

Investor Survey on Sub Saharan Africa

A survey on the risks to renewable energy investments

Côte d'Ivoire, Ethiopia, Ghana, Kenya, Mozambique, Senegal

RES4AFRICA FOUNDATION

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About the survey

This RES4Africa and PwC survey is based on research conducted between April and July 2021 with 116 stakeholders active in Sub Saharan Africa. The stakeholders include representatives of independent power producers, technology providers and EPCs, finance (corporate as well as multilateral), professional services and the public sector.

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Foreword

Listening to the voice of investors

In the energy and climate circles of today, few messages emerge as clearly as the message that private investments have a pivotal role to play in supplying Africa with abundant and clean energy. The reasoning goes as follows: the financing needed for reaching Africa's energy and sustainability goals far exceeds most countries' already stretched public finances, making investments by the private sector - and IPPs in particular - of critical importance. The key, then, is to catalyze private capital at scale within the soonest timeframe possible, to unlock economic growth opportunities and ensure that African countries can leapfrog polluting and more expensive alternatives.

Yet despite this wide recognition and a wide interest from the European private sector to invest in renewable energy, the volume of financial flows to Sub Saharan Africa remains negligible. Why is that?

The common answer is that a range of risks are acting as barriers to investments, hindering bankability of potential RES projects. The purpose of this survey is to shed further light on this issue by hearing out what investors themselves have to say. This study presents the views of 116 survey participants on what they consider to be the most significant investment risks that need addressing in six countries in Sub Saharan Africa.

The findings of the survey can provide policy makers with valuable guidance on areas that deserve more focus, and can form a basis for constructive B2G dialogue. The significance of such dialogue cannot be overstated: it can act as a powerful catalyst, to help build trust, spur coordinated action, generate a sense of combined ownership and shared goals, and ultimately make policy measures more impactful.

The study is a third addition to the PwC and RES4Africa Investor Survey series, following up on two studies done on the Med region in 2016 and then again in 2021. This is the very first survey done on Sub Saharan Africa, reflecting on the growing investor interest in this region as well as the success of the renewAfrica initiative.

As long-term advocates and proponents of clean energy, the RES4Africa Foundation and PwC are glad to act as a bridge between the European private sector and policy makers in Sub Saharan African countries. A heartfelt thank you goes to those who contributed with their views and made this survey possible.

Roberto Vigotti
Secretary General, RES4Africa Foundation



Giovanni Poggio
Partner Energy, Utilities and Resources, PwC



Executive Summary

This study examines the risks to renewable energy investments in six countries in Sub Saharan Africa, namely Côte d'Ivoire, Ethiopia, Ghana, Kenya, Mozambique and Senegal. The analysis presented here is based on a survey with an extensive pool of public and private stakeholders operating in the renewables sector, which aimed to shed light on the risk perception of investors in five areas of analysis - broadly reflecting all phases of a RES project cycle. The **objectives** of the survey are:

- ✓ Gathering and comparing viewpoints from a range of diverse stakeholders with activities along the RES value chain;
- ✓ Understanding their risk perception and assessing what are the perceived barriers and / or enablers to investing in the selected countries;
- ✓ Comparing the risk perception of public and private stakeholders, highlighting perception gaps as areas where greater business-to-government dialogue is needed;
- ✓ Identifying the main risk areas where more work is needed to improve the investment climate.
- ✓ Facilitating an earnest, unbiased discussion between industry and policy makers on how to accelerate the clean energy transition in the countries of interest.

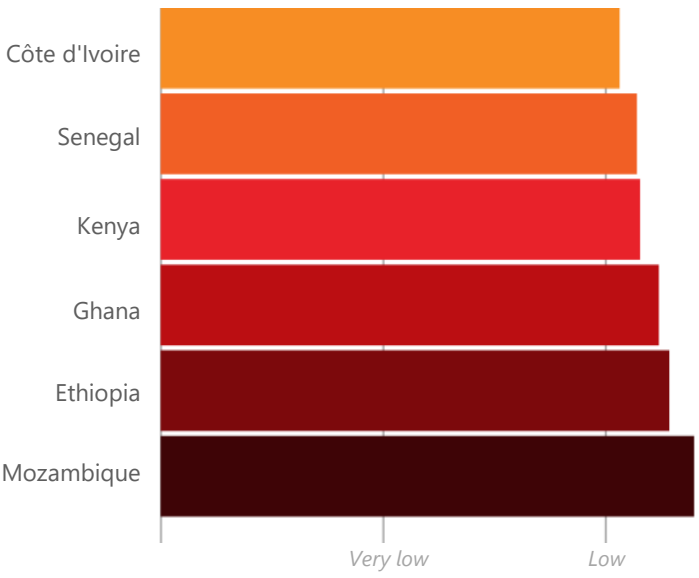
We present the main findings in four key charts, followed by a summary for each country.

The countries analyzed present a good investment climate for RES

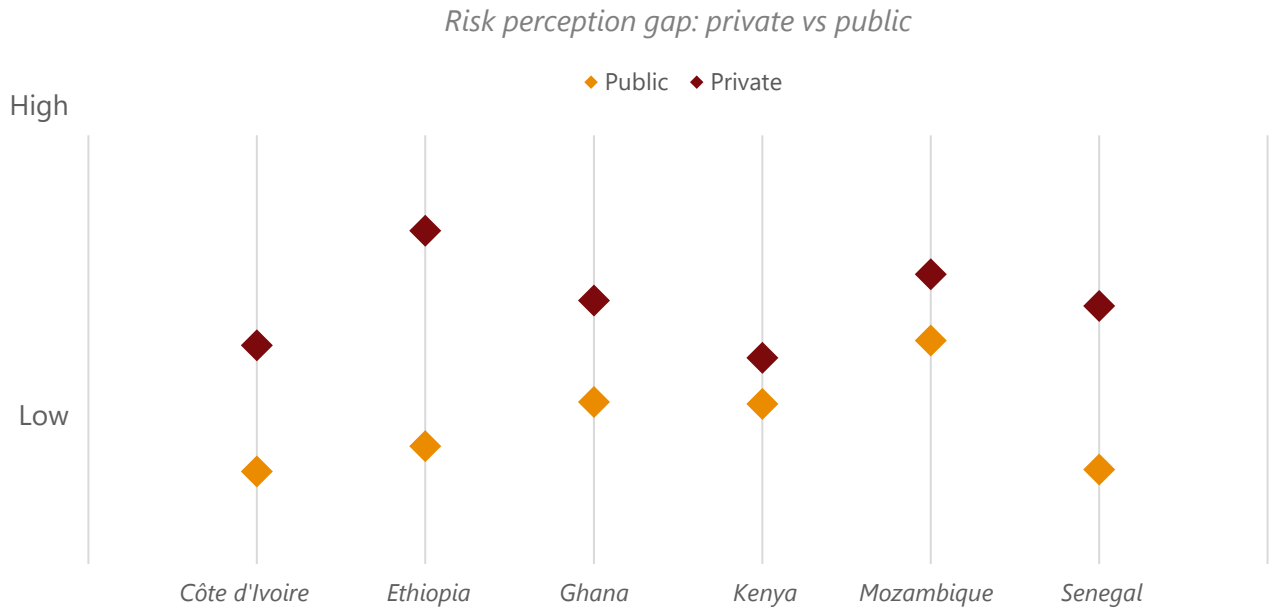
Leaving aside several differences and country-specific issues, the overall **risk perception for RES investments is relatively low**, and investors seem broadly confident about risk levels in the six countries. While the survey responses present inherently subjective views and investors were not explicitly asked to compare the attractiveness of investing in one country versus another, the aggregate data points to Cote d'Ivoire, Senegal and Kenya as the most attractive markets in the group. Ghana, Ethiopia and Mozambique too are seen as broadly low risk, but certain risk areas require additional policy effort.

Yet it is worth noting that in some countries, large-scale variable **RES projects are still broadly untested**, with only a few examples of utility-size RES plants in operation. This implies that there could be regulatory, infrastructural, operational or other barriers to RES investments which are still not reflected in the risk perception of investors. Attention areas include the legal framework concerning IPP access to market, permitting and land issues, grid capacities, the adequacy of the financial sector, and the skills of the local workforce.

Overall risk perception for each country



More B2G dialogue is needed to build a shared view of risks



In each country analyzed and in nearly every risk area, private sector respondents see more risks as compared to public stakeholders and policy makers. Some degree of divergence is to be expected, as the business of investing is highly attentive to risks, while policy makers may have a degree of positive bias with regards to areas of their competence. Yet some **instances of overoptimism** of the public sector appear at times to be out of touch with the real needs of the market. Ethiopia is a case in point, where the gap between public and private sector views is particularly wide.

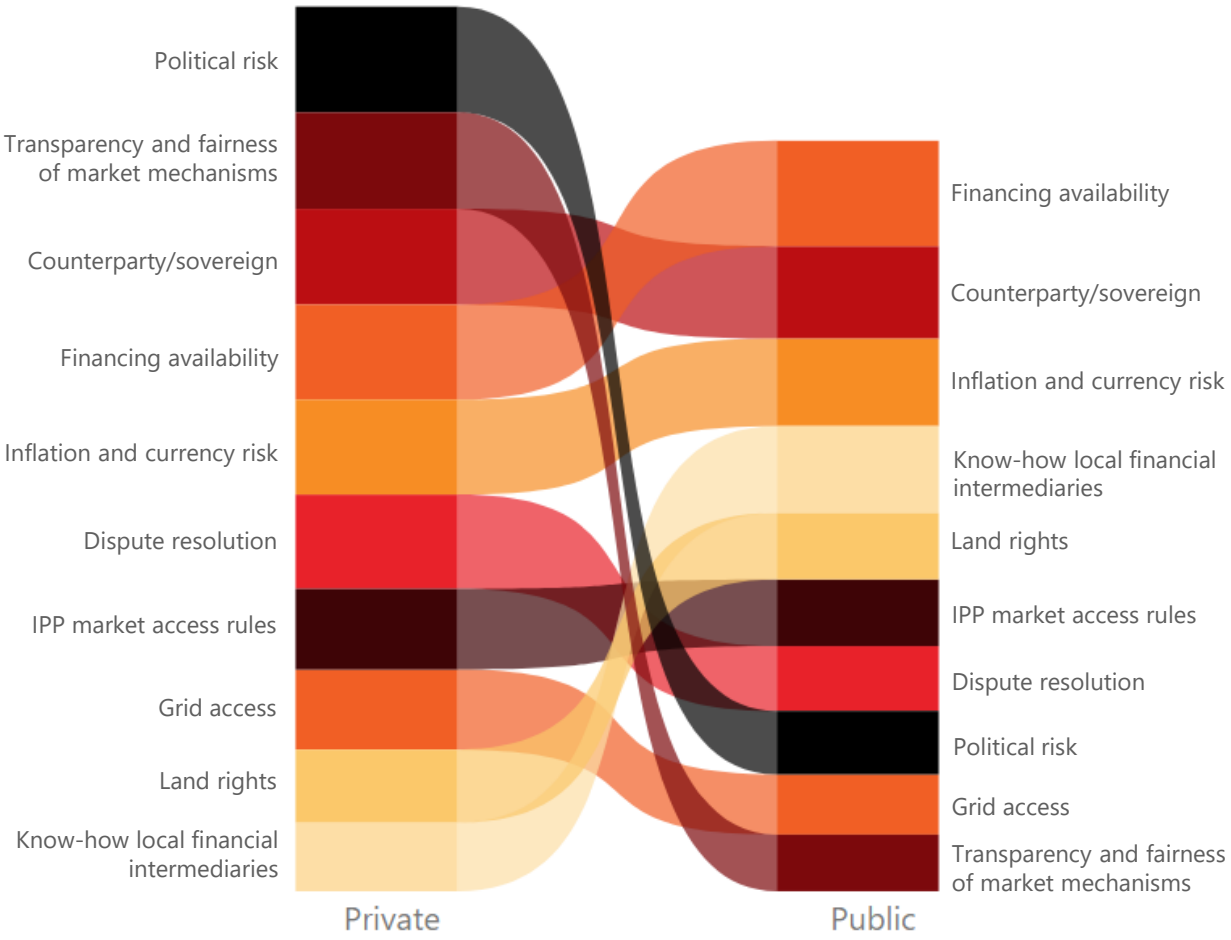
The importance of business to government (B2G) dialogue cannot be overstated. Financing needs for the clean energy transition far exceed most countries' already stretched public finances, making investments by the private sector - and IPPs in particular - of critical importance. The key, then, is to accelerate the pace of investments. Dialogue between policy makers and the private sector can act as a powerful catalyst, to help build trust, spur coordinated action, and generate a sense of combined ownership and shared goals. Seeking **inputs and active buy-in from the investor community** on policy content and design can help make policies more impactful, and avoid shortfalls in the relevance of investment climate reforms. Greater dialogue with the private sector can also help bridge knowledge gaps and facilitate a transfer of technical know-how, especially considering the novelty of RES topics in many countries of interest.

The risk perception gaps identified in this survey give important indications on which are the areas where greater **business-to-government** dialogue is needed. Prioritizing better dialogue, including in the form of structured consultative processes and feedback mechanisms, will be crucial for an accelerated deployment of RES in the region.



Political risk, transparency of market mechanisms and offtaker risk are top concerns for investors

Top ten risks according to public and private stakeholders



According to private sector stakeholders, **political risk** is the most acute risk in the region. While neither of the six countries is in a state of active warfare, regionalized civil conflicts in both Mozambique and Ethiopia, as well as the presence of terrorist activities throughout the region, are of high concern. Political risk insurance can provide mitigation, but any systematic improvement in investor confidence hinges upon the resolution of the ongoing conflict situations.

Risk stemming from inadequate **transparency and fairness of market mechanisms** also features prominently in the minds of investors, with a remarkable divergence of views: the private sector considers it the second most important risk, while the public sector puts it at the 10th spot. Ghana is a case in point, where current issues with overcapacity, fuel supply gap and major financial strain on the electricity sector developed as a result of a non-transparent and uncompetitive procurement. In a number of other countries too, generation and grid planning tends to be built on outdated or inaccurate supply and demand assumptions, and information on planning and future procurement is often opaque or missing. Drawing credible energy sector plans, updating them regularly and then sticking to them would grant investors greater visibility of future procurement horizons, attract greater investments, ensure that the least-cost solutions end up being awarded.

Offtaker risk is another reason for concern for all parties. The financial sustainability of utilities is problematic in all six countries, as the subsidized, non cost-reflective tariff structure means utilities are structurally unable to recover their costs. The perpetual lack of financial viability, commercial sustainability and solvency of incumbent utilities is a barrier to private investment in two distinct ways. First, the low credit worthiness of the offtaker gives rise to counterparty risk. Second, the implicit and explicit public subsidy that incumbents receive make it impossible for IPPs to compete on a level playing field. The financial model of utilities, in turn, contributes to underinvestment in grids, low quality of service and operational inefficiencies. While tailored de-risking products can provide the required mitigation, a longer-term approach requires structural changes.



Social acceptance of RES projects is seen as high, but should not be taken for granted

Social acceptance is a theme that deserves further scrutiny. The results of our survey show both public and private investors as quite confident of the support of the local population for RES projects, even in cases where that confidence does not seem to be justified by facts on the ground. In fact, many of the analyzed countries have experienced varying forms of social unrest, land allocation disputes and public pressure, which caused significant delays or disruptions to RES projects. In this light, the high confidence of both investors and the public sector concerning social acceptance may point to a potential blind spot, making investors inadequately prepared for challenges in this area.

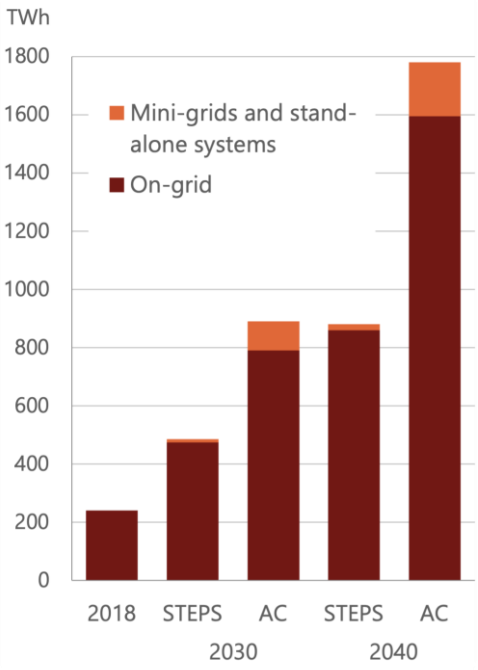
As countries aim to expand RES investments in the future, social acceptance should not be taken for granted. Investors need to undertake meaningful **community engagement** and **local consultations**, with a view to create shared value which goes beyond administrative box-ticking. Policy makers, for their part, must strive to build awareness and a wide social consensus around renewables and the clean transition more broadly, so as to accelerate the pace of change and make users an active part of the transition.

To prevent the grid becoming a bottleneck, a timely step up in investments is needed

When asked about the severity of curtailment risk, private sector respondents appeared broadly confident: only in Ethiopia the share of respondents who considered it of high or very high concern approached 50%. This high confidence likely reflects the prevalence of take-or-pay clauses in standard PPA contracts, as well as the low share of variable RES in the electricity mix of some of the countries analyzed. But at the current pace of **underinvestment in grids**, issues of congestion and curtailment are set to rise on the agendas of investors and policy makers alike.

Kenya and Ghana are already facing some of the consequences of grid underinvestment, where overcapacity has governments paying for unconsumed energy, while at the same time vast swathes of the population do not have access to electricity or must rely on back-up generators to cover periods of blackouts or brownouts. To prevent bottlenecks in economic growth and electricity sector developments, investment in grids must increase and keep up with the commensurate growth in generation capacity.

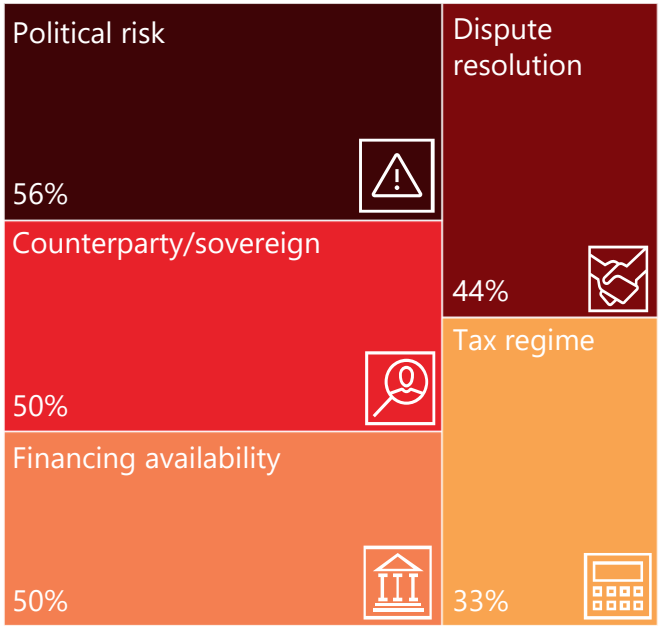
Electricity supply scenarios by type in Sub Saharan Africa in 2018, 2030, and 2040



Source: RES4Africa Foundation based on IEA (2019)

Côte d'Ivoire: a strong electricity sector, with untapped RES potential

Share of respondents who rated a risk as high or very high



Based on 18 survey responses

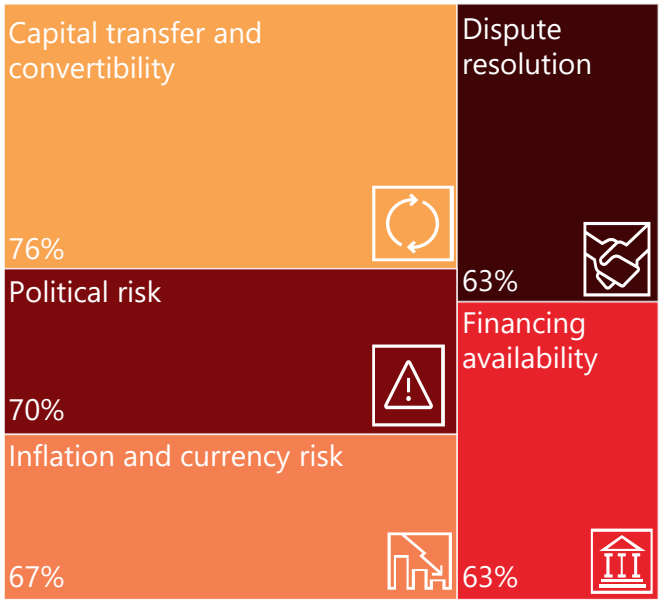
Moving on from a **history of political conflicts** in the early 2010s, Côte d'Ivoire stands out as an example of successful electricity market reform, growing energy access and years of booming economic growth. **Private sector participation** played a key role, reinforcing the view among investors of the country being a **safe place to do business**. This is reflected in the results of our survey, with legal framework, risks affecting revenues and construction and operation seen as low-risk areas.

But the country is also a largely **untapped market for variable RES projects**, with non-hydro renewables making up only 0.07% of the electricity mix as of 2019. The current investor confidence is therefore broadly untested. While the recent engagement of **Scaling Solar** is a positive development, a generalized lack of experience with legislating, structuring, administering, financing and building RES assets risks creating problems down the road.

Investors consider the **transparency of procedures, counterparty risk** and **financing availability** as potential barriers. The state of the grid is also of concern, in a context where significant **investments** are needed. The country made some strides towards making tariffs more **cost-reflective**, but ensuring full cost-reflectiveness will require to carefully manage issues of affordability and energy poverty.

Ethiopia: a once promising market marred by conflict and uncertainty

Share of respondents who rated a risk as high or very high



Based on 46 survey responses

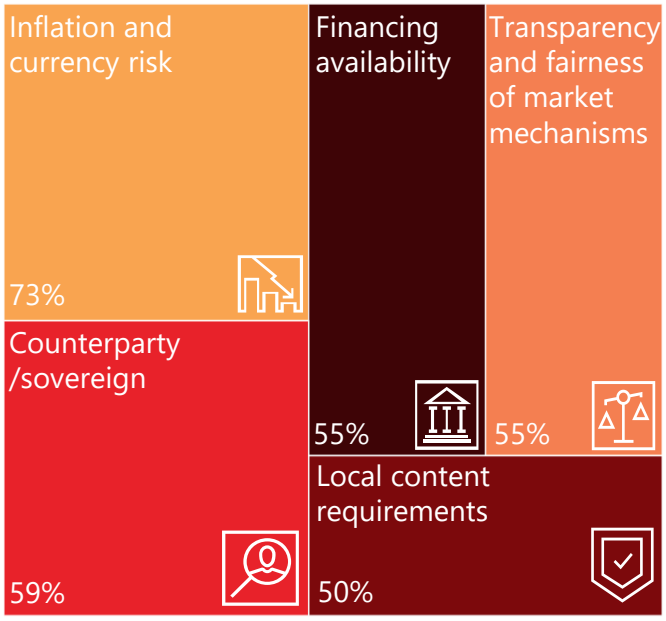
As the second most populous country in Africa and one of the fastest-growing economies in the world before the pandemic, Ethiopia's tightly regulated electricity market was a long-coveted investment opportunity. Yet despite large strides in **electricity market liberalization** since 2013, Ethiopia has yet to see its first IPP become operational.

After a few years of **widespread investor interest and activity** - which among other developments saw the rollout of a Scaling Solar tender - the business climate rapidly deteriorated due to the outbreak of **armed conflict**, which compounded pre-existing challenges related to **macroeconomic instability** and slow and inconsistent implementation of regulatory advancements. Accordingly, private sector survey respondents rated **political risk** as of highest concern, closely followed by **capital transfer and convertibility** and **inflation and currency risk**.

Recapturing investor interest is key to enabling Ethiopia to move away from public-sector-led growth, which caused sizable public sector debt. The government should strive to harness private sector resources, so as to achieve its ambitions of universal electrification by 2025 and become a regional electricity hub. This is contingent on political and macroeconomic **stabilization**, renewed commitment to renewable energy deployment, and the provision of **credible and effective de-risking options**.

Ghana: restoring investor confidence is key to unlocking RES potential

Share of respondents who rated a risk as high or very high



Based on 22 survey responses

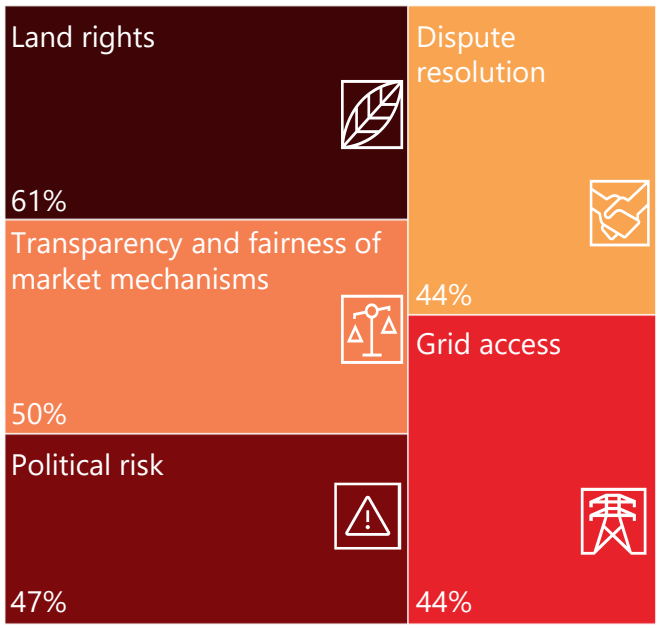
Thanks to its political and economic stability and liberalized electricity sector, Ghana has long been considered an **attractive investment destination**. This is reflected in the **high level of private sector participation** in the electricity sector, encompassing not only several IPPs but also a private distribution company. Developments over the last decade, however, have tarnished this strong reputation, notably burgeoning energy sector debt, contract renegotiations, and macroeconomic instability.

Investors recognize these issues, outlining **transparency and fairness of market mechanisms, inflation and currency risk**, and **offtaker risk** as the main barriers to investment. In addition to these, private sector survey respondents were highly concerned about the **local content requirements** introduced by the government in 2017. Ghana's lack of experience with competitive auctions also poses risks for future RES procurement, therefore support from multilateral partners may prove indispensable.

Overcoming these barriers and **restoring investor confidence** will prove crucial to setting Ghana's energy sector on a more financially sustainable path, and enabling the country to achieve its target of 1360 MW of variable renewable generation capacity installed by 2030.

Kenya: regional RES champion, with a need for greater transparency

Share of respondents who rated a risk as high or very high



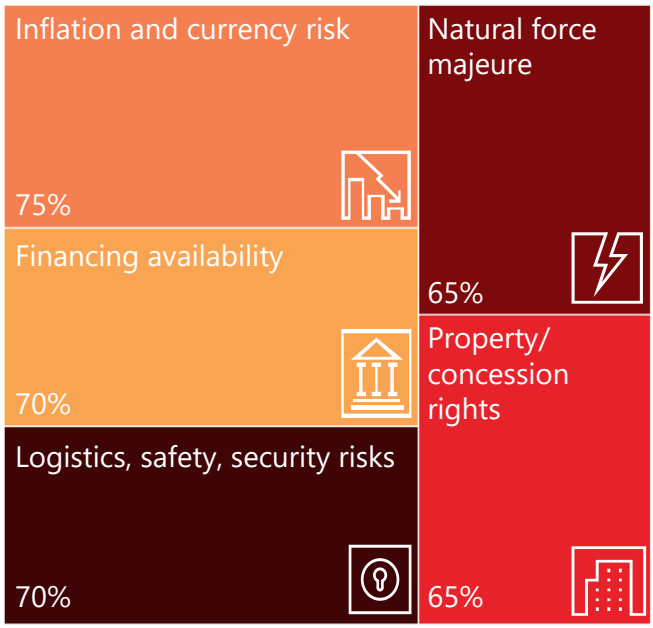
Based on 36 survey responses

As **one of the fastest growing economies** in sub-Saharan Africa, Kenya offers an attractive environment for investment in the RES sector. The success of two of the largest RES plants in Africa put the spotlight on Kenya as a country able to attract **international interest and investment**. Indeed, logistics, adequacy of local skill, and construction and O&M flaws were all seen as very low risks in our survey. This **stability** has been rewarded with increasing foreign investment into the country, bolstered by continuous improvements to Kenya's regulatory framework which contributed to increasing Kenya's rank in the World Bank's Ease of Doing Business Index by 52 positions over the past five years.

Greater efforts can be made to further cement Kenya's position as a regional leader, however. **Land rights are a critical issue**, with disputes over land allocation causing the delay or cancellation of a number of projects: although social acceptance was contrastingly voted as a low risk, greater dialogue with the public is necessary. The **inadequate transparency of market mechanisms** is also of high concern for investors, and the **absence of a tender or auction program** casts a shadow over an energy sector still dependent on unstandardized bilateral agreements.

Mozambique: market reforms can unlock significant RES potential

Share of respondents who rated a risk as high or very high



Based on 20 survey responses

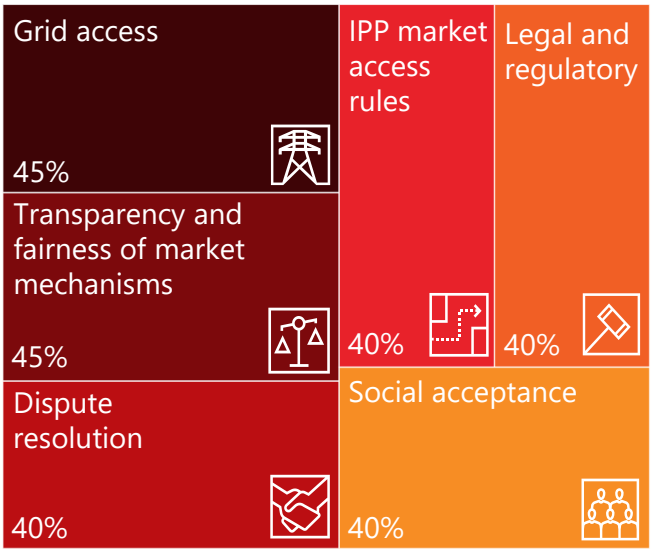
Mozambique generates enough electricity to match current demand, but exports the majority of this to South Africa. On top of recent discoveries of large offshore gas reserves, the country has a **vast renewables potential**. Much of this potential is untapped, however, particularly regarding solar and wind that made up only 0.38% of the electricity mix in 2019.

The development of RES assets in the country is hindered by the private sector view that Mozambique is currently not a welcoming place to do business. Survey respondents highlighted the high risks associated with **inflation and currency risk**, the **availability of financing** for RES assets, as well as logistics, security, and safety risks. Furthermore, the complex procedures and **lack of guarantees** in ascertaining property and concession rights from the state, in combination with an inadequacy of local technical skills, places a significant burden on the construction and operation of RES sites.

Nevertheless, Mozambique has been successful in attracting support from **DFIs and multilateral institutions** for the development of RES solutions, both on large and small scale. Indeed, the GETFiT and PROLER programs will soon yield results, whilst private sector participation in off-grid applications is extending access to electricity in rural areas.

Senegal: a market open to investors, with greater grid investments needed

Share of respondents who rated a risk as high or very high



Based on 20 survey responses

During the past decade, Senegal has managed to attract significant investments in RES projects. This was done thanks to a combination of **political will**, support from **international organizations** and DFIs, stable macroeconomic conditions, and an electricity market structure which allows for **private sector participation** in the generation sector. The success of a **Scaling Solar** tender in 2019 was another milestone, which could represent a blueprint for future RES projects. Investors reward these developments in their assessment, and express a broad confidence about risk levels.

But RES investments have been somewhat sluggish in recent years, and to integrate an ever higher share of RES and continue attracting capital a set of structural issues needs to be addressed. Investors highlight underinvestment in Senegal's **T&D networks**, the transparency and timeframe of permitting process, and **dispute resolution** as other key barriers. In addition, **Senelec's financial sustainability** is also problematic, with more work needed to improve the cost-reflectiveness of tariffs while protecting the most vulnerable sections of society. In this light, the government's ability to implement the 2021 *Electricity Code* and effectively **restructure Senelec** into **separate generation, transmission and distribution subsidiaries** is of strategic importance.

Respondent profile

The responses received

116 Persons participated in the survey

162 Responses provided. Each person was offered the possibility to assess more than one country

Respondent profile



In the overall survey, **70%** of stakeholders were from the private sector and **30%** from the public sector.

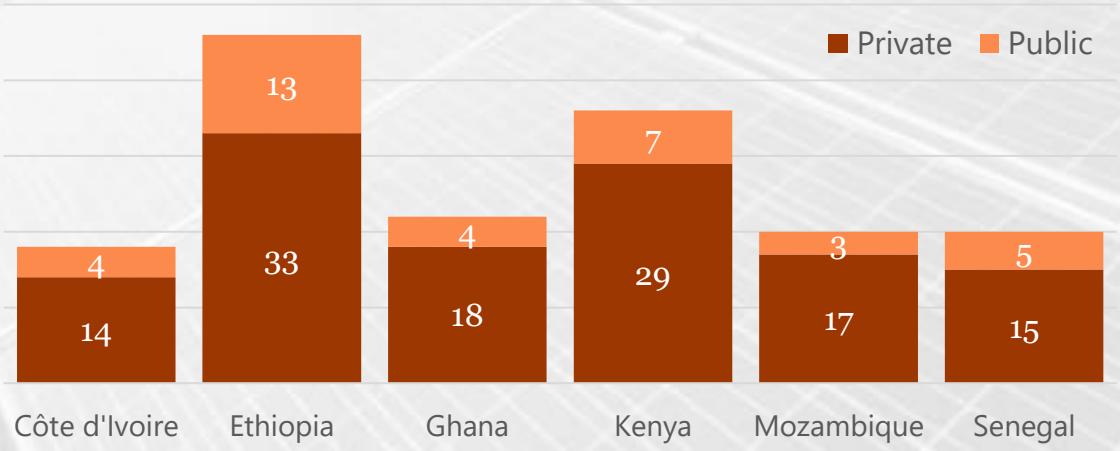
Professional services: **22%**
- Engineering
- Management Consulting
- Legal
- Financial

Industry: **34%**
- Independent Power Producers
- Technology providers
- Engineering, Procurement & Construction

Finance: **14%**
- Investment bank
- Commercial bank
- Multilateral Development Bank

The private sector includes stakeholders from industry, finance and professional services.

Regional considerations

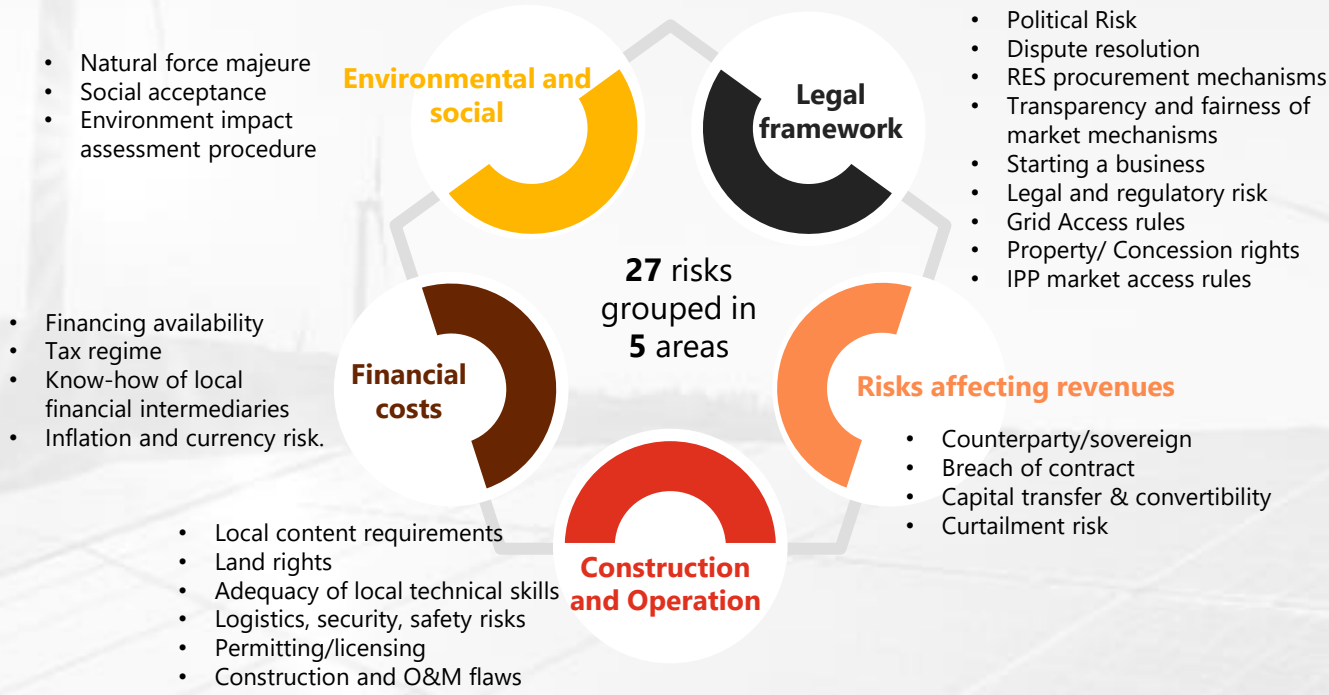


There is some regional variation in the number of responses and the split between public and private sector responses. Kenya and Ethiopia gathered the largest interest among the pool of respondents.

Methodology

The study is a third addition to the PwC and RES4Africa Investor Survey series, following two studies done on the Southern and Eastern Mediterranean region in 2016 and then again in 2021. This is the very first survey done on Sub Saharan Africa, reflecting on a growing interest by the RES4Africa private sector stakeholders.

As in the previous editions, PwC contributed a proprietary methodology for identifying and assessing the prevalence of investment risks, which have been grouped into 5 areas broadly corresponding to various phases of the project lifecycle. The RES4Africa Foundation was able to leverage its rich network to select a representative sample of stakeholders for the needs of the survey.



Risk perception ratings

The analysis is based upon the survey respondents' risk perception ratings. Respondents were asked to rate the severity of each risk in a given country, with a score from 1 to 4.



Availability of de-risking instruments

The survey respondents were also asked about the adequacy of de-risking instruments which they see available in the country. This served to provide us with additional country insights.

Countries analyzed



Côte d'Ivoire

Côte d'Ivoire is a promising country for the development of renewable energy projects. Following years of political uncertainty in the early 2010s, the country emerged as a champion of a private-sector-led growth model, which brought about sustained economic growth and major transformations across different sectors of the economy. The power sector is no exception. After years of investments to increase thermal electricity production, the government is now dedicating larger attention to the expansion of RES, and particularly biomass.

Pursuant to the 2016 *Plan D'Actions National des Energies Renouvelables*, Côte d'Ivoire plans to achieve a 42% share of RES in the country's electricity mix by 2030. The business environment seems well suited to take on this challenge: Côte d'Ivoire improved its World Bank Doing Business rank by 58 positions during the last decade. This positive outlook is reflected in the results of our survey, with public and private respondents expressing a medium-high level of confidence.

Against this backdrop, large-scale RES projects remain largely untested, and much is to be done if Côte d'Ivoire is to turn political will into concrete projects. Investors highlight barriers in the transparency of procedures, counterparty risk and financing availability. Private stakeholders are particularly interested in the availability of de-risking instruments, which are considered a necessary prerequisite to mobilize capital. The recommended path is to pursue greater B2G dialogue in all of these areas and more, striving to attract greater volumes of multilateral and other forms of concessional finance, build administrative and technical capacities, and strive to attract financing for grid infrastructures.

Overall risk perception: public vs private

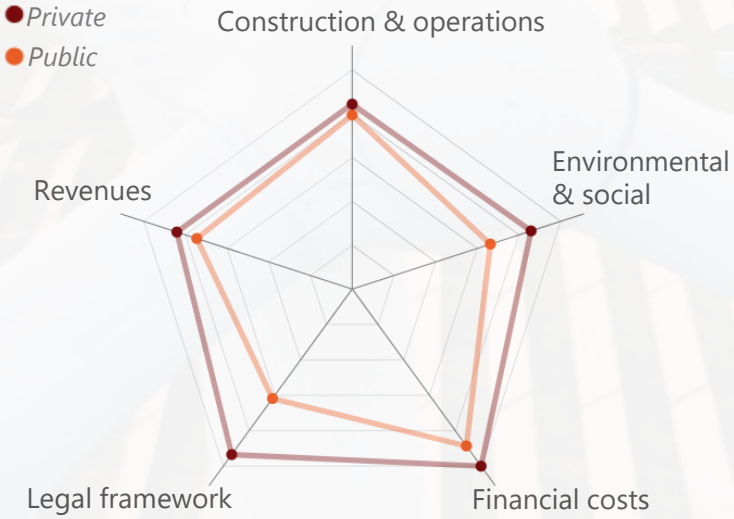


18

*Number of participants in the survey, of which **4** from the public and **14** from the private sector*

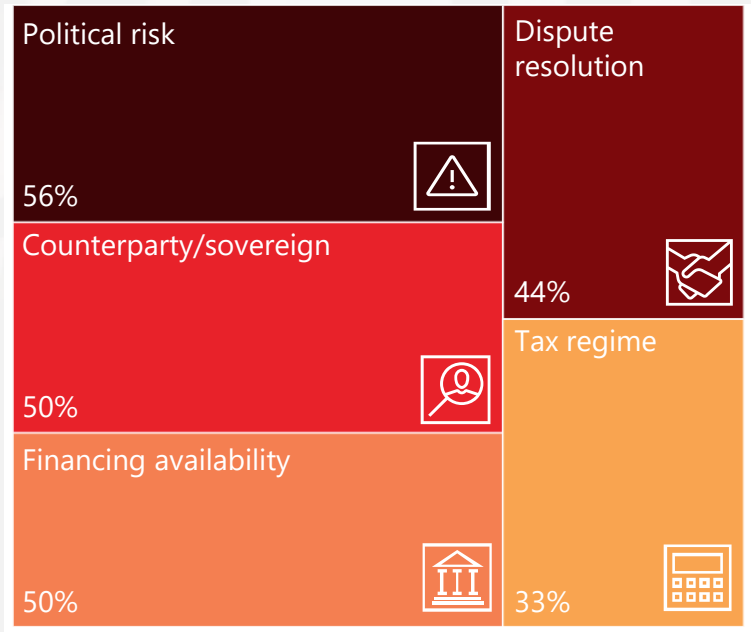
Overall risk environment

The risk perception rating increases from the center of the radar chart (0) towards the edges.



Top 5 risks

Share of respondents who rated a risk as high or very high



Based on 18 survey responses

Regulatory overview

The first reforms to Côte d'Ivoire's electricity sector date back to the 1990s, when electricity generation was opened to IPP participation and the government signed a concession contract with the private company Compagnie Ivoirienne d'Electricité (CIE) to operate the country's transmission and distribution networks.

Under the concession regime - which has been renewed three times, the latest in 2020 for a period of 12 years - CIE is also responsible for electricity generation from state-owned hydroelectric assets, as well as cross-border import and export of electricity to the West African Power Pool (WAPP).[1]

IPPs account for almost 60% of total electricity production, primarily through gas-powered thermal generation.[2] As concerns electricity transmission and distribution, CIE operates both segments under a monopoly, operating as a vertically integrated utility.[3]

The grid infrastructure and hydropower plants operated by CIE remain fully owned by the State, which manages such assets through the public company CI-Energies. The latter is responsible for investing in grid expansion and modernization, and carries out oversight functions over CIE.

The Ministry of Petroleum, Energy and Development of Renewable Energy is in charge of formulating energy sector policies, and is committed to make Côte d'Ivoire an energy hub in West Africa. The regulatory authority Autorité Nationale de Régulation du Secteur de l'Electricité (Anaré-CI) is responsible for, among others, setting electricity tariffs.

The most relevant energy policies are the *Programme Électricité pour tous* (PEPT), which sets a target for full electricity access by 2025, and the 2016 *Plan D'Actions National des Energies Renouvelables* (PANER), which aims at a 42% share of RES in the country's electricity mix by 2030, of which 16% is expected to come from non-hydro RES.[4]

Country context

76% Overall electricity access rate	>99% Urban electricity access rate
51% Rural electricity access rate	
892MW RES installed capacity (incl hydro)	0.07% Share of RES in electricity mix (excl. hydro)
Targets	42% of RES in the electricity mix by 2030 100% electricity access by 2025
Regulator	Autorité Nationale de Régulation du Secteur de l'Electricité (Anaré-CI)
Ministry	Ministry of Petroleum, Energy and Development of Renewable Energy

	Generation	Transmission	Distribution
Private sector participation	Allowed	Allowed	Allowed
State-owned utility	CI - Energies	CI-Energies	CI -Energies
Main private sector participants	CIE; CIPREL; AZITO Energie; Aggreko Energie	CIE	CIE

Data refer to 2019. *Source:* IRENA RE Electricity Statistics & IEA Data Browser.

Key developments over the past years

Following years of political turmoil in the early 2010s, Côte d'Ivoire became one of the fastest growing economies in the world, and experienced a spectacular increase in its electricity generation and access to electricity. Installed power capacity surged from 1409 MW in 2010 to 2237 MW in 2019,[5] while access to electricity improved from 59% to 76% over the past decade.[6] These results were achieved, in no small part, thanks to the country's ability to attract private investments.

However, the driving energy source behind such developments was natural gas, with variable RES amounting to only 13.1 MW from solar PV as of 2020.[7] The government's new targets for RES could help turn the tide, also thanks to the partnership with the World Bank's IFC.[8] In this sense, a major development was the decision of Scaling Solar to engage in the country in 2019, through two 30 MW solar PV projects in Touba and Laboa. The tenders for such projects were launched in 2021, and request for prequalification was open until 6 September 2021.[9]

The country is also exploring opportunities for attracting investments in biomass power plants (agricultural waste, cocoa, cotton). This is driven primarily by Côte d'Ivoire's strong agricultural sector, which contributes to more than 20% of the GDP. EDF, SIFCA and SODEN are already investing in biomass projects in the country.[10] Other clean energy investments for large-scale PV projects have been procured based on calls for Expression of Interest (EOI). However, the system is not standardized and there are some issues with the transparency of procedures.

Finally, it is worth noting that the 2020 concession agreement signed between the state and CIE introduced a local content requirement, pursuant to which CIE is required to "promote the development of Small and Medium Enterprises (SMEs), as well as national champions in the sector".[11]

Key developments over the past years

60 MW RES capacity auctioned through Scaling Solar

110 Ease of Doing Business rank

+287 MW of RES capacity added in the last decade

+17 Percentage points increase in access to electricity over 2010-2018

Data refer to 2019. *Source:* IRENA RE Electricity Statistics & IEA Data Browser.

International support schemes

GetFiT	Scaling Solar

Routes to market

Bilateral PPAs	Auctions	FiT	Other*

* Expression of Interest (EOI)

Projects in the pipeline

RES projects	Grid projects
15	1
1802.7 MW of which **181** MW under construction	225 km of which **225** km under construction

Source: FitchConnect (2021), Infrastructure Key Projects Dashboard: Côte d'Ivoire.

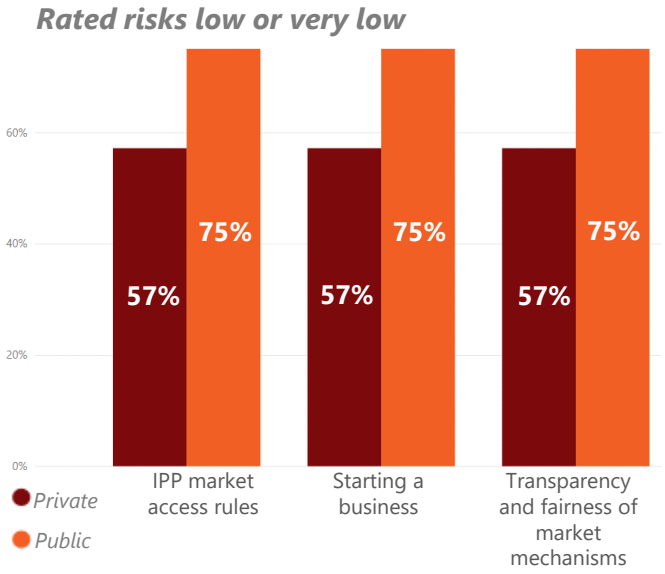
Main existing incentives for RES

Côte d'Ivoire has limited experience with the development of variable RES project. Details on renewables PPAs and grid connection requirements are, in fact, currently missing. The only PPAs that have been signed are for fossil power, and are typically signed between the government and the promoter after a call for tenders, or detailed feasibility studies under an MoU.[12]

The country is now implementing tailored financial incentives for attracting RES investments. These are defined by the *Code des Investissements et de la réduction des taxes* - as amended by Ordinance No. 2019/1088 - and include a VAT reduction of 9% on all solar materials, as well as different tax benefits, from 5 to 15 years, depending on the geographic area of the investment. Such tax benefits include: exemption from taxes on profit; exemption from the contribution of patents and licenses; reduction of the contribution payable by employers amount; 40-50% reduction on the amount of customs duties to be paid on imports of equipment and materials.[13] Several international institutions and donors are active in the electricity sub-sector, which has also attracted sizable investments from China, particularly with regards to the national grid.[14]

1. Legal Framework

Recent efforts by Côte d'Ivoire's policy makers to improve the investment environment have been well noted by investors. On average, the legal framework benefits from a positive perception from both public and private actors, reflecting a fairly transparent electricity market that has been open to private sector participation (PSP) since the 1990s.[15]



Over 60% of survey respondents considered difficulties in starting a business, market access rules for independent power producers (IPPs), and market transparency and fairness as areas of low or very low concern. Such positive results are confirmed by the 2020 World Bank Doing Business indicator, where Côte d'Ivoire has seen a steady improvement trend during the past decade.

The challenge ahead for the country is to further improve its legal framework towards encouraging the installation of variable RES - which are still largely underdeveloped, representing only 0.07% of total installed capacity in 2019. Another key challenge is strengthening network infrastructures, where the government has been dedicating major efforts in recent years to extend the electricity grid as the primary means of increasing electricity access, yet far more investments will be necessary in the future to further reduce system losses and increase overall system flexibility. [16]

57%

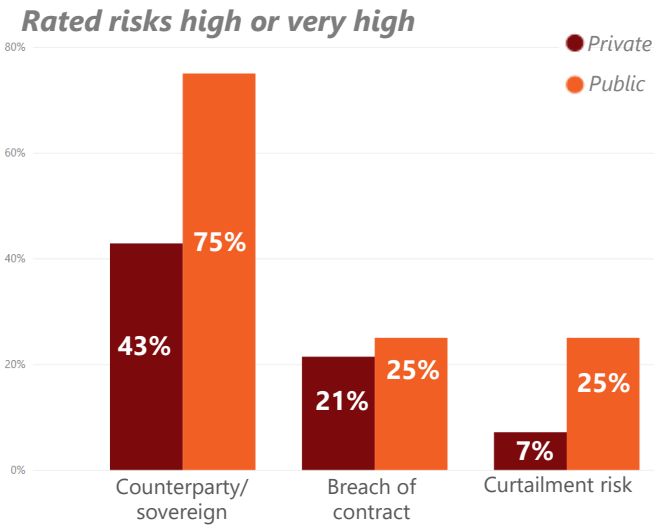
of private respondents rated political risk as a high or very high risk.

One risk area where private respondents still show a certain degree of concern is political risk, with 57% of private stakeholders rating it as of high or very high concern. The reasons behind this are multifold, and probably trace back to the legacy from the civil war that unfolded in the early 2010s. Notably, the return of former president Laurent Gbagbo to the country last June, following his acquittal by the International Criminal Court, created some room for uncertainty, but so far Côte d'Ivoire's President Alassane Ouattara seems to have chosen the path of dialogue and reconciliation, in an attempt to ease political tension. [17]

2. Risks affecting revenues

When asked about risks related to revenues from a RES asset, survey participants seem to have a rather positive perception of the opportunities to invest in Côte d'Ivoire. Almost 65% of private stakeholders and 75% of public sector respondents considered capital transfer and convertibility as of low concern, while 61% of total respondents held a similar view for curtailment risk and breach of contract.

A key determining factor for the high level of confidence relating to capital transfer, convertibility and inflation is Côte d'Ivoire's membership in the Franc of the African Financial Community (fCFA), which effectively pegs the local currency to the Euro, limits inflation, guarantees convertibility through the Central Bank of France, and helps reinforce investors' perception of the country as a safe place to do business. [18]



Counterparty/sovereign risk stands out as an area where the views of public and private sector stakeholders diverge. Indeed, public actors singled out counterparty risk as high or very high in 75% of their responses, whereas only 43% of private respondents considered it a reason for concern.

This negative perception among public players resonates with the lengthy and at times difficult negotiations that preceded the renewal of the concession agreement between the Ivorian state and CIE. Indeed, the government and CIE have had a rocky relationship during the past years, reaching an all-time low in 2016 when a round of violent protests due to an increase in electricity prices shook the country.[19] The government accused CIE of increasing prices three to four times more than what had been established by the regulatory authority Anaré-CI. To ease social tensions, tariffs were frozen by the executive, and President Ouattara threatened to end CIE's monopoly over electricity distribution.[20] From its side, CIE denied the charges, stressing that a price increase was nonetheless necessary to ensure cost-reflective tariffs.[21]

While the concession was eventually renewed in October 2020, the new agreement includes several adjustments and changes from the previous one, reflecting a perception among public stakeholders that the previous contract included excessively favorable terms for CIE.[22] On the other hand, private sector respondents seem to perceive CIE as a fairly reliable counterpart to do business with, especially when compared to other utilities in the region.

3. Construction and operation risk

Investors seem confident about the ability of the country to implement energy projects effectively, also thanks to Côte d'Ivoire's consolidated experience with private sector participation in the electricity sector, which is considered by some as one of the most robust in the continent.[23] The top three low or very low risk categories are logistics, security, safety risks; permitting and licensing; and adequacy of local technical skills.



The results on logistics, security, safety risks are particularly remarkable, with 72% of all respondents rating it of low or very low concern. As pertains to local technical skills, it is interesting to highlight that the new local content requirements - imposed on CIE as part of the recently-approved concession agreement - seem not to have negatively affected the risk perception of private stakeholders.[24]

More broadly, it is worth noting that there are currently no large-scale solar or wind projects in operation in Côte d'Ivoire, with hydropower plants being the only example of utility-scale RES projects already implemented. In this light, investors' perception of construction and operation risks may reflect an optimistic but untested view of the power sector as a whole, as well as a positive outlook on the potential for RES development in the country.

4. Risks affecting financial costs

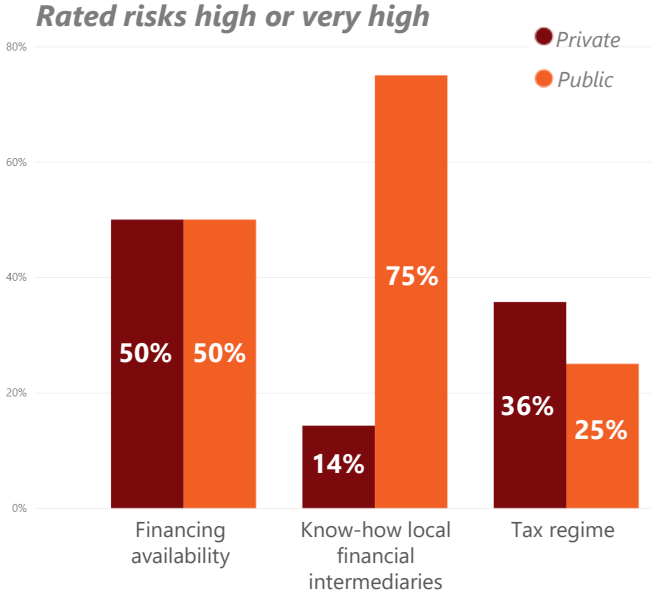
Côte d'Ivoire benefits from a rather stable and consolidated financial sector, which plays a major role in fostering investors' confidence in the system. In recent years, the country's adherence to fiscal prudence and reforms helped improve the country's credit rating and stabilize the macroeconomic situation - the last time Côte d'Ivoire defaulted on market debt dates back to 2011, amidst a period of high political instability.[25]

Furthermore, Côte d'Ivoire is a member of the West African Economic and Monetary Union - WAEMU (also known by its French acronym, UEMOA) - and the third largest in the Economic Community of West African States - ECOWAS (also known by its French acronym, CEDEAO).[26]

61%

of survey respondents believe that inflation and currency risk is a low or very low risk.

Côte d'Ivoire's participation to the fCFA zone contributes to fostering a positive view of inflation and currency risks, which are frequently a source of deep concern for many developing countries and was instead rated as a low or very low risk by more than 60% of our survey respondents.

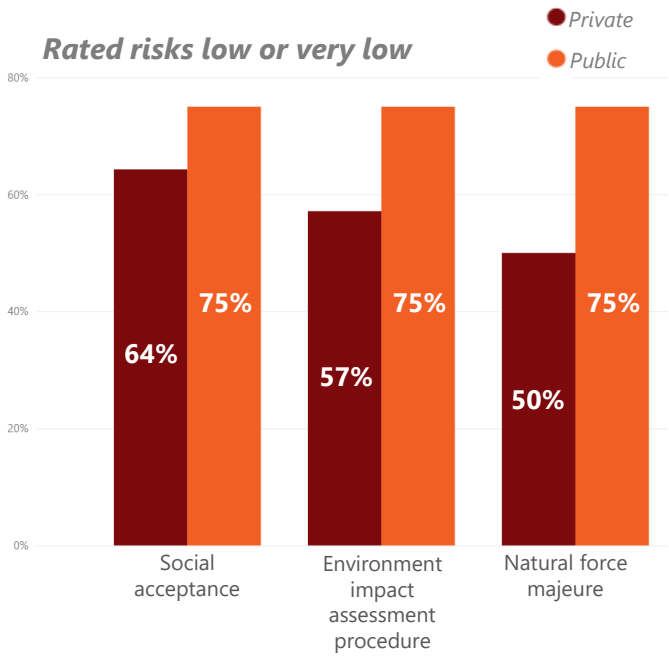


Interestingly, the know-how of local financial intermediaries is considered a source of concern for 75% of public respondents, but this view is not shared by the private sector. Considering that financing large-scale RES projects entails a certain degree of complexity, this is a risk area to be followed carefully in the coming years, with a view to gauging whether the optimistic sentiment of private stakeholders are founded.

Concerning risks related to financing availability, responses do not point to a clear trend with views split around a 50-50 mark. Similarly to above, such uncertainty may reflect the country's limited experience in financing variable RES projects, where the ability to mobilize the needed CAPEX for new investments remains broadly untested.

5. Environmental and social risk

Environmental and social risks are perceived as generally very low. RES technologies are perceived as enjoying broad social support, in part due to their potential to promote economic growth and provide jobs. However, it is worth noting that social acceptance for variable RES projects is largely untested, given the current lack of operating large-scale wind and solar plants.



The potential adverse impact of climate change on the country has recently left its first marks, as Côte d'Ivoire experienced major disruptions to its hydropower output during the first half of 2021 due to a persistent drought that severely hindered output levels, putting more pressure on thermal capacity to keep the lights on.[27] Looking forward, such events may become more frequent, putting to a test the risk perception for environmental and social issues.

Finally, it is worth noting that the pipeline of electricity projects in the country includes three new biomass-based power plants, for a total expected installed capacity of 141 MW.[28] This reflects the importance of the agriculture sector in the country's economy, which is the world's largest producer of cocoa and whose GDP depends on agriculture for more than 20%, as of 2019.[29] In this sense, the potential to develop biomass-based RES projects could help boost the overall perception of RES projects in the country, by attracting additional investments in a sector that employs large chunks of the population.

Addressing the risks

Availability of de-risking instruments is deemed by most private sector respondents (57%) as broadly inadequate. Respondents highlight that out of the limited de-risking options available most are driven by Export Credit Agencies (ECA), are lacking longer tenors, and coverage of non-honoring of financial obligations is largely missing.

> "De-risking instruments are mainly ECA driven, with private risk insurance only partially available and lacking longer tenors."

At the same time, public sector respondents report a more optimistic view, notably with regards to the government's letter of guarantee which tends to accompany a PPA.

This optimism also reflects the major strides made by Côte d'Ivoire in recent years by way of attracting multilateral donors, notably the World Bank Scaling Solar program. As part of the auctions for two grid-connected 30 MW solar PV projects organized through Scaling Solar, IFC committed to offer insurance services and overall support with project preparation and structuring, finalization of contracts, loan agreements, risk management and credit enhancement.[30] The awarded concessionaires are expected to sign an offtake contract with the Ivorian state for a period of 25 years. [31]

Topic	Recommendation
Regulatory and Policy	Pursue greater B2G dialogue concerning the development of a regulatory framework conducive to investments in RES projects.
	Strive to make tariffs cost-reflective, in order to ensure the financial viability of the offtaker and guarantee an even playing field for RES-generation. This, in turn, should be implemented bearing in mind the issue of affordability, to protect the most vulnerable sections of the population.
Grid access	Prepare credible and implementable grid investment plans, in order to promote rural electrification as well as integrate higher shares of variable RES and reduce system losses.
Financing availability	Endeavour to attract greater volumes of multilateral and other forms of concessional finance, including by showcasing political will, building project pipelines, and setting up favorable investment conditions.
Financial sector	Strive to build administrative and technical capacities of local financial intermediaries, especially in the context of large-scale RES projects, by facilitating the transfer of technology, knowledge and know-how.
Climate risk preparedness	Work on reinforcing contingency plans to minimize the adverse effects of prolonged draughts on hydropower production.

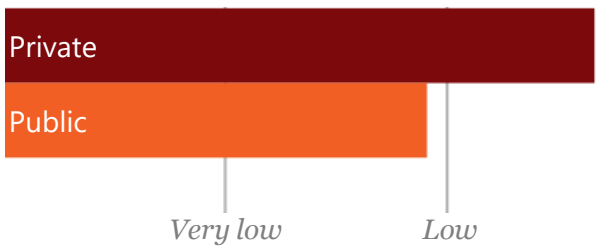
Ethiopia

Home to the second-largest population in the region and boasting an average GDP growth of nearly 9% over the last two decades[1], not long ago, Ethiopia was seen as one of the most promising markets in sub-Saharan Africa. On the heels of Prime Minister Abiy's promise of economic liberalization, investors flocked to the country, only to be thwarted by bureaucratic systems, persistent macroeconomic instability, and an outbreak of conflict and violence.

Over the past decade, Ethiopia has made substantial efforts to open its electricity sector and shift to a private-sector-led growth model, but progress is being undermined by a poor track record of implementation, as exemplified by the lack of operational IPPs nearly a decade after the liberalization of electricity generation. Additionally, Ethiopia presents investors with a very challenging macroeconomic environment, characterized by high inflation, convertibility issues, and a high risk of debt distress.

Consequently, investors are highly concerned about not only political risk, but also capital transfer and convertibility, inflation and currency risk, and financing availability. While a reduction in political risk hinges on the levelling-off of conflict, the remaining barriers can be addressed by improving follow-through on regulatory changes, pursuing prudent macroeconomic policies with the support of multilateral partners, and strengthening the local financial sector.

Overall risk perception: public vs private

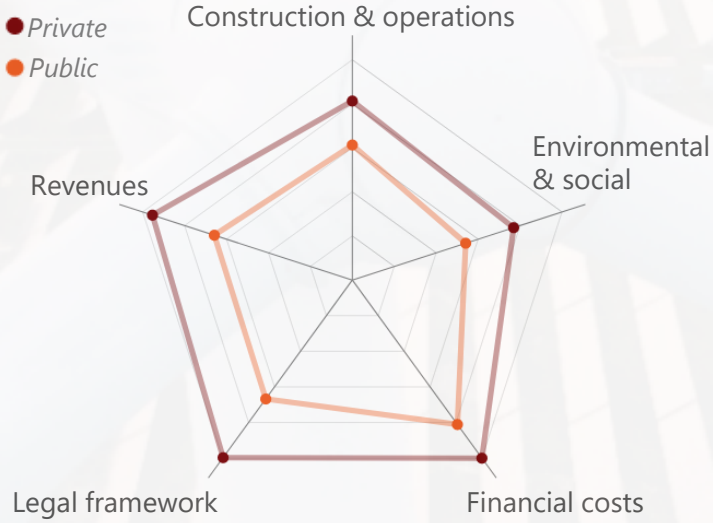


46

*Number of participants in the survey, of which **13** from the public and **33** from the private sector*

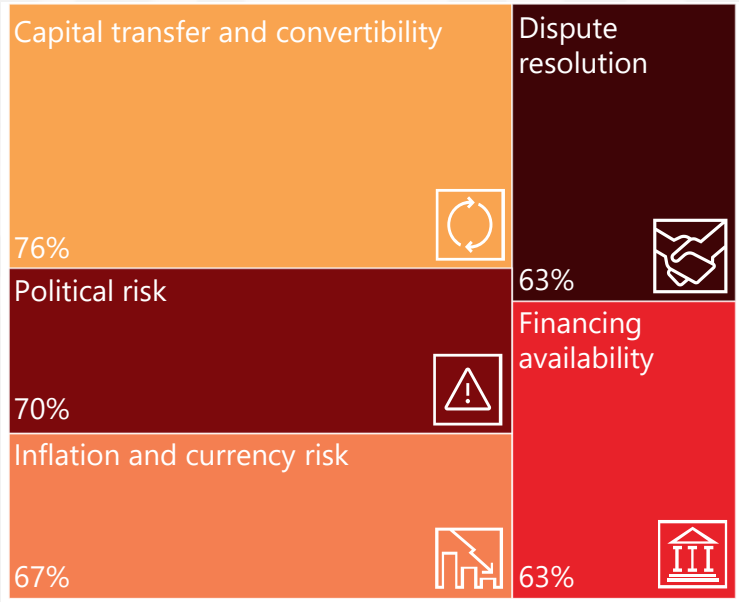
Overall risk environment

The risk perception rating increases from the center of the radar chart (0) towards the edges.



Top 5 risks

Share of respondents who rated a risk as high or very high



Based on 46 survey responses

Regulatory overview

Ethiopia's *Growth and Transformation Plans* (for 2010-2020) set out the aim of achieving middle-income status by 2025 while working towards the achievement of the SDGs. Energy infrastructure represents the backbone of this development, and the plans, together with the 2013 *Climate Resilient Green Economy Strategy*, define ambitious targets for the electricity sector, including universal electrification by 2025 and an installed generation capacity of 25 GW by 2030 (22,000 MW of hydro, 2,000 MW of wind, and 1,000 MW of geothermal). These targets stand in stark contrast with the current energy sector landscape, characterized by low levels of electrification (47%), particularly in rural areas (34%), and a total installed capacity of over 4 GW, coming largely from hydro sources.

In 2013, Ethiopia initiated a series of reforms to encourage private sector investments, resulting in the restructuring of the vertically integrated utility into:

- Ethiopian Electric Power (EEP), operating state-owned generation assets and the transmission network;
- Ethiopian Electric Utility (EEU), managing distribution and retail.

Additionally, the former regulator was re-established as the Ethiopian Energy Authority (EEA), responsible for, among others, issuing directives and codes, issuing licenses, and regulating tariffs.[2] The Ministry of Water, Irrigation and Energy retains oversight of the electricity supply industry, being responsible for formulating and executing policies and ensuring the development of the sector.

Commercial activities related to electricity are regulated by *Public-Private Partnership Proclamation* (No. 1076/2018) and *Investment Law* (Investment Proclamation No.1180/2020 and Investment Regulation 474/2020). The generation and off-grid market segments are fully open to private sector participation. In addition, domestic private investors have recently been allowed to participate in electricity transmission and distribution projects, although in the absence of implementing legislation, this remains de facto impossible. In spite of the country opening to private generators, there are currently no IPPs operating in Ethiopia.

Country context

47% Overall electricity access rate	96% Urban electricity access rate; 34% Rural electricity access rate
4451MW RES installed capacity (incl hydro)	4% Share of RES in electricity mix (excl. hydro)
Targets	25GW of RES in the electricity mix by 2030; 100% electricity access by 2025
Regulator	Ethiopia Energy Authority (EEA)
Ministry	Ministry of Water, Irrigation and Electricity

	Generation	Transmission	Distribution
Private sector participation	Allowed	Not Allowed	Not Allowed
State-owned utility	Ethiopian Electric Power (EPP)	Ethiopian Electric Power (EPP)	Ethiopian Electric Utility (EEU)
Main private sector participants	Corbetti; Tulu Moye (both projects are not yet operational)	N/A	N/A

Data refer to 2019. *Source:* IRENA RE Electricity Statistics & IEA Data Browser.

Key developments over the past years

A change in government in 2018 brought political reforms and the promise of economic opening for Ethiopia. Nevertheless, ethnic and political conflict escalated, culminating in the outbreak of a violent civil war in the Tigray region in November 2020. This increase in political risk has significant implications for private investments in the country.

In the electricity sector, Ethiopia has issued several new pieces of legislation in the past years, and has made considerable efforts to engage the private sector, although no IPPs are currently operational. The first to enter the market were geothermal developers. In 2017, the government and EEP signed PPAs and implementation agreements for the large-scale Corbetti and Tulu Moye geothermal projects, for a total capacity of 1020 MW. [3] However, both projects experienced issues and delays, requiring the signature of new PPAs for substantially lower capacity (150 MW each) in 2020.[4]

Power procurement through tenders has also yielded weak results, despite the very low prices secured. Notably, all three solar tenders awarded - the 100 MW Metehara project at US$0.0585/kW in 2017 and the 125 MW (each) Gad and Dicheto projects at US$0.0253/kWh in 2019 - have yet to reach financial close.[5] The awarding of the Scaling Solar projects attracted considerable criticism after four out of five bidders were disqualified the day before the awarding, with the two projects ultimately going to the single remaining bidder. This was a result of the IFC withdrawing financial support for the bids, due to the refusal of the National Bank of Ethiopia to guarantee currency convertibility.[6] There are an additional six IPP solar power projects in the pipeline, but these are currently suspended due to financing issues.[7]

Key developments over the past years

350MW
RES capacity auctioned but yet to reach financial close

159
Ease of Doing Business rank

+2549MW
of RES capacity added in the last decade

+25
Percentage points increase in access to electricity over 2010-2019

Data refer to 2019. *Source:* IRENA RE Electricity Statistics & IEA Data Browser.

International support schemes

GetFiT | Scaling Solar

Routes to market

Bilateral PPAs | Auctions | FiT | Other

Projects in the pipeline

RES projects	Grid projects
40	4
16453 MW of which **9410** MW under construction	1090 km of which **460** km under construction

Source: FitchConnect (2021), Infrastructure Key Projects Dashboard: Ethiopia.

In 2020, Ethiopia finished construction on the Grand Ethiopia Renaissance Dam (GERD), the largest dam in Africa, contributing an additional capacity of over 6,000 MW to its already primarily hydroelectric generation fleet. The filling of the dam in the absence of definitive agreements relating to its operation has become the source of considerable conflict with the downstream nations of Sudan and Egypt. Nevertheless, in February 2021, the Minister of Energy announced that the GERD will continue filling over the rainy season, and will become fully operational by 2023.[8]

Main existing incentives for RES

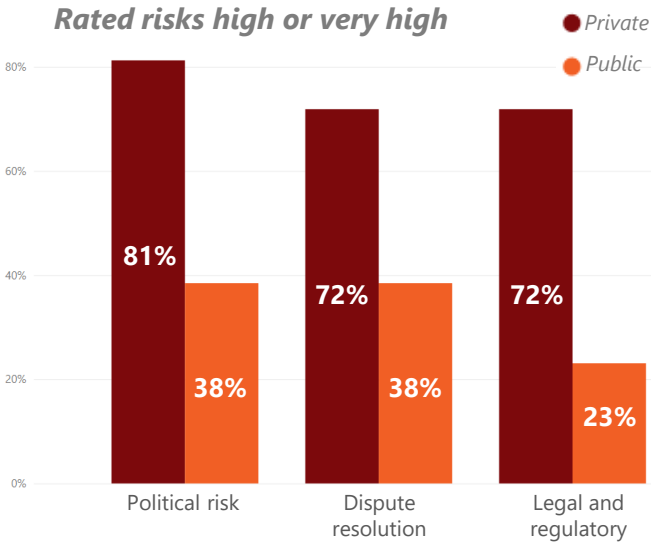
With Ethiopia's generation segment liberalized, private operators are free to enter the market through tenders or bilaterally negotiated contracts, but must sign power purchase agreements with the single buyer Ethiopian Electric Power.

Investors in energy infrastructure may benefit from incentives stated in the provisions of *Investment Regulation 270/2012*, including tax holidays and import duty relief on capital equipment.

1. Legal Framework

Private sector involvement in Ethiopia's electricity sector is still at an early stage. Despite increased government commitment to liberalization and the adoption of a host of new regulations and directives to encourage private participation, the findings of our survey and recent experience with IPPs suggest that further efforts are needed to assuage investors' concerns.

Apart from the more moderately perceived risk associated with starting a business, private investors are greatly concerned by Ethiopia's legal framework, particularly when it comes to political risk, dispute resolution, and legal and regulatory risks, perceived as high or very high by 81%, 72%, and 72% of private sector survey respondents, respectively.



Perceptions around political risk can largely be attributed to the ongoing Tigray conflict, which has recently spread to the neighboring Amhara and Afar regions, claiming thousands of lives and displacing millions.[9] According to the Fragile States Index[10], Tigray is only one of many conflicts that exploded in Ethiopia last year, including increased violence in Oromia and Benishangul-Gumuz, the site of the Grand Ethiopian Renaissance Dam (GERD). Indeed, poor perceptions of political risk may be further exacerbated by escalating tensions with downstream countries Sudan and Egypt around the GERD.

When it comes to regulatory risk, recent steps towards opening the market to private participation have been undermined by low transparency and a poor track record of implementation. For instance, in the absence of implementing legislation, participation in transmission and distribution is still off-limits to the private sector, despite the market being opened to domestic investors under *Investment Regulation 474/2020*. Similarly, the lingering apprehension about dispute resolution suggests that trust in Ethiopia's implementation of the *New York Convention*, only ratified in 2020, is low. Additionally, investors may be discouraged by Ethiopia's poor track record of RES procurement, with all three competitively procured projects yet to reach financial close several years after their awarding.

2. Risks affecting revenues

Both investors and policy makers recognize the crucial issue of capital transfer and convertibility, making it the single highest-rated risk overall. Ethiopia has a long-standing struggle with foreign exchange scarcity due to its negative trade balance, and a significant part of that scarce currency is used to service external debt.[11] Consequently, the National Bank of Ethiopia imposes strict controls on forex and the repatriation of foreign currency. In September 2019, the government launched the *Homegrown Economic Reform* agenda aiming to tackle the forex shortage by promoting exports and FDI. However, the outbreak of conflicts and the recent desert locust invasion are taking a toll on exports and FDI inflows, hampering progress on reforms.[12]

76%

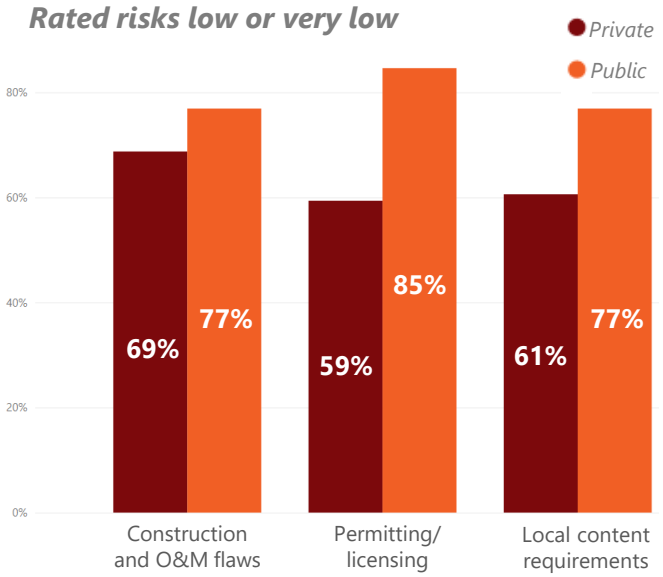
of overall respondents rated capital transfer and convertibility as high or very high risk.

Offtaker/sovereign risk is subject to a striking divergence of views. While 63% of private sector respondents consider it of high or very high concern, only 8% of public sector stakeholders concur. Ethiopian Electric Power (EEP), the designated offtaker, has some of the largest capital expenditures in sub-Saharan Africa, yet collects some of the lowest electricity tariffs, putting the utility in a very weak financial position.[13] The government has attempted to mitigate offtaker risk by offering sovereign guarantees covering debt (principal and interest), equity (outstanding and forecast return) and termination costs in the case of default for all three of the RES projects tendered so far.[14]

But Ethiopia's high risk of debt distress[15] undermines the credibility of the sovereign guarantees, and the situation was further exacerbated by a recent downgrade in the country's sovereign credit rating.[16] While de-risking solutions can serve to mitigate offtaker risk in individual projects, a more substantial review of EEP's financial model will be needed, in order to crowd in greater private investments in RES.

3. Construction and operation risk

In light of the ongoing conflicts in Ethiopia, it is no surprise that private investors are wary about logistics, security, and safety risks. However, survey respondents are generally content about other risks affecting construction and operation. Investors are particularly confident in their ability to avoid construction and O&M flaws, and do not feel constrained by local content requirements. Indeed, while Ethiopia does reserve certain areas of investment exclusively for domestic investors or joint ventures with majority Ethiopian ownership, it does not set any minimum local content requirements for activities entirely open to foreign private investment, such as electricity generation.



4. Risks affecting financial costs

Ethiopia's foreign exchange scarcity has also impacted inflation and currency risk and the availability of financing for RES projects. Since 1994, the Ethiopian birr has been subject to a 'managed' float regime overseen by the National Bank of Ethiopia, which has implemented periodical devaluations[17] in an attempt to increase export earnings and reduce the foreign currency shortage. These episodes of devaluation, however, have not been associated with an improvement in the trade balance, and despite concurrent increases in interest rates to reduce inflationary impact, they have been accompanied by substantial rises in the inflation rate.[18] Since 2017, Ethiopia has experienced double-digit annual inflation, with the rate soaring to an estimated 20% in 2020.[19]

75%

of private sector respondents consider inflation and currency risk to be of high or very high concern.

The impact of Ethiopia's macroeconomic instability on the availability of financing for RES projects also became evident following the awarding of the 2019 Scaling Solar tender. Due to the National Bank of Ethiopia's refusal to guarantee currency convertibility, the IFC withdrew financing for the projects, resulting in the disqualification of four out of five bidders one day before the awarding.[20] The two solar projects ultimately went to the single remaining bidder, ACWA Power, but have yet to reach financial close. In contrast with these structural issues, Ethiopia's tax regime is deemed a more minor concern.

5. Environmental and social risk

The majority of survey respondents do not see environmental and social risks as particularly worrisome. This is especially true of public sector respondents, most of whom rated all risks in this category as very low. Nevertheless, as a country with the vast majority of electricity generated from hydropower sources, Ethiopia is not immune to the risk of drought. Most recently in 2019, Ethiopia was forced to suspend exports and ration electricity in response to a drop in water levels in the Gibe 3 dam.[21] Although the operationalization of the GERD will represent a substantial increase in the available generation capacity, in the absence of a diversification of the energy mix Ethiopia will remain vulnerable to drought. Additionally, the need to ensure sufficient water supply to downstream nations suggests that there may be little scope for exploiting the GERD for electricity generation in the event of a drought.

over 60%

of respondents believe environmental and social risk to be of low or very low concern.

Addressing the risks

Availability of de-risking instruments is of high concern to the private sector and even higher to the public sector, with over 54% of all survey respondents considering their availability inadequate. The National Bank of Ethiopia's refusal to guarantee currency convertibility resulted in the withdrawal of de-risking support from the World Bank in the 2019 Scaling Solar tenders, and the government's poor credit rating has eroded trust in sovereign guarantees, leaving Ethiopia with few credible de-risking options.

In order to maintain investor interest in the face of high risks, Ethiopia must restore credibility to its sovereign guarantees and capitalize on the de-risking options offered by multilateral partners.

> "Today, there are no adequate financial instruments largely used or in place to mitigate the country's specific financial risks."

Topic	Recommendation
Legal and regulatory	Follow through on the liberalization of the electricity sector through timely approval of draft legislation and swift implementation of regulatory changes expanding private sector participation.
	Reinforce political commitment to RES procurement to strengthen investor confidence, build trust and create a sense of shared objectives.
Political risk	Reduction of political risk is conditional on the resolution of ethnic conflicts and the end of human rights abuses, particularly in the Tigray region.
Grid access	Boost grid infrastructure investments to accelerate progress towards universal electrification, reduce technical losses, and augment RES integration capacity.
Counterparty/ sovereign risk	Strive to improve EEP's financial position by improving operational efficiencies, transitioning to a private-sector-led growth model, and restructuring the tariff structure to ensure utilities can recover their cost of generation.
Inflation, currency, and convertibility	Work with multilateral partners to reduce volatility and restore macroeconomic stability.
Financing availability	Strengthen the local financial sector to increase awareness and know-how related to RES projects, and strive to enhance lending options in local currency.
	Invest in capacity building to boost local availability of skills and know-how, particularly in relation to RES project finance.
Environmental force majeure	Diversify the generation mix with solar, wind and geothermal, to reduce exposure to droughts.

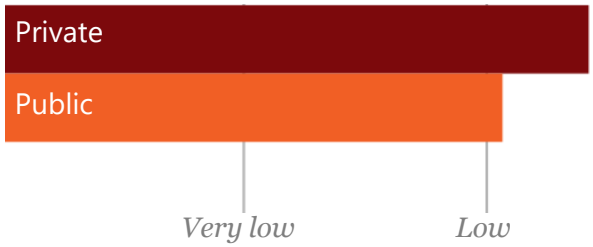
Ghana

Ghana represents a beacon of stability in the African continent, with a history of peaceful democratic elections and robust economic growth, providing fertile soil for foreign investment. Its power sector has seen growing private sector participation, and the government has demonstrated increasing commitment to renewable energy. In accordance with the 2019 *Renewable Energy Master Plan*, the government aims to increase variable renewable generation capacity from 70 MW to 1,360 MW by 2030, with over 80% of the required investments expected to come from private investors.

While Ghana is generally seen as offering a good business environment, recent developments in the power sector have given RES investors reason for concern. In order to address overcapacity and substantial energy sector debt resulting from uncoordinated and non-transparent procurement during the energy crisis of the early 2010s, the government launched a review of PPAs signed during that period. This resulted in the termination of several contracts, as well as the renegotiation of many others from take-or-pay to take-and-pay agreements.

As a result of these events, as well as the record fiscal deficit incurred in 2020, private investors highlight transparency and fairness of market mechanisms and inflation and currency risk as the two greatest barriers to the development of renewable energy projects in the country. Improving communication and transparency around the PPA renegotiation process, ensuring credible and transparent energy sector planning, and restoring macroeconomic stability will prove essential to securing the private sector investments necessary to achieve renewable capacity expansion targets.

Overall risk perception: public vs private

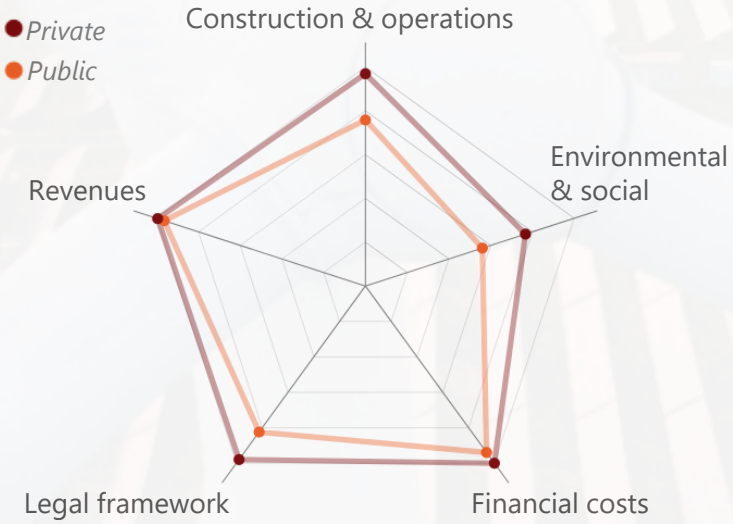


22

*Number of participants in the survey, of which **4** from the public and **18** from the private sector*

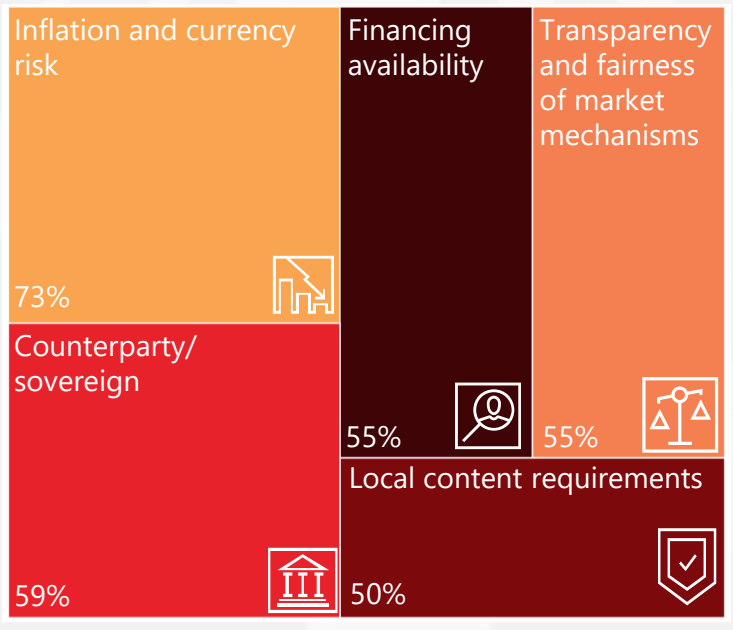
Overall risk environment

The risk perception rating increases from the center of the radar chart (0) towards the edges.



Top 5 risks

Share of respondents who rated a risk as high or very high



Based on 22 survey responses

Regulatory overview

The *National Energy Policy* adopted in 2010 focuses on the aim to develop an "energy economy" able to ensure reliable supply of high-quality energy services to all sectors of the economy. In 2019, the government issued several policies defining the direction of the energy sector over the next decade, including the *Strategic National Energy Plan*, the *Integrated Power Sector Master Plan*, and the *Renewable Energy Master Plan*. The latter provides the first national roadmap for the long-term development of RES in the country, and aims to increase variable renewable generation capacity to 1,360 MW by 2030, compared to 70 MW in 2019.[1]

The electricity sector is governed by three main institutions: the Ministry of Energy, responsible for formulating policies and programs; and two regulatory authorities, the Energy Commission and the Public Utilities Regulatory Commission (PURC). While the Energy Commission is a quasi-independent body in charge of sector planning and the issuing of licenses, the PURC is fully independent from the government and regulates the provision of utility services to consumers (sets tariffs, monitors standards of performance, etc.).

Ghana's power sector has been liberalized since the late 1990s, following the unbundling of the incumbent utility Volta River Authority (VRA), which remains responsible only for generation assets. Today, electricity generation and distribution are open to private sector participation, with several IPPs as well as one private distribution company - Enclave Power Company - operating in the country. On the other hand, transmission remains a monopoly under the management of state-owned operator GRIDCo, and the majority of the distribution segment (90% of retail sales)[2] is controlled by the public utility Electricity Company of Ghana (ECG).

Country context

85%	Overall electricity access rate
93%	Urban electricity access rate
75%	Rural electricity access rate
1656MW	RES installed capacity (incl hydro)
0.50%	Share of RES in electricity mix (excl. hydro)
Targets	1360MW of variable RES in the electricity mix by 2030
	100% electricity access by 2030
Regulator	Energy Commission; Public Utilities Regulatory Commission (PURC)
Ministry	Ministry of Energy

	Generation	Transmission	Distribution
Private sector participation	Allowed	Not allowed	Allowed
State-owned utility	Volta River Authority; Bui Power Authority	Ghana Grid Company (GRIDCo)	Electricity Company of Ghana; NEDCo
Main private sector participants	Takoradi International Company (TICo); Sunon Asogli Power Plant; CENIT	N/A	Enclave Power Company Ltd (EPC)

Data refer to 2019. *Source:* IRENA RE Electricity Statistics & IEA Data Browser.

Key developments over the past years

In 2011-2016, Ghana experienced a severe shortage of generation capacity due to low water levels in hydropower dams and erratic gas supply for power plants. To reduce the supply deficit, the government fast-tracked private power plants, contracting 3 emergency power producers and signing an additional 43 PPAs, all without competitive procurement processes.[3] This resulted in substantial excess capacity and high costs, including US$680 million per year in unnecessary capacity payments.[4]

Together with operational inefficiencies and expensive external debt, these factors have put Ghana's energy sector under immense financial strain.

In order to address the financial sustainability of the sector, in 2019 the government initiated the *Energy Sector Recovery Programme* (ESRP) aiming to bring the sector into balance by 2023. A number of PPAs have already been terminated by the government in 2018,[5] and the remainder are being renegotiated from take-or-pay to take-and-pay agreements, relieving the obligation to pay for unused capacity.[6] By the end of 2020, the government had successfully renegotiated agreements with two IPPs and relocated a gas power plant closer to local resources, saving a total of US$5 billion.[7]

As a part of the sector recovery, the government also expressed its willingness to transfer the operation of ECG's distribution network to a private entity, aiming to improve operational efficiency.[8] To this end, a 20-year concession agreement was signed with Power Distribution Services (PDS), which assumed operation and management of ECG's staff and assets in March 2019. Within a few months, however, the government terminated the contract over allegations of fraud.[9] Despite this failure, the government reiterated that it remained committed to private sector participation in ECG and was seeking a suitable replacement to PDS.[10]



Key developments over the past years

2302MW
RES capacity under- or pre-construction

118
Ease of Doing Business rank

+469 MW
of RES capacity added in the last decade

+20
Percentage points increase in access to electricity over 2010-2019

Data refer to 2019. *Source:* IRENA RE Electricity Statistics & IEA Data Browser.

International support schemes

GetFiT | Scaling Solar

Routes to market

Bilateral PPAs	Auctions*	FiT	Other

* No auction has occurred yet.

Projects in the pipeline

RES projects	Grid projects
19	1
1409 MW of which **275** MW under construction	660 km of which **330** km under construction

Source: FitchConnect (2021), Infrastructure Key Projects Dashboard: Ghana.

Main existing incentives for RES

To date, Ghana has procured all its existing generation capacity through bilateral negotiations and unsolicited proposals, but as a part of the 2019 ESRP, the government has committed to securing all future PPAs through competitive tendering.[11] However, demand projections have shown that Ghana will likely not require any additional new generation capacity until 2027, therefore procurement is only warranted if the total cost of a new generation plant is lower than the marginal cost of existing plants.[12]

Despite the low need for new capacity, Ghana demonstrates a strong commitment to the expansion of renewable energy capacity under the REMP, and offers good incentives for potential investors. Through the Ghana Investment Promotion Centre, the country offers customs duty exemptions for industrial plants, machinery, or equipment and parts thereof, as well as tax rebates for manufacturing industries differentiated by location.[13] The REMP proposes additional incentives for renewable energy manufacturing and assembling firms, such as VAT reduction.[14]

1. Legal Framework

Despite being a politically stable country with an electricity market that has long been open to private participation, Ghana's legal framework does raise some concern for renewable energy investors.

Although the risks associated with starting a business are unequivocally rated as the lowest within the category by all respondents - in agreement with the high score Ghana received for this indicator in the World Bank 2020 Doing Business Survey - respondents from the private and public sectors agree on little else. There are clear discrepancies between public and private risk perceptions, with the top three highest-rated risks for each sector showing no overlap. The most notable divergence appears in the views on transparency and fairness of market mechanisms: 61% of private sector respondents consider it to be of high or very high concern, but only 25% of public sector stakeholders concur.

61%

of private sector respondents consider transparency and fairness of market mechanisms to be of high or very high concern.

The private sector's concerns about transparency and fairness can be explained by the government's recent terminations and renegotiations of PPAs which had been signed during Ghana's electricity supply crisis in the early 2010s. These actions form a part of Ghana's *Energy Sector Recovery Programme*, launched to mitigate the overcapacity and financial issues resulting from uncoordinated and non-transparent public procurement during the crisis. This has resulted in a moratorium on new PPAs and a failure to implement renewable energy supporting mechanisms, including for ongoing projects, pushing some IPPs to seek alternative offtakers.

Trust in the transparency and fairness of Ghana's public institutions, particularly the judiciary, has also been shaken by a high-profile corruption case that unfolded in 2015.[15]

Following the surfacing of evidence implicating over a hundred judicial figures in acts of bribery, dozens of the accused were dismissed, including several High Court judges.

2. Risks affecting revenues

Risks affecting revenues of RES assets are the second most important area of concern for private investors. Counterparty/sovereign risk stands out for both sectors, with 60% of all respondents rating it as high or very high. The two main offtakers in PPA contracts with IPPs are the Volta River Authority and the Electricity Company of Ghana. PPAs signed with fossil-based IPPs have come under public scrutiny for their lack of transparency and the dependence on overly generous take-or-pay agreements.

6 out of 10

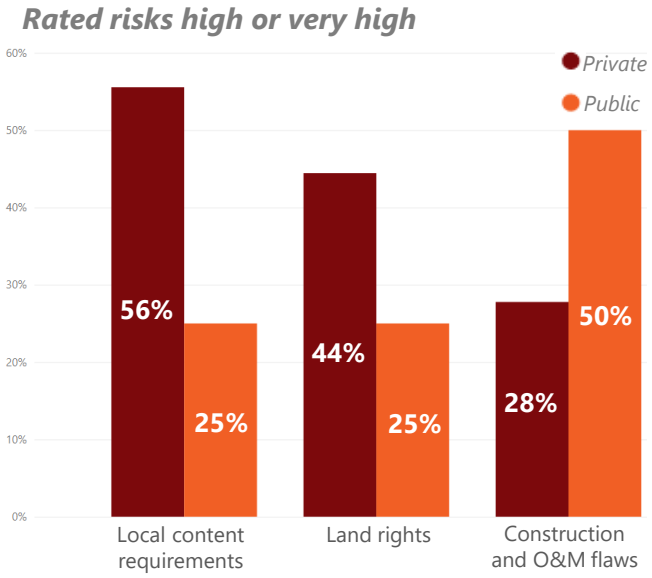
respondents consider counterparty/sovereign risk to be high or very high.

The latter is of vital importance given that Ghana currently struggles with an overcapacity, and the government's duty to pay for unconsumed electricity cost the taxpayers $320 million in 2018[16], set to double with capacity added in 2019. These sums add to an already dire financial situation which sees the sector face a debt of $2,748 million[17], equivalent to ⅓ of the government's 2018 tax revenue. Such a critical situation is underlined by public sector respondents, 100% of whom rated counterparty risk as a substantial concern. In spite of this, and the subsequent renegotiation of PPAs in an effort to dampen the financial burden of overcapacity and take-or-pay agreements, only 50% of private respondents saw this as a high risk, perhaps due to the general political stability Ghana has been favored with.

Surprisingly, breach of contract and curtailment risk are also seen as low to moderate, despite concerns related to PPA renegotiations and the increased risk of curtailment due to overcapacity. Additionally, investors are confident in their ability to transfer capital outside of Ghana and freely convert the cedi.

3. Construction and operation risk

Overall, construction and operation are not considered challenging aspects of doing business in Ghana, with four out of the six risk areas in this category overwhelmingly rated as of low concern. Nevertheless, private investors are somewhat apprehensive about local content requirements and land rights.



With regards to land rights, respondents highlight barriers related to long and strenuous processes and complex land ownership claims.

The 1992 Constitution prohibits foreigners from owning land in Ghana; instead, they can enter into leasehold agreements of up to fifty years at a time. The legal system is a pluralistic one in which customary and statutory land governance overlap, and despite land administration reform in 2008 and ongoing efforts under the ministerial *Land Administration Project*, rates of land registration remain very low, particularly in rural areas.[18]

Additionally, 80% of land is held under customary tenure (stool and skin lands), resulting in many informal, overlapping land rights claims, making it more difficult for investors to secure and maintain land rights.

> "Regulation for RES requires a high percentage of local content that is not currently available in the local market."

Local content requirements pose an even greater risk for private investors. The 2017 *Legislative Instrument (L.I.) 2354* on local content and participation in the electricity supply industry defines stringent minimum levels of Ghanaian ownership and participation in renewable energy projects.[19] Beyond the already considerable initial participation levels, *L. I. 2354* mandates further increases over time, with requirements reaching a minimum of 51% local ownership, 80%-100% local employment in different job categories, and 80-100% locally manufactured or assembled renewable technologies within 5-10 years.

These demanding local content requirements are perceived as a significant barrier to investment by over half of private sector survey respondents, particularly in the absence of local manufacturing capacity for certain components. On the other hand, three quarters of public sector respondents rated local content as low or very low risk, suggesting that there is a need for the public sector to engage more closely with investors and understand their concerns.

4. Risks affecting financial costs

Risks affecting financial costs are the most worrying to survey participants. Inflation and currency risk is the single highest-rated risk for Ghana, with 73% of public respondents considering it of high or very high concern. Over the past decade, Ghana has struggled with large fiscal and external imbalances due to unsustainable government spending, resulting in double-digit inflation and large depreciation of the cedi.[20]

The failure of national policies to address the imbalances pushed the government to seek help from the IMF under an Extended Credit Facility arrangement. This was successfully completed in 2019, having enabled Ghana to achieve macroeconomic stabilization.[21] However, government measures to mitigate the social and economic impact of the pandemic resulted in a sharp increase in public debt and a record fiscal deficit in 2020, provoking renewed concern from private investors.

73%

of respondents believe that inflation and currency risk is of high or very high concern.

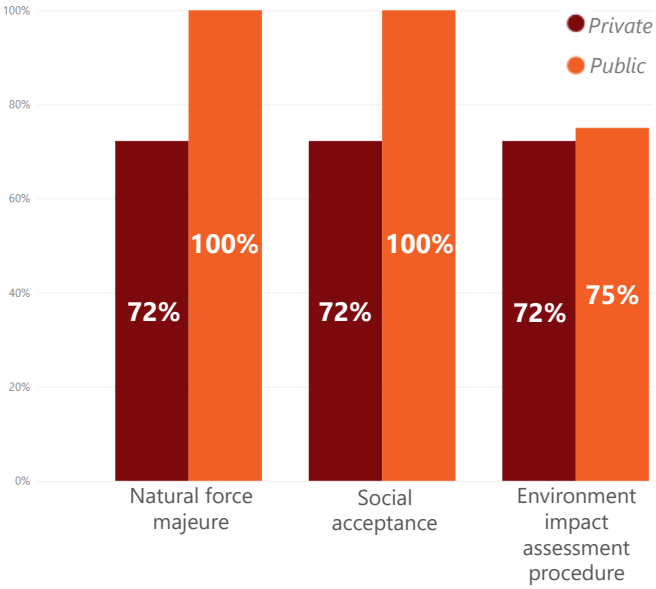
Availability of financing is another risk acknowledged by both sectors. Ghana's ambition is to become a regional financial services hub[22]; the domestic resource mobilization efforts supported by the African Development Bank[23] are an important step in this direction, but more effort will be needed to bolster local capital markets. Survey respondents also comment that the weak creditworthiness of the offtaker and Ghana's status as high-risk for debt distress[24] may make DFIs and other international financial institutions wary of offering financing for projects in the country.

On the other hand, private investors are relatively confident about the know-how of local financial intermediaries, and consider the tax regime as broadly adequate. Under H.S. Codes 84 and 85, industrial plants, machinery, equipment, and parts thereof are exempt from customs duty[25], and the *Renewable Energy Master Plan* proposes further tax exemptions for renewable equipment manufacturing and assembly.

5. Environmental and social risk

Over 70% of survey respondents rate environmental and social risk as low or very low, citing clear environmental impact assessment procedures, receptiveness towards projects, and low occurrence of natural disasters. High social acceptance is corroborated by another recent survey, assessing Ghanaians' willingness to accept renewable energy projects, which found that nearly 82% of respondents were in favor of projects and a further 12% were indifferent.[26]

Rated risks low or very low



Ghana is not particularly prone to natural disasters, but droughts may continue to pose a risk to the electricity supply industry. While the diversification of the generation mix following the electricity crisis - also triggered by drought - has reduced overreliance on hydro, wider exploitation of wind and solar resources could further reduce the potential impact of future droughts on the security of electricity supply.

Addressing the risks

Availability of de-risking instruments was deemed insufficient by 61% of private and 75% of public sector survey respondents. The procurement processes seen to date - bilateral negotiations - envisaged limited scope for cooperation with DFIs or multilateral donors, which would otherwise tend to reinforce the financial attractiveness of a project for other investor groups. In a broader sense, the low number of RES projects installed to date means that the availability and adequacy of de-risking solutions remains broadly untested.

64%

of respondents express concern about the adequacy of de-risking instruments.

Topic	Recommendation
Transparency and fairness of market mechanisms	Establish a strong and consistent link between robust energy sector planning and power procurement, and provide visibility to investors regarding future procurement horizons.
	Increase transparency and employ competitive procurement mechanisms to create a level playing field for RES, and ensure the least-cost generation option is selected - as set out in the amended Renewable Energy Act (Act 1045).
Grid Access	Increase investments in grid infrastructure to achieve electrification goals, improve reliability of service, reduce T&D losses, and allow for greater RES integration.
Local content requirements	Review the local content requirements currently in place, including through a broad B2G dialogue, in order to strike a balance between a drive to stimulate the local economy and the need to better reflect local capacity constraints and bottlenecks. As an alternative to overly stringent local content requirements, strive to build local technical skills through knowledge transfer programs, technical assistance and capacity building.
Inflation and currency	Pursue prudent macroeconomic policies to reduce the risk of debt distress and restore stability.
Financing availability	Sustain efforts to strengthen the capacity of the local financial sector. Work with multilateral donors and DFIs to scale up the availability of finance and crowd in private capital.

Kenya

Kenya has laid strong foundations for the continued development of RES projects. With 45% of its electricity already coming from variable RES (and 74% if hydro is included), the country is well placed to achieve its goals of 100% RES in the electricity mix by 2030. Progress primarily comes from geothermal energy sources, of which Kenya has an abundance, but there has also been a recent push to exploit the copious wind and solar resources.

The early unbundling of KPLC opened the generation segment to IPPs and greater competition. Years of experience with IPPs served to develop a well-trained labor force and familiarize local financial intermediaries with RES project structures, which in turn eased starting a business and the availability of financing - all risk areas rated as low concern by survey respondents.

However, inadequate grid and power sector planning led to considerable oversights, resulting in a moratorium on, and the review of, PPAs. In addition, there are no clear renewable energy targets, nor a sector roadmap. The lack of predictability of RES developments erodes investor confidence. Recent news that Kenya is considering adopting an auction system is a welcome development, which can add greater transparency and robustness to the procurement process, paving the way for a step-up in investments.

Overall risk perception: public vs private

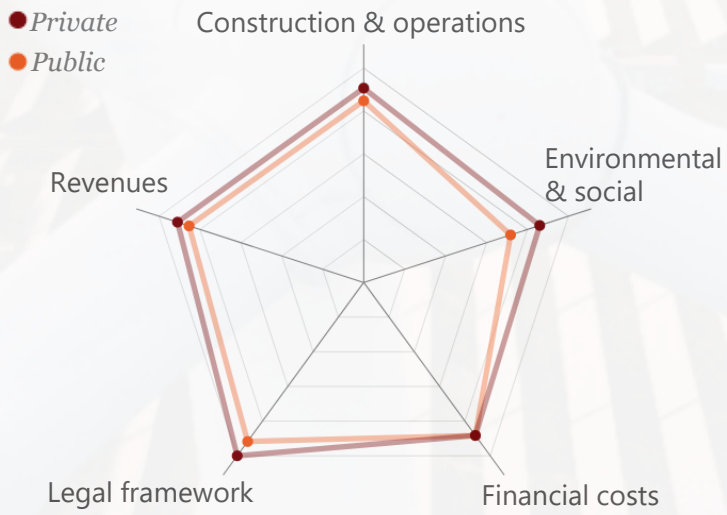


36

*Number of participants in the survey, of which 7 from the public and **29** from the private sector*

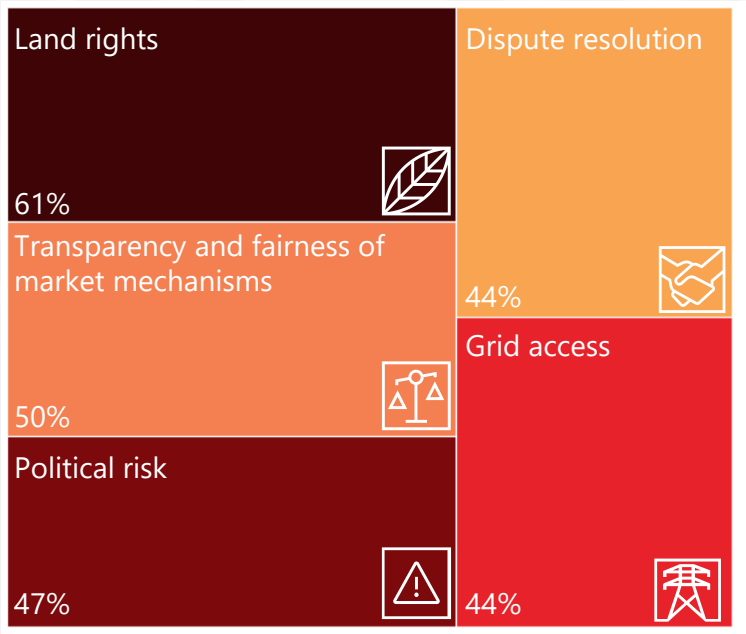
Overall risk environment

The risk perception rating increases from the center of the radar chart (0) towards the edges.



Top 5 risks

Share of respondents who rated a risk as high or very high



Based on 36 survey responses

Regulatory overview

Kenya has been an early mover with electricity sector liberalization: the incumbent Kenya Power and Lighting Company (KPLC) was vertically unbundled in 1997, separating generation from transmission and distribution. KenGen was made responsible for generation (owning roughly 70% of existing generation capacity) while KPLC kept control of T&D. Both companies are listed on the Nairobi Stock Exchange although the government retains majority control (70% of KenGen and 51% of KPLC).

In 2008, the Kenya Electricity Transmission Company (KETRACO) was also created as a state-owned utility with a mandate to build, own, and operate the country's transmission network. As such, KPLC focuses on the distribution of electricity, albeit retaining ownership of high-tension transmission lines built prior to 2008. KPLC also operates all mini-grid installations owned by the Rural Electrification Authority (REA) - set up in 2007 to take charge of rural electrification projects - and has a monopsony within the generation market as all generating companies must sign PPAs with it. The Ministry of Energy and Petroleum (MoEP) is responsible for outlining energy policies and overseeing utilities, while the Energy Regulatory Commission (ERC) acts as an independent regulator.

Current legislation allows private sector participation in the generation, transmission and distribution segments, although this is only implemented in generation.

The second *National Climate Change Action Plan* (NCCAP II) is the framework policy for the energy sector, and includes a target of installing an additional 2,045 MW of RES capacity by mid-2023.[1] Currently, renewables make up 74% of electricity generation, a figure which Kenya's president hopes to raise to 100% by 2030. Geothermal sources generate the largest amount of Kenya's electricity, with an installed capacity of almost 700 MW.[2]

Country context

85% Overall electricity access rate	>99% Urban electricity access rate; 79% Rural electricity access rate
2191MW RES installed capacity (incl hydro)	45% Share of RES in electricity mix (excl. hydro)
Targets	100% of RES in the electricity mix by 2030; 100% electricity access by 2022
Regulator	Energy Regulatory Commission (ERC)
Ministry	Ministry of Energy and Petroleum

	Generation	Transmission	Distribution
Private sector participation	Allowed	Allowed (not implemented)	Allowed (not implemented)
State-owned utility	KenGen	Kenya Power; KETRACO	Kenya Power
Main private sector participants	Iberafrica Diesel; Tsavo Diesel; Strathmore Solar; Lake Turkana Wind Power; Garrissa Solar	N/A	N/A

Data refer to 2019. *Source:* IRENA RE Electricity Statistics & IEA Data Browser.

Key developments over the past years

2019 saw the commissioning of the 310 MW Lake Turkana Wind Power (LTWP) project, the largest wind farm in Africa, totaling 17% of the country's installed capacity and constituting the largest private investment ever in Kenya.[3] The project also included the construction of 204km of roads and 428km of transmission lines, and the PPA was contracted at a remarkably low price of US$0.10 per kWh.[4]

The project saw a costly multi-year delay amid a series of hurdles related to land rights and grid connection. Nonetheless the project is broadly hailed as a success, in part also due to the involvement of a high number of DFIs, including the EIB, AfDB, and FMO to name a few.

Also in 2019, the 50 MW Garissa solar plant - the largest grid connected solar plant in East and Central Africa - was constructed by the CJIC[5] for the Kenya Rural Electrification Authority, with the financial support of Exim Bank of China.[6] Both projects were procured through direct negotiations.

Electricity access reached 85% in 2019, a remarkable increase from 18% in 2010.[7] Distributed generation and off-grid systems played a key role in this expansion: Kenya is among the world's top 5 off-grid solar markets by volume, with solar home systems (SHS) providing electricity to 3.4 million Kenyans and 200 mini-grid sites operating as of 2019.[8] Despite generating a surplus of 2.5 TWh electricity,[9] inadequate grid connections stand in the way of providing energy access to the remaining 15% of the population.

Key developments over the past years

365 MW
of wind and solar capacity added

56
Ease of Doing Business rank

+1151 MW
of RES capacity added in the last decade

+67
Percentage points increase in access to electricity over 2010-2019

Data refer to 2019. *Source:* IRENA RE Electricity Statistics & IEA Data Browser.

International support schemes

GetFiT | Scaling Solar

Routes to market

Bilateral PPAs | Auctions | FiT | Other*

* Expression of Interest (EOI)

Projects in the pipeline

RES projects	Grid projects
57	12
7042.5 MW of which **453** MW under construction	3464 km of which **800** km under construction

Source: FitchConnect (2021), Infrastructure Key Projects Dashboard: Kenya.

The *Energy Act* (2019) introduced the possibility of net-metering, allowing households to generate their own power and offset the power they use during peak times with the extra they generate during periods of low demand. Those producing 1MW or above are considered large enough to enter into a PPA. The *Energy Act* also mandates the MoEP to identify ideal locations for RES project development, in order to increase the attractiveness for private investors by reducing the length of the permitting and planning phases.

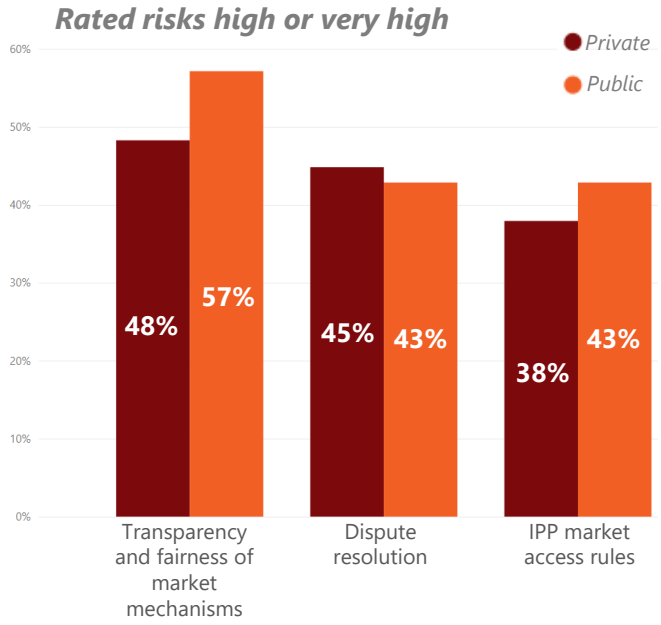
Main existing incentives for RES

A FiT has been used in Kenya since 2008, differentiated by technology and plant size. Plants receive a fixed FiT for a 20-year period, as well as a guaranteed grid access. The regulator has been looking into transitioning to a system of tenders.

In order to increase the financial attractiveness of RES investments, the government adopted a number of risk-reduction policies including exemptions from VAT and import duties on RES input materials (see VAT acts of 2013 and 2014).[10] The government also offers investment subsidies and guaranteed offtake, and has been providing a series of Partial Risk Guarantees in partnership with the World Bank.

1. Legal Framework

Kenya's legal framework is generally viewed as being of little risk to investors. Over half of private respondents, however, highlight the high risk surrounding the transparency of market mechanisms and IPP market access. Survey respondents particularly highlighted the slow implementation process of energy reforms, and inability to improve transmission and distribution assets to increase access to electricity in rural areas. Indeed, the transparency of market mechanisms and IPP market access rules were underlined as inadequate by 50% and 38% of respondents overall, respectively.



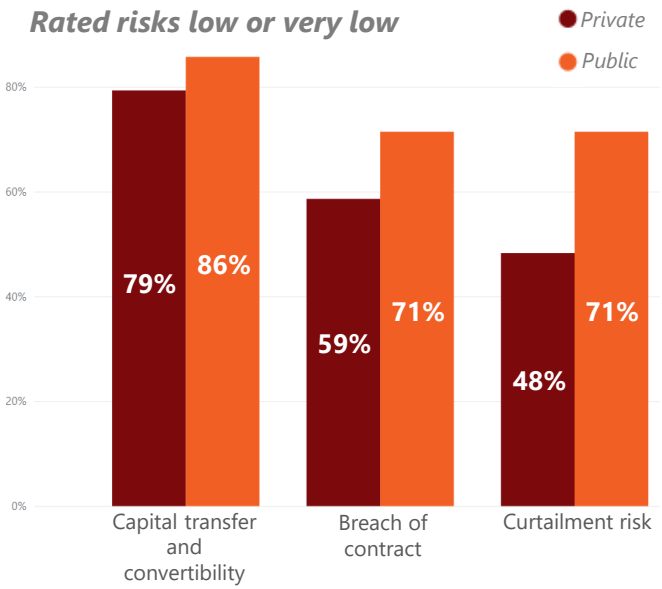
In the 10 years since its introduction, only 10.3MW of projects were completed[12], a far cry from the target of 1551MW.[13] An unclear framework and lack of expertise for policy design and implementation were some of the reasons behind the decision to shift towards an auction-based procurement system. The FiT for renewables was introduced in 2008[11] with limited success. This, together with the announcement to adopt standard PPAs with government letters of support and the mandating of KPLC to divulge the beneficial ownerships of IPPs in annual reports, may go some way in increasing the transparency of market mechanisms.

Similarly to Ghana, the financial strain ensuing from payments for curtailed electricity led to a moratorium on PPAs and the creation of a presidential task force to review and possibly renegotiate standing PPAs, with a view to transitioning towards take-and-pay PPA clauses.

A recent report on the findings of the taskforce confirmed its intent to review and renegotiate PPAs with a view to reduce existing tariffs, and announced the cancellation of all unconcluded PPA negotiations with immediate effect, unnerving many investors and companies active in Kenya's RES sector, adding to the perceived political and market mechanisms risk.

2. Risks affecting revenues

Kenya was the first country in Africa to unbundle its electricity sector, and numerous reforms have followed since. The listing of KPLC and KenGen on the Nairobi stock exchange brought in private capital, whilst the liberalization of the generation segment, early creation of a PPP office, and a well-established independent regulator (EPRA[14]) have cemented KPLC as a broadly reliable counterparty. Likewise, Kenya's government is enjoying a long period of social and economic stability, enabling the government to support KPLC should it fall into financial distress. Considering this, it comes as no surprise that 55% of private sector stakeholders consider counterparty/sovereign risk as an area of low concern.



Overall, Kenya is viewed as a low risk environment for revenues arising from a RES asset. Breach of contract and curtailment risk are viewed as low risks by the majority of respondents, reconfirming the perception of KPLC as a low-risk counterparty.

Investor optimism concerning curtailment risk is remarkable if one is to consider existing constraints on grid capacity as well as the potential transition to take-and-pay PPA clauses which, unlike the previously seen take-or-pay clause, does not shield the IPP from the financial fallout of potential curtailment. When it comes to capital transfer and convertibility risk, 79% of private and 86% of public sector respondents rated it as of low or very low concern, possibly due to feed-in tariffs being denominated and indexed in USD and the Kenyan Shilling broadly holding on to a stable position over the past 5 years.

80%

of overall respondents believe capital transfer and convertibility to be of least concern.

3. Construction and operation risk

Land rights in Kenya received the highest percentage of high or very high risk perception overall across all six surveyed countries, with 66% of private sector respondents deeming it as of high concern.

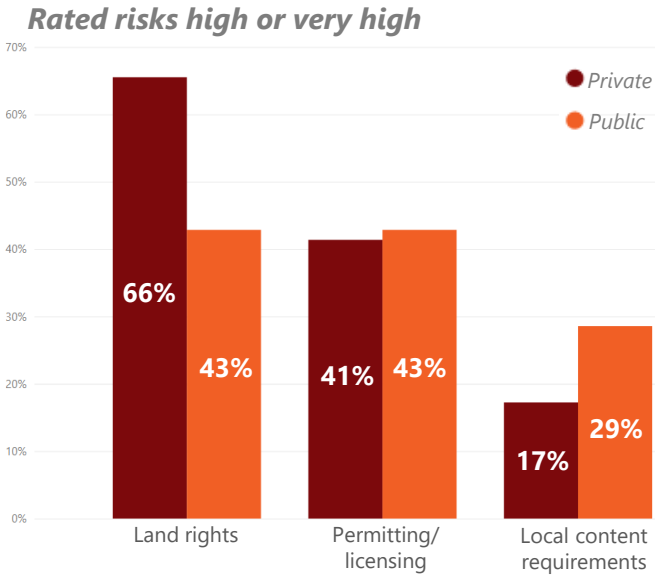
2/3

of private sector respondents rated land rights as high or very high risk.

Disputes over land allocation for projects have resulted in the cancellation of a number of projects and delayed many others. In 2020, the $210 million Lamu wind farm project set to add 90MW of capacity. having signed a 20-year PPA, but was nullified following fierce opposition from local communities over 3,206 acres of land that had been secured.[15] Similarly, in 2016, the 60 MW Kinangop wind park was cancelled following heated disagreements with compensation for land, which caused such delays that funds were depleted, spelling the end for the project.[16]

Two of Kenya's largest renewable energy projects also faced opposition over the use of land and the relocation of indigenous peoples and tribes. Indigenous people were relocated for both the Lake Turkana Wind Farm and the Olkaria Geothermal Power Plants. For the former, relocation took place to make way for a road to the site, compensating locals by building another village with greater resources - a solution which created further socio-cultural issues as external workers settled in the area.

An additional hurdle to obtaining land rights is the requirement that the request for a permit be submitted by a locally-based entity or SPV.[17] The energy act of 2019 requires national and local governments to facilitate the acquisition of land for energy projects, albeit with little clarification over the form this facilitation should take.[18]

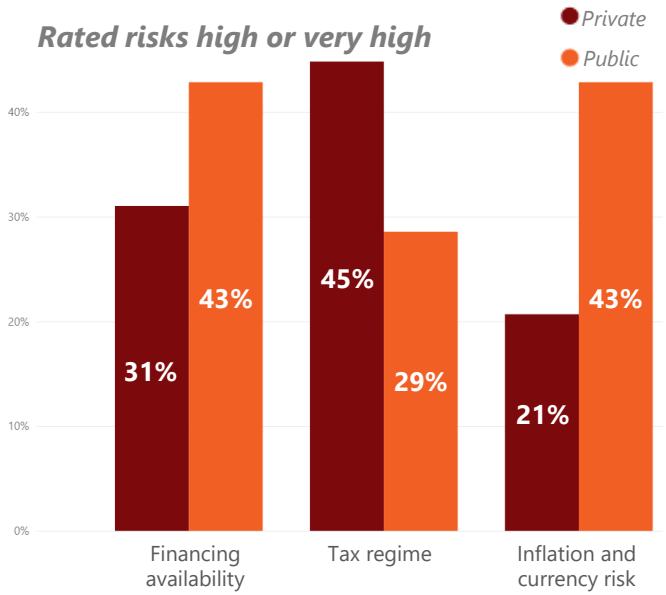


It is worth noting eight out of ten respondents consider the adequacy of local technical skills to be of low or very low concern. This may reflect Kenya's well-trained labor force as well as a track record of successful completion of a number of RES projects, which served in no small part to reinforce local technical skill sets.

4. Risks affecting financial costs

Financial costs are seen as a low risk overall. Kenya is viewed as having a stable and well-developed financial sector, in which financing is readily available, the economic and political stability allows for low inflation and currency risk, and expertise of local financial intermediaries with structuring and financing RES projects is widely seen as adequate.

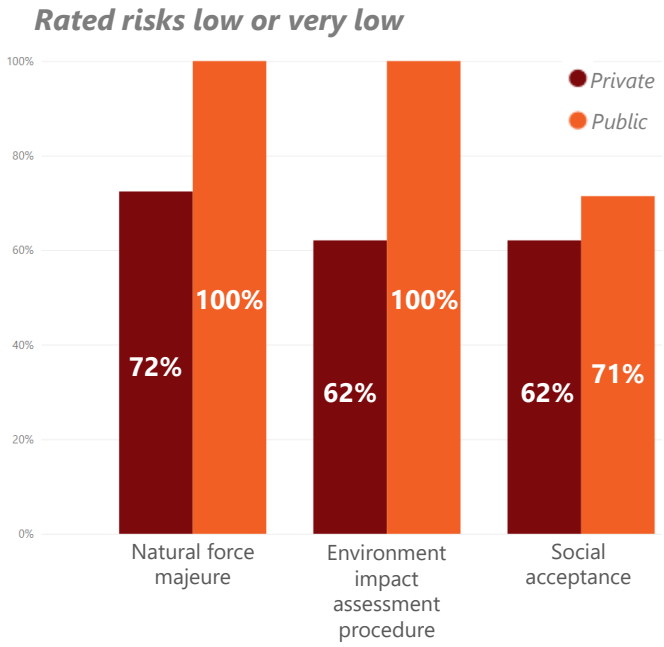
The only risk that stands out as of mild concern was the tax regime, amid some negative recent developments. Namely a spate of tax reforms took place in April 2020, which reduced tax incentives and benefits and increased the tax on dividends payable to non-residents. Resident corporate tax was reduced from 30% to 25%, whilst non-resident corporate tax remained at 37.5%, partly pressuring foreign entities to create local subsidiaries.[19]



The highest rated risk overall, however, was financing availability, which saw a discrepancy between private and public sector views. Whilst only 31% of private respondents saw it as an issue, 43% of public respondents perceived this to be a high or very high risk for the private sector. The Lake Turkana wind farm and the Garissa solar plant attracted a large number of institutional and private investors, including a number of European DFIs which, to an extent, served to reaffirm Kenya's privileged position in the eyes of investors as a safe place to pursue RES opportunities.

5. Environmental and social risk

Social acceptance is perceived as a low risk by 64% of overall respondents.. This stands in stark contrast with past issues related to land rights and social consensus, including of indigenous groups, which caused major disruptions to a number of projects. High investor confidence suggests that respondents may be overly optimistic or may be taking social acceptance for granted, making them ill-prepared to properly plan for ESG risks in future RES rollouts. Similarly to social acceptance, natural force majeure and environmental impact assessment procedures are both viewed as posing low or very low risk.



Addressing the risks

Availability of de-risking instruments divided opinion among the public and private sector respondents: 71% of public sector respondents believed there was a high availability of de-risking instruments, whilst 62% of private sector respondents believed de-risking instruments to be insufficient. The positive public sector view is likely driven by the successes of the Lake Turkana project, in which the African Development Bank took a large role in building investor confidence and providing a range of risk mitigation solutions.

> "The government letter of support offered to IPPs is currently not bankable and remains as a watered-down version of a sovereign guarantee."

Private sector respondents, on the other hand, point to fundamental issues with offtaker risk which are not adequately mitigated by the standard letter of government support issued to IPPs.

Topic	Recommendation
Political risk	Strengthen the timely implementation of laws and development strategies currently in place. Implementation delays and lack of clarity concerning RES targets tend to cast doubts on the political commitment to the clean energy transition and risk eroding investor confidence.
Transparency and fairness of market mechanisms	Introduce a robust and transparent auction or tender program, and move away from the dependence on FiTs and bilateral agreements. Transparent and predictable tender mechanisms tend to promote competitiveness and cost reductions.
	Review the standard PPA framework to strengthen bankability, set clear expectations, and increase fairness and security for IPPs and investors.
Land rights	Consider pre-allocating land in tender procedures, and ensure that any land disputes are addressed.
Social acceptance	Strive to build awareness and a wide social consensus around RES. In the case of specific RES projects, promote meaningful community engagement and consultation, with particular attention to indigenous rights and creating shared value.

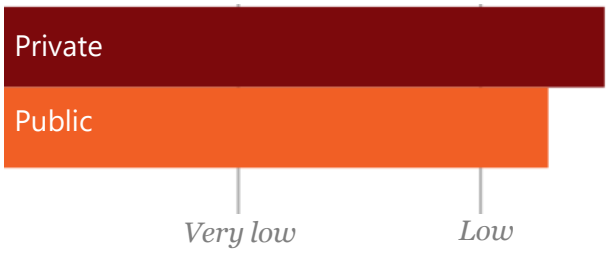
Mozambique

Following years of sustained growth and political stability, Mozambique is entering a difficult period of economic decline, driven by the Covid-19 pandemic, heightened civil conflict, and widespread destruction caused by recent natural disasters. In the face of this, Mozambique is striving to increase access to electricity - currently at 35% - through the differentiation of their RES assets, moving away from its overwhelming dependence on hydropower for electricity generation.

Mozambique hopes to achieve 95% electrification by 2030, adding 2615 MW of RES electricity along the way. To achieve these ambitious targets, the government must address a series of shortfalls highlighted by survey respondents. Responses demonstrate that the urgent expansion and upgrading of grid infrastructure will be hindered by a lack of necessary investment, given EDM's financial situation, mounting government debt and a complex legal framework for foreign investors. Furthermore, the current energy policy and regulation is out of date and does not cater to the needs of solar and wind IPPs. Changes to the regulatory framework will be necessary to abate the risks surrounding property/concession rights, and facilitate market access for IPPs.

The success of the soon-to-be implemented PROLER and GETFiT programs are dependent on these changes which, if implemented, can add significant weight to Mozambique's energy transition efforts. Also key to the long-term and continued success of RES generation rollout is the stabilization of internal conflicts, and the continued cooperation with multilateral organizations to address the country's macroeconomic issues.

Overall risk perception: public vs private



20

*Number of participants in the survey, of which **3** from the public and **17** from the private sector*

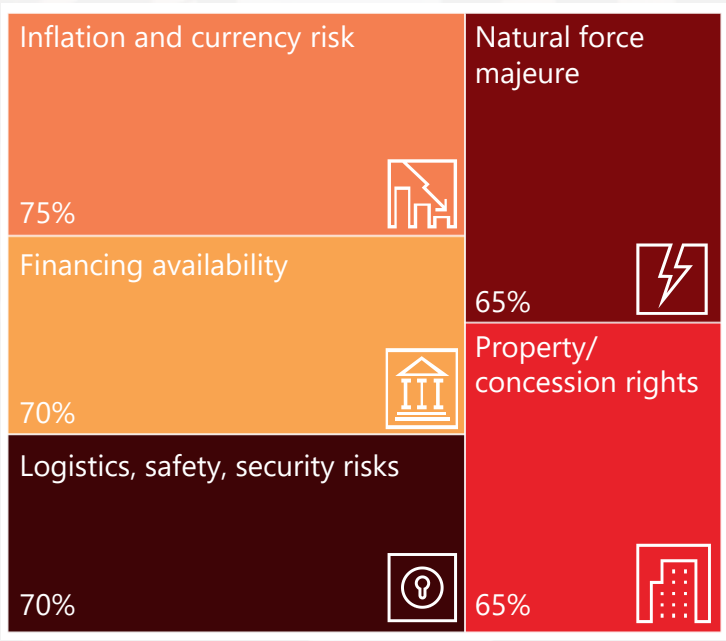
Overall risk environment

The risk perception rating increases from the center of the radar chart (0) towards the edges.



Top 5 risks

Share of respondents who rated a risk as high or very high



Based on 20 survey responses

Regulatory overview

Mozambique's renewable energy sector is governed by the 2011 *Strategy for Development of New and Renewable Energy* and the 2018 *Power Sector Master Plan*.[1] The latter document sets a 2030 target for:

- 95% electrification, up from only 35% today;
- more than double installed capacity by 2030, adding 2,350 MW of hydro, 225 MW of solar, and 40 MW of wind.[2]

The country's electricity sector is dominated by hydropower which today accounts for 79% of capacity, with one site in particular - the 2,075 MW HCB dam - accounting for the lion's share of the country's generation. The dam provides major electricity export volumes, as 1,330 MW of HCB's capacity is committed to South Africa's Eskom under a long-term PPA which runs until 2029. The large export volumes stand in stark contrast to low energy access figures, as only 35% of Mozambique's population has access to electricity, due in no small part to limited grid capacity and low population density.

The Ministry of Mineral Resources and Energy (MIREME) is responsible for energy policy, planning and electrification. The Energy Fund (FUNAE) acts as a rural electrification agency, and also has the function of managing funding and financial guarantees for power projects. An independent regulatory body (ARENE) was established in 2017. Electricidade de Moçambique (EDM) is the vertically integrated public utility, which owns a 92,5% stake in the HCB power plant.[3]

Recently, EDM signed several PPAs with IPPs, but private participation in the generation segment remains low: only 17% of installed capacity in 2020 came from IPPs,[4] while private involvement in grids remains limited to a handful of off-grid applications. Discussions to simplify the *Electricity Law* and the *Private-Public Partnerships Law* are ongoing, with the former currently undergoing a review process with private sector entities. Furthermore, the *Electricity Grid Code* will also be reviewed to provide for both on- and off-grid renewable energy projects.[5]

Country context

35%	57%	22%
Overall electricity access rate	Urban electricity access rate	Rural electricity access rate

2273MW	0.38%
RES installed capacity (incl hydro)	Share of RES in electricity mix (excl. hydro)

Targets: +2615MW of RES in the electricity mix by 2030; 95% electricity access by 2030

Regulator Autoridade Reguladora de Energia (ARENE)

Ministry Ministry of Mineral Resources and Energy (MIREME)

	Generation	Transmission	Distribution
Private sector participation	Allowed	Not allowed	Not allowed
State-owned utility	Electricidade de Moçambique	Electricidade de Moçambique	Electricidade de Moçambique
Main private sector participants	EDM HCB Eskom	N/A	N/A

Data refer to 2019. *Source:* IRENA RE Electricity Statistics & IEA Data Browser.

Key developments over the past years

2019 saw the installation of the country's first large-scale RES plant, namely the 41 MW Mocuba project, developed as a PPP between Scatec Solar, Norfund and EDM with a 25-year PPA. Four additional solar projects are expected to enter into operation by 2022, totaling 147 MW.

2020 saw also the launch of PROLER, a program assisting EDM in setting up calls for renewable energy tenders, financed by the European Commission, the EU-Africa Infrastructure Trust Fund and implemented by AFD.[6]

The program ensures a transparent project selection process and facilitates the creation of a financial package to cover EDM's participation in joint ventures. PROLER is expected to add an additional 160MW of RES by 2025.[7] This should help EDM address its operating losses and improve the company's financial and operational efficiency.[8]

Mozambique's discovery of significant offshore gas resources in 2011 has been attracting major investor interest, particularly from Total and Exxon Mobil. However, security issues related to insurgency and terrorism, along with extreme weather events, have dampened some of the enthusiasm.



Key developments over the past years

266MW variable RES under construction or commissioned	138 Ease of Doing Business rank
+75 MW	of RES capacity added in the last decade
+19	Percentage points increase in access to electricity over 2010-2019

Data refer to 2019. *Source:* IRENA RE Electricity Statistics & IEA Data Browser.

International support schemes

GetFiT	Scaling Solar

Routes to market

Bilateral PPAs	Auctions*	FiT	Other**

* PROLER ** Expression of Interest (EOI)

Projects in the pipeline

RES projects	Grid projects
15	5
6075.5 MW* of which **120** MW under construction	1710 km of which **1600** km under construction

Source: FitchConnect (2021), Infrastructure Key Projects Dashboard: Mozambique.
*Many of such projects are hydropower plants that have been announced and planned for years, but whose chances to be implemented are limited (most were abandoned, though not officially cancelled).

Main existing incentives for RES

A growing presence of DFI has seen an increase in dedicated funding programs to support greener off-grid solutions, including from DfID, the World Bank, and the European Commission. Two credit lines for renewable energy projects have been made available by the national banking sector. The BCI Eco Ambiental credit line, financed by the German development bank KfW, provides a total of €3M.[9] The BCI SUPER[10] credit line will also be launched soon, financed by GEF and having FUNAE and UNIDO as partners dedicated to solar energy and biomass projects.[11]

In addition to PROLER, GET FiT will enter its first implementation phase in 2021, offering €36M for solar and storage applications. There's also been a proposal to remove custom fees and VAT for household products that use renewable energy, which are expected to facilitate the installation of 450,000 solar home systems.[12]

1. Legal Framework

71% of private sector respondents believe property/concession rights to be a high or very high risk.

71%

of private sector respondents consider property/concession rights to be a high or very high risk.

The majority of issues stem from the 1997 Land Law, which had been designed as a progressive way of enabling communities and individuals to obtain long-term land leaseholds through a DUAT[13] permit[14]. However the DUAT must be secured through burdensome multiple procedures involving disparate institutions, with protracted and costly procedures for community consultation and compensation. This burden, combined with under-capacity of state agencies for land administration and management, mean that a systematic register of landholdings is broadly missing.

Moreover, obtaining a DUAT permit provides little protection from expropriation: the land right can be revoked at any time during the 50 years of its validity, should the investor not meet the agreed development requirements. This is what happened with the ProCana sugar plantation, which had been awarded 30,000 hectares for the farming of sugarcane to produce ethanol for a biofuel plant, but then had its DUAT revoked during the first 2 years of provisional tenure amid a major public outcry over community rights and environmental issues.[15] Risk could be reduced by pre-allocating land in tenders, simplifying the procedure to receive a DUAT, as well as enhancing protection from expropriation.

"Half of overall respondents rated IPP market access rules and adequacy of RES procurement mechanisms as areas of high concern."

Roughly half of overall respondents rated IPP market access rules and adequacy of RES procurement mechanisms as high or very high risk (55% and 50%, respectively). The adequacy of rules concerning IPP market access has been largely untested, as very few RES IPPs operate in the market. Yet that is on course to change, as the upcoming implementation of the GETFiT and PROLER programs are expected to facilitate IPP market access and set up a transparent and sustained RES procurement process.

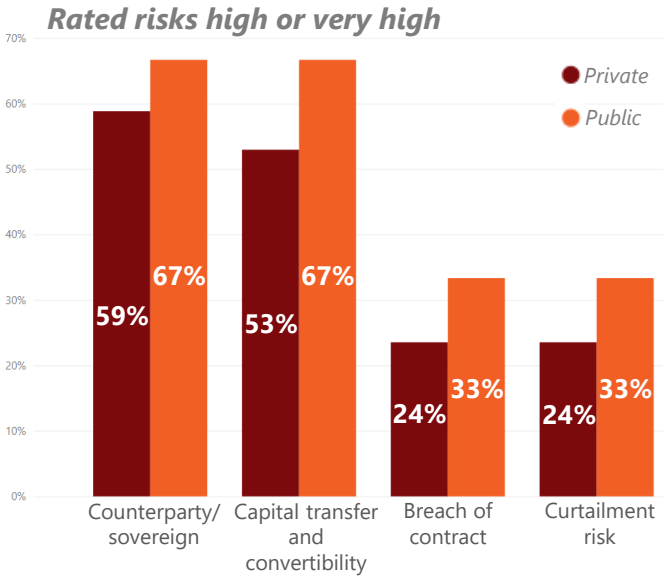
2. Risks affecting revenues

Around two-thirds of overall respondents consider counterparty risk as being of high or very high concern. The weak financial position of the vertically-integrated EDM is in great part driven by the non-cost-reflectiveness of electricity tariffs as well as major operational inefficiencies.

"The national power utility EDM is in a weak financial position and by law it is the single-buyer. Therefore the offtaker risk [is] very high, with several of the existing IPPs suffering from payment delays."

The issue is compounded by EDM's small generation capacity, which obliges the utility to buy from IPPs and imports at rather high tariffs, which make cost-recovery even more difficult.[16]

EDM has benefitted from a range of technical assistance programs aimed at improving its operational efficiency, including the World Bank's SIGEM[17] program which consisted in incorporating an information management system. Notably, SIGEM enabled EDM to publish financial statements without qualification for the first time. However, recent insurgencies in the northern regions of Mozambique are threatening a civil war, exacerbating sovereign risk.



Capital transfer and convertibility is also of major concern for investors, as the 2009 *Foreign Exchange Law* put in place a series of conditions that investors need to comply with, in order to repatriate funds. In April 2021, Mozambique raised the minimum value of foreign direct investments for investors to be able to repatriate profits and investment capital from $45,000 to $130,000[18], which, coinciding with a period of elevated political risk, likely left many investors feeling wary.

3. Construction and operation risk

Mozambique has recently seen a rise in insurgencies from armed rebel groups, threatening the safety of roads, inhabited areas, as well as investment assets in the center and north of the country.[19]

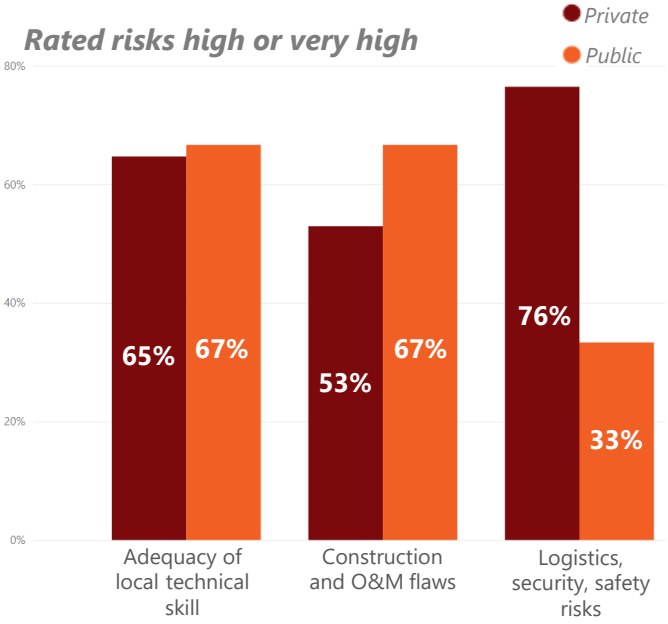
At the same time, the country has received consistently low scores in the World Bank's Logistics Performance Index (LPI), currently ranked 102nd of 167[20] countries.[21]

76%

of private sector respondents consider logistics, safety and security to be of high concern.

Poor grid and transport infrastructure has been a hindrance to energy projects, as existing connections traditionally serve the needs of export and mega-projects with scarce internal connectivity.

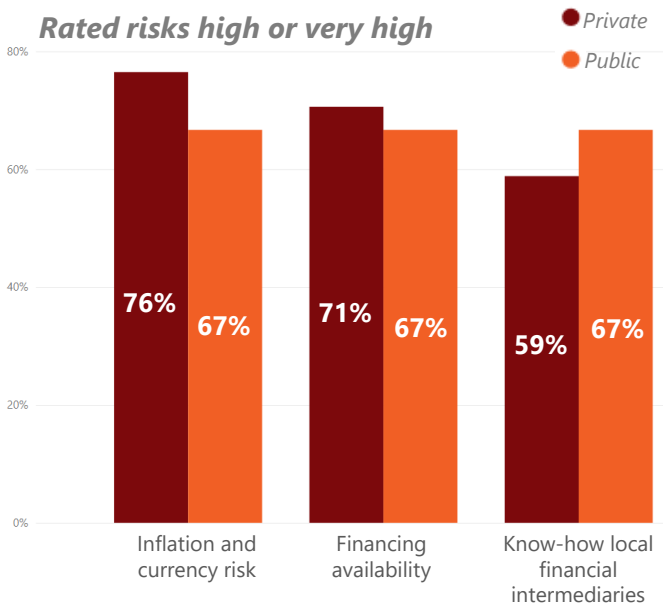
The three main rail corridors to the ports all run East to West with no North-South connection, a shortage of freight trains and carriages adds further difficulty in freight movement[22], and the fragmented and often unpaved road network is a major bottleneck in project construction. These infrastructural and political issues make logistics, safety, and security risks the highest risk for the private sector, with 76% of high and very high votes.



The adequacy of local technical skills was ranked as a high risk both by the private and public sector. Roughly 80% of the labor force works informally, mostly in agriculture and self-employment[23], and many lack the skills necessary to work in more technical positions such as those required for renewable projects. Indeed, the mean duration of schooling stands at 3.5 years, with only 17% of the population having achieved at least some form of secondary education[24], placing Mozambique 176th in the HDI Education Index.[25]

4. Risks affecting financial costs

Financial cost risk in Mozambique was the category which emerged as being of highest concern overall. All four sub-categories of risk received high or very-high risk votes by more than 50% of private sector respondents.



Following the recent cancellation of financial aid from the IMF and numerous other foreign governments due to an undisclosed loan taken out by the government, Mozambique lost credibility and experienced a rapid downspiralling of its currency and national debt. External debt grew to $14.78 billion in 2019 with a debt-to-GDP ratio of 113%[26], creating the impression of a risky investment environment, particularly regarding RES projects which would sell electricity to a state-owned entity.

7 out of 10

private sector respondents voted financing availability as a high or very high risk.

Despite the numerous support programs offered by DFIs in the country, and the PROLER, GETFiT, and Power Africa programs, 71% of private sector respondents considered financing availability to be an investment barrier.

Financing options for SMEs are unappealing, as interest rates for commercial loans reach close to 30%.[27] Furthermore, the favorable credit lines offered to assist investments in RES assets are offered by only one commercial bank.

Banks in Mozambique have a weak credit infrastructure within which there is little financial and credit reporting, combined with an inadequate insolvency regime, restricting cash lending and start-up financing.[28] This may explain why 6 out of 10 respondents considered the know-how of local financial intermediaries to be a high or very high risk.

5. Environmental and social risk

Of the countries surveyed, Mozambique saw by far the highest number of private respondents rate natural force majeure to be of high or very high concern (71% of private respondents). This is to be expected, as Mozambique has been afflicted by consistent extreme weather events such as droughts and cyclones. Three cyclones hit Mozambique in 2019, which caused mass devastation, widespread floods and over $1 billion in infrastructure damage, as well as approximately 1,000 deaths.

71%

of private respondents believe natural force majeure to be high or very high risk.

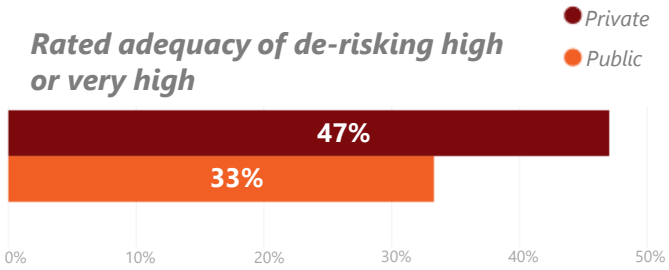
Conversely, environmental impact assessment and social acceptance risks were rated low or very low by all public respondents and by over 65% of private respondents. Mozambique currently has a low number of variable RES projects, and social acceptance risk may grow as more renewable energy projects enter the market. This may particularly be the case considering land allocation issues, which have already proven of high concern for the agriculture industry.

Addressing the risks

Availability of de-risking instruments is seen as adequate by 67% of the public sector respondents. Private sector respondents, on the other hand, were split with 41% also seeing de-risking instruments as readily available and 47% believing the contrary.

There has been a growing interest in Mozambique's RE sector from many DFIs, which have created a number of support schemes for a variety of RES applications. In combination with the roll-out of PROLER - which aims to increase IPP generation through a transparent and consistent auction process - and GETFiT, DFI support schemes will create a lower risk investment environment for RES projects in Mozambique.

PROLER is already being viewed as a success by many, perhaps explaining the public sector's optimism, but it is yet to offer any tangible results, perhaps explaining the hesitance of private sector respondents to deem de-risking instruments as adequate and readily available.



Topic	Recommendation
Property/ concession rights	Consider introducing a system of pre-allocating land in tenders, to simplify permitting and enhance protection from expropriation.
	Streamline the DUAT permitting process by simplifying community consultation, facilitating investor access, improving dispute resolution, and maintaining an electronic land registry.
Legal and regulatory risks	Increase B2G dialogue and introduce systematic feedback mechanisms with investors, public, and other sector organizations, to help identify legal and regulatory shortfalls and adequately prioritize policy actions.

Topic	Recommendation
Legal and regulatory risks	Accelerate the review of the Electricity Act and aim for the swift implementation of the Energy Strategy.
Counterparty/ sovereign risk	Strengthen EDM's financial position by improving operational efficiency and restructuring the tariff structure to ensure utilities can recover their cost of generation.
Logistics, security, and safety	Ensuring the security and safety of RES sites and workers hinges upon the resolution of the ongoing conflict situation.
	Consider pre-allocating RES sites in locations that balance abundance of wind/solar resources with proximity to key grid and road networks.
	For the purpose of extending the grid and road network, consider combining tender packages with investments in related infrastructure - e.g. transmission lines, roads.
Adequacy of local technical skills	Endeavour to strengthen technical skills of the local labor force by reinforcing vocational training and higher education centers, also via tested PPP models in the education sector.
Inflation and Currency Risk	Consider indexing PPAs to a foreign currency to safeguard against Metical's volatility.
	Intensify cooperation with the IMF and other multilaterals, in order to stabilize the macroeconomic picture, ease the fiscal burden, and reduce volatility.
Financing Availability	Continue efforts to attract multilateral financing and expand credit lines available to IPPs.
Know-how of local financial intermediaries	Endeavour to strengthen the local financial sector and develop local capacities in structuring and financing RES projects, notably through capacity building, knowledge sharing, and targeted training programs.

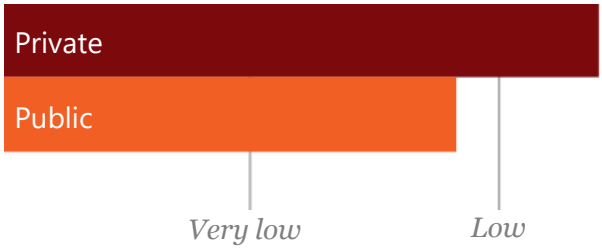
Senegal

Senegal has made major strides in developing renewable energy in the past decade, also thanks to the country's ability to attract private investors: as of 2018, IPPs accounted for almost two-thirds of total electricity production. A history of democratic and macroeconomic stability has been a key contributing factor, as has the support of development finance institutions and multilaterals.

The Senegalese government intends continuing down this path, and has set bold targets for full electricity access by 2025 and a 23% share of RES in the country's electricity mix by 2030. Such targets should be achieved primarily through investments in solar and wind power, but also through hydropower projects - a resource the country has yet to tap into. Results of our survey indicate that investors seem broadly confident about Senegal's risk levels. Both public and private sector respondents expressed a medium-high level of confidence particularly in the areas of construction and operation, inflation and currency, starting a business, and breach of contract.

However there is room for improvement. Most of Senegal's RES capacity was installed around 2013, and not much has been procured in the years thereafter. In addition, Senegal's grid infrastructures require major investments. The transparency and timeframe of permitting processes is another barrier, where more B2G dialogue should be promoted. More broadly, effort is needed to see through a timely implementation of the planned restructuring of the incumbent utility Senelec, and to ensure the cost-reflectiveness of tariffs while carefully managing the socio-economic impacts of potential price hikes.

Overall risk perception: public vs private

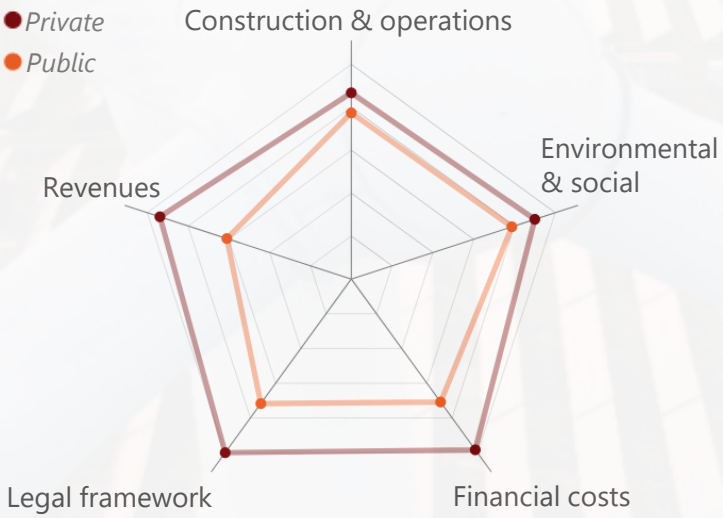


20

*Number of participants in the survey, of which **5** from the public and **15** from the private sector*

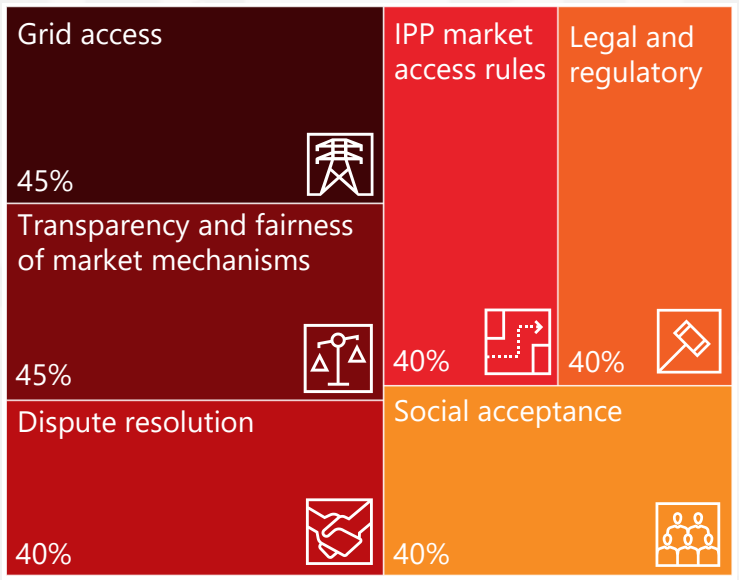
Overall risk environment

The risk perception rating increases from the center of the radar chart (0) towards the edges.



Top 5 risks

Share of respondents who rated a risk as high or very high



Based on 20 survey responses

Regulatory overview

In 2012 Senegal adopted the *Plan Senegal Emergent* (PSE), a framework policy by which the country aims to reach middle-income status by 2035. The PSE led to several amendments to the *Lettre de Politique de Développement du Secteur de l'Energie* (LPDSE), the country's policy governing the energy sector published every 5 years. The *National Action Plan for Renewable Energies* (PANER) from 2015 laid out a plan to incentivize RE projects and strengthen the transmission and distribution networks. PANER also set a target for universal electricity access by 2025 and a 23% penetration of renewables in the electricity mix by 2030, which Senegal is on track to meet on time.[1]

The Ministry of Oil and Energy is in charge of formulating energy sector policies, together with the National Rural Electrification Agency (ASER) and the National Agency for Renewable Energies (ANER). June 2021 saw the merging of two previously separated regulators - for electricity and for hydrocarbons - into a single independent regulatory commission for the entire energy sector (Commission de Régulation du Secteur de l'Énergie, CRSE).[2]

The power sector has seen the liberalization of electricity generation in 1998 (*Electricity Act* 1998). IPPs play a significant role in the country's electricity production, accounting for 59,5% of Senegal's installed capacity in 2018 (743.0 MW), while Senelec accounts for the remaining 40,5% (505,9 MW).[3] At present, the on-grid transmission and distribution segments remain vertically integrated under the public utility Senelec. However, Senegal's Parliament approved a new *Electricity Code* in June 2021 which, among other things, should lead to the restructuring of the public utility into a holding company, separating Senelec's generation, transmission and distribution activities.[4]

Key developments over the past years

During the past decade Senegal has seen a dramatic increase in its RES installed capacity, which jumped from 12 MW in 2009 to 230 MW in 2019.[5]

Country context

71% Overall electricity access rate	94% Urban electricity access rate / 50% Rural electricity access rate
230MW RES installed capacity (incl hydro)	7% Share of RES in electricity mix (excl. hydro)
Targets	23% of RES in the electricity mix by 2030; 100% electricity access by 2025
Regulator	Commission de Régulation du Secteur de l'Énergie (CRSE)
Ministry	Ministry of Petroleum and Energy

	Generation	Transmission	Distribution
Private sector participation	Allowed	Not allowed	Not allowed
State-owned utility	Senelec	Senelec	Senelec
Main private sector participants	GTI, Lekela, Engie, ContourGlobal, Nykomb	N/A	N/A

Data refer to 2019. *Source:* IRENA RE Electricity Statistics & IEA Data Browser.

Solar energy has taken the lion's share of this increase, accounting for 155 MW as of 2019. However, the majority of these additions were procured around 2013, and the sector has not seen major new rounds of procurement in the years thereafter. Some notable solar projects that reached completion are Senergy (30MW), Ten Merina (30MW) and Malicounda (22MW), all of which were inaugurated between 2016 and 2017.[6] Additionally, in 2020 Senegal also inaugurated the first large-scale wind farm in West Africa, a facility built by British company Lekela that is expected to produce more than 450,000 MWh/y once fully operational.

Other recent developments relate to the French companies Engie and Meridiam, which reached financial closing for two new solar plants in the West towns of Kael and Kahone in 2019, after winning a tender organized by the World Bank's Scaling Solar initiative. Proparco, the EIB and IFC will back the two projects, which plan to have a combined capacity of 60 MW. The electricity produced will be supplied by Senelec under a 25-year PPA, for a record-low contracting price of US$0.042-0.044/kWh.[7] Finally, a 128 MW hydropower plant is currently being built by a consortium led by Vinci Construction Grands Projets - the new plant is designed to generate annual output of ca. 400 GWh, which will be fed into the grids of The Gambia, Guinea, Guinea-Bissau and Senegal.

Regarding access to electricity, the main progress has been in urban areas, whereas access in rural areas was still at 50% in 2018. ASER is the government agency charged with implementing the rural electrification strategy. ASER coordinates the system of off-grid rural electrification concessions, granting them to private investors for a 25-years period and financing between 75-100% of CAPEX investments. Nevertheless, concessionaires have largely missed their connection targets, also as a result of the historic large differences in electricity tariffs across the country, with rural tariffs being up to 20-30% higher than the ones applied by Senelec.[8]

Key developments over the past years

60 MW RES capacity auctioned through Scaling Solar	**123** Ease of Doing Business rank
+220 MW of RES capacity added in the last decade	
+14 Percentage points increase in access to electricity over 2010-2018	

Data refer to 2019. *Source:* IRENA RE Electricity Statistics & IEA Data Browser.

International support schemes

GetFiT	Scaling Solar

Routes to market

Bilateral PPAs	Auctions	FiT	Other*

* Long term government concessions

Projects in the pipeline

RES projects	Grid projects
3	N/A
100 MW of which **60** MW under construction	N/A km of which **N/A** km under construction

Source: FitchConnect (2021), Infrastructure Key Projects Dashboard: Senegal.

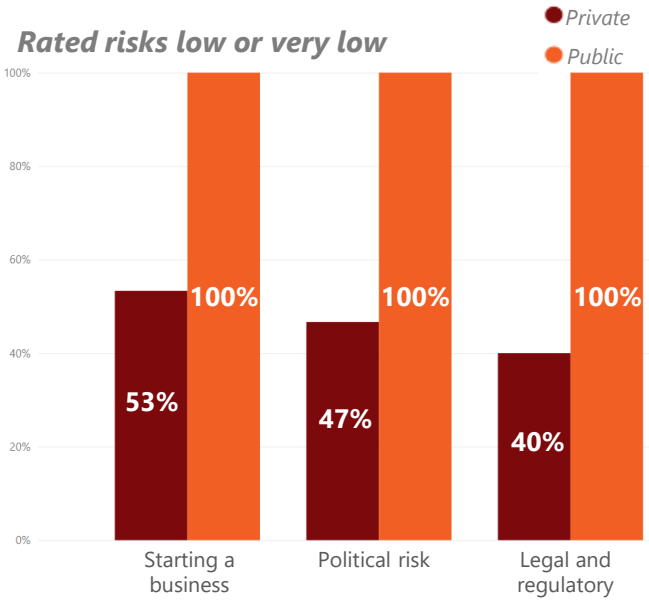
Main existing incentives for RES

The generation sector is fully liberalized, and private companies can participate without discrimination to the tender procedures organized by CRSE, including for RES auctions. Concessions are usually granted under long-term contracts of over 20 years. In order to feed it to the grid, IPPs have to sell the electricity they produce to Senelec, which holds single buyer responsibilities. This may change with the new 2021 *Electricity Code*, which foresees to open both the transmission and distribution segments to private investors, and sets up an integrated 10-year plan (Plan Intégré à Moindre Coût, PIMC), on which power generation, RES development, transmission, distribution and energy efficiency plans would be based.[9]

In 2020, the government also issued *Decree No.010158* that exempts 22 different renewable energy equipment types from VAT - i.e. an 18% cost reduction. Renewable energy production technologies targeted by the exemption are wind farms, biogas production facilities, solar photovoltaic, and a range of other solar-powered technologies. Several international institutions and donors are active in Senegal's RES sector, including the World Bank, French agency Proparco, German agency GiZ, and USAID.

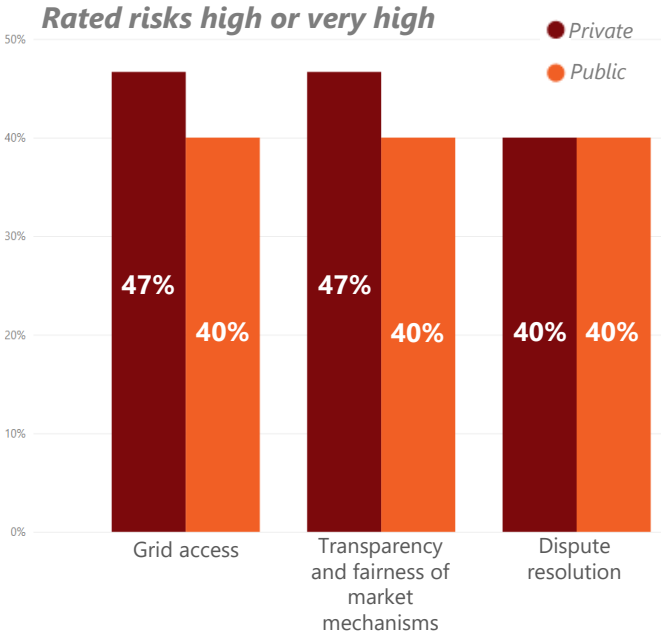
1. Legal Framework

In recent years Senegal has been able to catalyze significant investments in renewable energy compared to the rest of the region, thanks to a combination of political will, support from international organizations and DFIs, and an electricity market structure which allows for private sector participation in the generation sector. This is reflected in the broadly positive risk perception of survey respondents, with public sector participants in particular expressing confidence about Senegal's legal framework.



Over 60% of overall respondents considered starting a business and political risk as the two areas of lowest risk. The country is indeed one of the most stable in Africa, with three peaceful political transitions since its independence in 1960, mostly free and fair elections, and broad civic freedoms. Current President Macky Sall, who has been in power since 2012, was recently re-elected to a second five-year term in office in 2019.[10]

Conversely, legal and regulatory risk is an area of concern, with 53% of private stakeholders rating it as a high or very high risk. The perception gap between public and private stakeholders suggests the private sector still sees much room for improvement in this area, especially if the country is to deliver on its ambitious targets for renewable energy sources. More business to government (B2G) dialogue on Senegal's future legal and regulatory developments should therefore be promoted.



Other areas considered as relatively worrying by both private and public respondents are grid access, transparency and fairness of market mechanisms, and dispute resolution. These results can be in part explained by the limited progress made on unbundling, with the public utility Senelec still operating a monopoly in on-grid T&D, and acting as a single buyer for all generated electricity - with the exception of captive power solutions. Additionally, there is a perceived need to strengthen the country's grid infrastructure in order to successfully integrate a growing share of variable RES.

To respond to these perceived challenges, the 2021 *Electricity Code* put forward a plan for the restructuring of Senelec into a holding company, where different subsidiaries will operate in the generation, transmission and distribution segments. In addition, the new law allows for private investments in both electricity transmission and distribution.[11]

2. Risks affecting revenues

Senegal has a positive track record of investments in variable RES, having allowed operations by independent power producers (IPPs) already since 1998. Since then, IPPs have increased their market share, accounting for 59,5% of the country's installed capacity as of 2018.[12] This helped consolidate the view that the risks affecting revenues are quite limited in the country.

7 out of 10

respondents consider breach of contract and curtailment risk to be of low concern.

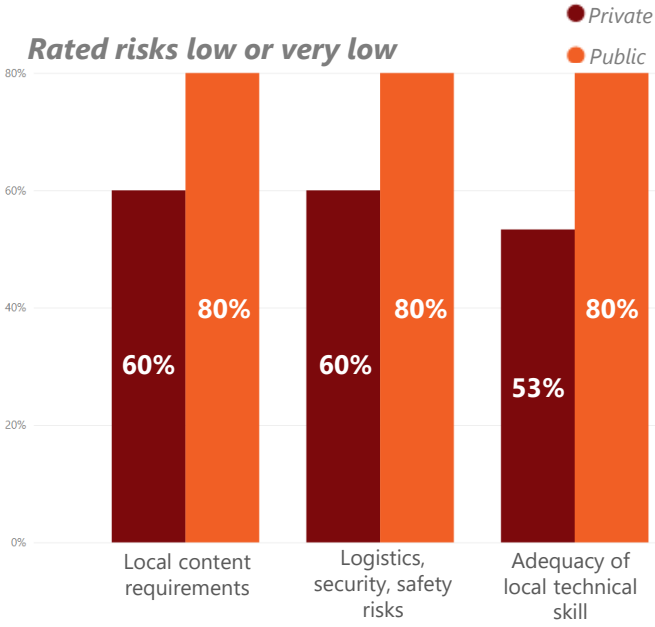
Significantly, 65% of total respondents considered curtailment risk as a low or very low risk, while an even higher share of survey participants (70%) expressed the same perception for the risks related to breach of contract.

With regards to counterparty/sovereign risk private sector views are split, as a large share of respondents seem broadly confident while 46% of them singled out this risk as high or very high. The incumbent utility Senelec holds a monopoly in on-grid transmission and distribution, has single buyer responsibility for the electricity produced by IPPs, and its solvency is heavily reliant on government subsidies, especially in the form of non-cost reflective tariffs. Senelec's ability to meet payment obligations is thus closely tied to the government, which may explain part of the offtaker risk perception.

Against this backdrop, the ability of the government to effectively implement Senelec's restructuring, as foreseen by the 2021 *Electricity Code*, will be key towards reducing the investors' perception of offtaker risk.

3. Construction and operation risk

Private sector stakeholders seem confident about construction and operation risk. This is likely supported by past experiences in successful commissioning of RES generation projects, as well as evidence that Senegal can offer competitive production costs, a skilled workforce, a strategic geographical location, and good international and regional political relations. All of the above contribute to the perception of the country as a place where RES projects can come to fruition without major construction & operation hurdles.[13]



Over 60% of private stakeholders declared to be little or not concerned with risks from local content requirements and logistics, security and safety. The views of public stakeholders are largely aligned.

The confidence about local technical skills is likely related to the fact that Senegal already has utility-scale solar and wind power plants in operation, while a 128 MW hydropower plant is currently being built by a consortium led by Vinci Construction Grands Projets - the new plant is designed to generate annual output of ca. 400 GWh, which will be fed into the grids of The Gambia, Guinea, Guinea-Bissau and Senegal.[14]

On the other hand, one risk area where more business to government dialogue should be encouraged is that of permitting and licensing, which is seen as a potential barrier to RES investments by 40% of private sector respondents. In this context, the government should seek to streamline permitting processes for both on-grid and off-grid electricity projects, also with a view to reducing the current electrification gap between rural and urban areas. This implies reforming some key aspects of the current permitting process, such as access to land and environmental and construction requirements.

4. Risks affecting financial costs

The area of risks affecting financial costs features a large perception gap on the issue of financing availability, which is perceived as a high or very high barrier to investments by 60% of public sector respondents, as opposed to only 27% of private stakeholders.

60%

of public sector respondents believe that financial availability is a high or very high risk.

The comparatively more pessimistic view of the public sector stands in contrast with the usual observed trend, whereby public sector views are more optimistic than those of the private sector.

The cautious public sector view may be related to the country's dependence on foreign capital to finance investments in the energy sector, with Senegal hosting a large stock of FDI compared to the region - which rose from USD 848 million in 2018 to a record level of USD 983 million in 2019 (+16%).[15] Thus, any potential slowdown on FDIs would put at risk the country's ability to deliver on its RES targets.

6 out of 10

respondents consider inflation and currency risk to be of low or very low concern.

Both public and private respondents are relatively confident on inflation and currency risk, which is considered of low or very low concern by 60% of survey respondents. In this regard Senegal benefits from its membership in the West African Economic and Monetary Union and use of the Franc of the African Financial Community (CFA franc), as well as from a monetary policy that mirrors the objectives of economic stability and growth.[16]

5. Environmental and social risk

Investors regard Senegal's environmental legislation as adequately clear and posing a low risk for investments. The Senegalese constitution - *Law No. 2016-10* of April 5, 2016 - enshrines the principle of a "healthy environment for all", and requires project developers to carry out environmental impact assessments as a prerequisite to implement any major infrastructure project.[17]

80%

of public respondents consider environment impact assessment procedures and natural force majeure to be of low concern.

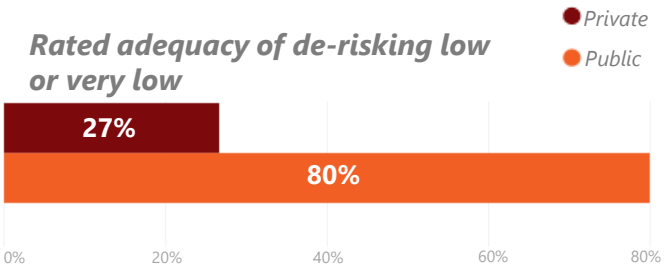
This is reflected in the survey responses, with 80% of public stakeholders rating environment impact assessment procedures and natural force majeure as of low concern.

Different considerations can be made for social acceptance of RES projects. On the one hand, existing renewable power plants in Senegal have been quite successful in prioritizing local employment and community engagement activities.[18] On the other hand, however, Senegal's electricity prices have historically been quite high,[19] and this risks eroding public support for RES projects in case the latter become associated with further price hikes.

The lack of a clear view on social acceptance risk is reflected in the survey responses: 33% of investors rated social acceptance risk as low or very low; 40% as high or very high; and 27% did not have a particular view. The future success of RES projects will depend, to a large extent, on the ability of the government to introduce cost-reflective tariffs, in order to guarantee a level playing field and financial sustainability of the sector. At the same time, affordability for the most vulnerable sections of the society should be carefully managed.

Addressing the risks

Availability of de-risking instruments for RES projects is considered of low concern by public stakeholders, whereas many private sector respondents see the available instruments as rather inadequate. Indeed, de-risking was rated as a low or very low risk by only 27% of private respondents, as opposed to 80% of public stakeholders.



The large perception gap reflects a view among private players that greater availability of de-risking instruments is needed, if Senegal is to step up private investments in renewables. Notwithstanding the country's positive track-record in the development of RES projects, many investors are still not confident about the adequacy of insurance products on offer, especially those covering offtaker risk. This is reflected in the relative slowdown of RES investments in recent years, following the major expansion that took place around the year 2013, with the notable exceptions represented by the two Scaling Solar projects commissioned in 2019.

Considering that de-risking products are typically provided by foreign Development Finance Institutions, an increase in RES investments in Senegal also hinges upon the government's ability to secure continued support by international donors and organizations.

Topic	Recommendation
Regulatory and Policy	Strive to effectively implement the planned restructuring of the incumbent utility Senelec, in order to create a level playing field, attract private investments in the electricity sector, and improve overall transparency.
	Increase public-private dialogue on priority actions concerning legislative barriers to RES, for the purpose of building a shared view and promoting best practices.
Grid access	Prepare credible and implementable grid investment plans, to promote rural electrification as well as to integrate higher shares of variable RES and reduce system losses.
Counterparty risk	Strive to make tariffs more cost-reflective, to restore the financial sustainability of the sector, and create a level playing field for renewables to compete.
Permitting	Work on reducing timeframes and the complexity for receiving a permit, both with regards to on-grid and off-grid electricity projects.
Social acceptance	Carefully manage the socio-economic impacts of potential increases in electricity tariffs, by addressing energy poverty issues and designing mechanisms to protect the most vulnerable sections of the society.

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About

RES4Africa Foundation

Born in 2012, RES4Africa (Renewable Energy Solutions for Africa) is a Foundation that works to support Africa's just energy transition. Its mission is to work towards creating favorable conditions for scaling up investments in clean energy technologies on the continent.

Functioning as a bridge between Europe and Africa, RES4Africa envisions the sustainable transformation of the continent's electricity systems to provide reliable and affordable electricity access, and enabling job creation and socio-economic progress for all African businesses and societies.



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PwC Italy is a founding member of the RES4Africa Foundation. Together with a network of industry and services partners, we are committed to promoting a sustainable energy transition in Africa and globally. Find out more at: https://www.pwc.com/it/it/industries/energy-utilities.html





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