Workshop de Investimento
Energia Sustentável na Guiné-Bissau
Guinea Bissau Sustainable Energy Investment Workshop

Apresentação do Relatório Nacional do Ponto de Situação das Energias Renováveis e Eficiência Energética da Guiné-Bissau

Presentation of the Guinea Bissau Renewable Energy and Energy Efficiency National Status Report

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Framework

Project: Promoting investments in small to medium scale renewable energy technologies in the electricity sector of Guinea Bissau:

Partners: UNIDO, ECREEE, Ministry of Energy and Industry

Funding: GEF

Activities:

- Publication of the report;
- Organisation of Investment Workshop in Lisbon in May;
- Organisation of International Conference in Bissau in December;
- Organisation of a mini-grid training for policy makers from all portuguese-speaking African countries in Bissau in December;
- Communication and dissemination.

Main goals of the report

- The main goal of the National Status Report is to compile, process and provide information on the current state of the Renewables and Energy Efficiency Sector in Guinea-Bissau.

- The intention is to provide up-to-date and relevant information to potential investors and project promoters, as well as to assist public institutions in disseminating information and raising awareness of the national potential.

- Main players of the sector will be presented in ALER's ***Directory of Contacts*** and all documents consulted will be available online in the ***LERenováveis*** database.

Methodology

For the elaboration of the report, ALER subcontracted TESE-Association for the development and applied a two-step approach for collecting information:

- Primary data collection: questionnaires and interviews with the main stakeholders;
- Secondary data collection: in depth analysis of bibliography (reports, statistics, plans, etc.).

A steering committee, composed by main stakeholders is monitoring and following up the elaboration of the report.

- Júlio António Raul - DGE
- Yuri Lima Handem - ECREEE
- Gervásio Vaz Moreno - Ministry of Finance\Plan
- Patrício Ribeiro - IMPAR
- Adelcio Silva - EAGB
- João Raimundo Lopes, MADS/GEF

Timing

The elaboration of the report began in January and the final version will be available by the end of 2018, in line with the schedule of implementation:

- January 2018: Project kick-off;
- February 2018: End of literature review and data collection;
- April 2018: 1st draft version with main outcomes per chapter;
- May 2018: Final draft version;
- June 2018: Final version after input of all comments from stakeholders;
- July 2018: Translation to English;
- September 2018: Design;
- October 2018: Printout;
- November 2018: Transportation to Bissau;
- December 2018: Launch at the conference.

Report Structure

The report is composed by 7 main chapters, including barriers and recommendations for each part. The final structure is the following:

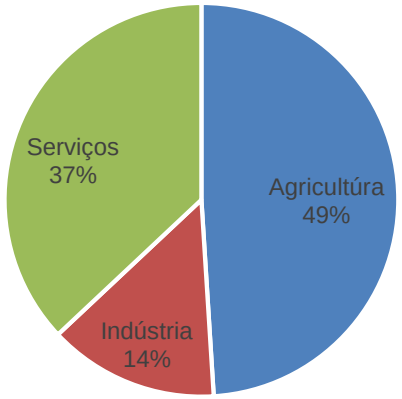
1. **Brief country overview**: general information about Guinea-Bissau;
2. **Legal and institutional framework**: information about the energy sector organization, policies, strategies, national plans and legal framework;
3. **National energy profile**: general information about the energy and electric sector;
4. **Renewable energy sources and projects**: information about renewable energy potential and projects;
5. **Energy efficiency potential and projects**: information about energy efficiency potential and projects;
6. **Economic and financial framework**: market evaluation and information about investment, financing mechanisms and financing institutions;
7. **Education and training**: information about education, training, investigation and certification in the energy sector;
8. **Conclusions**.

1. Brief country overview

- Located in the western African coast, Guinea-Bissau has a total surface of 36 125 m^2 and an estimated population of 1 842 564 inhabitants.
- Approximately 58% of the population lives in rural areas and 40% are aged under 14.
- Administratively, The country is divided in 8 regions and the autonomous sector of Bissau, which is the capital city.
- The Human Development Index is low, ranking 178 in 188 countries.
- The economy is based on the primary sector (agriculture - 49%), on services and on international cooperation.
- Instability characterizes the political context, historically and at the moment.

Map of Guinea Bissau

National GDP (%), 2016



2. Legal and institutional framework

Legal framework:

- Law N.° 2/2007;
- Law N.° 3/2007.

Institutional framework:

- Ministry of Energy and Industry;
- General Energy Directorate, specialized Services and Regional Offices;
- EAGB;
- Independent and autonomous electricity producers, private companies and associations;
- There is not yet a regulatory authority.

2. Legal and institutional framework

Main policies and strategies:

- **Regional**:
  - Política para as Energias Renováveis de CEDEAO (EREP), 2013;
  - Política para a Eficiência Energética da CEDEAO (EEEP), 2013.
- **National**:
  - Documento de Estratégia Nacional de Redução da Pobreza II (DENARP II), 2011-2015;
  - Plano Estratégico Guiné-Bissau 2025 «Terra Ranka».
- **Sectorial**:
  - Plano Director de Energia e de Desenvolvimento das Infra-estruturas de Produção e Distribuição de Electricidade, 2013;
  - **National Renewable Energy Action Plan (PANER), 2015;**
  - **National Energy Efficiency Action Plan (PANEE), 2015;**
  - **SEforALL Action Agenda (SEforALL AA), 2015;**
  - **SEforALL Investment Prospectus (SEforALL IP), 2015.**

2. Legal and institutional framework

Tariffs and investment framework:

- Energy and electricity tariffs vary depending on the source, the region and the producer.

- Main market actors:
  - EAGB – Bissau
  - Regional electricity public services – Interior
  - Agrosafim – Safim
  - SCEB – Bambadinca
  - FRES - Contuboel
  - Independent and autonomous producers

- Investment is promoted by the Ministry of Economy, the customs code of ECOWAS and the national investment code, but without a specific framework for energy projects, beyond cooperation funds.

2. Legal and institutional framework

Project licensing:

- Environmental licensing clearly defined.
- Laws N.° 2/2007 and 3/2007 liberalized the energy and electricity market, establishing general disposition regarding production, distribution and supply.
- The Ministry of Energy and Industry awards concession to private companies, collective structures or public utilities.
- However, technical licensing not yet standardized and each project doesn't follow the same steps.
- An ongoing study, financed by the EU, aims to clarify a new concession scheme, focusing on renewables and mini-grids.

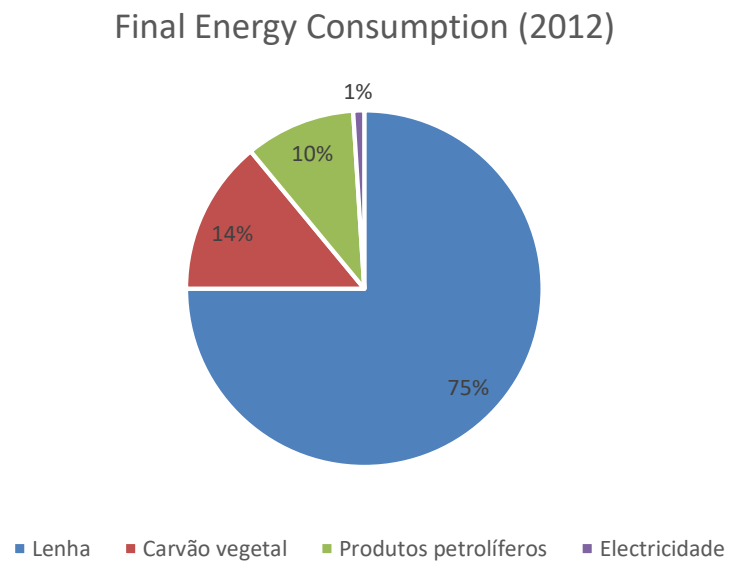
2. Legal and institutional framework

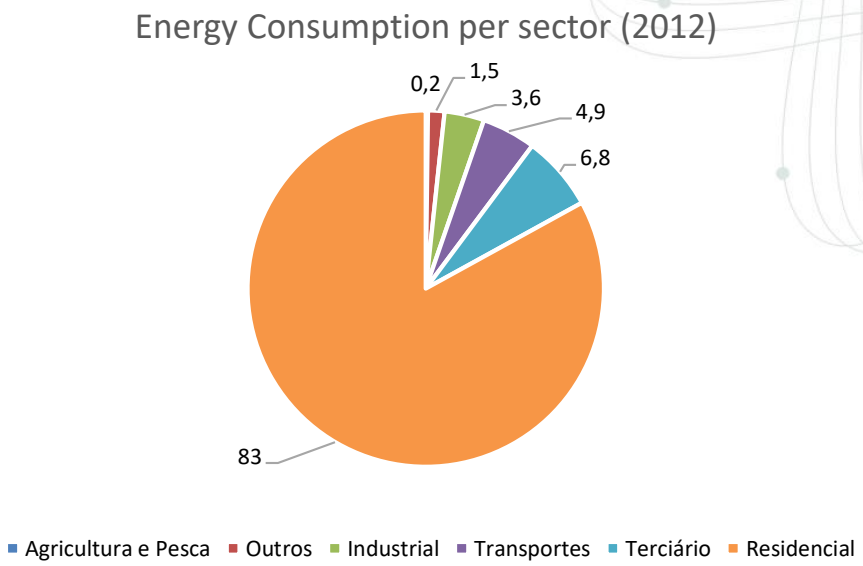
International protocols and agreements:

- African Union
- African Development Bank
- West African Development Bank
- ECOWAS
- ECREEE
- UEMOA
- SABER-ABREC
- CPLP
- World Bank
- UNDP
- UNIDO
- GEF
- SE4ALL
- IRENA
- ISA
- SIDS DOCKS

3. National energy profile

Energy mix:



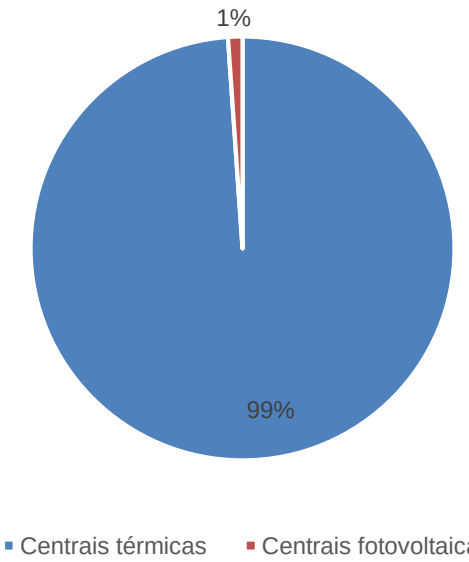


Energy data availability and update is complicated, however the new Energy Information System can provide and centralize data.

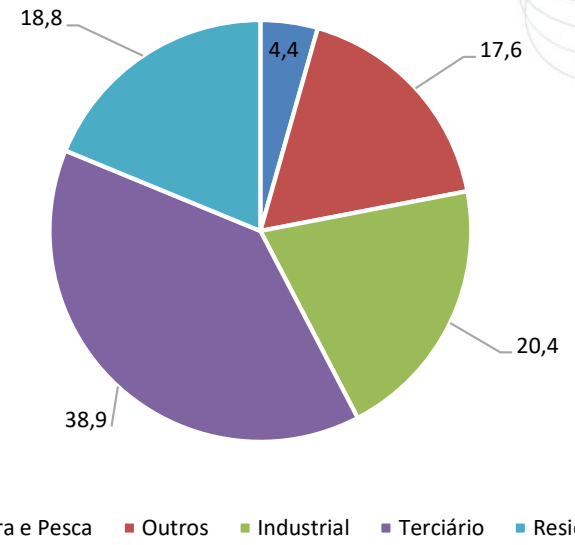
3. National energy profile

Electricity mix:

Electricity Production (2018)



Electricity consumption per sector (2012)

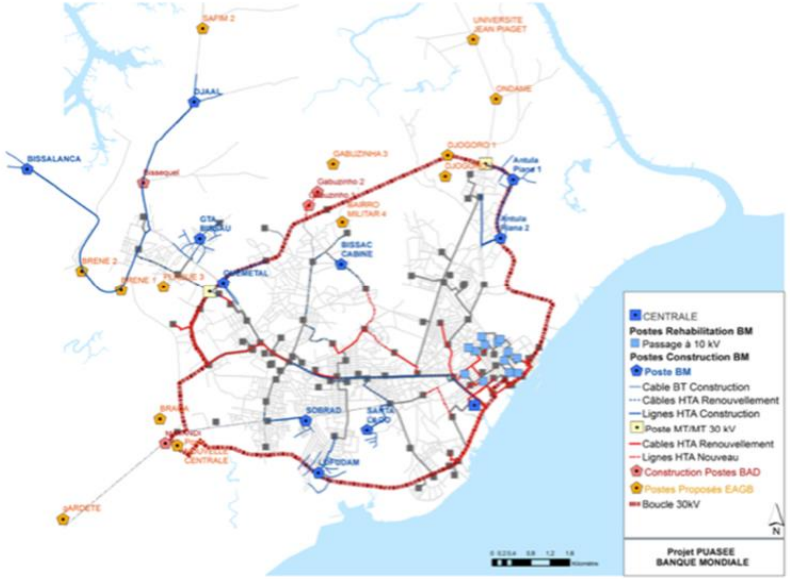


Electricity production type	Installed operational capacity (MW)
EAGB – Bissau	8,5
Regional units	3,67
Independent and autonomous producers	26
PV mini-grids	0,412

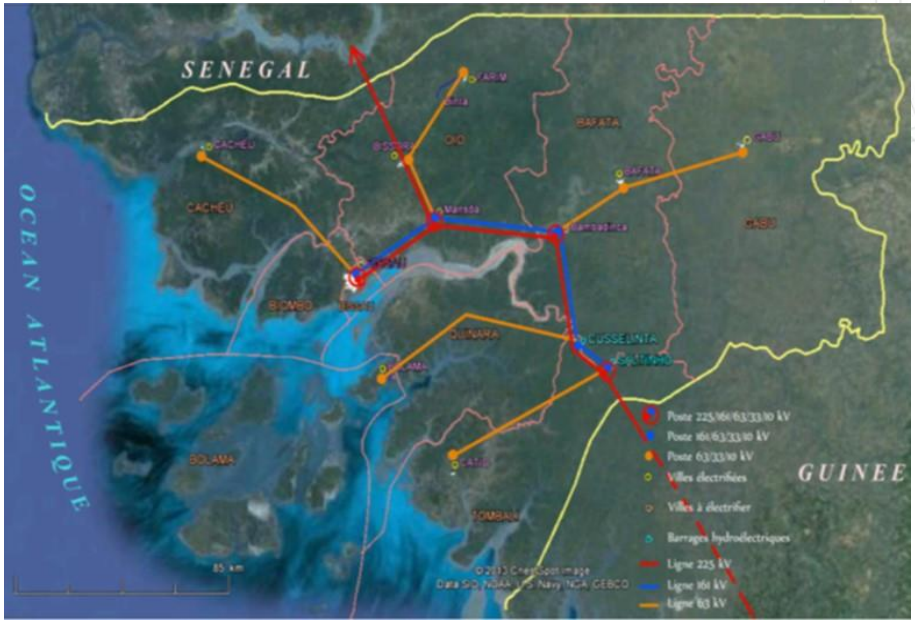
3. National energy profile

Infrastructure:

- OMVG HV line;
- National grid;
- Bissau grid (ring).



Bissau grid plan

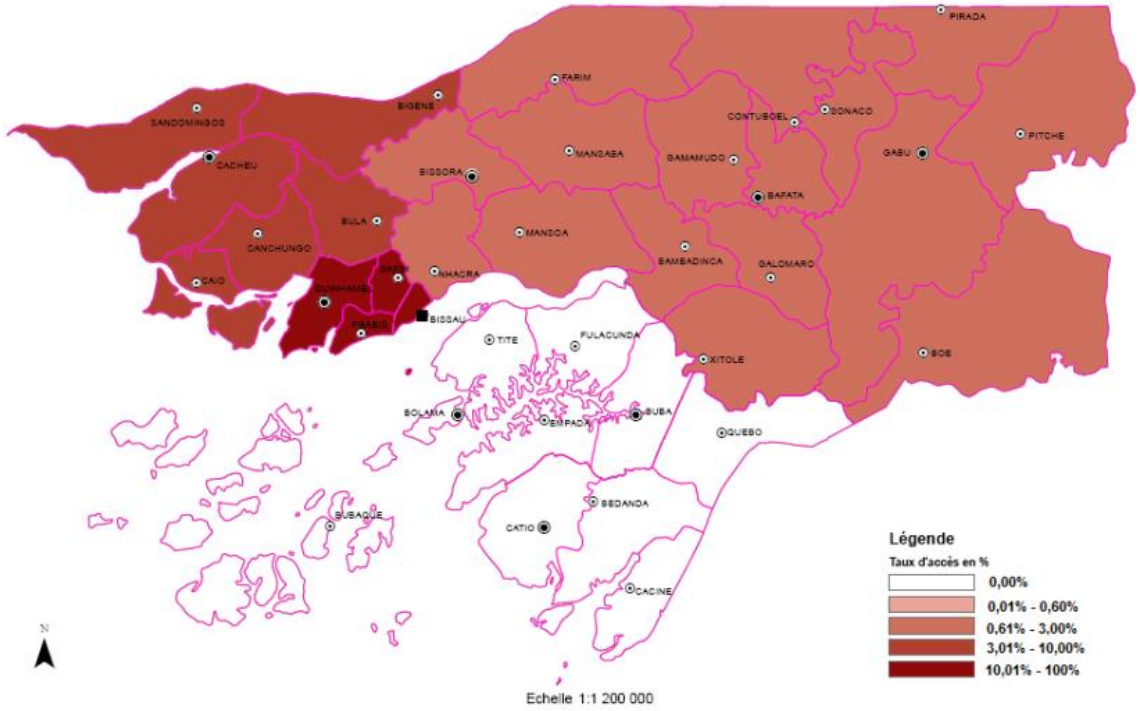


OMVG HV line and national grid plans

3. National energy profile

Electrification rate:

- The electrification rate is one of the lowest of the region (11,5%).
- Bissau´s cover rate is estimated at 29%, while in the interior it is lower than 5%.
- Target of at least 80% until 2030.

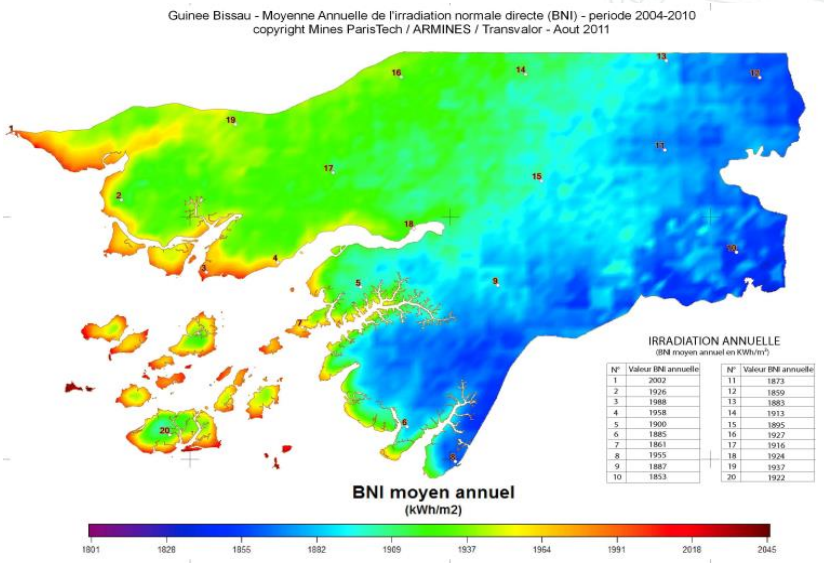


Electrification rate map (2012)

4. Renewable energy sources and projects

Among various renewable energy sources (solar, wind, hydro, tidal, biomass), the ones that present a significant potential are solar, hydro and biomass:

- Global solar irradiation varies from 1 800 to 2 000 kWh/m^2, with the best potential being located in the islands and the coastal areas.
- Hydro power potential is located in the eastern part of the country (rivers Corubal and Geba), with an estimated capacity potential of 29,9 MW composed by small dams.



Global solar irradiation map

- With an economy based on agriculture (cashew, rice, sugar cane), biomass potential is significant and immediate potential is estimated at 4,4 MW.

Data availability and precision is a significant barrier that needs to be overtaken.

4. Renewable energy sources and projects

Off-grid operating PV projects:

Operating projects	Installed capacity (kWp)	Management model	Tariff model
Bambadinca PV hybrid mini-grid	312	Public-Community	Hourly rate, Pre-paid
Contuboel PV mini-grid	100	Private	Hourly rate, Pre-paid
Bissorã PV hybrid mini-grid	500	*N/A*	*N/A*

- Smaller scale PV: SHS, water pumping systems and public lighting

On-grid future potential projects:

- PV: Gardette (20MWp, *200kWp constructed*), WB project (feasibility study, up to 3 powerplants, 20-30 MWp with storage)
- Hydro: Saltinho (14MW), Cussilinta (13MW), agricultural dams (2,94 MW)

SE4ALL IP identified projects:

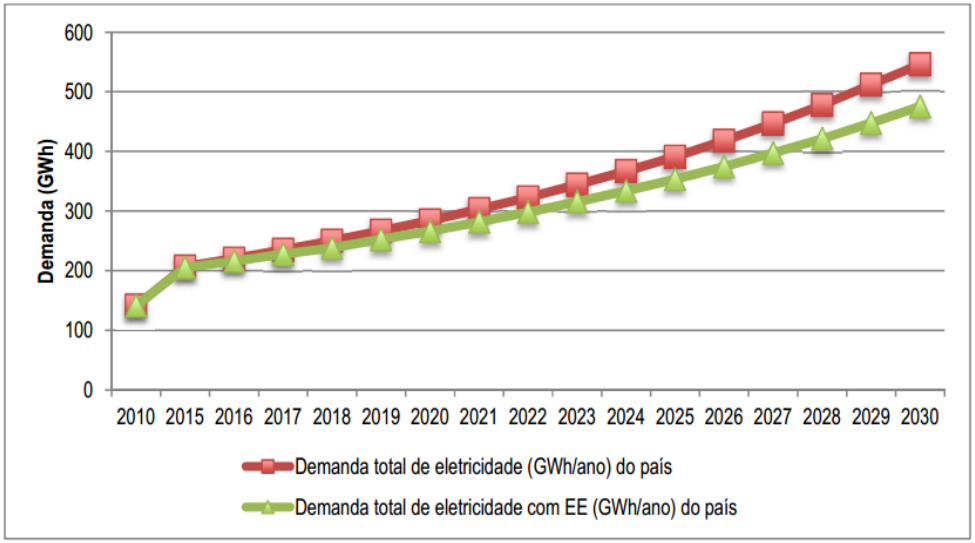
- 18 projects off-grid
- 13 bioenergy and clean cooking projects

5. Energy efficiency potential and projects

Savings up to 71 GWh/year until 2030.

Projects implemented:

- Distribution grid efficiency;
- Relamping;
- Improved cookstoves (INITA).



Electricity demand evolution and savings

SE4ALL IP identified projects:

- 4 energy efficiency projects

Education of the main stakeholders of the sector is necessary, in order to clarify the difference of renewables and energy efficiency, as well as to highlight the importance of the sector.

6. Economic and financial framework

- Main market stakeholders and institutions :
  - 13 private companies;
  - 5 banks;
  - 2 assurance companies;
  - 3 micro-credit institutions;
  - 21 financing institutions.

- Low private sector investment rate
- Absence of special financial mechanisms for energy projects;
- Innovative business models are/can be implemented (*Fee-for-service; Pay-as-you-go);*
- Burdensome fiscal benefits to be facilitated by the renewables law (under project);
- Stakeholders awareness of the general framework is limited;
- Investment considered of high risk;
- Low quality equipment available in the market, creates competition for new modern projects.

7. Education and training

- Few institutions of higher education but technical and vocational schools.
  - 5 schools
  - 1 R&D institution
- Scholarships and cooperation programs.
- Specific training actions are implemented as part of energy projects.

Electricity course in ADPP school in Bissorã

Next steps

In order to guarantee a detailed report and the involvement of all national and international stakeholders, the following steps are foreseen:

- May 2018: Review of the draft version by the steering committee;
- **June 2018: Public review of the draft version by all stakeholders;**
- July-October 2018: Translation and production of the report;
- Ongoing: Data collection for ALER's *Directory of Contacts.*

Thank you for your attention

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