Senegal: Solar Investment Opportunities

Emerging Markets Task Force Report

SolarPower Europe

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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.

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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."

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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, Senegal has been a front runner, launching the Plan Senegal Emergent (PSE) in 2014. The program's vision is "an emerging Senegal in 2035, with a cohesive society under the rule of law" and it is also thanks to this program that over 100 MW of solar have been installed in Senegal in the past years. In addition, in 2019 Senegal is embracing its role in the energy transition and was recently awarded a 60 MW solar power plant through the World Bank's Scaling Solar program.

With high solar irradiation across the country and a growing electricity demand, Senegal has huge potential as a solar market. The country's economic and political stability over the past few years makes it an attractive country for solar investors. This report, brought to you by Finergreen with the valuable support of SolarPower Europe's Emerging Markets Task Force, aims at analysing the full potential of Senegal for accelerating the development of solar 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 Senegal, 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 series of technical and market reports. The Task Force has operated through a series of physical and virtual meetings, visits to the selected markets and conferences. In addition, the Task Force has engaged in productive discussions and cooperation with organisations such as the European Commission and the International Renewable Energy Agency (IRENA).

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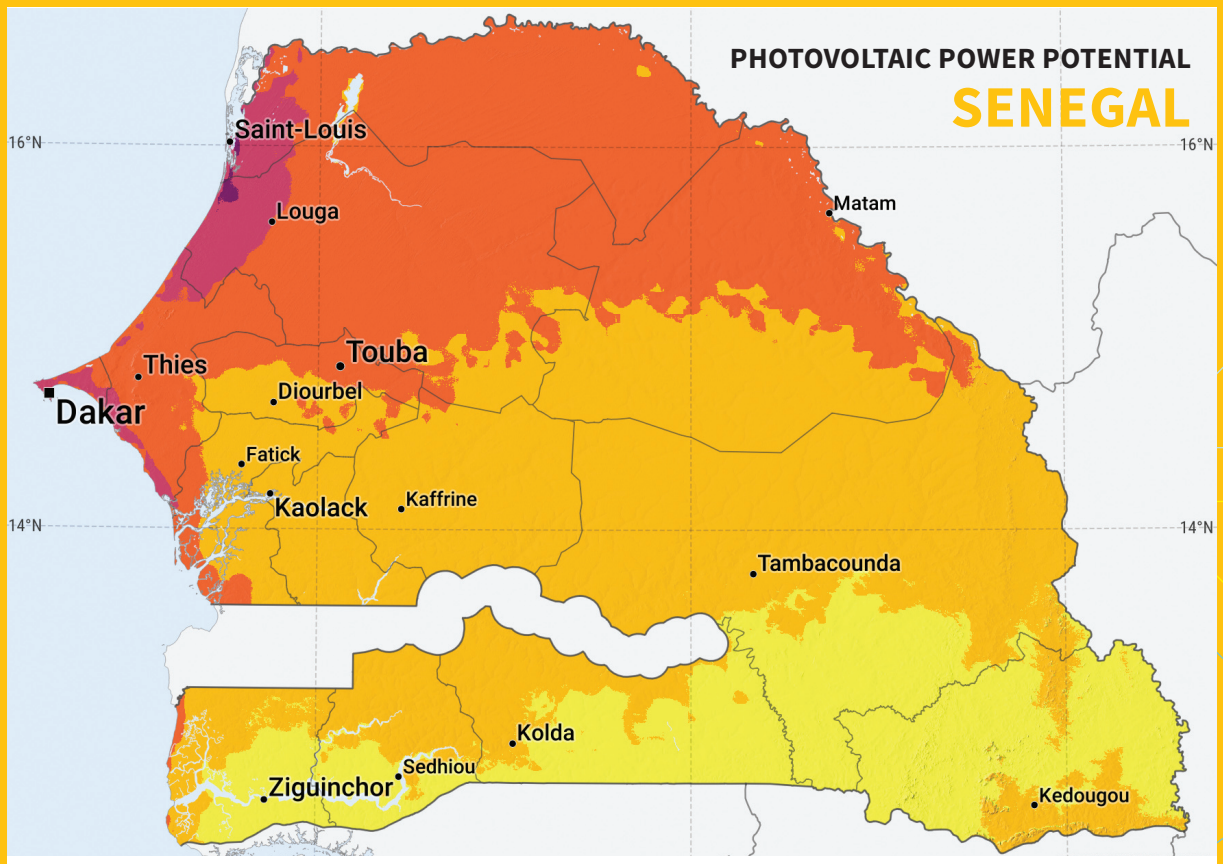
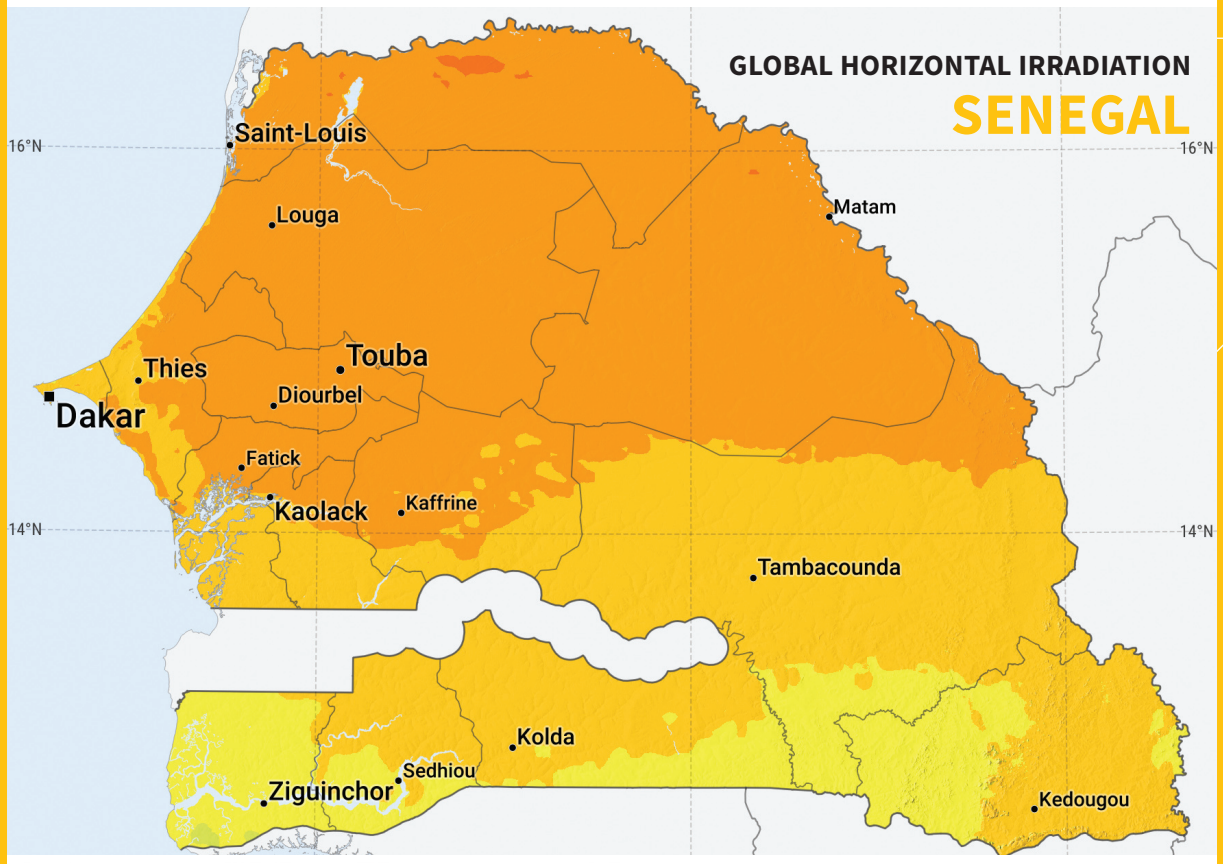




SOURCE: World Bank, Solargis, 2017.

1. CONTEXT

WORK STREAM

SENEGAL

OFFICIAL LANGUAGE	French
CAPITAL	Dakar
CURRENCY	Franc CFA (XOF)
SURFACE	196,722 m^2
POPULATION (2017)	15,850,567
POPULATION DENSITY (2017)	82.33 people per km^2
EMPLOYMENT IN AGRICULTURE (2017)	53.4%
GDP (2017)	USD 16.4 billion
SUB SAHARAN AFRICA GDP GROWTH AVERAGE (2017)	2.6%
GDP GROWTH (2017)	7.2%
LITTERACY RATE (2017)	43%
INTERNET CONNECTIONS (2016)	25.66% of the population
MOBILE PHONE CONNECTIONS (2017)	99.4 subscriptions per 100

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

ENERGY GEOGRAPHY

The development of the national power sector is one of the key objectives of the Plan Sénégal Emergent (PSE). Launched in 2014 by Macky Sall's government, this program aims at making Senegal an emerging economy by 2035. Regarding the power sector, the main challenges include improving access to electricity, especially in rural areas, as well as reducing the cost of electricity generation by lowering the country's dependence on fuel importations. The Plan Sénégal Emergent also aims at increasing the share of renewable energies in the national energy mix, building on the significant untapped potential of the country in this field.

The Plan Sénégal Emergent has demonstrated its efficiency in the past years. The production output of the national electricity company Senelec reached 2,139.9 GWh in 2017. Power outages were also less frequent and Senelec received no subsidy on the 2016-2017 period. Senelec's objective is to reach an installed capacity of 2,321 MW from its production facilities by 2030.

Senegal benefits from its strong potential for renewable energies which remains relatively untapped. Solar power represents a massive opportunity for development. Indeed, solar irradiation exceeds 2,000 kWh/m^2/year (for Global Horizontal Irradiance) across most of the country. Thus, Senegal has real potential for photovoltaic projects as well as thermal technologies. In the context of decreasing solar PV (photovoltaic) panel prices, solar energy stands out as an attractive solution in a country where purchasing power remains relatively low. Senegal's solar installed capacity reached 104 MW in 2017 and is still developing.

Senegal demonstrates good potential for other sources of renewable energy along the northern coastline between Dakar and Saint-Louis. In a study by the Senegal Meteorological Service, wind velocities between 5.7 and 6.1 m/s were observed in this area. This potential will be exploited through the 158.7 MW Taiba N'Diaye wind farm which is currently under construction. The electricity output will be sold to Senelec under a 20-year PPA. Senegal also benefits from hydropower's strong potential through the Senegal River which is exploited by the Senegal River Basin Development Authority. Finally, Senegal has good potential for biomass thanks to important agricultural waste and agribusiness by-products (rice husks, bagasse, cotton stalks, etc.). The estimated potential for biomass generation is around 2,900 GWh.

DEMOGRAPHICS

In 2017, Senegal had a population of nearly 16 million inhabitants with 43% of the population aged under 14 and a demographic growth of 2.81%, above the African average of 2.6%. Population growth rate remains high due to a high fertility rate (4.7 births per woman in 2016) and a decreasing mortality rate.

With 46.7% of the population living in urban areas as of 2017, populations in Senegalese cities have dramatically increased over the past years. However, there are inter-regional discrepancies in urbanisation, which are far more significant in the Western areas of Senegal. In the Fatick and Diourbel areas for example, the urbanisation rate stood at 16-17% in 2015.

In 2015, 23% of the population lived in Dakar, which represents the highest population density in Senegal. The areas of Thiès and Diourbel account for 13% and 11% of the population, respectively. On the contrary, the area of Tambacounda in the East of the country is among the less populated.

MACROECONOMIC CONTEXT

With annual economic growth standing at 6.2% in 2016 and 7.2% in 2017, Senegal is among the fastest growing economies in Africa. Growth was largely driven by the primary sector in 2017, especially agriculture which benefited from support programs and a strong external demand. The tertiary sector also contributed to national growth thanks to financial and intermediation services in the tourism and transport sector. The secondary sector slowed down despite good performances in energy, the food industry and chemicals. Growth is expected to be maintained at approximately 7% in 2018-2019.

The country's low inflation rate (1.7% in mid-2017) mirrors the objectives of economic stability and growth. It remains well below the West African Economic and Monetary Union (WAEMU) ceiling of 3%. The CFA Franc is based on a fixed exchange rate. In 2016, it appreciated against the Nigerian naira (up 52.1%), the British pound (up 20.4%), and the Guinean franc (up 16.3%).

Public debt rose from 59.5% of the GDP in 2016 to 62% of the GDP in 2017. Despite this increase, the debt ratio remains under the WAEMU ceiling of 70%. This increase is mainly due to the large infrastructure programs implemented over the past years in agriculture, transportation and special economic zones, which have high long-term impacts. Nevertheless, the International Monetary Fund (IMF) considers this level of public debt sustainable.

The external Current Account Deficit (CAD) deteriorated from 4.2% of the GDP in 2016 to 7.3% in 2017. Indeed, the increase in exports volumes (+11%) driven by good performance in agriculture, food-products and extractives did not offset the growth in importation, which was fuelled by oil-related products (+34%) and capital goods (+20%). External Current Account Deficit is expected to reach 8% in 2018 mostly due to the context of high oil prices but should improve afterwards thanks to stronger exports.

As of 2016, Senegal had a negative trade balance of USD 3.53 billion. Total 2016 exports amounted to USD 3.11 billion, driven by gold, non-fillet frozen fish, phosphoric acid and cement. The top export destination of Senegal is Mali (20%), followed by India (9.2%), Switzerland (9.2%), UAE (5.5%) and China (4.4%). Imports reached USD 6.65 billion in 2016 with top imported products including refined and crude petroleum (respectively USD 577 million and USD 418 million), as well as packaged medicaments and cars. France represents 13% of imports origins, followed by China (13%), India (7%), Nigeria (6.4%) and the Netherlands (5.2%).

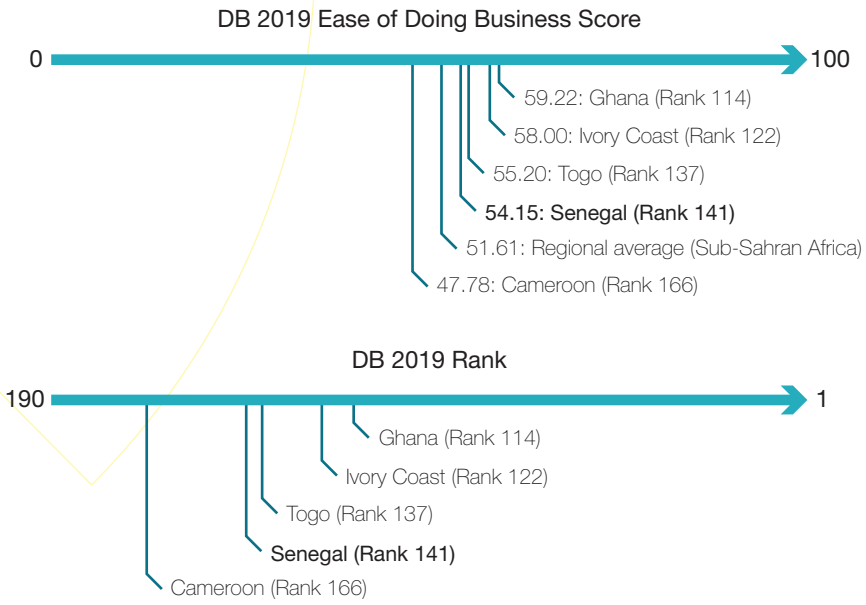
Senegal is a member of the West African Economic and Monetary Union (WAEMU) which aims at reaching greater regional integration with unified external tariffs. The country is linked to the EU through this organization via an Economic Partnership Agreement. It is a beneficiary country of the African Growth and Opportunity Act (AGOA) implemented by the USA.

Overall, Senegal has shown macroeconomic stability over the past years and therefore represents an attractive country for international investors in the solar power sector. Another sign of the good economic prospects for Senegal is the oversubscription of bonds emitted by the country. Senegal issued five bonds on the international financial market in 2009, 2011, 2014, 2017 and 2018. Senegal raised USD 2.2 billion in March 2018 through subscriptions which exceeded expectations. This amount will partly be used to finance the PSE's programs.

BUSINESS ENVIRONMENT

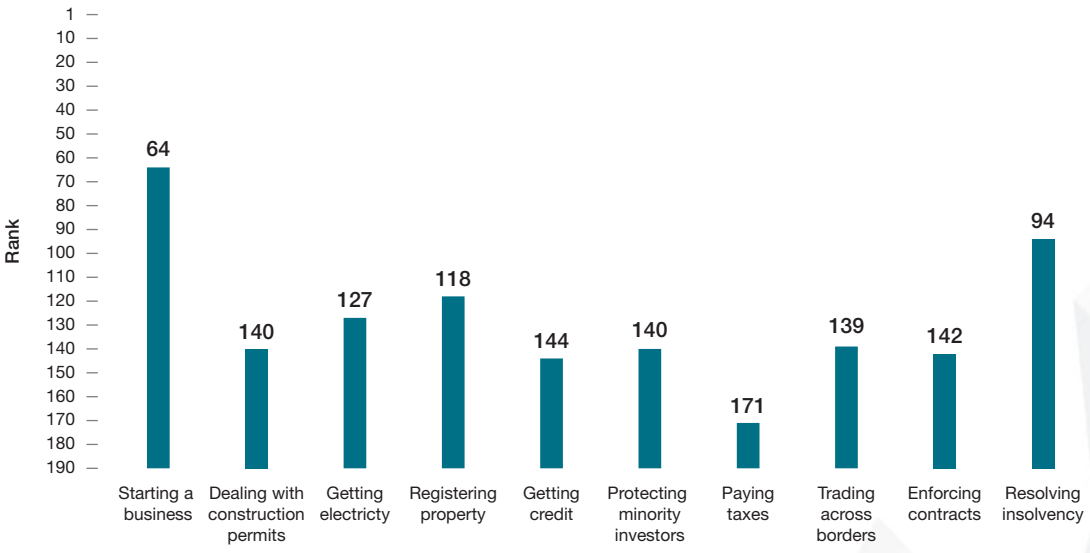
The *Doing Business Index,* annually published by the World Bank, provides a general picture of the efficiency of the country's system. It measures the impact of regulatory and fiscal discipline on business activity and the ease of doing business in the country through the analysis of selected criteria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

FIGURE 1 SENEGAL DOING BUSINESS INDEX 2018



SOURCE: World Bank, 2018.
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 2 RANKINGS ON DOING BUSINESS TOPICS - SENEGAL



SOURCE: World Bank, 2018.

In the evaluation of Senegal's business environment, *the taxation regime* is the factor that hinders business the most. Indeed, the number of tax payments per year amounts to 58 (compared to an average of 37.4 in Sub-Saharan Africa and 11.2 in OECD countries). Moreover, complying with the three major national taxes is extremely time consuming (estimated to 441 hours per year). Senegal implemented a tax code reform in January 2013 with the objective to use the tax system as an instrument to support economic growth. Measures, such as the development of e-tax platforms or the generalisation of e-VAT reporting for SMEs, are to enter into effect in order to make declaring and paying taxes easier. Over the past years, the total tax rate decreased from 50.3% in 2005 to 45.1% in 2016. Senegal is a member of the Organization for the Harmonization of Business Law in Africa (OHADA), which aims at harmonising business law for member countries of the WAEMU and CEMAC.

Senegal initiated measures aimed at improving its business environment. The country implemented a three-year Programme of Business Environment and Competitiveness Reforms (2013-2015 PREAC). The minimum capital required to *start a business* was suppressed in 2015 as well as stamp duties on business startups. Cost and time to create a business or register property have been eased. Indeed, it takes only six days to establish a new business in Senegal, which is less than the average time necessary in the OECD.

Getting electricity ranks 127th for this field in the Doing Business 2019 index compared to 162nd in 2016. The electricity utility of Senegal has reduced the time required to get a new connection by streamlining the applications' review and reducing the time needed to obtain an excavation permit. The required time to connect stands at 75 days in 2019 when 125 days was demanded in 2012. In comparison, it takes 77.2 days on average in OECD's high-income countries.

Senegal's ranking in the Doing Business Index has been improving from 153rd in 2016 to 141st in 2019.

In the solar power industry specifically, the National Action Plan for Renewable Energies launched in 2015 identified the slowness in project implementation and the availability of lands as the main obstacles to overcome.

FIGURE 3 SENEGAL OECD RISK CATEGORY AND S&P'S, MOODY'S, FITCH RATINGS

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

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

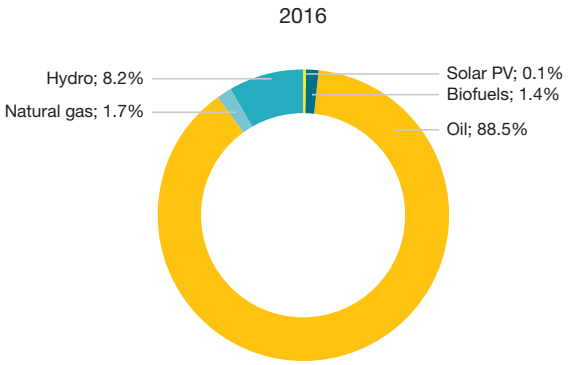
POLITICAL AND SOCIAL CONTEXT

Senegal is among the most stable countries in Africa. It has known three major peaceful political transitions since its independence in 1960. Senegal's current president Macky Sall was elected in March 2012 and the country's next presidential election will take place in February 2019. In 2016, a constitution referendum reformed the country's political structure, including the shortening of the presidential term from 7 years to 5 years and other measures that are still to be implemented. In 2017, the ruling coalition Benno Bokk Yakaar won 125 out of 165 seats in the national assembly, where a dozen other parties hold seats including *Coalition gagnante Wattu Senegal, Manko Taxawu Sénégal*, and the *Parti de l'unité et du rassemblement*. Macky Sall's government benefited from international political and financial support. Sall's development program, the Plan Sénégal Emergent, presented in February 2014 at the donor countries' Advisor Group in Paris, received even more financial support than anticipated. The biggest challenges for the current government are solving the country's economic and social problems such as high cost of living and unemployment. The government implemented an across-the-board reduction of rents to tackle increasing public discontent in 2014. Regional security shocks have not impacted Senegal so far, though activism by terrorist groups in neighbouring countries could trigger instability. Its political stability and the government's involvement to tackle underdevelopment makes Senegal attractive to foreign solar investors.

According to the latest poverty statistics, 46.7% of Senegalese were falling below the national poverty threshold and 38% below the international poverty threshold (USD 1.9 a day in purchasing power parity terms). Even though no new data were collected since, the country's growth in the past years suggests a monetary poverty decrease attributable to construction and services in urban areas and to the primary sector in rural areas. Access to services and asset ownership also improved but suggests a stagnation of inequality. Job creation is still insufficient to absorb internal migration and a growing labour force. Moreover, the major part of labour is informal, implying low remuneration, underemployment, and limited social protection. Poverty levels should decrease from 34% in 2017 to 31.2% in 2020, driven by agricultural growth from 2020 onwards. Under this scenario, poverty decrease in urban areas would be driven by services, remittances, and public constructions. Senegal was ranked 162nd (out of 188 countries) in the 2017 Human Development Index (HDI) ranking. However, Senegal offers one of the best social systems in Africa benefiting about 30% of the poorest households. The country made progress in terms of child health mainly by tackling malaria and chronic malnutrition, which stands at 17%, the lowest rate in Sub-Saharan Africa. Progress has been less important in terms of teenage, maternal, reproductive and neonatal health due to high medical fees for lower income populations. In 2013, Senegal launched a universal health insurance program in order to improve healthcare access for the poorest households working in informal sectors or living in rural areas.

2 SENEGAL ELECTRICITY MARKET

FIGURE 4 SENEGAL ELECTRICAL GENERATION BY FUEL (2016)



SOURCE	GWh
Natural gas	76
Hydro	360
Solar PV	6
Biofuel	63
Oil	3,905
Total	4,410

SOURCE: IEA, 2018.

COUNTRY ENERGY SECTOR SITUATION

In Senegal, the Ministry of Energy develops and proposes the general policy and applicable standards for the electricity sector to the president. It grants the licenses and concessions within the applicable framework and can withdraw it if needed. The National Agency for Renewable Energies (ANER) is in charge of the promotion and development of renewable energies. The Electricity Sector Regulatory Commission (CRSE) is the independent authority in charge of the regulation of generation, transmission, distribution and sale of electricity. It regulates the sector and determines electricity prices as well as their structuring. The Senegalese Rural Electrification Agency (ASER) oversees rural off-grid projects.

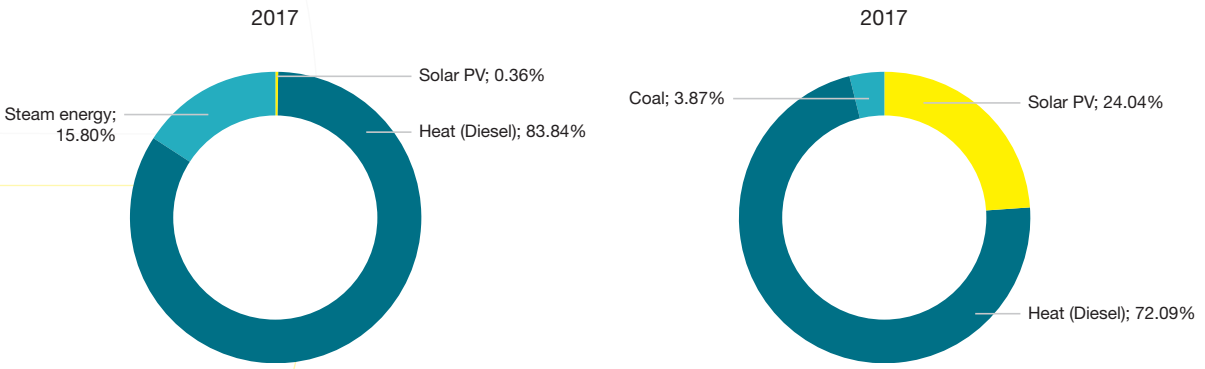
Senelec is the historical public operator of electricity in Senegal in charge of generation, transmission, distribution and sale of electricity, as well as realisation and financing of new projects on its perimeter. Senelec has a monopoly on electricity transmission over the country except for the Manantali interconnection. Since 1998, the sector is open to Independent Power Producers (IPP). This opening to IPPs made the realisation of recent solar projects such as the Touba and Kahone solar plants or the Malicounda photovoltaic park possible.

Senegal's main sources for electricity generation are diesel and gas, both of which need to be imported. Power demand has been increasing over the last decade and is expected to keep growing in the next few years. The exploitation of Senegal's recently discovered offshore oil and gas fields, which should begin in 2021-2022, might help to keep up with this rising demand, combined with new coal and diesel generation facilities. In addition, there is a political will to develop renewable energy generation capacity by 2020. Recently adopted regulations demonstrate that the country is moving in the right direction, particularly since the signature of the first Energy Sector Development Policy Letter in 2008 (Lettre de Politique de Développement du Secteur de l'Energie, LPDSE). Indeed, Senegal implemented an orientation law on renewable energies in 2010, which was followed by the launch of the National Action Plan for Renewable Energies in 2015 (more details below).

Senegal's national electricity access rate of 64.5% (2016) is relatively high and has grown steadily over the past few years. It stood at 54.2% in 2010 and 61% in 2014. Access to electricity in urban areas is very satisfying, standing at 87.7%, but estimated at 38.6% in rural areas. The government has set a target for universal access in 2025. The electrification rate is rising thanks to new connections to the main grid and to small off-grid projects. However, electricity supply to people connected to the grid is still highly unstable and unreliable, leading to revenue and productivity losses for Senegalese businesses.

Rural electrification policy runs as a concession program (Concession d'Electrification Rurale or CER) whereby ten distinct rural electrification concession areas can be awarded to bidders in a competitive tender. Local initiatives for rural electrification can also be supported (Projects ERILs). Senegal is divided into ten CER, which are granted to private operators selected

FIGURE 5 INSTALLED CAPACITY SENELEC AND IPP FACILITIES (2016)



SOURCE: Senelec, 2018.

by international bids. Operators oversee technical studies, acquisition and installation of supply equipment, operation, maintenance and replacement as well as billing and client management during the duration of the Concession (25 years). Among the ten CER, six concessions have already been granted and the remaining four are temporarily under the supervision of several Interim Delegate Supervisors (Gestionnaire Délégués Transitoires).

ELECTRICITY INFRASTRUCTURE

Production

Senelec relies on its own production facilities as well as on IPPs to satisfy the electricity demand. In 2017, Senelec's own production facilities represented 553.9 MW and IPP facilities reached 413.9 MW. Senelec also benefited from the production of three sub-regional plants: Manantali, Félou and Somelec located in Mali and Mauritania.

- Cap-des Biches and Bel-Air (Dakar) power plants, which are interconnected
- Regional plants of Ziguinchor, Kolda and Tambacounda, which supply their own grid
- Isolated production plants called "secondary plants"
- Independent producer's plants of Kounoune Power, Tobéne Power and Contour Global linked to the interconnected grid
- SOMELEC fuel-gas plant linked to the interconnected grid
- Manantali and Félou hydropower plants linked to the interconnected grid which also supply Mali and Mauritania

In 2014, Mauritania offered to export part of its excess supply to Senegal. In September 2014, a power purchase contract was signed between Senelec and SOMELEC with the objective to sell the excess supply of Nouakchott fuel-gas plant to Senelec.

Transmission

A transmission system is used for electricity exchanges across the country and for electricity supply to big industrial companies. Commonly known as the Interconnected Grid (IR), it is mainly located in the western area of the country, especially in the Dakar area, in which energy consumption is the highest. However, the IR is growing towards the centre of the country in anticipation of the interconnection with the future 225 kV grid of OMVS (Senegal River Basin Development Authority) and OMVG (Gambia River Basin Development Authority). Except for this line, electric transmission is done through a grid of 90 kV and 30 kV lines coupled with transformer station HV/MV.

In 2014, the transport system was 528.6 km long, including:

- 246.7 km of 90 kV lines (21 sections)
- 281.9 km of 225 kV lines (5 sections)
- 14 transformers, for a total installed capacity of 1,650 MVA.

2 SENEGAL ELECTRICITY MARKET / CONTINUED

Distribution

Senelec's Medium Voltage distribution network (2015) is composed of:

- 9,102.24 km of medium voltage lines (6.6 kV and 30 kV)
- 8,376.75 km of low voltage lines (0.4 kV)
- 4,819 MV/LT

The Low Voltage distribution network includes:

- 7,812.517 km of overhead lines
- 564.233 km of underground lines

Obsolete infrastructure lead to frequent shutdowns and transmission losses are estimated to around 19%. Reserve capacity is not sufficient causing frequent outages of whole districts, while transmission losses, old thermal power plants and high oil prices trigger higher production costs.

In February 2018, Vinci Energies won a EUR 197 million contract to build five high voltage electric stations and 200 km of underground and overhead lines.

PRODUCTION AND DISTRIBUTION NETWORK IN
SENEGAL

SOURCE: RECP, 2019.

ACTORS, TARIFFS AND REGULATORY FRAMEWORK

Imported crude oil is processed and refined by the Société Africaine de Raffinage (SAR) which is Senegal's only refinery. Since its processing capacity covers less than 40% of the market, Senegal also imports refined oil products. Therefore, electricity tariffs are high compared to other ECOWAS countries and Senegal's power infrastructure has trouble keeping up with increasing demand.

NEW DEVELOPMENTS FOR SOLAR POWER

In December 2015, Senegal launched the PANER, a National Action Plan for Renewable Energies in order to comply with ECOWAS' energy policy. Main objectives for 2020 are to reach 35.6% of renewable energy (403 MW) in the total installed capacity, including hydroelectricity, as well as 20% renewable energy in the electrical mix. As far as off-grid renewable energies are concerned, the objective for the government is to have 15% of rural population benefiting from off-grid systems by 2020.

Senelec reported 102 MW installed capacity of solar energy in 2017. Its installed capacity dramatically increased over the past three years as it stood at 2 MW in 2015. The sector benefited from Macky Sall's government's will to develop renewable energies. Current solar installed capacity includes:

In operation:

- The Senergy II solar plant in Bokhol was the first important solar installation in Senegal, with an installed capacity of 20 MW. It was launched in October 2016 and was the biggest plant in West Africa at the time. The installation is composed of 77,000 solar panels and supplies electricity to 9,000 households and cost FCFA 17 billion (EUR 25.9 million), financed by the French platform GreenWish Partners through the investment vehicle GreenWish Africa REN. 45% of the project equity is held by Senegalese investors including the Caisse des Dépôts et Consignations du Sénégal. Vinci Energies was in charge of construction and operation.

FIGURE 6 LOW VOLTAGE ELECTRICITY TARIFF SCHEDULE SINCE MAY 2017

TARIFF CATEGORIES (LOW VOLTAGE)	COST OF ELECTRICITY (CFAF/KWH)			FIXED MONTHLY PREMIUM (CFAF/KWH)
	1ST TRANCHE	2ND TRANCHE	3RD TRANCHE	
Domestic use				
Domestic Low Power	90.47	101.64	112.65	
Domestic Medium Power	96.02	102.44	112.02	
Professional use				
Professional Low Power	128.85	135.68	147.68	
Professional Medium Power	129.81	136.53	149.24	
Prepayment (WOYOFAL)				
Domestic Low Power	90.47	101.64	101.64	
Domestic Medium Power	96.02	102.44	102.44	
Professional Low Power	128.85	135.68	135.68	
Professional Medium Power	129.81	136.53	136.53	
High Power Use	Off-peak hours	Peak hours		
Domestic High Power	86.30	120.81		869.21
Professional High Power	103.36	165.38		2,607.63
Public lighting	118.16			3,007.21

SOURCE: Senelec, 2018.

- The Malicounda solar plant was inaugurated in November 2016 by Senelec and a group of Italian investors, including Solaria, which financed the construction for an amount of FCFA 20 billion. The plant has 86,000 panels and a capacity of 22 MW. It provides energy to 9,000 households.
- The Senergy solar plant in Santhiou-Mékhé is one of the biggest in Africa with a capacity of 30 MW. Beginning production in June 2017, the park is composed of 92,000 solar panels and can supply electricity to 300,000 households according to Senelec, which signed a PPA with Senergy PVSA. This solar farm is the result of a public-private partnership (PPP) including the French fund Meridiam (53%), the Fonds souverain sénégalais (32%), Solairedirect—an Engie subsidiary, which built and operates the park—(15%), Senergy PVSA and Proparco (15 %). Proparco financed 80% of this project through a FCFA 22 billion loan, the total investment being estimated at FCFA 27 billion.
- The Ten Merina 30 MW solar plant was launched in January 2018. This project was carried by Meridiam (85%) in a partnership with Eiffage and Solairedirect. The investors obtained a € 34.5 million loan from Proparco and the Société Belge d'Investissement pour les Pays en Développement (BIO) for a total cost estimated to EUR 43 million. It should bring electricity to 226,500 inhabitants.

As part of the World Bank's Scaling Solar initiative, a consortium reuniting Meridiam and Engie was selected by the CRSE in April 2018 to develop two solar plants in Kahone (35 MW) and Touba (25 MW), with a respective bid tariff of EUR 3.8 and EUR 3.98 cts/kWh. Both Engie and Meridiam hold 40% of the project and the remaining 20% is held by the FONSIS. Two other projects under direct agreements are to be launched in Dias (15 MW) and Sakal (20 MW).

Senegal benefits from the strong support of international organizations. The World Bank provides support to Senegal for its National Rural Electrification Program 2015 – 2025. In addition, Senegal is a beneficiary of Power Africa, an American program launched by Barack Obama in 2013, which aims at improving access to a reliable and less costly energy. USAID is working with Senegal's Ministry of Energy to assess Senegal's rural electrification efforts and come up with recommendations to accelerate the process. The agency also provides transaction advisory to private sector off-grid companies and rural concession holders in order to help them in developing their activities and strengthening their business models.

Development Finance Institutions also represent a major source of financing and support for the renewable energy sector in Senegal. As mentioned above, Proparco took part in the financing of two major solar plants over the past years. GIZ, a German development agency also provides support to Senegal in the development of renewable energy and energy efficiency projects.

3 RECOMMENDATIONS

FOR INVESTORS

Senegal represents a real opportunity for investors seeking to invest in renewable energy deployment in emerging markets. Indeed, the country shows strong potential for the development of renewable energies, especially for solar power. The country benefits from high solar irradiation across all of its territory. Senegal also has significant potential for the development of hydropower, as well as for wind power, along the northern coastline.

The country offers an appropriate environment thanks to economic and political stability over the past decades. These advantages enabled Senegal to attract many international investors for infrastructure investments. Moreover, the current policy is supportive of the implementation of renewable energy projects. Macky Sall has successfully raised funds in favor of the development of the second phase of the Plan Senegal Emergent (PSE) in December 2018 in Paris. The PSE already triggered massive investments in the renewable energy sector and should pursue this path.

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

An important measure in favor of the improvement of the electricity sector includes the harmonization of electricity tariffs. Indeed, electricity prices used to be higher for rural households, which is a serious impediment to rural electrification. This measure was demanded for a long time by development institutions such as the UNDP. In March 2018, Macky Sall announced its launch and the CRSE is now working on its implementation.

Public decision makers should also promote the implementation of green taxation. Senegal already made efforts in that direction. Indeed, the country's tax code states that physical persons investing in solar or wind energy can benefit from tax reductions. The government should pursue this direction in order to foster investments in the renewable energy sector.

RECOMMENDATIONS FOR LOCAL PRIVATE STAKEHOLDERS

In order to develop the Senegalese solar power market attractivity for investors, developing the training of local workers appears as an essential step. Such a program could be supported by development institutions as was the case in the 1990s through cooperation between the government, Enda and GIZ aimed at training solar technicians.

As the solar energy sector is being developed in Senegal, local banks should also join the necessary revolution, by creating ad hoc financial instruments, and train their employees to finance solar projects in the local currency.

RECOMMENDATIONS FOR DEVELOPMENT FINANCE INSTITUTIONS

Development finance institutions play a key role in Senegal and their presence in the country gives private international investors the confidence to enter into this market. These institutions contribute to the development of a suitable market for investments in renewable energies by providing financial, technical and governance support and should pursue this path. Development finance institutions' long-term commitment in a country contributes to providing credibility to national policies and are positively considered by international investors. Technical assistance programs and other forms of support are key to improve energy access in Senegal.

Multilateral development finance institutions also have an important role to play in fostering investments in the renewable energy sector. The European Investment Bank took part in the financing of the Manantali hydropower project and provides support and funding to the West African Power Pool. In addition, the World Bank or the African development bank provide partial risk guarantees aiming at stimulating investments in developing countries. The European Fund for Sustainable Development will also provide guarantees for renewable energy projects within the framework of the EU External Investment Plan.

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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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