

# **6<sup>TH</sup> JOINT RETREAT OF ECOWAS COMMISSION, PERMANENT REPRESENTATIVES AND NATIONAL UNITS**



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RENEWABLE ENERGY EXPERT  
ECREEE**

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# PRESENTATION OUTLINE



1. THE ENERGY SITUATION
2. ENERGY POTENTIALS IN WEST AFRICA
3. FOUNDATION OF ECREEE
4. ACTIVITIES OF ECREEE





## THE ECOWAS REGION



- 15 COUNTRIES WITH A LAND AREA OF 5 MILLION KM<sup>2</sup>
- CLIMATE FROM SEMI-ARID TO HUMID TROPICAL
- POPULATION OF WITH 300 MILLION PEOPLE,
- 60% OF POPULATION LIVES IN RURAL AREAS
- 11 OF THE 15 COUNTRIES ARE LDCS AND HIPIC
- ALMOST 150 MILLION PEOPLE HAVE NO ACCESS TO ELECTRICITY





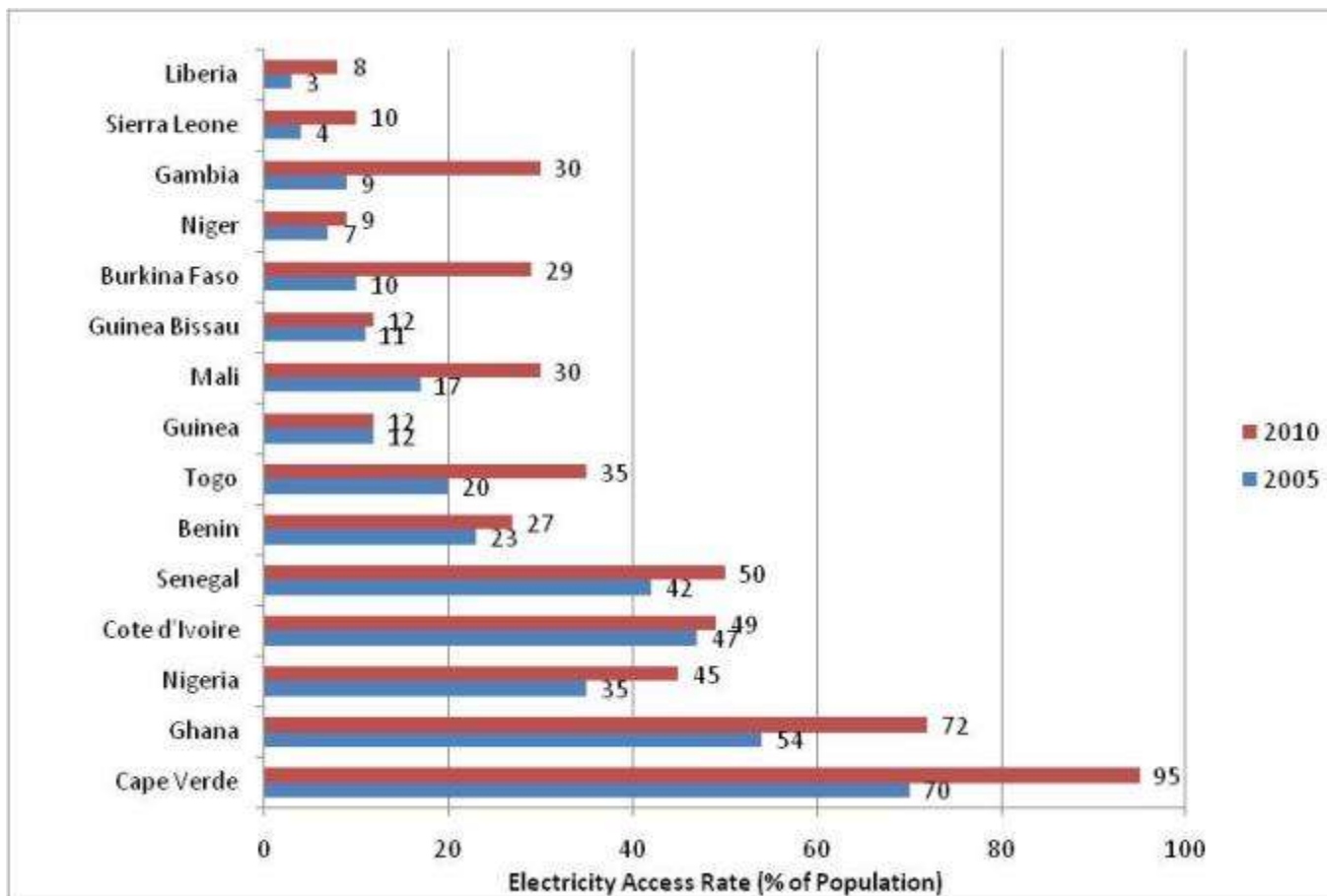
# Energy Situation in West Africa



- **Interrelated challenges of energy poverty, energy security and climate change mitigation and adaptation**
- **Low Access to modern energy service**
  - One of the lowest energy consumption rates in the world;
  - The poor spend more of their income on low quality energy services;
  - Rural areas rely mainly on traditional biomass to meet their energy requirements;
  - **Household access to electricity services is only around 20% (40% in urban and 6-8% in rural areas);**
- **Energy security concerns**
  - High vulnerability to fossil fuel price volatility (60 % of electricity generation from oil)
  - Gap between rising urban energy demand, available generation capacities and limited investment capital;
  - High losses in the energy systems (e.g. high energy intensity and low demand and supply side efficiency);
- **Climate changes concerns**
  - Increasing energy related GHG emissions (new investments determine GHGs for the next 20 -30 years)
  - Climate change impacts vulnerable West African energy systems (e.g. water flows, extreme weather events)



# Electricity Access Rate in ECOWAS Countries 2005 and 2010





# RE & EE POTENTIALS IN WEST AFRICA



- **RE & EE play an important role in simultaneously addressing the energy challenges in West Africa**
- **RE potentials so far unexploited**
  - 23,000 MW of feasible **large and small hydropower potential** (16% exploited);
  - Huge potential for **all forms of bioenergy** (e.g. biomass, biogas, biofuel);
  - Average **solar radiation of 5-6 kWh/m<sup>2</sup>** per day throughout the year;
  - Considerable **wind power potential** in some countries;
  - RETs are particularly effective in combination with EE measures;
- **EE potentials so far unexploited**
  - Wide range of options to improve **supply and demand side efficiency** (including energy saving)
  - e.g. **Equipment labeling and building standards**;
  - e.g. **Cleaner production** in industry (e.g. process heat);
  - e.g. **Technical and commercial losses** in the electricity system;



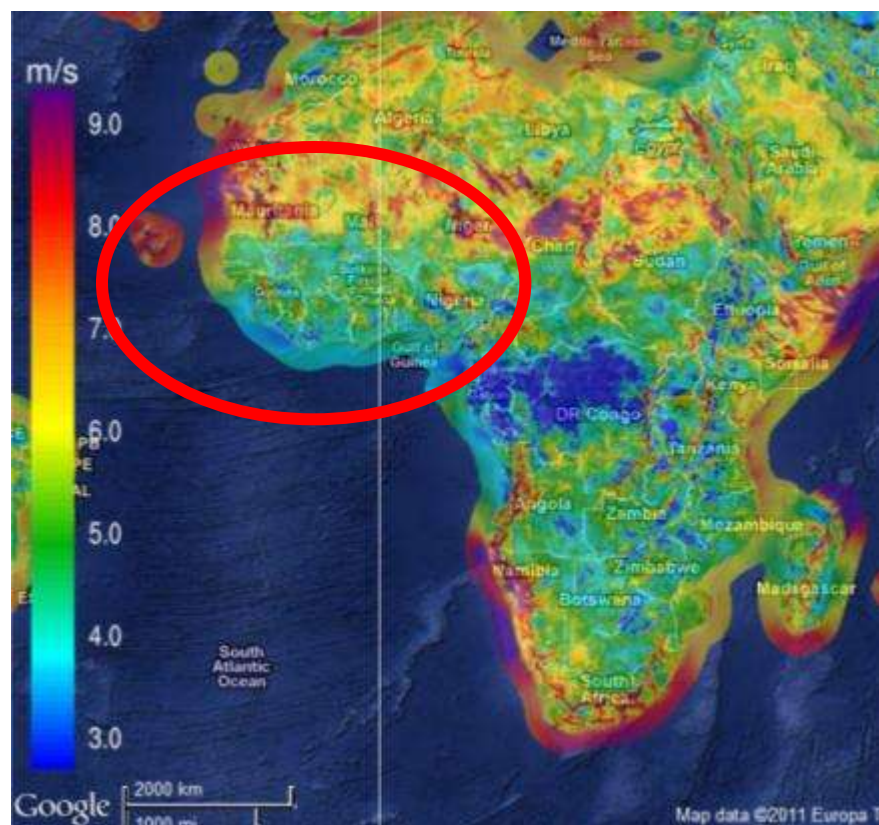
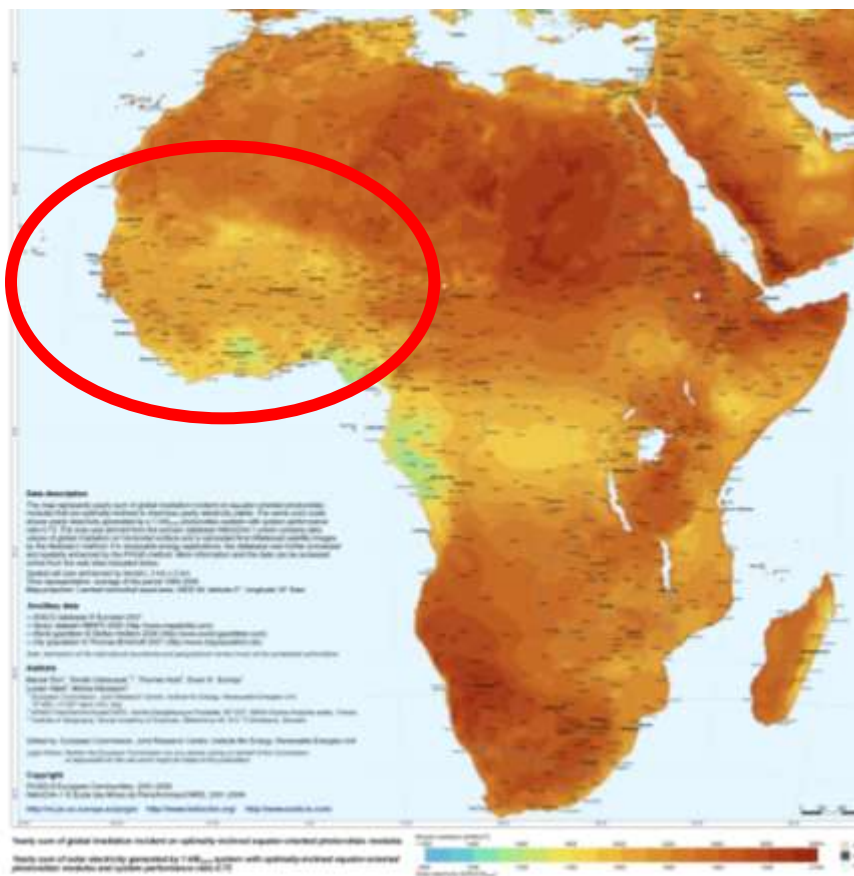


# Solar and Wind



Average **solar radiation of 5-6 kWh/m<sup>2</sup>** per day throughout the year (source: PV GIS – JRC)

Wind potential: spots with **wind speed 6-7 m/s** at 80 m (source: [www.vortex.es](http://www.vortex.es))





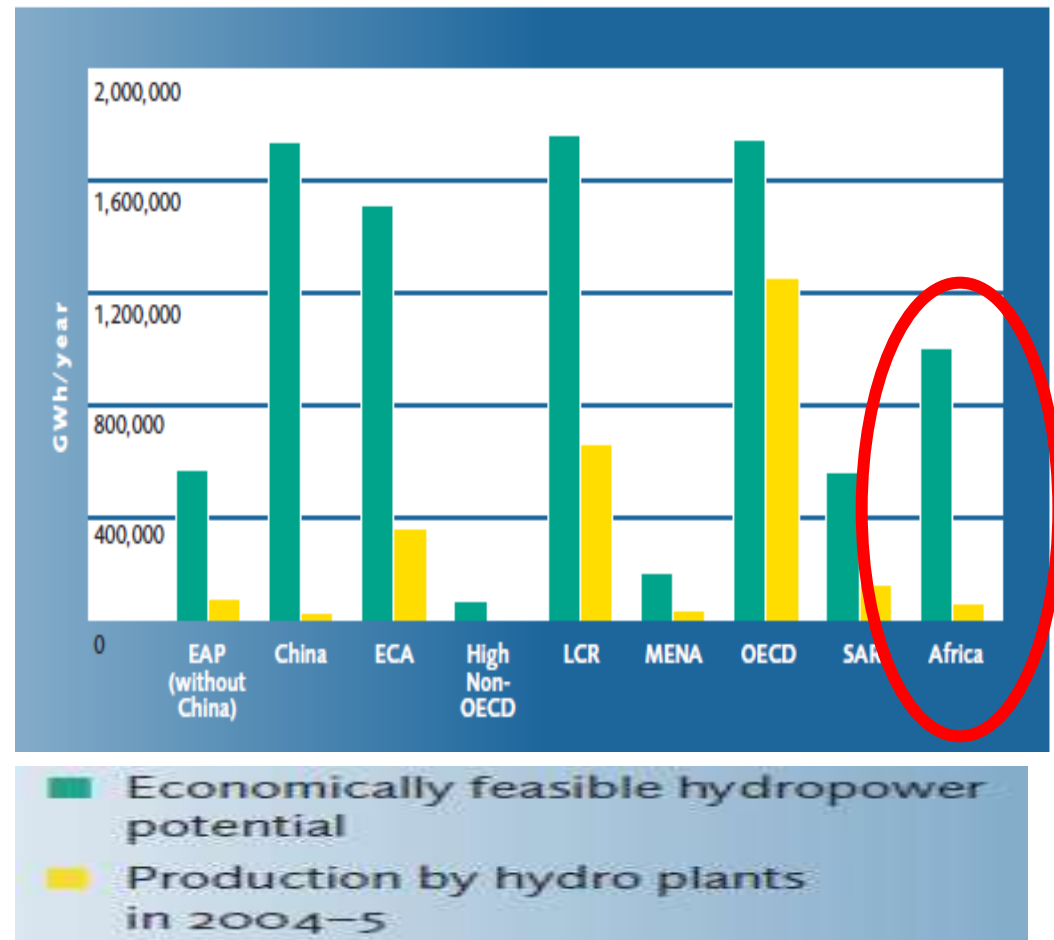
# Bio-energy and Small Hydro Power



## Bio-energy potential



## Hydro Power Potential (93% are not exploited)







# Constraints/ barriers



## ➤ **Financial/Economics:**

- High upfront costs of solar or wind compared with smaller scale conventional systems even where competitive;
- Lack of large scale projects at regional level to take advantage of higher solar or wind resource endowments and economies of scale;
- Lack of innovative financing mechanisms.

## ➤ **Policies and Institutional issues:**

- Absence of political targets for renewable energy in general and solar/wind in particular, in many countries;
- Non-existent or weak policy measures for level playing field in many countries;
- Weak national agencies with unclear responsibility for solar/wind in many countries.

## ➤ **Capacity Building & Technology transfer**

- Inadequate skilled technical manpower in many countries.
- Limited or no local manufacturing due to small national markets.
- Limited R&D with little or no linkages to entrepreneurial/ manufacturing sector.



# Foundation of ECREEE



- The Ouagadougou Declaration from 12 November 2007 highlighted the need for a regional RE&EE Centre; initial pledge by the Austrian Minister for Foreign Affairs;
- Foundation laid by ECOWAS Energy Ministers and Regulation C/REG.23/11/08 of the 61st Session of ECOWAS Council of Ministers in Ouagadougou, Burkina Faso, on November 23, 2008;
- The Vision of ECREEE is to improve energy security, increase access to modern energy services and support the region's economic and social development in an environmentally benign manner through the promotion and use of renewable energy and energy efficient (RE&EE) technologies in ECOWAS member states.
- Launch of the ECREEE preparatory phase in November 2009 with support of the ECOWAS Commission, the Austrian and Spanish Governments and technical assistance from UNIDO.
- Official Inauguration and First Board meeting launched operational phase of ECREEE on 6th July 2010



# ECREEE Objectives & Activities



## Specific Objective

Creation of favorable framework conditions and an enabling environment for renewable energy and energy efficiency markets

## ECREEE Activities

- Lead and coordinate the implementation of the ECOWAS/UEMOA White Paper on energy access in rural and peri-urban areas by promoting RE&EE technologies and services;
- **The ECOWAS/UEMOA White Paper foresees that at least 20% of new investments in electricity generation in the region will be driven by renewable resources;**
  - Tailored policy, legal and regulatory frameworks and quality standards
  - Capacity development of key groups of different sectors
  - Advocacy, awareness raising, knowledge management and networking
  - Investment promotion and business development
  - Development of Renewable Energy and Energy Efficiency Projects



# Priority Programmes

2010 - 2015



## Policy Development

### At a regional level;

#### **Regional Renewable Energy Policy Framework for the ECOWAS Region, with the support of the EU-PDF**

- The policy will take into account all sources of renewable energy including solar energy, small hydropower and wind energy aspects;
- Adoption of policy documents, the elaboration of laws and regulations and dissemination among ECOWAS member states

#### **Regional White Paper on Energy Efficiency, with the support of the ACP- EU Energy Facility**

- Elaboration of a Regional White Paper(Regional Policy) on Energy Efficiency and dissemination across ECOWAS member states.
- White paper will cover all sectors including industry, household, transport and public and commercial sectors



# Priority Programmes

2010 - 2015



## Capacity Development

### Long term

- Launched a Capacity Needs Assessment to determine training needs on Renewable Energy and Energy Efficiency in the region.
- Formulation of a comprehensive Regional Capacity Development Programme.

### Short to Medium Term

- Training workshops & seminars:
  - Planning, Design and Financial Aspects of RE Projects
  - RE Policies and Incentive Schemes
  - Project development using Carbon Financing options
  - RES Integration to Electrical Systems Seminar for ECOWAS policy/decision makers





# Priority Programmes

2010 - 2015



## Advocacy, awareness raising and knowledge mgt

### ECOWAS Observatory for Renewable Energy and Energy Efficiency(GEF)

- Provide targeted investment and business information for the private and public sector:
  - General data, overview on RE&EE policies and incentives in West Africa
  - RE resource atlas, measurement data and other investment related information
  - Overview on technologies and applications in different sectors and contexts
  - Tailored information for business start-ups
  - Catalogue of key experts and suppliers for RE&EE products and services
  - Guidelines and Good practices and toolkits based on review of past projects and emerging lessons from best practices
  - Publications and communication documents (reports, leaflets, brochures etc)



# Development of RE & EE Projects



## RE Projects completed in 2010



**2.5 MW Solar PV, in Sal, Cape Verde  
Commissioned October 1, 2010**



**5 MW Solar PV, in Praia, Cape Verde  
Commissioned November 2, 2010**



# Development of RE & EE Projects



## RE Projects under construction



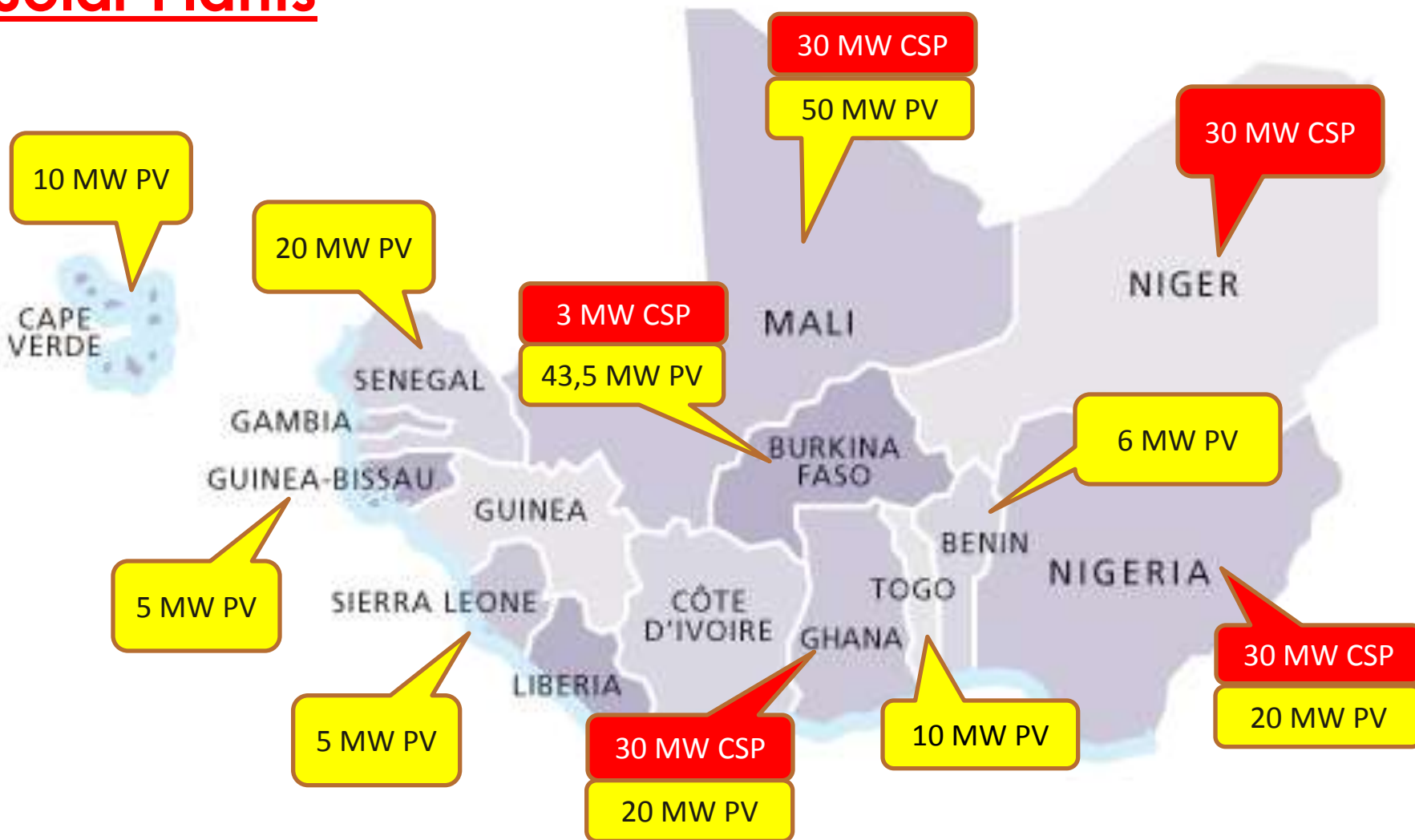


# Identified and Potential Projects in the Region

2011-2020



## Solar Plants



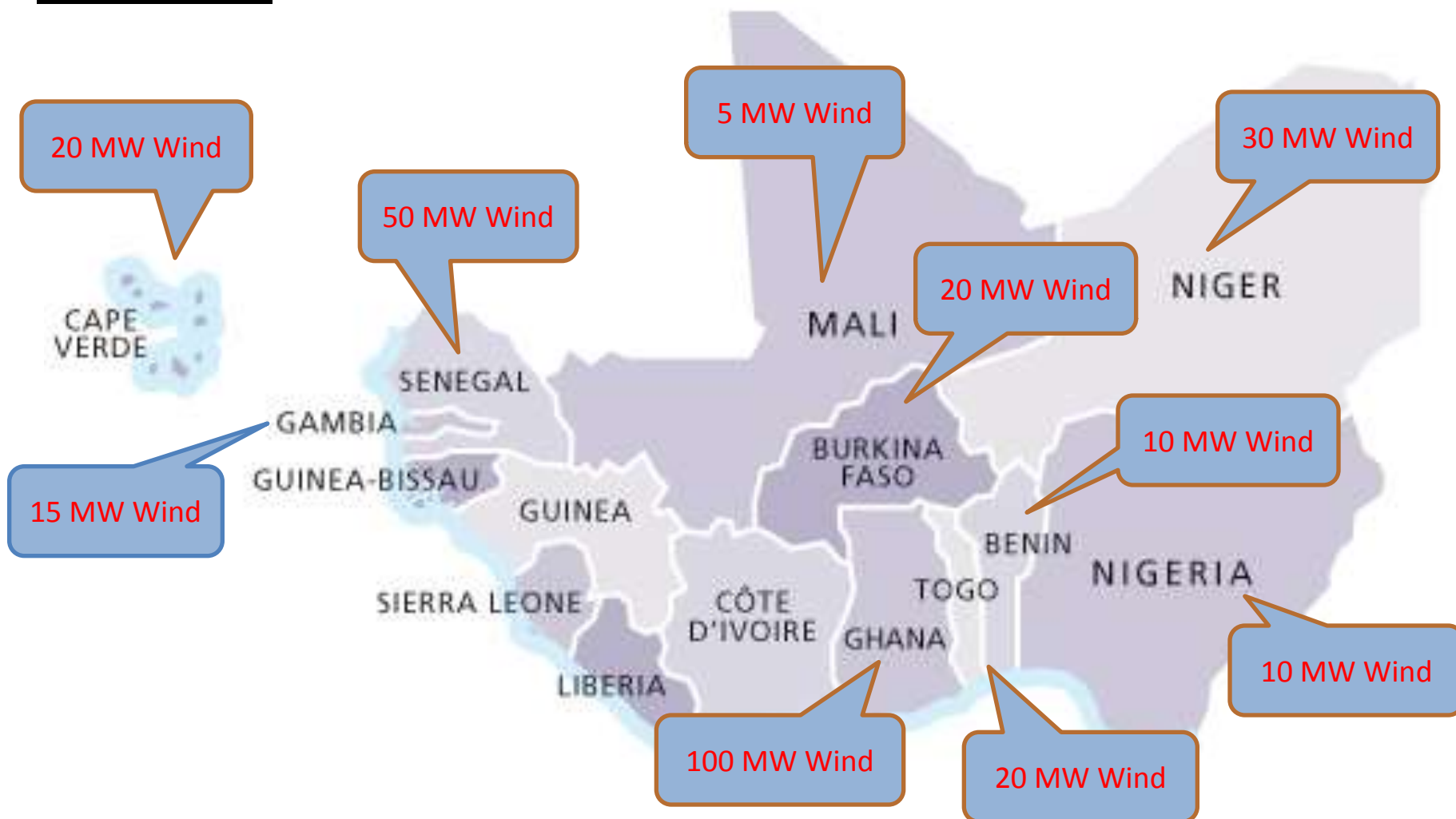


# Identified and Potential Projects in the Region

2011-2020



## Wind Farms





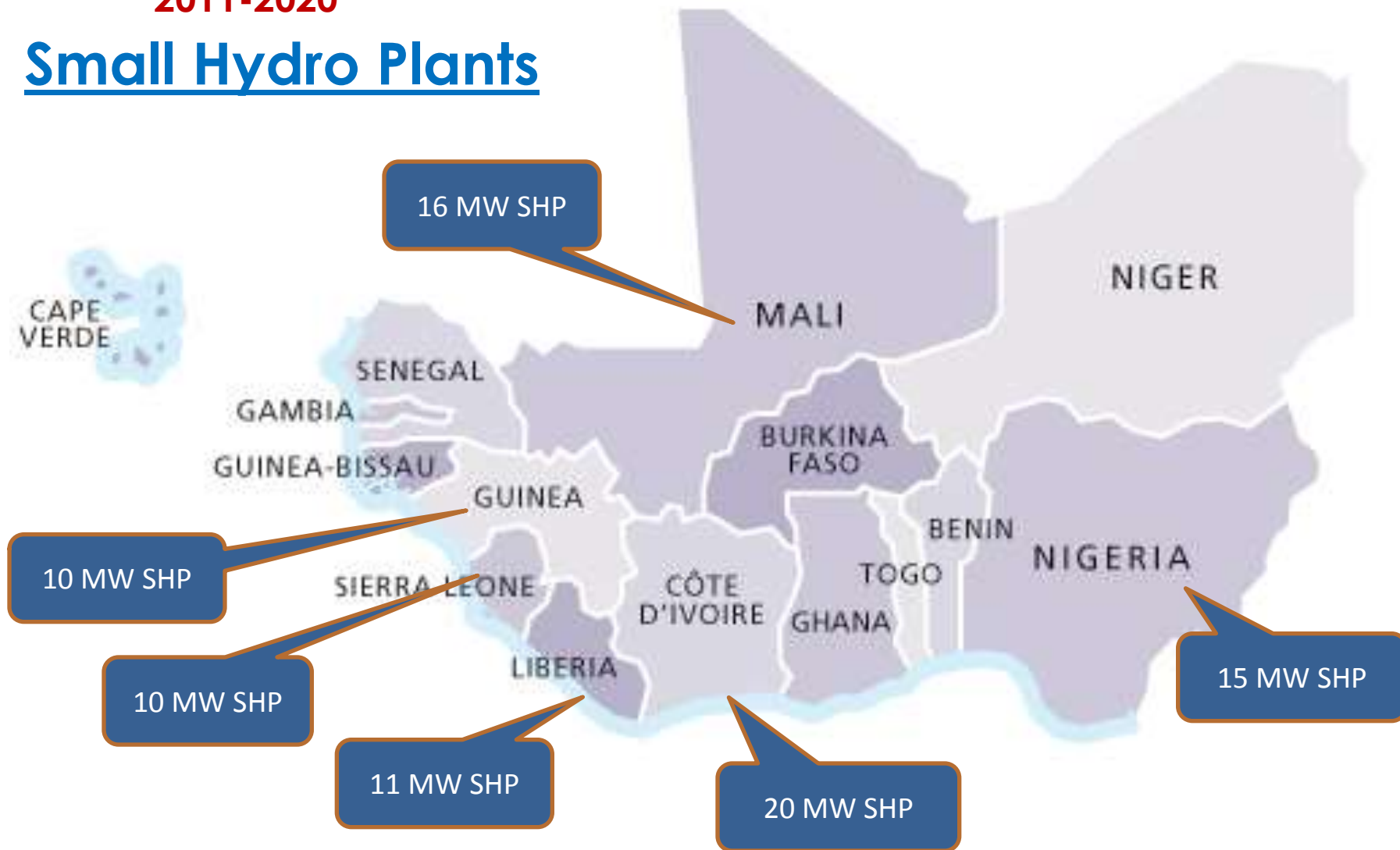


# Identified and Potential Projects in the Region

2011-2020



## Small Hydro Plants



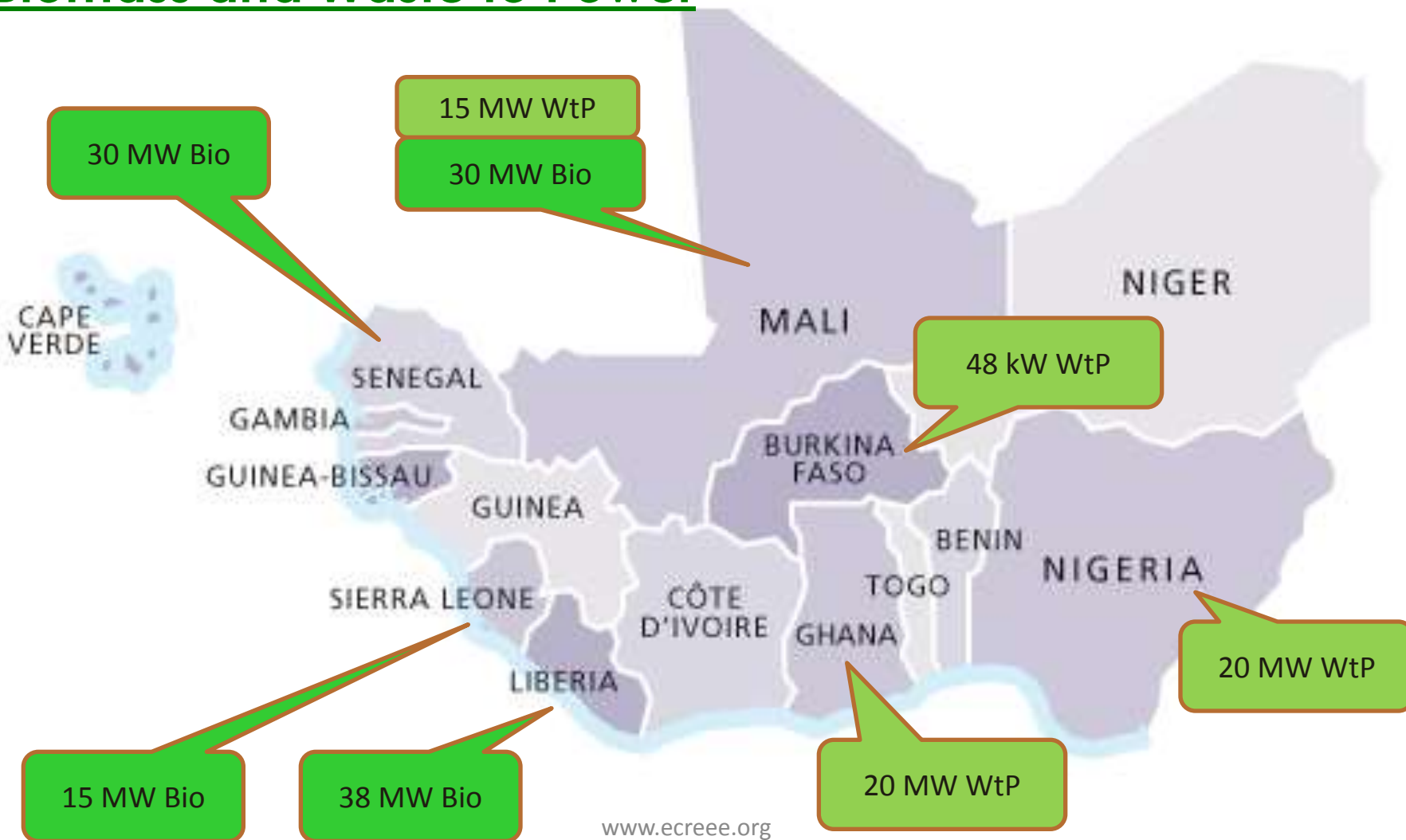


# Identified and Potential Projects in the Region

2011-2020



## Biomass and Waste to Power





# Priority Programmes

## 2010 -



### Investment Promotion for Identified & Potential Projects

#### Medium-Large Scale Commercial Power Plants

- Solar Energy – 231 MW
- Wind Energy – 215 MW
- Small Hydro Power – 66 MW
- Waste to Power and Biomass – 78 MW
- Bio-fuels – 15 MW

**Total Capacity: 605 MW**

**Total Investment Requirements: 1.350 Million Euro**

#### Access to energy and Rural Electrification

- Rural Energy projects including Micro-Grid Projects
- Productive uses of Energy???



# Investment promotion and business development



## **EREF**

**A Small grand Funding facility to promote RE business start-ups, feasibility studies and small rural projects.**

## **ECREEE-MICRO Finance Scheme**

**A Small credit scheme to support RE and EE projects in Rural Communities**

## **ECREEE Investment fund**

**An investment fund to support large scale RE Investment projects**



# ECREEE AND PARTNERS

## Core Partners



Austrian  
Development Cooperation



## New Partners



## Other Partners



## Technical Partners



ADEME



Agence de l'Environnement et de la Maîtrise de l'Énergie

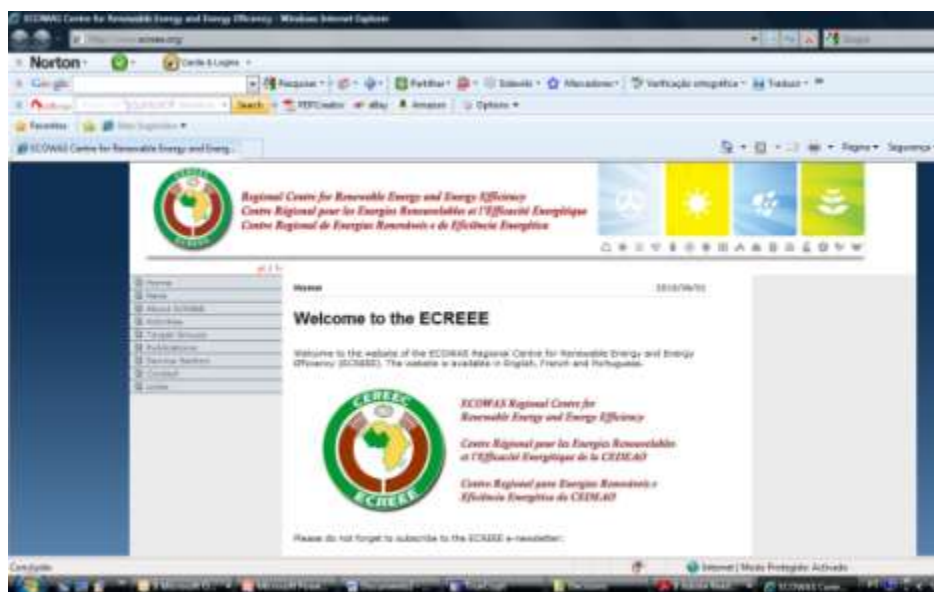






# Renewable Energy and Energy Efficiency is the Future

Visit our website [www.ecreee.org](http://www.ecreee.org)



# Thank you! Merci! Muito Obrigado!