in mobilizing concessional resources. For example, in the Democratic Republic of Congo, the Bank's support for the rehabilitation of the Inga I and II hydropower plants, amounting to UA 33 million, has had a significant leverage effect (1:20), mobilizing UA 666 million from other financial partners. Additionally, the Sustainable Energy Fund for Africa (SEFA) was transformed into a special fund and raised well over USD 300 million in grant resources since 2019, making it by far the Bank's largest trust fund/special

fund. The evaluation found that the Bank is actively driving initiatives at the corporate level to support policy dialogue, knowledge management, and investment platforms in the energy sector through various programs and platforms (e.g., the Africa Energy Market Place, the Electricity Regulatory Index for Africa, the Africa Energy Portal, the Africa NDC Hub, and the Africa Investment Forum). Furthermore, the evaluation acknowledged the Bank's successful partnerships on RE interventions, including active collaboration with development partners and national authorities. Nevertheless, the evaluation found that the Bank's contribution to shaping the RE policy and institutional framework in member countries was limited.

Overall, the effectiveness of the Bank's support for RE was found to be satisfactory.

Efficiency

EQ4. To what extent did the Bank's support for RE deliver, or is likely to deliver, results in an economic and timely way?

The efficiency of the AfDB's support for RE was assessed along three dimensions: delivery (timeliness and cost/budget), economic and financial performance, and supervision.

Timeliness and budget performance: Many AfDB-funded RE interventions experienced delays, among other things because of projects' complexity and the time required to reach financial closure and address design shortcomings (e.g., 75 months for the Inga Project in the Democratic Republic of Congo; 27 months for the Uganda Buseruka Hydropower Project). The evaluation identified several factors that contributed to these delays, including geophysical constraints, inadequate preliminary analyses, lengthy project negotiations and land acquisition processes, slowness within partner countries, Bank-level delays, and external factors. The evaluation found that

projects' budget performance varied, depending on the accuracy of assessments, competitive bidding processes, cost-saving measures, unforeseen circumstances, and other factors. The evaluation highlighted the importance of proper assessments, responsive project management, and the leveraging of competitive bidding processes to optimize budget performance.

Economic and financial performance: The evaluation highlights the importance of sound economic evaluation during projects' pre-feasibility and feasibility analyses, particularly when the Bank's assistance and financial commitment were required. The evaluation found that overall, the estimated economic internal rate of return (EIRR) was above the opportunity cost of capital (around 10%) and the financial internal rate of return (FIRR) was above the weighted average cost of capital (WACC) (around 2.3%) everywhere except Morocco. By involving the private sector in the form of independent power producers, the evaluation found AfDB-funded RE projects to be at the forefront of management practices in terms of economic and financial analyses, with positive ex-ante economic and financial performance. However, the evaluation was unable to assess this performance at the completion and ex-post stages due to the unavailability of information.

Supervision: The evaluation found that the Bank carried out supervision missions regularly to review project progress and address issues. The missions were well appreciated.

The evidence was mixed as to the efficiency of the AfDB's support for RE with respect to timeliness, budget performance, and supervision. The evaluation was unable to assess ex-post economic and financial aspects of RE interventions because of a lack of data. Because of this, the overall efficiency of the Bank's support for RE was not rated.

Sustainability

EQ5. How sustainable are the results of the Bank's assistance for RE?

The evaluation found that AfDB-funded RE interventions used state-of-the-art technologies that were in general adapted to the country context. Notwithstanding some shortcomings in their maintenance mechanisms, these technologies were appropriately deployed in the field. The AfDB's support for RE also involved stakeholders. Still, the financial sustainability of AfDB-funded RE interventions was threatened by the financial distress of power utilities. This affects the entire energy sector, including RE. De-risking mechanisms are seen as critical to catalyzing capital flows to deploy RE, but sub-optimal risk-sharing can impose long-term financial burdens on governments, adding to sovereign debt stress and hampering the further development of critical infrastructure, including infrastructure for RE. Additionally, the evaluation found the Bank's contribution to strengthening institutional capacity in countries' RE sector to be limited. Finally, the Bank was found to systematically assess environmental and social risks and incorporate mitigation measures at the strategic country level and within RE interventions. Nevertheless, the evaluation also found unintended, underestimated, or unresolved environmental and social issues, including concerns related to indigenous people's rights in Kenya, the environmental safety of batteries used in Côte d'Ivoire, an inadequate monitoring and evaluation system for tracking environmental and social issues in Uganda, poorly managed landfills in South Africa, and residual environmental risks in Cameroon.

Given these shortcomings, the evaluation rated the sustainability of the Bank's support for RE as partly unsatisfactory.

Conclusions

Overall, the Bank's support for RE was assessed as mostly successful, but some key concerns remain. The evaluation identified several

factors that enabled or hindered success in RE development: national policies, project finance (in)adequacy, the availability and intermittency of wind and solar sources, climate change, the speed of delivery of transmission lines, land acquisition processes, the speed of AfDB decision-making processes (issuances of non-objection), and the political and economic situation in each country. Tailoring the Bank's support to specific needs and challenges was found to be crucial to individual countries' achieving more results. At the same time, a lack of supporting infrastructure (storage technology, transmission lines, and adaptation to a broader energy grid) was often found to make large-scale deployment of renewable energies unfeasible.

Lessons

The following are the key lessons from this evaluation.

Lesson 1: Complementing strategies with action plans strengthens stakeholders' participation in RE.

Complementing strategies with action plans bridges the gap between a high-level vision and implementation on the ground. It empowers stakeholders by giving them specific tasks, responsibilities, and a tangible roadmap to follow, thereby encouraging greater engagement and participation in RE initiatives. A case in point is the South African Renewable Energy Independent Power Producer (IPP) Procurement Program, which is a competitive tender process designed to facilitate private investments in grid connected RE generation in South Africa.

Lesson 2: Supporting infrastructure, such as transmission and distribution lines, storage infrastructure, and adaptation to the broader power grid, makes it possible to achieve the outcomes desired for on-grid RE projects.

The evaluation observed difficulties in using the electricity produced by certain Bank-funded RE projects because of the absence of distribution and

transmission lines, insufficient storage equipment, and power system instability. Resolving these issues would optimize the benefits of such projects.

Lesson 3: Prioritizing origination and sharing risks with private finance makes it possible to scale up financing for the development of RE infrastructure.

The evaluation emphasized that without good risk sharing, de-risking mechanisms (e.g., financial guarantees provided by the Bank and RMCs), which were seen as critical to catalyzing capital flows for RE deployment, can impose long-term financial burdens for the government, adding to sovereign debt stress and hampering the development of further critical infrastructure, including infrastructure for RE.

Lesson 4: Making sure that RE investments with intermittent production integrate smoothly into a country's energy grid makes RE interventions more effective.

The evaluation found that several solar and wind projects had been designed without taking into account the challenges of integrating their production into the country's energy grid. This limited the possibility of new additional production capacity, either because of the difficulty of connecting to the grid or because of the difficulty of managing intermittent production.

Recommendations

IDEV makes the following recommendations:

Recommendation 1: Better articulate the Bank's renewable energy approach at the corporate, regional and country level to better align goals and objectives.

Key priority actions include:

- Ensuring more systematic integration of RE development in the Bank's Ten-Year Strategy, RISPs and CSPs.
- Strengthening policy dialogue with a view to shaping RE strategic documents at regional and country level.

Recommendation 2: Enhance the quality at entry of RE interventions.

Key priority actions include:

- Increasing support for early-stage project development.
- Enhancing due diligence of technical and financial feasibility studies.
- Strengthening the assessment of potential environmental and social impacts of RE interventions.

Recommendation 3: Expand the use of blended finance instruments to scale up investments in renewable energy in RMCs.

Key priority actions include:

- Expanding the deployment of innovative risk mitigation instruments to attract more private sector investment.
- More proactively supporting RMCs in creating the enabling environment for increased private sector investment.
- Doubling down on the Bank's track record in mobilizing concessional resources for RE initiatives such as SEFA. ■





Management Response

Management welcomes IDEV's evaluation of the Bank's support to renewable energy (RE) over the period 2012-2021. The evaluation recognises that the Bank's overall support for RE is mostly successful, noting that Bank has successfully adapted to evolving international concerns and shifted its focus towards RE. IDEV's evaluation is timely as Management is working on the proposed new Ten-Year Strategy 2024-2033 (TYS 2.0), building on the priorities stated in the Bank's 2021 document on selectivity "Sharpening the Bank's Strategic Focus" - which includes a clear focus on (i) increasing utility-scale renewable energy and (ii) scaling up decentralised renewable energy solutions. The evaluation highlights overall the positive impacts of the Bank's work on renewables while identifying areas for improvement. In this context, Management takes this opportunity to respond to the points raised by IDEV and highlight actions that are planned or already undertaken.

Introduction

The Bank is acutely aware of the widespread energy poverty across most of its Regional Member Countries (RMCs) and in that context renewables - both grid-connected and decentralized - are an increasingly important solution as clearly stated in the Bank's 2021 document on selectivity, "Sharpening the Bank's Strategic Focus". Indeed, since 2016, renewable energy investments form the bulk - over four-fifths - of the Bank's generation-related investments. IDEV finds that the Bank has developed a strong strategic commitment to renewable energy. Furthermore, the evaluation finds that the Bank's operational practices are generally supportive of RE despite implementation challenges.

Management welcomes the evaluation's assessment that the Bank's overall support for RE is mostly successful, with some shortcomings that may be linked to a mix of internal (e.g., speed of AfDB decision-making in relation to procurement processes, for instance with regard to non-objections), external (e.g., RMCs' political and economic situation, land acquisition challenges) and technical factors (e.g. lack of supporting infrastructure such as storage / transmission lines and the flexibility of the grid network) that impact execution.

The Bank's renewables-related interventions during 2012-2021 cover the full spectrum of public sector and private sector operations - advisory services, grid-connected power generation, decentralized energy solutions (i.e., solar home systems and mini-grids) and policy-based operations⁶.

While Management concurs with many of the evaluation's findings, it believes that the evaluation could have benefited from the perspective of additional partners and stakeholders⁷ outside of the remit of the country case studies.

Relevance

Management welcomes the satisfactory rating for relevance. The evaluation notes that the Regional Integration Strategy Papers (RISPs) and Country Strategy Papers (CSPs) may not always reflect the Bank's overall focus on renewables and while there could potentially be scope for the Bank to further develop these aspects, the strategies are also a reflection of national priorities in relation to the cooperation with the Bank, i.e., renewable energy is not a priority in all CSPs.

The evaluation highlights that the design of the Bank's interventions is aligned with clients' needs and that the Bank's approach to renewables has been tailored to the operating context (e.g., more project preparation in transition states capitalizing on facilities such as the Bank's Sustainable Energy Fund for Africa (SEFA) and the Desert to Power Initiative, increasing emphasis on the private sector over time etc.) while also pursuing innovation in terms of financial structures and technology. The Bank has also gradually shifted from its role as a provider of debt/grants in the 2000s to the provision of increased equity and guarantees during the 2010s.

The evaluation concurrently notes some shortcomings in the quality of the preparatory technical and financial studies for some of the selected projects. While Management believes that there may be some misunderstandings of the underlying project dynamics in some of the analysed cases⁸, Management is committed to increasing the number of operational staff in key areas in the context of the strategic staffing exercise alongside increased training of existing staff.

The evaluation notes that the Bank has a mixed record of adapting to changing project contexts. The evaluation also notes that in cases such as Kenya the Bank demonstrated its ability to make appropriate adjustments to accommodate the changing environment. There were, nevertheless, cases where adaptation was insufficient. In some cases, the Bank's flexibility is limited due to applicable policies and procedures. For example, in the case of Morocco's Tangier wind farm cited in the evaluation, the land acquisition issues resulted in a change in the project location, to sites more than 100 km away, beyond the scope of the original project approval. Similarly, the planned public-private partnership mode for the Yeleen Rural Electrification Project in Burkina Faso required adjustments given the country's changing context, security issues and reduced investor interest.

Coherence

Management welcomes the satisfactory rating for coherence. The evaluation notes that both internal and external coherence have been addressed through relevant strategies (e.g., the Strategy for the New Deal on Energy for Africa 2016-2025) along with strong coordination among RE stakeholders in the RMCs. In addition, the evaluation notes that the Bank actively participates in dialogue with governments. In some instances, the Bank's engagement may have been impeded by the limited availability of in-country personnel with the relevant technical and commercial skills. Management acknowledges these personnel-related constraints and has included additional Professional Level (PL) positions to the energy sector headcount in 2021/2022 to address these constraints. This will, however, require a more in-depth review given the strategic staffing exercise. In addition, Management is undertaking additional identification / high-level dialogue missions (e.g., Malawi) and improving its internal coordination mechanisms to strengthen its engagement in comprehensive country-level discussions. Finally, the evaluation recognized the Bank's exemplary leadership and coordination with partners at headquarters level. The Bank indeed considers partnerships as central to increasing the Bank's impact on RE.

Effectiveness

Management notes the satisfactory rating for effectiveness. As noted in the evaluation, the Bank's contribution to countries' renewable energy, as shown by the case studies, have led to significant positive results. In addition, through initiatives such as the Electricity Regulatory Index (ERI) and the Africa Energy Market Place (AEMP), the Bank is spearheading support for policy dialogue, investment and knowledge management activities. The Bank

has also more recently sought to position itself at the forefront of supporting Africa's just energy transition. This entails providing technical assistance to countries with a Just Energy Transition Partnership such as South Africa and Senegal, playing a lead role in dialogue platforms such as the Energy Transition Council, and championing Africa's regional energy sector integration inter alia via financing the Continental Power System Masterplan. These project- and corporate-level initiatives have been undertaken in collaboration with a variety of multilateral (e.g., World Bank, European Commission, Green Climate Fund) and bilateral partners (e.g., Power Africa) leveraging significant resources. Over the past few years, the Bank has scaled up engagement with additional partner countries such as the United Arab Emirates (memorandum of understanding with the Abu Dhabi Fund for Development) and the Republic of Korea (signature of the Korea Africa Energy Investment Framework)⁹.

Notwithstanding the Bank's above-mentioned contribution, the evaluation notes that outcomes at the continental level are not being delivered at the desired pace, linked to several factors such as the policy and institutional framework, insufficient financing capacity, macroeconomic environments in RMCs as well as overly ambitious targets in the Bank's New Deal on Energy for Africa. The evaluation also points towards lack of transmission capacity and storage as limiting factors in deploying RE solutions. Management fully agrees with this assessment and has introduced a mandatory ex-ante analysis of any new generation projects assessing various technical aspects including capacity to evacuate new RE capacity. Management is also working on scaling-up the deployment of Battery Energy Storage Solutions (BESS) through the mobilization and provision of concessional finance for storage components in Independent Power Producer (IPP) projects, support to utility-led BESS (e.g., BESS project with Eskom in South Africa), and through partnering with the Global Energy Alliance for People and Planet (GEAPP) on the formation of a BESS consortium.

Efficiency

Management notes that efficiency was not rated.

The evaluation team reports that it was unable to access sufficient ex-post data, which could partially be attributed to staff capacity constraints related to economic and financial analysis. Management identified a strong correlation between the quality of ex-post cost-benefit/cost-effectiveness analysis and the quality of the previous ex-ante analysis (the approach entails a comparison of the two results). To address this, a specific criterion for economic and financial analysis has been included in the new readiness review since September 2021. Furthermore, clarifications related to the efficiency analysis component of the Bank's Project Completion Reports (PCRs) are also being prepared. Management is also cognisant of the need to strengthen staff capacity in economic and financial analyses and is exploring potential training options.

As part of its assessment of efficiency along three dimensions - delivery (timeliness and cost/budget), economic and financial performance, and supervision - the evaluation found the following:

- Projects experienced delays due to a variety of issues (e.g., site-related challenges, land acquisition complications, and delays in partner country processes). These issues are not specific to the renewable energy sector but are instead challenges commonly associated with large-scale projects. As part of the Integrated Quality Assurance Plan, adopted in 2020, Management has therefore introduced several enhancements to the quality assurance process, including higher readiness requirements, implementation support guidance, and new accountability and incentive mechanisms focused on quality and implementation speed.
- IPP projects in particular benefitted from robust ex-ante economic and financial analyses, which in Management's view can be attributed to the

presence of a centralized Bank team providing transaction support, including modelling, for non-sovereign operations.

- The Bank's regular supervision missions were appreciated by RMCs.

Sustainability

Management notes the partially unsatisfactory rating related to sustainability. The evaluation noted that maintenance of Bank-financed renewables interventions was satisfactory overall and that the partly unsatisfactory rating is linked to the following elements: (i) the difficult financial position of power utilities, (ii) the limited influence of the Bank in strengthening institutional capacity, (iii) while stakeholder engagement and consultation were integral to the Bank's interventions to address grievances and mitigate environmental impacts, gaps were nevertheless noted in a few cases, and (iv) in some instances unintended or underestimated and unresolved environmental and social issues were noted.

The challenges noted above are wide-ranging and go beyond the scope of individual projects. For example, utilities' precarious financial situation can be attributed to a range of factors such as sub-optimal tariffs (which are highly political), high transmission and distribution losses, unreliable or absence of metering, and other revenue collection challenges. The Bank is intervening at various levels to improve utility performance including through (i) knowledge work, such as the Utility Performance and Behaviour in Africa Today (UPBEAT) tool undertaken in collaboration with the World Bank, (ii) capacity building support for utility staff for example through the African Network of Centres of Excellence for Electricity (ANCEE), and (iii) financing of sovereign projects and policy based operations focused on improving the financial sustainability of power utilities.

Similarly, Bank-supported projects continue to prioritize stakeholder engagement while there are

instances where the scope for consultation could have been wider e.g., the Xina Concentrated Solar Power Project in South Africa that is cited in the evaluation is otherwise considered a successful project. Furthermore, as the evaluation noted, the project has recruited staff who are responsible for deepening stakeholder outreach and engagement and as a result, its relationship with local communities has improved.

Management is pleased to note the evaluation's findings that the Bank systematically assesses environmental and social risks, and relevant mitigation measures are subsequently integrated into the Bank's country-level RE interventions. Management acknowledges that large-scale infrastructure development projects, including renewable energy projects intrinsically raise environmental and social risk concerns. Furthermore, Management continues to support clients in their primary responsibility to identify and address environmental and social issues that may arise during the implementation of projects.

The evaluation recognizes the role of de-risking mechanisms in attracting private investment. However, it raises concerns about the long-term risk associated with government guarantees if the allocation of risks is not optimal. Crucially, public-private partnership projects should include optimal risk allocation, ensuring that each party takes on risks they are best equipped to manage. As part of its due diligence, the Bank provides countries with relevant guidance and in some instances recommends countries to seek assistance from the African Legal Support Facility.

Finally, the evaluation notes that it did not find evidence of activities targeting the management of energy demand in the RMCs. While this may be valid for a specific part of the evaluation period, in recent years the Bank has prioritised demand-side management and is working with countries such as Morocco, Kenya and Senegal to support state-backed entities that will focus on demand-side energy efficiency in the public sector. Additionally, the Bank is looking at investment opportunities in the energy efficiency area in countries with rapidly

increasing electricity access rates, such as Ethiopia and Mozambique, with the intention of including these projects in its lending programme in the coming years.

Conclusion

In general, Management appreciates the observations and recommendations made

by the evaluation. Overall, the findings and recommendations in IDEV's evaluation reaffirm the Bank's prioritization of RE and the efforts already underway. The findings will help the Bank to further increase its impact at the country level in support of Africa's just energy transition in line with the Bank's commitment in the 2021 Energy Policy Addendum to support the development of just energy transition plans, which are key to achieving the Paris Agreement and SDG7. ■

Management Action Record	
Recommendation	Management Response
<p>Recommendation 1: Better articulate the Bank's renewable energy approach at the corporate, regional and country level to better align goals and objectives.</p>	
<p>Key priority actions include:</p> <ul style="list-style-type: none"> a. Ensuring more systematic integration of RE development in the Bank's Ten-Year Strategy, RISPs and CSPs. b. Strengthening policy dialogue with a view to shaping RE strategic documents at regional and country level. 	<p>Agreed: Management agrees with the recommendation.</p> <p>The proposed Ten-Year Strategy clearly recognizes the role for renewable energy and while the Bank is already tracking CSPs/ RISPs there could be scope to more systematically review CSPs/ RISPs regarding the inclusion of the Bank's perspective regarding renewables, but this is influenced both by the Bank's ability to deploy appropriate personnel and country preferences in what areas to prioritize with the Bank. As part of its operations, the Bank is increasing engagement on renewable energy with countries through initiatives such as the Electricity Regulatory Index and the Africa Energy Market Place (AEMP) thereby strengthening dialogue in the energy sector as a whole, including renewables.</p> <p>Actions:</p> <ul style="list-style-type: none"> ■ The PEVP Front Office (PESA) will work closely with the energy departments (PESD, PERN and PESR) to monitor all CSPs/RISPs with a view to incorporate energy sector issues, and especially renewables opportunities [PESA; Q4 2024]. ■ Engagement with two countries on Just Energy Transition plans and roll-out of the AEMP to four additional countries [PERN/PESR; Q2 2025].

Management Action Record	
Recommendation	Management Response
Recommendation 2: Enhance the quality at entry of RE interventions.	
<p>Key priority actions include:</p> <ul style="list-style-type: none"> a. Increasing support for early-stage project development. b. Enhancing due diligence of technical and financial feasibility studies. c. Strengthening the assessment of potential environmental and social impacts of renewable energy interventions. 	<p>Agreed: Management agrees with the recommendation.</p> <p>The Bank is working towards increased support for project preparation both directly¹⁰ — drawing on ADF resources (including through the newly-established Climate Action Window) and special funds (in particular SEFA) — and indirectly, for instance through project preparation facilities managed by specialized funds (e.g., equity funds such as the Africa Renewable Energy Fund and the debt funds under the Facility for Energy Inclusion).</p> <p>Actions:</p> <ul style="list-style-type: none"> ■ Embed project preparation components for future projects more systematically in investment projects, especially on the sovereign side where 50% could have preparation components [PESD/PERN; Q4 2025]. ■ The overall capacity for increased review of technical and financial feasibility studies will be enhanced with the addition of relevant experts in the context of the strategic staffing exercise, while also providing relevant training to existing personnel [PESA; Q4 2025]. ■ The Bank is currently implementing its Safeguards Strengthening Action Plan (SSAP 2020-2025), which includes updating the ISS (which is approved by the Board and will be effective in 2024) and providing financial and staffing resources to ensure the effective implementation of the ISS across the Bank's entire portfolio [SNSC; Q4 2024].

Management Action Record	
Recommendation	Management Response
Recommendation 3: Scaling up blended finance instruments to scale up investments in renewable energy in RMCs.	
<p>Key priority actions include:</p> <ul style="list-style-type: none"> a. Expanding the deployment of innovative risk mitigation instruments to attract more private sector investment. b. More proactively supporting RMCs in creating the enabling environment for increased private sector investment. c. Doubling down on the Bank's track record in mobilizing concessional resources for renewable energy initiatives such as SEFA. 	<p>Agreed: Management agrees with the recommendation to scale up blended finance solutions, building on the Bank's track record with global climate finance facilities (the Climate Investment Funds, the Global Environment Facility, the Green Climate Fund), with co-financiers (the European Commission, Korea-Africa Energy Investment Facility, others) and with in-house trust funds/special funds (notably the SEFA Special Fund) with a view to spur investment — both public and private. In recent years the Bank has placed increasing emphasis on policy dialogue to bring the public and private sector stakeholders together. Finally, The Bank views resource mobilization as crucial to its ambition to scaling up results across all facets of the energy sector. In this regard, SEFA's cumulative resource mobilization in excess of USD 500 million is a case in point.</p> <p>Actions:</p> <ul style="list-style-type: none"> ■ The Bank will increase its focus on risk mitigation for instance through the implementation of specific programmes such as the Leveraging Energy Access Finance Framework (LEAF), developed in collaboration with the Green Climate Fund, and other programmes/projects that blend concessional and/or climate finance to improve sustainability and reduce risk. The Bank will seek to approve at least two such projects each year [PERN/PESR; Q4 2025]. ■ Further to the expansion of the AEMP dialogue platform as per the second action, the Bank will launch the Africa Energy Sector Technical Assistance Program that will provide upstream support to facilitate the deployment of renewable energy technologies and promote the participation of the private sector [PESR; Q4 2024]. ■ The Bank will scale up efforts to mobilize and deploy concessional resources for renewable energy, notably SEFA, in the wider context of the Bank's target to scale up climate finance. USD 50 million per year in concessional resources mobilisation for renewables [PERN; Q4 2024].



Background and Purpose

Introduction

As part of its 2021 work program, the African Development Bank Group's Independent Development Evaluation (IDEV) undertook an evaluation of the Bank's support for renewable energy (RE) over 2012–2021. The evaluation focused on accountability and learning, drawing lessons and recommendations to better inform the design and implementation of future RE interventions by the Bank. This report summarizes the findings, conclusions, and lessons that emerged from the evaluation.

The first section of this evaluation presents the purpose, objectives, and scope of the evaluation. The following four sections describe the context of the evaluation, the evaluation's approach and methodology, the Bank's engagement in the development of RE in Africa, and the evaluation's main findings. The final section summarizes the evaluation's conclusions, lessons, and recommendations.

Purpose, objectives, and scope of the evaluation

Purpose and objectives: The objective of this evaluation is to inform the Bank's strategies and operational approach to the RE sector. The evaluation identifies emerging trends in the sector, assesses how the Bank has responded to these trends, takes stock of the results of the Bank's support, and draws lessons for future work. The evaluation has

two dimensions: accountability (the retrospective dimension) and learning (the prospective dimension).

Scope: The evaluation focused on the AfDB's support for RE generation in the power sector. It encompassed geothermal, hydropower, solar power, and wind power and covered interventions approved and implemented from 2012 to 2021¹¹, including investment projects and enabling environment-related interventions such as institutional strengthening, technical assistance, policy dialogue, advisory services, and project preparation. The evaluation examined both utility-grid scale RE and smaller-scale decentralized energy access solutions, and it emphasized lending and non-lending activities that explicitly and intentionally targeted the expansion of RE. The scope of the evaluation did not include initiatives such as rural electrification programs, grid reinforcement, expansion, interconnections, and endeavors aligned with Sustainable Development Goal (SDG) 7, which aims to increase the share of clean energy but does not explicitly focus on RE generation or consumption. The evaluation period aligns with the implementation of the AfDB's Energy Sector Policy (from 2012 onwards) and overlaps with the New Deal on Energy for Africa (NDEA) for 2016–2025. The geographic scope of the evaluation corresponds to the regional member countries (RMCs) supported by the Bank in the RE (sub-)sector. Regional integration was a theme, and the evaluation covers several regional hydropower interventions (e.g., Rusumo Falls, the Kariba Dam, and the Ruzizi Plant) supported by the Bank. ■



Context

Key trends and challenges in Africa's renewable energy sector

A major challenge in Africa's energy sector is access to electricity. At 46% of the population, Sub-Saharan Africa has the world's lowest access rate. The heavy reliance on traditional biomass fuels and inefficient cooking solutions disproportionately affects the health of women and children. Furthermore, electricity tends to have a high cost in Africa, because of thermal generation using heavy fuel oil and diesel, and inefficiencies and losses in generation and distribution. Africa's total electricity consumption in 2019 was about 700 TWh, most of which was generated by thermal power plants using coal (30%), natural gas (40%), or oil (8%), accounting for nearly 80% of electricity generation (IEA, 2022). Many African countries recorded losses of nearly USD 0.25 per kWh sold, along with high connection fees and tariffs (IRENA, 2018a).

Africa has huge RE potential, far exceeding its current capacity. For example, solar and hydro have a potential of about 1.5 million TWh/year, wind has a potential of about 1 million TWh/yr, and geothermal has a potential of 100 TWh/yr. Yet Africa uses less than 1% of its wind potential, much less than 1% of its solar potential, and less than 10% of its hydropower potential. To deliver universal energy access by 2030 (Sustainable Development Goal 7), decentralized options are the least-cost option for 60% of people who currently lack access. Public programs and private businesses that provide electricity access with off-grid solar are thriving, and many countries are exploiting their renewable potential in the centralized electricity mix (UN, 2018).

Off-grid RE solutions have become mainstream in Africa, supporting the expansion of access to modern energy in a timely and environmentally

sustainable manner. The deployment of off-grid and mini-grid systems has made significant progress because of reduced technology costs, accelerated innovation in deployment and financing models, and the involvement of various stakeholders, including local entrepreneurs, the international private sector, and financial institutions. The profitability of investments in the RE sector depends on the extent to which production capacities are integrated into power systems and how effectively intermittent RE production is managed. Because modern energy services drive economic growth, inclusive growth, employment, and productivity across sectors, improving access to reliable, affordable, and sustainable energy is crucial for Africa's transformation. That said, any progress must consider the impacts of climate change and the transition to a sustainable, low-carbon growth path and a greener economy.

In a nutshell, the key issues facing the sector are as follows:

- Achieving universal access to electricity requires a significant increase in generation capacity and new connections. Energy access, along with accompanying measures, is expected to spur economic and social development, leading to an increase in electricity demand.
- More efficiency is needed in existing generation capacity, and local and renewable sources must be used to promote energy independence and address the impacts of climate change.
- The inadequate integration of utility-scale infrastructure into power transmission and distribution networks constrains the deployment of solar, wind, and hydropower energy in Africa. Additionally, Africa has less infrastructure for high-

voltage transmission lines than other regions: this hinders the development of RE sources. Intermittency is especially challenging for solar and wind energy.

- To balance the use of hydropower and geothermal for baseload generation with the intermittent nature of wind and solar, electricity grids must be able to accommodate variable production capacity. It is important to consider that hydro can also be affected by factors like drought, low rainfall, or the overuse of water, leading to declining dam levels.
- Limited storage capacity hinders scaling up RE generation.
- Establishing a clear and stable regulatory framework and offering attractive prices for electricity production is crucial to cover costs and ensure a sustainable energy ecosystem.

Addressing these issues requires a comprehensive approach that combines policy and regulatory reforms, investments in infrastructure, technological advancements, and collaboration among various stakeholders.

The international context for renewable energy

Various global strategies and initiatives have emerged in recent decades to address climate change and promote RE. These include the following:

- The Kyoto Protocol, which binds 192 parties and was adopted in 1997, commits developed countries and economies in transition to limit and reduce greenhouse gas emissions through agreed individual targets.

- The United Nations' millennium development goals (MDGs), set in 2000 to be achieved by 2015, included a goal for environmental sustainability and the need for a universal partnership for development.

- The Africa We Want, a strategic framework outlined in 2013 by the African Union's Agenda 2063, prioritizes RE as a key aspiration and goal. The objective is to achieve 50% RE by 2063, contributing to environmentally sustainable and climate-resilient economies and communities as well as inclusive and sustainable development.

- The SDGs, set by the United Nations in 2015, emphasize the production and use of affordable and clean energy.

- The Paris Agreement, adopted on 12 December 2015, aims to limit global warming to well below 2 degrees Celsius above pre-industrial levels.

- The Glasgow Climate Pact, adopted at COP26¹² in 2021, includes a commitment to build resilience to climate change, reduce greenhouse gases, and provide the necessary financing for both.

Other development partners' renewable energy strategies

Other development partners have integrated RE into their actions and strategies (the refinement of their approaches is ongoing). While no established and stable methodologies guarantee unequivocal success in this area, these actors are working actively towards the common goal of a transition to sustainable energy (Box 1). ■

Box 1: Development partners' renewable energy strategies

Financial institutions and partnerships play a crucial role in supporting the global transition to sustainable energy. The World Bank Group, the European Investment Bank, the Asian Development Bank, the Islamic Development Bank, the KfW Development Bank, and the UK's International Climate Finance each has policies and strategies for rendering the use of energy sustainable. The strategies often involve providing funding and technical assistance to RE projects in developing countries. The institutions' initiatives include adopting a pro-poor focus on universal access, phasing out investments in fossil fuel projects, supporting climate change mitigation and adaptation, and investing in off-grid, small-scale RE access projects. Their efforts aim to secure affordable, reliable, and sustainable energy supplies, share prosperity, and reduce carbon emissions to address the challenges of climate change. The Green Climate Fund invests in low-emission, climate-resilient development, while the Global Environment Facility provides financial assistance and policy support to address environmental challenges in developing countries. The Africa-EU Renewable Energy Cooperation Program (RECP) has established various initiatives to strengthen the RE sector and markets, facilitate integration into distribution networks, and support financial instruments and research and development.

Bilateral partnerships also contribute to RE development in Africa. For example, the European Commission's Green Deal, aligned with the Paris Agreement, includes a decarbonization plan to achieve carbon neutrality by 2050. USAID's Power Africa aims to double access to electricity in sub-Saharan Africa by using the region's abundant RE resources. SIDA's Power Africa Project is committed to raising USD 1 billion to support RE investment in Africa. The International Finance Corporation and Canada launched the Climate Change Program to promote investment in low-carbon technologies, the Canada-IFC Renewable Energy Program for Africa, with a budget of CAD 155 million. L'Agence française de développement is another financial institution committed to this cause.

Development agencies also contribute to sustainable energy initiatives. For example, GIZ launched the Green People's Energy for Africa program in 2017 to reduce energy poverty and develop decentralized RE systems in rural areas. Furthermore, ENABEL advocates for sustainable energy and energy efficiency practices since 2012. Additionally, SNV invests in energy systems in line with the SDGs, focusing on creating jobs through biodigesters, clean cooking and heating technologies, and off-grid electrification systems. Finally, JICA invests in national power grids and has supported the construction of geothermal power plants in countries along Africa's Great Rift Valley.



Approach and Methodology

Evaluation questions

The evaluation addresses the following overarching question: To what extent has the AfDB's support for RE helped RMCs to meet their evolving RE needs in the context of their energy sector development goals? The specific questions are as follows:

Q1. To what extent did the Bank's interventions align with RMCs' priority RE needs as RMCs navigated changing RE markets and expanding global initiatives?

Q2. To what extent did the Bank's interventions align with the Bank's wider policy frameworks and with other interventions implemented by the Bank, and to what extent were they coordinated with and complementary to the interventions of governments and other development organizations?

Q3. To what extent was the Bank's support for RE effective at addressing barriers, mobilizing finance, leveraging experience and partnerships, and achieving the results expected for developing RE in order to meet RMCs' energy and environmental needs?

Q4. To what extent did the Bank's support for RE deliver, or is likely to deliver, results in an economic and timely way?

Q5. How sustainable are the results of the Bank's assistance for RE?

Evaluation approach and methodology

The evaluation was designed to meet accountability and learning objectives while generating lessons

to improve the design and implementation of RE interventions, new and ongoing. The evaluation employed a theory-based approach that combined quantitative and qualitative methods. It focused on four levels (interventions, clusters, countries, and strategies), taking into account contextual, policy, governance, and organizational influences on the Bank's performance at each level. The findings of the evaluation were derived by triangulating information from multiple sources. This process had several components ([Technical annex 1](#)): a literature and policy review, a portfolio review, 10 country case studies, three cluster evaluations on hydropower, wind power, and solar power interventions, and 35 intervention analytical grids or other project-level evaluations. To collect data, the evaluation used desk-based research, key informant interviews of around 250 people, and two visits¹³ to intervention sites that were conducted during case study missions to Kenya (the Menengai Geothermal Project) and South Africa (the Xina One Project). As for the evaluation's case studies, the evaluation team carefully selected 10 countries based on a set of criteria that ensured adequate representation of diverse regions and country contexts. These criteria encompassed factors such as the population's access to electricity, the significance of renewables in the energy mix, RE potential, the challenges posed by fragile situations, and the deployment of RE technologies. This selection process yielded the 10 case study countries: Burkina Faso, Cameroon, Côte d'Ivoire, Kenya, Madagascar, Morocco, the Democratic Republic of Congo, Uganda, Zambia, and South Africa.

Rating Scale. The evaluation used a four-point rating scale (4: Highly Satisfactory; 3: Satisfactory; 2: Partly Unsatisfactory; 1: Unsatisfactory) for each evaluation criteria, namely, relevance, coherence, effectiveness, efficiency, and sustainability (Annex 2).

The evaluation's overall performance rating is derived from an assessment of these five criteria along a six-point scale: Highly Successful (6), Successful (5), Mostly Successful (4), Mostly Unsuccessful (3), Unsuccessful (2), and Highly Unsuccessful (1) (Annex 2).

Limitations and mitigation strategies

The evaluation encountered the following limitations:

■ **Limited quality of the Bank's project database**

(SAP): Information on the Bank's RE interventions in the SAP database was not clearly marked or categorized. In some instances, not all project information was captured. To address this challenge, IDEV created a harmonized RE database by consolidating data from several internal databases, including the database of the AfDB's Energy Complex.

■ **Small number of completed interventions:**

Because of the long time required to develop an RE intervention, the number of completed interventions available for evaluation was small. This resulted in a scarcity of documents reporting on outputs and outcomes, such as project completion reports (PCRs), project completion report evaluation notes (PCRENs), expanded supervision reports (XSRs), expanded supervision report evaluation notes (XSRENs), and project results assessments (PRAs). To increase the sample size for assessing project performance,

the evaluation assessed all completed or nearly completed interventions in the 10 case study countries. As indicated earlier, the evaluation team filled out an intervention analytical grid for each intervention for which documentation was available. The evaluation assessed the other interventions at a strategic level, through interviews and document reviews.

■ **Inclusion of non-RE components in portfolio review:**

The portfolio review included Policy-Based-Operations (PBOs) which had both RE and non-RE components, and their assessments were based on all components of the respective operations. Consequently, the results reported include those of both RE and non-RE components. To address this issue and focus solely on the operations' RE components, the team consulted documentation such as PRAs, PCRENs, and PCRs. In cases where documentation was limited, the team used overall performance ratings as a proxy.

■ **Lack of detail in the classification of operations:**

Operations that involved more than one RE technology were not always classified in such a way as to distinguish the results for one technology from the results for another. This was true for investment operations as well as for operations to create an enabling environment. The evaluation team therefore added a category labeled "general/multi-RE" alongside categories for solar, hydropower, wind, and geothermal technologies. ■





AfDB's Engagement in the Development of Renewable Energy in Africa

Evolution of the AfDB's strategic approach to renewable energy

The AfDB has several strategic documents (Box 2) that guide its work to reconcile Africa's natural strengths, economic opportunities, and development needs with global climate change goals. These documents include the [Ten-Year Strategy 2013–2022](#), the [High 5s for Transforming Africa](#), the [New Deal on Energy for Africa 2016–2025](#), the [Climate Change Action Plan II 2016–2020](#), the [AfDB Energy Sector Policy 2012](#), and the 2022 Amendment to the Energy Sector Policy, which stipulated that the Bank would no longer finance coal projects.

These strategic documents prioritize investments in areas such as energy access, RE generation, the policy environment, utilities, funding pools, and regional integration. They aim to help achieve the SDGs, align with the Paris Agreement, and promote inclusive, green, and sustainable economic growth in Africa. Moreover, the [AfDB's Regional Integration Policy and Strategy for 2014–2023](#) seeks to develop regional infrastructure, enhance industrialization, and strengthen trade among countries in Africa. It aims to invest in energy infrastructure to unleash Africa's potential to produce value-added products and compete in regional and global trade. Figure 1 presents the timeline of global and AfDB strategic orientations.

Box 2: Strategic AfDB documents

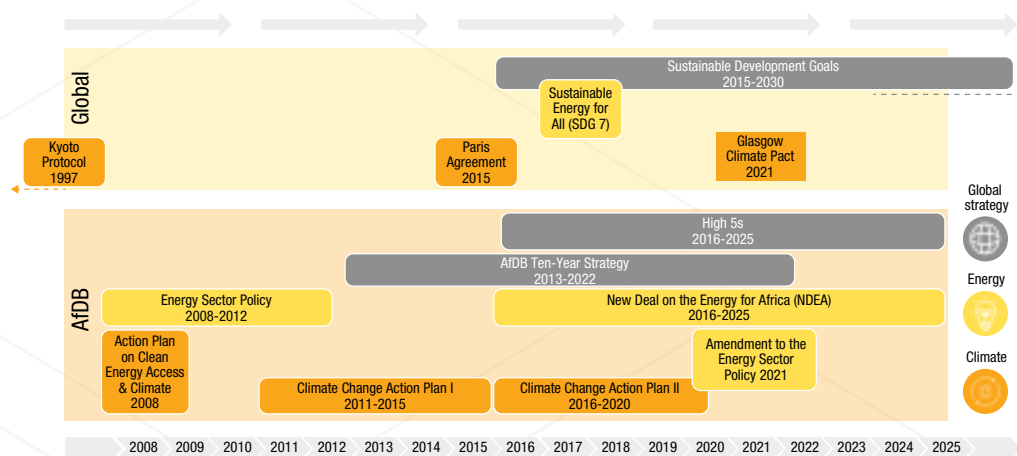
Energy Sector Policy (and amendments): The Energy Sector Policy, formulated in 2012, provides a strategic framework for the Bank's engagement in the energy sector. It emphasizes sustainable development, access to modern and affordable energy services, and promoting RE sources. The AfDB amended its Energy Sector Policy in 2022, further reinforcing the Bank's commitment to sustainable energy and stating that it would no longer finance coal projects.

Ten-Year Strategy (2013–2022): Formulated in 2012, the Ten-Year Strategy guides AfDB's overall operations and investments in various sectors, including energy. The strategy stresses inclusive and sustainable growth, of which RE is a key component.

High 5s for Transforming Africa: The High 5s were developed in 2015 in response to the SDGs, the Paris Agreement, and multilateral development banks' call for more financial resources. Scaling up energy investments is the AfDB's top High 5 priority. Named "Light Up and Power Africa," this High 5 points to the fact that Africa cannot power its homes and businesses unless it realizes its huge RE potential and combines it where necessary with conventional energy to light up and power the continent.

Climate Change Action Plan II (2016–2020): This plan outlines the AfDB's approach to addressing climate change challenges and promoting climate resilience in Africa. It supports RE projects and initiatives to mitigate greenhouse gas emissions. Since the formulation of MDGs in 2015, the AfDB has made significant strides towards aligning with global commitments on climate change mitigation and adaptation. Among other things, the AfDB established the Nationally Determined Contributions (NDC) Hub, which supports RMCs to fulfill their obligations under the COP21 Paris Agreement and implement their NDCs.

New Deal on Energy for Africa (2016–2025): This strategic document is a comprehensive framework for facilitating universal access to energy in Africa. It emphasizes the importance of RE, energy efficiency, and regional integration in the energy sector.

Figure 1: Timeline of global and AfDB strategic orientations

Source: Evaluation Team

Overview of the AfDB's renewal energy portfolio, 2012–2021

The AfDB's RE portfolio showcases a dynamic approach to energy development. This comprehensive and diversified portfolio presents several interesting characteristics, all of which are in line with the institution's commitment to promoting green growth and addressing pressing energy challenges ([Technical Annex 2](#)).

Increased support since the approval of the AfDB's energy policy in 2012. Since the adoption of its 2012 Energy Policy, the Bank has made significant progress in supporting the development of RE: almost half (49%) of total net approvals (UA 8.5 billion) for the energy sector during 2012–2021 were allocated to RE. The AfDB's RE portfolio comprises 156 interventions and is strategically diversified across a wide range of RE sources, including solar, wind, hydro, and geothermal. The value of annual net approvals for RE fluctuated over 2012–2021, with large volumes recorded in 2012, 2014, and 2018. In the other years, the volumes averaged approximately UA 250 million per year. Although the approval of the New Deal on Energy for Africa in 2016 raised expectations

for a different trend, the average project size declined over the evaluation period, falling from UA 78 million in 2012 to UA 14.4 million in 2021. The average for 2012–2021 was UA 27 million per project.

Diversified types of investments, strong support for certain regions and countries, inclusive and equitable development. The Bank's RE portfolio for 2012–2021 comprised diverse types of investments, including on-grid power generation (67% of total investments), green mini-grids/off-grid, technical assistance, and advisory services which together account for 22% (Table 3, [Technical annexes](#)). At the regional level, Southern Africa was the largest recipient of the Bank's support for RE. Southern Africa received approximately 28% of all support, amounting to around UA 1 billion. Next came North Africa (23%) and East Africa (17%). Central Africa and West Africa received the least amount of RE support from the AfDB, approximately 11% each. A notable proportion of the AfDB's RE support (approximately 11%) was allocated to multinational interventions (Figure 3, [Technical annexes](#)). These interventions are designed to promote regional cooperation in the RE sector. Countries such as Angola, Kenya, Morocco, Nigeria, Rwanda, and

South Africa were the leading recipients of AfDB's support for RE interventions; they absorbed nearly half of all Bank support for RE. The Bank also targeted states that were undergoing significant economic and development-related transitions: these states accounted for approximately one-fifth of all RE projects. By targeting transition states, the AfDB prioritized inclusive and equitable development in RE.

- Embracing cutting-edge technological innovation. Leaving aside operations targeting multi-RE technologies (30%), solar energy (30%) and hydropower (28%) were the two technologies that benefited the most from the Bank's RE support over 2012–2021. Wind technologies accounted for 11% and geothermal technologies accounted for 1% (Table 4, [Technical annexes](#)). Particularly after 2016, solar and hydropower technologies gained prominence in the Bank's RE commitments.
- The Bank's Group's African Development Bank (ADB) window, a champion of RE financing. The Bank Group's African Development Bank (ADB) window plays a significant role in financing RE interventions, accounting for more than two-thirds (67%) of the Bank's total RE commitments (Table 6, [Technical annexes](#)). The African Development Fund (ADF) window is the second-most important source of funding for RE projects in RMCs, accounting for about 18%. Interestingly, the share of RE support from funding sources other than ADB and ADF increased significantly in 2019–2021, growing from a low of 7% (2016–2018) to nearly 33% (2019–2021).
- Project loans lead the funding instruments, with guarantees gaining momentum. Project loans financed 57% of total net approvals for RE interventions; sector adjustment financed 19%. Guarantees gained in importance, rising from 2% over 2012–2015 to 20% over 2019–2021 (Table 7, [Technical annexes](#)).
- Promoting Public-Private Partnerships. Africa's private power sector received a significant share of the Bank's RE support in 2012–2021 (32%), mainly in countries with supportive governance. From a meager UA 73.4 million in investment in 2012, the Bank Group had committed UA 1,329.8 million to Africa's private power sector by December 2021, accounting for nearly one-third of all of its support for RE. Of the five RE technologies, geothermal RE received highest amount of investments made in the private sector (Figure 4, [Technical annexes](#)): this reflects the increasing role of development finance institutions in investments in Africa's independent power producers. Over the past decade, independent power producers investments favored renewables with instruments like technical assistance, risk mitigation, and structured procurement programs. As noted above, the private sector is more engaged in countries with supportive governance, such as Kenya, Morocco, and South Africa; elsewhere, engagement is limited. Case studies illustrate which countries are more supportive and which are less (Box 1, [Technical annexes](#)).
- An active portfolio. Most of the interventions in the Bank's RE portfolio approved over 2012–2021 remain active (64% of all 156 interventions approved for 2012–2021) (Table 5, [Technical annexes](#)). The construction timeline for hydropower, wind, and solar (except photovoltaic) plants is longer than for conventional technologies. This is primarily due to the need for environmental approvals, land acquisition challenges, and delays in reaching financial closure. Specifically, the share of active hydropower interventions was 72% for 2012–2021, compared to 64% for solar, 62% for wind, and 67% for geothermal. ■



Main Findings

Relevance

To what extent did the Bank’s interventions align with clients’ priority RE needs as they navigated changing RE markets and expanding global initiatives?

The evaluation examined the relevance of the AfDB’s support for RE at three levels: strategy, alignment with RMCs and beneficiaries’ needs, and adaptation over time and to country circumstances.

Strategy

How adequate is the Bank’s strategic focus on RE to assist RMCs to achieve the SDGs, the Kyoto Protocol, and the Paris Agreement?

Finding 1: At a strategic level, the evaluation found that the Bank has adapted well to evolving international concerns and pressures, first to support universal access to modern and reliable energy, and later to support RE.

The literature and policy review identified important continental and international agreements and strategies to promote RE in Africa. These include the African Union’s Agenda 63 (2013), which aims for 50% of energy to be renewable by 2063; the SDGs (2015), which aim to increase the share of RE by 2030; the Paris Agreement (2015), which encourages countries to set RE targets in their nationally determined contributions (NDCs); and the Glasgow Climate Pact (2021), which explicitly plans to reduce the unabated use of coal and transition from “phase out” coal to “phase down.”

The AfDB was found to have developed strategic documents (policies, strategies, and initiatives) for the energy sector that demonstrate a strong

commitment to RE. These documents, including the Action Plan on Clean Energy Access & Climate (2008), the Energy Sector Policy (2012), and NDEA (2016), aim to enhance equitable energy access, secure supply, and mitigate the impact of climate change for sustainable, green, and inclusive socioeconomic growth in Africa. The NDEA (2016–2025) sets ambitious targets for universal energy access by 2025, an enabling policy environment, transformed utilities, and more bankable energy projects. The NDEA quantifies targets for additional generation capacity (160 GW), grid connections (130 million), and off-grid connections (75 million), but does not specify the share of RE needed to achieve the targets. The Bank’s contribution to the energy sector in Africa was set at an additional 22 GW over 2016–2025, with 14 GW from renewables; this aligns with other multilateral development banks’ practices. It is therefore reasonable to assume that the Bank was aiming for two-thirds of its support for power generation to come from renewables, which is in line with the practice of other multilateral development banks. However, stakeholders expressed concern over a lack of action plans to complement the AfDB’s strategic documents on RE.

Like the AfDB, most other development partners have recently prioritized financing RE to align with the Paris Declaration. Their strategies show a gradual shift from supporting general energy infrastructure and access to supporting more RE and less conventional energy. The SDGs and the Paris Agreement of 2015 accelerated awareness and call for action on climate change, universal access to electricity, and RE. But while some RMCs adopted national development plans for RE, others did not. The establishment of nationally determined contributions created pressure to quantify RE targets and establish national plans subsequently.

Finding 2: At the regional level, the evolution of the AfDB's regional strategic documents was not found to show a clear path to increasing support for RE.

A review of the wording and budget in the regional integration strategy papers (RISPs) developed by the Bank over the evaluation period shows limited explicit support for RE. The AfDB approves and implements RISPs to support regional integration in Africa; the RISP specify a strategy for each of the five regions. However, the Regional Integration Strategic Framework (RISF), which guides the preparation of RISPs, pays little attention to RE. This lacks coherence with the Bank's strategic priorities at the continental level, in that RISPs appear to be guided more by transnational priorities than by the Bank's strategic documents.

RISPs' energy component primarily focuses on increasing interconnections between countries. This could develop RE indirectly. However, this rationale was not elaborated in the RISPs themselves. Although some RISPs support RE interventions in various ways, no significant increase in support for RE over time was found. Some RISPs pursue past themes, such as the complex and time-consuming preparation required for hydropower (the RISP for East Africa). Others mention regional solar power plants (the RISPs for West Africa and North Africa). The RISP for Central Africa shows some evolution towards hydropower, and the RISP for Southern Africa increases its attention to renewable electricity over time. West African is the only region with an undeniably clear trend in favor of renewables. RISPs offer an opportunity to integrate national priorities into regional strategies while respecting the principle of subsidiarity. As countries focus on expanding energy sources and increasing electricity availability, there is a need to deepen interconnections between countries. This aligns with RISPs' energy component and could encourage the development of RE indirectly by facilitating the management of intermittent production. But the review of RISPs demonstrated that RISPs did not develop this aspect adequately. Furthermore, the direction taken by

a given RISP was found to depend strongly on the team responsible for preparing and negotiating that RISP. A team's understanding of the Bank's and a region's priorities may thus influence the RISP's support for RE. Ultimately, the RISP is a policy document that reflects the decisions of the parties involved, including the Bank.

Alignment with RMCs and beneficiaries' needs

To what extent were the Bank's lending and non-lending activities in RE aligned with the priorities of RMCs and end beneficiaries' needs?

Strategic and Operational Alignment

Finding 3: At the country level, the evaluation found that because the Bank's country strategy papers aligned closely with countries' priorities, a limited place for RE among national priorities could constrain the Bank's support for RE.

The evaluation found that the country strategy papers (CSPs) of most case study countries, except Morocco, were well aligned with the countries' evolving national priorities. In the first half of the evaluation period, CSPs focused primarily on increasing electricity production and access, with little emphasis on RE. This trend was observed in countries facing a crisis, post-crisis, or high fragility, such as the Democratic Republic of Congo, Cameroon, Côte d'Ivoire, and Madagascar. However, in the second half of the period, the legal requirement to include RE targets in the 2015 NDCs led to some extent to a surge in national interest in RE, which began to be reflected in CSPs. Morocco is an exception to this trend. Despite the country's strong ambition for RE since 2009, the Bank reduced its allocation for RE in the second period (CSP 2017–2021), creating opportunities for other development partners to support RE in Morocco. It should be noted that in international relations, RMCs are recognized as sovereign states with the authority to determine their own priorities: they expect the Bank to align its actions accordingly.

A challenge was found to arise when governments did not emphasize diversified energy sources: this could hinder the overall development of the energy sector. In those cases, the ambitions expressed in higher-level strategic Bank documents were not always translated into CSPs. Stakeholders expressed the view that while Africa has significant potential for RE, there are challenges to its widespread adoption in some RMCs. National governments may have differing perspectives on the importance of RE because of prevalent high energy poverty. Country case studies highlighted for instance the case of the Democratic Republic of Congo, for which fostering the deployment of the micro or medium-capacity hydropower plants and solar installations that stakeholders consider critical for their country was a challenge, despite the fact that the large Inga hydropower dam has been considered since 1974, with limited progress (Box 2, [Technical annexes](#)).

From a strategic perspective, the Bank's approach to supporting RE aims to align the Bank's priorities with the priorities of national governments. Given the slow pace of RE development in Africa, however, and RMCs' socioeconomic development needs, stakeholders expressed the view that the Bank has a critical role to play in shaping the policy environment in favor of RE through policy dialogue with national governments. The effectiveness of the AfDB's support fundamentally rests on the willingness and commitment of RMCs to pursue these strategies. Multilateral development banks are better able to shape the policy environment in favor of RE through policy dialogues with national governments. The AfDB has taken a bold stance on RE through its policies and strategies, but when this is not translated into CSPs, a mismatch between the Bank's overall RE ambitions and implementation at the country level may ensue.

Stakeholders emphasized the importance of striking a proper and progressive balance; if necessary, this could mean both supporting conventional energy sources (e.g., gas combined cycle, gas peaking, nuclear) and scaling up RE. The emerging "Just Transition" paradigm reinforced the need for the

Bank to adapt to country contexts and align its ambitions for RE accordingly. For example, the Bank has ceased supporting new coal-based power plants, the dirtiest form of fossil fuel-based power generation, although only South Africa is a coal economy (90%) (to some extent, Botswana and Zimbabwe are likewise). Countries such as Egypt use natural gas (77%). In this context, certain countries may still prioritize fossil fuel-based energy (except coal-based energy) because of stakeholder interests or the perceived lower cost of fossil fuel generators. This is evident in countries like Côte d'Ivoire and South Africa. Moreover, when fossil fuel industries are present or new fossil fuel resources are discovered, national priorities for RE tend to decline, as some stakeholders become more interested in profits generated from fossil fuels. Fossil fuel projects are often less capital-intensive and easier to initiate, even if the final cost per kilowatt-hour produced is higher.

Quality of Design

Finding 4: Overall, the evaluation found that the objectives and design of the Bank's RE interventions were aligned with the priorities of RMCs' and beneficiaries' needs. On the whole, the evaluation also found the design of interventions to be relevant, despite some shortcomings in the technical design of wind projects, in hydropower projects' adaptability and integration of climate change considerations, and in the quality of feasibility studies.

The evaluation found that the objectives of AfDB-funded RE interventions to increase access to electricity, expand RE supply, reduce greenhouse gas emissions, enhance energy security, and diversify the energy mix to help transition to green growth and create jobs were well aligned with RMCs' priorities and end beneficiaries' needs for sustainable, reliable, and affordable electricity. Documentary evidence demonstrated the soundness of projects' design, but shortcomings were found in areas such as the technical design of wind projects and the integration of climate change in hydropower projects. Several projects were designed based on comprehensive

feasibility studies and data collection (e.g., the Lake Turkana Wind Power in Kenya, the NOOR Ouarzazate Project in Morocco, and the Xina One Project in South Africa). But other projects required design revisions during implementation because of geological challenges (e.g., the Menengai Quantum Power Geothermal Project in Kenya), the lack of data (e.g., the Project for the Development of Electricity Supply for Domestic Consumption and Exportation (PMEDE) in Democratic Republic of Congo), or the relocation of dam sites (e.g., the Ruzizi III Transnational Project in the Democratic Republic of Congo).

Feasibility studies tended to focus on technical and financial aspects but displayed shortcomings in both. Project-level evaluations found that several solar and wind projects were designed without addressing the challenges of integrating their intermittent production into the country's energy grid. This limited the possibility of new additional production capacity, either because of the difficulty of connecting to the grid or the difficulty of managing intermittent production. Other feasibility studies overlooked the financial risks associated with integrating into a given energy ecosystem. The evaluation highlighted gaps in assessing the impact of government subsidies on the budget to support the NOOR Ouarzazate Project in Morocco. The risk of insolvency of the national electricity company was not adequately addressed in Madagascar's Sahanivotry RE Project. Moreover, an underestimation of the risk of entering a new market was observed in the Zola Energy Project in Côte d'Ivoire. The developers of the Achwa II Hydropower Project in Uganda faced cash flow problems due to the lack of a transmission line, resulting in an unpaid claim of approximately USD 45 million for deemed energy. Efforts are underway to resolve these issues, and the Bank is actively engaged in the discussions.

Finally, although the Bank's strategic documents underlined the importance of strengthening all components of the energy system—e.g., governance, human capacity development, and private sector participation—to increase the use of RE, the evaluation found that in the countries reviewed, only 14% of technical assistance activities

and advisory services supplied through the Bank's support focused on developing RE.

Adaptation over time and to country circumstances

To what extent were the Bank's interventions adapted to take RMCs' implementation performance and emerging challenges (including risks related to climate change) into account?

Finding 5: Country case studies show that the Bank adapted to a rising role for the private sector in RE.

The case study countries have gradually opened their energy sector to involve the private sector. Some countries have a long-standing commitment to private sector participation (e.g., Côte d'Ivoire, Kenya, Madagascar, and Uganda), while others have adopted the approach more recently (e.g., Burkina Faso, Cameroon, the Democratic Republic of Congo, and Zambia). The involvement of the private sector was accompanied by the need to strengthen the energy system, for example through policy-based operations. The AfDB has aligned its investments with this trend, with an average of 19% of its RE investments targeting private investments over the evaluation period. It is also noteworthy that in the 10 case study countries, a substantial share of projects (46%) related to the private sector (16 out of 35 projects). Private sector investments increased significantly over time, rising from a low percentage in 2012 to 30% of the net approved amount in 2021. Published in 2022, Renewable Energy Market Analysis: Africa and Its Regions highlighted the AfDB's role in investing in independent power producers on the continent, with instruments like the Sustainable Energy Fund for Africa playing a significant part. Although private investment provides opportunities for RE, the Bank has less influence over private investments than public investments, which policymakers can influence through policy dialogue.

Finding 6: The evaluation found that the instruments used by the Bank evolved over time. Notably, guarantees became an important risk mitigation

instrument used to scale up private sector investment in on-grid generation.

The Bank employs different instruments. Project lending is prominent (57%), followed by sector adjustment (19%) and project cycle grants (7%). The importance of financial guarantees, which mitigate risks in operations with commercial banks, grew substantially over the period, accounting for 6% on average per year and ranging from 2.5% in 2012–2015 to 20% in 2019–2021. This rise can be attributed to the Bank positioning itself as a guarantor for operations financed by commercial banks (Figure 8, [Technical annexes](#)). Noteworthy interventions, like Lake Turkana Wind Power (Kenya), the Sahofika Project (Madagascar), and Pay as you go Solar Home Systems (Côte d'Ivoire), employed financial guarantees. The ADB window accounts for 67% of all financing, followed by the ADF (18%).

Finding 7: To some extent, the AfDB was found to have deployed a differentiated approach in transition states. Support for project preparation was stronger in transition states than in non-transition states.

The Bank's support for RE in transition states increased from 4% in 2012–2015 to 21% in 2019–2021, reflecting the Bank's Fragility and Resilience Strategy and the availability of additional resources for transition states. Less than 1% of the Bank's assistance to non-transition states was devoted to project preparation, compared to 15% in transition states. Transition states received 64% of the total amount allocated to preparing RE interventions. In contrast, more enabling environment support and investments were allocated to non-transition states than to transition states (94% and 78%, respectively). This financial pattern reflects the Bank's dynamism and commitment in transition countries through more support to project preparation despite challenges in translating that commitment into investment. Transition countries tend to have low institutional capacity: this justifies the interventions. A case in point is the Desert to Power Initiative, which includes Burkina Faso and strongly focuses on transition states. The initiative began with a political

mandate from heads of state at the 2019 Desert to Power Heads of State Summit in Burkina Faso, where the parties developed and endorsed national and regional development partner roadmaps and mobilized resources for project preparation and concessional investments (e.g., approval of the USD 150 million Sahel G5 Financing Facility by the Green Climate Fund). The Democratic Republic of Congo case study highlights the importance of supporting medium and small-scale RE production distributed throughout a country to improve electricity access in transition situations, rather than relying on centralized production that requires extensive transport and distribution networks. The Bank diversified its support in the Democratic Republic of Congo, among other things rehabilitating existing hydropower capacity and supporting Inga and Ruzizi.

Finding 8: The evaluation found cases where interventions' designs were adjusted appropriately to a changing environment, and cases where they were not.

The assessment of the level of adaptation of interventions' designs to changing circumstances presents a mixed picture. In Kenya, Uganda, and South Africa (Box 3, [Technical annexes](#)), appropriate adjustments were made to accommodate the changing environment. Documentary evidence demonstrated that a positive development occurred in Burkina Faso, as the country and the AfDB agreed to review enterprise selection rules to align with the national entrepreneurship context. This adjustment has the potential to enhance private sector interventions. Similarly, the Achwa II Project in Uganda benefited from lessons learned from the Buseruka Project on deemed energy. This prevented the repetition of past mistakes. In contrast, some public actors in Morocco's RE sector feel that the Bank has not adapted adequately to the country's ambitions in this field. This perception may stem from the Bank's withdrawal from the Tangier Wind Project, after the AfDB cited the need to redo all site qualification studies after the project's transfer to the Essaouira region. Furthermore, the Bank was absent from the donors' roundtable for other wind projects

planned under the 850 MW integrated wind program. Additionally, in certain countries, explicit mentions were made of the Bank's insufficient adaptation to various triggers of change. These triggers included changes in the context (e.g., Burkina Faso), changes in government orientation (e.g., Morocco), and changes in an intervention's environmental conditions (e.g., Côte d'Ivoire, Democratic Republic of Congo, and Zambia).

Finding 9: The evaluation found innovative RE interventions in the Bank's portfolio.

In five of the ten case study countries, the evaluation found at least one intervention in the Bank's portfolio that can be considered innovative.¹⁴ These interventions introduced novel approaches, such as innovative financing structures; the implementation of new financing mechanisms, like the Facility for Energy Inclusion;¹⁵ the adoption of cutting-edge technologies; and the active involvement of the private sector. Notable examples include the first AfDB-funded solar independent power producers in Cameroon, an innovative securitization mechanism for solar home systems in Côte d'Ivoire, a pioneering attempt at wellhead steam-based securitization in Kenya, the Noor Project in Morocco, and a remarkable multi-party collaboration in Uganda. The Uganda case best illustrates how development and commercial financial institutions can collaborate harmoniously to facilitate private and public sector investment in the energy sector. The management of interventions in this case exemplifies effective leveraging of innovation in response to a dynamic and evolving environment.

On balance, the evaluation rates the relevance of the Bank's support for RE as satisfactory despite some important shortcomings.

Coherence

To what extent did the Bank's interventions align with the Bank's wider policy frameworks and with other interventions implemented by the

Bank, and to what extent were they coordinated with and complementary to the interventions of governments and other development organizations?

Internal Coherence

Finding 10: The evaluation found that the Bank's strategies for renewable energy, which are aligned with key corporate sector policies, show internal coherence with other priorities. The strong emphasis on hydropower projects highlighted the energy-water nexus but also raised concerns about the impacts on water resources.

The internal coherence of the Bank's support for RE was ensured by the Bank's key corporate sector strategies (e.g., the Energy Sector Policy of 2012 and the NDEA), which are aligned with the Bank's other current major priorities and strategies, namely the High 5s, the Ten-Year Strategy, and the Development and Business Delivery Model. Stakeholders have acknowledged that most attention was paid to large hydropower projects, which represent a significant part of the Bank's RE portfolio, paving the way for an energy-water nexus. On one hand, some projects linked energy with water to minimize water consumption (e.g., in Morocco) or to improve the supply of pumped water for domestic use and other purposes (e.g., in Rwanda). On the other hand, the Mid-Term Review of the NDEA pointed to the fact that water can sometimes be affected by negative externalities created by the implementation of an energy project, as in the case of the Guinea–Mali Electricity Interconnection Project, where a likely erosion of the banks of crossed waterways was identified.

External Coherence

Finding 11: Good coordination was found among RE stakeholders at the country level, albeit with variable leadership positioning by the AfDB. Development partners' interventions were judged complementary.

In most case study countries, including Burkina Faso, Cameroon, Madagascar, Kenya, Uganda, South Africa, and Zambia, coordination among development partners in the energy sector was found to be strong and effective overall. The Bank was found to actively participate in productive dialogue with governments. However, concerns were raised by government officials and development partner stakeholders regarding the technical and financial skills of the AfDB country teams compared to those of International Finance Corporation (IFC) staff. This was partly attributed to limited levels of specialized human resources in the Bank's country offices. In other countries, such as Côte d'Ivoire, the Democratic Republic of Congo, and Morocco, coordination was found to be weak. In these cases, stakeholders pointed to the small number of meetings or low involvement on the part of the AfDB. Government officials often acknowledged the World Bank as the development partner that led energy sector dialogue with other partners and governments, except in South Africa, where the AfDB was recognized as the country's primary energy partner. Given the ambitious goals outlined in the NDEA, stakeholders expected that the AfDB would take on a more prominent leadership role in the development partners group.

At the intervention level, the evaluation found effective coordination and interaction between the Bank and other development partners, although the Bank's attitude and role presented a mixed picture. The cluster evaluation of hydropower projects highlighted collaborative implementation through cofinancing. For instance, the Ithezi-Thezi Project in Zambia was cofinanced by the Government of Zambia, the European Investment Bank, and the Agence française de développement. Similarly, the Nachtigal Project in Cameroon was financed by the IFC, Électricité de France, and the Government of Cameroon. The Inga Project had support from the World Bank, the European Investment Bank, KfW, and AfDB. A syndicate led by the German Investment

Corporation provided the remaining debt required for the Achwa Project. These cofinancing arrangements enabled joint missions to review implementation progress and leveraged diverse skills to address issues on the ground. They also fostered cooperation and reduced transaction costs. For example, the Ithezi-Thezi Project streamlined implementation by utilizing AfDB procurement rules and guidelines. In contrast, the cluster evaluation of solar projects revealed concerns about inadequate coordination and collaboration among development partners. The Xina Solar One Project in South Africa exemplified these challenges, whereby a lack of communication and coordination among lenders, coupled with bureaucratic processes in certain development finance institutions, were key issues.

In certain interventions, such as in Kenya and Uganda, the AfDB assumed a leading role in coordinating project implementation with other partners. However, in other cases, including Morocco and Zambia, it did not. For instance, the IDEV evaluation of the [Uganda Country Strategy and Program \(2011-2022\)](#) noted that two AfDB-funded hydropower plants faced challenges in transmitting their generated electricity due to delays in the construction of transmission lines financed by another development partner. Depending on the circumstances, the Bank's position can evolve from a non-leading role to a leading one, as observed in the Ahouaty Hydrodam Project in Côte d'Ivoire. The evaluation noted that when it came to the Bank's non-sovereign operations in the RE sector, interactions with other partners primarily occurred at Headquarters, with limited visibility at the country level and in regional offices. While the Bank may have exhibited leadership and coordination with other partners at the Headquarters, the evaluation found a lack of awareness of the Headquarters, initiatives by staff and stakeholders at the country and regional levels.

Overall, the Bank's support for RE demonstrated satisfactory coherence.

Effectiveness

To what extent was the Bank's support for RE effective at addressing barriers, mobilizing finance, leveraging experience and partnerships, and achieving the results expected for developing RE in order to meet RMCs' energy and environmental needs?

The effectiveness of the AfDB's support for RE was evaluated at five levels: (i) achievement of outputs and outcomes, including high-level objectives, (ii) factors that influence performance, (iii) technical assistance and partnerships, (iv) leverage, and (v) knowledge and advisory work.

Lending activities

Achievement of outputs and outcomes

To what extent did the Bank's RE interventions achieve their expected outputs and direct and indirect outcomes?

Finding 12: Despite certain notable contributions, the evaluation found that the outcomes expected at the continental level are not being delivered at

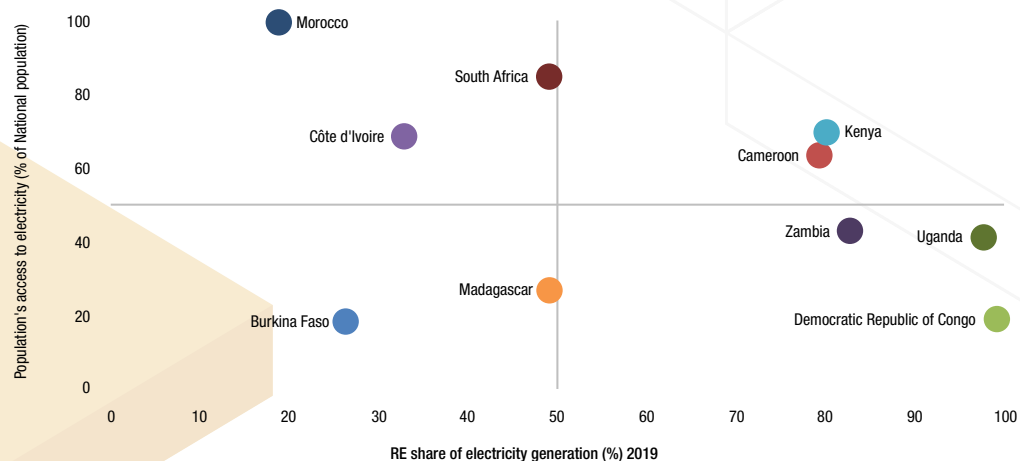
the desired pace and are falling short of the Bank's ambitious targets.

In terms of increased electricity production and access to electricity, the documentary evidence showed that case studies countries exhibit a wide range of characteristics regarding the share of RE in electricity generation and the population's access to electricity. Figure 2 suggests insights on four groups of countries, each of which presents unique challenges and priorities as they strive for sustainable and accessible energy systems.

- The first group has a higher access rate to electricity but a lower share of RE. Consisting of Morocco, South Africa, and to some extent Côte d'Ivoire, this group had an access rate of 70% or more in 2019 but less than 50% of RE in the electricity mix. The countries' challenge is not to increase access to electricity but to improve their energy mix, reduce their dependence on fossil fuels, and address the overall performance of their energy system.

- The second group consists of Cameroon and Kenya, countries that have a higher access rate (between 60% and 70% of the population) and

Figure 2: Countries' access to electricity and share of renewable energy (2019)



a significant share of RE in electricity generation (over 80%). Kenya has a more diverse mix of RE technologies, including solar, geothermal, and wind. Here, the main challenges are limited and aging distribution infrastructure and high technical and commercial losses, which hamper service delivery. Kenya has experienced several drought-related restrictions on hydropower (e.g., in 1999–2002), leading to an aggressive strategy to expand geothermal generation as reliable baseload power. Cameroon is more dependent on hydropower and has experienced rainfall variability and insufficient generation capacity.

- The third group of countries (Burkina Faso and Madagascar) have low electricity access (less than 30%) and a limited share of RE in electricity generation (less than 50%). In Burkina Faso, the energy sector faced structural difficulties, in particular the fact that installed power generation capacity is highly dependent on fossil fuels, which causes high production costs; the obsolescence of most of the national electricity company's generator production plants, the dilapidated state of the electricity transmission and distribution network, which results in energy losses; and the under-development of the country's hydropower and solar potential. In Madagascar, the main challenges are the fragile financial situation of the power utility and the low level of power generation.
- The fourth and final group of countries consists of the Democratic Republic of Congo, Uganda, and Zambia, all of which experience low access to electricity (less than 50% of the population) despite a high share of RE (more than 80%). For a long time, these three countries were largely dependent on hydropower, but they experienced a period of a power crisis that changed the energy planning mindset (e.g., in Uganda in 2005). They also faced inadequate maintenance of the power plants (Democratic Republic of Congo, Uganda). In the case of Uganda, the issue is no longer one of supply, but of how to promote the productive use of electricity to take advantage of a surplus of generation. Historically, Zambia relied almost

exclusively on a single source of RE energy for electricity generation, mainly hydropower. The main challenges there are the growth in electricity demand, which outpaced the expansion of generation capacity, and the poor financial position of the power sector (electricity tariffs in Zambia are among the lowest in sub-Saharan Africa).

It's important to highlight the varying starting points of respective 'renewable energy' within the regulatory indicators for sustainable energy score¹⁶, and a trend of improvement in different contexts (Figure 5, [Technical annexes](#)). The increase in RE capacity in the different countries is illustrated in Figure 6 of the [Technical annexes](#) and shows outstanding progress in South Africa.

Finding 13: The Bank's support for RE was found to contribute (or likely to contribute) to the objectives and targets of SDG7 and Agenda 2063 at the country level, but not at the required pace. The Bank's contribution to changes in RMCs' RE policies and institutional frameworks was found to be limited.

Documentary evidence demonstrated that the Bank played a significant role in increasing RE generation capacity in the 10 case study countries, contributing to a 27% increase in total capacity. From 2012 to 2021, the Bank's support led to an additional 3,900 MW of RE capacity in these countries. Around 82% of 22 interventions achieved the expected installed power generation capacity, while 13% exceeded the target and 5% fell short. More globally, according to Pricewaterhouse, in 2020 about 9% of all energy generated in Africa came from renewable sources, with a strong reliance (6.8%) on hydropower. The AfDB Energy Complex's database indicated that in terms of financing, from 2016 to 2020, Bank support achieved 14% of the 22 GW of installed power generation capacity targeted by NDEA for 2025 (16% of the 14 GW targeted installed RE-based generation capacity for 2025). The Bank's achievements therefore lag behind its targets. It is important to note that a previous evaluation of the energy sector by IDEV and the midterm review of the

NDEA already highlighted that the NDEA's targets are much more ambitious than the targets of comparable strategies (e.g., the Africa-focused energy sector strategies of the World Bank, USAID's Power Africa, and the Agence française de développement's Energy Transition).

Furthermore, project-level evaluations reported achieving outcomes for job creation and the reduction of greenhouse gas emissions (e.g., the NOOR Ouarzazate interventions in Morocco, the Sere Wind Project in South Africa, and the Cabeolica Project in Cabo Verde). However, the evaluation found that challenges related to a lack of supporting infrastructure such as transmission and distribution lines and storage infrastructure are limiting the achievement of expected outcomes in certain cases (e.g., the Achwa II Hydropower Project in Uganda, Lake Turkana wind power in Kenya). As of now, the outcomes of other projects, such as the Nachtigal Project in Cameroon, remain unevaluated.

Factors influencing performance

Which factors enable or hinder the achievement of RE interventions' expected direct and intermediate outcomes?

Finding 14: The evaluation highlights the importance of national policies and instruments as enabling factors. In contrast, inadequate financing, intermittency, transmission construction delays, political and economic uncertainty, and land acquisition challenges were found to hinder RE development. The AfDB is addressing these barriers with financing arrangements, project restructuring, and knowledge sharing.

The evaluation identified enabling and hindering factors for RE development in different countries. National RE policies and instruments were found to be key enabling factors, while inadequate project financing, the intermittency of wind and solar sources, the delayed completion of transmission lines, political and economic uncertainty, and land acquisition challenges were common hindering factors (Box 3).

The evaluation found cases where the AfDB had taken steps to overcome some of these barriers, arranging financing and restructuring projects in Kenya¹⁷ and Côte d'Ivoire.¹⁸ The Bank also provided expertise and knowledge to develop RE in Uganda's Northern Region, which contributed significantly to the design of the financing structure and other terms of the loan between ARPE¹⁹ and the lenders.

Non-lending activities

Technical assistance

Finding 15: At the project level, the evaluation found limited contribution of soft investments in RE, thereby reducing the Bank's overall impact.

The Bank's strategic documents prioritize strengthening energy system components, including governance, capacity development, and private sector involvement, to promote RE. The portfolio review found that soft investments (technical assistance and advisory services) accounted for around 38% of approved interventions over the evaluation period, but noted limited RE-focused technical assistance. Of 35 interventions in the 10 case study countries, only five (14%) provided technical assistance.²⁰ For example, the Bank helped establish the Energy Regulatory Agency (ARE) and rural electrification agency (ANSER) in the Democratic Republic of the Congo. The national electricity company (SNEL)'s reluctance to modernize and establish good governance, along with the slow pace of creating an enabling institutional and legal framework for private investment in the RE sector, were found as major obstacles. Burkina Faso plans to support RE policy and frameworks through the ongoing Energy Sector Reform Support Programme (PARSE) Project. In Zambia, soft investments are limited to the Renewable Energy Financing Framework Project, particularly the Green Climate Fund and Bank technical assistance grant proposed through SEFA. This grant aims to strengthen the enabling environment for private investment in the mini-grid and off-grid sectors; to enhance the capacity of local banks, the National Pension Scheme Authority, and Zambia's financial industry

Box 3: Enabling and hindering factors

In general, the existence of national policies and instruments related to the enabling environment for RE was a supporting element in the case study countries. Morocco developed an RE strategy in 2009, and many countries (e.g., Burkina Faso, Cameroon, Côte d'Ivoire, Uganda, and most recently, Zambia) have set national targets aligned with the Paris Agreement or their NDCs. Kenya benefits from effective legal and regulatory instruments (e.g., the Energy Act, tax incentives, independent regulators, and government letters of support), feed-in tariffs for small-scale generation plants, stable off-takers (until recently), and the adoption of independent power producers. Uganda is committed to supporting private sector-led interventions to meet the growing demand. South Africa's success in the Xina One Project was attributed to a standardized RE procurement program and a strong institutional and regulatory framework.

Hindering factors were prevalent across African countries. Inadequate project financing was a common theme. The 2022 *Africa Energy Outlook* highlights the need for more energy investments, particularly in clean energy, to achieve energy and climate goals. This would require over USD 190 billion each year from 2026 to 2030, two-thirds of which would go to clean energy. The Africa Energy Outlook predicted that the share of energy investments in Africa's GDP will increase to 6.1% during the period from 2026 to 2030. This projection is slightly higher than the average for emerging markets and developing economies. But Africa's energy investment in that period is still only around 5% of the global total (see the *International Energy Agency's Net Zero Emissions by 2050 Scenario*, 2022).

The intermittent nature of wind and solar sources and the requirement for their integration into the national grid was also found to present challenges, such as Kenya's requirement for grid stability (no more than 30% of intermittent power) and in turn baseload generation (more than 30% of intermittent power). Climate change also affected the variability of RE sources, including droughts impacting hydropower. Challenges to geothermal energy included high upfront costs and a lack of adequate capacity.

Delays in transmission line completion delayed power distribution. Also, the political and economic situation can introduce uncertainty, as seen in Zambia's debt crisis and the poor financial status of the national utility. Key informants expressed the view that political instability in the Democratic Republic of Congo and a lack of government leadership affected the Inga Project, while ECOWAS sanctions in Burkina Faso led to delays in AfDB disbursements. Finally, governance structures in Madagascar and South Africa's politicized environment pose additional obstacles, as players influencing policy formulation have an incentive to support coal (Jonathan H. et al.).

Land acquisition complexities (e.g., Uganda), conflicts of interest in the institutional set-up of projects (Zambia), community challenges regarding the management of landfills (South Africa), and the AfDB's slow decision-making on the issuance of non-objections were also mentioned as obstacles to project implementation.

More generally, a lack of supporting infrastructure tends to make the large-scale deployment of renewable energies unfeasible. Solar and wind technologies are smaller in scale than fossil fuel-based technologies. It is important to mention that countries may not have the infrastructure necessary for wind and solar power, such as storage technology, transmission lines, and adaptation to a broader energy grid. It is therefore important that a significant proportion of regional transmission lines contribute to RE projects. Finally, stakeholders highlight the significance of interconnecting hydroelectric power among West African countries, which are crucial for the development of regional energy markets in West Africa.

to finance RE; and improve project screening, due diligence, and monitoring. Training contracts have been signed, with ongoing procurement. This intervention was expected to help improve the regulatory and institutional framework. Additionally, a grant agreement was signed with the Government of Zambia under the Climate Investment Fund for a 40 MW wind feasibility study that will develop a business model and attract the private sector. It is worth noting that certain soft interventions that contributed to the overall energy sector, such as

capacity building, regulation, legal frameworks, private sector engagement, and policy dialogue, may have indirectly supported RE development but were excluded from the evaluation. Finally, the Bank is also driving non-lending initiatives through SEFA (Box 4, [Technical annexes](#)) to scale up energy sector investments and build resilience (few such initiatives were found in the countries visited). However, the SEFA approach demonstrated additionality, as seen in the Chad Solar Project. Initially rejected by the AfDB as too early, SEFA provided a project

preparation grant, enabling the AfDB to reconsider and commit loan funds and causing the project to reach financial close. This example highlights the crucial role of SEFA (or similar mechanisms) in projects' success.²¹ The weak outcome reporting systems of the Bank-managed energy fund (SEFA) and the private equity fund (Africa Renewable Energy Fund) made it challenging to assess these funds' contribution to developing the energy sector in RMCs. The 2018 external review of SEFA for 2011–2018²² highlighted the need to restructure the results framework with indicators that reflected the theory of change and donors' strategic priorities. The review found that the logframe, which sets performance targets, was first introduced in the 2015 annual report with end-of-2018 targets. The absence of a results framework in the multi-donor agreement was seen as a significant weakness in SEFA's design. Measured against the logframe indicators, SEFA did not make significant progress towards achieving most of its output, outcome, and impact targets by the end of 2018. The review attributed this underperformance to poorly defined targets set at inappropriately high levels. Measures in response to the review include the approval of a SEFA Strategic Framework including a theory of change and the development of a results framework.

Finding 16: At the corporate level, documentary evidence and key informants indicated that the AfDB is driving initiatives in policy dialogue and knowledge management for the energy sector.

As part of the NDEA, the AfDB launched initiatives that support the deployment of RE in RMCs. These initiatives include the Africa Energy Market Place (AEMP), Regulatory Indicators for Sustainable Energy, the Africa Energy Portal, and the Africa NDC Hub. The AEMP is a collaborative investment platform that brings together governments, the private sector, and development partners. Its goal is to support private investment in the energy sector by encouraging policy dialogue, fast-tracking projects, and promoting sector reforms.²³ The Electricity Regulatory Index (ERI), launched by the AfDB in 2018, is one of several efforts to identify

electricity sector regulatory challenges. The ERI is a comparative, country-by-country assessment of the sector's level of regulatory development. It is a diagnostic tool for identifying practices and areas in regulatory design that require improvement and reform.²⁴ The Africa Energy Portal displays the latest statistics and data on energy per theme, country, and sub-region; publishes daily news on the sector and important events; posts blogs and insights written by experts at the Bank and other partners; and makes country profiles publicly available.²⁵ Finally, the Africa NDC Hub, launched during the 23rd United Nations Climate Change Conference (COP 23) and hosted within the Bank, is a response to requests from African governments for support in implementing their Paris Agreement commitments (the NDCs). The evaluation did not assess the effectiveness of these initiatives.

Partnerships

How effectively did the Bank engage in productive partnerships in the RE sector?

Finding 17: The evaluation found that the Bank has established effective partnerships for RE interventions.

The evaluation found that AfDB strengthened partnerships with development partners to leverage and cofinance projects in selected countries. This optimized development outcomes. Burkina Faso is an exception: because projects are at the start-up phase, partnership agreements and frameworks are still being established. Partnerships have proven important for the success and sustainability of RE projects. For example, in Madagascar, the Bank established effective partnership frameworks and agreements for RE development with agencies such as the Agence française de développement, the World Bank, the European Investment Bank, German cooperation agencies GIZ and KfW, and the European Union. The parties implemented the new rules and assessed their feasibility and relevance for the country, and Madagascar's Sahofika Hydropower Project demonstrates strong

government involvement and ownership, benefiting from support from GIZ. In South Africa, stakeholders highlighted the strong relationship between the Xina One Project company, government stakeholders such as the Industrial Development Corporation and the Public Investment Corporation, and the community. Additionally, stakeholders expressed the view that flexibility in the Bank's corporate procedures facilitated successful partnerships and simplified administrative procedures for multi-donor projects. The PMEDE Project in the Democratic Republic of Congo, financed by a group of development partners, exemplified the need for coordinating and harmonizing financing and disbursement conditions. In Uganda, partner involvement varies across projects, with each party conducting appraisals separately and jointly monitoring implementation. Furthermore, the partners selected for RE interventions tend to achieve expected results, ensure sustainability, and demonstrate the required level of involvement and ownership. Private sector interventions in Côte d'Ivoire and successful partnerships with the private sector in Uganda illustrate this. The Ithezi-Thezi Hydropower Project in Zambia is an exception, as the utility Zambia Electricity Supply Corporation (ZESCO) is both the sole off-taker and a 50% shareholder in the operating company: this leads to conflicts of interest. Finally, the evaluation found that partnerships and collaborations enhanced the effectiveness of RE interventions. The AfDB's participation in the Nachtigal Hydropower Project in Cameroon benefits from Électricité de France's expertise in power plant design, management, and operation. In Morocco, partnership agreements for RE interventions were concluded with executing agencies such as Moroccan Agency for Sustainable Energy (MASEN) for solar and National Office of Electricity and Drinking Water (ONEE) for wind and hydropower: this leveraged these agencies' experience in managing large RE projects and financing. Country case studies demonstrated that these partnerships facilitated the implementation of complex and innovative RE projects in Morocco and other countries.

Leverage

How well has the Bank leveraged resources?

Finding 18: Overall, the evaluation found that AfDB has demonstrated its potential to trigger a catalytic effect in its support for RE development in different countries, despite variations in its effectiveness and impact across countries.

Interviewees in Burkina Faso, the Democratic Republic of Congo, Kenya, Morocco, and Uganda recognized the AfDB's important role in mobilizing financial resources and supporting the RE sector. The Bank's contributions included financing feasibility studies, technical assistance, and capacity building. In South Africa, stakeholders acknowledged the Bank's significant financial contributions but expressed concerns about burdensome due diligence requirements and perceived bureaucracy, which they felt could affect agility and delay decisions. Furthermore, in Kenya, the Facility for Energy Inclusion and the Off-Grid Energy Access Fund catalyzed support for feasibility studies, technical assistance, and capacity building. Additionally, in Uganda, the Bank played a critical role in mobilizing financial resources from various partners and facilitating stakeholder collaboration: this increased development effectiveness and sustained dialogue at the country level. In the Democratic Republic of Congo, the Bank's support for the rehabilitation of the Inga I and II hydropower plants, amounting to UA 33 million, had a 1:20 leverage effect that mobilized UA 666 million from other financial partners.²⁶ It is important to mention that SEFA was transformed into a special fund and raised well over USD 300 million in grant resources since 2019, making it the Bank's largest trust fund/special fund by far.

The Bank also supported private sector development in RE through studies and project development support. This had a significant leverage effect, as seen in projects such as the Democratic Republic of Congo Green Mini Grid Project. In Burkina Faso,

the Bank's resources were instrumental in mobilizing cofinancing from various partners, resulting in a leverage effect of about 1:17 for the Desert to Power-Yeleen Rural Electrification Project. Similarly, in Morocco, the Bank's resources played a crucial role in developing RE, with collaborative initiatives like the Core Partners Group (CPG) mobilizing additional resources. The leverage effect of the Noor 580 MW CSP complex is around 1:6. However, in Zambia and Cameroon, the Bank's leverage power and catalytic effect on the RE sector have been limited. The lack of new projects and a leveraging effect in Zambia is partly attributed to the country's debt situation. In Cameroon, the government's insufficient level of involvement and the delayed disbursement of its financial share hindered the Bank's impact.

Knowledge and advisory work

How well did the Bank fulfill its role as a knowledge broker, advisor, and convener?

Finding 19: Overall, the evaluation found that perceptions of the AfDB's role as a knowledge broker, advisor, and convener varied from country to country. Some knowledge and advisory products produced by the Bank are recognized in specific situations, but the Bank's ability to deliver RE knowledge interventions was often found lacking due to inadequate organizational capacity.

The evaluation found the perceptions of the AfDB's role as a knowledge broker, advisor, and convener to vary from country to country. Some knowledge and advisory products produced by the Bank were recognized in specific situations. Stakeholders expressed the view that the Bank's advisory and knowledge broker roles have had a positive impact on raising awareness on investing in the RE sector in Kenya and improving governance and efficiency in the energy sector in Uganda. However, in countries like Zambia, the Bank has not assumed a leading role in providing knowledge and advice on RE development. Its advice on on-site management during the pandemic in Morocco fell short of expectations.

Stakeholders identified the lack of energy specialists in the AfDB's country offices as a recurring obstacle to supporting RE. In several case study countries (e.g., Burkina Faso, Côte d'Ivoire, Kenya, Morocco, Uganda, and Zambia), the Bank's organizational structure for RE projects was found to be inadequate. This was not the case in Madagascar, which dedicates a local structure to the energy sector. This deficiency hampers the preparation, supervision, and management of projects, particularly in non-sovereign operations. For example, in Zambia, which counts only one utility specialist, the government counterpart described the supervision from Headquarters and the regional office as less than ideal. Similarly, while stakeholders mentioned that the Bank's country team in Uganda had been supportive and was present when needed, they added that the lack of energy specialists in the Uganda Office was an obstacle to more constructive engagement. The evaluation also highlights shortcomings in the Bank's organizational structure for supporting RE in Burkina Faso, Côte d'Ivoire, Kenya, Morocco, and Uganda. These structures were found to be ill-adapted to the scale of projects, lacking energy experts responsible for closely monitoring RE projects in the field.

Overall, the effectiveness of the Bank's support for RE was found to be satisfactory.

Efficiency

To what extent did the Bank's support for RE deliver, or is likely to deliver, results in an economic and timely way?

The efficiency of the AfDB's support for RE was assessed along three dimensions: delivery (timeliness and cost/budget), economic and financial performance, and supervision.

Timeliness and costs

To what extent did the Bank's RE portfolio deliver expected outputs promptly and within budget?

Finding 20: Globally, Bank-funded RE projects did not deliver the expected results on time. The complexity and challenges associated with RE interventions made these interventions prone to implementation delays.

The intricate nature and associated challenges of RE interventions made these interventions prone to implementation delays (e.g., 75 months for the Inga Project in the Democratic Republic of Congo; 27 months for Uganda Buseruka Hydropower). Project-level evaluations and the portfolio review identified several factors that contributed to these delays:

- I Geophysical constraints:** Projects like the Menengai Geothermal Steam Field Project in Kenya and the Ruzizi III Transnational Project in the Democratic Republic of Congo faced delays due to geophysical aspects of the project sites.
- I Inadequate preliminary analyses:** In the case of the pay-as-you-go leasing mechanism for solar home systems in Côte d'Ivoire, delays were caused by insufficient initial analysis, which affected the implementation timeline.
- I Slow project negotiations and land acquisition processes:** In projects such as the Menengai Geothermal Steam Field Project in Kenya, negotiations and land acquisition processes took longer than anticipated.
- I Slowness in partner countries:** Various projects faced delays due to the slow progress on the part of partner countries. Examples include the Inga hydropower stations and the Kinshasa Distribution Network Rehabilitation Project in the Democratic Republic of Congo, the Yeleen Solaire Project in Burkina Faso, the Nosy Be RE Project and Sahofika Hydropower Project in Madagascar, and the Kopere Solar Project in Kenya.
- I Bank-caused delays:** The Nachtigal Hydropower Project in Cameroon and the Power Sector Improvement and Governance Support (PAGASE) Project in the Democratic Republic of Congo experienced delays in the Bank's processes and

procedures, which impacted the implementation timeline.

- I External factors:** External factors like adverse weather conditions and the COVID-19 pandemic delayed solar projects in Morocco and the Abdelmoumen wastewater treatment plant.

Finding 21: Projects' budget performance varied, depending on the accuracy of assessments, competitive bidding processes, cost-saving measures, and unforeseen circumstances. The evaluation highlighted the importance of proper assessments, responsive project management, and the leveraging of competitive bidding processes to optimize budget performance.

The evaluation found that projects' budget performance varied. Some projects stayed within their budget, some exceeding it, and others achieved results having spent less money than planned. Projects such as the Madagascar Sahanivotry Project, the Kenya Lake Turkana Wind Power, and the Menengai Geothermal Field Development Projects stayed within budget. This was attributed to competitive bidding processes and the Bank's reviewing and approving contractors thoroughly before procuring goods and services. The Morocco Abdelmoumen wastewater treatment plant and the Uganda Kabalega (formerly Buseruka) Project experienced cost overruns. The Abdelmoumen plant was assessed inaccurately at the beginning; this made investment costs higher than planned. The Kabalega Project faced cost overruns due to unforeseen factors such as different soil conditions than predicted. In both cases, the Bank played a role in responding to cost overruns and restructuring financing to keep project viable. At the same time, other projects, such as the Morocco NOOR Ouarzazate Solar Power Plants and Zambia Itezhi-Tezhi Hydro Power, saved costs through competitive international bidding and by taking advantage of the volatility of new technology prices. For example, the NOOR Ouarzazate solar power plants in Morocco reduced budgeted costs by 18% by deploying a highly competitive bidding process for the private consortium responsible for the project.

Economic and financial performance (EIRR and FIRR)

To what extent did the Bank's identification, design, and approval mechanisms help implement RE interventions efficiently (optimized cost-benefit ratio, cost effectiveness)?

Finding 22: By involving the private sector in the form of independent power producers, the evaluation found AfDB-funded RE projects to be at the forefront of management practices in terms of economic and financial analyses, with positive ex-ante economic and financial performance. However, the evaluation was unable to assess this performance at the completion and ex-post stages due to the unavailability of information.

The evaluation highlighted the importance of sound economic assessment during the pre-feasibility and feasibility analyses of projects, particularly when the Bank's assistance and financial commitment are required. Accordingly, the Bank consistently uses economic and financial analyses, such as internal rates of return (IRRs), during the project appraisal stage. The evaluation found that overall, the estimated economic internal rate of return (EIRR) was above the opportunity cost of capital (around 10%) and the financial internal rate of return (FIRR) was above the weighted average cost of capital (WACC) (around 2,3%) everywhere except Morocco. For example, an economic analysis during the appraisal of the Xina Solar One Project predicted that the project would yield an EIRR of 11.14% in real terms and an expected net present value (ENPV) of USD 248 million. Also, the original financial model of the Xina Solar One intervention estimated the project's FIRR at 15.93% and the return on equity (ROE) at 17.4%. Furthermore, the PCREN of the ABM Project in Morocco noted an economic rate of return (ERR) of 15.8%, exceeding the opportunity cost of capital. However, project costs increased by 6% compared to the original plans.

The Bank's contribution to projects' financial additionality and development outcomes was also

assessed ex-ante. In the case of the Xina Solar One Project, the Bank's additionality was identified as filling the financing gap in the concentrated solar power market in South Africa, providing long-term finance, and mobilizing concessional funding. The Bank's involvement was deemed necessary to provide funds otherwise unavailable and make the project viable. Concentrated solar power projects require significant investments, and the Bank's involvement helps fill the financing gap, especially when commercial lenders have exposure limits to such projects. Additionally, the provision of long-term financing with an extended tenor and grace period adds value and improves projects' viability. The Bank's ability to mobilize concessional funds, such as the Clean Technology Fund, helps lower average tariffs and stimulates the concentrated solar power energy market in the project country (in this case, South Africa). In contrast, the Noor Ouarzazate Project in Morocco had unsatisfactory economic viability at appraisal. However, it was financed due to its expected global benefits in terms of teaching and learning about concentrated solar power technology deployment and its role in Morocco's long-term RE transformation program. The fiscal impact of potential power public-private partnership (PPP) projects on the government budget was not assessed. Other projects, like the Lake Turkana Wind Power Project in Kenya and the Quantum Power Geothermal Project, had a satisfactory FIRR and equity internal rate of return, indicating their viability for Bank financing.

The evaluation team was unable to conduct an ex-post economic and financial analysis of RE interventions due to a lack of data on the Bank's support.

Supervision

To what extent did the Bank's supervision support the achievement of expected outputs (compliance with Bank's project implementation principles)?

Finding 23: Documentary evidence demonstrated that the Bank carried out supervision missions regularly. Moreover, stakeholders expressed their

appreciation of supervision missions in reviewing projects' progress and dealing with problems.

The evaluation identified various aspects related to project supervision and monitoring in different countries. Country case studies and documentary evidence found effective project supervision and monitoring practices in Cameroon, Côte d'Ivoire, the Democratic Republic of Congo, Kenya, Morocco, South Africa, and Zambia. For example, in Kenya, regular supervision missions and reports enabled the Bank to assess progress and provide advice. In Morocco, South Africa, and Zambia, the Bank's participation in joint supervision missions and implementation of recommendations demonstrated effective collaboration with other donors and contributed to a realistic view of implementation prospects. Interviewees also noted that a lack of human resources with AfDB affected effective project monitoring and supervision in the Democratic Republic of Congo and South Africa. Additionally, in Côte d'Ivoire, monitoring reports for the Singrobo-Ahouaty Project were well prepared but did not feed into monitoring at the Bank level, and the status of the project in the Bank's database was inaccurate. This indicates a need to improve project information management and reporting.

Overall, evidence was mixed as to the efficiency of the AfDB's support for RE with respect to timeliness, budget performance, and supervision. The evaluation was unable to assess ex-post economic and financial aspects of RE interventions because of a lack of data. Because of this, the overall efficiency of the Bank's support for RE was not rated.

Sustainability

How sustainable are the results of the Bank's assistance for RE?

The evaluation examined five aspects of sustainability: (i) technical soundness, (ii) economic and financial sustainability, (iii) institution and

capacity strengthening, (iv) stakeholder ownership, and (v) environmental and social sustainability.

Technical soundness

To what extent do RE projects' achievements rely on sound technologies and maintenance mechanisms?

Finding 24: The evaluation found that AfDB-funded RE interventions used state-of-the-art technologies that are globally adapted to the country context. Notwithstanding some shortcomings in their maintenance mechanisms, these technologies were deployed appropriately in the field.

The evaluation found that AfDB-funded RE relied on mature hydropower technologies, relatively new wind technology, advanced solar technologies, and geothermal technologies backed by complex drilling and engineering processes. For example, the AfDB-funded hydropower plants in Cameroon, the Democratic Republic of Congo, Uganda, and Zambia rely on mature power generation technologies, such as Francis and Kaplan turbines, which have been in use in Africa for many years. The turbine technology selected for the Nachtigal plant in Cameroon is considered appropriate and sustainable due to the location of the Sanaga River, which is a natural source of power generation. The technologies used at the Inga plant in the Democratic Republic of Congo, including turbines and high-voltage lines, are designed for long-term operation. The Achwa plant in Uganda employs a vertical Francis turbine and uses a run-of-river alternative instead of a traditional dam because of the unique geology of the Agago-Achwa river complex. It is important to note that while these technologies are considered appropriate, the evaluation acknowledges that the construction of large hydropower plants can be complex and costly and can have significant environmental and social impacts. This has led to complaints and investigations, as in the Nachtigal and Bujagali projects. Advanced solar technologies are described in Box 5 of the [Technical annexes](#).

The evaluation found that in general the maintenance of AfDB-financed RE interventions was satisfactory, although some shortcomings in systematic support for maintenance processes were observed. Documentary evidence and stakeholder interviews showed that the Bank provided capacity-building activities, including technical skills training, to address these challenges. In projects involving independent power producers and a build-own-operate-transfer model, maintenance responsibilities vary. In some cases, the implementing companies carry out the maintenance; in other cases, external maintenance contracts are used. In the case of mid-tier public projects, where state-owned generation assets are involved, operations and maintenance are supervised by holding companies. To address maintenance-related issues and ensure the smooth operation of different technologies installed in various interventions, the AfDB provided targeted capacity-building activities. For example, in Kenya, the Bank helped develop the technical skills of drillers and drilling engineers to expedite geothermal projects. In Morocco, local employees were trained in the operation and maintenance of solar projects.

Financial sustainability

To what extent has the Bank contributed to RMCs' securing financial resources to ensure the continued flow of benefits associated with RE projects?

Finding 25: The financial sustainability of AfDB-funded RE interventions was threatened by the financial distress of power utilities. This affects the entire energy sector, including RE.

Some AfDB-funded interventions were found to face financial risks due to unpaid fees, negative publicity, a lack of revenue, and off-takers' financial distress. According to the 2021 AfDB Electricity Regulatory Index and the African Energy Outlook, the tariffs of the electricity markets of 36 of 54 RMCs (67%) do not reflect the true cost of providing electricity. This situation leads to sub-optimal markets and significant revenue shortfalls.

To maintain affordable tariffs, governments often subsidize revenue shortfalls. The literature review found this approach to be inefficient and to pose a challenge to financial sustainability. In South Africa, for example, Eskom's financial viability is crucial for project sustainability. As the sole off-taker in South Africa, Eskom determines projects' fate by purchasing and paying for the energy generated. Its precarious financial position is a major concern for the entire energy sector. Despite the government's 2019 roadmap for Eskom's reform, the desired results have not yet been achieved. Additionally, financial sustainability was found to be at risk in interventions in Côte d'Ivoire, the Democratic Republic of Congo, Kenya, Morocco, and Zambia (Box 6, [Technical annexes](#)). In Zambia, overall sustainability depends on the utility's capacity to operate and maintain the infrastructure and secure regulatory approval to adjust tariffs.

De-risking mechanisms such as guarantee instruments used by the Bank and local governments are seen as critical to catalyzing capital flows for RE deployment, but sub-optimal risk-sharing can impose long-term financial burdens on governments, adding to sovereign debt stress and hampering the further development of critical infrastructure, including infrastructure for RE. Several interventions analyzed in the country studies used a guarantee as a risk mitigation instrument (e.g., the Lake Turkana Wind Power Project in Kenya, the Sahofika Project in Madagascar, and Pay-as-you-go Solar Home Systems in Côte d'Ivoire). However, stakeholders expressed the view that PPPs in general do not necessarily allocate risk optimally. This is mainly the case when a government has limited experience in negotiating power purchase agreements. For example, in Morocco, government support for bridging the tariff gap ensures long-term financial sustainability but burdens the government's budget. In Kenya, the Presidential Taskforce on the Review of Power Purchase Agreements was created to (i) to review the allocation of risk between independent power producers and Kenya Power and Lighting Company under the power purchase agreements, (ii) review the "Take-or-Pay" approach applied

under the power purchase agreement structure and recommend a viable “Pay-when-Taken” (merchant plant) approach or other viable payment structure for independent power generation projects. Accordingly, a number of projects experienced delays in the provision of a letter of support and partial risk guarantee. This was the case for the Menengai Geothermal Project and the Kopere Solar Power Project, the latter of which started in 2015 but is still unsigned (the negotiations regarding the provision of a partial risk guarantee by the government are still not closed). Another unfortunate example is the Lake Turkana Wind Power Project plant. The plant was completed in 2019 but the transmission line was not ready, so the government had to provide deemed generated energy payments to the company for about six months.

Institution and capacity strengthening

To what extent has the Bank contributed to strengthening institutional capacities to facilitate

the continuous flow of benefits associated with RE projects?

Finding 26: Despite the Bank’s willingness to address governance issues in RMCs, its contribution to strengthening institutional capacity in countries’ RE sector was found to be limited.

Institutional capability refers to institutions’ capacity to carry out projects, human knowledge, personnel’s skill set, and the availability of data to guide policymaking. The AfDB has committed to strengthening the institutional capacity of African countries in RE through various channels, mainly (i) support for RE policy and regulatory frameworks, (ii) support for capacity building and technical assistance, and (iii) support for the management of RE-related knowledge (Box 4).

The AfDB’s influence on strengthening RE institutions was found to be limited: implementation activities principally affected

Box 4: Channels used to strengthen institutional capacity

Stakeholders saw the AfDB’s support for RE policy and regulatory frameworks as yet to demonstrate results. The AfDB has supported African countries in developing and implementing RE policy and regulatory frameworks. Through SEFA, the AfDB has provided technical assistance and capacity-building to policymakers and regulators in countries such as Kenya, Senegal, and Tanzania. The objective is to create an environment that can attract private sector investment and promote the deployment of RE technologies. However, the Norwegian Agency for Development Cooperation’s assessment of SEFA 2.0 concluded that SEFA’s portfolio of projects offers potential for impact but limited private sector involvement. The potential impact of the enabling environment projects appears minimal, though there are signs of new opportunities, notably linking enabling environment support to particular transactions, which could be meaningful such in Chad. SEFA has also supported the formulation of RE strategies in countries such as Ghana, Mozambique, and Rwanda. The AfDB’s Desert to Power Initiative, which aims to develop 10,000 MW of solar power in the Sahel region, includes building capacity for RE development and strengthening institutions. The AfDB has also supported the establishment of the African RE Initiative (AREI), which is a partnership between African governments and development partners to accelerate the deployment of RE in Africa. The initiative aims to develop 300 GW of RE capacity in Africa by 2030 and includes support for institutional capacity building. Its results reporting system is weak.

Support for capacity building and technical assistance was found to have a limited effect. The AfDB has provided capacity building and technical assistance to RE stakeholders in Africa. For instance, the AfDB approved a USD 25 million grant in 2018 to support the development of training programs for RE technicians and engineers in countries such as Burkina Faso and Mali. The goal was to enhance local capacity in RE technologies and encourage the adoption of RE systems. This evaluation did not evaluate the effectiveness of that grant.

Support for RE knowledge management. The AfDB has contributed to the development of knowledge management systems for RE in Africa. One example is the Africa Energy Portal, a comprehensive platform that supplies energy data, reports, and analysis of RE in Africa. Policymakers, regulators, and investors can access this portal to make informed decisions and facilitate RE development. In interviewing stakeholders, the evaluation did not find enough evidence on its use to evaluate it.

institutions indirectly, not directly. Country case studies and reviews of interventions pointed to the example of Kenya's Country Strategy Paper, in which the AfDB commits to strengthening anti-corruption institutions, addressing governance issues through active dialogue with the government, and building capacity for better public-sector management. In the past, the Bank recognized the relevance of PPPs in the economy and contributed to the development of independent power producers in Kenya with the expectation that they would generate power from the steam produced. Additionally, in South Africa, arrangements were made for the Sere Wind Project to transfer operational and maintenance expertise. In the South African Xina Solar One Project, Abengoa, the company involved, aims to transfer expertise and skills to local staff working but acknowledges that this is a long-term process. Furthermore, in the Democratic Republic of Congo, the institutional and legal framework for the energy sector is gradually being established, with the operationalization of the electricity sector regulatory authority (ARE) and the establishment of a national agency for electrification and services energy in rural and peri-urban areas (ANSER). These developments enable the AfDB to intensify its support for national and private initiatives in underserved or unserved areas. Additionally, in Burkina Faso, the ongoing Ouaga North-West Solar Power Plant subcomponent of the Yeleen Project received financial support of about UA 20,000 from the Bank for capacity building.

The evaluation found that AfDB contributed somewhat to improve the management of the energy sector in RMCs through investments in RE generation, policy dialogue, institutional support, technical assistance, and knowledge work. It also found that the Bank facilitated private sector development and engagement in the RE sector through support for interventions financed by private sector actors. Despite these efforts, stakeholders expressed the view that the Bank faced challenges in enhancing the governance of the RE sector in RMCs. The challenges on the part of RMCs included limited capacity, weak regulatory frameworks, a lack

of institutional coordination, and political instability. Insufficient human capacity, particularly in project management and procurement, was a common issue in countries like Uganda. The evaluation did not find evidence of activities targeting the enhancement of the management of energy demand in RMCs. However, interventions intend to increase RE capacity and generation in RMCs and make tariffs more affordable, which would stimulate demand. Institutional support for the broader energy sector in RMCs could also have a positive impact on the RE sector. However, the [Evaluation of the AfDB's Support to the Energy Sector in Africa](#) found that the Bank's use of non-lending activities to support project outcomes was partial and inconsistent, although effective when employed. The evaluation concluded that there were missed opportunities to provide non-lending policy and technical assistance that could have contributed to projects' success. This limited progress underscores the necessity for the Bank to refocus its support for improved, sustained energy access in Africa.

Stakeholder ownership

To what extent did the Bank assist RMCs effectively by involving stakeholders, promoting a sense of ownership amongst beneficiaries, and putting effective partnerships in place (e.g., with local authorities, civil society organizations, the private sector, and development partners) in its interventions in RE?

Finding 27: The evaluation found that there have been efforts in the AfDB's support for RE to involve stakeholders, including government officials, the private sector, development partners, and civil society organizations, in the design and implementation of interventions. However, the level of consultation matters.

The AfDB partnered with governments, local authorities, financiers, communities, and civil society in each country through its country strategy. Stakeholder consultation and engagement

were integral to Bank interventions' addressing grievances and mitigating environmental impacts. At the intervention level, the Bank successfully involved stakeholders in the design and implementation of its interventions. Successful projects relied on effective partnerships and community involvement. For example, in Zambia, the Itezhi Tezhi Power Corporation Ltd involved the community in reservoir and power plant management. Stakeholders were consulted for the transmission line, and local engagement was maintained. Additionally, in Kenya, the Mutunguru Project collaborated with conservation groups on beneficiary ownership and sustainability. Additionally, the Lake Turkana Project engaged stakeholders and fostered partnerships. Less positively, land acquisition remains a challenge in Uganda and the design of the Xina One Project in South Africa showed no evidence of participation except for the environmental impact assessment, which included an extensive public consultation process involving representatives of all stakeholders in the study area. Still, there is no evidence that this informed the design of the project. It was noted that local communities were initially unhappy, as they felt excluded and disconnected from the project. In recent years, the company has employed individuals to engage with local communities and manage community development projects. As a result, there has been more active involvement by the community and the relationship with the communities has improved.

Environmental and social sustainability

To what extent did the Bank appropriately assess and implement environmental and social mitigation/enhancement as well as climate change mitigation and adaptation measures in its RE interventions?

Finding 28: The Bank was found to systematically assess environmental and social risks and include mitigation measures in its country-level

RE interventions. Yet the evaluation also found unintended, underestimated, or unresolved environmental and social issues.

Documentary evidence demonstrated that the Bank prioritized environmental, climate, and social issues in its RE interventions. Measures were implemented to address concerns related to land acquisition, climate change impacts, resources, safeguards compliance, and labor strikes. CSPs evolved over the evaluation period to highlight these issues as priorities. Frameworks and grievance management systems were established for stakeholder complaints and improved communication. At the same time, country case studies revealed unintended environmental and social issues. These issues were related to indigenous peoples (Kenya), the environmental safety of the used batteries (Côte d'Ivoire), an inadequate monitoring and evaluation system for tracking environmental and social issues (Uganda), poorly managed landfills (South Africa), and residual environmental risks (Cameroon). In Kenya, concerns arose regarding the Lake Turkana Project's impact on indigenous peoples and social issues. Cultural site contamination, disease, conflicts, accidents, and hazards led to a court case. The situation's current developments are unknown. In Côte d'Ivoire, the environmental safety of storing defaulted batteries remains uncertain due to a lack of proper treatment. Furthermore, the risk of diminishing resources (changes in rain patterns) in the Singrobo Project affects the project's environmental sustainability. This risk was identified and financially managed by the project. Finally, in Cameroon, the Nachtigal Project's residual environmental risks were underestimated (flora and fauna loss, habitat clearance). Complaints were filed regarding compensation, resettlement, consultation, the destruction of sacred sites, and the loss of natural resources.

Given these shortcomings, the evaluation rated the sustainability of the Bank's support for RE as partly unsatisfactory. ■



Conclusions, Lessons, and Recommendations

Conclusions

The evaluation found that the AfDB's operational practices are generally supportive of RE, but are not always implemented effectively in RMCs. The AfDB has shown a strong commitment to RE by developing energy sector strategic documents and adapting to global concerns and pressures. However, the evaluation observed limitations in greater support for RE at the regional and country levels, including an inadequate focus on RE in national priorities, the lack of a clear framework and vocabulary related to RE, the absence of clear direction in the Bank's regional strategic documents as to RE development, the lack of action plans to complement the AfDB's strategic documents on RE, and inadequate resources (human, financial, and system-level resources) for establishing leadership in RE. Coordination between development partners in the energy sector was found to be generally strong and effective in most countries studied, but stakeholders raised concerns about the technical and financial expertise of the AfDB's team compared to the team of the International Finance Corporation insofar as RE was concerned. In some countries, such as Côte d'Ivoire, the Democratic Republic of Congo, and Morocco, the evaluation found weak coordination or low Bank involvement. However, stakeholders in such countries as Burkina Faso, South Africa, and Uganda saw the AfDB as playing a leadership role in the energy sector.

Although the portfolio review showed that the AfDB had allocated a significant portion of its energy sector support to RE in RMCs, the AfDB did not meet its RE targets for additional power generation (MW) in the NDEA. Also, although the AfDB's RE interventions contributed to the goals of SDG7 and Agenda 2063 at the country level, they fell short

of expectations. However, documentary evidence demonstrated that AfDB-funded RE interventions either produced or are expected to produce their intended outputs, despite delays and shortcomings in the wind cluster. The evaluation found national RE policies and instruments as key enabling factors in the achievement of RE results, while inadequate project financing, the intermittency of wind and solar sources, the delayed completion of transmission lines, political and economic uncertainty, and land acquisition challenges were hindering factors. Stakeholders expressed the view that the AfDB's role in shaping policy and institutional frameworks for RE and providing knowledge and advisory services to RMCs was limited. However, the evaluation emphasized that the Bank has established effective partnerships for RE development in Africa and has the potential to trigger a catalytic effect.

The efficiency of AfDB-supported RE interventions was found to be negatively affected by such factors as geophysical constraints, inadequate preliminary analyses, challenges in project negotiations and land acquisitions, delays by partner countries and at the Bank, and external factors. Although involving the private sector improved economic and financial analyses ex-ante, the evaluation experienced challenges in obtaining adequate information for ex-post analysis. Stakeholders indicated that the Bank's supervision missions were carried out regularly and they appreciated the Bank's role in reviewing project progress and addressing problems.

The evaluation found that while interventions' technical soundness was found to be commendable, maintenance mechanisms have shortcomings. Financial sustainability was threatened by power utilities' financial distress, and inappropriate

risk sharing could deteriorate a country's debt situation. Deemed energy payments also affect the sustainability of AfDB's RE interventions. The evaluation also found that the Bank was committed to addressing governance issues in RMCs, but its contribution to strengthening institutional capacity in the RE sector remained limited. Furthermore, the Bank systematically assessed environmental and social risks but faced issues that were underestimated, unintended, or unresolved.

In sum, the Bank's support for RE was assessed as mostly successful, but important concerns remain. The following enabling and hindering factors for RE success were identified: national policies, project finance (in)adequacy, the availability and intermittency of wind and solar sources, climate change, the speed of delivery of transmission lines, land acquisition challenges, the speed of AfDB decision-making processes (issuance of statements of no-objection), and the political and economic situation in each country. Tailoring the Bank's support to specific needs and challenges was found to be crucial for individual countries achieving greater results. At the same time, a lack of supporting infrastructure (storage technology, transmission lines, and adaptation to the larger energy grid) was often found to make large-scale deployment of renewable energies unfeasible.

Lessons

The following are the key lessons from this evaluation.

Lesson 1: Complementing strategies with action plans strengthens stakeholders' participation (particularly the private sector) in RE.

Complementing strategies with action plans bridges the gap between a high-level vision and implementation on the ground. It empowers stakeholders by giving them specific tasks, responsibilities, and a tangible roadmap to follow, thereby encouraging greater engagement and

participation in RE initiatives. A case in point is the South African Renewable Energy IPP Procurement Program, which is a competitive tender process designed to facilitate private investments in grid connected RE generation in South Africa.

Lesson 2: Supporting infrastructure, such as transmission and distribution lines, storage infrastructure, and adaptation to the broader power grid, makes it possible to achieve the outcomes desired for on-grid RE projects.

The evaluation observed difficulties in using the electricity produced by certain Bank-funded RE projects because of the absence of distribution and transmission lines, insufficient storage equipment, and power system instability. Resolving these issues would optimize the benefits of such projects.

Lesson 3: Prioritizing origination and sharing risks with private finance makes it possible to scale up financing for the development of RE infrastructure.

The evaluation emphasized that without good risk sharing, de-risking mechanisms (e.g., financial guarantees provided by the Bank and RMCs), which were seen as critical to catalyzing capital flows for RE deployment, can impose long-term financial burdens for the government, adding to sovereign debt stress and hampering the development of further critical infrastructure, including infrastructure for RE.

Lesson 4: Making sure that RE investments with intermittent production integrate smoothly into a country's energy grid makes RE interventions more effective.

The evaluation found that several solar and wind projects had been designed without taking into account the challenges of integrating their production into the country's energy grid. This limited the possibility of new additional production capacity, either because of the difficulty of connecting to the grid or because of the difficulty of managing intermittent production.

Recommendations

IDEV makes the following recommendations:

Recommendation 1: Better articulate the Bank's renewable energy approach at the corporate, regional and country level to better align goals and objectives.

Key priority actions include:

- Ensuring more systematic integration of RE development in the Bank's Ten-Year Strategy, RISPs and CSPs.
- Strengthening policy dialogue with a view to shaping RE strategic documents at regional and country level.

Recommendation 2: Enhance the quality at entry of RE interventions.

Key priority actions include:

- Increasing support for early-stage project development.

- Enhancing due diligence of technical and financial feasibility studies.

- Strengthening the assessment of potential environmental and social impacts of RE interventions.

Recommendation 3: Expand the use of blended finance instruments to scale up investments in renewable energy in RMCs.

Key priority actions include:

- Expanding the deployment of innovative risk mitigation instruments to attract more private sector investment.
- More proactively supporting RMCs in creating the enabling environment for increased private sector investment.
- Doubling down on the Bank's track record in mobilizing concessional resources for RE initiatives such as SEFA.
- Strengthening the assessment of potential environmental and social impacts of RE interventions. ■

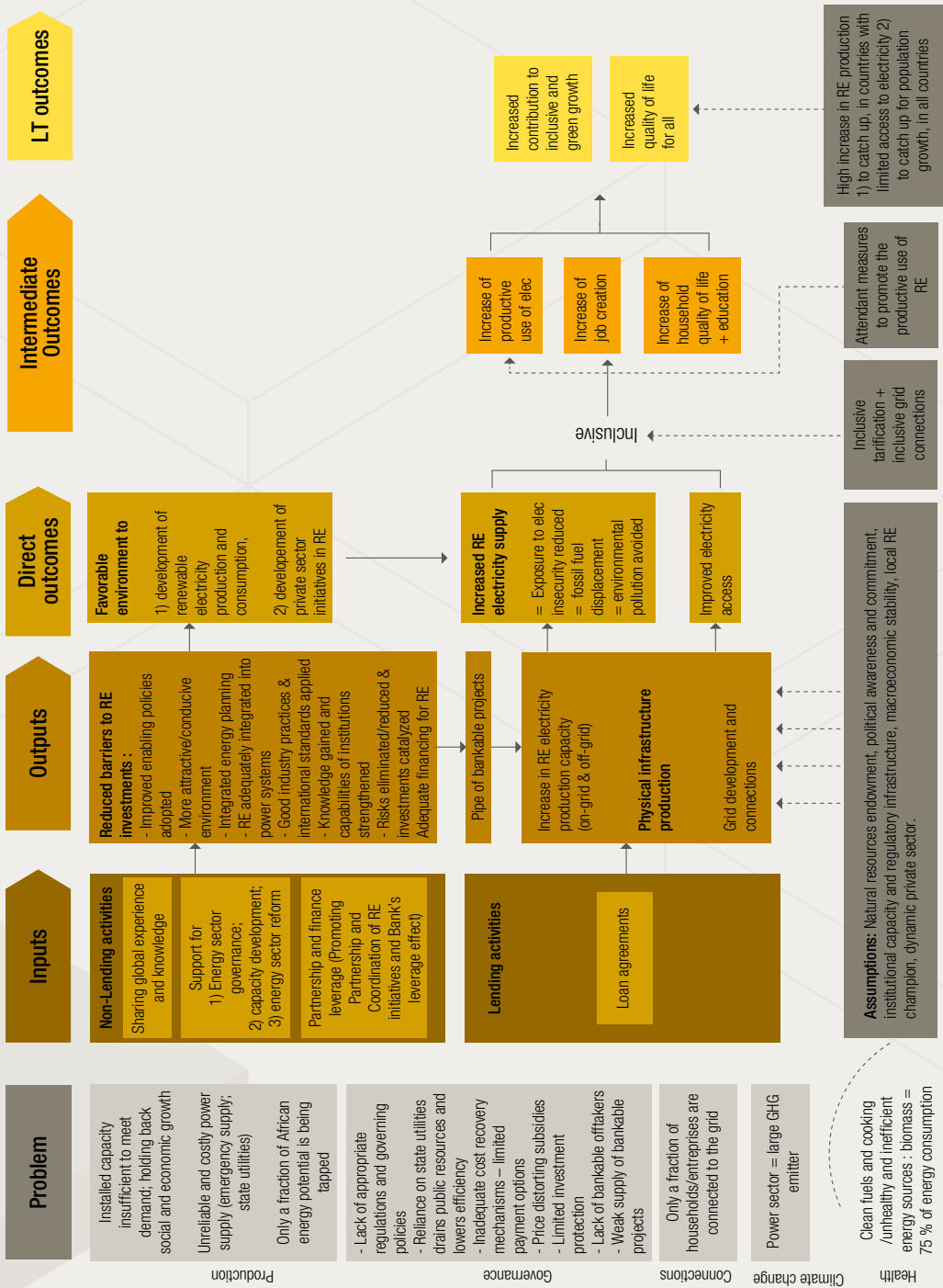


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Annex 1: Reconstructed Results Chain

Renewable electricity result chain



Annex 2: Evaluation Rating Scale

Rating for individual evaluation criteria

Criteria	Highly Satisfactory-4	Satisfactory-3	Partly Unsatisfactory-2	Unsatisfactory-1
Relevance	Highly Satisfactory (4): High quality in all aspects of the considered criterion: all dimensions of the criterion are fully met, and this is considered a good practice.	Satisfactory (3): Overall satisfactory quality of the considered criterion: all dimensions of the criterion have been met but some of them have minor shortcomings.	Partly Unsatisfactory (2): Overall insufficient quality of the considered criterion: one or more dimensions of the criterion have not been met and substantial improvements are required to bring the criterion to a satisfactory rating.	Unsatisfactory (1): Deficient quality in most aspects of the considered criterion: most of the dimensions of the criterion have not been met
Coherence	Highly Satisfactory (4): High quality in all aspects of the considered criterion: all dimensions of the criterion are fully met, and this is considered a good practice.	Satisfactory (3): Overall satisfactory quality of the considered criterion: all dimensions of the criterion have been met but some of them have minor shortcomings.	Partly Unsatisfactory (2): Overall insufficient quality of the considered criterion: one or more dimensions of the criterion have not been met and substantial improvements are required to bring the criterion to a satisfactory rating.	Unsatisfactory (1): Deficient quality in most aspects of the considered criterion: most of the dimensions of the criterion have not been met
Effectiveness	Highly Satisfactory (4): High quality in all aspects of the considered criterion: all dimensions of the criterion are fully met, and this is considered a good practice.	Satisfactory (3): Overall satisfactory quality of the considered criterion: all dimensions of the criterion have been met but some of them have minor shortcomings.	Partly Unsatisfactory (2): Overall insufficient quality of the considered criterion: one or more dimensions of the criterion have not been met and substantial improvements are required to bring the criterion to a satisfactory rating.	Unsatisfactory (1): Deficient quality in most aspects of the considered criterion: most of the dimensions of the criterion have not been met
Efficiency	Highly Satisfactory (4): High quality in all aspects of the considered criterion: all dimensions of the criterion are fully met, and this is considered a good practice.	Satisfactory (3): Overall satisfactory quality of the considered criterion: all dimensions of the criterion have been met but some of them have minor shortcomings.	Partly Unsatisfactory (2): Overall insufficient quality of the considered criterion: one or more dimensions of the criterion have not been met and substantial improvements are required to bring the criterion to a satisfactory rating.	Unsatisfactory (1): Deficient quality in most aspects of the considered criterion: most of the dimensions of the criterion have not been met
Sustainability	Highly Satisfactory (4): High quality in all aspects of the considered criterion: all dimensions of the criterion are fully met, and this is considered a good practice.	Satisfactory (3): Overall satisfactory quality of the considered criterion: all dimensions of the criterion have been met but some of them have minor shortcomings.	Partly Unsatisfactory (2): Overall insufficient quality of the considered criterion: one or more dimensions of the criterion have not been met and substantial improvements are required to bring the criterion to a satisfactory rating.	Unsatisfactory (1): Deficient quality in most aspects of the considered criterion: most of the dimensions of the criterion have not been met

Source: IDEV Evaluation Manual, July 2023 Updated version

Overall performance rating

Rating scale	Assessment criteria
Highly Successful - 6	The intervention achieved or surpassed all main targets, objectives, expectations, and results and had no shortcomings in terms of relevance, effectiveness, efficiency, and sustainability.
Successful – 5	The intervention achieved almost all of the main targets, objectives, expectations, and results and had at most minor shortcomings in terms of relevance, effectiveness, efficiency, and sustainability.
Mostly Successful – 4	The intervention achieved the majority of the main targets, objectives, expectations, and results and had moderate shortcomings in terms of relevance, effectiveness, efficiency, and sustainability.
Mostly Unsuccessful – 3	The intervention achieved few of its main targets, objectives, expectations, and results and had significant shortcomings in terms of relevance, effectiveness, efficiency, and sustainability.
Unsuccessful – 2	The intervention achieved only a minority or almost none of its targets, objectives, expectations, and results and had major shortcomings in terms of relevance, effectiveness, efficiency, and sustainability.
Highly Unsuccessful - 1	The intervention achieved none of its targets, objectives, expectations, and results and had severe shortcomings in terms of relevance, effectiveness, efficiency and sustainability.

Source: IDEV Evaluation Manual, July 2023 Updated version

Annex 3: Evaluation Matrix

Overview

Criterion Main question	Sub-question	
Relevance To what extent did the Bank's interventions align with RMCs' priority RE needs as RMCs navigated changing RE markets and expanding global initiatives?	SQ. 1.1 Strategy	How adequate is the Bank's strategic focus on RE to assist RMCs to achieve: the SDGs, the Kyoto Protocol, and the Paris Agreement?
	SQ. 1.2 Alignment	To what extent were the Bank's lending and non-lending activities in RE aligned with the priorities of RMCs and end beneficiaries' needs?
	SQ. 1.3 Adaptation	To what extent were the Bank's interventions adapted over time, taking into account RMCs' implementation performance and emerging challenges (including risks related to climate change)?
Coherence To what extent did the Bank's interventions align with the Bank's wider policy frameworks and with other interventions implemented by the Bank, and to what extent were they coordinated with and complementary to the interventions of governments and other development organizations?	SQ. 1.4 Internal Coherence	To what extent are the Bank's interventions aligned with the wider policy frameworks of the institutions; and the alignment with other interventions implemented by the institution?
	SQ. 1.5 External Coherence	To what extent are the Bank's interventions coordinated with those of governments and other development organizations, and complementary to these interventions?
Effectiveness To what extent was the Bank's support for RE effective at addressing barriers, mobilizing finance, leveraging experience and partnerships, and achieving the results expected for developing RE in order to meet RMCs' energy and environmental needs?	SQ. 2.1 Achievement of outputs and outcomes	To what extent have the Bank's RE interventions achieved their expected outputs, direct and indirect outcomes?
	SQ. 2.2 Influencing factors	What are the factors that enable or hinder the achievement of RE interventions' expected direct and intermediate outcomes?
	SQ. 2.3 Partnerships	How effective has the Bank been in engaging in productive partnerships in the RE sector?
	SQ. 2.4 Leverage	How well has the Bank leveraged resources?
	SQ. 2.5 Knowledge, advisory	How well has the Bank fulfilled its role as a knowledge broker, advisor, and convener?
Efficiency To what extent did the Bank's support for RE deliver, or is likely to deliver, results in an economic and timely way?	SQ. 3.1 Timeliness and Costs	To what extent has the Bank's RE portfolio delivered expected outputs promptly and within the planned cost?
	SQ. 3.2 Economic and Financial Performance	To what extent did the Bank's identification, design, and approval mechanisms contribute to ensuring an efficient implementation of the RE interventions (Optimize Cost-benefit ratio, Cost-effectiveness)?
	SQ. 3.3 Supervision	To what extent has the Bank's supervision been supportive of achieving the expected outputs (Compliance with Bank's project implementation principles)?

Criterion Main question	Sub-question	
Sustainability How sustainable are the results of the Bank's assistance for RE?	SQ 4.1 Technology soundness	To what extent do RE projects' achievements rely on sound technologies and maintenance mechanisms?
	SQ 4.2 Financial sustainability	To what extent has the Bank contributed to RMCs securing financial resources to ensure the continued flow of benefits associated with RE projects?
	SQ 4.3 Institutional and capacity strengthening	To what extent has the Bank contributed to strengthening institutional capacities to facilitate the continuous flow of benefits associated with RE projects?
	SQ 4.4 Stakeholders' ownership	To what extent has the Bank effectively assisted RMCs by involving relevant stakeholders, promoting a sense of ownership amongst the beneficiaries, and putting in place effective partnerships with relevant stakeholders (e.g., local authorities, civil society organizations, private sector, donors) through its interventions in RE in RMCs?
	SQ 4.5 Environmental and social sustainability	To what extent has the Bank appropriately assessed and implemented environmental and social mitigation/enhancement as well as climate change mitigation and adaptation measures in its RE interventions?

Relevance: To what extent did the Bank's interventions align with RMCs' priority RE needs as RMCs navigated changing RE markets and expanding global initiatives?

Sub-Sub Questions / Criteria	Corporate / Country / Intervention	#	Indicators	Portfolio Review	Literature and Policy Review	Interviews	Project-level evaluations ²⁷	Country Case Study
SQ. 1.1 Strategy								
To what extent does the Bank's RE strategy take into consideration the underlying objectives and indicators related to (i) M/SDG, (ii) AU agenda 2063, and (iii) Paris Agreement (PA)?		1.1.1.1	Identification and extraction of objectives and indicators related to (renewable) Energy and Electricity under M/SDGs; African Union agenda 2063 and the Paris agreement	x	x			
		1.1.1.2	Screening of the AfDB Energy policy, NDEA, High 5 objectives & indicators for explicit reference to and consistency with those defined for the period 2012–2021 under M/SDGs, AU agenda & the Paris agreement			x		
		1.1.1.3	Opinion on the way how the Bank fits in with the trends and global objectives in the field of RE development			x		
		1.1.1.4	Opinion on the Quality of design, the Strategic importance; and the Role played by the Energy Policy and NDEA; Perception of the specific role played by the NDEA in the field of RE			x		
		1.1.1.5	Existence of specific approach(es) by technology/cluster deriving from global or AfDB-specific initiatives (Energy policy, NDEA)			x		
		1.1.1.6	Evolution of the portfolio in RE over time: is there an influence of the NDEA (paradigm break or business as usual), or other strategic documents?	x		x		
To what extent are the Bank RE strategies coherent with key RE development challenges in the RMC?	Country	1.1.2.1	AfDB regional & country portfolio analysis - geographic distribution of interventions according to technologies (clusters) and comparison with an estimated potential	x				x
		1.1.2.2	Screening of the AfDB Energy policy and the NDEA, and the Climate Change Action Plans for explicit, systematic et detailed analysis of RE challenges (potential, barriers, enablers, etc.) in RMCs		x			x
		1.1.2.3	Feedback from AfDB staff involved in the design of RE strategies on how RE challenges were analyzed and considered; how this analysis is updated - the existence of recurrent analytical work; how lessons learned from RISPs and CSPs implementation with major RE projects are used (learning mechanisms, databases, regular analysis work)			x		x
		1.1.2.4	Opinion on the actual and future coverage of RE development challenges by AfDB corporate strategy - new challenges, missing challenges, etc. in the RMC			x		x

Sub-Sub Questions / Criteria	Corporate / Country / Intervention	#	Indicators	Portfolio Review	Literature and Policy Review	Interviews	Project-level evaluations ²⁷	Country Case Study
To what extent do RISPs and CSPs take into consideration the underlying objectives and indicators related to (i) M/SDG, (ii) AU agenda, and (iii) PA?	Country	1.1.3.1	Screening of objectives & indicators within RISPs & selected CSPs for explicit reference to and consistency with those defined for the period 2012–2021 under M/SDGs, AU agenda & the Paris agreement		x	x		x
		1.1.3.2	Opinions from in-country AfDB and national stakeholders on the way how the Bank fits in with the trends and global objectives in the field of RE development, including in terms of perspectives for the future					x
To what extent are RISPs and CSPs coherent with key RE development challenges in RMCs?	Country	1.1.4.1	Intensity of consideration of and alignment with RE development challenges by RISPs & CSPs: (i) Analysis of country / regional context; (ii) National development & sector-specific policies; (iii) Bank country assistance strategy (pillars, results framework & indicators, non-lending activities). Screening of keywords in all CSPs & RISPs approved by the Bank for the period 2012–2021		x			x
		1.1.4.2	Assessment & feedback from national stakeholders on the (i) quality and soundness of the Bank's analysis of the context; (ii) quality and soundness of national development & sector-specific policies and how adequately they are considered by the Bank; (iii) coverage by Bank's country assistance strategy (pillars, results framework & indicators, non-lending activities) of RE development challenges (incl. reasons of exclusion)					x
		1.1.4.3.	How is the articulation of lending & non-lending (soft components) activities considered and demonstrated in CSPs?					x
Is the quality of RE development interventions design ensured (objectives clearly stated and result-oriented; results are realistic with regard to the current circumstances), for achieving the defined objectives? Does RE development intervention design integrate explicit consideration of M/SDG, AU agenda 2063, and PA agendas?	Interventions	1.1.5.1	Explicit reference in RE development interventions to M/SDGs; African Union Agenda and Paris Agreement objectives/indicators				x	
		1.1.5.2	Extent to which AfDB RE interventions include: (i) project's objectives clearly stated and focused on outcomes as opposed to outputs; (ii) realistic intended outcomes in the country's current circumstances; and to Bank's role, capacity, and lending & non-lending capabilities for achieving the defined objectives; (iii) appropriate solutions to the identified problems (section on Relevance of intervention design to achieve defined objectives)				x	

Sub-Sub Questions / Criteria	Corporate / Country / Intervention	#	Indicators	Portfolio Review	Literature and Policy Review	Interviews	Project-level evaluations ²⁷	Country Case Study
To what extent are major climate change risks for long-term sustainability considered within RE development interventions?	Interventions	1.1.6.1	Quality of risk assessment (assumptions made in the logic model) (Section on Relevance of intervention design to achieve defined objectives) & (Feedback from national stakeholders - Authorities, executive agencies, operators, beneficiaries)				x	
		1.1.6.2	Implementation status, existing monitoring, and feedback on the relevance of modifications made to project design (Section on Relevance of intervention design to achieve defined objectives) & (Feedback from national stakeholders - Authorities, executive agencies, operators, beneficiaries)				x	
		1.1.6.3	Analysis of the circumstances prevailing at the time of the evaluation; Extent to which potential negative impacts were identified, their likelihood of occurring, and how they might be avoided (Section on Relevance of intervention design to achieve defined objectives) & (Feedback from national stakeholders - Authorities, executive agencies, operators, beneficiaries)				x	
SQ. 1.2 Alignment								
To what extent are RE development objectives defined under CSPs & RISPs aligned with RMCs' strategic priorities (global and sector-specific)?	Country	1.2.1.1	Assessment & feedback from national stakeholders on the Bank's consideration of main national objectives driving the RE development (selectivity vs broad consideration; gaps)					x

Sub-Sub Questions / Criteria	Corporate / Country / Intervention	#	Indicators	Portfolio Review	Literature and Policy Review	Interviews	Project-level evaluations ²⁷	Country Case Study
To what extent are RE interventions aligned with RMCs strategies: (i) AfDB corporate, sectoral, RISPs, and CSPs; (ii) National development, sectoral strategies; and with beneficiaries' specific needs (appropriate solutions provided to identified problems and barriers)?	Interventions	1.2.2.1	<p>Explicitly demonstrated alignment of interventions with applicable:</p> <ul style="list-style-type: none"> • AfDB corporate strategies (Mid-term strategy 2008–2012; Ten Years Strategy 2013–2022; High 5) • AfDB sectoral strategies (Energy policy, NDEA, Climate change action plans) • RISPs and CSPs • National general development strategies (and respective contribution to specific national development objective(s), usually time-bound and quantified) • National sector-specific (Energy, Electricity, RE, Climate) strategies • Beneficiaries' specific needs (appropriate solutions provided to identified problems and barriers) • For PBO: ensure alignment with the Poverty Reduction Strategy Paper (PRSP), Performance Assessment Framework (PAF), or applicable country and Bank sector strategies <p>(Section on Relevance of objectives) & (Feedback from national stakeholders-executive agencies in selected countries)</p>				x	
To what extent do RISPs and CSPs provide an assessment of drivers/obstacles for RE development, and how is it used for adapting the RE overall strategy of the Bank?	Country	1.3.1.1	The intensity of consideration of RE development challenges by RISPs & CSPs: (i) Analysis of country / regional context; (ii) National development & sector-specific policies; (iii) Bank country assistance strategy (pillars, results framework & indicators, non-lending activities). Screening of keywords in all CSPs & RISPs approved by the Bank for the period 2012–2021		x			x
		1.3.1.3	Opinion of in-country AfDB and national stakeholders on the quality, completeness, and adequacy of the assessment on drivers and barriers for RE development, included in CPSs / RISPs					x
		1.3.1.4	Feedback from AfDB in-country staff on the way this assessment is performed (resources, frequency, robustness) and how its results are considered at AfDB HQ / Energy Complex					x

Sub-Sub Questions / Criteria	Corporate / Country / Intervention	#	Indicators	Portfolio Review	Literature and Policy Review	Interviews	Project-level evaluations ²⁷	Country Case Study
SQ. 1.3 Adaptation								
To what extent are lessons learned in the field of RE development from country / regional experiences considered in RISPs and CSPs?	Country	1.3.2.1	Analysis of the section "Portfolio Management and Lessons Learnt from previous CSP" under CSPs and the prominence of RE development aspects		x			x
		1.3.2.2	Opinion of in-country AfDB and national stakeholders on the quality, completeness, and adequacy of considering lessons learned in RE development from past or current experiences at national/regional level					x
How does the portfolio structure (lending vs non-lending) at regional and country levels evolve over time?	Country	1.3.3.1	Portfolio analysis at regional level as well as at the level of selected countries (clusters/technologies, regions & countries, sources of financing)	x				x
		1.3.3.2	Perception of in-country AfDB and national stakeholders regarding the evolution of the Bank portfolio (adequacy to needs; good timing to take advantage of opportunities)					x
		1.3.3.3	Understanding & analysis of objectives, and main themes to be covered by non-lending activities (Policy dialogue, Analytical work; Institutional support & capacity building (RISPs & CSPs))					x
		1.3.3.4	Assessment & feedback from the AfDB country office (Country economist, Country portfolio manager, and Experts) on the implementation (stocktaking) and achievements of non-lending activities in targeted countries					x
Have RE Interventions been adapted over time in line with evolving context (technical, financial, political, governance- and capacity-related opportunities & threats)?	Interventions	1.3.4.1	Reactive vs Proactive approach in adapting RE interventions due to positive or negative changes or trends (section on Relevance of objectives; Criterion "Relevance of modifications made to intervention design") & (Feedback from national stakeholders - Authorities, executive agencies, operators, beneficiaries)				x	
Are RE interventions managed and conducive to leverage innovation (social and/or science and technology development) in a changing global context?	Interventions	1.3.5.1	Innovation identified as a specific objective or cross-cutting issue (clarity, means dedicated to innovation & adequate management, and monitoring tools)				x	
		1.3.5.2	Opinions from stakeholders involved in the management of the Bank RE development interventions about their innovative character in terms of process and achievements				x	

Coherence: To what extent did the Bank's interventions align with the Bank's wider policy frameworks and with other interventions implemented by the Bank, and to what extent were they coordinated with and complementary to the interventions of governments and other development organizations

Sub-Sub Questions / Criteria	Corporate / Country / Intervention	#	Indicators	Portfolio Review	Literature and Policy Review	Interviews	Project-level evaluations ²⁸	Country Case Study
SQ. 1.5 Internal Coherence								
Aligned with the wider policy frameworks of the institutions	Strategy	1.4.1.1	Extent of the alignment of the Bank's strategies for renewable energy with key corporate sector policies	x				x
Aligned with other interventions implemented by the institution?	Interventions	1.4.1.1	Identification of energy-water nexus	x		x		x
SQ. 1.5 External Coherence								
Complementarity - What is the degree of sector/thematic specialization of other TFPs compared to AfDB in selected countries?	Country	1.4.1.1	Identification of interventions by other TFPs in selected countries during 2012–2021 and linkages with main clusters (check DAC database).	x				x
		1.4.1.2	Opinion of in-country AfDB and national stakeholders on complementarity with other TFPs; and the degree of specialization					x
		1.4.1.3	Analysis of CSPs and outputs from non-lending activities regarding interventions of other donors active in countries subject to a case study					x
		1.4.1.4	Feedback from other key donors in the field of RE development (CCS): (i) portfolio presentation and awareness about AfDB-funded interventions; (ii) focus on specific technologies/clusters					x
Coordination - Is the design and the implementation of RE development interventions coordinated between the Bank and other TFPs at country level	Country	1.4.2.1	Identification of existing development assistance coordination mechanisms at country level (general, sector-specific, and related to RE); description and assessment of coordination modalities, the existence of explicit joint strategy AfDB-other TFP(s)					x
		1.4.2.2	Feedback from in-country AfDB and national stakeholders on the functioning of coordination mechanisms - regularity, quality, resulting influence on decision-making					x
		1.4.2.3	Feedback from in-country AfDB and national stakeholders on the concrete coordination during design, implementation, and exploitation phases of RE projects: (i) participative design of RE intervention(s); (ii) leadership for specific aspects where each donor demonstrates its comparative advantage; (iii) Common mechanisms in managing (Project coordination unit, Procurement, Supervision, etc.), monitoring, assessing achievements of RE development interventions					x

Sub-Sub Questions / Criteria	Corporate / Country / Intervention	#	Indicators	Portfolio Review	Literature and Policy Review	Interviews	Project-level evaluations ²⁸	Country Case Study
reinforcement in the design, funding, and implementation of interventions financed by the Bank and other TFPs?	Interventions	1.4.3.1	Specific attention to cofinanced RE development interventions Section on Coherence (external)				x	
		1.4.3.2	Evidence on (i) existence of coordination platforms between TFPs; (ii) participative design of RE intervention(s) ; (iii) clear leadership for specific aspects where each donor demonstrates its comparative advantage; (iv) common mechanisms in managing (Project coordination unit, Procurement, Supervision, etc.) and monitoring / assessing achievements of RE development interventions.				x	

Effectiveness: To what extent did the Bank's interventions align with the Bank's wider policy frameworks and with other interventions implemented by the Bank, and to what extent were they coordinated with and complementary to the interventions of governments and other development organizations?

Sub-Sub Questions / Criteria	Corporate / Country / Intervention	#	Indicators	Portfolio Review	Literature and Policy Review	Interviews	Project-level evaluations ²⁹	Country Case Study
SQ 2.1 Achieved outcomes								
Evidence of progress towards MDGs/SDGs, Agenda 2063 objectives and targets: what is the estimated contribution to sector development results (improvement of sector indicators) in targeted countries?	Country	2.1.1.1	Figures demonstrating the contribution of AfDB activities to sector (& general) development results: (i) progress towards key targets under SDGs and AU Agenda; (ii) noticeable improvement of key sector indicators	x				x
		2.1.1.2	Estimation and perception of stakeholders regarding the contribution of AfDB activities to sector (& general) development results: (i) progress towards key targets under SDGs and AU Agenda; (ii) noticeable improvement of key sector indicators					x

Sub-Sub Questions / Criteria	Corporate / Country / Intervention	#	Indicators	Portfolio Review	Literature and Policy Review	Interviews	Project-level evaluations ²⁹	Country Case Study
How did non-lending activities contribute to changes in RMCs' renewable energy policy and institutional framework?	Country	2.1.2.1	Stocktaking of non-lending activities conducted in selected countries (planned vs implemented): policy dialogue; analytical work; other advisory and accompanying activities					x
		2.1.2.2	Explicit linkages between non-lending activities and RE development					x
		2.1.2.3	Recorded contribution of non-lending activities to the improvement of national RE policy and institutional framework					x
		2.1.2.4	Opinion of in-country AfDB staff and national public/private stakeholders regarding the contribution of non-lending activities to the improvement of national RE policy and institutional framework, including explanatory factors					x
Do RE development interventions produce tangible outputs, and obtain direct and intermediate outcomes, as planned within their results-based logical frameworks?	Interventions	2.1.3.1	Achievement of outputs against those planned in the logical framework <ul style="list-style-type: none"> For PBO: assessment should not only review the extent to which outputs were delivered (i.e., agreed-upon policy reforms took place) but also the degree to which complementary measures necessary for their implementation occurred (e.g. public awareness, policy dialogue, and institutional arrangements). 				x	
		2.1.3.2	Achievement of outcomes against those planned in the logical framework				x	
What are the key barriers and risks identified, and faced in practice, by RE interventions? (And typology: Categorization of RE interventions according to the type of key barriers and risks being addressed)	Interventions	2.1.3.2	Achievement of outcomes against those planned in the logical framework				x	
		2.1.4.1	Record on key barriers and risks as explanatory factors of the RE interventions' performance (policy-governance; economic & financial; environmental & sustainability-related; technical; operational and capacity-related factors) (section 3.2 in PRA which generally includes an analysis of explanatory factors regarding the performance of the intervention)				x	
SQ 2.2 Influencing factors								
What are the key enabling and hindering factors allowing RE interventions to achieve AfDB expected outcomes at corporate level?	Corporate	2.2.1.1	Identification of enabling and/or hindering factors for achieving expected outcomes in RE development at corporate level (previous evaluations & studies)			x		
		2.2.1.2	Feedback from AfDB HQ-Energy complex; in-country AfDB staff and national stakeholders on enabling and/or hindering factors for achieving expected outcomes			x		

Sub-Sub Questions / Criteria	Corporate / Country / Intervention	#	Indicators	Portfolio Review	Literature and Policy Review	Interviews	Project-level evaluations ²⁹	Country Case Study
What are the key enabling and hindering factors allowing RE interventions to achieve RMCs RE objectives?	Country	2.2.2.	Opinion of in-country AfDB staff and national public/private stakeholders regarding explanatory factors of the RE development interventions' performance					x
What are the key enabling and hindering factors allowing RE interventions to achieve their expected direct and intermediate outcomes?	Interventions	2.2.3.1	Record and feedback by stakeholders on key enabling factors and barriers and risks (see 2.1.4.1) as explanatory factors of the RE interventions' performance (policy-governance; economic & financial; environmental & sustainability-related; technical; operational and capacity-related factors)				x	
What are the underlying causes and lessons learned that could inform the design and management of future interventions?	Interventions	2.2.4.1	Experience-based recommendations by stakeholders on key improvements regarding the design and operational management of RE interventions (dimensions: policy-governance; economic & financial; environmental & sustainability-related; technical; operational and capacity-related factors)				x	
What instruments and approaches did the Bank use to address key barriers and risks faced by RE development interventions?	Interventions	2.2.5.1	Record and feedback by stakeholders on solutions they found and used to address barriers and risks they were confronted with.				x	

Sub-Sub Questions / Criteria	Corporate / Country / Intervention	#	Indicators	Portfolio Review	Literature and Policy Review	Interviews	Project-level evaluations ²⁹	Country Case Study
SQ 2.3 Partnerships								
To what extent did the Bank establish effective partnership arrangements and frameworks in the field of RE, including the role of AfDB in building partnerships?	Corporate / Country	2.3.1.1	Identification of major partnership arrangements & frameworks in selected countries: (i) with other global actors/TFPs; (ii) with major private sector investors; (iii) with national stakeholders in RE - public, private or mixed - Ministries, Agencies and Regulation authorities, Facilities; (iv) with other relevant stakeholders involved in interventions – e.g. civil society			x		x
		2.3.1.2	Feedback from AfDB in-country staff and national stakeholders on the specific role played by the Bank in building partnerships (orientations, dedicated human & material means; approach adopted: proactivity vs reactivity)			x		x
		2.3.1.3	Feedback from AfDB in-country staff and national stakeholders on the quality of partnerships, their functioning & evolution through the time			x		x
		2.3.1.4	Analysis of the functioning and structuring of specific RE instruments (e.g.: trust funds)	x		x		x
		2.3.1.5	From a partnership point of view, how did instruments evolve over time in their support for RE?			x		x
What are their tangible achievements, and which factors enabled or hindered the performance of those arrangements & frameworks?	Corporate / Country	2.3.2.1	Feedback from AfDB in-country staff and national stakeholders on concrete achievements and benefits from partnering (regarding the understanding of the context; response to needs; results obtained)			x		x
		2.3.2.2	Opinion on enabling and/or hindering factors for the establishment, functioning, and performance of partnership arrangements and frameworks			x		x
What is the degree of partners' involvement and ownership under RE interventions (at the main stages of the interventions' life cycle; considering technical, political, financial, and management dimensions, etc.)?	Interventions	2.3.3.1	Record & (crossed) perception on the commitment & involvement of cofinancing other TFPs: during (i) project preparation; (ii) project implementation; (iii) further accompanying measures; and with regard to the various dimension of partnership: (a) technical; (b) governance & decision-making; (c) mobilization of financing; (d) operational & strategic steering			x	x	
		2.3.3.2	Record perception on the commitment & involvement of national authorities: during (i) project preparation; (ii) project implementation; (iii) further accompanying measures; and with regard to the various dimension of partnership: (a) technical; (b) governance & decision-making; (c) mobilization of financing, notably national counterparts; (d) operational & strategic steering				x	

Sub-Sub Questions / Criteria	Corporate / Country / Intervention	#	Indicators	Portfolio Review			
				Literature and Policy Review	Interviews	Project-level evaluations ²⁹	Country Case Study
To what extent are AfDB interventions supported by partnership programs effective? (See QS2.1 & SQ 2.2 on obtaining outputs, achieving outcomes, and identifying enabling & hindering factors)? Can a difference be observed between RE interventions in partnerships, compared to RE interventions conducted by the Bank alone?	Interventions	2.3.4.1				x	
To what extent were selected partners within RE interventions appropriate for achieving expected results and guaranteeing their sustainability?	Interventions	2.3.5.1	Record and feedback from in-country AfDB and national stakeholders on the appropriateness of the partnership(s) structure, management arrangement, and division of tasks, operational modalities, and instruments used. Influence on effectiveness and sustainability		x	x	
SQ 2.4 Leverage							
To what extent did the Bank's RE assistance (lending and non-lending activities) have a catalytic effect in the RE sector in Africa and selected RMCs?	Corporate / Country	2.4.1.1	AfDB portfolio demonstrates a catalyst effect - interventions are the driving force in enhancing the volume, the coverage, and the performance of investments in RE development		x		x
		2.4.1.2	Identification of lessons learned from previous evaluations regarding the Bank's catalyst effect in the energy sector		x		x
		2.4.1.3	Identification of instruments and interventions with catalyst effect		x		x
		2.4.1.4	From a leverage point of view, how did instruments evolve over time in their support for RE?		x		x
		2.4.1.5	Perception of in-country AfDB staff and national public/private stakeholders regarding the catalyst effect of the Bank, feedback on the role of lending & non-lending activities		x		x

Sub-Sub Questions / Criteria	Corporate / Country / Intervention	#	Indicators	Portfolio Review			
				Literature and Policy Review	Interviews	Project-level evaluations ²⁹	Country Case Study
What are Bank's leveraging activities in RE and what are their achievements between 2012–2021 (Africa and selected RMCs)?	Corporate / Country	2.4.2.1	Identification of leveraging activities at continental, regional, and national levels	X	X		X
		2.4.2.2	Recorded achievements of leveraging activities in the Bank's documentation (studies, evaluations); feedback from AfDB HQ and in-country stakeholders; from national public/private stakeholders	X	X		X
What are the key enabling (strengths) and hindering (weaknesses) factors influencing the Bank leveraging activities in RE (Africa and selected RMCs)?	Corporate / Country	2.4.3.1	Strengths and weaknesses of the Bank leveraging activities perceived by stakeholders (AfDB HQ-Energy complex; in-country AfDB staff; national public / private stakeholders)	X	X		X
To what extent has the Bank had the leadership on cofinanced interventions in the RE sector?	Interventions	2.4.4.	Record & (crossed) perception on the leadership of the Bank: during (i) project preparation; (ii) project implementation; (iii) further accompanying measures; and concerning the various dimension of partnership: (a) technical; (b) governance & decision-making; (c) mobilization of financing; (d) operational & strategic steering; (e) focus on specific components (e.g., social & environmental sustainability, etc.)			X	
SQ 2.5 Knowledge & advisory							
How well is the Bank's organizational capacity in delivering RE interventions and obtaining results appreciated?	Corporate / Country	2.5.1.1	Identification of lessons learned from previous evaluations regarding the Bank's capacity in delivering interventions in the Energy sector	X	X		X
		2.5.1.2	Feedback from HQ / Energy complex on (i) design, coordination, and supervision of RE interventions; (ii) choice of instruments and approaches		X		X
		2.5.1.3	Feedback from AfDB in-country staff and national stakeholders on (i) coordination and supervision of RE interventions; (ii) choice of instruments and approaches		X		X
To what extent does the Bank play a leading role in knowledge and advisory related to RE development? At which level (global, continental, regional, country-specific)? In which areas?	Corporate / Country	2.5.2.1	Stated leading role in knowledge & advisory - identification with AfDB HQ-Energy complex of (i) the specific focus given to technologies, intervention modalities; (ii) dedicated means and mobilized expertise; (iii) initiatives and their visibility		X		X
		2.5.2.2	Perception of stakeholders at global, continental, or regional level regarding the role and the visibility of the Bank funded knowledge and advisory activities in the field of RE development		X		X
		2.5.2.3	Feedback from in-country AfDB stakeholders and national public/private actors regarding the role of the Bank as a knowledge & advisory broker				X

Sub-Sub Questions / Criteria	Corporate / Country / Intervention	#	Indicators	Portfolio Review	Literature and Policy Review	Interviews	Project-level evaluations ²⁹	Country Case Study
Are the Bank's knowledge and advisory products (policy guidance, technical expertise, training) available and accessible for relevant stakeholders in RE development? Did they identify and find them useful?	Country	2.5.3.1	Perception of national stakeholders about the availability and accessibility of key knowledge and advisory products provided by the Bank (policy guidance, technical expertise, training)					x
		2.5.3.2	Perception of national stakeholders about the quality and usefulness of key knowledge and advisory products					x
How appropriate is the Bank's organizational capacity in delivering RE interventions and obtaining results?	Country	2.5.4.	Feedback on Country offices' capacity in managing RE-related lending & non-lending activities: adequacy of dedicated resources for supervision and monitoring, availability and quality of thematic expertise, capacity to conduct policy dialogue, etc.					x

Sub-Sub Questions / Criteria	Corporate / Country / Intervention	#	Indicators	Portfolio Review	Literature and Policy Review	Interviews	Project-level evaluations ³⁰	Country Case Study
Did the Bank's staff conduct sufficient supervision missions both in terms of quantity, regularity of (i) supervision reports, (ii) mid-term reports and (iii) reports on project implementation status and results according to planning; and in terms of quality (adequate quantity of human resources, adequate mix of expertise, involvement of main stakeholders, sufficient data collected and adequately analyzed, quality of indicators included in M&E systems - realism, clarity and comprehensiveness)?	Interventions	3.3.1.1	Evidence on the existence and regularity of (i) supervision reports, (ii) mid-term reports and (iii) reports on project implementation status and results according to planning. Opinions from in-country AfDB stakeholders and perceptions from project implementation units' responsible			x	x	
		3.3.1.2	Evidence on quality, use, and usefulness of supervision: (i) adequate human resources dedicated to supervision, (ii) adequate mix of expertise, (iii) involvement of main stakeholders, (iv) sufficient data collected and adequately analyzed, (v) quality of indicators included in M&E systems (SMART nature)			x	x	
Did the Bank supervision reports provide a balanced and realistic view of the implementation prospects (ownership, reform undertaking, timeliness, cost, and setting of a reliable monitoring system)?	Interventions	3.3.2.1	Evidence on considering project implementation prospects in supervision reports: (i) level of partners' & beneficiaries' ownership; (ii) commitment for sector-specific reforms; (iii) efficiency-oriented management			x	x	
		3.3.2.2	Implementation process (IP) assessment: i) compliance with covenants (project covenants, environmental and social safeguards, and audit compliance), ii) project systems and procedures (procurement, financial management, and monitoring and evaluation), and iii) project execution and financing (disbursement, budget commitments, counterpart funding, and cofinancing). The IP rating will be derived from the IPR that shall be updated in tandem with the PCR preparation				x	

Sustainability: How sustainable are the results of the Bank's assistance for RE?

Sub-Sub Questions / Criteria	Corporate / Country / Intervention	#	Indicators	Portfolio Review	Literature and Policy Review	Interviews	Project-level evaluations ³¹	Country Case Study
SQ 4.1 Technology soundness								
Did the Bank interventions select the right technology for RE infrastructures and was it installed adequately?	Interventions	4.1.1.1	The technology chosen is adapted to the local context, needs, and capacities				x	
		4.1.1.2	Infrastructure and equipment are installed adequately for a proper and longlasting functioning				x	
Did the Bank support RMCs in getting the required technical skills for all maintenance processes?	Interventions	4.1.2.1	Evidence on availability (or future perspective) of technical skills for the maintenance of installed infrastructure and equipment; arrangements chosen (private sector-based or community-based providers)				x	
Did the Bank support RMCs in getting the equipment and spare parts for capital assets maintenance?	Interventions	4.1.3.1	Existence and importance of the Bank's support for the maintenance of infrastructure (technical equipment, spare parts)				x	
SQ 4.2 Financial sustainability								
To what extent did AfDB support RMCs for securing the financial viability of RE interventions: revenue collection mechanisms, via institutional reform/ management capacity building/ enhancement of financial viability of electricity utilities/ Municipal or Community-based service providers/ for all maintenance processes?	Country / Interventions	4.2.1.1	Evidence on creating or reinforcing funding mechanisms and modalities (e.g., tariffs, user fees, maintenance fees, budgetary allocations, other stakeholder contributions, aid flows, etc.) to ensure the continued flow of benefits after project completion.				x	
		4.2.1.2	Evidence on institutional arrangements and management tools for the sound financial and economic management of the Energy sector / Electricity sub-sector				x	
		4.2.1.3	Evidence on the financial viability of national-wide Utilities and local service providers involved in the maintenance of the infrastructure, equipment, and sectoral management				x	

Sub-Sub Questions / Criteria	Corporate / Country / Intervention	#	Indicators	Portfolio Review	Literature and Policy Review	Interviews	Project-level evaluations ³¹	Country Case Study
SQ 4.3 Institutional and capacity strengthening								
To what extent did the Bank contribute to enhance the management of the energy demand in RMCs, through (i) appropriate tariff structure - do adequate funding mechanisms and modalities (e.g., tariffs, user fees, maintenance fees, budget allocations, other stakeholder contributions, aid flows, etc.) have been put in place; (ii) building awareness and changing consumer behaviors; and (iii) regulatory enforcement and modernizing the sector?	Interventions	4.3.1.1	Tariffication: (i) existence of specific targeted activities under AfDB projects/programs or non-lending activities; (ii) evidence on concrete achievements; (iii) feedback from stakeholders on perspectives related to tariff structure (% of national subsidies, etc.)				x	
		4.3.1.2	Awareness & consumer behavior: (i) existence of specific targeted activities under AfDB projects/programs or non-lending activities; (ii) evidence on concrete achievements; (iii) feedback from stakeholders on perspectives related to consumers behaviors				x	
		4.3.1.3	Regulation and modernization: (i) existence of specific targeted activities under AfDB projects/programs; (ii) evidence on concrete achievements; (iii) feedback from stakeholders on perspectives related to regulatory and sectoral governance aspects				x	
Did the Bank contribute to enhancing the management of the energy offer in RMCs, through (i) generating more renewable energy; (ii) improving the allocation of renewable energy; (iii) limiting energy loss; and (iv) promoting effective management of utilities and end-users associations?	Interventions	4.3.2.1	Additional RE generation: (i) stocktaking of targeted activities under AfDB projects/programs or non-lending activities; (ii) evidence on concrete achievements; (iii) feedback from stakeholders on perspectives related to RE generation	DA TA			x	
		4.3.2.2	Allocation of RE: (i) stocktaking of targeted activities under AfDB projects/programs or non-lending activities; (ii) evidence on concrete achievements; (iii) feedback from stakeholders on perspectives related to the allocation of RE				x	
		4.3.2.3	Energy efficiency: (i) stocktaking of targeted activities under AfDB projects/programs or non-lending activities; (ii) evidence on concrete achievements; (iii) feedback from stakeholders on perspectives related to energy loss reduction				x	
		4.3.2.4	Utilities & consumers associations: (i) stocktaking of targeted activities under AfDB projects/programs or non-lending activities; (ii) evidence on concrete achievements; (iii) feedback from stakeholders on perspectives related to the management of utilities and participation of consumers associations				x	

Sub-Sub Questions / Criteria	Corporate / Country / Intervention	#	Indicators	Portfolio Review	Literature and Policy Review	Interviews	Project-level evaluations ³¹	Country Case Study
To what extent did the Bank contribute to reshaping the institutional framework by (i) strengthening institutional systems and capacities, (ii) promoting research and development, and (iii) stimulating the development of local suppliers of equipment related to RE generation?	Interventions	4.3.3.1	<p>Contribution to strengthen institutional capacities that will facilitate the continued flow of benefits associated with the project: (i) stocktaking of targeted activities under AfDB projects/programs or non-lending activities; (ii) evidence on concrete achievements; (iii) feedback from stakeholders on perspectives related to the institutional framework</p> <p>Appreciation of whether or not improved governance practices or improved skills, procedures, incentives, structures, or institutional mechanisms came into effect as a result of the operation.</p>				x	
		4.3.3.2	R&D: (i) stocktaking of targeted activities under AfDB projects/programs or non-lending activities; (ii) evidence on concrete achievements; (iii) feedback from stakeholders on perspectives related to the institutional framework				x	
		4.3.3.3	Local industry: (i) stocktaking of targeted activities under AfDB projects/programs or non-lending activities; (ii) evidence on concrete achievements; (iii) feedback from stakeholders on perspectives related to the institutional framework				x	
SQ 4.4 Stakeholders' ownership								
To what extent did the Bank CSPs involve key stakeholders in decision-making and design for creating a sense of high-level ownership?	Country	4.4.1.1	Record and feedback on policy dialogue specific to RE development conducted by Country office: (i) stakeholders involved (technical vs decision-making level); (ii) level of commitment & ownership in the design of CSP					x
To what extent did the Bank build effective partnerships with relevant stakeholders (e.g., local authorities, civil society organizations, private sector, other TFPs) committed to sustaining the achievements at sectoral level and with regard to specific RE interventions?	Country	4.4.2.1	Evidence and feedback on the role of the Bank in building partnerships with local authorities, CSO, private sector					x
		4.4.2.2	Evidence of the capacity & commitment of those partners to sustain achievements at local level					x

Sub-Sub Questions / Criteria	Corporate / Country / Intervention	#	Indicators	Portfolio Review	Literature and Policy Review	Interviews	Project-level evaluations ³¹	Country Case Study
To what extent did RE interventions involve relevant stakeholders in the design, implementation, and facilitation measures after their completion for creating a sense of ownership by the beneficiaries?	Interventions	4.4.3.1	Evidence on ownership and sustainability of partnerships: the extent to which the project has effectively involved relevant stakeholders, promoted a sense of ownership amongst the beneficiaries (both men and women), and put in place effective partnerships with relevant stakeholders (e.g., local authorities, civil society organizations, private sector, donors) as required for the continued maintenance of the project outputs)				x	
To what extent did RE interventions contribute to enhance equal access to RE services by the beneficiaries?	Interventions	4.4.4.1	Existence and achievements of affordability measures under RE development interventions				x	
SQ 4.5 Environmental and social sustainability								
Did AfDB assistance contribute to mainstream environmental and social sustainability into RE interventions, including climate change, via national governance mechanisms and strategies?	Country	4.5.1.1	Existence of explicit objectives under CSPs for mainstreaming environmental, climate & social sustainability through national strategies				x	
		4.5.1.2	Means dedicated to such mainstreaming and concrete achievements				x	
To what extent did the Bank assess the environmental and social risks, along with mitigation measures, in its RE interventions, meeting all AfDB environmental, social, health, and safety (ESHS) standards?	Interventions	4.5.2.1	Extent to which environmental and social mitigation/enhancement measures of the project were implemented, the capacity of country institutions and systems, and the availability of funding to ensure the environmental and social sustainability of the operation				x	
To what extent did the Bank identify and support climate change mitigation & adaptation measures in its RE development interventions?	Interventions	4.5.3.1	Record and feedback on the existence of climate change mitigation & adaptation measures under RE development interventions				x	

Sub-Sub Questions / Criteria	Corporate / Country / Intervention	#	Indicators	Portfolio Review	Literature and Policy Review	Interviews	Project-level evaluations ³¹	Country Case Study
To what extent were the mitigation measures effectively implemented to ensure environmental and social safeguards?	Interventions	4.5.4.1	Record and feedback on the implementation, monitoring, and effectiveness of those climate change mitigation & adaptation measures				x	
Did RE interventions produce significant unintended negative ESHS impacts?	Interventions	4.5.5.1	Detection of unintended negative ESHS impacts, existing analysis of root causes, and explicit strategy to deal with them in short-, mid-, and long-term.				x	

Bibliography

- AsDB (2018). Strategy 2030: Achieving a Prosperous, Inclusive, Resilient, and Sustainable Asia and the Pacific
- AsDB (March 2020). Review of the ADB Clean Energy Program
- AFD (2018). Stratégie de Transition énergétique 2019–2022. Available at: <https://www.afd.fr/fr/ressources/strategie-transition-energetique-2019-2022>
- AFD (2019). AFD et la transition énergétique en Afrique. Available at: <https://www.afd.fr/sites/afd/files/2021-12-04-03-33/afd-et-transition-energetique-afrique.pdf>
- AfDB (2010). Evaluation of the performance and effectiveness of the African development bank's environmental policy and environmental assessment procedure" operations evaluation department (OPEV)
- AfDB Medium-Term Strategy 2008–2012
- AfDB (2012a). "Climate Change Action Plan 2011–2015"
- AfDB (2012b). "Energy Sector Policy of the AfDB Group" African Development Bank Operational Resources and Policies Department (ORPC) Tunis, Tunisia
- AfDB (2013). "At the center of Africa's transformation - Strategy for 2013–2022"
- AfDB (2015). The High 5s. Available at: <https://www.afdb.org/en/high5s>
- AfDB (2017a). The Bank Group's Strategy for The New Deal on Energy for Africa 2016 – 2025. Available at: https://www.afdb.org/fileadmin/uploads/afdb/Documents/Generic-Documents/Bank_s_strategy_for_New_Energy_on_Energy_for_Africa_EN.pdf
- AfDB (2017b). The African Development Bank Group's Second Climate Change Action Plan.
- AfDB (2022a). African Development Bank Group approves LEAF program to promote investment in decentralized renewable energy. Available at: <https://www.afdb.org/en/news-and-events/press-releases/african-development-bank-group-approves-leaf-program-promote-investment-decentralized-renewable-energy-49329>
- AfDB (2022b). RE Evaluation Concept note
- African Union (2013). Agenda 2063: The Africa We Want. Available at: <https://au.int/en/agenda2063/overview>
- Beegle, Kathleen; Christiaensen, Luc (2019) Accelerating Poverty Reduction in Africa. Washington, DC: World Bank. World Bank. Available at: <https://openknowledge.worldbank.org/handle/10986/32354> License: CC BY 3.0 IGO.
- Belgian Development Agency (2012). Development: a matter of energy. Available at: <https://www.enabel.be/publication/development-matter-energy-promoting-renewable-solutions>
- EIB (2021). Energy Overview 2021. Available at: https://www.eib.org/attachments/thematic/energy_overview_2021_en.pdf
- ESMAP (2022). Presentation of The Energy Storage Partnership (ESP). Available at: https://esmap.org/the_energy_storage_partnership_esp
- European Commission (2021). European climate law available at: https://ec.europa.eu/clima/eu-action/european-green-deal/european-climate-law_fr
- EU (2013). Africa-EU Renewable Energy Cooperation Programme (RECP) Strategy 2020
- GIZ (2016). Promoting employment through renewable energy and energy efficiency in the MENA region. Available at: <https://www.giz.de/en/downloads/giz2016-en-reactivate.pdf>
- GIZ (2021). Green People's Energy. Available at: https://www.giz.de/en/downloads/GBE_factsheet_global_EN_web.pdf
- Government of Canada (2019). IFC - Canada Climate Change Program (CCCP): Initiative details. Available at: [IFC - Canada Climate Change Program \(CCCP\) - Climate Financing - Canada.ca](https://www.international.gc.ca/energy-energie/ifc-canada-climate-change-program#:~:text=The%20IFC%20Canada%20Climate%20Change%20Program%20(IFC%20CCCP%20or,investments%20in%20low%20carbon%20technologies.)
- IEA (2022). Africa Energy Outlook. World Energy Outlook Special Report. <https://iea.blob.core.windows.net/assets/220b2862-33a6-47bd-81e9-00e586f4d384/AfricaEnergyOutlook2022.pdf>
- IDEV (2018). Powering Africa through interconnection: cluster evaluation report. Available at: <https://idev.afdb.org/en/document/powering-africa-through-interconnection-cluster-evaluation-report>
- IDEV (2020). Evaluation of the AfDB's Support to the Energy Sector in Africa. Available at: <https://idev.afdb.org/en/document/evaluation-afdb-support-energy-sector-africa>
- IFC (2021). IFC-Canada Climate Change Program. Available at: [https://www.ifc.org/en/what-we-do/sector-expertise/blended-finance/climate/ifc-canada-climate-change-program#:~:text=The%20IFC%20Canada%20Climate%20Change%20Program%20\(IFC%20CCCP%20or,investments%20in%20low%20carbon%20technologies.](https://www.ifc.org/en/what-we-do/sector-expertise/blended-finance/climate/ifc-canada-climate-change-program#:~:text=The%20IFC%20Canada%20Climate%20Change%20Program%20(IFC%20CCCP%20or,investments%20in%20low%20carbon%20technologies.)
- IRENA and AfDB (2022). Renewable Energy Market Analysis: Africa and Its Regions – A Summary for Policy Makers. Available at: <https://www.irena.org/publications/2022/Jan/Renewable-Energy-Market-Analysis-Africa>
- IRENA (2018a). Tracking SDG7: Energy progress report
- IRENA (2018b). "Off-grid renewable energy solutions: Global and regional status and trends. IRENA, Abu Dhabi.
- IRENA (2020). Renewable Power Generation Costs in 2019

- IRENA (2022). Off-grid renewable energy solutions and their role in the energy access nexus Key takeaways from the 5th IOREC. Available at: https://www.ourenergypolicy.org/wp-content/uploads/2022/09/IRENA_IOREC_outcomes_report_2022.pdf
- IsDB (2019). Climate Change Policy. Available at: https://www.isdb.org/sites/default/files/media/documents/2022-02/IsDB_Climate_Change_Policy.pdf
- JICA (n.d.). Energy and Mining. Available at: https://www.jica.go.jp/english/our_work/thematic_issues/energy/activity.html
- Jonathan H. et al (2022). South Africa's energy transition – Unraveling its political economy. Energy for Sustainable Development.
- KfW (2016). Energy supply - Eastern Africa. Available at : <https://www.kfw-entwicklungsbank.de/PDF/Entwicklungsfinanzierung/L%C3%A4nder-und-Programme/Subsahara-Afrika/Projekt-Ostafrika-Energie-2014-DE.pdf>
- KfW (2019a). Current Topics: Renewable Energy. Available at : https://www.kfw-entwicklungsbank.de/PDF/Entwicklungsfinanzierung/Themen-NEU/Themen-aktuell_Erneuerbare-Energien_2019_EN.pdf
- KfW (2019b). Project Information: Energy Supply – Uganda. Available at: https://www.kfw-entwicklungsbank.de/PDF/Entwicklungsfinanzierung/Themen-NEU/Uganda_GET-FIT_EN_Feb-2019.pdf
- Pwc (2021). Africa Energy Review 2021 – The global race to net zero by 2050 is accelerating. Will Africa realize a just transition or become a stranded asset? November 2021. <https://www.pwc.co.za/en/assets/pdf/africa-energy-review-2021.pdf>
- REN21 (2018). Renewables 2018, Global Status Report. Available at: <https://ren21.net/gsr-2018/pages/foreword/foreword/>
- SIDA (n.d.). Power Africa. Available at: <https://cdn.sida.se/app/uploads/2021/05/07084745/Power-Africa-Strategy.pdf>
- SNV (2019). Accelerating sustainable energy markets. Available at: https://snv.org/assets/explore/download/energy-sector-brochure-web_1_0.pdf
- UK International Climate Finance (2021). A UK Government commitment to building resilience and accelerating transition. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1029990/icf-brochure-2021.pdf
- UN (n.d.) <https://sdgs.un.org/fr/goals>
- UN (2018). Accelerating SDG 7 achievement - Policy brief 01: Achieving universal access to Electricity. <https://sustainabledevelopment.un.org/content/documents/17462PB1.pdf>
- UN (2022). Treaties state. Available at: https://treaties.un.org/Pages/ViewDetails.aspx?src=IND&mtdsg_no=XXVII-7-d&chapter=27&clang=_fr
- UNEP (2017). Atlas of Africa Energy Resources. Available at: https://wedocs.unep.org/bitstream/handle/20.500.11822/20476/Atlas_Africa_Energy_Resources.pdf?sequence=1&isAllowed=y
- UNFCCC (n.d.). Available at: <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>
- UNFCCC (2021). The Glasgow Climate Pact. Available at: <https://unfccc.int/process-and-meetings/the-paris-agreement/the-glasgow-climate-pact-key-outcomes-from-cop26>
- USAID (2022a). Power Africa. Available at: <https://www.usaid.gov/powerafrica>
- USAID (2022b). Power Africa Factsheet English. Available at: <https://www.usaid.gov/sites/default/files/2022-12/Power-Africa-Fact-Sheet-English-12072022.pdf>
- World Bank (2013). Towards a sustainable energy for all.
- World Bank, (2000–2017). Renewable Energy: Evaluation of the World Bank Group's Support for Electricity from Renewable Energy Resources
- World Economic Forum (2022). Africa is leading the way in solar power potential. Available at: <https://www.weforum.org/agenda/2022/09/africa-solar-power-potential/>

Endnotes

- 1 Dedicated to project preparation and enabling environment.
- 2 Burkina Faso, Cameroon, Côte d'Ivoire, Kenya, Madagascar, Morocco, the Democratic Republic of Congo, Uganda, Zambia, and South Africa
- 3 Highly Satisfactory (4), Satisfactory (3), Partly Unsatisfactory (2), and Unsatisfactory (1).
- 4 Highly Successful (6), Successful (5), Mostly Successful (4), Mostly Unsuccessful (3), Unsuccessful (2), and Highly Unsuccessful (1).
- 5 RISP West Africa (2011–2015, 2020–2025), RISP North Africa (2020–2025), RISP East Africa (2011–2015, 2020–2025), RISP South Africa (2011–2015, 2019–2025)
- 6 It should be noted that the evaluation does not comprehensively cover the results of Bank-supported equity and debt funds such as Climate Investor One as these funds have not yet closed.
- 7 This includes organizations and associations that don't have representation at the country level such as the International Renewable Energy Agency (IRENA) or the Global Off-Grid Lighting Association (GOGLA).
- 8 For instance, whereas the Achwa II hydropower plant (an Independent Power Producer or IPP) in Uganda faced unpaid deemed energy payment issues due to the delay in the transmission line, this was not linked to the feasibility work per se as the appraisal had identified the risk of grid connection unavailability and proposed that the offtaker provides a bank guarantee to minimize the risk of non-payment. Similarly, while there is mention of design revisions during implementation in response to geological challenges in the case of the Menengai Quantum Power Geothermal Project (an IPP) in Kenya the issue of assuring steam availability — which is an inherent risk in geothermal project development — relates to an earlier project focused on the overall development of the Menengai steam field, which prepared the groundwork for the subsequent Menengai IPP projects.
- 9 The first two joint co-financing projects under the aegis of the Korea-Africa Energy Investment Framework were approved in July and September 2023.
- 10 For instance, in the context of the Desert to Power Initiative, the Bank is supporting the Sahel countries in preparing solar integration studies, utility scale solar generation projects (public and private) as well as mini-grid projects through a series of technical assistance interventions funded by the Sustainable Energy Fund for Africa and the ADF's Transition States Facility and Regional Public Goods window.
- 11 For learning purposes, the evaluation also included some projects that had been approved before the evaluation period and were implemented or completed during the evaluation period.
- 12 Although outside the scope of this evaluation, which covers 2012–2021, it is important to mention the COP27 Summit of 2022, where participants agreed to a new global climate pact, the Sharm el-Sheikh Implementation Plan.
- 13 Site visits had already been conducted during previous IDEV evaluation missions (e.g., Uganda Bujagali and Buseruka I and II, Madagascar Sahavivotry, and Cape Verde Cabeolica)
- 14 "Innovation is defined as the introduction of a new or significantly changed product or process": OECD, 2016. <https://www.oecd.org/sti/008%20-%20BS3%202016%20GAULT%20Extending%20the%20measurement%20of%20innovation%20.pdf>
- 15 The Facility for Energy Inclusion is a debt fund anchored by the African Development Bank and supported by the European Union, NorFund, KfW, the Clean Technology Fund, and OeEB to lend to renewable energy initiatives across Africa.
- 16 **RISE scores** reflect a snapshot of a country's policies and regulations in the energy sector, organized according to the three pillars of sustainable energy: energy access, energy efficiency, and RE.
- 17 The Bank was responsible for arranging the development finance institution tranche of the project. It acted as mandated lead arranger to overcome inadequate project financing.
- 18 When FMO (the Dutch entrepreneurial development bank) withdrew from the Singrobo–Ahouaty Hydropower Project, the Bank quickly assumed the role of lead arranger and managed to restructure the project with new partners.
- 19 ARPE is a project company that is developing, constructing, and operating hydropower projects in Northern Uganda.
- 20 In Kenya, Madagascar, the Democratic Republic of Congo, and Zambia
- 21 The Danida Aide-Memoire, Appraisal of the Sustainable Energy Fund for Africa (SEFA Special Fund)
- 22 External Review of SEFA – Final Report, 2018, Eco. Deeper Thinking
- 23 <https://www.afdb.org/en/topics-and-sectors/initiatives-partnerships/africa-energy-market-place/about-aemp>
- 24 https://www.afdb.org/fileadmin/uploads/afdb/Documents/Generic-Documents/Electricity_Regulatory_Index_2018.pdf

- 25 The Africa Energy Portal is accessible at <https://africa-energy-portal.org/>
- 26 The World Bank, the European Investment Bank, Kreditanstalt für Wiederaufbau, and SNEL, a utility
- 27 PCREN, PRA, IAG, and Cluster Evaluations
- 28 PCREN, PRA, IAG, and Cluster Evaluations
- 29 PCREN, PRA, IAG, and Cluster Evaluations
- 30 PCREN, PRA, IAG, and Cluster Evaluations
- 31 PCREN, PRA, IAG, and Cluster Evaluations



IDEV

Independent Development Evaluation
African Development Bank



About this evaluation

Independent Development Evaluation conducted an evaluation of the assistance for renewable energy (RE) by the African Development Bank (AfDB or “the Bank”) over the period 2012- 2021. During this period, the Bank allocated USD 5.74 billion to RE, through 156 interventions in Regional Member Countries.

The evaluation assessed the AfDB’s support for RE generation in the power sector, specifically for geothermal, hydropower, solar power, and wind power. It focused on both utility-grid-scale RE and smaller-scale, decentralized energy access solutions. It assessed the Bank’s support in terms of relevance, coherence, effectiveness, efficiency and sustainability, and drew lessons and recommendations to inform the design and implementation of future AfDB renewable energy interventions.

Overall, most of the Bank’s support for RE was rated successful, but important concerns remain. At the corporate level, the Bank had adapted well to international trends in RE, and in the RMCs, complementarities between the Banks and other development partners RE interventions were deemed effective. The Bank’s lending support had increased RE-based power generation capacity, although the Bank’s contribution to shaping the RE policy and institutional framework in member countries was limited. There were mixed views on the of the Bank’s role as a knowledge broker, advisor, and convener. The financial distress of power utilities was found to have a negative impact on the sustainability of RE interventions.

Key lessons were drawn around action plans to complement strategies, supportive infrastructure, prioritization and risk-sharing, and RE integration to the grid. The evaluation recommends that the Bank approaches RE at the corporate, regional and country level to better align objectives; enhance the quality at entry of RE interventions; and expand the use of blended finance instruments to scale up renewable energy investments in Regional Member Countries.



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