Ivory Coast: Solar Investment Opportunities

Emerging Markets Task Force Report

SolarPower Europe

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Acknowledgements: SolarPower Europe would like to extend a special thanks to Finergreen and all task force members that contributed with their knowledge and experience to this report. This would never have been possible without their continuous support.

Project information: The SolarPower Europe Emerging Markets Task Force was launched in March 2018 and since then has become an active working group of nearly 100 experts from almost 50 companies. The objective of the task force is to identify business and cooperation opportunities and thereby contribute to the energy transition in emerging markets outside Europe.

Design: Onehemisphere, Sweden.

Published: May 2019.

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“This report series, developed by our Emerging Markets Task Force, provides quality market information to solar investors looking for opportunities around the world. It will help solar companies to better access new markets, and thus ultimately, accelerate the global energy transition.”

Walburga Hemetsberger
CEO, SolarPower Europe

SolarPower Europe would like to thank the members of its Emerging Markets Task Force that contributed to this report including:

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FOREWORD

BY STEFANO MANTELLASSI, Vice-President Energy Solutions ENI SpA and Chair of the SolarPower Europe Emerging Markets Task Force, and DAMIEN RICORDEAU, Founder & CEO, Finergreen.

African countries have joined the fight against climate change and are recognising the importance of promoting the sustainable electrification of their fast-growing economies. Among them, Ivory Coast, which already relies heavily on hydropower, has ambitious plans to develop 400 MW of solar by 2030. It has already over 130 MW of solar in the pipeline.

Ivory Coast shows strong potential for the development of solar energy, especially in the northern part of the country. Recovering from a political crisis, Ivory Coast has become an attractive country for international solar investors. This report, brought to you by Finergreen with the valuable support of SolarPower Europe's Emerging Markets Task Force, provides an analysis of the appeal of Ivory Coast for international investors in solar energy. The report aims at analysing the full potential of Ivory Coast for the development of solar energy and outlines a better investment framework for ambitious solar deployment. Our report details the country's business environment as well as demographic and macroeconomic trends. Credit risk and political risk that might hamper investments are also examined. Finally, the report provides an overview of the energy sector in Ivory Coast, its main actors and the related regulatory framework.

SolarPower Europe's Emerging Markets Task Force, chaired by Eni, was launched in March 2018 to identify business and cooperation opportunities and thereby contribute to the energy transition in emerging markets outside Europe. Since then, the Task Force has become an active working group of more than 100 experts from 50 companies, working on a suite of market reports and other technical reports. The Task Force has operated through a series of physical and virtual meetings, visits to the selected markets and conferences. We have also engaged in productive discussions and initiated cooperation with organisations such as the European Commission and the International Renewable Energy Agency (IRENA).

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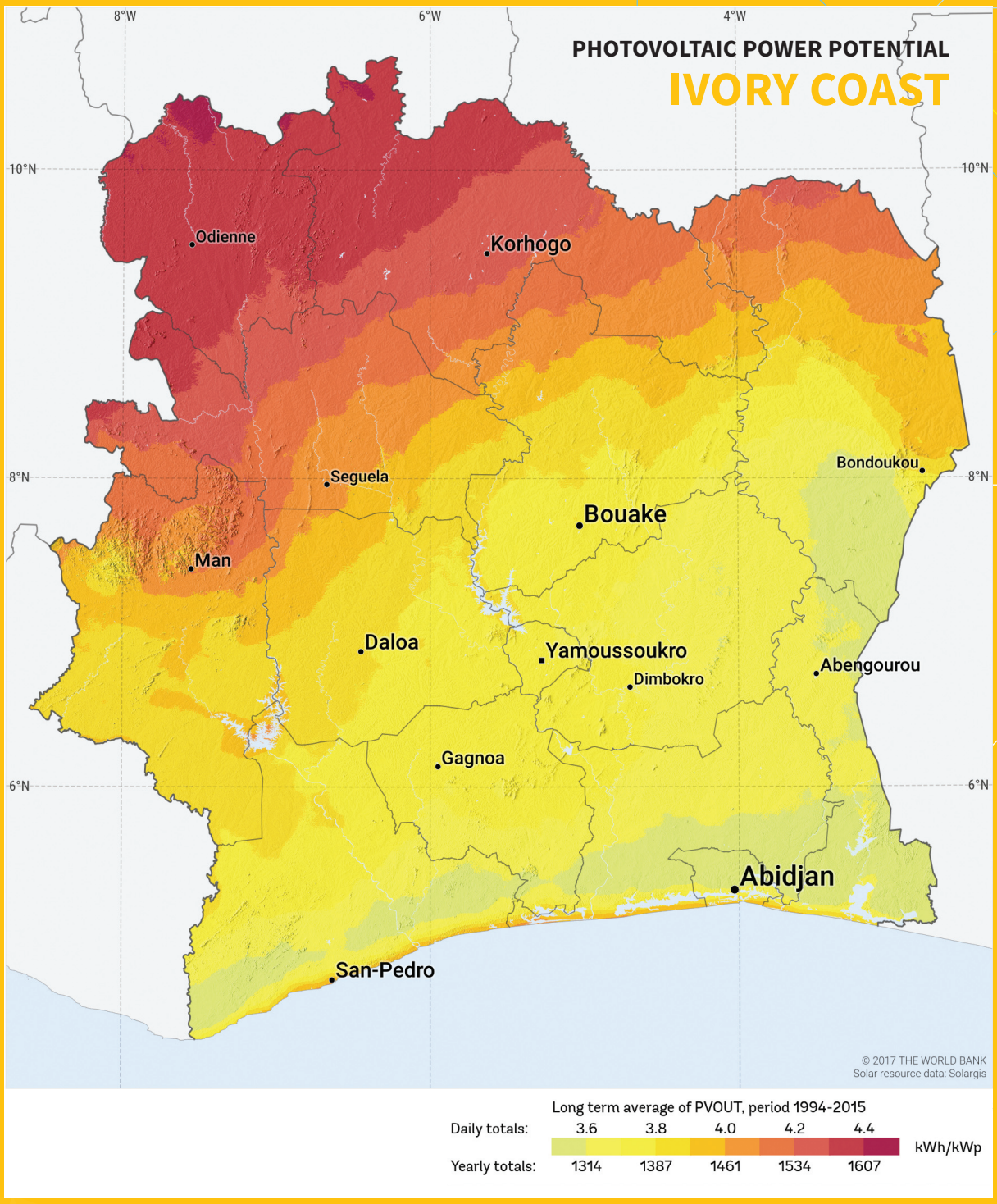


SOURCE: World Bank, Solargis, 2017.

1. CONTEXT

WORK STREAM

IVORY COAST

OFFICIAL LANGUAGE	French
CAPITAL	Yamoussoukro
CURRENCY	Franc CFA (XOF)
SURFACE	322,463 m^2
POPULATION (2017)	24,294,750
POPULATION DENSITY (2017)	76.39 people per km^2
EMPLOYMENT IN AGRICULTURE (2017)	48%
GDP (2017)	USD 40.4 billion
SUB SAHARAN AFRICA GDP GROWTH AVERAGE (2017)	2.6%
GDP GROWTH (2017)	7.8%
LITTERACY RATE (2014)	44%
INTERNET CONNECTIONS (2016)	43.8% of the population
MOBILE PHONE CONNECTIONS (2017)	130.7 subscriptions per 100

SOURCE: (The World Bank, 2017) (USAID, 2017) (International Telecommunication Unit UN, 2017).

ENERGY GEOGRAPHY

Ivory Coast energy sector relies a great deal on hydropower. Nevertheless, it still has untapped potential to develop other sources of renewable energies. In October 2012, ECOWAS launched its *"Politique des Energies Renouvelables"* (PERC). As part of this endeavour, it is required from all the ECOWAS Member States[1] to develop a *"Plan d'Actions National des Energies Renouvelables"* (PANER), setting out targets regarding renewable energies. The Ivorian PANER issued in April 2016, shows potential for hydropower resources of 1,680 MW, considered as a dispatchable capacity, which facilitates the management of the power system. This potential of additional capacity includes large and small hydroelectric plants. As part of the 2020 plan, 10 new projects, totalling a capacity of 890 MW have been announced. 11 small hydro power plants are also to be built by 2030, resulting in 76 MW of new installed power capacity.

Besides hydropower, the country can also benefit from biomass resources estimated at over 12 million tonnes per year. This resource can be found all over the country; which makes it a promising renewable energy source. Several industries are showing interest in biomass power for self-consumption ends. However, due to the relatively competitive prices of on-grid electricity, only the most cost-competitive biomass projects can emerge. The Biovea project, led by *Société Immobilière et Financière de la Côte Africaine* (SIFCA) and *Electricité de France* (EDF), is currently under development and has reached an agreement on the tariff with the government. The plant will be fuelled by 400,000 tons of vegetal waste from palm oil production. Other projects are also being developed such as the 70 MW biomass plan initiated by SODEN, which will become the largest biomass plant in Africa, and the state recently issued bids for the development of a cocoa biomass power plant in Gagnoa (20 MW) and a cotton biomass power plant in Boundiali (25 MW).

Ivory Coast also shows a strong potential for the development of solar energy, especially on the northern part of the country with a Solar Global Horizontal Irradiation averaging 2077 kWh/m^2. Solar energy in Ivory Coast is getting increasingly competitive: 424 MW should be installed by 2030 according to the national plan. Currently, more than 130 MW of solar is under development: 25 MW in the Korhogo region (developed by Nova Power), 66 MW in the Poro region (developed by Galilea Group and Canadian Solar), 37.5 MW in Boundiali (financed by the German development bank KfW, with a

1 Benin, Burkina Faso, Ivory Coast, Guinea-Bissau, Mali, Niger, Senegal, Togo, Gambia, Ghana, Guinea, Liberia, Nigeria, Sierra Leone, Cape Verde.

grant of the European Union and a contribution of the Ivorian State) and 25 MW developed by BioTherm Energy following a competitive tender process. It is also worth noting Ivory Coast hosts extracting and mining activities which represents an opportunity for the development of solar power as it could help sustain the industry's electricity needs. Because of the weakness of the grid infrastructure, Ivory Coast's energy system is not yet ready to integrate large volumes of variable energy such as solar. While necessary efforts must be made to develop the grid, a huge potential for solar can still be tapped through the development of off-grid solutions. Overall, the share of renewable energies in the production mix is expected to be 42% by 2030. The production of energy from renewable sources is a pre-requisite to meet the country's growing demand for electricity, which is increasing at a steady 8% yearly.

DEMOGRAPHICS

Ivory Coast has a population of nearly 24.3 million inhabitants. Most of this population is very young (the median age of the population is 18.3, currently the 22nd youngest in the world) and with a rapid but lower-than-average (compared to the African average of 2.6%) demographic growth of 2.5% in 2016 (Atlasocio, 2015).

Ivory Coast has a population density of 73.4 people per square kilometre, which ranks 137th in the world.

The largest city is Abidjan, a port city with a population estimated at 4.5 million and a metropolitan population exceeding 5.1 million. Abidjan is the 3rd largest French-speaking city in the world after Paris and Kinshasa, and only Lagos has a larger population in West Africa. The administrative capital of Ivory Coast is Yamoussoukro, with a population of 355,000, making it the country's 4th most populous city (after Abidjan, Bouaké and Daloa).

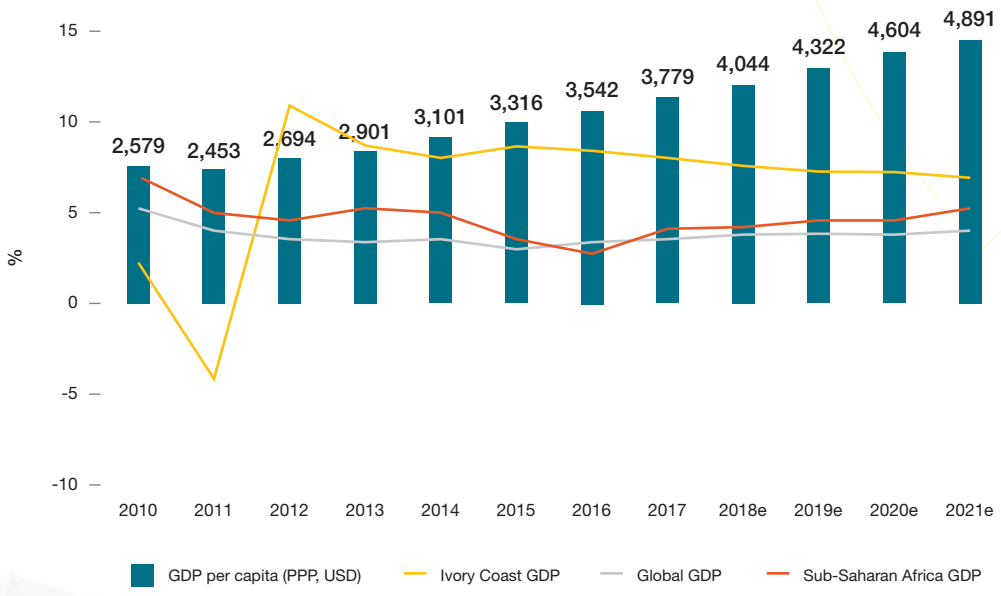
Urban population represents 50.3% of the population and grows faster than the rural population (+3.4% in 2017 in urban areas compared with +1.6% in rural areas).

MACROECONOMIC CONTEXT

Ivory Coast scored the second highest GDP growth in Africa in 2017 (+7.8%) reaching USD 40.389 billion. The GDP has been growing by 8.9% over the last 6 years but is expected to slightly slow down in 2018 (-0.5%) due to decreasing prices of cocoa and oil. It should nonetheless remain above 7% in the next five years.

The economy is driven by exports of agricultural products including cocoa and coffee, as well as natural

FIGURE 1 GDP EVOLUTION - IVORY COAST



SOURCE: The World Bank, 2019.

resources (hydrocarbons, gold). Growth has been sustained by major public works in infrastructure in the frame of the 2nd National Development Plan (2016 – 2020) and an improved business climate.

Inflation is due to remain under 2% for the next five years as the CFA franc is still a strong currency with a fixed parity (1.8% in 2017) which is an asset to foster investments. The commercial balance tends to deteriorate from -2% in 2017 to reach -3.2% of the GDP in 2018. Due to the fall in prices, exports of cocoa and other commodities cannot cover the imports related to infrastructure investments. Prudent policies have been implemented to keep the public deficit under 3%. A sovereign bond issue of 120 billion FCFA was released in March 2017 to finance public expenditure. The public debt, which was alleviated in 2012 by the IMF, is expected to remain sustainable in the next 15 years with a gross government debt rate below 30% of the GDP.

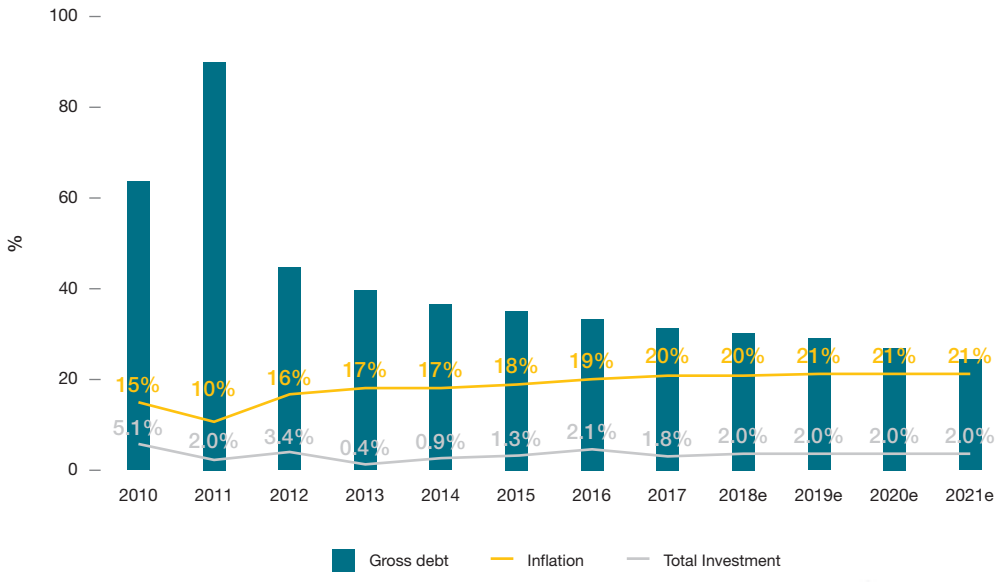
BUSINESS ENVIRONMENT

The business environment still suffers from several constraints. The *Doing Business Index* published annually by the World Bank provides a general picture of the efficiency of the country's system. It measures the impact of regulatory and fiscal regulation on business activity and the ease/difficulty of doing business in the country, through the analysis of selected criteria such as fiscal discipline, access to credit, international trade, tax, register of property titles and investor protection.

In the evaluation of Ivory Coast's business environment, *paying taxes* is the largest obstacle for the investors' initiatives. The total tax and contribution rate (% of profit) in Ivory Coast is high and substantially exceeds the tax and contribution rate in Sub-Saharan Africa. The highest taxes are the social & securities contributions (17.35% on gross salaries), business license tax (0.5% on turnover and 18.5% on rental value) and Corporate Income Tax (25% on taxable profit). The process of payment also tends to be complicated with 63 payments per year (compared to 37 on average in Sub-Saharan Africa).

Moreover, *Trading Across Borders* activities are also complicated in the country, especially because of the costs and duration of export/import processes. The *Dealing with construction* section focuses on procedures, time and costs to build infrastructures: numbers of procedures and the necessary time are particularly high in Ivory Coast. It takes 10 days to obtain

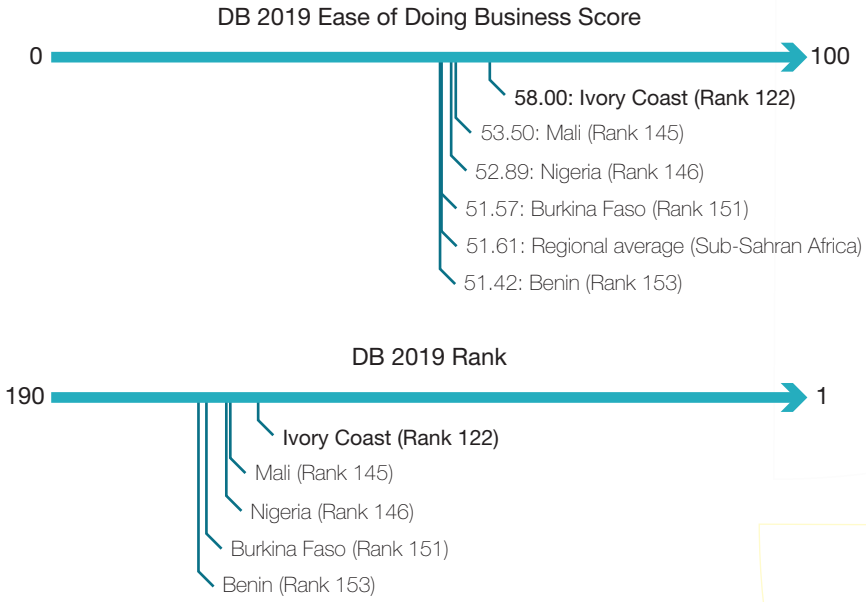
FIGURE 2 EVOLUTION OF THE GOVERNEMENT GROSS DEBT, OF TOTAL INVESTMENT (% OF THE GDP) AND OF INFLATION



SOURCE: The World Bank, 2019.

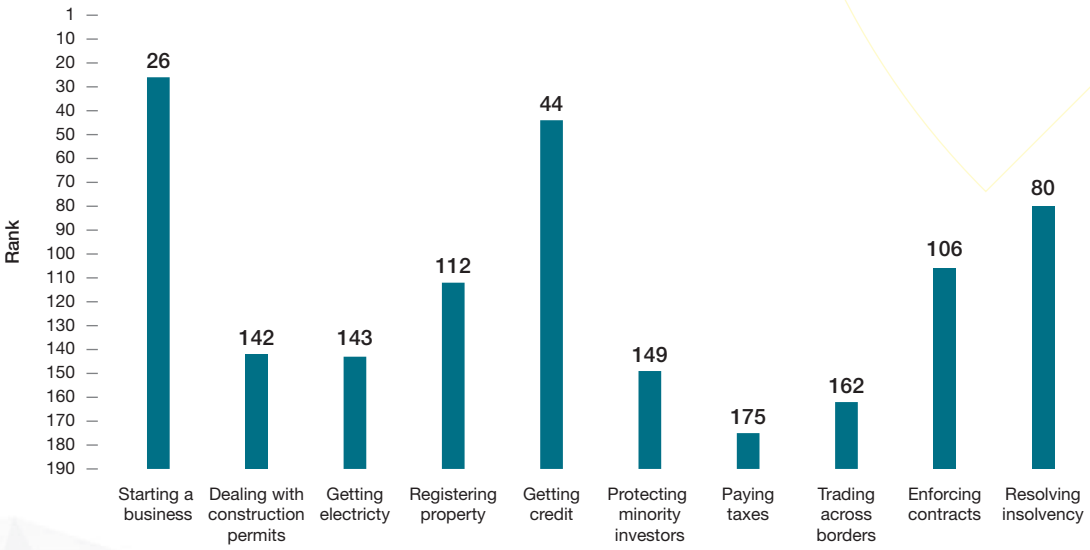
a proof of ownership of a land, and 30 days to acquire a building permit in Ivory Coast which might be a disincentive for a solar investor. Nevertheless, in order to simplify and shorten the previous procedures, Ivory Coast has implemented online platforms for taxes, exports/imports, and building regulation.

FIGURE 3 IVORY COAST DOING BUSINESS INDEX 2018



SOURCE: World Bank, 2019.
NOTE: The distance to frontier (DTF) measure shows the distance of each economy to the 'frontier', which represents the best performance observed on each of the indicators across all economies in the *Doing Business* sample since 2005. An economy's distance to frontier is reflected on a scale from 0 to 100, where 0 represents the lowest performance and 100 represents the frontier. The ease of doing business ranking ranges from 1 to 190.

FIGURE 4 RANKINGS ON DOING BUSINESS TOPICS - IVORY COAST



SOURCE: World Bank, 2019.

The credit system of Ivory Coast is considered more transparent and efficient than in comparable emerging markets in Africa and does not carry any serious risk to business operations. Regarding protection of the rights of borrowers and lenders and the quality of credit information, Ivory Coast is comparable to OECD high income countries. Indeed, Ivory Coast has expanded the coverage of the data collection and has begun to distribute data from utility companies. *Starting a Business* measures the number of procedures, time, cost and paid-in minimum capital requirement to set up a new business. Ivory Coast achieved a very good score thanks to removing the requirement to notarize company deeds: the costs and required time to start up a business are significantly lower than in other comparable African countries.

Growing political risks (driven by the issue of the succession of President Alassane Ouattara in 2020) and governance problems justify the ratings given to Ivory Coast. Indeed, two episodes of uprisings have raised concerns regarding the political stability in the country.

The economy of Ivory Coast suffers from its heavy dependence on commodities and lack of diversification, which makes it particularly vulnerable to market fluctuations. However, the management of public finances, which resulted in two defaults of payment in 2000 and 2011, has experienced some improvement. Good macroeconomic performance, low inflation, a structural trade surplus and moderate debt ratios are the strengths of Ivory Coast. Public investment is expected to continue at a steady pace, thanks to planned spending under the 2016-2020 National Development Plan, with the aim of diversifying the economy. Sovereign debt is expected to reach 44% of the GDP by the end of 2017, a level below the average for "B" rated countries. The country enjoys good financial flexibility, support from donors and compliance with IMF requirements. The recent bond issue in regional and international markets has helped the country to ease its debt repayment profile. However, the growing use of this type of non-concessional foreign currency loan has increased the cost of debt servicing and currency risk.

FIGURE 5 IVORY COAST OECD RISK CATEGORY AND S&P'S, MOODY'S, FITCH RATINGS

OECD country risk category	S&P's rating	Moody's rating	Fitch rating
6	-	Ba3	B+

SOURCE: (SACE, 2018) Indicators' explanations: OECD Country Risk Category, S&P'S rating, Moody's rating, Fitch rating.

POLITICAL AND SOCIAL CONTEXT

Ivory Coast experienced a decade (2004 – 2011) of violent conflicts during which the country was separated in two parts: the north occupied by rebels and the south under governmental control. The Presidential election ended up in a civil war in 2011, as both former President Laurent Gbagbo and contender Alassane Ouattara claimed victory in a tight race. Alassane Ouattara, former Vice President of the IMF, was recognised as elected President and initiated the process of national reconciliation. In October 2015, the re-election of Alassane Ouattara for a second five-year presidential term confirmed the return of a relative political stability after the post-election crisis of 2011. In October 2016, the Third Republic was established as a result of a referendum. The parliamentary elections of December 2016 gave the majority to RHDP (*Rassemblement des Houphouëtistes pour la Démocratie et la Paix*), which should allow Alassane Ouattara to continue his reforms in favour of the economic growth of Ivory Coast. The next presidential elections will take place in 2020. Some politicians, including supporters of Alassane Ouattara, have already announced their candidacy.

Although there is ongoing democratic consolidation, the country still faces social tensions. Indeed, the economic growth does not benefit every layer of the population and social unrest among the poor urban population and mutinies in the army were reported at the beginning of 2017 to contest the absence of opportunities for jobs, inadequate quality of public services and perceived corruption. The government has eased tensions by engaging in dialogue with unions and mutineers, as well as providing financial support to certain sectors. The Grand Bassam attack in 2016 signals the presence of a terrorist risk that is still lower than in most neighbouring countries.

In terms of transparency, Ivory Coast has made steady progress: between 2011 and 2016, the country's rank in the Transparency International Corruption Perception Index rose by 46 places and reached 108th place out of 176.

Ivory Coast's stability over the past few years and the ongoing democratic consolidation makes it again an attractive country to investors.

2 IVORY COAST ELECTRICITY MARKET

COUNTRY ENERGY SECTOR SITUATION

Ivory Coast has an installed capacity of 2,199 MW (2017), 879 MW of which is hydro power (7 public hydroelectric plants Kossou, Buyo, Ayamé 1&2, Taabo, Fayé, Soubré). The electricity consumption (2014) is 276.1 kWh/inhabitant (vs. world average: 3,126.1 kWh/inhabitant).

Ivory Coast is the electricity powerhouse of West Africa: the country is an exporter to Benin, Burkina Faso, Ghana, Mali and Togo (1,402 GWh in 2017) and therefore a key member of the West African Power Pool (WAPP), West Africa's energy group soon to be extended to Liberia, Sierra Leone and Guinea. As domestic electricity demand is steadily rising by 8% a year, electricity production must double in 9 years. The electricity network of Ivory Coast is one of the most reliable networks in Africa (27 hours of outage on average in 2016). Yet, 40% of the population does not have access to electricity.

Rural electrification is one of the major axes of the economic and social policy of the Ivorian Government. The *Programme National d'Electrification Rurale* (PRONER), launched in 2013, allowed 5,000 localities to be connected to the electricity grid at the end of 2018 and aims to electrify all villages with more than 500 inhabitants by 2020. The challenge of rural electrification therefore represents a real opportunity for the development of solar off-grid solutions.

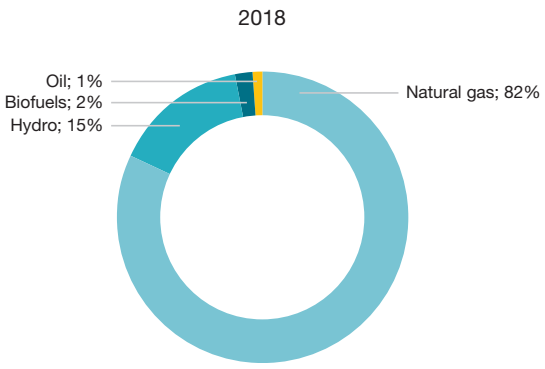
The main regulations are the *Electricity Law* (1985) that opened up electricity production to private operators (Independent Power Producers, or IPPs) and the *Electricity Code* (2014) that reformed the sector by providing a new framework for the electricity production, transport, dispatch and distribution. It reinforced the capacities and mandate of the regulatory authority for the electricity sector and set the electricity pricing principles.

Ivory Coast has four primary energy sources: hydropower, oil, natural gas and biomass. Primary energy supply in 2009 was 11.6 million tonnes of oil equivalent (TOE), broken down as follows:

- Biomass: 17.7 million tonnes of wood and 111,000 tonnes of residues;
- Crude oil: 3.1 million metric tonnes;
- Natural gas: 1.434 billion cubic meters;
- Hydropower: 2,131 GWh.

Biomass (firewood and charcoal) remains the most used energy source for traditional needs, such as cooking or heating, and represents 70% of the primary energy consumed in the country. Dense forest and savanna are constantly decreasing.

FIGURE 6 IVORY COAST ELECTRICAL GENERATION BY FUEL (2016)



SOURCE	GWh
Natural gas	8,477
Hydro	1,529
Biofuel and waste	173
Oil	74
Total	10,253

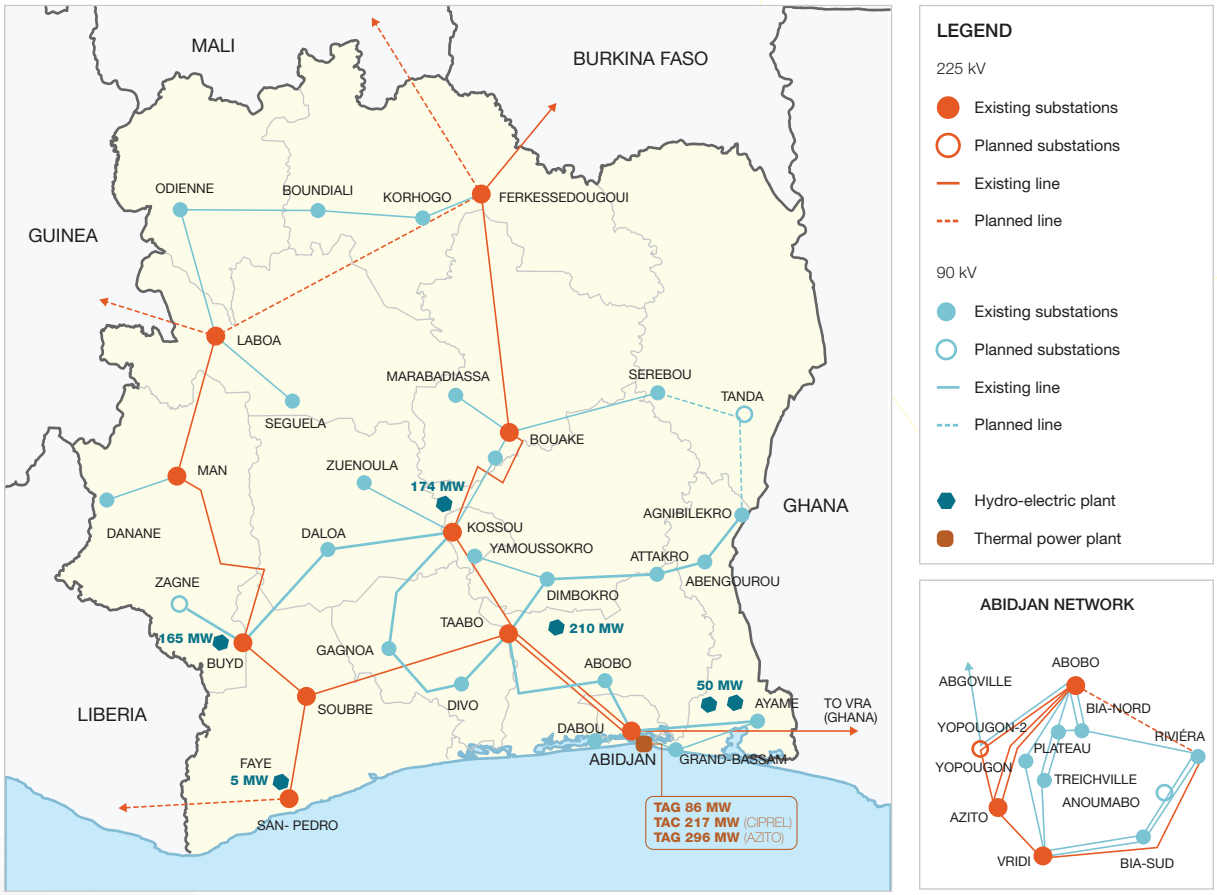
SOURCE: IEA, 2018.

ELECTRICITY INFRASTRUCTURE

The electrical transmission network is composed of lines, high (90 kV) and very high (225 kV) voltage stations that allow the energy produced from the power plants to be dispatched to the consumption centres under optimal conditions. In Ivory Coast, the two types of electrical lines are 90 kV and 225 kV lines, managed by the *Direction du Transport d'Energie et Télécommunication*, which is a structure of the *Compagnie Ivoirienne d'Electricité* (CIE), the national utility company. The *Direction du Transport d'Energie et Télécommunication* has a dual mission: operating and maintaining the electrical network and enabling the *Direction des mouvements d'énergie* (DME) to rigorously coordinate the production and the energy transmission network to maintain the production/consumption adequacy. The DME is an operational structure of CIE and is an important component of the operation and maintenance information of the Ivorian electrical system.

In 2018, The Prime Minister Amadou Gon Coulibaly launched the *Projet de Developpement et de Rehabilitation du Réseau Electrique de Côte d'Ivoire* (PRODERCI), supported by China, to raise the level of access to electricity in the country. The project covers four major areas of the Ivorian territory (north-east, north-central, west-central, west) and consists of the construction of 11 new high-voltage substations, the rehabilitation and extension of 15 high-voltage substations, the construction of 1,685 km of high-voltage lines and the electrification of 500 villages. The PRODERCI is 95% financed by a loan from China Exim Bank with a contribution of 5% from the Ivorian State and has a projected duration of 43 months (FCFA 460 billion, or approximately USD 822 million). The PRODERCI was contracted with the China National

TRANSMISSION AND DISTRIBUTION NETWORK IN IVORY COAST



SOURCE: ANARE, 2019.

Engineering Electrical Corporation (CNEEC)/Sinomach consortium. For the government, the grid connection is an important step towards electrification due to the already strong distribution network (the majority of non-electrified localities are located only within 20 kilometres of the existing network). Nevertheless, the possibility of developing local renewable energy plants appear to be a good solution to allow a greater share of renewable sources into the energy mix.

ACTORS, TARIFFS AND REGULATORY FRAMEWORK

CI-Energies is the governmental agent in charge of planning and monitoring both production and distribution of electricity on behalf of the State. CI-Energies owns every public asset in the electricity sector, including production, transmission and distribution facilities that are being operated by the *Compagnie Ivoirienne d'Electricité* (CIE), based on a concession agreement.

CIE is the national utility, owned by the private company Eranove (54%), and is in charge of connection settlement for private producers (electricity and gas) in accordance with PPAs. Furthermore, CIE is operating 6 public-owned dams for the account of the state and the electricity export/import facilities.

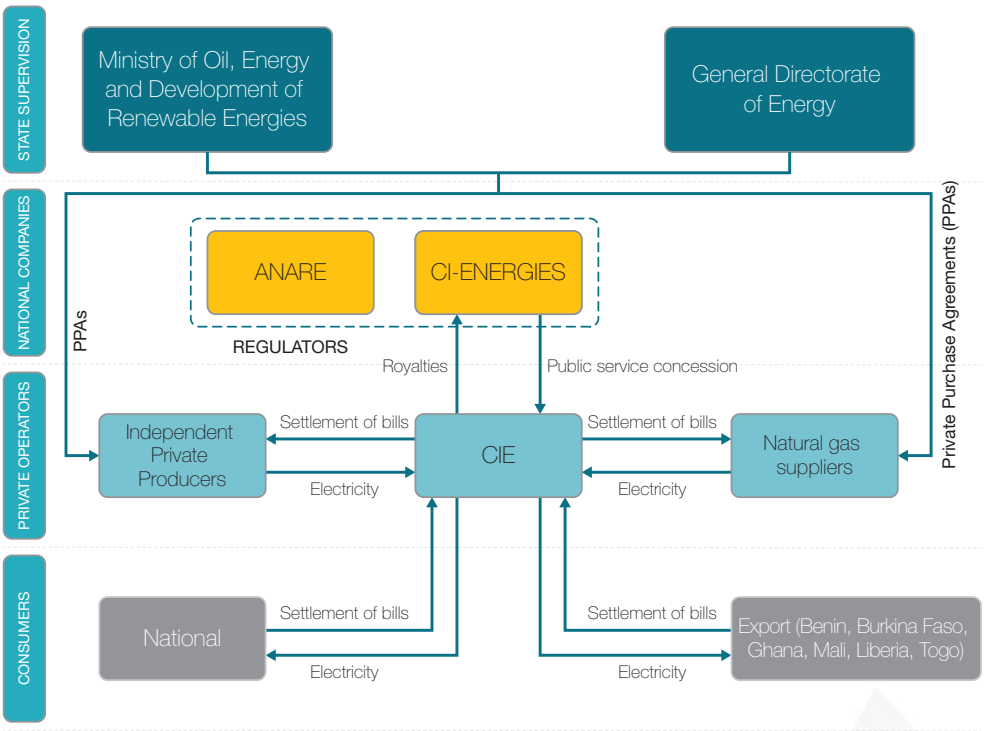
CIE-Energie manages the electricity supply and grants concessions agreements and PPAs. Concession agreement and PPAs are signed by CI-Energie and the Ministry of Energy.

The Ministry of Oil, Energy and Development of Renewable Energy is in charge of promoting and managing renewable energies and setting the regulatory framework. The Ministry is also in charge of the coordination and the scheduling of the energy policy of Ivory Coast. With the collaboration of the General Directorate of Energy, it monitors the electricity production and transmission/distributions equipment in Ivory Coast.

Since the Electricity Law of 1985, the sector has been opened to Independent Power Producers (IPPs), such as CIPREL, AZITO Energie, Aggreko Energie, which have 73% of the market shares together.

In addition, the legal framework now allows the consumption of self-produced electricity which is a truly positive step towards the development of solar energy.

FIGURE 7 STRUCTURE OF THE IVORIAN ENERGY SECTOR



SOURCE: CI-Energies, 2019.

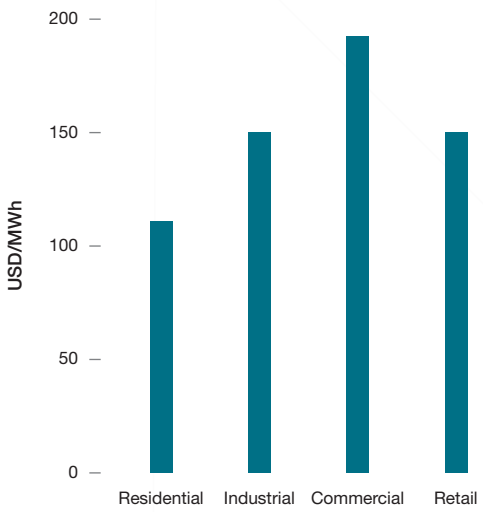
2 IVORY COAST ELECTRICITY MARKET / CONTINUED

The *Autorité Nationale de Régulation du Secteur de l'Electricité* (ANARE) regulates the sector and proposes the electricity tariffs to the state. Currently, there are seven tariff categories in Ivory Coast. The existing electricity tariffs set by the ministerial decree 569/MMPE/MPMEF (December 2012) are summarized in Figure 8.

NEW DEVELOPMENTS FOR SOLAR POWER

The share of renewable energies in the energy mix proposed by the PANER is gradually increasing. Renewable energies will rise from 20% (hydro only) in 2014 to 34% (23% average and large hydro from 20 MW to 275 MW, and 11% other renewable sources) in 2020 to reach 42% (26% large and medium hydro and 16% others) in 2030.

FIGURE 8 COST OF POWER (USD/MWH)



SOURCE: ANARE, 2019.

FIGURE 9 SUMMARY OF THE PRODUCTION CAPACITY AND PERSPECTIVES

TECH	INSTALLED POWER PLANTS	INSTALLED CAPACITY	PROJECTS	EXPECTED CAPACITY
HYDRO	7 state-owned hydro power plants (Kossou, Buyo, Ayamé 1&2, Taabo, Fayé, Soubre)	879 MW	10 new hydro power plants (eg. Boutougre, Louba, Tiboto, Gribo Popoli) & 11 small hydro power plants	890 MW & 76 MW by 2030
NATURAL GAS	3 IPPs (Azito, CIPREL and Aggreko Energie) operate several power plants	1,320 MW	4 new gas thermal power plants (eg. Ciprel V, Azito IV, Songon)	1,208 MW by 2030
COAL	No projects for the time being	-	2 power plants (Broto Energies, San Pedro 2)	1,000 MW by 2030
SOLAR	No projects for the time being	-	4 power plants (eg. Korhogo Solar, Canadian Solar, Ferké)	424 MW by 2030
BIOMASS	No projects for the time being	-	9 power plants (eg. Biokala 1&2, Divo, Cacao, Gagnoa, Dabou)	485 MW by 2030

SOURCE: PANER, 2016 and Finergreen research.

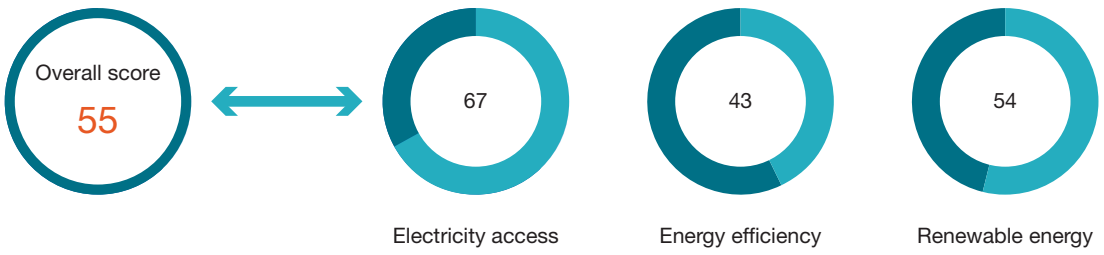
These projects have benefited from financial incentives for investments in the renewable energy sector in Ivory Coast. They are defined by the *Code des Investissements et de la réduction des taxes* and are applicable on some renewable energy equipment:

- Value added tax at 9% on solar materials;
- Ivory Coast provides tax incentive regimes for investments in the country, including those in the field of renewable energies;
- Tax benefits from 5 to 15 years depending on the investment zones (A = 5 years, B = 8 years and C = 15 years) and which concern exclusively the exploitation phase:
  - The exemption from the tax on the industrial and commercial profit or the tax on the non-commercial profit or on the tax on agricultural profit;
  - Exemption from the contribution of patents and licenses;
  - The reduction of 80% for zone B and 90% for zone C of the contribution payable by employers amount (excluding the apprenticeship tax and the additional tax on continuing vocational training);
- The 40-50% reduction in the amount of customs duties to be paid on equipment and materials as well as on the first batch of spare parts (except to communities levies) and the total exemption from VAT for imports.

The private banking sector is showing increasing interest in investing in renewable energy in the country, but it is necessary to strengthen their understanding and capabilities and develop transaction experiences in the sector. Today, local banks are looking for better information and training on business models and financing options. Lack of information leads to higher risk perception, exacerbating the impact on financing costs of the risk of non-payment by the buyer and the country risk. However, when Ivory Coast demonstrates a track record of projects, risk perceptions (and the cost of funding) may decline.

These efforts will allow Ivory Coast to improve its position in the Regulatory Indicators for Sustainable Energy (RISE). RISE scores reflect a snapshot of a country's policies and regulations in the energy sector, organized by the three pillars of the SEforAll initiative: Energy Access, Energy Efficiency, and Renewable Energy. Indicators are assigned to each pillar to determine scores. According to this index, Ivory Coast's rank is 76/132, above the average of the African countries.

FIGURE 9 IVORY COAST'S SCORE IN THE REGULATORY INDICATORS FOR SUSTAINABLE ENERGY



SOURCE: RISE, 2018.

3 RECOMMENDATIONS

RECOMMENDATIONS FOR LOCAL PUBLIC DECISION-MAKERS TO IMPROVE THE FRAMEWORK CONDITIONS FOR RENEWABLE ENERGY

The authorities should continue to foster international auctions programs to attract private investors for on-grid solar plant projects. Tenders should be based on clear rules and technical parameters such as size, targets, location and timeline in order to produce the expected outcomes, attract participants, and facilitate the financing structuration. The government should secure land for projects to avoid overbid and increase of the capital expenditure for the projects and sector studies should be realized in order to set up a governmental strategy. The data collected could be: cartographies of projects' status, stakeholders, supply chain (available biomass, agricultural cluster [cocoa, cashew, palm oil etc], logistics options etc), business model, positive and negative externalities etc). Tendering in renewable energy projects can support project development and attract investments given a non-discriminatory and transparent allocation scheme (Scaling Solar tender etc).

For hydroelectricity, a governmental framework should be implemented to manage environmental and social impacts (compensation amounts, processes for population displacement, environmental impacts etc.) and the government should align the concession duration (25 years) to the economic life of hydroelectric projects (+50 years) that could result in a tariff reduction.

In order to foster biomass projects, the government should define a regulatory framework on the pricing of biomass and strengthen capacities in the agricultural sector (cooperatives, farmers) through training, in particular the waste recycling education.

For solar projects, the government should secure land when they launch tenders to minimize the risk of any increase in land price and avoid loss of time due to processes.

The authorities should continue the consultation processes with private stakeholders to identify the challenges of the off-grid solutions and the advantages of solar kits and the "pay as you go" business model. In addition, the government should set up quality and accreditation standards in order to clarify technical characteristics requirements and identify the most viable financing options for the solar kits' installations (including VAT and import taxes exemptions), which are struggling with the lack of local financing. Another option might be the development of financing facilities for working capital requirement of solar kit distributors.

INVESTORS

Ivory Coast has significant resources in hydro, biomass and solar energy for both on- and off-grid uses. With the economic growth upturn that started in 2012, the country has to extend its power generation capacities to satisfy the growing electricity consumption, which creates investment opportunities for private investors.

The hydroelectric projects are located on the Bandama and Sassandra rivers that have good hydrology and reservoirs characteristics, and solar projects are mostly in the north of the country, where irradiance is the strongest.

Furthermore, solar power also represents a perfect solution to provide access to electricity for remote areas, thanks to off-grid solutions developed and implemented by private companies.

Finally, investors could benefit from financial incentives for investments in the renewable energy sector, described in the previous section.

RECOMMENDATIONS FOR DEVELOPMENT FINANCE INSTITUTIONS

Development finance institutions are key players in Ivory Coast and should continue to assist the development of a sustainable market for private investments. Their financial, technical and governance support currently drives investments in renewables. Furthermore, their presence reassures investors concerned by the country's macroeconomic fundamentals and contributes to share best practices.

Development finance institutions' long-term commitment in a country contribute to provide credibility to national policies and their country strategies are taken positively into consideration by international investors. Technical assistance programs and other forms of support from international development are key to improve energy access rate in the continent.

Thus, development finance institutions have a central role to play in easing investment conditions for renewable energies in Ivory Coast. A report from the World Bank highlights that in 37 out of 39 countries in

sub-Saharan Africa, revenues collected by utilities do not fully cover costs. All the players involved in the African energy sector should contribute to finding effective solutions to this problem that represents the most important barrier to private investment in the African power sector. In the meantime, credit enhancement mechanisms can play a central role in making renewable electricity projects in Sub-Saharan Africa financially sustainable. Commercial or sovereign-backed guarantees provide the security that energy produced and sold to the national utility will be paid and that costs can be recovered over the project's long lifetime.

Multilateral development finance institutions such as the World Bank and the African Development Bank already provide credit enhancement instruments ('partial risk guarantees'). Starting from 2019, the European Fund for Sustainable Development within the framework of the EU External Investment Plan will also provide guarantees for renewable energy projects. Ease of access to such schemes and correct pricing are two key factors to attract investments.

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“There is huge potential for the development of solar in emerging markets, where different paths to the sustainable energy transition are possible: the Task Force will allow members to analyse and benchmark the accessibility of selected markets, untangle barriers to investment and engage with local stakeholders”.

Stefano Mantellassi - Eni
Emerging Markets Task Force Chair

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