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JUNE 2024

Evaluating Regional Prefeasibility Facilities:

Expanding Renewable Energy and Energy Access in the SADC Region

A REPORT BY

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SUGGESTED CITATION

Musasike T., Adjei N. A., Ndhlukula K., Masvikeni E., Lu J., Gallagher K. P., & Stroh M (2024). Evaluating Regional Prefeasibility Facilities: Expanding Renewable Energy and Energy Access in the SADC Region. Boston, Gaborone, Windhoek: Boston University Global Development Policy Center, the Southern African Development Community Development Finance Resource Centre (SADC-DFRC) and the SADC Centre for Renewable Energy and Energy Efficiency (SACREEE).

ACKNOWLEDGMENTS

This report has been made possible thanks to the contributions from the teams at the Boston University Global Development Policy Center, the SADC Development Finance Resource Centre and the SADC Centre for Renewable Energy and Energy Efficiency. The following individuals contributed to the report: Kevin P. Gallagher, Tsitsi Musasike, Naa Adjekai Adjei, Jiaqi Lu, Kudakwashe Ndhlukula, Eugenia Masvikeni and Maipelo Stroh. The report also benefited from input from SADC development finance institutions, other financial institutions and project developers through in-depth interviews and online surveys.

This report was also made possible in part with support from the ClimateWorks Foundation, The Charles Stewart Mott Foundation, the Rockefeller Brothers Fund, the Pooled fund on International Energy at the European Climate Foundation and the William and Flora Hewlett Foundation.

Cover Photo: Gaborone, Botswana. Photo by Lucian Coman via Shutterstock

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LIST OF ABBREVIATIONS

ADB	Asian Development Bank
AFD	Agence Française de Développement
AFMEG	Alternative Financing for Municipal Embedded Generation
AREP	Accelerating Regional Energy (Transformational) Projects
BESS	Battery energy storage systems
BRF	Belt and Road Forum
BRI	Belt and Road Initiative
CSP	Concentrated Solar Power
DFIs	Development Finance Institutions
DFRC	Development Finance Resource Centre
EEP	Energy Environmental Partnership Trust Fund
FOCAC	Forum on China-Africa Cooperation
GCF	Green Climate Fund
GEF	Global Environment Facility
GIFP	Green Investment and Finance Partnership
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GTAC	Government Technical Advisory Centre
IDA	International Development Agency
KfW	Kreditanstalt für Wiederaufbau
MDBs	Multilateral Development Banks
MDTF	Multi Donor Trust Funds
MW	Mega Watts
NDF	Nordic Development Fund
OFID	OPEC Fund for International Development
PV	Photovoltaic
RDF	Regional Development Facility

REEESAP	Renewable Energy and Energy Efficiency Strategic Action Plan
RTIFF	Regional Transmission Infrastructure Financing Facility
SACREEE	SADC Centre for Renewable Energy and Energy Efficiency
SADC	Southern African Development Community
SADC DFRC	Southern African Development Community Development Finance Resource Centre
SAPP	Southern African Power Pool
SCAF	Seed Capital Assistance Facility
SDG	Sustainable Development Goal
SME	Small Medium Enterprise
TDB	Trade and Development Bank
UK PACT	UK Partnering for Accelerated Climate Transitions (UK PACT)
UNEP	United Nations Environment Programme
USTDA	United States Trade and Development Agency

Western Cape, South Africa. Photo by Grobler du Preez via Shutterstock

EXECUTIVE SUMMARY

The Southern African Development Community (SADC) has one of the highest solar irradiation and great wind energy potential in sub-Saharan Africa. The falling costs of both solar photovoltaic (PV) and wind energy technologies and the discovery of transition minerals essential for the shift to low carbon economies in several SADC countries makes the region a favorable destination for renewable energy project developers. Yet only 1 percent of solar and wind energy potential has been tapped (Chowdhury et al., 2022).

Structures and policies to promote investment in renewable energy in the SADC region already exist. The Southern African Power Pool (SAPP) 2020 Pool Plan targets the SADC region to reach universal energy access and to increase the contribution of renewable energy in the regional energy mix from 29 percent to 53 percent by 2040 (Muñoz Cabré et al., 2020). Based on the SAPP Pool Plan, the region could deploy 2.8 gigawatts (GW) of new renewable energy installed capacity per annum, i.e., a total of 52.8GW by 2040. Prolonged droughts in the Zambezi Basin have severely impacted the region's ability to generate hydropower (Toreti et al., 2024). This leaves solar and wind as potentially the more cost competitive and sustainable renewable energy sources for the region (Chowdhury et al., 2022).

The establishment of the SADC Centre for Renewable Energy and Energy Efficiency (SACREEE) in 2015 was a recognition of the important role that renewables could play in the energy mix and in climate change mitigation (SADC Monitor, 2018). Development finance institutions (DFIs) around the world have committed to scaling up investment in renewable energy (Muñoz Cabré et al., 2020). Several SADC DFIs are either accredited entities or in the process of securing accreditation with the Green Climate Fund (GCF) and/or the Global Environment Facility (GEF) while multilateral development banks (MDBs) are in the process of transforming their institutions to address climate change and other 21st century challenges (Center for Global Development, 2024). Sufficient concessionary funding is therefore available at the investment level. Despite the abundant renewable energy sources and supporting structural frameworks, the total contribution of solar and wind energy is low in most SADC countries. One of the reasons for this is the rate at which projects are being developed for bankability.

A study conducted by the Boston University Global Development Policy Center (GDP Center), the SADC Development Finance Resource Centre (SADC-DFRC), SACREEE and the University of Pretoria in 2020 showed that there is a myriad of project preparation funds (Muñoz Cabré et al., 2020) that the countries could tap into. A follow up report called for policy enhancement to ensure continued investment in renewables during the COVID-19 pandemic era and pre-investment support to ensure project bankability (Masamba et al., 2022). However, only a few financial institutions provide early-stage project development funding that addresses challenges during this stage of project development.

This report highlights the inadequacy of regional and global prefeasibility facilities for expanding renewable energy and energy access in the SADC region. The report considers the challenges faced by developers implementing renewable energy projects in the region, analyzes existing prefeasibility or early-stage project preparation funds in the region and globally to assess if they adequately, effectively and efficiently support project developers and makes recommendations on how to improve and scale up these facilities.

In conducting this research, we completed a desktop analysis to understand what prefeasibility funds currently exist in the SADC region, interviewed and conducted research surveys with SADC DFI Network members and other global financial institutions, as well as active developers in the renewable energy sector. The prefeasibility facilities could play a key role in unlocking the 52.8GW required to achieve universal energy access and 53 percent of renewables in the SADC energy mix by 2040.

Key Findings:

1. Existing SADC and internationally focused prefeasibility facilities are inadequate and not structured in a way that adequately supports project developers during the early stages of project development.
2. Seven SADC DFIs provide early-stage project preparation facilities supporting local project developers in the SADC region.
3. Only three project preparation facilities in the region have cross border mandates – the Development Bank of Southern Africa (DBSA)'s Project Preparation Facility, the DBSA managed SADC Project Preparation Development Facility (SADC PPDF) and the Southern African Power Pool's Project Advisory Unit (SAPP PAU) Project Preparation Fund.
4. The SADC region does not have dedicated renewable energy project preparation facilities.
5. The approval processes are prohibitively long and the terms and conditions for accessing prefeasibility facilities are not standardized across the seven SADC DFIs, not even between the two South African DFIs (DBSA and the Industrial Development Corporation of South Africa), despite their common shareholding.
6. Local developers lack the capacity, skills and know-how to deliver the 52.8GW by 2040 and need support in the early stages of project development.

Based on these key findings, we make the following policy recommendations that will address the structural limitations in existing project preparation facilities and the challenges that developers are facing in trying to meet the SADC region's 2040 goal of universal energy access and 53 percent renewables in the energy mix.

Policy Recommendations:

1. The existing facilities need to be restructured to maximize support and reduce access barriers.
2. SADC member states need to scale-up existing funds, including the SADC Project Preparation Development Facility and international partnerships and ring-fence a portion of the funding for renewable energy prefeasibility activities, as existing facilities are inadequate to support the growth in the region's renewable energy generation capacity.
3. SADC member states should consider exploring new prefeasibility facilities to generate project pipeline across all member states for the SADC Regional Development Facility (RDF), as it relates to the recently launched Regional Transmission Infrastructure Financing Facility (RTIFF), potentially with international funding partnerships.
4. More regional technical assistance facilities are needed to support SADC DFIs and new entrants into the market (particularly small- and medium-size developers).

This report comes at an opportune moment. Firstly, at the October 2023 Belt and Road Forum (BRF) in Beijing, which marked the 10th anniversary of the Belt and Road Initiative (BRI), the Chinese government unveiled the Green Investment and Finance Partnership (GIFP). Although it is still to be fully designed, the GIFP promises to be a new platform to assist BRI partner countries in developing green projects (Gallagher, 2023). BRI flagship financiers, China Development Bank, Export-Import Bank of China, the People's Bank of China, China International Capital Corporation and China Power International have expressed an interest in participating in the partnership. This partnership will help Chinese actors and partner country actors find the right blend of debt, equity, investment and grants, tailoring it to the circumstances of each project or country, for the benefit of both sides.

The Chinese government is expected to officially launch the GIFP at the Forum on China-Africa Cooperation (FOCAC) in September 2024. The 2024 FOCAC also presents SADC member states an opportunity to explore new partnerships with Chinese financial institutions to co-fund early-stage project development.

Additionally, the Group of 20 (G20) Summit takes place in South Africa in 2025. The 2023 G20 Summit held in India committed to triple renewable energy capacity by 2030. As host, South Africa is expected to make similar strides at next year's summit. A scaling up of investment in renewable energy requires a significant pipeline of well-developed projects. International financial institutions from G20 countries and philanthropic funds have expressed interest in providing prefeasibility funding in support of these initiatives.

Adequate, affordable and easily accessible prefeasibility facilities and improved technical skills will go a long way towards meeting the SADC region's 2040 target of universal energy access and 53 percent renewables in the energy mix.

Mahé Island, Seychelles. Photo by U. Eisenlohr via Shutterstock

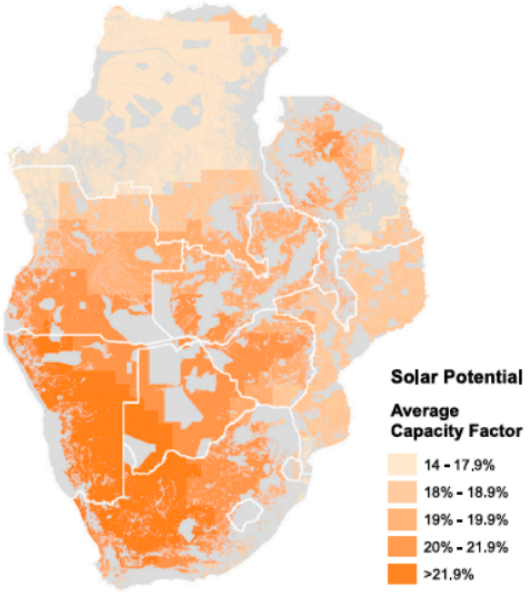
CHAPTER 1: INTRODUCTION

Like most developing countries, the Southern African Development Community (SADC) has not been spared from the impacts of climate change. Extreme weather events ranging from more intense and more frequent cyclones and floods in coastal areas and severe droughts in some parts of the region have become common features in recent years (Toreti et al., 2022). At the same time, the region is well-endowed with solar and wind resources and well positioned for investment in climate change mitigation projects. Most SADC member states (Appendix 1) have high solar and wind resource quality of one or two orders of magnitude greater than their projected 2030 electricity demand (Wu, et al, 2017), yet only 1 percent of solar and less than 1 percent of wind energy potential has been tapped (Chowdhury et al., 2022).

At the 2023 United Nations Climate Change Conference of the Parties (COP28), world leaders agreed to triple global renewable energy capacity by 2030 and reach installed capacity of 11,510 gigawatts (GW) in order to avoid a climate tipping point. A report published by Climate Analytics shows that the installed global renewable energy capacity needs to grow by 8,130GW from the current levels of 3,380GW (Grant et al, 2024). According to the report, sub-Saharan Africa's share of this growth is 300GW, i.e., an increase of 260GW from the current 40GW. The Southern African Power Pool (SAPP) 2020 Pool Plan posits a target of 53 percent renewable contribution in the regional electricity mix by 2040 up from the current level of 29 percent while attaining universal energy access (Muñoz Cabré et al., 2020). To achieve this, the region will have to deploy 2.8 (GW) of renewable energy installed capacity per annum, i.e., 52.8GW in total. Hydropower currently makes up 24 percent of the energy mix in the 12 contiguous SADC countries comprising SAPP. However, prolonged droughts in the Zambezi Basin have severely impacted the ability of both Zambia and Zimbabwe to generate hydropower from Kafue River (for Zambia) and the Kariba Dam on the Zambezi River (Toreti et al., 2022). This leaves solar and wind as potentially the more cost competitive and sustainable renewable energy sources for the region (Chowdhury et al., 2022).

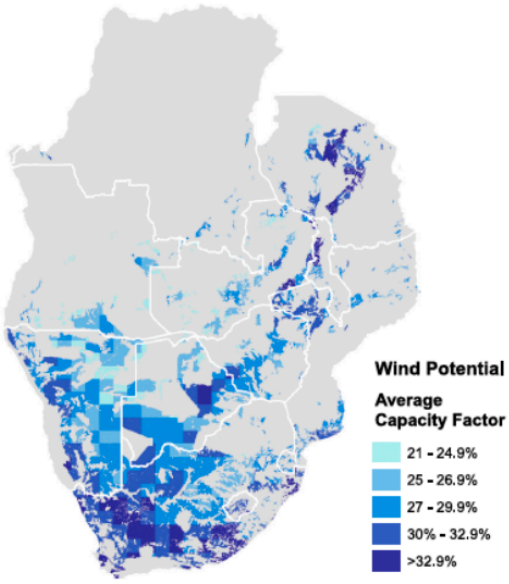
Figures 1 and 2 show the SADC Region's solar and wind energy potential, respectively.

Figure 1: SADC's solar energy potential



Source: Chowdhury et al., 2022.

Figure 2: SADC's wind energy potential



Source: Chowdhury et al., 2022.

The establishment of the SADC Centre for Renewable Energy and Energy Efficiency (SACREEE) in 2015 was a recognition of the important role that renewables play in the energy supply mix and also as a climate change mitigation measure. National, regional and global DFIs operating in the SADC region have committed to scaling up investment in renewable energy in support of the global transition to Net Zero emissions by 2050 and improving energy access (Muñoz Cabré et al., 2020). Several SADC DFIs are either accredited entities or in the process of securing accreditation with the Green Climate Fund (GCF) and/or the Global Environment Facility (GEF). Multilateral development banks (MDBs) are in the process of transforming their institutions to address 21st century challenges including the climate change challenge (Center for Global Development, 2024). Sufficient concessionary funding is therefore available at the investment level.

Despite an abundance of non-hydro renewable energy resources in the region, the commitment by member states and regional bodies to develop renewable energy technologies and the various policies and plans adopted to implement the development of these technologies, these renewable energy resources have remained largely untapped. Although costs of intermittent renewable energy systems with storage have often been cited as some of the biggest barriers to wider uptake, if technology and fuel prices continue to follow current trends, wind and solar technologies can become the dominant sources of electricity in the region by 2040 (Chowdhury et al., 2022).

The rate at which projects are being developed for bankability is a challenge. There are shortcomings in preparing and structuring projects such that they pass the early-stage financial, technical, legal and environmental feasibility assessments (Deloitte, 2023). The underlying reasons that developers face in progressing past the concept stage include the cost, time, capacity, skills and know-how (or possible lack thereof), coupled with the inherent perceived risks and complexities associated with investing in Africa, making the preparation of bankable projects more taxing, particularly for the local developers (Gerbert et al., 2015). Developers are expected to have secured the land access rights, completed basic site, grid, resource and environmental

assessments and devised a high-level financial model before they can access the prefeasibility facilities. This requires funding, often for an indefinite period at a stage of development when the developers might have exhausted their savings. As a result, renewable energy projects struggle to advance beyond the critical early stages of project development.

Although early-stage development capital makes up a small portion of the total project funding requirement, it remains critical to unlocking project preparation funding for bankability. SADC developers struggle to access the early-stage project development funding due to the stringent requirements including prohibitively long and expensive early-stage funding approval processes. Financiers are often looking to invest in developers with several years of experience, a sizable pipeline of projects and a focus on utility scale and grid connected projects. Local developers who are relatively new in the market or have small projects or small project small project pipeline often struggle to tap. The terms and conditions for accessing prefeasibility facilities are not standardized. Developers are expected to have completed the prefeasibility work before applying for funding. This lack of structured support for local developers in the early stages of project development presents a significant obstacle to the development of renewable energy projects, particularly for local developers.

The interdependencies in the project development life cycle phases means that inadequate early-stage project preparation restricts the number of projects in the pipeline that can access and benefit from the plethora of project preparation funds available to developers after the prefeasibility stage. Development finance institutions, multilateral development banks (MDBs) and donors have an important role to play in helping to bridge this prefeasibility financing gap (Gerbert et al., 2015). Whilst there may be a few early-stage project development funds operating in sub-Saharan Africa, local developers often lack information on where and how to access these funds.

Aims

This report highlights the inadequacy of regional and global prefeasibility facilities for expanding renewable energy and energy access in the SADC region. The report considers the challenges faced by developers implementing renewable energy projects in the region, analyzes existing prefeasibility or early-stage project preparation funds in the region and globally to assess if they adequately, effectively and efficiently support project developers and makes recommendations on how to improve and scale up these facilities.

In conducting this research, we completed a desktop analysis to understand what prefeasibility funds currently exist in the SADC region, interviewed and conducted research surveys with SADC DFI Network members and other global financial institutions, and active developers in the renewable energy sector.

This report comes at an opportune moment because firstly, it comes on the heels of the October 2024 Belt and Road Forum (BRF) in Beijing marking the 10th anniversary of the Belt and Road Initiative (BRI), during which the Chinese government unveiled the Green Investment and Finance Partnership (GIFP). Although still to be fully designed, the GIFP promises to be a new platform to help BRI partner countries develop green projects. The platform will provide financing for feasibility studies, technical support, risk analysis, debt sustainable analysis and proposal design to generate a green project pipeline aligned with China's new directives (Gallagher, 2023). The Chinese government is expected to officially launch the GIFP at the Forum on China-Africa Cooperation (FOCAC) in September 2024. BRI flagship financiers, China Development Bank, Export-Import Bank of China, the People's Bank of China, China International Capital Corporation

and China Power International have expressed an interest to participate in the partnership. This partnership will help Chinese actors and partner country actors find the right blend of debt, equity, investment and grants, tailoring it to the circumstances of each project or country, for the benefit of both sides. The 2024 FOCAC presents SADC member states an opportunity to explore new partnerships with Chinese financial institutions to co-fund early-stage project development.

Secondly, the Group of 20 (G20) Summit will take place in South Africa in 2025. The 2023 G20 Summit held in India committed to triple renewable energy capacity by 2030 and world leaders recommitted to this at the 2023 United Nations Climate Change Conference (COP28) (Grant et al, 2024). This scaling up of investment in renewable energy requires a significant pipeline of well-developed projects. With South Africa as the host, the SADC region is expected to make similar strides at next year's summit. Some DFIs from G20 countries and philanthropic funds have expressed an interest in providing prefeasibility funding in support of these initiatives. The 2025 summit, therefore, provides SADC member states with an opportunity to leverage additional funding for early-stage project development required to meet the triple growth commitment made by the G20 and world leaders at COP28.

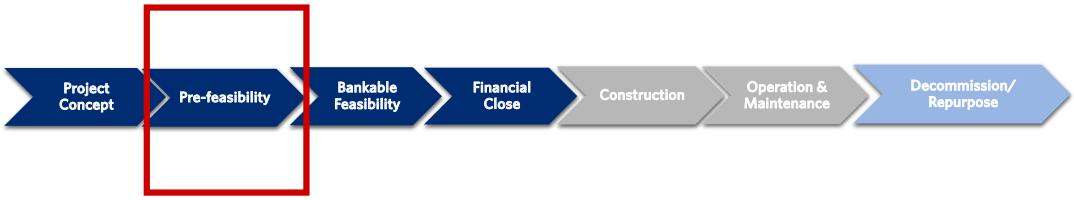
This report is structured as follows: Chapter 2 provides an overview of the different phases in the project development lifecycle, the standard scope of work or tasks to be completed in each phase, the expected outcomes and the party/parties responsible for delivering the outcomes. Chapter 3 considers the challenges that project developers experience in bringing projects to market in the SADC region. Chapter 4 provides an overview of sources of funding for prefeasibility studies. Chapter 5 identifies the barriers to accessing prefeasibility funds. Chapter 6 quantifies the funding requirement for early-stage project development in order to achieve new renewable energy generation capacity of 52.8GW necessary for universal energy access and 53 percent renewables in the SADC energy mix by 2040 and also sets out the key characteristics of a best practice prefeasibility facility. Chapter 7 concludes by presenting key policy recommendations on how to optimize existing facilities to better support project developers in the early stages of project development to expand renewable energy generation capacity and energy access.

CHAPTER 2: TYPICAL PROJECT DEVELOPMENT LIFECYCLE

Understanding the phases of the project development lifecycle and the expected outcome for each phase is essential for the successful development of projects. Each subsequent stage in the project development lifecycle depends on the successful completion of the preceding phase. It is this interdependency between stages that often delays the transition of projects from one phase to the next and ultimately to bankable feasibility if expected outcomes in preceding phases are not achieved. In Chapter 2, we explore the various project development stages, as illustrated in Figure 3, to highlight the importance of the prefeasibility stage in addressing the pipeline gap for renewable energy generation capacity in the SADC region.

The report assumes that the legislation and policy framework essential for attracting investment already exists and is transparent and consistent for attracting the right investors.

Figure 3: Project development stages



Source: Authors' elaboration from Southern African Power Pool (2024).

Project developers can either be individuals, private or public companies, as sometimes public institutions may undertake project development work to de-risk projects before issuing them for tender. Project developers do not always have all the expertise, i.e., financial, legal or technical, to complete the tasks required for a successful outcome at each phase and often have to appoint advisors to complete some of the tasks. This often requires significant funding, especially for local developers and more so for emerging developers, although this is an insignificant percentage of total project cost. The lack of early-stage project development funding and technical support has the potential to stall projects. Many projects stall due to lack of funding to contract advisors for certain tasks in the project lifecycle.

Table 1 outlines the project development phases and summarizes the scope and outcome of each phase in a typical renewable energy project and the party responsible for delivering the expected outcome.

Table 1: Typical Project Development Lifecycle

Project Phase	Scope of Work	Outcome	Responsible Party
Project Concept	Project definition. Selection of site or confirmation that site has reasonable renewable energy resource, access, proximity to grid and low environmental impact	Decision to secure access to site (through land or lease rights) and investigate feasibility. Define project outputs, timelines and responsible parties.	The Government* and developer**
Prefeasibility Assessment	High level assessment of environmental, grid connection, renewable energy resource and plant capacity, energy costs and electricity price and associated risks. Secure access to site through land rights or lease rights.	A prefeasibility study. Development plan (to cost-effectively address risks identified), decision to proceed to bankable feasibility study phase, including secured access to site.	The Government* and/or developer**
Bankable Feasibility Assessment	Detailed investigation of project parameters including environmental and grid connection studies, constructability study, purchase and construction cost estimates, power purchase terms and tariff. Application for permits including environmental and water use licenses and power generation license.	A bankable feasibility study. Preliminary investment decision (commitment to build the project if the economics after finalization are within the range defined in feasibility assessment).	The developer
Financial Close	Site optimization, contract strategy and procurement, detailed cost estimates, and securing grid connection agreements, power purchase agreement and funding arrangements.	Final investment decision (to proceed with construction).	The developer
Construction and Commission	Construction of the solar / wind farm by the selected contractor/s, design review and supervision by owner's engineer, commissioning and acceptance testing.	Commissioned solar / wind power plant	Project company with its Engineering, Procurement, and Construction (EPC) contractor
Operations & Maintenance (O&M)	O&M of the renewable energy-based power plant at contracted performance levels.	Fully operational plant	Project company with its O&M contractor
Decommissioning/ Repurposing	Dismantle old plant / land redevelopment	Site restored/ repurposed	Project company/ Independent Power Producer (IPP)

*Government is the responsible party for Government procured projects/programs

** The local developer is the responsible party for private sector projects

***At this stage the local developer partners with an international developer/IPP/sponsor because of the significant funding requirement

Source: Authors' elaboration from Southern African Power Pool (2024).

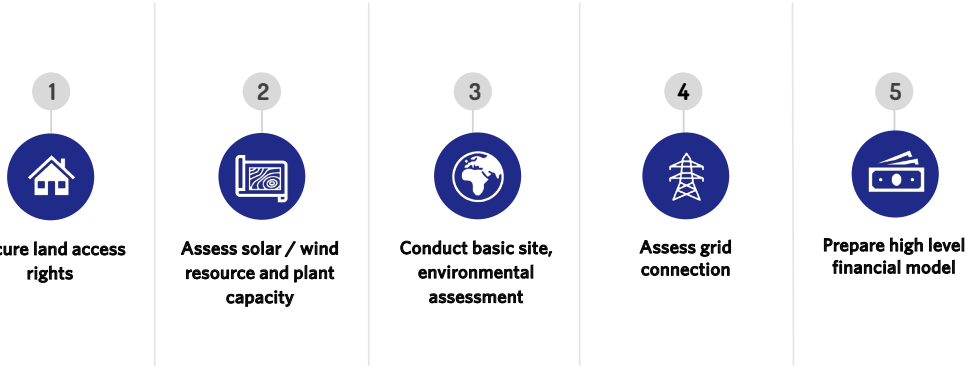
2.1 Project Concept/Scoping/Definition

Projects should be procured based on clearly defined outcomes/outputs and not inputs based. In the case of a renewable energy project, the government or the offtaker or electricity buyer determines the desired outcome, e.g., a 100 MW solar power plant or delivery of 292 000 megawatt hours (MWh) of clean energy per annum. This output-based approach ensures that the risk of project cost escalation is transferred to the party that is best placed to manage such risk, i.e., the project company or the IPP. The project milestones, timelines and the responsible party are also defined during this phase to avoid overlapping responsibilities and ensuring alignment with the national energy strategy. This also entails a high-level review of the legislative requirements such as preliminary licensing and permitting. This scope of work is normally undertaken by the project developer as it is predominantly a desktop exercise and does not require significant capital outlay. The cost to the project developer at this stage of project development is mostly expertise, time and effort.

2.2 Prefeasibility Assessment

Once the project's scope is defined, the project developer is then able to undertake a prefeasibility assessment of the project and complete the tasks as illustrated in Figure 4. In some jurisdictions and for government procured projects, this work can be undertaken by the government. The scope of work for this phase includes securing access to the project site via an option to buy or lease the land, conducting basic site, environmental impact, grid connection, renewable energy resources, plant capacity and technical options assessments, determining the energy costs and the development of a high-level financial model with indicative electricity tariff. Securing land access rights is a key aspect of this phase, as the funders will not provide feasibility funding without them. Where a project developer or government does not have the capacity to undertake the prefeasibility scope of work, a private company or consultant may be contracted.

Figure 4: Activities carried out during the prefeasibility assessment of a renewable energy grid connected project



Source: Authors' elaboration.

This is the first stage during the project development lifecycle where the project developer is required to put up capital for the payment of contractors or pay a deposit to the landowner to secure access to the project site. For most local project developers and new entrants into the renewable energy market, raising the required funding to complete the tasks for this phase is a huge challenge. It is important that this phase of the project lifecycle is done properly as the prefeasibility study will determine whether the project proceeds or stalls as it forms the basis for

sourcing project preparation funding from financiers. Projects often stall during this early phase as developers do not always have the required funding to complete the tasks. In most cases, the project is not sufficiently developed to attract external funding. A few financial institutions provide early-stage or prefeasibility funding; these are discussed in Chapter 4. A paradigm shift from the prefeasibility stage has also occurred, as funders have shown more preference for tangible impact project implementation funding.

Table 2 displays indicative costs of the various activities conducted during the prefeasibility phase outlined in Figure 4 based on utility scale projects currently under development in the region.

Table 2: Indicative cost of prefeasibility activities

Activity	Solar (USD)	Wind (USD)
Secure land access right (lease)	180,000	180,000
Resource assessment	80,000	190,000
Basic site assessment	15,000	15,000
Environmental Impact Assessment	45,000	45,000
Grid connection assessment	20,000	20,000
High level financial model	25,000	25,000
Total	**365,000**	**475,000**

Source: Authors' elaboration based on utility scale projects currently under development.

2.3 Bankable Feasibility Assessment

The prefeasibility study is used to raise project preparation funding for the bankable/full feasibility assessment of the project. For potential lenders, the prefeasibility report is an indication of commitment in terms of the amount of time and effort the developer has invested in the project at that stage. It is also an indication of the project developer's ability to deliver projects of this nature.

The scope of work for the bankable feasibility assessment phase includes detailed investigation of project parameters such as grid connection studies, constructability studies, purchase and construction cost estimates, power purchase terms and tariff and their viability. It also includes application for permits, environmental authorizations, water use licenses and power generation licenses. These deliverables require funding, and, in most instances, the local developer is forced to secure a project partner, often an experienced project sponsor with deep pockets, by selling down a significant portion of the shareholding in the project company following the prefeasibility phase in order to raise the necessary funding.

Ideally, DFIs provide project preparation funding for bankability studies. There is no shortage of project preparation facilities; however, the challenge for local developers is securing the funding and skills required to complete the prefeasibility study.

2.4 Financial Close

The outcome of the bankable feasibility stage is a business case or project information memorandum, which the project developers use to raise the project finance. It is important to note that a project will not reach financial close or finalization unless the earlier stages are properly concluded through identification of the various project risks and ensuring that these are transferred to the parties best placed to manage them. In some instances, requirements may be waived or deferred for financial close, but must be fulfilled within a given timeframe as agreed upon between the lenders and the project developer.

2.5 Construction and Commission, Operations & Maintenance and Decommissioning/Repurposing

Post financial close, the last three phases of the project development lifecycle are the responsibility of the project's shareholders/owners represented by the project company and its subcontractors.

In summary, the prefeasibility phase is a critical stage in the project development lifecycle as without satisfactory completion of the key activities, a project is not able to advance to the next phase of project development. Funding for this phase is limited, as there are no guarantees at this stage that the project is viable and most financial institutions are not prepared to take the risk.

Kadoma, Zimbabwe. Photo by Lidia Daskalova via Shutterstock

CHAPTER 3: DEVELOPER CHALLENGES IN THE SADC REGION

In this chapter, we analyze the project development challenges faced by developers in the SADC region. Understanding these challenges is critical in considering the support that can be provided to developers in the region to produce bankable projects and address the pipeline gap. The results of interviews and surveys conducted among SADC renewable energy project developers indicate the following as some of the challenges that they face:

- Lack of an enabling environment;
- Low technical capacity to conduct tasks throughout all stages;
- Expensive early-stage processes that are characterized by lack of prefeasibility funding;
- Stringent requirements for accessing funding;
- Lack of associated and ancillary infrastructure to support project development;
- Inability to secure offtake arrangements.

These challenges are examined in detail in the rest of this chapter.

3.1 Lack of an Enabling Environment

Successful program/project roll out starts with the creation of an enabling investment environment by the host government. Appropriate policies, e.g., a national energy policy, renewable energy policy and a transparent framework for the procurement of the renewable energy projects from private developers, are key for demonstrating the host government's commitment and to providing project developers and potential investors with the assurance that the projects will be procured according to existing legislation or a transparent procurement framework that encourages competition alongside an objective judicial system. This is also important for potential investors as evidence of legality and validity of the procurement processes and enforceability of the project agreements is a key condition of their funding.

Creation of an enabling environment is the responsibility of the host government and in some cases with the support of external partners in the form of bilateral technical assistance, DFIs, MDBs and philanthropic funds. For instance, in the case of South Africa, the Development Bank of Southern Africa (DBSA) provided the funding for the development of the procurement framework under the country's Renewable Energy Independent Power Producer Procurement Programme (REIPPPP). The South African National Treasury's Government Technical Advisory Centre (GTAC) hosts the Project Development Facility used for public-private partnerships registered with the National Treasury. These funds are in the form of recoverable grants or low interest policy loans. Other SADC member states, such as Angola, Botswana and Namibia have developed their own procurement frameworks and are rolling out successful projects.

3.2 Low Technical Capacity

The renewable energy sector is still in its nascent stage in sub-Saharan Africa and most SADC member states lack the local capacity and technical skills to conduct renewable energy resource assessments, financial modeling, market studies and develop project information memorandums. This is pertinent for projects based on newly commercialized and new to market, low-carbon technologies, including renewable energy projects in most developing economies. Countries like South Africa have had to rely on international technical and legal expertise to build capacity for both government and the private sector in the early stages of the development of the renewable energy sector. Despite more than 10 years of renewable energy development in southern Africa, many member states still do not have the depth of technical expertise required and must import these skills from South Africa or developed countries. Project developers do not often possess the requisite skills and therefore rely on independent consultants. In the case of environmental impact assessments, only certified practitioners are registered to conduct these assessments.

3.3 Lack of Prefeasibility Funding for Early-stage Project Development

In the early stages of the project development life cycle, the project is not yet de-risked and there is little interest from potential investors. There is limited seed capital for project scoping, securing project site and initial assessments and designs, which are pre-requisites for project preparation funding. The project developer is therefore expected to finance the early stages either from their own resources or social capital alongside grant funding from MDBs or DFIs. Where funding is provided by DFIs or MDBs, it is often through a loan instrument that is recoverable at financial close, whereas financing by angel investors is often converted into permanent equity at financial close. In most instances, local developers do not know where or how to access early-stage project development finance and projects often stall. In the case of MDBs and DFIs, they may also want the first right of refusal to provide debt funding to the project at financial close. This is not a challenge for developers as long as the MDB and DFI funding is provided on market-related terms.

3.4 Expensive Early-stage Processes

A high-level review or assessment of the project's environmental and social impact, grid connection, renewable energy resources, plant capacity, energy costs and basic financial model including the electricity tariffs during the prefeasibility stage often entails contracting third-party service providers. This requires significant capital outlay, particularly for a small start-up or new entrants into the renewable energy market. Without these assessments, the project is unable to progress to the bankable feasibility phase. In cases where a developer manages to secure private funding, it often comes at a high cost in terms of project equity, possibly as much as 40 percent.

3.5 Stringent Access Requirements

Most funds require the developer to contribute a portion of the required funding commonly referred to as having "skin in the game" (own contribution) in order to unlock the co-funding. Some funders now accept sweat equity as co-financing from project developers, but these are few and far between.

3.6 Lack of Associated Infrastructure to Support Project Development

Developing transmission networks fall under the electricity utility and/or its subsidiary's purview in most African countries. The pace of development of the transmission network infrastructure to evacuate power from project sites to the market has not kept up with the development of renewable energy generation projects. Aside from countries that have rural electrification programs in place, most remote areas do not have grid capacity, as governments have prioritized development of transmission network in areas with high economic activity as the cost of investment is easily recoverable. This means that although these remote sites and the resources might be ideal for a renewable energy project, the developer will not be able to evacuate the power if grid connection is not within the vicinity of the project site or not on the utility's list of priority projects. The length and capacity of the transmission line from the power plant to the nearest substation is also critical, especially when funded as part of the project cost as the cost can potentially render the project non-viable. The lagging transmission infrastructure development also has a bearing on and has hampered the development of utility scale renewable energy projects that could accelerate regional integration amongst SADC member states.

Electricity transmission infrastructure is mostly funded by the utility company off its balance sheet or borrowings. Concessionary funding for grid infrastructure is available from MDBs and European DFIs, such as the French Development Agency (AFD), African Development Bank (AfDB), European Investment Bank, and World Bank. With the liberalization of the electricity market, private capital is available where there is a clear funding and repayment mechanism. Investment in the transmission network therefore arrives in the form of grant funding from host governments, concessionary loans from DFIs and project finance where the legal framework makes provision for private sector participation in the development of the transmission network. The Regional Transmission Infrastructure Financing Facility (RTIFF) under establishment by SAPP will address the challenge of the lack of funding for the development of regional transmission infrastructure that could accelerate the deployment of renewable energy projects along transmission corridors and overall energy access.

3.7 Inability to Secure Offtake Arrangements

To complete the prefeasibility study, the developer needs to secure offtake letters of interest. This process requires that the developer provides a strong balance sheet and a track record of successful project development, delivery and implementation. It is challenging for new entrants to the sector to secure offtake arrangements unless they partner with an established developer. In this instance, the local developer is forced to sell down a portion of their equity.

Where the infrastructure is of strategic importance to an offtaker with a strong balance sheet, the offtaker might be prepared to co-finance the development work through advance tariff payments. This is not a new concept, as it is widely used in the development of telecommunication towers and in the mining sector. With the current energy insecurity situation in most SADC member states, large corporations often use this funding mechanism for energy audits in the case of energy efficiency projects and deduct the energy audit advance payment from the first energy efficiency project payment/savings.

In summary, project developers for renewable energy are looking for transparent and consistent government policies, funding for prefeasibility studies, access to information on available funding for prefeasibility studies, short and simple funding approval processes and capacity building.

CHAPTER 4: AN OVERVIEW OF AVAILABLE PREFEASIBILITY FUNDING

Chapter 4 provides an overview of the existing SADC and global/international prefeasibility facilities that support project developers in the early stages of project development. It also sets out key funding criteria to assess their adequacy and effectiveness in addressing the challenges identified in Chapter 3.

A survey was conducted amongst SADC DFI Network (Network) members and other financial institutions to establish available early-stage project preparation facilities and/or funds in the region and internationally. The target population group was made up of the seven SADC DFI Network members that have an infrastructure mandate and five international financial institutions. The DFIs and financial institutions' survey consisted of a questionnaire that sought to establish the existing project preparation facilities in the SADC member states, their funding base, which institutions provide prefeasibility funding as part of their value proposition and to establish the adequacy of these facilities. It also sought to establish the high-level funding terms and conditions to assess if they are easily accessible by developers and to recommend areas for improvement. These surveys were complemented by one-on-one interviews with DFI and financial institutions' staff.

Facilities/funds identified are classified between those that exist in SADC member states and those outside the SADC region, i.e., global funds.

4.1 Findings

The survey and interview findings reveal there is a conspicuous lack of prefeasibility project preparation funds/and support to fill the gap in the funding of renewable energy project preparation in the SADC region. The SADC region has no project preparation facilities that are dedicated for renewable energy and energy efficiency.

The Region has three cross-border project preparation facilities namely, the DBSA Project Preparation Facility, the DBSA managed SADC PPDF and the SAPP PAU's Project Preparation Fund. Only the SAPP PAU's Project Preparation Fund is dedicated to supporting energy generation and transmission projects. The renewable energy sector must compete for prefeasibility funding. The DBSA's Project Preparation Facility and the DBSA managed SADC PPDF have a regional infrastructure sector mandate. Project preparation facilities that are available across all the countries tend to focus on all sectors of the economy with no dedicated fund for renewable energy and energy efficiency. Renewables must compete with other sectors and energy subsectors.

National DFIs have inward looking local facilities. While some of them have a focus on funding infrastructure projects, they tend to have a more diverse outlook and coverage of all sectors of the economy.

Regional DFIs and international financial institutions have challenges with the quality of projects that are usually submitted for funding. These range from poorly scoped projects and some with small deal sizes that require an outsized amount of effort and resources relative to large projects. The creditworthiness of the developers and lack of expertise on the part of the developers was of concern to the regional DFIs and international financial institutions.

Policy uncertainty as well as institutional and regulatory delays also have an impact on project preparation. Information on regional and global project preparation facilities is not readily available and accessible to project developers who need project preparation services. DFIs are generally risk averse and require developers to demonstrate their 'skin in the game' as a form of their level of commitment. The eligibility criteria are stringent and, in some instances, require a lot of the upfront expensive project preparation deliverables prior to applying for funding.

The results show that the existing SADC and global facilities are not sufficient to address existing developer challenges if the SADC region is to reach universal energy access and 53 percent renewables in the energy mix by 2040. Additional facilities are therefore required to address the renewable energy capacity gap of 52.8GW.

The results of surveys and interviews are discussed in the following subsections.

4.2 SADC Prefeasibility Facilities/Funds

The SADC DFI Network consists of 41 institutions in the SADC member countries that support the region's development goals including infrastructure development, industrial development, agriculture, housing development, enterprise development and environmental sustainability. Thirty-four of the Network members' mandates exclude infrastructure. The other seven are members of the SADC Development Finance Network Infrastructure and Resource Mobilization working group and the target group for the survey.

The DFIs in the target group own project preparation facilities funded through annual budget allocations from the fiscus and/or from self-generated revenues. All national DFI project preparation facilities have an in-country mandate, except for the DBSA's Project Preparation Facility which has a sub-Saharan Africa mandate. The DBSA also manages the SADC Project Preparation Development Facility, which has a regional mandate. The Southern African Power Pool (SAPP), a subsidiary of SADC responsible for coordinating the planning and operation of the electric power system among member utilities, also coordinates the SAPP Project Advisory Unit (SAPP PAU) Project Preparation Fund. The Table 3 displays the facilities and funds.

Table 3: Project preparation development funds in the SADC Region

DFI / Funder	Country	Name of Fund
Development Bank of Angola (DBA)	Angola	National Development Fund (NDF)
National Development Bank of Botswana (NDBB)	Botswana	Green Energy Transition for Sustainable Agriculture
Development Bank of Namibia (DBN)	Namibia	Project Preparation Fund
Development Bank of Southern Africa (DBSA)	South Africa	DBSA Project Preparation Facility (PPF)
Industrial Development Corporation of South Africa (IDC-SA)	South Africa	IDC Project Preparation Facility
Industrial Development Corporation of Zimbabwe (IDC-Zimbabwe)	Zimbabwe	Project Preparation Development Fund

DFI / Funder	Country	Name of Fund
Infrastructure Development Bank of Zimbabwe (IDBZ)	Zimbabwe	Industrial Development Capital Fund
SADC and Kreditanstalt für Wiederaufbau (KfW)	Regional	SADC Project Preparation Development Facility (PPDF) (managed by DBSA)
The World Bank, the International Development Association (IDA) and Multi-Donor Trust Funds (MDTF)	Regional	Southern African Power Pool Project Advisory Unit (SAPP PAU) Project Preparation Fund

Source: Authors' elaboration based on survey results.

These DFIs provide project preparation support for prefeasibility studies, feasibility studies and advisory services required to structure the project and mobilize equity and loan funding but have stringent access requirements with development impact as a key eligibility criterion.

In addition, project sponsors and developers need to show that they have the technical capacity to oversee and implement the project. The project sponsor is required to confirm the stage of project preparation and provide proof of stages completed such as a prefeasibility report, independent market studies not older than 12 months and show that the land access rights have been secured in the form of land lease or a land purchase agreement. Environmental consents, water use licenses and land use approvals should be secured and all legal regulatory hurdles such as grid connection and proof that the project has been registered with the energy regulator, have been addressed to avoid delays.

The DBSA's project preparation facility is limited to last mile project development activities such as detailed project designs, development of the project information memorandum and review of the demand/market study and therefore not geared for the prefeasibility phase. The project development sponsors are required to confirm the development budget, including proof of expenditure and the funding gap with a schedule for the outstanding work and the implementation timelines. The project sponsor is required to co-fund ≥ 50 percent of the project development budget and to submit a proposed implementation plan upon conclusion of a bankable feasibility study.

While project preparation funds were available at these DFIs, the majority tended to favor projects at feasibility stage as opposed to prefeasibility which some consider a sunk cost. The seven institutions provide different forms of early-stage project development funding for renewable energy and energy efficiency projects. However, the funding is not exclusively for renewable energy and energy efficiency but also for other infrastructure sectors, although projects are predominantly from the energy sector.

The majority of SADC DFIs are not large enough to justify dedicated funding windows for renewables given the high demand for funding other competing development priorities outside the energy sector. It is also important to emphasize that amongst the national DFI project preparation facilities, only the DBSA's PPF has a cross-border mandate and that this is not limited to the SADC region but available to the rest of sub-Saharan Africa. Developers in SADC member states therefore must compete with other non-SADC country developers for funding.

4.2.1 Partners/Investors for the Fund/Facility

Funding for project preparation facilities for national DFIs generally comes from fiscal resources in the respective government's annual budget allocations and self-generated annual revenues. However, the allocation of funding from the fiscus for all DFIs is not clear. It is important to note that the national treasury funding allocation for DFI project preparation activities is insignificant and not commensurate with the financial needs of the infrastructure sector in general.

The Development Bank of Angola (DBA) is capitalized to the tune of €1 billion credit line from the Deutsche Bank to the Ministry of Finance. Funding partners for the National Development Bank of Botswana are the German Ministry of Environment and the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ). The DBSA's PPF is currently funded from the DBSA's internal resources and reviewed annually in line with the planned pipeline of projects. The state-owned Industrial Development Corporation (IDC) of South Africa's project preparation facility is also funded from internal resources.

4.2.2 Purpose of the Fund/Facility

The seven SADC DFIs support a range of project preparation activities, but only three provide prefeasibility funding, as shown in Table 4.

Table 4: Purpose of project fund/facility

Purpose of Fund	DFI Name						
	DBA	DBN	DBSA	IDBZ	IDC-SA	IDC-ZW	NDBB
Prefeasibility studies		✓			✓		✓
Feasibility studies	✓	✓	✓		✓		
TA and /or advisory		✓	✓				✓
Capacity building / training							✓
Mobilize private sector funding for projects	✓	✓	✓	✓	✓	✓	✓

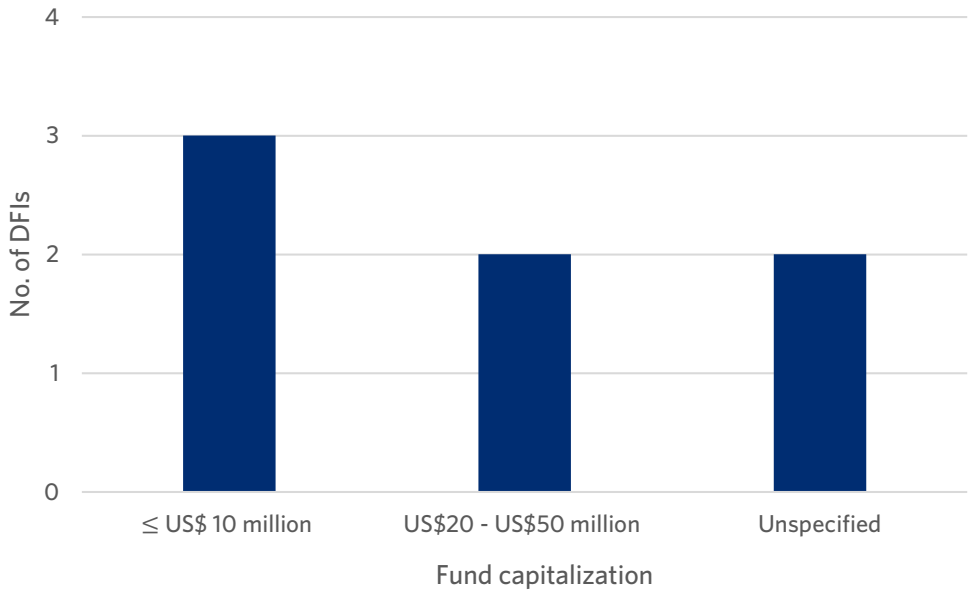
Source: Authors' elaboration based on survey results.

There is more inclination from the financial institutions to mobilize private sector funding for projects, as at this stage, projects would be sufficiently de-risked and are most likely to reach financial close. Four DFIs support feasibility stage activities, yet only one provides capacity building and training for project preparation. Three of the financial institutions provide both prefeasibility funding, as well as technical assistance and /or advisory services to increase the chances of project preparation to reach bankability.

4.2.3 Fund Capitalization

Three DFIs have a project preparation capitalization of up to $10 million, while the DBSA with its regional mandate has capitalization between $20 million to $50 million which is subject to review annually in line with the project pipeline. The IDC-SA has an annual allocation of approximately $32 million, which caters for all the sectors of the economy. Capitalization for the DBA fund is based on 5 percent oil tax and 2 percent diamond revenue. No clarity was provided on the NDBB facility. The range of fund capitalization among the DFIs is displayed in Figure 5.

Figure 5: Fund capitalization



Source: Authors' elaboration based on survey results.

4.2.4 Duration of Fund Life

The DBA has a revolving fund which has no defined life span, while the DBN has a lifespan of 20 years. The DBSA's PPF and the IDBZ have a span of between five to seven years and the IDC Zimbabwe's project preparation facility has a maximum of five years. The IDC of South Africa operates a revolving fund that is replenished on an annual basis. The NDBB's fund duration was not specified.

4.2.5 Funding Thresholds

Five DFIs specified their lending thresholds, and these range from $200,000 in the case of the DBSA and up to $10 million for the DBA. The range of funding thresholds among the DFIs in displayed in Table 5.

Table 5: Funding thresholds

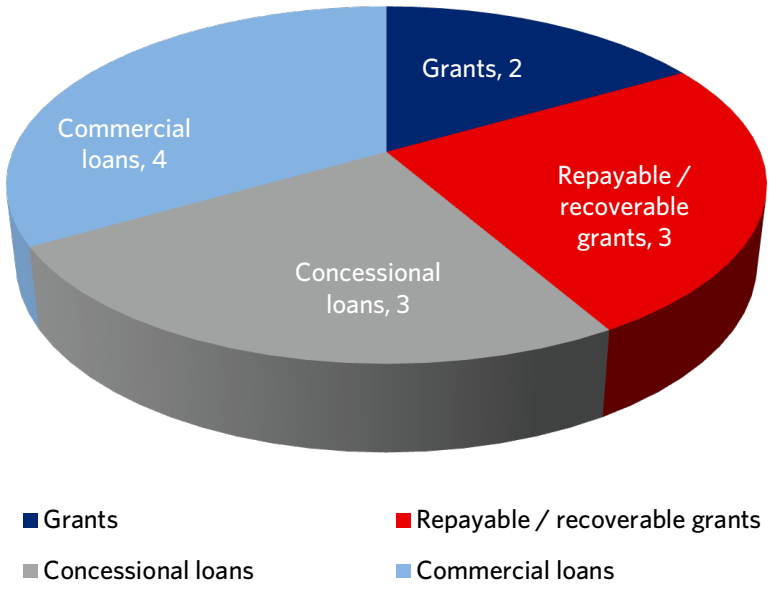
Name of DFI	Minimum lending threshold	Maximum lending threshold
DBA	≤ US$1 million	US$ <10 million
DBN	US$1 - US$2 million	US$ 2 million
DBSA	US$200 000	US$ 3 million
IDC-SA	Over US$5 million	US$ 4 million
IDC-ZW	≤ US$1 million	US$ 1million
IDBZ	Not specified	Not specified
NDBB	Not specified	Not specified

Source: Authors' elaboration based on survey results.

4.2.5 Funding Instruments

DFIs offer a variety of funding instruments for project preparation. Some institutions offer a combination of pure grants, repayable/recoverable grants and concessional and commercial loans for project preparation. The DBA offers pure grants and commercial loans, while the NDBB offers grants only for agricultural projects. The DBN provides a combination of repayable commercial loans and recoverable grants. The DBSA and the IDC-ZW offer concessional and commercial loans which are repayable at financial close. The DBSA also provides repayable grants for public sector entities. The IDC-South Africa's project preparation funding is in the form of commercial loans. The IDBZ provides a more diverse offering of repayable/recoverable grants and concessional loans. Figure 6 is a diagrammatic representation of the funding instruments and the number of DFIs providing each instrument:

Figure 6: Funding instruments based on survey results



Source: Authors' elaboration based on survey results.

There is a general expectation among DFIs that through project preparation funding, projects will reach bankability stage. At this stage, DFIs such as the DBSA will require the first right of refusal to provide debt funding to projects at financial close. In the case of the IDC-South Africa, the project preparation funding may form part of its equity contribution.

4.2.6 Funding Terms and Conditions

Funding terms for the various instruments vary across DFIs from concessionary to commercial rates. The DBA's interest rate varies per project, and it is charged at Euro Interbank Offered Rate (EURIBAR) +1.9 percent per annum with a 1.5-year grace period with a minimum of two years and maximum 12 years repayment period.

The DBN's project preparation funds are priced at commercial rates on a co-financing basis and with preference to providing senior debt at financial close. The DBSA indicated preference for project preparation loan repayment plus a mark-up for the risk taken or to convert the project preparation loan to equity in the project on $1 for every $1 invested with key requirement for being the mandated lead arranger (MLA) and having the first right of refusal to provide the senior debt for the project. The IDBZ's terms and conditions also include the right to provide the senior debt in the project at financial close.

IDC-South Africa's preferred option is to convert the project preparation loan to equity in the project at a rate of $1 for every $1 invested, plus a mark-up for the risk taken, while the IDC Zimbabwe prices the funding at concessionary rates. The NDBB did not specify its terms and conditions for funding project preparation.

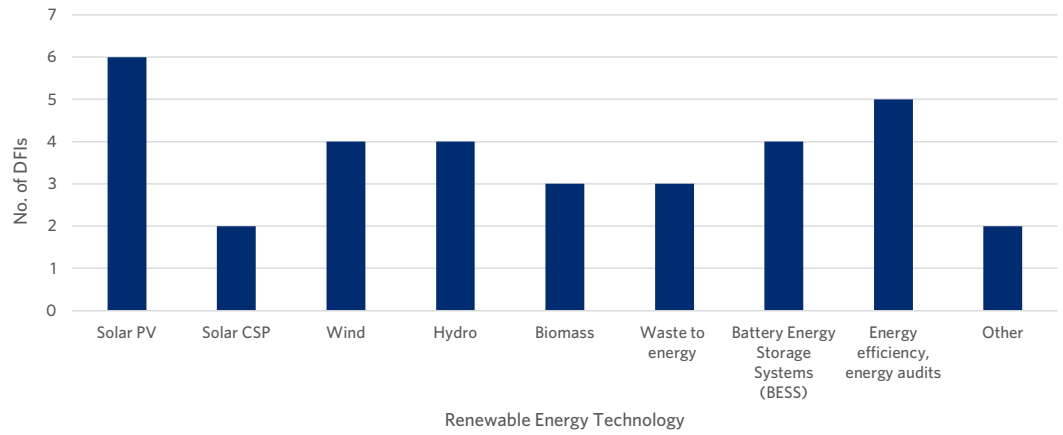
4.2.7 Approval and Disbursement Lead Times

The lead time from application to approval and disbursement was estimated at between 1.5 months to six months. Three DFIs take up to 1.5 months, another three between 1.5 to three months to finalize the process, while one DFI estimated the approval and disbursement process to take between three to six months to finalize the process. The estimated lead times were subject to the quality of the submissions and the adequacy of the supporting documentation.

4.2.8 Eligible Renewable Energy Technologies

All the DFIs surveyed support renewable energy technologies. Although IDC-South Africa previously supported a large pipeline of traditional technologies, it has shifted to focus on new emerging technologies which include green hydrogen and battery energy storage systems. The NDBB is the only DFI that supports solar thermal technologies. The DBSA has a mandate for energy efficiency and energy efficiency audits in line with its green building framework. Figure 7 is a diagrammatic representation of the eligible renewable energy technologies supported by the DFIs:

Figure 7: Eligible renewable energy technologies based on SADC DFIs' survey results



Source: Authors' elaboration based on survey results.

4.2.9 Eligibility Criteria for Accessing Funding

Co-funding requirements, high-level financial models, land access rights and scoping studies are the main eligibility criteria required by DFIs. These activities require significant upfront financial resources to prepare, which developers do not normally have.

These requirements also generally have long lead times which ultimately impact the pace at which developers can access prefeasibility funding and complete this phase of project development. Figure 8 is a diagrammatic representation of the eligibility criteria based on survey results.

Figure 8: Eligibility criteria

Source: Authors' elaboration based on survey results.

4.2.10 Number of Projects Funded

The number of projects that have benefited from SADC national DFIs' project preparation funds is generally low. Only two DFIs had funded up to 10 projects each, one between 10 and 20 projects and another between 20 and 40 projects since they were established. The success rate is generally low due to the stringent requirements and poor project preparation, reflecting a lack of project preparation capacity among developers.

4.2.11 Level of Private Sector Funding Catalyzed

The DBN, DBSA and IDC-ZW have each leveraged more than $500 million worth of private sector funding, while the IDC-SA has managed to attract between $500 million and $750 million.

4.2.12 Key DFI Challenges

Consideration and approval of projects for funding is hindered and delayed generally by poorly prepared projects, which is often attributed to lack of project preparation capacity and skills among developers. Insufficient supporting documentation to inform decision-making was also considered a cause of delay for project funding approval. Inconsistent and sometimes changing government policies delay project preparation activities.

4.3 The SADC Project Preparation Development Facility

The SADC PPDF was established in 2008 to support the preparation of bankable projects in major infrastructure sectors in the SADC region. The Facility was subsequently launched in 2010. The SADC PPDF was intended to address the shortage in project preparation funding for infrastructure projects in the region and is underpinned by the SADC Regional Infrastructure Development Master Plan (RIDMP). The RIDMP is aimed at promoting and contributing to enhancing regional economic integration to enhance sustainable economic growth and delivery by addressing infrastructure development constraints. Funding is mainly through project preparation grants for cross-border regional infrastructure projects.

The Facility is hosted and administered by the DBSA and the SADC Secretariat as the Project Executing Agency for implementing the Memorandum of Agreement. The SADC PPDF was to be capitalized by the SADC member states with the European Union (EU) and the German Development Bank (KfW), as the International Cooperating Partners (ICPs). To date, the EU has contributed $11.7 million and KfW a total of $25.6 million.

The eligible sectors are energy, information communications technology (ICT), transport, water and sanitation and tourism infrastructure. The portfolio currently consists of 17 approved projects with a commitment of $30 million. Eight projects have been completed, two are under implementation, while four are in the financial close phase and three in the fundraising phase. The sector breakdown is provided in Table 6.

Table 6: SADC PPDF portfolio

Project stage	Sector and number of projects			
	Energy	Transport	Water	Total
Approved projects	11	3	3	17
Completed projects	5	1	2	8
Fund-raising stage	3			3
Financial close	1	1	2	4
Implementation		1	1	2

Source: Authors' elaboration of survey results and interviews.

Energy sector projects that have been considered under the SADC PPDF include power generation (i.e., green hydrogen and hydropower), transmission projects and institutional support in renewable energy policy and trading. Some of the transmission projects were being prepared under the SAPP Project Advisory Unit (PAU) with additional resources from the World Bank and Multi Donor Trust Funds (MDTF) under the Accelerating Regional Energy Transformational Projects (AREP). The SADC PPDF targets public sector and private sector entities under a public-private partnership arrangement. Under the latter, a mandate letter or contract between public and private entities must be presented as part of an application for funding.

Projects under the SADC PPDF are screened for suitability in line with the PPDF objectives. The selection criteria are based on sector or strategic fit of the SADC and DBSA priority infrastructure sectors, development impact and regional and institutional development priorities. A project should be aligned to the SADC RIDMP and project sponsors must show that they have capacity to implement the project or have credible plans to build capacity.

The SADC PPDF non repayable grant contributes a minimum of 5 percent of the total cost to cover project preparation activities identified by project developers. While several power sector transmission projects have benefited under the SADC PPDF, only two large hydropower projects, Luapula (789 MW) and Mulembo Leyla (106 MW), have received funding.

4.3.1 SADC PPDF Challenges

Operationalized in 2008, the SADC PPDF's framework agreements show the SADC Member States, KfW and the EU as the funding partners. However, only the KfW and the EU have provided funding for the PPDF. The first project since the operationalization of the facility in 2008 was considered in 2015. Based on interviews conducted, the SADC PPDF has several challenges including:

- A poor pipeline of projects comprising poorly packaged projects that do not meet the minimum qualifying criteria;
- The SADC PPDF is a project preparation facility and has low preference for prefeasibility projects and yet the majority of projects received are early-stage development projects which by their nature still need to be advanced to the feasibility study stage;

- Lack of project preparation capacity among project owners and in some instances energy utilities or national departments to package quality and bankable projects for funding;
- The non-recoverability nature of the SADC PPDF grants which tends to contribute to lack of commitment from project owners to see the project preparation process through;
- Slow decision-making processes by member state government structures, often resulting in delays in concluding project preparation activities;
- Lack of coordination and cooperation where projects include multiple project owners;
- Limited funding to adequately resource the SADC PPDF into a sustainable facility dedicated to providing project preparation support.

The funds under the PPDF are almost exhausted with a remaining balance of less than $10 million. As the facility is open to all infrastructure sectors, the facility cannot meaningfully contribute towards meeting the demands of the renewable energy sector, which has to compete with the other energy subsectors (transmission, hydro etc.) and infrastructure sectors. Investment approval processes are slow and disbursement rates are low.

The EU's participation in the SADF PPDF is currently under review. The agreement with KfW expires in 2025. After 2025, if the EU and KfW funding arrangements under the SADC PPDF are not finalized, the DBSA PPF and the SAPP PAU Project Preparation Fund will be the only regional facilities in operation and the DBSA PPF will be expected to support project preparation activities not only in the SADC region but the whole of sub-Saharan Africa. The DBSA PPF will also support projects across all infrastructure sectors and not just renewable energy. Operationalizing the SADC Regional Development Fund is therefore key to ensuring adequate regional project preparation facilities in order to meet the 2030 and 2040 targets.

In the past, the DBSA has administered and managed five other regionally focused project preparation facilities whose implementation timelines have since expired. These funds covered all infrastructure sectors that fall within the DBSA sector mandate of energy, ICT, transport as well as water and sanitation, as shown in Table 7.

Table 7: DBSA expired project preparation facilities

Project Preparation Fund	Sources of Funds	Duration	Coverage	Value of fund and currency
Infrastructure Investment Programme for South Africa (IIPSA)	SA Govt & EU	2013-2023	Regional	€40 Million
SA National Treasury	SA Govt.	2020-2027	National	R400 Million
French Development Fund (AFD)	AFD	2003-2022	Regional	R113 Million
Melinda & Bill Gates Foundation	M&B Gates Foundation	2020-2023	National	$5 Million
Energy and Environment Partnership for Africa (EEP Africa)	Finland, United Kingdom, Austrian governments	2010-2015	Regional	Not available

Source: Authors' elaboration based on survey results.

The 2010-2015 EEP Africa Fund has been replaced by a restructured EEP Africa Fund discussed in Section 4.6. The EEP Africa Fund used to support prefeasibility activities such as site selection studies to determine the most appropriate location, market studies, wind and solar resource assessments and assessment of technology transfer opportunities. The expiration of the fund left a huge gap in the SADC region, as most national DFIs do not fund these prefeasibility activities.

4.4. SAPP Project Advisory Unit Project Preparation Fund

The Southern Africa Power Pool (SAPP) Project Advisory Unit (PAU) was established in 2016 under the SAPP - Accelerating Regional Energy/Transformational Projects (SAPP-AREP) facility, which itself is funded by the World Bank with resources provided by the International Development Association (IDA) and Multi-Donor Trust Funds (MDTF). The initial Project Preparation Fund under PAU was $10 million.

The responsibilities of the SAPP-PAU include, but are not limited to the following:

- Conducting regional analytical work;
- Screening, selecting, preparing and monitoring the implementation of regional priority projects using grant funding received by the SAPP-Coordination Centre; and
- Playing an advisory role to SADC governments and utilities.

The PAU's key objectives are to advance the preparation of selected priority projects in the SAPP participating countries. It supports early-stage projects (greenfield) by doing the studies to get projects to a bankable state (structuring, legal, technical, economic, financial, environmental, social etc.) as well as advanced projects (brownfield) by completing outstanding studies, concluding negotiations, and packaging for bankability to attract financing.

The Regional Transmission Infrastructure Financing Facility (RTIFF), which was prepared under the SAPP PAU, is a USD$1.3 billion facility which is intended to fund cross-border energy transmission infrastructure using a blended finance mechanism. Capital which will include climate funds will be mobilized from MDBs, DFIs, commercial banks, among others. The facility will enable the participation of private and public capital at scale to strengthen the Southern African power grid. At least US$ 100 000 will be allocated to the SAPP PAU to support the RTIFF by providing its expertise for the preparation of a pipeline of first mover bankable power transmission projects for funding.

4.5 SACREEE Technical Support Facilities

In addition to the mentioned facilities, SACREEE also manages technical support facilities (non-financial in nature) that are available to small-scale project developers in the region, discussed in the following subsections.

4.5.1 The SADC Renewable Energy Entrepreneurship Support Facility (ESF)

The SADC Renewable Energy Entrepreneurship Support Facility (ESF) is a technical assistance facility for capacity building and a mentorship platform which supports small- to medium-sized (SMEs) entrepreneurs of renewable energy companies in the SADC member states between

2019-2024[1]. The facility is aimed at addressing some of the challenges experienced by the entrepreneurs, specifically, to enhance and strengthen the capacity of SMEs in assessing the business potentials of sustainable energy, developing viable business plans and loan requests, managing and maintaining their businesses successfully. Furthermore, the Facility also aimed to increase the confidence of financial institutions in sustainable energy systems and create linkages between the entrepreneurs and financial institutions (SACREEE, 2024). The facility was funded by the International Renewable Energy Agency and the EU-Africa Energy Partnership through the GIZ.

4.5.2 Southern African Solar Thermal Training & Demonstration Initiative (SOLTRAIN+)

The Southern African Solar Thermal Training & Demonstration Initiative (SOLTRAIN+) is a five-year regional initiative that contributes to the transformation of predominantly fossil-based energy systems to sustainable, affordable and carbon-free systems by promoting the use of renewable heating and cooling (RHC) technologies such as solar thermal, heat pumps and energy efficiency measures. It provides capacity building and demonstration of solar thermal systems in the SADC region to accelerate energy transition and decarbonization. It is funded by the Austrian Development Agency.

4.6 Global Renewable Energy Prefeasibility Funds

The availability of prefeasibility or early-stage project financing is essential in producing a pipeline of bankable projects in the region. The limited number of cross-border project preparation facilities (especially post-2025 if the EU and KfW do not renew funding to the SADC PPDF and member states do not capitalize the PPDF) means that the DBSA's PPF and SAPP PAU Project Preparation Fund will be the only SADC institutions providing project preparation funding across borders. With several member states facing financial challenges and not fully recovered from the COVID-19 pandemic, limited recapitalization is expected from governments. The DBSA PPF's capitalization of up to $50 million mandate includes sub-Saharan Africa and covers last mile project preparation activities for energy, transportation, ICT and water and sanitation. This is not adequate to address the challenges developers are facing in trying to scale up the pipeline of renewable energy projects required to reach the envisaged generation capacity of 52.8GW by 2040. The Region will therefore rely on the SAPP PAU Fund Project Preparation for energy prefeasibility project preparation funding.

This means that the SADC region will need to look to global facilities for support in generating the required pipeline of renewable bankable projects. However, a limited number of global funds provide early-stage project preparation facilities. Five global funds and financial institutions participated in the survey and were also interviewed. These institutions provide early-stage financing for renewable energy projects in Africa and abroad as outlined in Table 8. This section analyzes the five prefeasibility funds. Refer to Appendix 2 for a list of the international institutions that participated in this research study.

1 ESF on no cost extension until funding is exhausted and outstanding activities completed.

Table 8: Global renewable energy project preparation development funds

Fund Manager	Name of Fund
Nordic Development Fund (NDF)	Energy and Environment Partnership Trust Fund (EEP Africa)
United States Trade & Development Agency (USTDA)	United States Trade & Development Agency project preparation facility
United Nations Environment Programme (UNEP)	Seed Capital Assistance Facility (SCAF)
UK Partnering for Accelerated Climate Transitions (UK PACT)	Alternative Financing for Municipal Embedded Generation (AFMEG)
International Finance Corporation	IFC InfraVentures

Source: Authors' elaboration based on results of the survey.

4.6.1 Partners/Investors

Global facilities offering early-stage finance obtain funding from various sources, including governments, MDBs and DFIs. Below are some of the global facilities operating in sub-Saharan Africa:

- The new EEP Africa Trust Fund launched in 2018 is hosted and managed by the Nordic Development Fund (NDF) and receives funding from Austria, Denmark, Finland, Iceland, the NDF and Switzerland (EEP Africa Trust Fund, 2023).
- The US Trade and Development Agency is a federal agency that receives funding from the US Congress (US Trade and Development Agency, 2024).
- The Seed Capital Assistance Facility (SCAF) is a public sector donor-funded facility and has received funding from the Global Environment Facility (GEF), UN Foundation, UN Environment Programme, Asian Development Bank (ADB), African Development Bank (AfDB), UK's Department for International Development (formerly DFID, now known as the Foreign, Commonwealth & Development Office) and Germany's Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (UN Environment Programme, 2021).
- The Alternative Financing for Municipal Embedded Generation (AFMEG) project was implemented by International Council for Local Environmental Initiatives (ICLEI) Africa and supported by the UK Partnering for Accelerated Climate Transitions (UK PACT) program, which is funded by the UK Government's Department for Business, Energy and Industrial Strategy (BEIS) through the UK International Climate Finance. The AFMEG project was implemented in partnership with the DBSA (ICLEI Africa, 2022).
- The IFC InfraVentures is funded by the World Bank's private sector arm, the International Finance Corporation but its mandate expired in 2023.

4.6.2 Purpose of the Fund/Facility

The Global Facilities described in 4.6.1 above provide an array of support to private companies that qualify under their programs, as summarized in Table 9. All the funds offer finance for prefeasibility and/or feasibility studies and technical assistance or advisory services. Only three of the facilities support capacity building and training and help mobilize private sector funding for projects that qualify under their program.

Table 9: Summary of activities supported by global project preparation development funds

Purpose of Fund	Name of Fund				
	EEP Africa	USTDA	SCAF	UKPACT AFMEG	IFC InfraVentures
Prefeasibility studies	✓	✓	✓	✓	✓
Feasibility studies	✓	✓	✓		✓
TA and /or advisory	✓	✓	✓	✓	✓
Capacity building/ training	✓		✓	✓	
Mobilize private sector/DFI funding for projects	✓		✓		✓

Source: Authors' elaboration of survey results.

4.6.3 Fund Capitalization

Project preparation capitalization for the global funds is as follows:

1. EEP Africa has a funding size of €86.7 million.
2. The SCAF has a funding size of $40 million.
3. The IFC InfraVentures fund had a funding size of $150 million which was not limited to renewable energy development and could be accessed for other infrastructure developments. However, the InfraVentures fund's mandate expired in 2023.
4. USTDA is funded through annual budget allocations from the United States government.
5. UKPACT is funded through annual budget allocations from the United Kingdom government.

4.6.4 Duration of Fund Life

SCAF has been operating since 2008 and is expected to run until 2026. SCAF I operated for seven years until 2015. SCAF II was established in 2014 and will run for 12 years until 2026. In contrast, EEP Africa Trust Fund is an open-ended fund which will remain in operation as long as it continues to be funded. It has funding until 2030 and intends to raise additional funding to continue operating beyond 2030. USTDA prefeasibility support is open-ended. The AFMEG project was in operation for a year, from May 2021-May 2022. IFC InfraVentures began operations in 2008 but closed in 2023.

4.6.5 Funding Thresholds

Table 10 shows the minimum funding thresholds for the five global funds.

Table 10: Funding thresholds for global facilities

Institution	Minimum lending threshold	Maximum lending threshold
EEP Africa	€200,000	€1 million
USTDA	$250,000	$2 million
SCAF	$200,000	$2.5 million
UKPACT /AFMEG	n/a	$0.32 million
IFC InfraVentures	$1 million	$3 million

Source: Authors' elaboration of survey results.

The funding thresholds range from $200,000 for the SCAF and EEP Africa Trust Fund to $3 million for IFC InfraVentures.

4.6.6 Funding Instruments

The global early-stage funds offer various funding instruments for project preparation. The financial institutions provide pure grants, repayable/recoverable grants, equity or a combination of these instruments. EEP Africa offers both grants and repayable grants catalytic financing to innovative clean energy projects, technologies and business models in 17 countries across Southern and Eastern Africa. This is supplemented by technical support, investment facilitation and knowledge sharing (EEP Africa Trust Fund, 2023). The USTDA offers grants. SCAF provides pure and repayable grants. The UKPACT/AFMEG offers pure grants for prefeasibility studies and capacity building. IFC InfraVentures provided equity rather than grants to projects, aiming to give pre-development/development equity, generally taking a minority stake in the project and exiting within five years.

4.6.7 Funding Terms and Conditions

Funding terms for the various instruments vary across the funds. On average, lead times from application to disbursement takes approximately 18 months; the EEP's approval times are shorter, ranging from 9-12 months.

4.6.8 Eligible Renewable Energy Technologies

Table 11: Technologies supported by the global financial institutions

Technology	Development Finance Institution				
	EEP Africa	USTDA	SCAF	AFMEG	IFC InfraVentures
Solar PV	✓	✓	✓	✓	✓
Solar CSP	✓				
Wind	✓	✓	✓		✓
Hydro	✓		✓		✓
Biomass	✓				
Waste to energy	✓				
Battery Energy Storage Systems (BESS)	✓	✓	✓		
Other (incl. green hydrogen)	✓	✓			

Source: Authors' elaboration of survey results.

To date, EEP Africa has funded a total of 134 projects along the different stages of the project development cycle. An estimated €26.3 million has been invested and it has leveraged an additional €52.5 million for solar PV, wind, hydropower and energy efficiency projects, as listed in Table 12.

Table 12: EEP Africa Projects for SADC region

Country	Project Stage				EEP Investment €000	Total Investment (co-funding) €000	Technology / Sub sector			
	Feasibility	Pilot	Demo	Scaling-up/ Replication			Solar	Wind	Hydro	Energy Eff.
Botswana	2	3	2		1,000	1,500	2			
Lesotho	1	3			625	855	1	1		
Mozambique	3	4	5	1	3,200	2,300	3	1		
Namibia	4	2	7	2	1,500	2,900	3	2		1
Tanzania	6	8	12	13	10,300	26,500	20	1		
South Africa	13	7	11	2	5,200	10,000				
Zambia	6	7	2	6	3,800	7,200	5	1	1	
Zimbabwe		2			710	1,200				
Total	**35**	**36**	**39**	**24**	**26,335**	**52,455**	**34**	**1**	**1**	**1**

Source: EEP Africa (2024).

Project focus areas include feasibility, pilot and demonstration, scaling-up and replication. Only 104 out of 1,572 project applications submitted in 2018, 2019, 2020 and 2023 were approved for funding, representing a mere 7 percent of the total. This reflects an excessively competitive demand for limited project preparation funds. The evaluation criteria are guided by additionality, innovation, development impact, business model and financial sustainability across diverse energy thematic areas. EEP Africa funding in recent calls ranges between €200,000 and €1 million of grants and repayable grants. A minimum 30 percent co-financing is a requirement. Diverse technologies and thematic areas which include power generation, e-mobility and productive use of energy and other energy access thematic areas with impact are key focus areas. The Facility is open to private sector legally registered entities which must be operational for at least six months prior to application for funds under a call.

The selection criteria for EEP Africa funding are stringent. SADC developers have struggled to secure funding, which is allocated on a competitive bidding process based on innovation. Despite extensive promotion of the EEP Africa funding in the SADC region, historically the bulk of the feasibility funding has been allocated to developers in the Eastern and Central African region.

Over the years, it has become increasingly difficult to justify funding of prefeasibility stage projects due to high risk, uncertainty and lack of guaranteed immediate project development impact.

4.7 Other Global Funds

Other global funds that are also supporting project preparation work in the region include the Renewable Energy and Energy Efficiency Programme (REEEP) which supports activities that ensure access to affordable, reliable, sustainable and modern energy for all and taking action to combat climate change and improve resilience. REEEP's focus lies in advancing clean energy solutions for off-grid and distributed small-scale power as well as promoting the productive use of clean energy within agri-food value chains. Its mandate is global, with a current focus on low- and lower-middle-income countries across sub-Saharan Africa, South Asia and Southeast Asia. REEEP is a co-hosting and implementation partner for two large programs: The Beyond the Grid Fund for Africa (BGFA), which incentivizes off-grid energy service companies to accelerate access to affordable clean energy, and the Private Financing Advisory Network (PFAN), which provides project preparation support and investment facilitation for clean energy and climate adaptation businesses.

Erongo, Namibia. Photo by Colin N. Perkel via Shutterstock

CHAPTER 5: BARRIERS TO ACCESSING PREFEASIBILITY FUNDS

Chapter 4 showed that the existing SADC project preparation facilities are not adequate to scale up the project pipeline required to meet the 2030 and 2040 renewable energy targets for the SADC region as only the DBSA PPF, SADC PPDF and the SAPP PAU Project Preparation Fund provide cross-border project preparation facilities. In addition, existing facilities are not necessarily dedicated to the development of renewables but to all infrastructure sectors while the SAPP PAU supports power generation and transmission projects. Even where green funds exist, as in the case of the National Development Bank of Botswana's Green Energy Transition for Sustainable Agriculture Fund, the energy generation projects must compete with projects from other energy subsectors such as green agriculture. Existing facilities are also not structured in a manner that adequately supports project developers' challenges as it often takes up to 18 months to secure approval.

This Chapter highlights the key barriers experienced by project developers in trying to access the prefeasibility facilities identified in Chapter 4. Some of these barriers were acknowledged by the DFIs and financial institutions interviewed. A questionnaire was also disseminated to developers active in the region to confirm the challenges that they face. These surveys were complemented by one-on-one interviews with the developers.

The main barriers to accessing the prefeasibility funds identified in the developers' survey and interviews include:

- Long lead times for projects approvals;
- Stringent requirements to access funding;
- Project development track record and strong balance sheet;
- The need to prove concept;
- Equity sell-down at financial close.

5.1 Long Lead Times for Projects Approvals

Developers are frustrated at the long lead times for projects to be approved by Project Investment Committees, regardless of the size of funding need. The amount of time and effort spent in doing a detailed due diligence for early-stage development capital, which constitutes a small proportion of the total project costs, is often not commensurate with the size of funding required.

The financial institutions interviewed indicated that long lead times are often a function of the state of readiness of the project, the complexity of the project, the experience of the developer in project development and, where the developer does not have the experience, the need to appoint a transaction advisory team before the financier can accept the project into its pipeline. The financial institutions also indicated that it often takes six to eighteen months to conclude the prefeasibility facilities.

5.2 Stringent Requirements to Access Funding

All developers interviewed indicated that access to finance is a major challenge. Stringent funding requirements are classified into four main categories: the co-financing requirement, demonstration of track record and/or balance sheet strength, the need to prove concept and equity sell down as payment for development capital.

Projects need to have at least secured the land access rights before developers can access the prefeasibility funding from financial institutions. DFIs and other financial institutions often request developers to co-finance the development work. Developers are therefore expected to spend more money at a time when they would have exhausted their lifetime savings and social capital to get the project through the early stages before accessing funding. Although early-stage funding represents a small proportion of total project cost, due to the capital-intensive nature of projects, it is a significant amount, especially for local developers and new entrants into the renewable energy market. This often results in low uptake of project development funding by developers and stalls the project development process.

5.3 Project Development Track Record and Strong Balance Sheet

The funding requirement for the project developer to have successfully implemented similar large-scale infrastructure projects in emerging markets and the need for demonstrable capability and commitment to see the project through to implementation presents a high barrier to entry for most local developers. This requirement tends to crowd out local developers as they often have neither the track record nor the balance sheet strength required by potential funders. On the other hand, a strong track record and balance sheet shortens the approval process and is often used as a benchmark of the developer's level of commitment to the process.

Except for South Africa, the renewable energy market is relatively in its nascent stage in the SADC region. South Africa initially had to rely on international expertise to build capacity in the early years of its renewable energy program. Due to the small number of renewable energy projects coming to market in most SADC member states local developers lack strong credentials in project development work and often have to rely on developers from South Africa and/or abroad.

Secondly, the slow pace at which utility scale renewable energy projects are procured by most countries impacts the developers' ability to quickly build balance sheet strength required by lenders and is a challenge in some SADC countries.

5.4 Proof of Concept

Lenders are generally risk averse especially towards new and sometimes innovative solutions and prefer to fund when new technology has been de-risked. This often warrants further deployment of limited seed capital by the project developer before being able to access the early-stage project development funding. Not many project development funds support nascent technologies, even though they might be innovative. This is an area where DFIs can play a market-making role, as was the case with the de-risking of Concentrated Solar Power (CSP) technology.

5.5 Equity Sell Down

Local project developers are often forced to sell down a significant portion of their shareholding in a project in return for development funding and assistance and sometimes to an international independent power producer. This can be as high as 40 percent of the project. Local project developers often see this as going against the spirit of empowerment and is viewed as a challenge by most local developers. In many instances, developers are so passionate about the project that they refuse to give away equity that would otherwise unlock the project for further development, thereby stalling the project.

5.6 Access to Information

There is a general lack of information on prefeasibility financing facilities and in instances where such information may be available, it is not easily accessible to developers. Lack of clarity on the approval processes has also been a source of frustration. For instance, most developers are frustrated when financial institutions are not able to fund their new technology or pilot studies. The EEP Africa Trust Fund is technology agnostic. It supports innovation and pilot studies, and such information would be useful to developers.

The results of the developer survey confirm that in trying to access funding for prefeasibility studies, developers face long delays in the approval process and often must prove they have a track record, big balance sheet and capacity to deliver the project and in some instances, sell down their equity in order to access funding.

CHAPTER 6: PREFEASIBILITY FUNDING REQUIREMENT

Chapter 4 provides an overview of the existing SADC and global project preparation facilities that currently support renewable energy project development in the SADC member states. These facilities are inadequate and not structured to effectively and efficiently address the challenges faced by project developers on the ground.

Only seven SADC DFIs have project preparation facilities. Only three project preparation facilities, i.e., the DBSA's Project Preparation Facility, SADC PPDF and the SAPP PAU Project Preparation Fund have cross-border mandates. The SAPP PAU is expected to support both greenfield and brownfield energy generation projects and cross border transmission projects under the RTIFF. The SADC PPDF funding arrangements with KfW expire in 2025, unless renewed or recapitalized. Most member states have fiscal constraints as they are still recovering from the COVID-19 pandemic. The survey results show that support for project preparation from the government budget allocation is miniscule.

These project preparation facilities are not dedicated to the renewable energy sector alone, which further limits the available funding for scaling up renewable energy generation capacity and energy access due to the competition for funding from other infrastructure sectors. In the case of the DBSA PPF, the mandate covers sub-Saharan Africa which means that the SADC Region has to compete with the rest of the continent for funding. Until such time as the SADC Regional Development Fund (with a prefeasibility and feasibility project preparation component) is operational, the SADC region will have to rely on the energy sector dedicated SAPP PAU Project Preparation Fund and the global facilities to meet both the 2030 challenge and 2040 target for universal energy access and 53 percent renewables in the energy mix, unless existing prefeasibility facilities are significantly scaled-up.

Chapter 6 provides an estimate of the prefeasibility funding required to achieve universal energy access and 53 percent renewables in the energy mix by 2040 by installing an additional 52.8GW in generation capacity. It also explores the funding gap for early-stage project preparation funding based on the region's existing prefeasibility facilities.

6.1 Estimated Prefeasibility Funding Required

Hydro power currently constitutes a significant percentage of the energy mix. However, climate change has severely impacted the ability of both Zambia and Zimbabwe to generate hydro power from the Kariba Dam on the Zambezi River because of prolonged droughts in the Zambezi Basin. This leaves solar and wind as the more cost competitive and sustainable renewable energy sources for the region. Solar and wind technologies have a smaller environmental footprint than large hydropower plants.

The minimum prefeasibility funding required for an additional 52.8GW of new generation capacity ranges from $52.8 million for solar power generation and $105.6 million for wind power generation exclusive of storage and backbone transmission infrastructure costs. However, the region will most likely add a combination of solar and wind generation capacity. Table 13 shows the estimated prefeasibility funding requirement for both technologies.

Table 13: Prefeasibility funding requirement

Description	Solar *	Wind**
Cost per MW (USD Millions)	1	2
GW needed to 2040	52.8	52.8
Total Cost of investment (USD Million)	**52 800**	**105 600**
Development cost as a % of Total Cost	0.50%	0.50%
Development Cost of investment (USD Millions)	**264**	**528**
Prefeasibility costs as a % of Development Cost	20%	20%
Prefeasibility Costs (USD Millions)	**52.8**	**105.6**

Assumptions

*Assuming new generation capacity of 52.8GW will be 100 percent solar.

**Assuming new generation capacity of 52.8GW will be 100 percent wind.

Excludes the developer's out of pocket expenses.

Source: Authors' elaboration.

The most likely scenario, however, is a mix of solar and wind power generation. The required prefeasibility funding will therefore range between $52.8 million and $105.6 million, i.e., approximately $80 million, assuming an equal split between solar and wind new generation capacity and the least environmental impact.

6.2 Estimated Prefeasibility Funding Gap

Other than the National Development Bank of Botswana's Green Energy Transition for Sustainable Agriculture, there are no dedicated prefeasibility funds for renewable energy projects provided by SADC DFIs. The Green Energy Transition for Sustainable Agriculture Fund also prioritizes agriculture which means that renewables need to compete for the funding. Renewables also must compete for prefeasibility funding with other energy subsectors and infrastructure sectors in the case of the other regional prefeasibility funds. For the DBSA PPF, renewables in the SADC region have to compete with other regions in sub-Saharan Africa, as the fund has a mandate beyond the SADC region. Additionally, the PPF DBSA is only available for last mile project development activities and not prefeasibility. The World Bank funded SAPP PAU Project Preparation Fund supports energy generation and transmission and is not dedicated for renewables. The SADC RDF is still not operational, but even then, the RDF will be available to all infrastructure sectors. Its structure is not yet finalized, i.e. whether it will include a prefeasibility and feasibility funding components. Member states will be required to capitalize the fund to retain control and avoid reliance on external support for the region's development (SADC-DFRC, 2023). However, most SADC member states are incapacitated as they have not fully recovered from the COVID-19 Pandemic.

For global facilities, EEP Africa is dedicated for innovative renewables projects that are catalytic in nature. The fund is not available for renewable projects that only seek to generate power for an offtaker, such as a utility or a mine. The SCAF is also limited to fund managers that have a pipeline of projects and therefore not individual developers. The USTDA grant facility is available but is limited to United States service providers and as a result does not provide an opportunity for skills transfer and building local capacity. The UKPACT's AFMEG is only available for municipal projects and was only available for South Africa in a one-year window. The IFC's Infraventures Fund was discontinued in 2023.

Despite the existence of prefeasibility facilities available for renewable project development in the SADC region, there are no facilities that are dedicated to renewable energy generation. To meet the targeted generation capacity of 52.8GW by 2040, prefeasibility funding dedicated to renewable energy in the range of $52.8 million to $80 million is therefore required.

6.3 What Does A Best Practice Prefeasibility Facility Look Like?

Given the challenges identified in Chapters 3 to 5, a best practice prefeasibility fund framework should have the following key characteristics:

- Short and simplified approval processes that can be easily replicated.
- An online application process would assist in this regard, given the amount of funding requests as shown in Chapter 2. The emergence of Artificial Intelligence (AI) will also go a long way in addressing this gap;
- Dispense with the requirement for co-financing and potentially look at taking a minority equity stake in the project which is sold back to the developer or recoverable at financial close of the project. The structure could also consider the developer's spend as own contribution;
- Make use of grant funding with a small portion of concessional funding to address market failure in this early stage of project development lifecycle while incentivizing developers to remain committed to the process;
- Include a SADC region renewables platform, where lenders and funders register their funding products and project pipeline, respectively. This could be hosted by one of the SADC DFIs, the SADC Secretariat, an existing or newly established financial institution or an international DFI or financial institution;
- Provide a technical assistance/capacity building component to address the skills gap in the Region and scale up the project development process. Support must address the specific skills required for each stage of the project development lifecycle to ensure the developers' work is aligned with the potential lenders' expectations.

Addressing the funding and skills gap will go a long way towards closing the pipeline gap, meeting the 2030 climate challenge and achieving the universal energy access goal and 53 percent renewables in the energy mix in the SADC region by 2040.

CHAPTER 7: POLICY RECOMMENDATIONS

The SADC Secretariat's target is to achieve universal energy access and increase the contribution of renewable energy in the regional energy mix from 29 percent to 53 percent by 2040. The SADC region needs to deploy 2.8GW of renewable energy installed capacity per annum to achieve the 53 percent target by 2040, a total of 52.8GW at approximately $52.8 billion to $105.6 billion in investment funding. This will require prefeasibility project preparation funding of at least $52.8 million. Due to the impact of climate change, solar and wind are the more cost competitive and sustainable renewable energy sources for the region.

An analysis of the seven SADC DFIs with an infrastructure mandate shows that although they provide project preparation facilities, they are inadequate and not structured in a way that will best address the challenges that developers face during the prefeasibility phase of project development. These project preparation facilities prefer to fund bankable activities due to the inherent risk in the prefeasibility phase. These facilities are not dedicated to renewables and renewable energy developers must compete with other sectors for funding. There are only three SADC project preparation facilities with a regional mandate, the SADC PPDF, SAPP PAU Project Preparation Fund and DBSA PPF. The SADC PPDF's partnership funding expires in 2025, unless renewed or recapitalized. The SAPP PAU Project Preparation Fund supports early-stage utility-scale projects (greenfields) and advanced projects (brownfields) to attract financing. The DBSA PPF is for last mile activities. It has a sub-Saharan mandate and the SADC region must compete with other regions for funding.

Although there are global funds that provide prefeasibility facilities dedicated to renewables in the prefeasibility stage of project development, these are either focused on fund managers with a large pipeline of projects, or on catalytic projects that have a higher development impact than basic energy generation projects. In the case of the USTDA facility, funding promotes the use of US institutions for delivery of services and therefore does not necessarily build local capacity.

This report shows that existing project preparation facilities are inadequate, and not structured in a way that effectively and efficiently unlocks projects in the prefeasibility stage of project development that will ensure the region meets the 2030 climate challenge and 2040 target for an additional 52.8GW of new generation capacity and universal energy access.

Policy Recommendations:

- **The existing facilities need to be restructured to maximize support and reduce access barriers.** Although the SADC PPDF was established as a prefeasibility and feasibility facility, local developers have struggled to access the funding as it is structured as a project preparation facility and developers are expected to have completed the prefeasibility work before applying for funding. The Industrial Development Corporation of South Africa's (IDC-SA) project preparation facility supports some aspects of the prefeasibility work. The Development Bank of Namibia's (DBN) Project Preparation Fund also supports some aspects of the prefeasibility work. Developers have to compete with other regions for the global facilities.

- **SADC member states need to scale up existing funds including the SADC Project Preparation Development Facility and international partnerships and ring-fence a portion of the funding for renewable energy prefeasibility studies, as existing facilities are inadequate to support the envisaged growth in the region's renewable energy generation capacity.** There is no dedicated regional renewable energy project preparation facility. Renewable energy projects have to compete with other infrastructure sectors and in the case of the DBSA PPF, with other regions.
- **SADC member states should consider exploring new prefeasibility facilities to generate project pipeline across all member states for the Regional Development Facility (RDF) as it relates to the recently launched Regional Transmission Infrastructure Financing Facility (RTIFF) potentially with international funding partnerships.** There are only three project preparation facilities with a cross-border mandate. SADC member states must consider international funding partnerships in order to scale up available prefeasibility facilities.
- **More regional technical assistance facilities are needed to support SADC DFIs and new entrants into the market (particularly small- and medium-size developers).** Technical assistance facilities to specifically address skills gap for renewable energy projects are required. This will help speed up the development process and the approval processes for renewable energy projects.

Adequate, affordable and easily accessible prefeasibility facilities and improved technical skills will go a long way towards meeting the SADC region's 2040 target of universal energy access and 53 percent renewables in the energy mix.

Mauritius. Photo by Kestreloculus via Shutterstock

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APPENDIX 1: SADC MEMBER STATES

1. Angola
2. Botswana
3. Comoros
4. Democratic Republic of Congo
5. Eswatini
6. Lesotho
7. Madagascar
8. Malawi
9. Mauritius
10. Mozambique
11. Namibia
12. Seychelles
13. South Africa
14. United Republic of Tanzania
15. Zambia
16. Zimbabwe

APPENDIX 2: AN OVERVIEW OF GLOBAL PREFEASIBILITY FUNDS AND FINANCIAL INSTRUMENTS

The Energy and Environment Partnership Trust Fund (EEP Africa)

EEP Africa is a clean energy, early-stage facility with a funding size of €86.7 million. It provides risk-tolerant prefeasibility for start-ups (mainly) and other social enterprises developing innovative clean energy projects in Southern and Eastern Africa. Grant funding ranges between €200,000 - €1 million. Key to securing financing from EEP Africa is the project's innovation, which is not limited to technological innovation but includes novel business and delivery models.

EEP Africa provides both grants and repayable grants for early-stage project development. The facility offers funding for feasibility studies and technical assistance. It is also instrumental in mobilizing private sector finance for projects. To qualify for an EEP Africa grant, applicants are required to show that their projects are innovative, in active development, locally driven and additionality.

Innovative

Applicants must demonstrate how their project is innovative within the geographic context and market in which it would be developed. Developers can show innovation through the type of technology, business model, service or distribution approach. It can also be demonstrated through scaling a proven technology in an emerging/nascent market.

Active development

Applicants are required to illustrate that they have actively engaged in the project before the launch of the funding window. Elements such as company registration over six months old, seed capital investment, minimum viable product, etc., should be demonstrated in the application for financing.

Locally driven

Projects applying for funding under EEP Africa need to ensure long-term, sustainable local development and local presence.

Additionality

The applicant should show that without the funds from EEP Africa, the project would not proceed as it would unlikely get funding from commercial financiers.

The challenge in accessing this fund:

The eligibility of projects is limited due to the requirement for innovation. Projects where "mature" clean energy technologies are rolled out in "advanced" markets are not eligible for this type of funding. This poses the challenge of creating a pipeline of bankable projects in proven technologies deployed in advanced markets in the region.

The United States Trade and Development Agency (USTDA)

The USTDA provides early-stage grants to international developers who use goods and services from the United States to implement their projects. A vital aim of the USTDA is to connect African developers and US companies to address development challenges. The grants may be used for project preparation activities, including conducting prefeasibility studies, project design, environmental and social impact studies, and implementing pilot projects. Approximately $1 billion has been spent by the USTDA in providing preparation assistance across several infrastructure projects, including clean energy projects.

Activities supported include grants to determine the existing enabling environment through to the project concept, prefeasibility and project bankable feasibility. Generally, the USTDA provides funding for utility-scale projects with over $10 million in capital expenditures. Grant sizes range between $250,000 and $2 million; however, the USTDA has not formally defined a cap on its grant size per project.

The challenge in accessing this fund:

Despite the robustness of the fund as it relates to the type of activities that can be funded and its size, funding from the USTDA is only available to developers using goods and services from the US. As a result, projects that are eligible for this financing may be limited.

UK Partnering for Accelerated Climate Transitions (UK PACT) alternative financing for municipal embedded generation program

UK PACT, acting through the International Council for Local Environmental Initiatives (ICLEI), has implemented an alternative financing for municipal embedded generation fund (AFMEG) in South Africa. The AFMEG supports municipalities in South Africa to prepare prefeasibility studies for embedded generation renewable energy projects. The fund was implemented to help municipalities prepare prefeasibility studies which can be used to apply for funding under the DBSA's Embedded Generation Investment Programme.

The challenge in accessing this fund:

This program only supports municipalities. Therefore, private sector developers are not eligible for this early-stage funding, limiting the availability of the fund.

UN Environment Programme Seed Capital Assistance Facility (SCAF)

The SCAF is a multi-donor trust fund that provides financing for the development phase of renewable energy and energy efficiency projects in Africa and Asia. Implemented by the Frankfurt School United Nations Environment Programme Collaborating Centre, the $40 million facility supports the development of a pipeline of bankable projects in low-income countries with immense renewable energy resources and potential. To achieve this, the SCAF shares the costs associated with project development and seed financing with various private equity funds and developers to achieve financial close of these projects. SCAF provides pure and repayable grants to support projects to overcome the risky early stage of project development, and these funds need to be repaid when the project reaches financial close. Under the SCAF, almost 200 renewable energy projects have received funding. Although the SCAF is a pivotal fund in building pipelines of bankable projects, they declined to participate in this study.

The challenge in accessing this fund:

Developers must have a pipeline of projects. The fund prefers to invest in fund managers with a portfolio of projects under development not individual developers.

IFC InfraVentures

The IFC InfraVentures fund is a $150 million global infrastructure project development fund. It was implemented as part of the World Bank's efforts to increase the pipeline of bankable projects, including renewable energy projects, in developing countries by providing early-stage risk capital and experienced project support to developers. The IFC InfraVentures differs from other funds as it provides equity rather than grants to projects. It aims to give pre-development/development equity, generally taking a minority stake in the project and exiting within five years. On average, project funding is between €1 million and €3 million. Regarding its geographic reach, the fund provides financing to projects in sub-Saharan Africa, the Pacific and the Caribbean. Projects from other regions may also be eligible for this funding.

To be eligible for financing under this facility, the project must:

- Be a public-private project or only a private sector project;
- Be in the early stages of project development;
- Be able to reach financial close within a few years;
- Meet IFC's additionality guidelines (e.g. crowd in private sector, risk sharing etc);
- Have a high development impact.

The challenge in accessing this fund:

Fund closed in December 2023.

Other global funds

Other global funds that are also supporting project preparation work in the region include the Renewable Energy and Energy Efficiency Programme (REEEP) which supports activities that ensure access to affordable, reliable, sustainable and modern energy for all and taking action to combat climate change and improve resilience. REEEP's focus lies in advancing clean energy solutions for off-grid and distributed small-scale power as well as promoting the productive use of clean energy within agri-food value chains. Its mandate is global, with a current focus on low- and lower-middle-income countries across sub-Saharan Africa, South Asia and Southeast Asia. REEEP is a co-hosting and implementation partner for two large programs:

The Beyond the Grid Fund for Africa (BGFA)

BGFA incentivizes off-grid energy service companies to accelerate access to affordable clean energy. A central pillar of the Beyond the Grid Fund for Africa is results-based financing offered to incentivise off-grid energy companies to expand, grow and scale-up access to energy for customers living in rural and peri-urban areas of sub-Saharan Africa. In the SADC region, funding rounds have been launched in Zambia, Democratic Republic of Congo and in Mozambique.

Private Financing Advisory Network (PFAN)

Provides project preparation support and investment facilitation for clean energy and climate adaptation businesses.

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