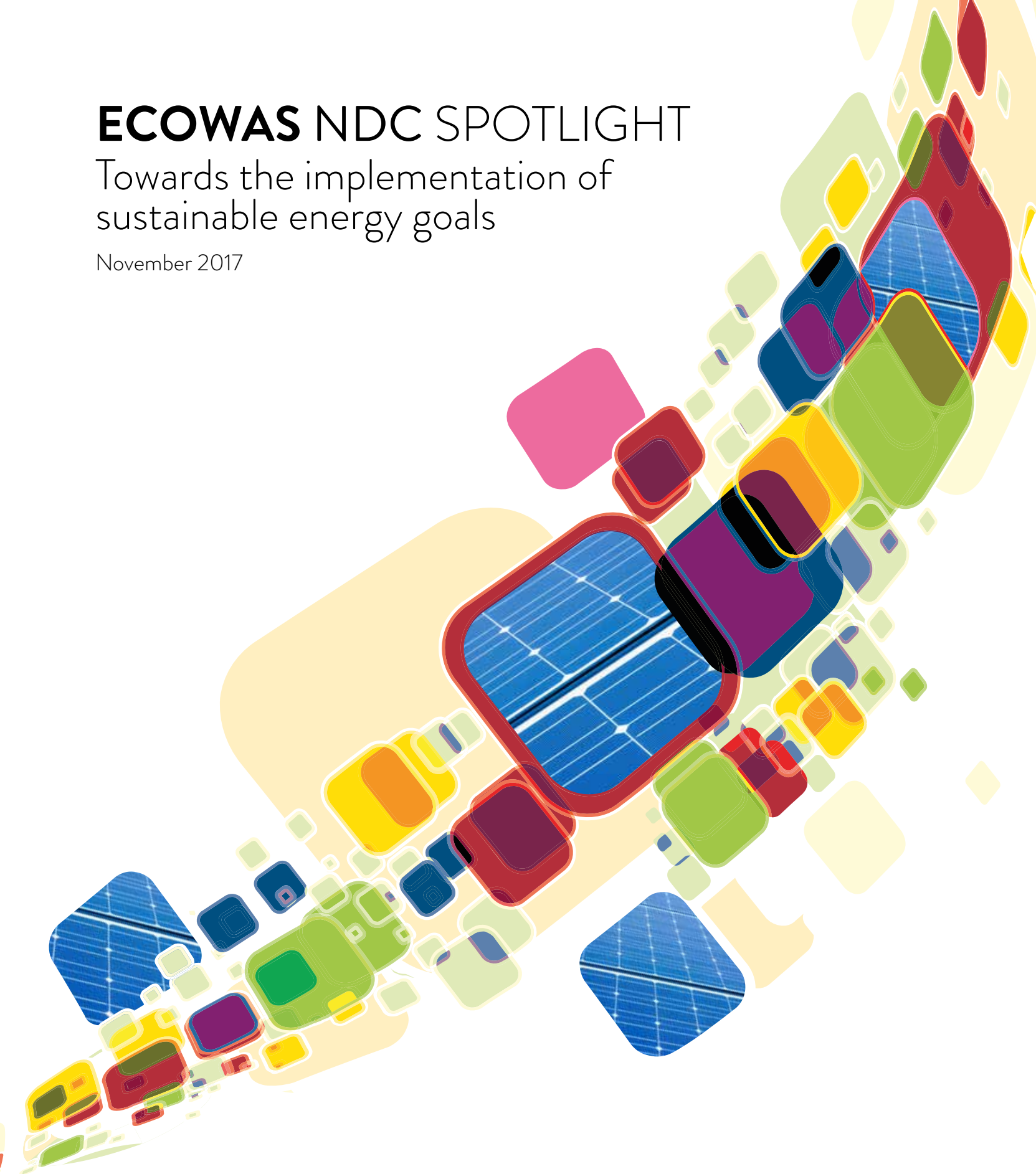


ECOWAS NDC SPOTLIGHT

Towards the implementation of sustainable energy goals

November 2017



ECREEE
TOWARDS SUSTAINABLE ENERGY

ACRONYMS

AREI

African Renewable Energy Initiative

ANER

National Renewable Energy Agency of Senegal

CEM

Clean Energy Ministerial

COP

Conference of the Parties

ECOWAS

Economic Community of West African States

ECREEE

ECOWAS Center for Renewable Energy and Energy Efficiency

EE

Energy Efficiency

FFSR

Fossil Fuel Subsidies Reform

GCF

Green Climate Fund

GDP

Gross Domestic Product

GHG

Greenhouse Gases

IPP

Independent Power Producer

IRENA

International Renewable Energy Agency

NEEAP

National Energy Efficiency Action Plan

NDC

Nationally Determined Contributions

NREAP

National Renewable Energy Action Plan

NREL

National Renewable Energy Laboratory

PPP

Public Private Partnerships

PV

Photovoltaic

RE

Renewable Energy

SE4All

Sustainable Energy for All

UNFCCC

United Nations Framework Convention on Climate Change



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FOREWORD

As we gather for the second time here at the 23rd Conference of the Parties, the COP23, after the historic Paris Climate Change Agreement came into force, our main focus will be to determine the progress we have made to put in place the proper measures to ensure the successful implementation of the Nationally Determined Contributions (NDCs) and limit global temperatures from rising above two degrees Celsius.

Since the submission of the NDCs to the United Nations Framework Convention on Climate Change (UNFCCC), countries around the world have taken significant strides to implement NDCs with myriads of conferences and events organized to support their efforts. All countries within the Economic Community of West African States (ECOWAS) submitted their NDCs as well as ratified the Paris Agreement. The matter at hand is the rapid and efficient implementation of their NDCs to prevent dangerous catastrophic impacts of climate change.

The ECOWAS region is made up of 15 unique West African countries and that uniqueness is reflected in the energy sector ambitions for each country. They all share a common defining factor, which is that energy and climate change both have the ability to slow economic growth and hinder the achievement of their sustainable development goals. Unsurprisingly, energy is also at the forefront of the fight against climate change.

Aligned with the strategic goal of the region to achieve sustainable development and to support efforts in the implementation of NDCs, the ECOWAS Regional Centre for Renewable Energy and Energy Efficiency (ECREEE) is giving the energy sector a common voice at the COP23. The ECOWAS NDC Spotlight seeks to present a

succinct and candid reflection of where ECOWAS countries stand in the implementation of their energy sector NDCs goals and to spotlight individual country's progress and showcase the latest developments and activities undertaken in the region to facilitate the implementation of domestic and regional clean energy actions. It also seeks to identify future trends and regional opportunities in NDC Implementation including investment needs as well as to reiterate the case for continued support for renewable energy deployment in the region as a case for raising NDC ambitions while meeting energy demand needs. For this, the energy directors from ECOWAS countries have been put on the spotlight in order to explain how the energy sector in their respective country relates to the Paris Agreement.

Overall, countries show the desire to follow through and achieve their NDC energy targets and goals. The general consensus is that investments, the transfer of technology, as well as capacity enhancement are critical to overcome NDC implementation challenges.

The ECOWAS region is considered one of the most active regions in Africa for the promotion of renewable energy (RE) and energy efficiency (EE) to address energy security and access, and climate change concerns. With the support of ECREEE, countries have come a long way to increase sustainable energy services. The incorporation of RE and EE policies in the region accelerated in 2013 and 2014 when ECREEE established a pathway for ECOWAS nations to create National Energy Plans, National Renewable Energy Action Plans (NREAPs), and National Energy Efficiency Action Plans (NEEAPs) as well as the Sustainable Energy for All (SE4A-II) Action Agendas. The NDC came on board at the right time to supplement these processes.



These actions are bringing about gradual but desired changes in each country's policy frameworks. Most importantly, they are attracting cross-border collaborations and domestic, regional and foreign investments in the region. However, it is critically important that these strategies and policies be harmonized to take advantage of the economies of scale, a preference in the sector.

Going forward, the only way to become more effective is to create the appropriate platforms for dialogue between the relevant ministries and stakeholders involved. It will also require sustained effort and cooperation from all spheres of government, the private sector and civil society. Horizontal and vertical alignment of national energy goals and climate action must meet a central point before the implementation of NDCs can fully take off.

We hope you find this publication enlightening and that it helps you to understand the current state of NDC implementation in the ECOWAS region.

Mahama Kappiah
Executive Director

ENERGY TRANSITION TO SUPPORT CLIMATE OBJECTIVES



Ms. Christine Lins, Executive Secretary of REN21.

Christine Lins was appointed as Executive Secretary of REN21, the Renewable Energy Policy Network of the 21st Century, in July 2011. REN21 is a global public-private multi-stakeholder network on renewable energy. Between 2001 and 2011, Ms. Lins served as Secretary General of the European Renewable Energy Council. Ms. Lins holds a Masters degree in international economics and applied languages.

When REN21 was founded in 2004, the future of RE looked very different than it does today. No one imagined back then that nearly 60% of newly added power capacity would be renewables; or that tens of millions of homes and businesses would add solar PV to their rooftops so rapidly. No one imagined that emerging economies and developing countries would attract nearly 50% of global annual RE investment, totaling 250 billion USD by the end of 2016 or that Pay-As-You Go Solar companies would top 223 million USD by the end of 2016. Given the persistently high numbers of people without access to electricity this is good news, particularly in sub-Saharan Africa where lack of access is the highest. Increasing investment in solar home systems (SHS) is also having a “knock on” effect on cooking fuels where inefficient fuels are being replaced with electricity.

This growing shift to renewables coupled with EE, be it centralized or decentralized, also spells good news for the climate. There is broad consensus among the world’s leaders that we need to work together to mitigate climate change. Increasingly countries are on a pathway to decarbonize their energy sectors but more needs to be done, faster if we are to maintain temperatures below the 2°C, if not 1.5°C threshold. Nothing short of a complete decarbonization of the energy sector will do.

This however requires us to rethink our energy systems. A systems approach to energy –where the generation and use of RE is looked at from a cross-cutting perspective– needs to be adopted. This includes looking at supporting infrastructure such as transmission and distribution networks, balancing supply and demand measures, energy-efficiency measures, and sector coupling as well as a wide range of enabling technologies. The inclusion of social participation, in the form of universal energy access, socio-economic co-benefits and empowerment of marginalized social groups and local communities is also part of the approach. It is also time to debunk the myth of baseload. The myth that fossil and nuclear power are indispensable to provide baseload electricity supply when the sun isn’t shining, or the wind isn’t blowing has been shown to be false. Acknowledging this reality will allow developing countries to make decisions today that avoid the carbon-intensive mistakes of industrialized countries.

Organizations such as the ECREEE play a pivotal role in driving this process. Despite the vast energy resources of the region, the energy market remains largely underdeveloped. Understanding the region’s developing RE industry, market development and growth is critical to identifying and scaling-up investment opportunities and synergies.

Moreover ECREEE, as the region’s RE and EE agency, is well-placed to encourage the breakdown of traditional energy silos and drive new thinking about how to achieve clean, affordable energy that supports climate objectives.

The 15-country region of West Africa is diverse; in population distribution, in Gross Domestic Product (GDP), in natural resources. However, what they all share is a high RE potential; whether solar, hydro power, biomass or some combination thereof. By making RE and EE a central pillar of their NDCs, the region collectively is well placed to be a leader for the continent, demonstrating what a climate-resilient, clean energy future can look like.

PARTNERSHIP: THE KEY TO UNLOCKING RENEWABLES



Mr. Pablo Vieira is the Global Director of the NDC Partnership Support Unit, which is responsible for leading efforts to assist countries in advancing their climate goals by facilitating access to analysis, tools, expertise, financing, and other resources. The NDC Partnership is global coalition of 62 countries and nine international institutions working together to mobilize support and achieve ambitious climate goals, while enhancing sustainable development.

When the primary means of global economic growth is limiting our outcomes, it is time to renew our thinking. Climate change mitigation places demands mainly on the energy sector and, especially in developing countries, this means that development and climate action must bend in the same direction: towards renewable energy.

As it is only one year after the Paris Agreement came into force, it is still very early in the process of implementing the NDCs driving forward each country's commitment to climate action. But we can already see high awareness and engagement throughout the ECOWAS. Despite the diversity of the realities in the region, most ECOWAS countries have made efforts to move forward on their climate agendas, integrating coastal zone adaptation into development planning, and notably in some countries, by implementing renewable energy strategies as a master move: to match development needs, supply energy security and create resilience to climate change.

The interest in clean energy mini-grids, based on the use of locally available renewable energy sources – such as solar, wind, hydro and bioenergy – is growing in West Africa with at least 268 systems already operational. Besides clear benefits for the environment and the health of West African communities, the mini-grids have been recognized as a way to improve the power sector and expand electricity access, as shown in the SE4ALL Action Agendas and National Renewable Energy Action Plans and the ECOWAS Regional Renewable Energy Policy, which aims to install 60,000 units by 2020.

However, the lack of clear policy and regulatory instruments is, still today, the primary barrier to renewable energy's large-scale deployment. Allegedly, the reluctance of financiers to enable private sector investment is often said to be due to the lack of public policies and regulations. The negotiation of feed-in tariffs on a project basis and the lack of appropriate instruments and methodologies to design fair and transparent renewable energy tariffs have been significant obstacles to its development.

To overcome this challenge, ECREEE has worked alongside the European Union Energy Initiative to support member states in capacity building and technical assistance to improve the policy and regulatory framework for scaling-up mini-grids in the West Africa region.

The support of both institutions made possible the development of a tariff structure for the energy sector in Senegal in 2014, then extended to every ECOWAS member in 2016. It came along with a toolbox to support ministries, regulators and utilities within the region to apply appropriate approaches and methodologies in the design of renewable energy tariffs, and has been shared with regulatory agencies from the 15 ECOWAS countries and already employed in The Gambia and Cape Verde.

There is much more to be done, but this strategic partnership illustrates how regional institutions and initiatives are critical to catalyze cross-border learning, and identify common challenges and share best practices. Just as ECREEE

and the EU came together to work in a regional context, every country can get support at the national level to implement their NDCs by requesting to become a member of the NDC Partnership.

Following the model of the NDCs themselves, our work is based on country-driven processes. We are not telling anyone what to do; we work towards solutions from the needs the country identifies, supporting processes that promote climate action in line with sustainable development and bringing together developing and developed countries, international institutions and non-state actors, to engage in three primary areas: technical assistance in-country, knowledge sharing and enhancing financial support.

These recent experiences only reinforce our commitment to work through partnerships, to strengthen the transition to a sustainable and resilient world. By connecting the dots, making matches and building bridges, we can unlock pathways to renewable energy.

SPOTLIGHT ON THE REPUBLIC OF BENIN

“A very important component of the NDC from Benin is adaptation. This is a new topic for us, and capacity development is welcome.”

Sustainable energy to address climate change

In Benin, there is a clear vision for the deployment of RE. Thanks to support from donors, several policy instruments are currently being developed. With backing from the second component of the Millennium Challenge Corporation, Benin is modernizing the country's power sector. Three documents have been drafted to foster decentralized clean energy generation. These documents include a master energy plan, regulatory framework and a strategic policy document which facilitate the master plan's implementation. A project funded by the United Nations Development Program aims to strengthen regulatory framework and to attract private sector investments to fund biomass power plants. The Capacity Building in the Energy Sector in Benin (RECASEB), a joint project with the European Union, is implementing a comprehensive approach to strengthen capacities in the power sector including the operation of the regulatory authority for electricity.

Other sustainable energy frameworks are being developed in Benin through a partnership with ECREEE. With technical assistance from the ECREEE and the German Agency for International Cooperation, a renewable energy law is being drafted. Additionally, both the NREAP and NEEAP have been validated.

Challenges

At present, the photovoltaic (PV) has an installed capacity of 95 MW, 40 of which were developed by independent power producers (IPPs). The target for PV in 2020 is to reach 150 MW installed capacity. The most immediate challenge now is to adopt and develop the necessary regulatory framework to attract private investors to successfully install, operate and maintain these new RE projects.

Partnerships and support

Currently, project developers struggle to successfully achieve power generation. Through partnership cooperation, Benin can develop their capacities and get support for drafting feasibility studies to accomplish bankable projects. Technical capacities are needed not only in project development, but throughout the construction, operation and maintenance of the power plants. Through careful planning, partnerships would allow Benin to successfully address all their NDC implementation challenges, such as:

- To reduce cost of project development, an atlas of wind resources should be generated and provided to project developers. Benin is currently seeking partners to assist with this task.
- A very important component of Benin's NDC is adaptation, which is a new topic for the country, and therefore capacity building partnerships are welcome.
- Finally, in terms of access to finance Benin could benefit from climate finance through the implementation of de-risking mechanisms for RE investments.

NDC Overview

Benin is willing to develop projects aimed at long-term results. The NDC implementation goals are focused on promoting national capacity for electricity production and extending energy access and efficient cook stoves throughout Benin. Support to create policies focused on the energy sector would prove beneficial to helping Benin achieve their ambitious targets.



Mr. Amine Bitayo Kaffo was appointed as the Director General for Energy by the Minister of Energy, Water and Mines in February 2017. He also serves as the National Director for the National Plan for Adaptation to Climate Change of the Republic of Benin.

RE commitments	EE commitments
Promote the construction of 95 MW solar power plants.	Extend household access to electric lighting to replace kerosene lighting.
Construction of 335 MW hydropower.	Strengthen the actions of efficient consumption of electric energy in all sectors.
Construction of 15 MW biomass power plant.	Promote low firewood consuming technologies.
	Promote the partial substitution of firewood fuel consumption by butane.

Renewable Energy and Energy Efficiency in the NDC

Benin submitted its NDC to the UNFCCC in October 2017. Table 1 presents the overview of Benin's unconditional commitments which include renewable power plants, energy efficiency for households and access to clean electricity.

Table 1. Renewable energy, energy efficiency and energy access unconditional commitments.
Source: Première Contribution Déterminée au Niveau National du Bénin au Titre de L'Accord de Paris.

Mitigation potential in the energy sector

The energy sector has an opportunity to cut down on GHG emissions. The following figure shows how improvements in Benin's energy sector can significantly lower emissions by 2030 compared to the business as usual scenario.

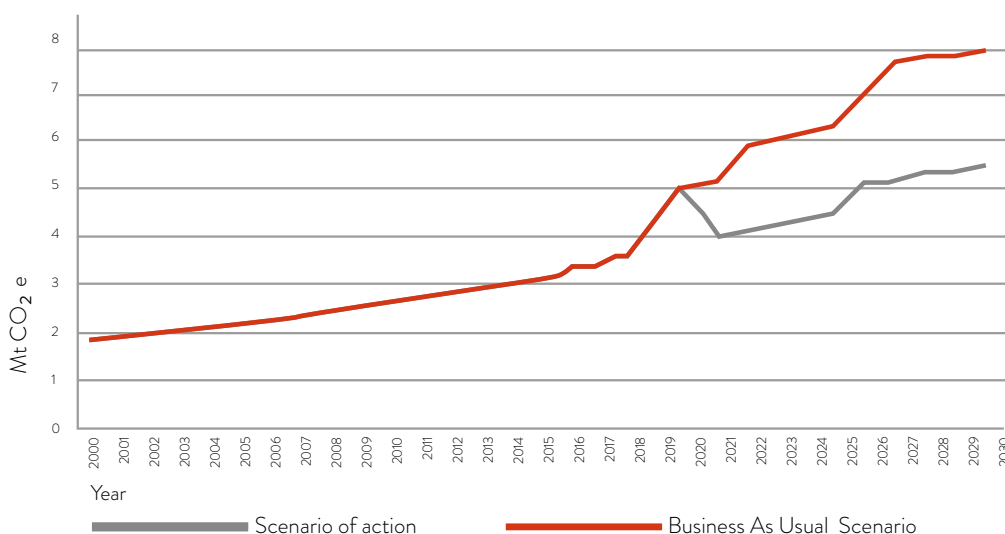


Figure 1. Estimation of the baseline emissions for the energy sector and the emission scenario with intervention.
Source: Première Contribution Déterminée au Niveau National du Bénin au Titre de L'Accord de Paris.



Mr. Bruno Korgo is the Director of Renewable and Domestic Energy of Burkina Faso. In May 2017, he was appointed Director-General of Renewable Energies by the Council of Ministers. Mr. Korgo is a physicist and has worked as a researcher at the University of Ouagadougou.

RE commitments	EE commitments
Doubling the share of RE in the global energy mix.	Assure universal access to modern energy services. Double the rate of improvement of energy efficiency. 540,000 improved cook stoves are produced and distributed, at least 50% in urban and semi-urban areas.

Renewable Energy and Energy Efficiency in the NDC

Burkina Faso submitted its NDC to the UNFCCC in November 2016. Table 2 presents the overview of Burkina Faso's unconditional commitments which include an increase of renewable energy in the national mix, universal access to electricity, and the distribution of modern cookstoves.

Table 2. Renewable energy, energy efficiency and energy access unconditional commitments. Source: Contribution Prévues Déterminées au Niveau National au Burkina Faso.

Mitigation potential in the energy sector

Burkina Faso has an opportunity to cut down on GHG emissions. The following figure shows how achieving their NDC commitments can significantly lower emissions by 2030 compared to the business as usual scenario.

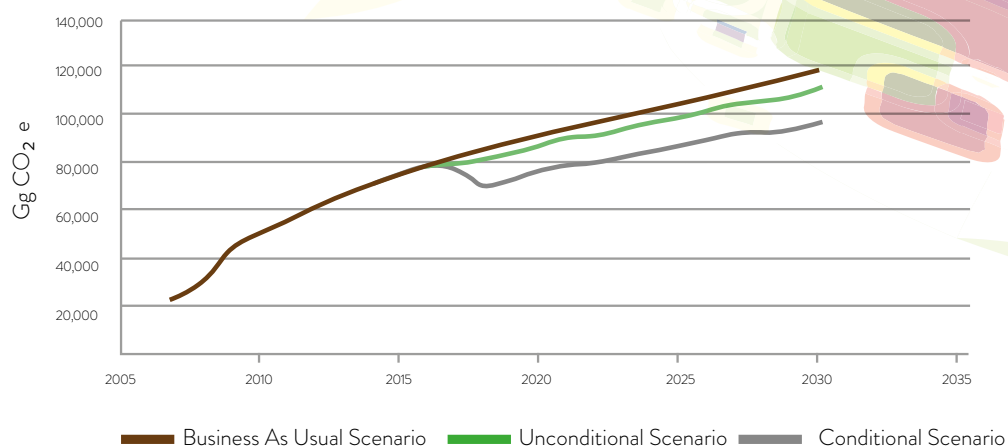


Figure 2. GHG Emission trends, baseline emission trends in comparison to unconditional and conditional emission scenarios. Source: Contribution Prévues Déterminées au Niveau National au Burkina Faso.

SPOTLIGHT ON BURKINA FASO

“In the coming weeks the biggest utility scale photovoltaic project in the ECOWAS will start operating in Burkina Faso.”

Sustainable energy to address climate change

Burkina Faso is aware that, in order to promote sustainable economic development and to address mitigation of GHG, more RE must be deployed. Burkina Faso set targets to contribute 30% of RE to the electricity mix by 2030 and 50% by 2050.

To successfully pursue their commitment and increase the amount of RE, new policies must be developed. Two new general directorates were established for RE and EE to deal with this situation. In addition, a RE and EE agency was created to directly engage in project development.

In April 2017, an energy sector law was passed within the framework of the ECOWAS Directives, which developed a new regulatory framework for RE IPPs. This law unbundled and liberalized distribution and generation of electricity which allows third parties to access the networks. In addition, the law introduced Burkina Faso to concepts like EE, clean energy mini-grids and solar home systems for the first time.

Presently, the government is working to develop the necessary legislation and technical regulations for large scale RE projects. As a result of these efforts, the biggest utility scale PV project in the ECOWAS region will begin operation in Burkina Faso in the coming weeks.

In addition to the new regulatory and institutional framework, Burkina Faso is proactively deploying programmes to advance efficient public lighting and aid the adoption of RE in health centres.

Challenges

To achieve these ambitious goals in terms of RE deployment, Burkina Faso faces three main challenges:

- The integration of large shares of variable electricity into the grid.
- The need for qualified professionals for the construction, operation and maintenance of RE projects, particularly in isolated areas.
- To design efficient subsidies to attract private investments for rural electrification.

Partnerships and support

There are various ways in which partnerships can support Burkina Faso in accomplishing their energy sector goals. Great expectations have been raised around the Green Climate Fund (GCF) to aid Burkina Faso in modernizing their energy sector. However, currently not maximizing the benefits from this resource. Accessing these funds can be promoted by holding local capacity building sessions where relevant stakeholders can learn to better understand and make use of GCF's facilities.

Technical assistance is needed to improve citizen's participation to maximise the sustainability of the projects and increase the socioeconomic impacts of RE deployment.

Finally, support to develop necessary rules and procedures to implement the laws is fundamental. This will not only attract private investments, but also secure the successful operation and maintenance during the lifetime of the power plants.

NDC Overview

Burkina Faso has developed a policy framework including but not limited to the NEEAP and NREAP where the goal is to reduce GHG emissions. The unconditional scenario shows that the sectoral mitigation is principally due to projects and programs in agriculture, forestry and changes in land use (between 6 and 7% from 2020 to 2030), technology choices in the power industry (between 20 and 12% from 2020 to 2030) and energy efficiency in the manufacturing industries (3% in both 2020 and 2030).

SPOTLIGHT ON THE REPUBLIC OF THE GAMBIA

“Renewable energies are going to support the socio-economic development of the country. On the one hand, to reduce its dependence on imported fossil fuels. On the other hand, renewable energy also creates sustainable employment for local people in construction, operation and maintenance.”

Sustainable energy to address climate change

The Paris Climate Agreement is crucial for the energy sector in The Gambia. It allows the country to refocus their strategies to attain necessary energy supplies by putting more emphasis on RE and EE which in turn, contribute to sustainable development. The Gambia recognizes that by investing in sustainable, efficient technologies the energy sector is reducing its emissions which is one of the main ways the country plans on combating climate change.

Energy sector NDC goals have positively influenced the sector's planning. The potential for success in achieving their goals is high, as the new government is committed to accomplishing their NDC ambitions and there is renewed donor interest following the successful democratic change of government. The envisioned NDC goals include reaching 30 and 75 MW of wind and solar PV respectively; install 1,000 hot sanitary water systems, replacing 300,000 incandescent bulbs with Light-Emitting Diode (LED) bulbs and producing and distributing 200,000 efficient cook stoves. Progress has been made by developing a 10 MW grid connected solar power plant. Currently, The Gambia is in the process of building a 30 MW solar PV plant and a 6 MW wind farm by IPPs.

By developing RE, The Gambia will reduce its dependence on imported fossil fuels, create sustainable employment for locals and contribute to the SE4All target to provide electricity access to everyone in The Gambia by 2030. Currently, only 50% of urban populations, and 35% of rural populations have access to electricity.

Promoting clean energy could contribute to improved public health conditions. Presently, kerosene lamps and biomass stoves are common, these forms of energy add to indoor pollution which is associated with health risks. Investing in more efficient as well as affordable alternatives, like improved cook stoves can directly improve citizen's health.

Challenges

The Gambia still faces obvious challenges to meet NDC energy sector goals. One of the major challenges comes from lack of financial resources. At present, communities cannot afford the high upfront costs of RE technologies. Also, private companies are not funding nor participating in these projects as expected.

To mobilize the private sector, The Gambia is working with the African Development Bank on the regulatory framework which would provide IPPs with power purchase agreements, for both utility scale and off-grid projects. The lack of financial guarantees is also an issue for the private sector. The public utility is not creditworthy. The Gambian government is currently investigating how to provide financial guarantees to back up the contracts with the IPPs.

Partnerships and support

Institutional structures that have existed for decades can adequately manage the mobilization and of NDC implementation programs. They Gambia experience in terms of program implementation, resource mobilization, and also contribute in terms of human resources.

The National Climate Committee of The Gambia oversees the implementation of climate change programs at the national level. The Donor Coordination Unit of the Ministry of Finance and Economic Affairs coordinates development partners and facilitates the interagency coordination at the national and regional level. The Meteorological Unit of the Department of Water Resources, which has been tracking long-term weather patterns and changes, is in collaboration with other departments to prepare energy infrastructure that can withstand extreme climate change events. Taking all of this into consideration, The Gambia is looking for support to develop RE and EE, particularly through partnerships with private stakeholders. There is also a clear need for technical assistance to achieve their energy sector goals.

NDC Overview

The Gambian NDC implementation goals, are focused on upgrading the national grid, installing solar PV, wind and hydro power plants and implementing low emissions, climate resilient development strategies. Detailed quantitative goals in terms of GHG emissions targets are not reflected. The Gambia has a National Climate Change Fund.



Mr. Kemo K. Ceesay is the Director of Energy at the Ministry of Petroleum and Energy of The Gambia. Mr. Ceesay has been working in the energy sector for the past 17 years, and has served as the Director for the past 6 years. He also served as the Designated National Authority for Clean Development Mechanism.

Renewable Energy and Energy Efficiency in the NDC

The Gambia submitted its NDC to the UNFCCC in July 2016. Table 3 presents the overview of The Gambia's unconditional commitments which include the development of solar wind and hydroelectricity plants, distribution of incandescent light bulbs and by raising the public's awareness.

RE commitments	EE commitments
Reach 78.5 Gg CO ₂ e reduction by 2025 by the use of RE.	Substitute incandescent light bulbs and raise awareness in the residential sector.
Install solar PV, wind power and hydro-electric power plants.	Reduce firewood and charcoal consumption and the overuse of forest resources.
Install solar water heating facilities on public buildings and support them for hotels and the residential sector.	Reduce fuel consumption through efficiency standards.

Table 3. Renewable energy, energy efficiency and energy access unconditional commitments. Source: Intended Nationally Determined Contribution of The Gambia.

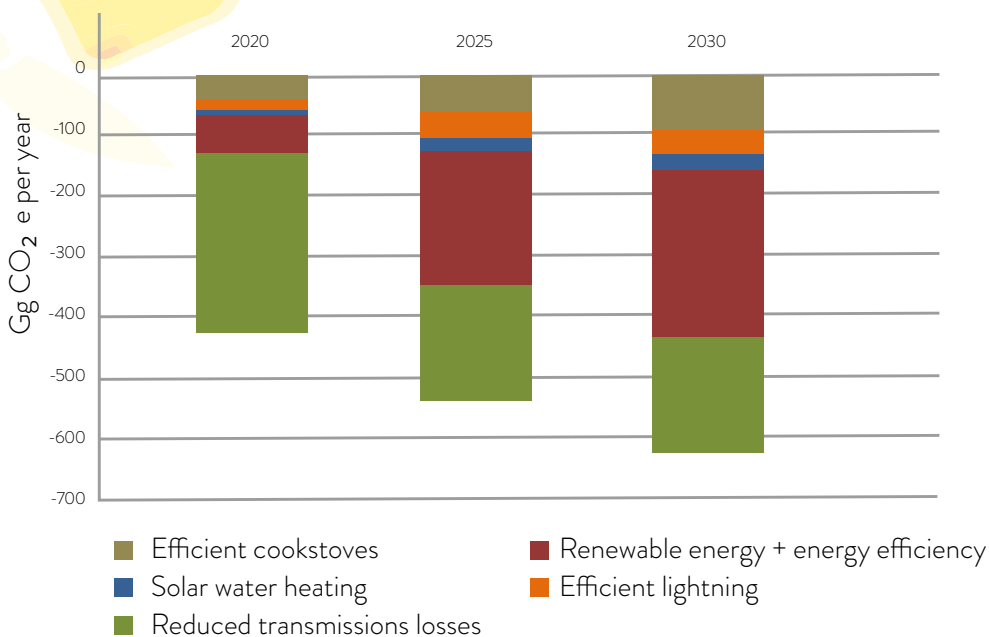


Figure 3. Emission reductions in the energy sector. Source: Intended Nationally Determined Contribution of The Gambia.

Mitigation potential in the energy sector

The Gambia has an opportunity to cut down on GHG emissions by complying with their commitments. The following figure shows that The Gambia's energy sector can lower their emissions by 2030 compared to the business as usual scenario by affixing to their sector goals.



Mr. Cheick N'faly Cissoko is Head of Energy Regulation at the National Energy Board of the Republic of Guinea. From 2015 to 2017, he was Director of Energy at the Ministry of Energy and Water for the Republic of Guinea. Mr Cissoko studied in Sofia Bulgaria and holds a PhD.

RE commitments	EE commitments
Produce 30% of its energy (excluding fuelwood) with RE.	Universal access to electricity by 2030. Double the ratio of “used energy/gross energy consumption” by 2030.

Renewable Energy and Energy Efficiency in the NDC

The Republic of Guinea submitted its NDC to the UNFCCC in September 2016. Table 4 presents the overview of The Republic of Guinea’s unconditional commitments which include an increasing of the renewable energy share in the national energy mix and universal access to electricity by 2030.

Table 4. Renewable energy, energy efficiency and energy access unconditional commitments. Source: Contribution Prévue Déterminée au Niveau National au Titre de la Convention des Nations Unies sur le Changement Climatique.

Mitigation potential in the energy sector

As shown in the following figure, Guinea’s energy sector produces the largest portion of CO₂ emissions when compared to other sectors and this is only expected to increase over time. This is in part due to their commitment to amplify electricity access to all by 2030.

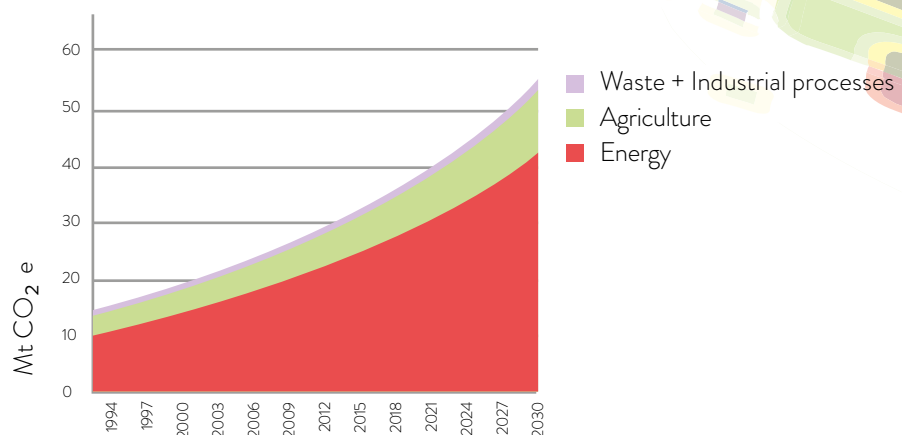


Figure 4. Emission projections excluding LULUCF. Source: Contribution Prévue Déterminée au Niveau National au Titre de la Convention des Nations Unies sur le Changement Climatique.

SPOTLIGHT ON THE REPUBLIC OF GUINEA

“The benefits of rural electrification through PV street lamps have rippled through rural populations by improving living conditions.”

Sustainable energy to address climate change

The Republic of Guinea is committed to combating climate change by implementing its sustainable energy objectives. Under the SE4All framework, the Republic of Guinea plans to increase the share of RE in the energy mix to 50%. The Republic of Guinea plans to achieve universal energy access by 2030, given that 20% of the population has energy access currently, a more realistic goal would be to achieve 65-80% energy access. To achieve these goals, a system based on decentralized RE must be implemented.

These ambitions must be flexible as the demand for energy is increasing throughout the Republic of Guinea. In 2017, domestic and mining sectors demand approximately 700 MW. In 3 years, due to industrial growth, the demand will reach more than 1,000 MW.

Solar energy can be harnessed to produce a large portion of the Republic of Guinea's energy needs. Hydroelectric power also has great potential and therefore is prioritized. The Guinea Hydroelectric Atlas identifies available sites and areas where feasibility studies have been carried out. Through this work, it has been determined that there is the potential to develop 6,000 MW from hydroelectric plants.

Wind power could also provide a portion of the energy demand especially in coastal and mountain regions. Currently a wind atlas is being developed and will be publicly available to incentivize investments in the sector.

The incorporation of RE to the mix has brought benefits in terms of economic growth. Before the development of

the 240 MW Kaléta hydroelectric dam, companies looking to establish business in Guinea lacked the necessary power supply to develop new industries. Since the construction of the dam in 2015, employment has increased. The more the private sector is supported by the state, the more businesses and jobs will be created.

The benefits of rural electrification through PV street lamps have rippled through rural populations by improving living conditions. Locals can now travel safely at night and conduct business and studies outside of daylight hours which increase quality of life.

Challenges

Drought is becoming increasingly more frequent due to climate change. These periods of drought reduce hydropower potential; therefore, the Republic of Guinea in collaboration with private sector stakeholders, are developing solar power plants that can offset the reduction in hydroelectric power generation during drought periods.

The government of the Republic of Guinea is aware that the existing regulatory framework is not attractive enough to scale up private investments in the RE sector. To improve the investment environment, the government is developing a new framework based on Public Private Partnerships (PPP) and the Build, Operate, Transfer Agreement.

Partnerships and support

The President of Guinea has been designated the Chairperson of the African Renewable Energy Initiative (AREI), a coordinated effort from donors such as the French and German governments, and the European Union to assist African countries in the deployment of RE. In the framework of the AREI, the French government has assisted the Republic of Guinea to finance feasibility studies, and carry out projects.

NDC Overview

Guinea currently has a relatively high output of RE due to hydropower development. As a result, over 50% of total electricity generation was from renewable sources in 2010. Looking at policy development, progress is being made through the establishment of a committee within the National Council for the Environment and Sustainable Development to help policy makers and government agencies monitor and evaluate legislation to combat climate change. This group is advised by experts and research institutions to address key issues such as improving energy efficiency and creating more sustainable public transport.

SPOTLIGHT ON REPUBLIC OF GUINEA-BISSAU

“There is so little representation from energy experts in the COP, this represents a great barrier to foster renewables under the Paris Agreement framework.”

Sustainable energy to address climate change

At present, Guinea-Bissau's government has made a great effort to draft a strategic plan for the development of EE and RE. This plan provides the vision for an energy transition which replaces 80% of traditional energy sources with sustainable energies in the national energy mix by 2030.

Guinea-Bissau is aware that this will only be possible if EE is improved. This requires strategic planning focused on three areas: the reduction of losses in transmission and distribution networks, large scale deployment of efficient cook stoves and end-user programs. This strategic plan is currently pending approval by the Minister of Energy.

Under the strategic plan, the government will draft a new electricity law which will set regulatory and institutional framework to promote future RE investments. Additionally, the government of Guinea-Bissau is considering the need for new regulation regarding certification and standardization of RE projects.

For the elaboration of the strategic plan, a workshop was held to gather knowledge and feedback from academia, private sector representatives and civil society. In addition, there is active coordination, to facilitate the day-to-day work, among the different ministries involved in energy sector development. Technical and financial support, and increasing capacity to access climate funds will be needed to achieve their objectives. Currently, a new institutional framework and the design of a comprehensive strategy to address multilaterals and bilateral donors in a coordinated manner are being finalized.

Taking into consideration that 95% of the power generation in Guinea-Bissau today is coming from heavy fuel powered plants, the large-scale deployment of RE will have a significant impact on reducing CO₂ emissions.

Challenges

One of the biggest challenges that Guinea-Bissau must overcome is related to energy access. Only 2% of the rural population, who live on less than 1 USD per day, has access to energy. Firewood represents 95% of primary energy consumption in rural areas of Guinea-Bissau, through the collection of forest biomass for cooking, which in turn promotes deforestation and the increase of greenhouse gas emissions. The government is trying to deploy min-grids, solar lamps and efficient cook stoves which are gas powered to address these challenges. There are also plans to commission three new hybrid power generation plants with a total of 22 MW.

Finally, there is also a political barrier which is caused by instability, that has prevented international investments in all sectors of the economy to invest in Guinea-Bissau.

Partnerships and support

There is so little representation from energy experts in the COP, the sponsored delegates are from other fields of focus which represents a great barrier to foster renewables under the Paris Agreement framework. To encourage mitigation activities in the energy sector, a RE expert should be present at the COP to represent their sector's interests. This would bridge the gap between the UNFCCC's climate change agenda and clean energy goals.

NDC Overview

The Republic of Guinea-Bissau aims to incorporate a minimum of 80% RE in their energy mix by 2030. Their implementation goals include the development of legal frameworks based on a low-carbon strategy. They have developed NREAP, NEEAP and SE4All aimed at promoting EE and RE expansion to rural areas.



Mr. Julio Antonio Raul is the Director of Renewable Energy in the Republic of Guinea-Bissau. Mr. Raul is also an IRENA and International Sustainable Alliance focal point, as well as the project coordinator of UNIDO-GEF for the promotion of small and medium enterprises.

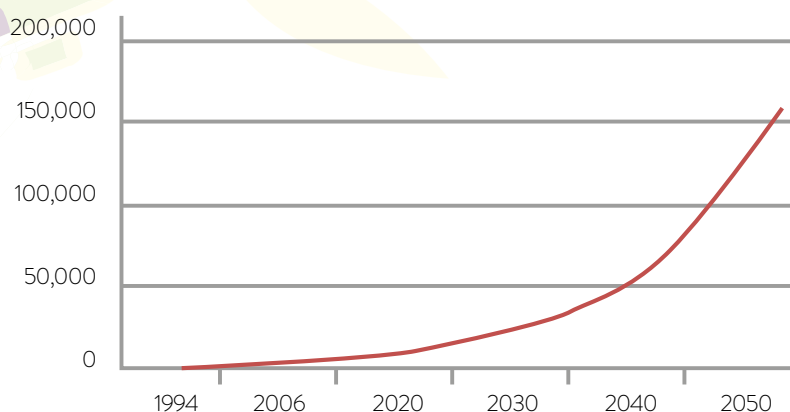
Renewable Energy and Energy Efficiency in the NDC

Guinea-Bissau submitted its INDC to the UNFCCC in September 2015. Table 5 presents the overview of Guinea-Bissau's unconditional commitments which include an increasing renewable energy share in the national energy mix and universal access to electricity by 2030.

RE commitments	EE commitments
80% renewable energy in the national energy mix by 2030.	Reduce energy losses up to 10% in the 2030 time span. 80% of access to electricity by 2030.

Table 5. Renewable energy, energy efficiency and energy access unconditional commitments. Source: Intended Nationally Determined Contributions (INDC).

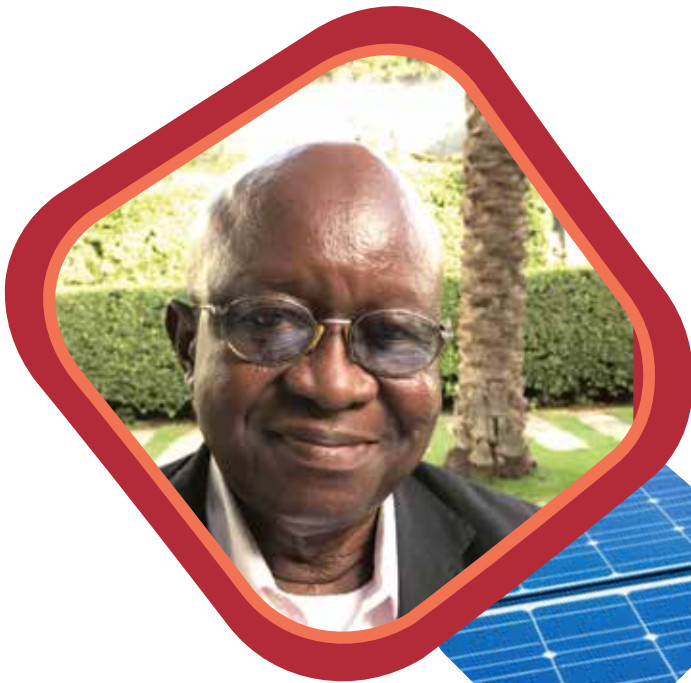
Emissions in Gg CO₂e



Mitigation potential in the energy sector

CO₂ emissions in the Republic of Guinea-Bissau are projected to increase in the future. This is in part due to their commitment to increase electricity access to 80% by 2030.

Figure 5. Projections which illustrate how GHG emissions are expected to increase in the future of the Republic of Guinea-Bissau. Source: Intended Nationally Determined Contributions (INDC).



Mr. Sylvester Massaquoi is the Director of Energy and Alternative Energy at the Ministry of Land, Mines and Energy of Liberia. Mr. Massaquoi has 40 years' experience and holds a bachelor's degree in chemistry from the University of Liberia, Monrovia. He led the development of the SE4All Action Agenda which fits into Liberia's Energy Action Plan.

RE commitments	EE commitments
Raise share of RE to at least 30% of electricity production and 10% of overall energy consumption by 2030.	<p>Improve EE by at least 20% by 2030.</p> <p>Replace low thermal efficiency cooking stoves (5-10%) with higher-efficiency (40%) stoves.</p>

Renewable Energy and Energy Efficiency in the NDC

Liberia submitted its INDC to the UNFCCC in September 2015. Table 6 presents the overview of Liberia's unconditional commitments which include an increasing renewable energy share in the national energy mix and improving energy efficiency by 2030.

Table 6. Renewable energy, energy efficiency and energy access unconditional commitments. Source: Intended Nationally Determined Contributions (INDC).

Mitigation potential in the energy sector

The energy sector has an opportunity to cut down on GHG emissions. The following figure shows how improvements in Liberia's energy sector in a variety of scenarios can significantly lower emissions compared to the business as usual scenario.

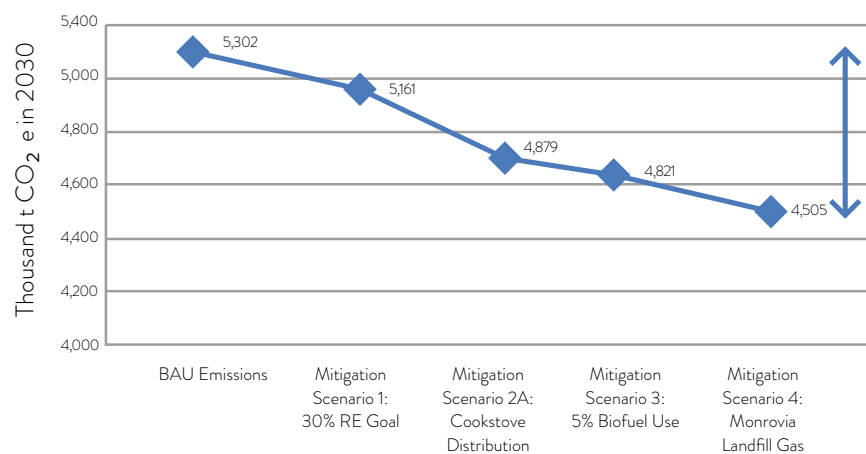


Figure 6. Impact of various scenarios on the projected baseline emissions for 2030. Source: Intended Nationally Determined Contributions (INDC).

SPOTLIGHT ON THE REPUBLIC OF LIBERIA

“I am convinced that we have to prove that we can make an efficient use of the existing financial support to win the trust from donors and further financial assistance will follow.”

Sustainable energy to address climate change

Liberia has placed energy at the top of its political agenda. Its priority is to increase energy access by implementing RE projects. New regulatory framework was developed under the newly created Rural and Renewable Energy Agency, to help foster their energy sector goals. This includes the development of the RE law from 2009 and the electricity policy document ratified in 2016, which both work to promote newly installed capacity. In the short term, the priority on utility scale grid connected renewables is the repowering of the Mount Coffee hydropower plant from 64 to 88 MW.

In Liberia there is an entrepreneurial attitude which is the driver for the deployment of a retail market focused on RE, specifically on standalone PV systems and solar lanterns. This approach is encouraged by the Liberian government, since it can spark economic growth.

To address the challenge of bringing electricity access to all of Liberia, the Liberian government along with the West African Power Pool, are working on integrating Liberia's energy system with neighbouring countries. The execution of interconnections and new transmission infrastructure would allow electrification of rural communities surrounding transmission lines.

Challenges

The main challenge which stands in the way of developing RE projects is the high initial investment cost. Financing these new technologies is expensive and commercial financial institutions are not familiar with these new business opportunities and their technologies, so it is more difficult to convince them to provide financial resources. Awareness raising efforts must be made to familiarize locals and investors with the positive future renewable energies could bring to Liberia.

Currently, Liberia agrees with the need of a common regional fiscal policy for RE equipment, in particular for compact RE systems. Taxes decrease entrepreneurial potential to access to energy market, increasing equipment cost.

Partnerships and support

To advocate for local entrepreneurs, Liberia is seeking support to train professionals on all the steps in the project cycle which include technical and managerial skills. Particularly, electricians should be trained in PV operation and maintenance.

The Rural and Renewable Energy Agency would benefit from technical assistance on the design and implementation of support schemes for renewables as well as tendering processes.

Finally, regarding resources coming from climate finance, Mr. Massaquoi explained that Liberia are currently working to make efficient use of existing financial support in order to gain the trust from investors. Once people have gained their trust, he believes more financial assistance will be granted to further develop their energy implementation goals.

NDC Overview

In terms of NDC goals, Liberia has strong implementation and coordination mechanisms to improve climate change mitigation and increase RE capacity. Quantitative and qualitative research is being carried out to improve systematic priority sequencing between the National Energy Policy and Low Carbon Economy for the 2030 developmental vision.



PERSPECTIVES ON TECHNICAL COLLABORATION ON NDC IMPLEMENTATION WITH ECOWAS COUNTRIES

Mr. Ron Benioff is the Director of Multilateral Programs at NREL. He serves as Director of the Green Growth Best Practices Initiative, where he coordinates the partnership activities across the regional platforms to more than 120-member institutions. Mr. Benioff also manages NREL's work as operating agent for the Solutions Center, a CEM and UN-Energy Initiative that provides clean energy policy resources, expert advice, and training to countries around the world.

The Paris Climate Agreement sets countries around the world on self-determined paths to achieving economic development while reducing greenhouse gas emissions as defined by Nationally Determined Contributions (NDC). Countries and sub-national governments around the world have demonstrated that wise investments in low carbon technologies and systems accelerate economic growth. Such investments capture cost savings, reduce air and water pollution, improve public health, and strengthen system resilience. Transitions to low carbon and climate resilient economic pathways also help attract foreign investment and position in-country firms and entrepreneurs to be regional and global innovation leaders.

The Economic Community of West African States (ECOWAS) region is at the forefront in demonstrating how developing countries can achieve and accelerate progress toward national development goals by scaling up deployment of clean energy technologies and practices. This includes leadership by many ECOWAS countries to advance specific clean energy policies and measures that will achieve their twin energy development and climate change response goals. The ECOWAS Center for Renewable Energy and Energy Efficiency (ECREEE) is teaming with the Clean Energy Solutions Center (Solutions Center), a Clean Energy Ministerial initiative, and the U.S. National Renewable Energy Laboratory in providing analytic and technical assistance to countries for integrated clean energy and climate action and is enabling

peer learning and knowledge exchange across countries. The U.S. government together with the government of Sweden, Hewlett foundation, and others is providing this support to assist countries in making rapid progress in achieving their clean energy development and climate goals and attracting scaled up private investment.

For example, the ECREEE and Solutions Center collaboration is teaming with Benin, Ghana, and Sierra Leone to create enabling policy and regulatory environments to help reach their NDC targets. The governments are in the final stages of prioritizing policy measures where technical assistance is most needed and will provide highest value. For example, Benin is considering energy efficient product standards and certification laboratory requirements, Ghana is looking at auction designs for mini-grid procurement and operation and management concessions, and Sierra Leone is focused on efficient lighting policies and standards. These countries were chosen to receive in-depth technical assistance through a selection process where ECOWAS countries were invited to submit proposals demonstrating progress in achieving ambitious climate mitigation targets and leadership in their NDC implementation actions. All ECOWAS countries are eligible to receive up to 40 hours of free assistance through the Solutions Center's Ask an Expert service on similar clean energy measures.

These three examples demonstrate several key attributes of effective approaches for integrated energy

and climate plans and solutions. This includes: 1) Pursuing country driven strategies that identify and focus on the areas where there is the strongest alignment between national development and climate change goals; 2) engaging energy, environment, planning, finance and other key ministries along with non-government stakeholders in setting priorities, evaluating options, and designing and implementing measures; 3) concentrating effort on key policies, regulations, financial incentives and other areas where government authority can drive market change and attract sustained private investment in clean energy systems; 4) sharing experiences, lessons, and good practices between countries and showcasing successful approaches that can inspire replication by others.

The Solutions Center and the National Renewable Energy Laboratory look forward to continued deep cooperation with ECOWAS/ECREEE and individual ECOWAS countries to help achieve energy development and climate goals.

CREATING A SUSTAINABLE MARKET FOR STANDALONE SOLAR PV ELECTRIFICATION PRODUCTS



KEY MILESTONES

The ROGEP preparatory phase was launched in Dakar, Senegal by ECREEE and the World Bank on October 12, 2017.

ROGEP is expanding access to rural communities through creating an enabling environment for the deployment of different standalone solar systems and institutional support.

A 140 million USD line of credit will be provided to regional financial intermediaries to lend to commercial banks to provide access to finance to the entrepreneurs and businesses. A 10 million USD credit guarantee will be set up to mitigate risks for the banks.

20 million USD seed and matching-grants fund will be set up to support entrepreneurs in the standalone solar system sector in the project countries.

ROGEP's full implementation is expected to start in September 2018 and will be implemented over a four (4) year period.

MAJOR ACTIONS

Working capital debt financing for cash sales.

Debt financing to support access to solar equipment through installment payment system. Probable use of mobile money and PayGo schemes.

Support business promoting productive uses of electricity through standalone solar systems. Common productive uses include solar water pumping, solar irrigation, and solar electricity to SMEs.

Support to businesses providing electricity through standalone solar systems to public institutions, such as schools, health clinics, public administrative offices and community centers. This scheme will include a payment risk mitigation measure to protect private businesses from public institutions payment risks.

The Regional Off-Grid Electrification Project (ROGEP) seeks to support efforts to accelerate the deployment of standalone PV systems to jointly increase electricity access to households, businesses and communities using modern off-grid electrification technologies in the ECOWAS region as well in Mauritania, Chad, Cameroon and Central African Republic. It is implemented by ECREEE in collaboration with the World Bank.

IMPLEMENTED BY ECREEE
AND SUPPORTED BY THE WORLD BANK



MAINSTREAMING GENDER FOR A CLIMATE RESILIENT ENERGY SYSTEM IN WEST AFRICA

Building a gender-responsive, climate resilient energy sector through technology and capacity building.

ECREEE and CTCN have collaborated in the framework the ECOWAS Programme on Gender Mainstreaming in Energy Access (ECOW-GEN) to adopt and implement a gender-responsive approach, to improving

energy access that combines solutions that cut down carbon emissions with those that strengthen the capacity of the region's energy sector to prepare for and respond to climate change impacts.



FOR MORE INFORMATION

Website: www.ecowgen.ecreee.org

Email: gender@ecreee.org



FISCAL POLICY REFORM: AN ENGINE FOR NDC IMPLEMENTATION - BUT DESIGN CAREFULLY FOR POSITIVE GENDER IMPACTS

Mr. Peter Wooders is the Group Director of IISD's Energy program, which supports countries move to and deepen the sustainability of their energy systems which include EE, RE, CCS, nuclear power, and electricity economy and sector planning. He has worked on climate change issues for over 15 years, with a recent focus on competitiveness. The program includes the Global Subsidies Initiative (GSI), supportive work on fiscal policy including the green economy, IISD's work on climate change mitigation and a pillar focusing on sustainable electricity systems.

Ghana, Senegal and Sierra Leone were three of the 14 countries who identified fossil fuel subsidy reform (FFSR) within their NDCs. The attractions are obvious: not only does FFSR typically reduce GHG emissions by around 10%, it also generates fiscal savings which can be devoted to development priorities. Similar cases can be made for environmental fiscal reform more generally – IISD-GSI analysis shows that around 40 more countries across the world included either increasing fuel or carbon taxes in their NDCs. Again, these policies will lead to reduced energy demand and reduced pollution (local and global), but also generate extra government revenue.

So why aren't more countries in ECOWAS and more widely pushing fiscal policy reform more strongly? The political economy of subsidy and taxation reform is now well understood: there is an overall fiscal benefit to the country implementing the policy, significant side benefits in terms of reduced pollution and energy demand and encouragement of cleaner energy alternative, but also a redistribution of benefit across parts of the economy. Experience in ECOWAS countries and more widely shows that countries are concerned with impacts on the poor and vulnerable in society, on some key industries which use a lot of energy, with public transport, and then with the fishermen, farmers and freight transporters where diesel fuel makes

up a significant share of their costs of running their business. It is notable how common these concerns are between countries, even when their economic strength and political structure may vary widely.

The answer to fiscal policy reform is simple to state: understand the impacts of reform, compensate or otherwise mitigate these impacts for the parts of society and the economy who are affected and vulnerable, then use the rest of the savings to invest in development. 10 years ago, enacting such reforms was considered difficult and risky politically. The consensus is now very different – maintaining energy subsidies, especially for transport fuels, is generally considered poor public policy and a lost opportunity to invest in the economy and society. Countries are enacting FFSR: IEA (International Energy Agency) and other's analysis shows that over 50 countries reformed FFSR in the 2 years 2015-16.

But concerns around ensuring that the poorest and most vulnerable are, rightly, still front and centre for those considering reform. Women and girls are disproportionately represented amongst the group, and analysis of fossil fuel subsidy, tax and more general reform and its impacts on gender paints a worrying picture: generally, policy is not designed to have a positive gender impact. But to do so is not difficult: it just needs to be actively consi-

dered as reform is designed, especially when compensation and other impact mitigation measures are formulated.

Alongside gender, two other opportunities are now being increasingly considered in fiscal policy reform. The first of these is Clean Energy Subsidy Swaps: redirecting some of the savings from subsidy reform to RE and to EE, opportunities which can generate local employment and can increase the reductions in pollution from subsidy reform markedly (IISD-GSI modelling shows that reductions in emissions can be 50% more when 30% of savings go to clean energy). The second aims to amplify the benefits and generate more fiscal space for governments: go beyond subsidy reform and progressively increase energy taxes.

There are very few measures which both support NDC implementation and generate fiscal savings for investment in clean energy and other development outcomes. Fiscal policy reform deserves to play a more central role as the ECOWAS countries formulate their NDC implementation plans.

SPOTLIGHT ON THE REPUBLIC OF MALI

“We are slowly moving forward in the implementation of our programs, because we lack the needed initial investment in renewable energy. If we want to develop large power plants, we need to improve access to finance.”

Sustainable energy to address climate change

The Paris Agreement is vital for Mali and its energy sector as it faces acute climate risks. It is one of the most vulnerable sectors in Mali's economy, being highly exposed to climate impacts. Therefore, it is one of the main sectors chosen in Mali's NDC to contribute to the achievement of the objectives in terms of mitigation and adaptation of climate change.

The government of Mali has adopted an ambitious approach to increase the RE shares in the country's energy mix. The Strategy for the Development of Renewable Energy involves the development of programs and projects to promote RE.

The use of more sustainable energy will help Mali to adapt to climate change and to reduce GHG emissions, while stimulating the economy. Mali needs this positive, low carbon transformation toward climate change resilience, which in turn stimulates growth, bridges the energy deficit and reduces poverty by generating employment. Sustainable energy will enable Mali to reach its national goal of giving 90% of its population access to electricity by 2030.

Partnerships and support

Growing efforts by the government of Mali towards the development of clean energy projects has led to the successful advancement of various programs and projects. In hopes of promoting their energy goals, Mali has worked hard to create attractive regulatory and fiscal framework which appeal to investors:

- Implementation of a NEEAP.
- Rural Electrification Plan which promotes the development of mini-grids.

- Incentives directed at companies who import equipment to reduce acquisition costs. Adoption of a law on PPP in Mali with the aim of taking advantage of this financing mechanism to implement energy projects.
- Establishment of a Social Emergency Program for Access to Energy and an its Investment Plan, 30 projects are proposed in this framework and 16 are already in progress.

In this context, progress is being made with the implementation of solar power plant projects in rural areas. It should be noted that Mali currently has a total installed capacity of 200 MW of RE.

The Environment and Sustainable Development Agency of the Ministry of the Environment of Sanitation and Sustainable Development prepares and monitors the NCD to ensure the dynamism and integration of inter-sectoral action into a global climate change process, with a clear roadmap where priorities are defined for sustainable economic growth.

Challenges

The constraints and challenges lie in the financing of projects and the establishment of guarantees for IPPs. It must be emphasized that the government of Mali has feasibility studies for mini hydro that take into consideration climate risks, although it has not yet been able to implement projects due to a lack of funding.

NDC Overview

Mali has increased their RE output by 10% in the 10-year period since 2000, and Mali plans to continue increasing RE use in the years to come. Investing in RE will help them achieve their GHG emissions targets to reduce emissions by a total of 38% by 2030. To achieve these goals, Mali is developing up-to-date policies.



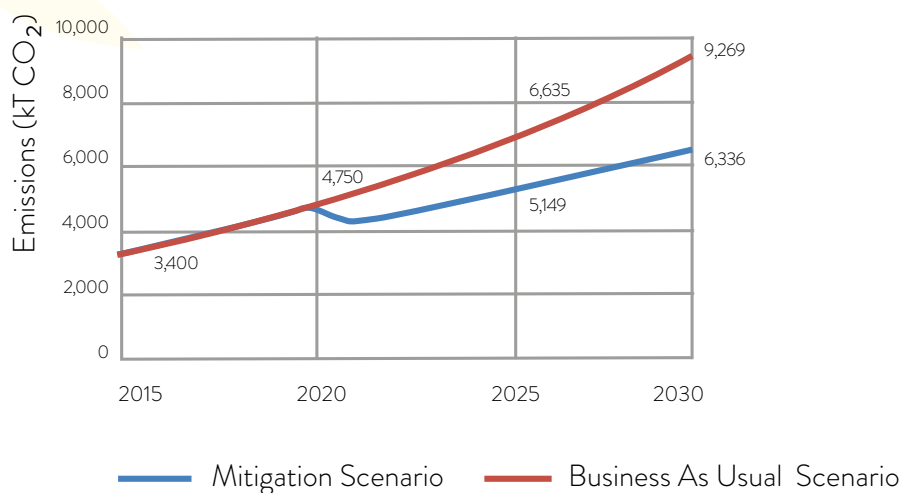
Ms. Thera Aminata Fofana is the National Director of Energy of Mali. She is an industrial and mining engineer and has completed research in the renewable energy field. Ms. Fofana has been the Deputy Director of the National Agency for the Development of Biofuels. Among other duties her responsibilities included overseeing the electrification of rural areas in Mali.

Renewable Energy and Energy Efficiency in the NDC

Mali submitted its NDC to the UNFCCC in September 2016. Table 7 presents the overview of Mali's unconditional commitments which include an increasing renewable energy share in the national energy mix and universal access to electricity by 2030.

RE commitments	EE commitments
<p>Large scale deployment of renewable energy.</p> <p>Install over 100 MW of RE.</p> <p>Reach the target of 10% of RE in the energy mix by 2020, expanding PV, wind, small hydro and biomass energy.</p>	<p>Rural electrification with renewable energies.</p>

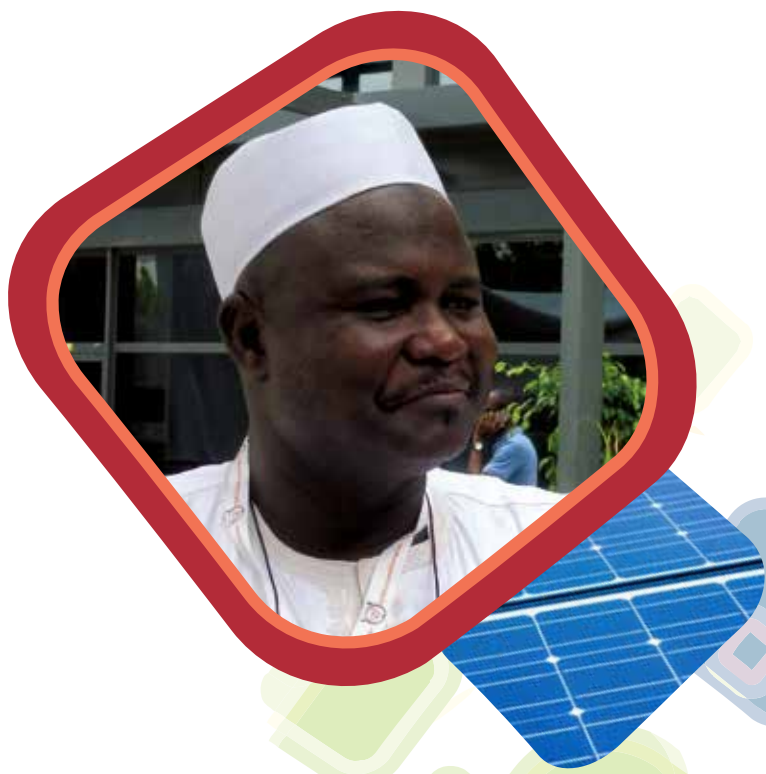
Table 7. Renewable energy, energy efficiency and energy access unconditional commitments. Source: Contribution Déterminée au Niveau National CDN.



Mitigation potential in the energy sector

The energy sector has an opportunity to cut down on GHG emissions. The following figure shows how implementation of the proposed reduction scenario in Mali's energy sector can significantly lower emissions by 2030 compared to the business as usual scenario.

Figure 7. Emissions comparing the projected baseline emissions with a proposed reduction scenario. Source: Contribution Déterminée au Niveau National CDN.



Mr. Mahaman Rabiou Balla has been the National Director of the Promotion of Renewable Energies at the Ministry of Energy of the Republic of Niger since March 2017. He is an electrical engineer who specializes in energy and sustainable development. Mr. Balla was the coordinator in the cell expansion project to provide energy access services in rural Niger. Previously, he led the Nuclear Electricity Division at the Ministry of Mines and Energy and also worked in the Directorate of Electricity and Renewable Energies.

RE commitments	EE commitments
Increase the installed capacity from 4 MW in 2010 to 250 MW in 2030, of which 130 MW hydroelectric Kandadji and 20 MW from wind power (0,035 MW currently).	25% decrease in the energy intensity of GDP (modern and traditional energy). Improvement of EE in industries, households, transmission and distribution of electricity (by reducing losses, from 12% to less than 10% in 2020). Construction of low-carbon residential buildings.
Doubling the rate of RE to 30% in the primary and final energy balances.	Increase the access to electricity (in total, from 10% in 2010 to 60% in 2030, from 47% to 100% in urban areas and from 0.4% to 30% in rural areas in 2030).

Renewable Energy and Energy Efficiency in the NDC

Niger submitted its NDC to the UNFCCC in September 2016. Table 8 presents the overview of Niger's unconditional commitments which include increasing installed capacity through hydro and wind power plants, improve energy efficiency in distribution and in households and increase electricity access.

Table 8. Renewable energy, energy efficiency and energy access unconditional commitments. Source: Contribution Prévüe Déterminée au Niveau National – CPDN du Niger.

Mitigation potential in the energy sector

The energy sector has an opportunity to cut down on GHG emissions. The following figure shows how improvements in Niger's energy sector with conditional and unconditional assistance can significantly lower emissions by 2030 compared to the business as usual scenario.

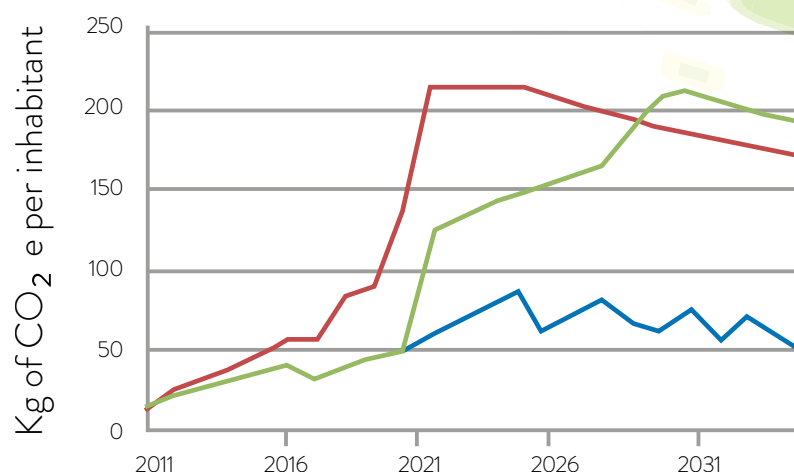


Figure 8. Mitigation potential of energy sector. Source: Contribution Prévüe Déterminée au Niveau National – CPDN du Niger.

SPOTLIGHT ON THE REPUBLIC OF NIGER

“There is a need for technical assistance in energy planning that takes into account resilience to climate change.”

Sustainable energy to address climate change

At the COP21, the Republic of Niger presented its NDC implementation plan and reaffirmed its commitment to the SE4All Agenda. The goal is to reduce GHG by 38% by 2030. To achieve this goal, the country plans to increase the sustainable RE in their energy mix to 30% by 2030.

Niger developed the NREAP and the NEEAP with the support of ECREEE which will be beneficial to develop procedures to ensure the RE projects are developed properly.

Abundant solar resources and well-designed policies have been attracting investors to Niger. However, before projects are launched the government wants to establish transparent open tendering to secure the success of the projects. In addition, the National Center of Solar Energy is currently developing an atlas of solar resources. This will assist in future project development.

Niger is motivated to continue developing rural electrification projects, the country has experienced first-hand the positive impacts of electrifying rural areas. In the rural village Safo, a 30 kW solar energy facility was constructed. This facility gave electricity to their health centre for the first time, and increased electrification rates in the village from 2% to 19%. Their goal is to implement similar projects throughout the country in order to increase access to electricity which is currently only 10% as a national average, and less than 1% in most rural areas. However, Niger currently can't expand the project due to lack of financial resources.

Another project, which focuses on rural populations, subsidizes 90% of the costs associated with the replacement of firewood cook stoves with gas stoves. By replacing these stoves, indoor pollution is decreased, which protects families from adverse health effects while also reducing deforestation which is a direct result from wood collection. These projects, focused on rural populations, combat poverty, improve education rates, protect public health and improve the overall living conditions of these populations. For these reasons, Niger is fully dedicated to advancing these projects.

Challenges

One of the main challenges faced when increasing energy access in Niger is the rate of population growth which is one of the highest in the world. In effect, demographic pressure can be a constraint that drags down efforts, particularly in terms of investments.

Investing in rural electrification would develop local economies and create jobs, improve public health and prompt citizens to seek continued education.

Another key challenge is accessing affordable financing. Real advances in the implementation of renewable energies remain limited since the mobilization of finances is a difficult process.

Partnerships and support

The Ministry of Energy is currently looking for new financial partners to develop financing mechanisms to support market deployment and private sector initiatives for sustainable, reliable, affordable energy solutions. The Ministry of Energy of the Republic of Niger seeks support in terms of technical assistance in different fields such as, the preparation of bidding documents, feasibility studies and energy planning to help them attain their sustainable development objectives.

NDC Overview

Niger aims to increase energy access from 10% to 60% by 2030. Niger is focused on enhancing institutional, technical and financial capabilities to attain this goal. By subsidizing gas cooking stoves, Niger can decrease demand for firewood, reducing deforestation and GHG emissions.

SPOTLIGHT ON THE FEDERAL REPUBLIC OF NIGERIA

“Nigeria understands the importance of exchanging lessons learned to be able to make better decisions to improve life for Nigerians and all of humanity.”

Sustainable energy to address climate change

Nigeria has an Energy Master Plan, which is a document that lays out the energy policy being implemented by the Nigerian Government. In 2015, the National Renewable Energy and Energy Efficiency Policy was approved by the Ministry of Power. This document clearly states that the government has until 2020 to reach ECOWAS regional policy targets for renewable electricity generation and efficiency.

As an outflow of the National Renewable Energy Policy, the SE4All Action Agenda was adopted by the Inter-Ministerial Committee on Renewable Energy and Energy Efficiency and approved by the National Council on Power in 2016. This plan aims to ensure universal access to energy services which in turn requires improvements in EE and incorporating RE into Nigeria's energy mix.

Nigeria is not only committed to engaging in national and regional energy policy but also international climate policy negotiations. The government of Nigeria connects reaching energy goals with economic growth, societal improvements and an environment that allows more stakeholders to participate.

Nigeria is committed to following the Paris Agreement and the NDC, which make sure that the right actions and mitigations are being taken in response to issues of climate change and sustainable energy for all. By having in place national policies and by being part of the international and regional discussions on energy and climate change, Nigeria understands the importance of exchanging lessons learned to be able to make better decisions to improve life for Nigerians and all of humanity.

Challenges

The energy sector in Nigeria has been historically dependent on the consumption of oil and gas. To improve energy supply and to extend energy access to all Nigerians, the government is working on adjusting the energy mix. Hydro, biomass, solar and wind energy sources are becoming more common, in fact, hydro-power contributes 26% of the total installed grid-connected capacity. A strong policy framework will need to be developed to increase RE services and to make sure that all sectors are involved.

Very high in the political agenda is to address the challenge that the majority of rural areas are not connected to the grid. This goal aligns with the SE4All Action agenda dedicated to developing grid-based electricity that will spread to all areas of Nigeria.

Partnerships and support

There has been lots of progress on Nigeria's goals which has been partly made possible through an extensive network and support from the region. For example, most recently in September 2017 the National Congress of Power gathered relevant stakeholders and national policy makers to discuss what policy was needed to be put in place to reach RE goals. However, further coordination is necessary to maintain the country's timeline and goals.

The use of best available technologies must be implemented to ensure long-term success. Also, data management systems are outdated in Nigeria, big data technology can be used to monitor activities and verify that the country is doing everything possible to reach energy goals. Development of partnerships could be utilized to spread knowledge on best practices and lessons learned.

NDC Overview

Nigeria has clearly defined RE and EE targets through their policy. Their policy includes the SE4All Action Agenda, the NREAP and the NEEAP. Nigeria has also published the First and Second National Communications in 2003 and 2014 respectively, and the NDC which was published in 2015.



Mr. Olusegun Dina is the Assistant Chief Electrical Engineer in the Renewable and Rural Power Access Department within the Federal Ministry of Power, Works and Housing of Nigeria, speaking on behalf of the Director of Energy, Mr. Faruk Yusuf Yabo. Mr. Olusegun Dina holds a Diploma in Data Communication Technology and a Bachelor's degree in Electronic and Electrical Engineering, both from the Shekinah Computer School Obafemi Awolowo University in Nigeria.

Renewable Energy and Energy Efficiency in the NDC

Nigeria submitted its NDC to the UNFCCC in May 2017. Table 9 presents the overview of Nigeria's unconditional commitments which include restricting greenhouse gas emissions and develop energy efficiency capacity.

RE commitments	EE commitments
31 million tons potential GHG reductions per year in 2030 by the use of RE measures.	2.5% per year EE (30% by 2030). 40% EE target. 179 million tons potential GHG reductions per year in 2030 by the use of economy-wide EE.

Table 9. Renewable energy, energy efficiency and energy access unconditional commitments. Source: Nigeria's Intended Nationally Determined Contribution.

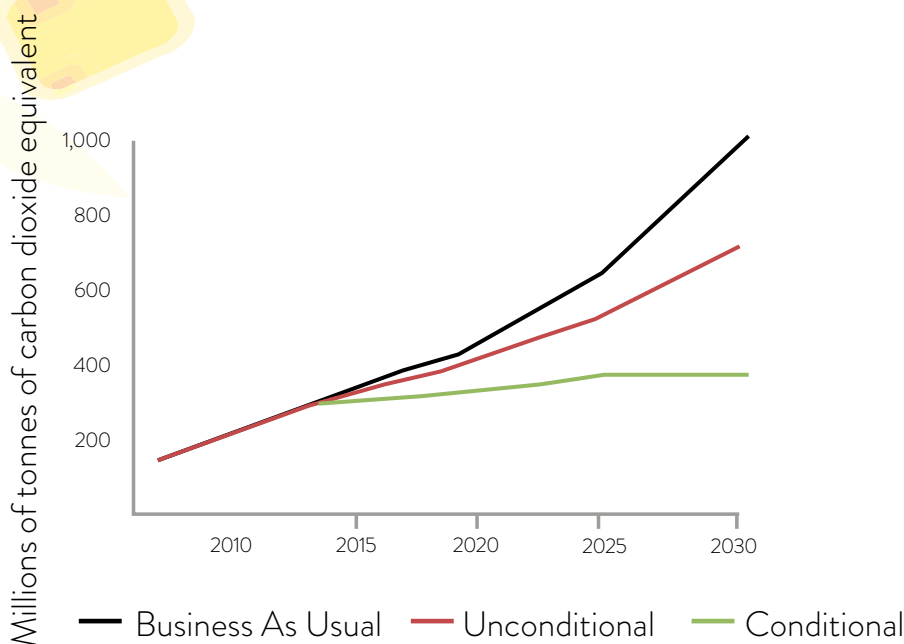


Figure 9. Projected emission scenarios. Source: Nigeria's Intended Nationally Determined Contribution.

Mitigation potential in the energy sector

The energy sector has an opportunity to cut down on GHG emissions. The following figure shows how conditional and unconditional contributions, can significantly lower emissions by 2030 compared to the business as usual scenario.



Mr. Ibrahima Niane has been the Director of Electricity in the Ministry of Energy and Development of Renewable Energies of Senegal since 2014. He holds a degree in energy engineering and has occupied various positions in the Senegalese administration. Mr. Niane is an expert in energy policy development strategies and energy planning for both grid connection and rural electrification. He was also appointed as Deputy Coordinator of the Senegal Energy Information System Project (SIE-Senegal).

RE commitments	EE commitments
Solar PV 160 MW. Wind power 150 MW. Hydropower 144 MW. Access: <ul style="list-style-type: none"> • 392 hybrid minigrids. • 27,500 biodigesters. • 4.6 million of firewood improved cook stove. • 3.8 million of charcoal improved cookstoves. 	Improvement of the electricity distribution. Production and promotion of isolation materials for buildings from local resources. Pilot phase for the promotion of efficient refrigeration equipment in the food industry. Mandatory energy audits for large companies. Energy valorisation of waste in the agro-food industry.

Renewable Energy and Energy Efficiency in the NDC

Senegal submitted its NDC to the UNFCCC in September 2015. Table 10 presents the overview of Senegal's unconditional commitments which include developing solar, wind and hydro power plants as well as improving distribution.

Table 10. Renewable energy, energy efficiency and energy access unconditional commitments. Source: Contribution Prévues Déterminées au Niveau National.

Mitigation potential in the energy sector

The energy sector has an opportunity to cut down on GHG emissions. The following figure shows how improvements in Senegal's energy sector with conditional and unconditional contributions, can significantly lower emissions by 2030 compared to the business as usual scenario.

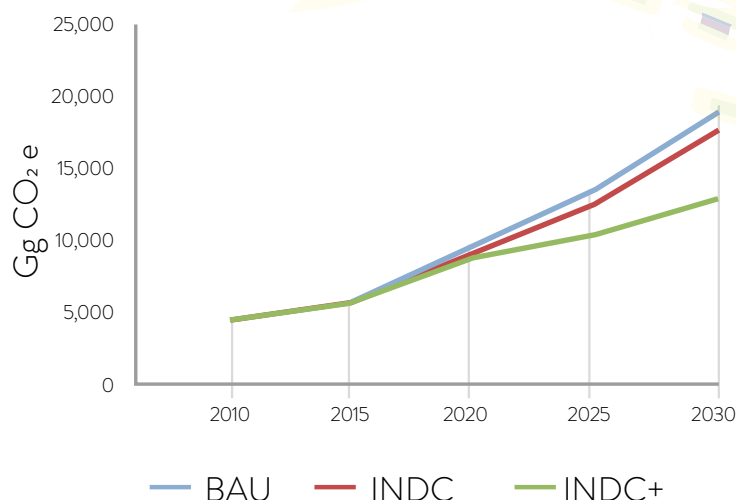


Figure 10. Emission scenarios comparing projected baseline emissions with the emissions taking unconditional and conditional measurements. Source: Contribution Prévues Déterminées au Niveau National.

SPOTLIGHT ON THE REPUBLIC OF SENEGAL

“There can be no coherent renewable energy strategy without being integrated with an energy efficiency strategy.”

Sustainable energy to address climate change

At the end of the COP21, Senegal made commitments to reduce GHG emissions. This is reflected in the gradual increase of RE into Senegal's energy plan. The objective is to increase the share of RE to 20% by 2018 and 30% by 2025. The government has responded to these objectives by supporting three solar power plants of 20 MW each in the past 16 months.

The National Agency for Renewable Energies (ANER), whose mission is to promote new energy adoption in all sectors, is developing and implementing programs to mainstream the energy transition. Senegal has already experienced an increase in income-generating activities associated with the implementation of their programs on RE deployment. Furthermore, as the cost of energy decreases, the energy sector becomes more competitive which boosts economic prosperity and there is less dependence on fuel oil, protecting the Senegalese economy from energy price fluctuations.

In the spirit of the Paris Agreement, the ANER has developed a program to deploy renewables in public buildings. ANER is already conducting feasibility studies and now the government is looking for partners who can support the technical and financial aspects of the program.

In Dakar, there is currently a pilot program in process which is focused on integrating solar solutions into households. This program aims to increase the public's awareness regarding the multiple benefits of this sustainable energy solution. These actions not only reduce electricity bills, but give the family independence and increase their quality of life. The next phase is to launch the project throughout all of Senegal.

Regarding access to modern energy services, the current goal is to increase access to 60% in rural areas by 2019.

The Senegalese Rural Electrification Agency is working to bring electricity to villages using RE technology. Progress can already be seen where electrification rates have increased from 24% to 36% in the last two years.

Excellent coordination between different government bodies through the Agency for Energy and Energy Management, has made Senegal the country with the highest number of solar PV projects under construction in the ECOWAS region.

Challenges

Regarding the challenges Senegal faces to accelerate RE, government ministries are in the process of finalizing the revision of a tariff framework for RE power producers. The government is also working on a net metering scheme that would allow businesses and households to reduce their electricity bill while promoting renewables. Finally, a comprehensive fiscal policy to exclude renewables from import taxes is being prepared.

Finally, in terms of challenges, there is also a significant need for structural investments for the modernization of distribution networks in order to ensure that the variable electricity can be absorbed appropriately.

Partnerships and support

Access to affordable finance is another great challenge for large scale deployment of renewables in Senegal. Successful cooperation is being implemented through the Scaling Solar initiative to tender PV utility scale grid connected projects, and providing to the selected bidders with a package of de-risking instruments including financial guarantees, is under way.

NDC Overview

Senegal's NDC goals include a communication strategy and a monitoring mechanism which are developed around a multi-sectoral approach. The country supports clean energy development the adoption of regulations requiring energy audits which promote energy performance. Senegal has developed policies to reach RE and rural electrification goals.

SPOTLIGHT ON THE REPUBLIC OF SIERRA LEONE

“More awareness on the benefits and opportunities of renewable energy resources are needed at all levels of society, since political back-up is the first and most important issue to mainstream renewable energy use.”

Sustainable energy to address climate change

The vision of Sierra Leone is to create an enabling environment for the provision of modern energy services for increased productivity, the creation of wealth and improved quality of life for all Sierra Leoneans. To accomplish this vision, the main mission of the Ministry of Energy is to develop policies and programs for the provision of energy in an adequate, affordable and sustainable basis for the entire population of Sierra Leone.

Policy framework is already in place and consists of the National Energy Strategic Plan, the National Renewable Energy Policy and the National Energy Efficiency Policy of, the last two being adopted in May 2016. In addition, since 2011 along with the approval of the Electricity Act, Sierra Leone has had an unbundled electricity system. To further develop these framework policy documents, the government has set incentives for sustainable energy to develop guidelines for sustainable agricultural and bioenergy investments. The country also signed the Millennium Challenge Corporation on the roadmap to transform the electricity network to a smart grid. Taking that into consideration, informed decisions can only be made with relevant, up-to-date data. With this in mind, the Ministry of Energy has started a project to develop energy related data bases to monitor progress.

An effective bottom up approach is in place to process new policies with participation from local and regional governments including local chiefs, academia, civil society and members of affected ministries. These efforts will help Sierra Leone attain their last goal of becoming an inclusive, mid-level green country.

Challenges

Deployment of RE technologies in Sierra Leone is closely linked with off-grid solutions and the deployment of hybrid mini-grids. Regarding grid connected projects, there is a need to increase awareness on the benefits and the reliability of wind and PV systems. In addition, there is the need to develop local capacities on integrating variable electricity into the grid.

Access to finance is very complicated and expensive in Sierra Leone. There are not sufficient financial resources available and commercial banks are only providing loans against financial guarantees, which are not always easy to access.

Another important problem is the brain drain of educated professionals with relevant experience leaving their positions in the public sector as civil servants, to work in the private sector. This loss of human capacity in the public sector slows down the development and implementation of new policies.

Partnerships and support

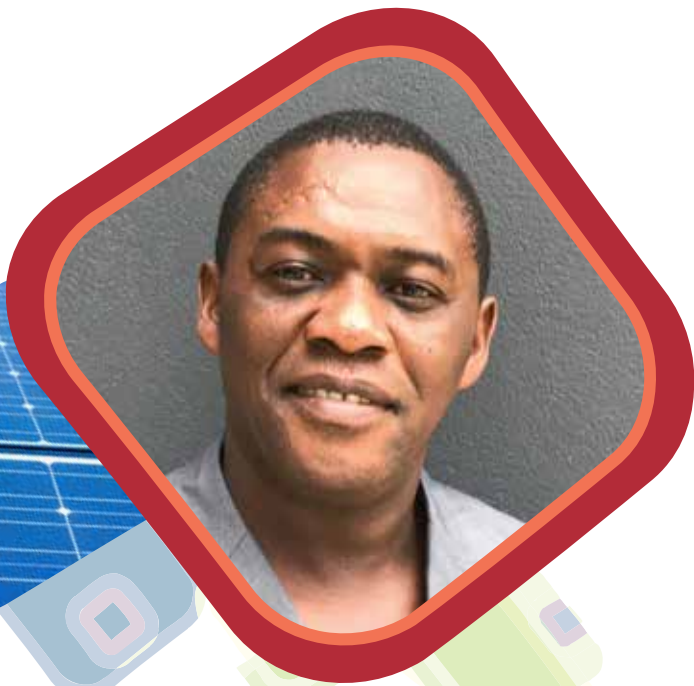
There is a need to attract qualified professionals with skills in the fields and in particular in public administration. The implementation of a program to repatriate expat experts in the field would be more effective than training new professionals without much experience.

More awareness on the benefits and opportunities of RE resources is needed at all levels of society. This could help mainstream RE use and put pressure on ministries to push along policies.

It is not realistic that in the short term, money from the Green Climate Fund will come to Sierra Leone. These funds mainly target well developed projects, ready for implementation. Technical assistance will be needed to strengthen project development in the private sector and institutional

NDC Overview

Sierra Leone's NDC implementation goals take into account that the country produces a very small amount of the world's GHG emissions. Sierra Leone want to expand clean energy use and promoting public transport. Sierra Leone has been selected as a focus country for the SE4All Africa Hub, and their policy also includes a NREAP and NEEAP.



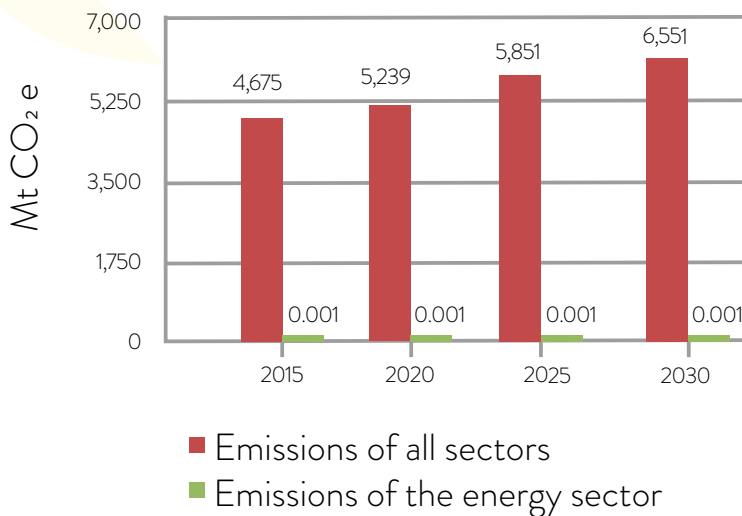
Mr. Benjamin Kamara is the Director of Energy in the Ministry of Energy of the Republic of Sierra Leone. He has served as a mechanical engineer and an operations manager of the Mechanical Services Unit of the Sierra Leone Roads Authority. Mr. Kamara has participated in various government sector negotiations and programs. He currently serves as a member of the Board of ECREEE and supervises the Rural Renewable Energy Project of Sierra Leone.

Renewable Energy and Energy Efficiency in the NDC

Sierra Leone submitted its NDC to the UNFCCC in November 2016. Table 11 presents the overview of Sierra Leone's unconditional commitments which include expanding clean energy use, developing energy efficiency programs and creation of new regulations to support clean transport.

RE commitments	EE commitments
Expanding clean energy utilization (e.g. solar, mini-hydro power, LPG, biomass stoves etc). Development of alternative energy sources such as bio-fuels from sugarcane, corn, rice husk, etc.	Development of energy efficiency programmes through sensitization and awareness raising campaigns. Sustainable production of charcoal a reduce dependence on firewood.
Developing agricultural and urban waste incineration programmes for energy production.	Development and enforcement of regulations on regular maintenance of vehicles.
	Improved and promoting use of public transport.

Table 11. Renewable energy, energy efficiency and energy access unconditional commitments. Source: Sierra Leone's Intended Nationally Determined Contribution.



Mitigation potential in the energy sector

The following is a projection of Sierra Leone's energy's sector emissions compared to overall emissions produced. Support would help Sierra Leone create a more detailed emission inventory which could more clearly illustrate the reality of emissions in Sierra Leone.

Figure 11. Projected sectoral emissions. Source: Sierra Leone's Intended Nationally Determined Contribution.



Mr. Tcharabalo Abiyou is the General Director for Energy in the Togolese Ministry of Mining and Energy. His main responsibilities are the planning and supervision of the electricity sector. He is the focal point for the Energy Information System at the International Network for Access to Sustainable Energies. Mr. Abiyou represents Togo at the international level in organizations such as ECREEE and IRENA.

RE commitments	EE commitments
<p>The promotion of efficient equipment for sustainable biomass in households and solar-based electricity.</p> <p>Development of RE (to 4% of the energy mix).</p>	<p>Implement a proactive policy (incentives, support and training of craftsmen, distribution channels, etc.) capable of promoting the popularization of improved cookstoves which allows a saving of wood and charcoal of 50 to 60%.</p> <p>At the level of road transport, reducing 20% fossil fuel consumption during the period.</p>

Renewable Energy and Energy Efficiency in the NDC

Togo submitted its NDC to the UNFCCC in June 2017. Table 12 presents the overview of Togo's unconditional commitments which include the promotion of renewable energy, alternative transportation methods and the implementation of new policies.

Table 12. Renewable energy, energy efficiency and energy access unconditional commitments. Source: Contribution Prévues Déterminées au Niveau National dans le cadre de la Convention Cadre des Nations Unies sur les Changements Climatiques.

Mitigation potential in the energy sector

The energy sector has an opportunity to cut down on GHG emissions. The following figure shows how improvements in Togo's energy sector can significantly lower emissions by 2030 compared to the business as usual scenario.

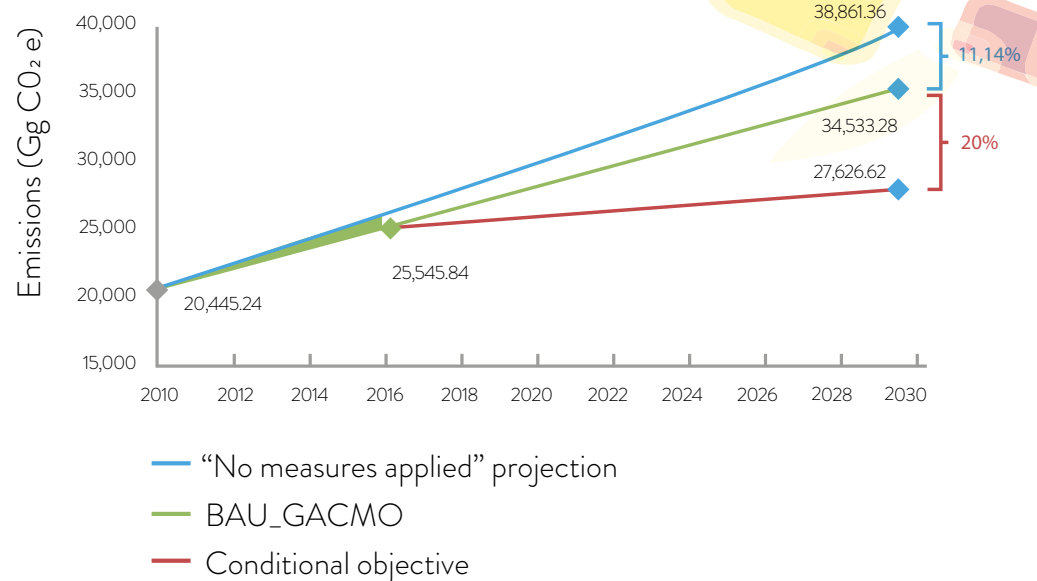


Figure 12. Projected emission scenarios.

Source: Contribution Prévues Déterminées au Niveau National dans le cadre de la Convention Cadre des Nations Unies sur les Changements Climatiques.

SPOTLIGHT ON THE TOGOLESE REPUBLIC

“New de-risking mechanisms must be developed to channel the climate funds into renewables in the poorest countries.”

Sustainable energy to address climate change

With support from ECREEE, the Togolese Republic has developed its NREAP and NEEAP. In addition, within the SE4All, a master plan on RE investments was elaborated.

Electricity in the Togolese Republic is primarily supplied through thermal plants. Togo's national electrification rate is currently 35% in urban areas and 2% in rural areas. Like other countries in the region, there is great potential to harness renewable resources such as solar and wind, to reach a large share of the energy mix. The Togolese Republic decided to prioritize the expansion of energy access by increasing the extension of the national grid and the deployment of solar mini-grids in isolated areas. These options have been chosen against investing in diesel mini-grids, due to the high cost and the difficulties associated with supplying diesel fuel to isolated areas.

All the policies and programs related to energy in the Togolese Republic follow an inclusive consultative process. Local and regional government representatives including village chiefs, non-governmental organizations and other relevant actors are consulted to discuss, improve and validate energy policies.

Challenges

The main barrier for RE deployment in the Togolese Republic is the access to affordable financing. The need for investments is high, so the cost of financing ends up making projects infeasible. In addition, given the low purchasing capacity of the population, tariffs are subsidized, not reflecting the true cost of generation, and rendering the business model impractical for IPPs and putting the public utility in a difficult financial situation.

Partnerships and support

New de-risking mechanisms must be developed to channel climate funding into renewables in countries like the Togolese Republic. The request by donors to back up concessional loans with national guarantees is not always feasible for the countries.

There is also a need to improve existing structures and human capacities within the governments to increase readiness to be able to access and efficiently use the climate funds.

Finally, the climate change discussion must be brought to energy sector stakeholders. Their participation in expanding clean energy is dependent on their knowledge of the current situation regarding climate change.

NDC Overview

The Togolese Republic has strong NDC implementation goals. The NDC implementation goals focus on national adaptation strategies, strengthening climate change resilience and reducing GHG emissions in energy. Togo hosts the Regional Collaboration Centre for the UNFCCC's sustainable developments mechanisms.



Mr. Henning Wuester is the Director of the Knowledge, Policy and Finance Centre in IRENA. Mr. Wuester oversees the Agency's works on knowledge, policy and finance, which includes IRENA's data and knowledge tools; analysis on best practice in renewable energy policies and finance and related advice and support to countries. Prior to joining IRENA, Dr. Wuester worked for the GCF as Senior Manager at the Interim Secretariat.

Since its inception, IRENA has been supporting countries in their transition to a sustainable energy future, serving as the principal platform for international cooperation and a repository of policy, technology, resource and financial knowledge on renewable energy. Supporting Africa in accessing its huge renewable energy potential the continent, has always been a priority. The threat of climate change, worldwide and in particular for some of the world's most vulnerable countries, including those in Africa, has given additional urgency to an accelerated deployment of renewables. The Paris Agreement that entered into force in November 2016 is the most ambitious effort of the global community to address climate change, and the NDCs are a cornerstone of this Agreement. IRENA has undertaken an analysis of the renewable energy component of these NDCs, and some of the findings of this analysis, specific to Africa, are summarized below.

Due to its growing population and continued economic development, it is anticipated that Africa will have one of the world's highest growth in energy demand. Accelerated deployment of modern renewables in the region offers a unique opportunity to meet this de-

mand in a cost-effective manner, while creating jobs and fostering economic growth. Recognizing the key role of renewables to achieve both climate and development goals, 52 out of 54 African countries included renewables in their NDCs. Some countries not only recognized the role of renewables for the purposes of mitigation, but also for building resilience in the face of growing climate change impacts.

Africa is among the regions with the most ambitious renewables components in NDCs. While at the global level, the NDCs are not keeping up with the pace of recent actual renewables deployment, IRENA analysis shows that African NDCs are ambitious and would lead to a significant acceleration in the uptake of renewables in the continent. The renewables targets of NDCs in fact constitute a three-fold increase in the average level of annual renewable energy deployment, increasing its annual average growth from 2.1 GW (2010-2016) to 5.8 GW (2015-2030).

There is, however, room for further ambition. IRENA estimates that if the renewables components of existing NDCs are fully implemented, nearly 95

GW of additional renewable energy capacity will be added in Africa between 2015 and 2030. This would represent a three-fold increase in total installed capacity compared to 2014. This compares to the even larger potential for a cost-effective deployment of renewables which IRENA has estimated to be 310 GW by 2030, provided that the African economy continues to grow at current rates. This suggests that there is significant potential for increasing renewable energy targets in the next round of NDCs.

Renewables feature prominently in all of the NDCs of ECOWAS countries. The implementation of the renewables components of existing NDCs would result in nearly 25 GW of additional power installed capacity; this represents a five-fold increase compared to the 5 GW installed in the region at the end of 2014. The ECOWAS region would hence experience an even more accelerated growth than the rest of the continent. The full implementation of NDCs in the ECOWAS region would in fact lead to a 13-fold increase in the annual deployment of renewables, moving from an average 115 MW added annually over 2010-2016 to 1.5 GW during 2015-2030.

OPPORTUNITIES AND CHALLENGES IN IMPLEMENTATING AFRICAN NDCs: HIGHLIGHTS FROM IRENA'S ANALYSIS OF THE RENEWABLES COMPONENT OF NDCs

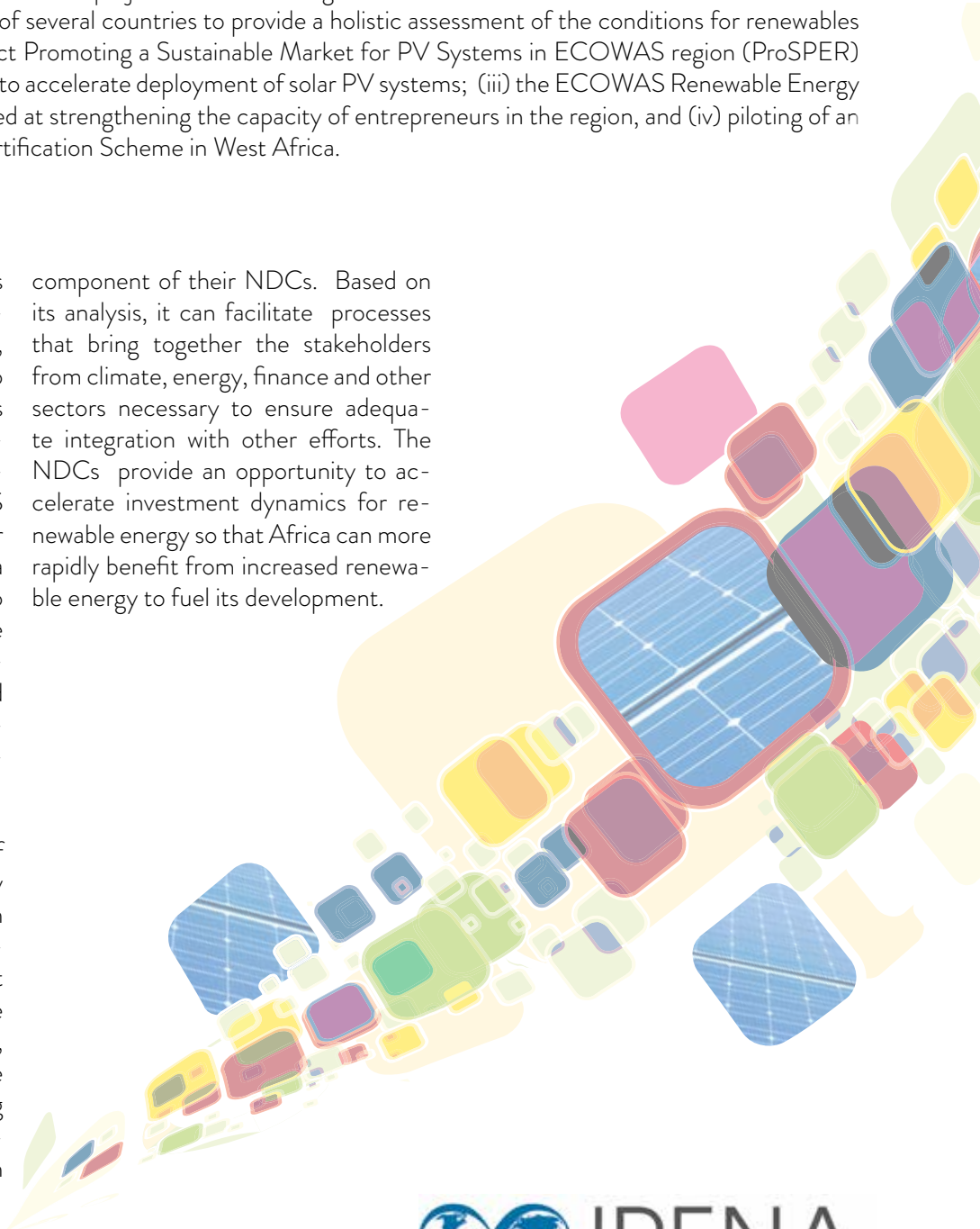
IRENA has a long-standing collaboration with ECREEE. Jointly the two organizations undertook a number of initiatives to support West African countries in their expansion of renewables deployment. IRENA is working closely with ECREEE and other regional institutions and development partners for the implementation of the West Africa Clean Energy Corridor aiming to promote the cross-border trade of renewable power by creating the conditions to facilitate a steady flow of bankable renewables-based generation and transmission projects to attract long term stable investments. Other initiatives include: (i) Renewables Readiness Assessment of several countries to provide a holistic assessment of the conditions for renewables deployment on the ground; (ii) a project Promoting a Sustainable Market for PV Systems in ECOWAS region (ProSPER) aimed at strengthening local capacities to accelerate deployment of solar PV systems; (iii) the ECOWAS Renewable Energy Entrepreneurship Support Facility aimed at strengthening the capacity of entrepreneurs in the region, and (iv) piloting of an internationally accredited Regional Certification Scheme in West Africa.

Although renewables deployment is primarily treated as a mitigation measure, Benin, Burkina Faso, Cabo Verde, Guinea Bissau, Mali, Nigeria and Togo specifically recognise in their NDCs the potential contribution of renewables for adaptation and for building resilience. Furthermore, seven ECOWAS countries include quantified targets for off-grid renewables. This is especially a priority for countries like Burkina Faso and Mali, where more than 70% of the population still lacks access to electricity. Including targets for decentralised renewables in the NDCs can help promoting inclusive economic development by increasing energy access.

Renewables targets in the NDCs of ECOWAS countries are generally very specific, which helps ensure clarity on the investment environment and facilitates turning NDCs into investment plans. As work advances towards the planned revision of NDCs in 2020, countries can progressively increase the quality of their NDCs by basing their targets on sound data and projections across the energy sector and on other economic variables.

IRENA stands ready to support countries in Africa in implementing and further developing the renewable energy

component of their NDCs. Based on its analysis, it can facilitate processes that bring together the stakeholders from climate, energy, finance and other sectors necessary to ensure adequate integration with other efforts. The NDCs provide an opportunity to accelerate investment dynamics for renewable energy so that Africa can more rapidly benefit from increased renewable energy to fuel its development.



THE ECOWAS REGION WALKING THE TALK IN RENEWABLES

In 2010, the ECOWAS Centre for Renewable Energy and Energy Efficiency was established in Cape Verde with the support of the ECOWAS Commission, UNIDO and the Austrian and Spanish Governments. In the seven years that have passed since the founding of ECREEE, ECOWAS countries have been supported through the establishment of an enabling environment for the adoption of renewable energies and energy efficiency. In this same time, as a result of the obligations deriving from climate change negotiations and ECREEE's support, the 15 countries that make up the ECOWAS region have submitted their Nationally Determined Contributions to the UNFCCC. In observation of the 23rd Conference of the Parties, ECREEE has analyzed the progress made toward implementing the commitments in regard to sustainable energy in ECOWAS countries, and has interviewed those responsible for energy at a national level in twelve of the fifteen countries. Relevant international organizations were also called upon to give insight on renewable energy and climate change, and first and foremost, to highlight the achievements and identify the challenges ECOWAS countries face when addressing the promises made under the Paris Agreement. Building a gender-responsive, climate resilient energy sector, through technology and capacity building.

RENEWABLE ENERGY AS THE VECTOR TOWARD SUSTAINABLE DEVELOPMENT TO COMBAT CLIMATE CHANGE

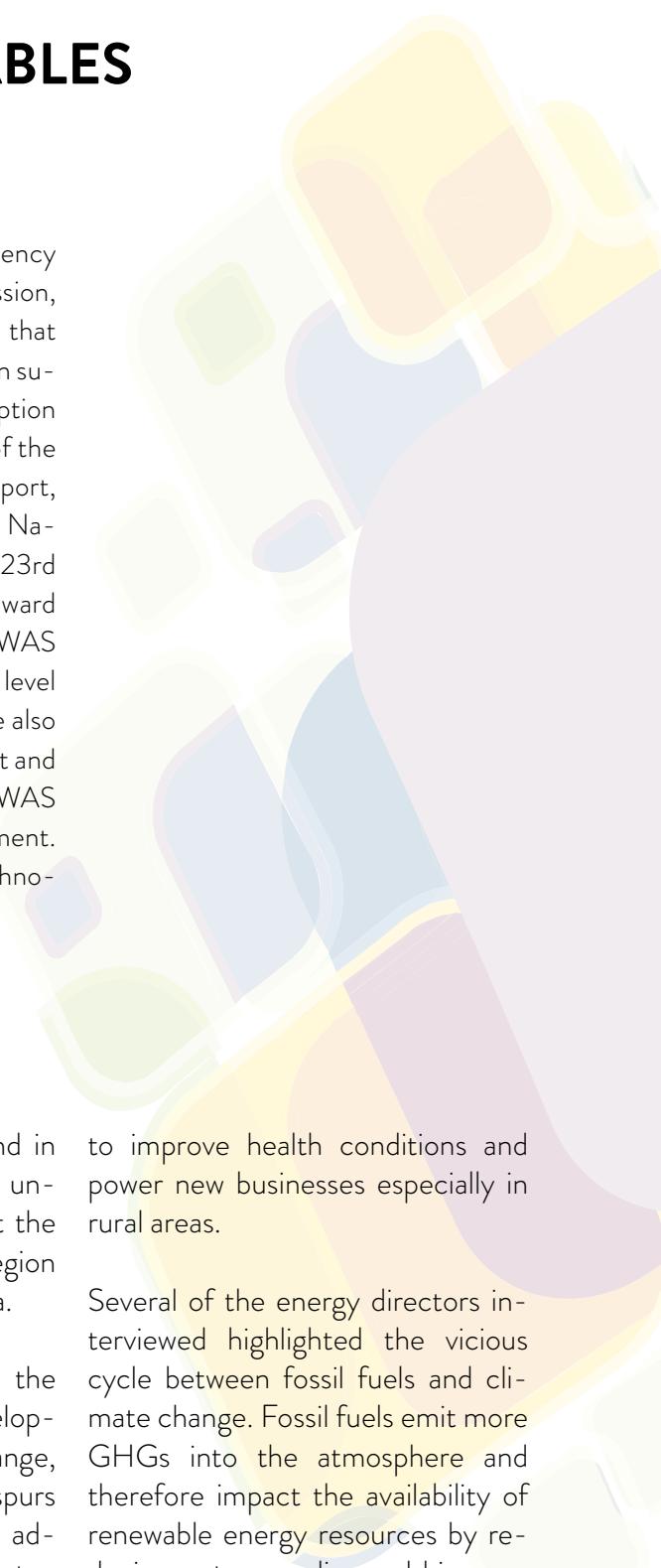
52 out of the 54 African countries have submitted their NDC's, all sub-Saharan Africa countries included. This shows Africa's commitment to the Paris Agreement. Those countries that have submitted their NDCs have addressed renewable energy deployment in their unconditional commitments through a multitude of approaches. The discussions held with the energy directors reveal that governments in ECOWAS countries are fully aware that the recent cost reductions and technological improvements make for an incredible opportunity for ECOWAS countries. These changes combined with the exce-

llent renewable resources found in the region, has the potential to unlock the exciting prospect that the economies in the ECOWAS region could leapfrog the fossil fuel era.

Renewable energy is seen as the vector for sustainable development, it mitigates climate change, increases citizen welfare and spurs green economic growth. The advancement of renewables is a step forward towards sustainable development goals which sparks the development of new skilled and unskilled job opportunities. The construction, operation and maintenance of renewable energy projects doesn't demand highly qualified personal, this is especially important in rural, isolated areas, where the population has limited access to training. Renewables also have the potential

to improve health conditions and power new businesses especially in rural areas.

Several of the energy directors interviewed highlighted the vicious cycle between fossil fuels and climate change. Fossil fuels emit more GHGs into the atmosphere and therefore impact the availability of renewable energy resources by reducing water supplies and biomass. It also creates an increasing need to invest in more resilient infrastructure. There is a general understanding that the energy sector's role in terms of climate change is crucial in preventing catastrophic impacts caused by climate change in order to protect the world, especially the most vulnerable global communities.



NEW BOOST TO MODERN AND AFFORDABLE ENERGY SERVICES IN THE RURAL AREAS

The relationship between access to energy and economic growth has been extensively studied. The general consensus is that a sole strategy to extend the grid will never deliver energy access to all by 2030 and that diesel generation as a strategy has failed to provide affordable energy access. In this context, most countries turn to the deployment of clean energy mini-grids, standalone systems, and solar equipment as lanterns. The different countries in the region have struggled to attract the private sector to help with the expansion of energy access quickly. Providing rural areas with wise subsidies and a supportive entrepreneurial environment, the private sector is more likely to aid in the development of rural electrification projects.

Finally, ECREEE aims convert the challenge of rural electrification into opportunity by increasing women's participation in the energy sector. ECREEE actively promotes women to become the driver for new decentralized renewable energy products, services and energy efficiency measures in the region, which bolsters not only rural women, but entire communities.

RETHINKING CLIMATE FINANCE AND TECHNICAL ASSISTANCE

Taking into consideration that the ECOWAS region is blessed with ample renewable energy resources, that the sun, wind and rainfall are free, there is a general accord that renewables are the cheapest energy option for ECOWAS. Nevertheless, the relatively high initial investment, as mentioned in the interviews, is the main challenge for large sca-

le deployment of renewables in the ECOWAS countries. Taking into consideration the unprecedented need for financial resources which are vital to invest in renewable energies, countries are working together with the ECREEE to create the right policy framework which will attract private investors and increase confidence from financial institutions. New de-risking mechanisms which are adapted to renewable energy projects in African conditions give leverage to private investments and are expected to channel climate finance into projects.

Besides financial support, technical assistance is vital for the success of clean energy projects. Capacity development workshops are needed to expand knowledge of a variety of topics to strengthen the private sector. Workshops highlighting how to access financial support through entities like the Green Climate Fund, are necessary to launch new projects backed by international funds. Training skilled professionals on the construction, operation and maintenance phases of project development and feasibility studies are also vital attract project developers to the region.

UNDERREPRESENTATION OF THE ENERGY SECTOR IN THE CLIMATE CHANGE DEBATE

While there are national structures, institutions and capacities to address the challenges of climate change and sustainable energy within ECOWAS countries, the governments lack financial resources to promote the participation of the energy experts in climate change discussions. Sponsored delegates usually represent other ministries dedicated to the environment or foreign affairs. This is a contradiction seeing as though renewable energy

has an increasing presence during climate change negotiations and that it is generally agreed that renewables and energy efficiency are key to mitigating climate change.

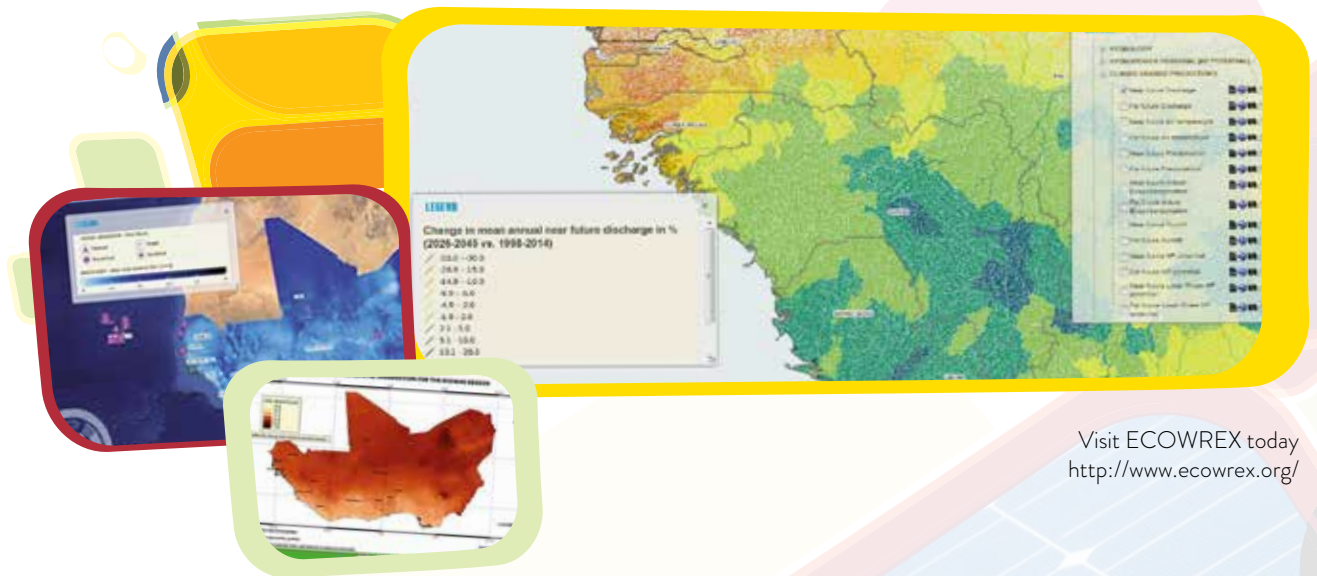
THE ECOWAS REGION READY TO WALK THE TALK

The experience arising from the Kyoto Protocol has made ECOWAS countries realize that a top-down approach alone will not deliver the needed mitigation measures to tackle climate change. Countries are organizing themselves at all levels to unlock their mitigation potential and guide their country to a cleaner, low emission development future.

Within the framework of ECREEE countries work together to build up the ECOWAS observatory on renewable energy and energy efficiency, a vault of information that provides basic market intelligence to the private sector in order to assess the readiness of the ECOWAS countries for renewable and energy efficient investments.

While the NDCs provide very basic information on each country's strategies on sustainable energy, the National Action Plan on Renewable Energy and Energy Efficiency elaborated by all ECOWAS countries and with support of ECREEE, provide guidance to policy makers and send signals to project developers on the size and development pace of the ECOWAS market. In that sense, project developers always feel attracted for larger markets. The advisory role of ECREEE for the creation of fiscal incentives for renewable equipment, quality standards, and profession qualifications, are signals sent to the private sector to prove that the ECOWAS region is ready to walk the talk in renewable energies.

ECOWAS OBSERVATORY FOR RENEWABLE ENERGY AND ENERGY EFFICIENCY



Visit ECOWREX today
<http://www.ecowrex.org/>

The ECOWAS Observatory for Renewable Energy and Energy Efficiency (ECOWREX) is a web-based information platform established in October 2012 to address poor data quality and information pertaining to the energy sector in the ECOWAS region at the same time providing decision makers, project developers, investors and other stakeholders with tailored energy information and planning tool.

The Interactive Data Portal archives over 60,000 data points covering renewable energy and energy efficiency information from 2010 to 2016 for the 15 ECOWAS Member States. It has been designed and developed in-house by the ECOWREX Unit of ECREEE. Its extended functionality permits end users to access information under various topics and indicators; easily embed and share the country profile data portal on partner organization web platforms; download the raw data in various formats for further analysis.

The map viewer has been revamped into a Spatial Data Infrastructure, following international ISO and Open Geospatial Consortium standards in geospatial data interoperability and sharing. Over 140 datasets on RE resources, energy infrastructures, energy demand, etc. End users can explore, share and download easily the geospatial data. Additionally, a metadata catalogue provides standardised information on the geospatial data and makes the maps accessible by other international platforms, which contributes to increase the visibility of the GIS maps.

About ECREEE

The ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE) is a specialized ECOWAS agency with a public mandate to promote renewable energy and energy efficiency markets in the West African region. It was established in 2010 in Cabo Verde with support of the ECOWAS Commission, UNIDO and the Austrian and Spanish Governments. The regional centre of excellence works in fifteen West African countries including the two small island developing states Cape Verde and Guinea Bissau. ECREEE aims to contribute to the sustainable economic, social and environmental development of West Africa by improving access to modern, reliable and affordable energy services. ECREEE also contributes to the achievement of the targets of the ECOWAS Renewable Energy and Energy Efficiency Policy. The centre addresses the various existing market barriers for renewable energy and energy efficiency technologies and services and implements activities in the areas of policy development, capacity development, knowledge management, awareness raising and business and investment promotion.

Acknowledgements

The ECOWAS NDC Spotlight Magazine is an initiative of ECREEE to showcase the progress of ECOWAS countries in the implementation of their energy sector Nationally Determined Contributions-NDCs. We would like to thank all the institutions that contributed to the magazine, the international Renewable Energy Agency (IRENA), National Renewable Energy Laboratory (NREL) the renewable Energy Policy Network for the 21st Century (REN21), the NDC Partnership and the International Institute for Sustainable Development's (IISD). We are grateful for the insights and experience you have brought to this important topic. We would also want to acknowledge Factor Germany for coordinating the development of this publication.



ECREEE
TOWARDS SUSTAINABLE ENERGY

