

# ECREEE Strategy to Promote Renewable Energy and Energy Efficiency Investments in the ECOWAS (2011 to 2016)



**Mr. Martin Lugmayr, ECREEE**

**SWAC/OECD Meeting:  
5 to 6 December 2011**



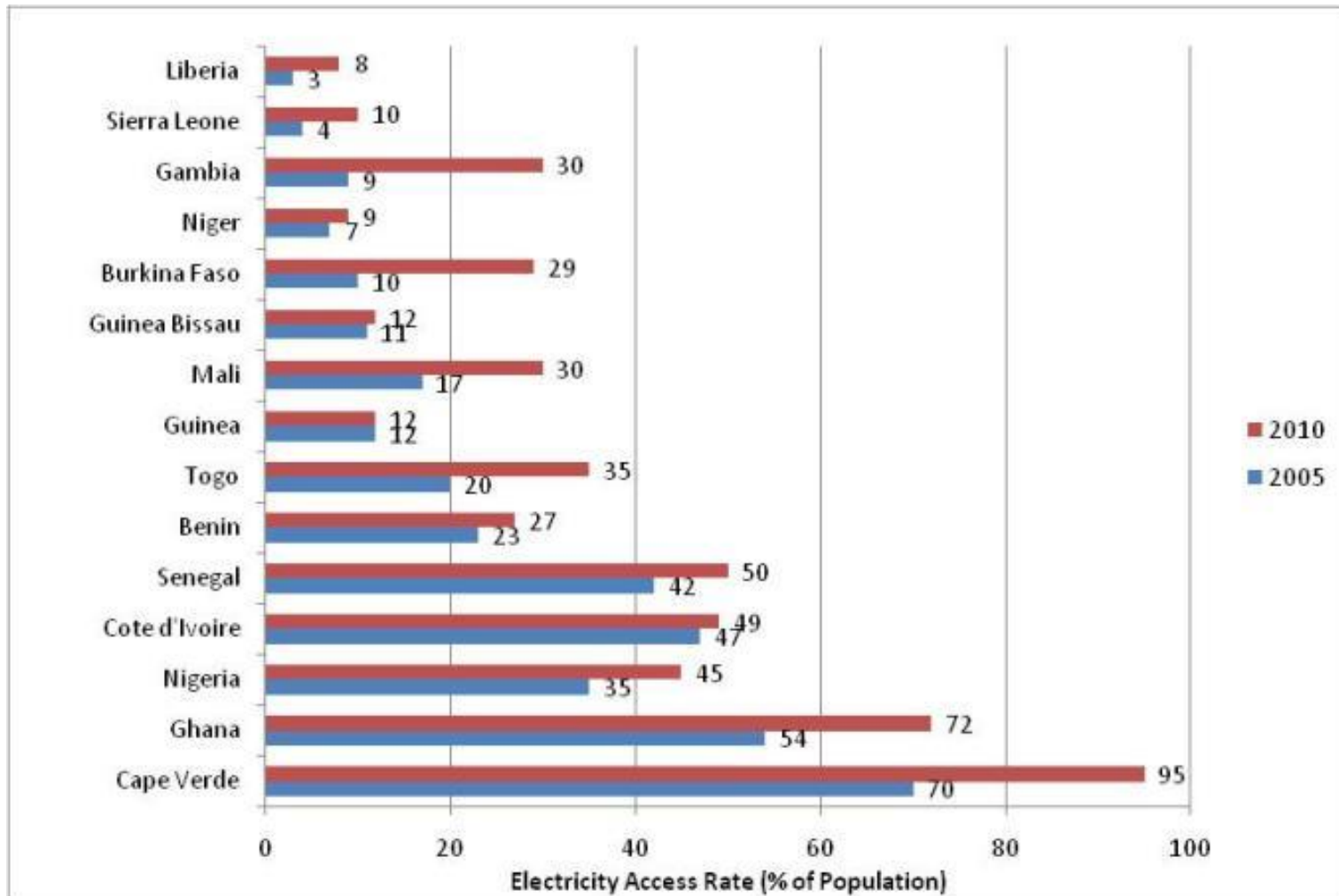
# Energy Situation in West Africa



- **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)

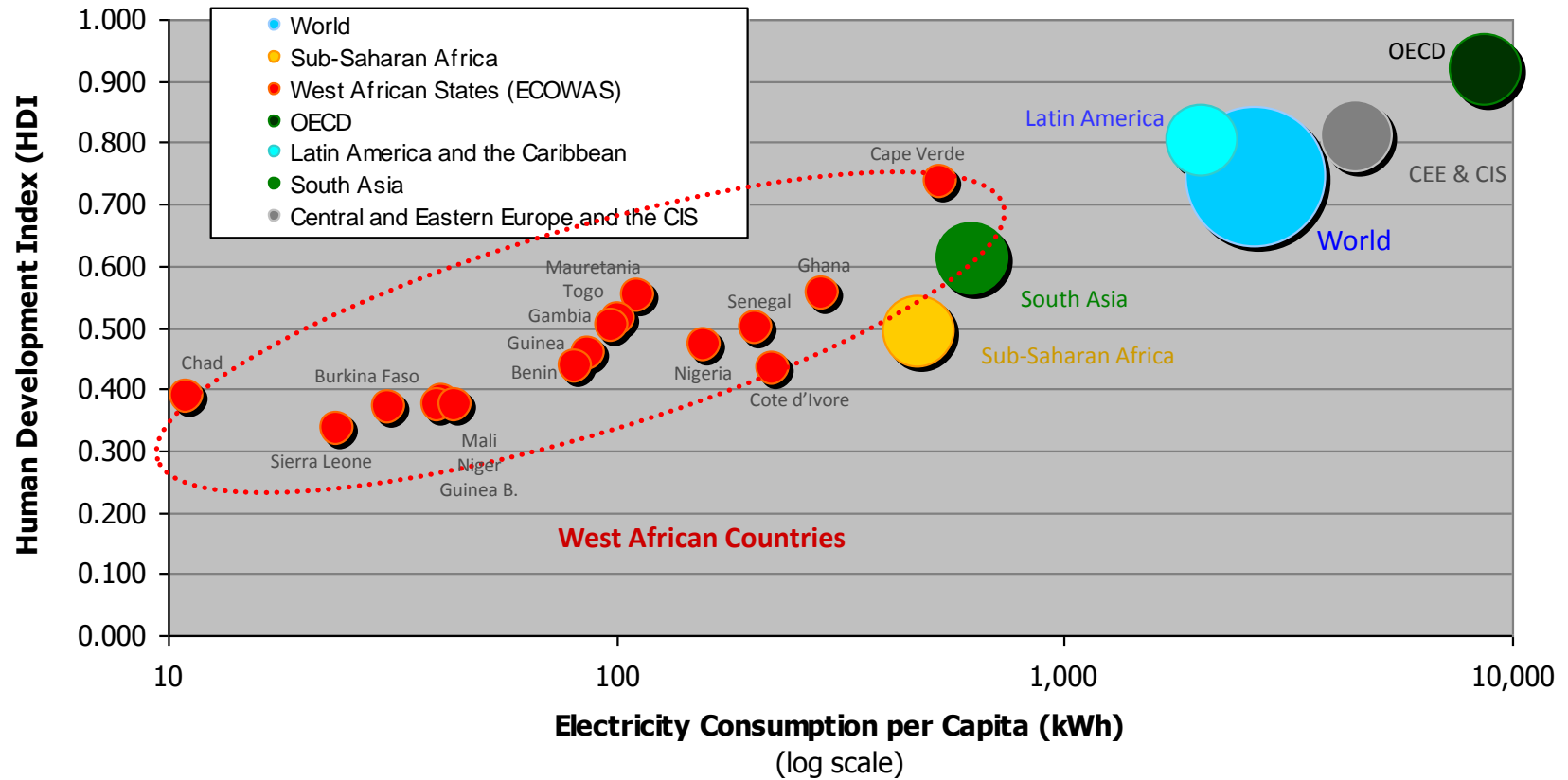


# Electricity Access Rate in ECOWAS Countries 2005 and 2010





# Lack of energy and its implications for the HDI (Focus on West Africa)



Source: UNDP – <http://hdr.undp.org/en/>



# RE & EE POTENTIALS IN WEST AFRICA



- **RE & EE play an important role to address the energy challenges simultaneously and in a sustainable manner**
- **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**
  - 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;



# Existing Barriers for RE & EE

## Various technical, economic, financial, institutional, legal and capacity related barriers for RE&EE exploitation:

- Lack of tailored RE&EE policy, legal and regulatory frameworks;
- Lack of RE & EE quality standards and appraisal tools;
- Low capacities and RE&EE knowledge base of key groups in public and private sectors;
- Lack of awareness of key groups in public and private sectors on different levels (e.g. federal, provincial); lack of advocacy and lobby groups;
- Lack of risk and investment capital and tailored financial schemes;
- Lack of technology transfer and adaptation of technologies;
- Lack of regional approaches, forums and information exchange of like-minded key groups;



# Enabling Factors - Emerging RE&EE Policies in ECOWAS



## Cape Verde

- Target of 50% of RE penetration by 2020 (mainly wind and solar).
- Approval of Law to promote RE in the country.

## Ghana

- Target of 10% of RE penetration by 2015
- Renewable Energy Law approved (currently design of feed in tariffs)

## Senegal

- Target of 15% of RE penetration by 2020
- Approved a Law to promote RE in the country. Under elaboration several regulations on this regard

## ECOWAS

- ECOWAS White Paper for Peri-Urban and Rural Areas
- Establishment of ECREEE in 2010



# Enabling Factors: First RE & EE Projects implemented



## 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**





# Enabling Factors: First RE & EE Projects implemented



## RE Projects completed in 2011



**10 MW Wind Farm, in Santiago, Cape Verde  
Commissioned November, 2011**



**6 MW Wind Farm, in Sao Vicente, Cape Verde  
Commissioned November, 2011**

**25,5 MW of Wind Power**  
**Cabeólica – PPP between AFC, Finnfund,  
InfraCo, Electra and the National Government  
of Cape Verde**



**8 MW Wind Farm, in Sal, Cape Verde  
Under construction**

**2.5 MW Wind Farm, in Boavista,  
Cape Verde  
Under construction**



# Foundation of ECREEE

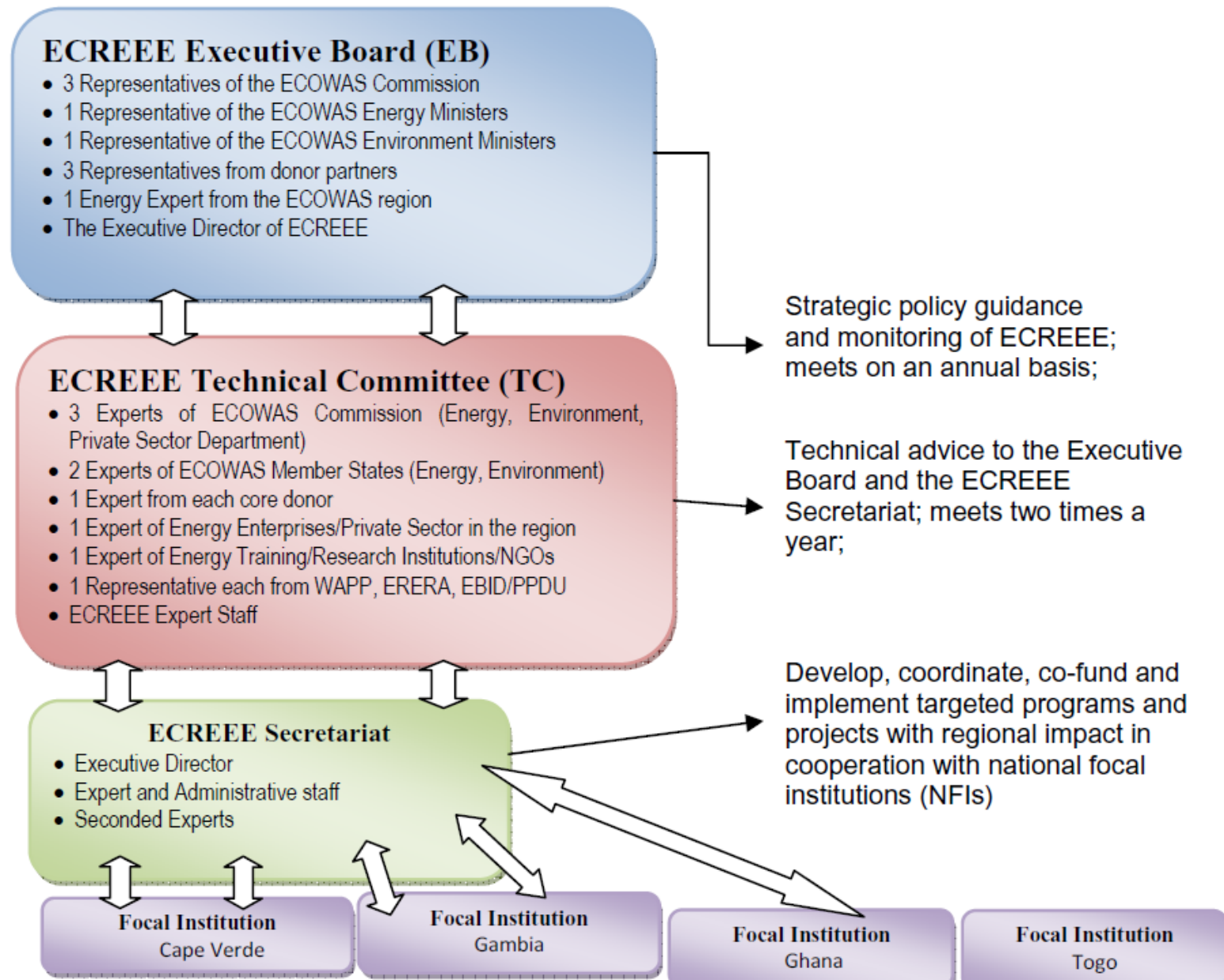


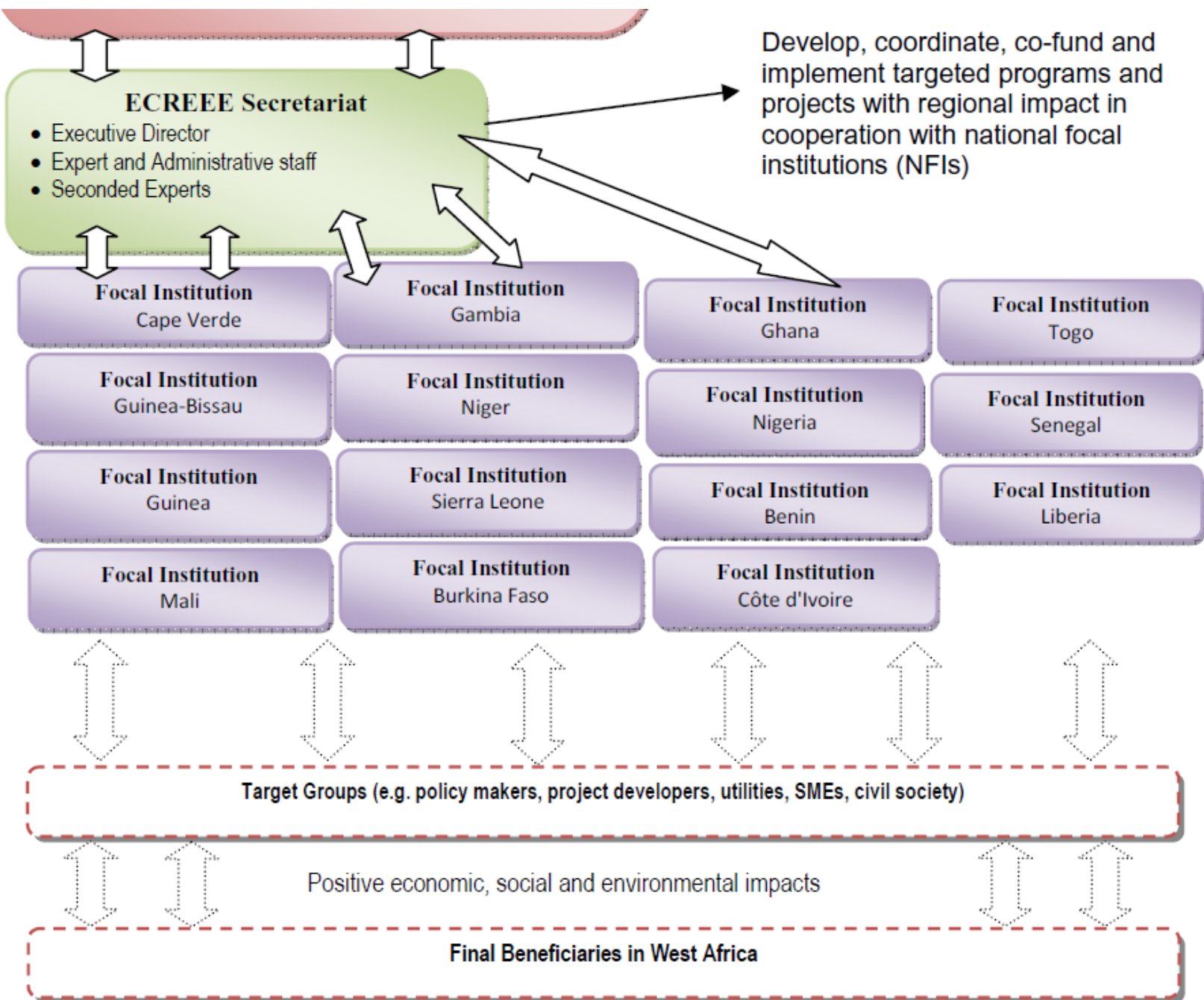
- Foundation laid by **Regulation C/REG.23/11/08** of the 61st Session of ECOWAS Council of Ministers in Ouagadougou, Burkina Faso, on November 23, 2008
- **Launch of the ECREEE preparatory phase in November 2009:** with support of the ECOWAS Commission, Austrian and Spanish Governments and UNIDO
- **Official Inauguration and launch of the ECREEE Secretariat** in Praia, Cape Verde on 6<sup>th</sup> July 2010
- **Governance Structure and Network of National Focal Institutions (NFIs) established**
- **ECREEE Business Plan (2011 to 2016) with long-term vision**
- **2010/11 work plans implemented and 2012 work plan and budget approved**

# Official Launch of ECREEE



## Annex IV: ECREEE Structure







# ECREEE Objectives & Activities



## Specific Objective

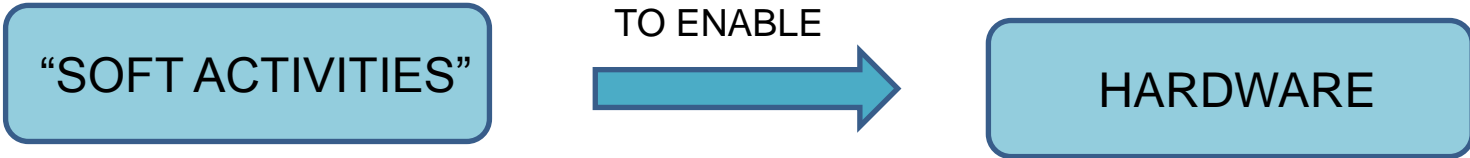
**Creation of favorable framework conditions and an enabling environment for RE&EE markets by supporting activities directed to mitigate existing barriers**

## ECREEE Activities

- 1. Tailored policy, legal and regulatory frameworks and quality standards**
- 2. Capacity building of key groups of different sectors**
- 3. Advocacy, awareness raising, knowledge management and networking**
- 4. Business and Investment Promotion**



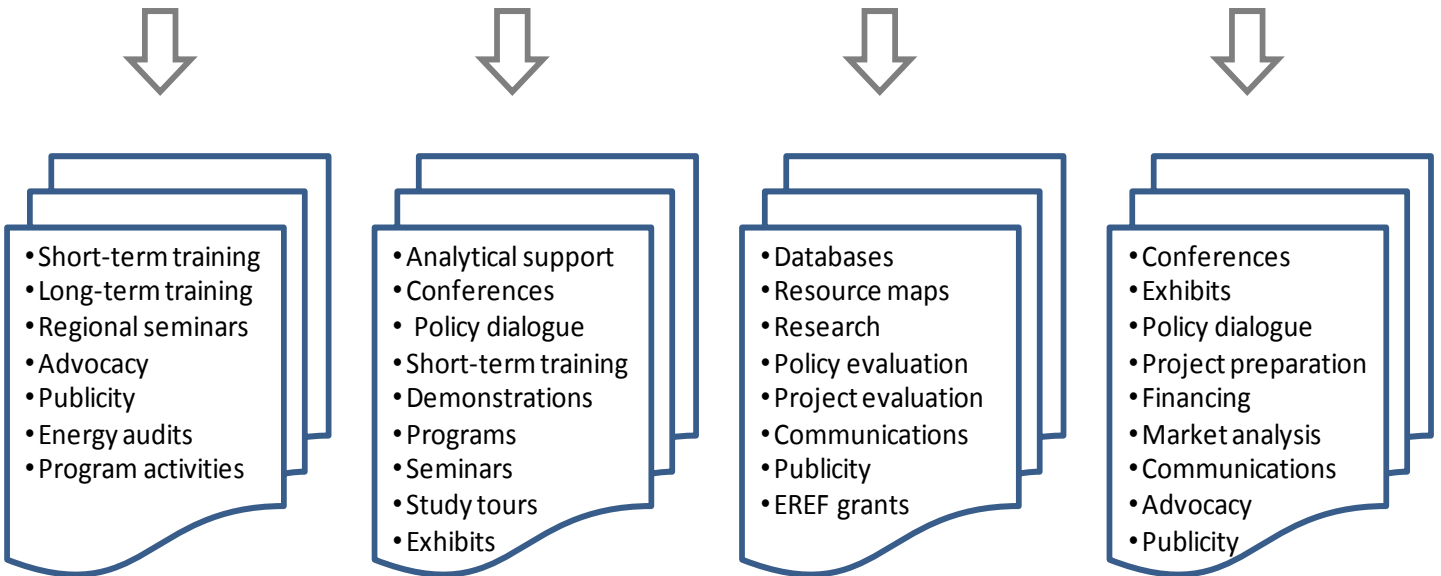
# ECREEE's Strategy



Strategic Chain



Outputs



# ECREEE AND PARTNERS



## Core Partners



Austrian  
Development Cooperation



## New Partners



## Other Partners



## Technical Partners



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







# Priority Programmes 2011 - 2016



## Policy Development

- **Regional Renewable Energy Policy Framework for the ECOWAS Region, with the support of the EU-PDF**
- **Regional White Paper on Energy Efficiency, with the support of the ACP-EU Energy Facility**
- **Strategic study on the improvement of RE&EE investment and business frameworks in the context of the NAMAs; with support of BizClim-EU**

2010	2011	2012	2013	2014	2015
Preliminary Activities (fund raising, ToR, tender)		RE Regional Policy EE Regional White Paper	RE National Policy support EE National Actions EE Regional Standards and Labeling		Follow up and impact evaluation



# Priority Programmes 2011 - 2016



## Capacity Development

### Long term

- Capacity Needs Assessment to determine training needs on RE and EE in the region.
- Formulation of a comprehensive Regional Capacity Development Programme.

### Short to Medium Term

- Ad-hoc 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

2010	2011	2012	2013	2014	2015
Capacity Needs Assessment		Regional Capacity Building Program (formulation and fund-raising)	Regional training and seminars		
Ad-hoc trainings and seminars		Ad-hoc trainings and seminars	Specific technical training for targeted stakeholders		
			On-line training platform		
			RE Experts and Trainers Network		



# Priority Programmes 2011 - 2016



## Advocacy, awareness raising and knowledge mgt

### **ECOWAS Observatory for Renewable Energy and Energy Efficiency**

- Provide targeted investment and business information for policy makers and investors:
  - 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
  - Publications and communication documents (reports, leaflets, brochures etc)
- RE Resource Assessments: Solar, wind and bio-crops assessments launched

2010	2011	2012	2013	2014	2015
Observatory concept development and fund raising Data collection		RE Regional Atlas Country Datasets Regional RE GIS Web-based Observatory launched			Yearly follow-up and training sessions with National Data Providers Yearly RE&EE Regional Status Report Regular update of the Observatory



# Priority Programmes 2011 - 2016



## RE & EE Investment and Business Promotion

ECREEE develops instruments and projects for urban and rural areas:

### Investment Initiative for Medium to Large Scale Commercial Power Plants

- EREIF: Establishment of a RE Infrastructures Fund for West Africa
- Advisor and facilitator for the National Governments in all the phases of a RE Power Plant

### The ECOWAS Renewable Energy Facility (EREF) for peri-urban and rural areas

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

### ECREEE-MICRO Finance Scheme

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

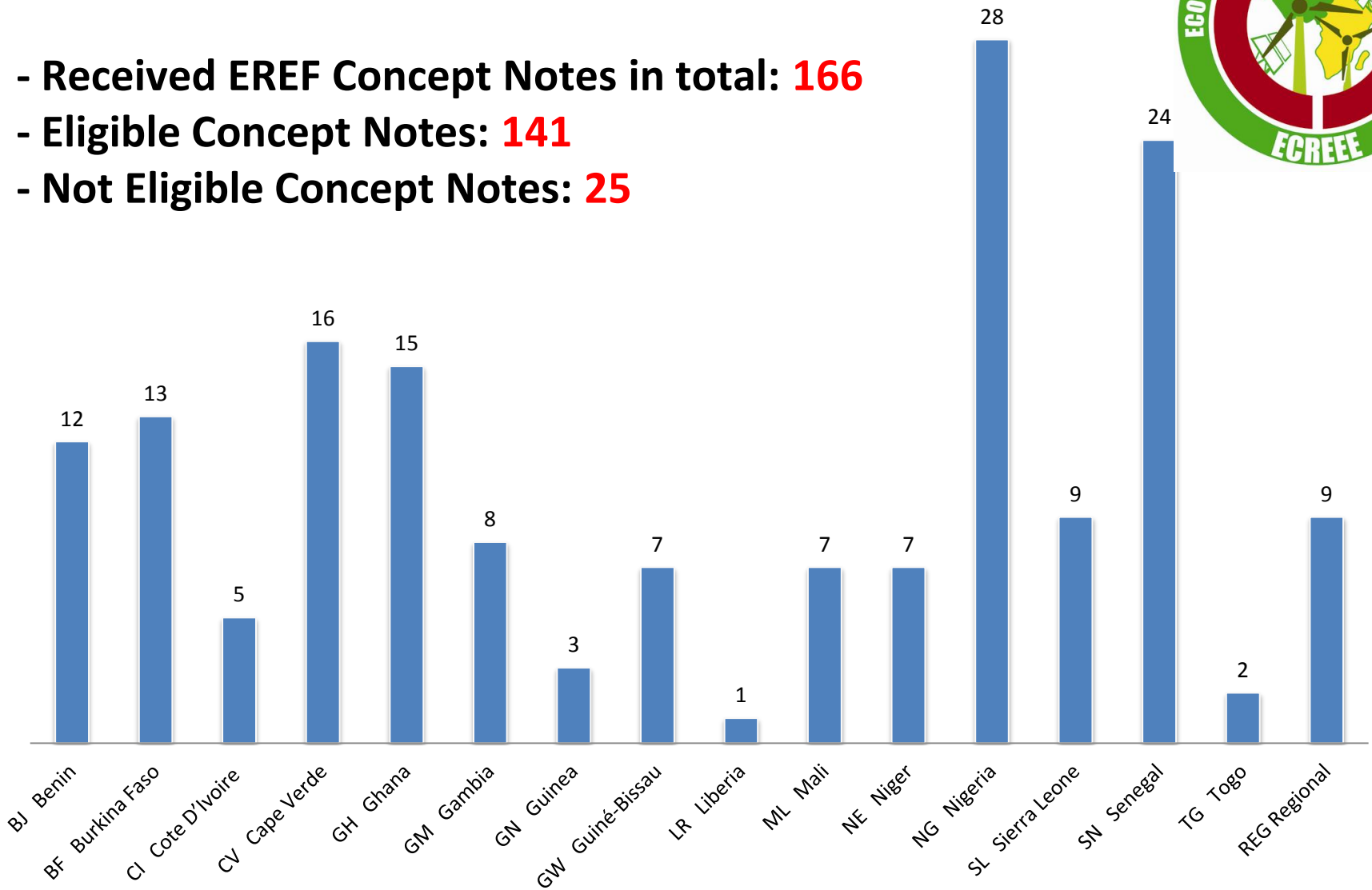
### Several demonstration projects started

- Rural Energy projects including Micro-Grid Projects
- ECOWAS HQ Solar Project in Abuja
- Solar Cooling Project in Praia

# 2011 EREF call successfully launched



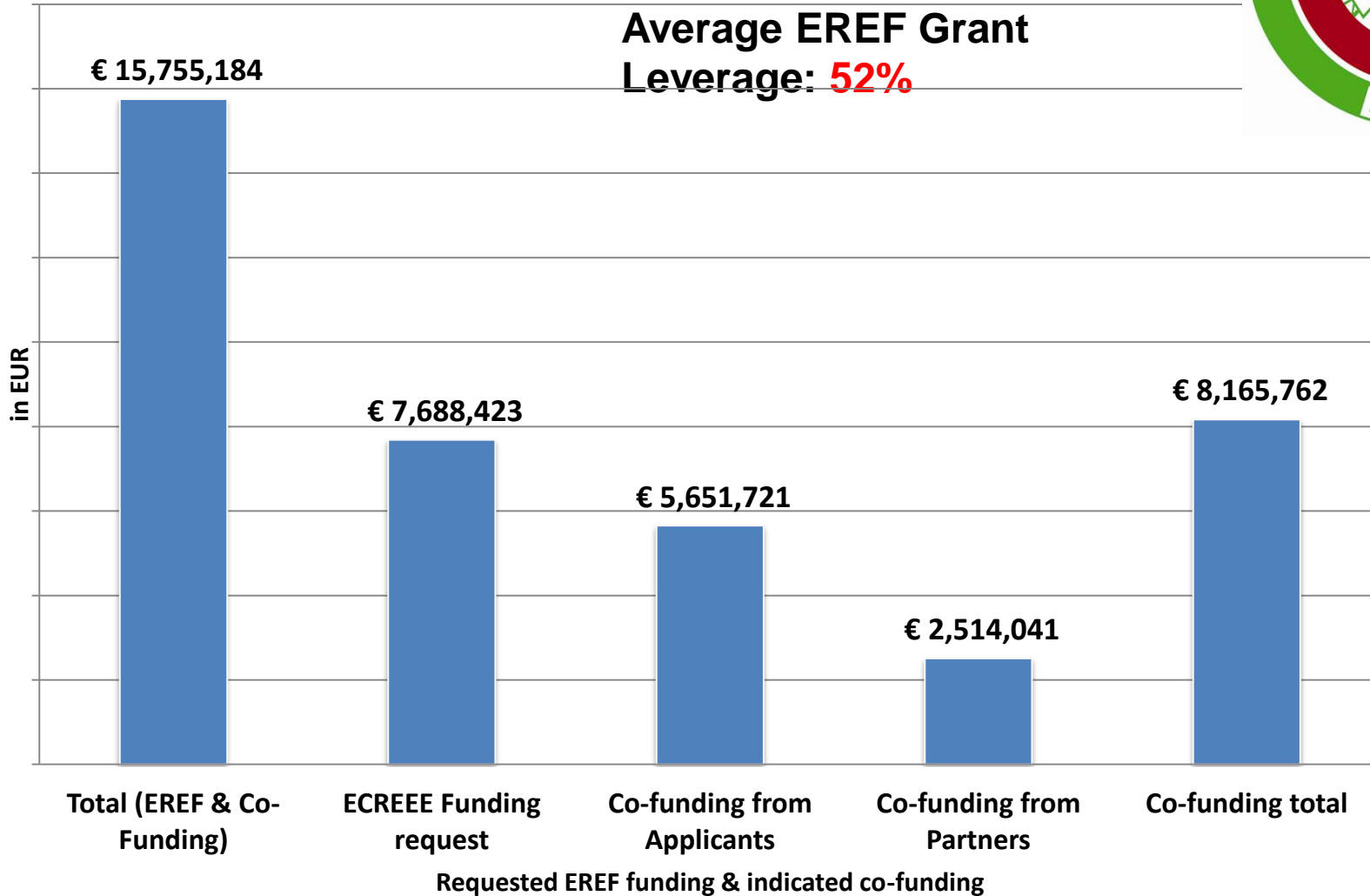
- Received EREF Concept Notes in total: **166**
- Eligible Concept Notes: **141**
- Not Eligible Concept Notes: **25**



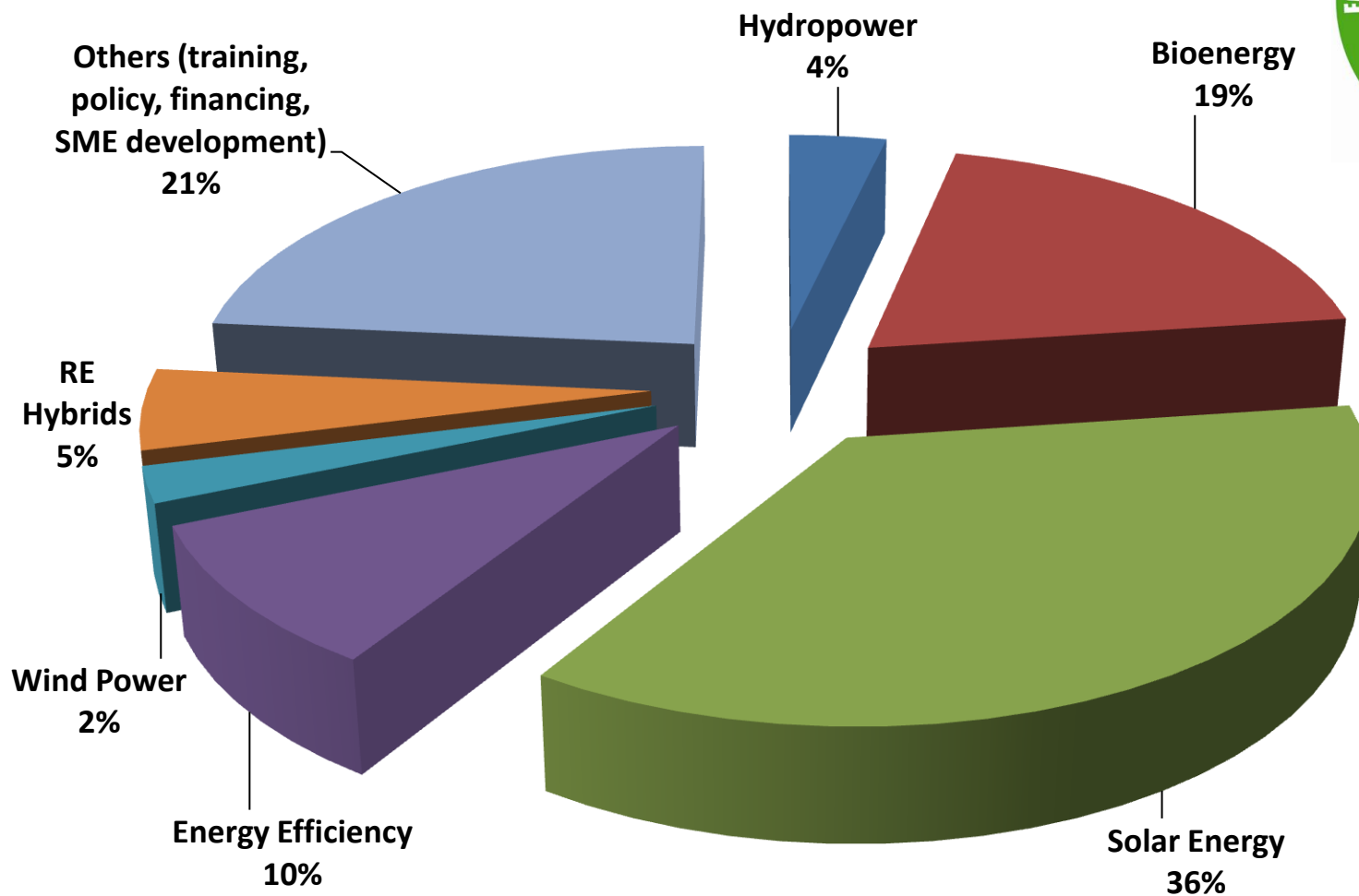


## Received EREF funding requests & indicated co-funding

Average EREF Grant  
Leverage: **52%**



## RE&EE Technology Focus of EREF Concept Notes





# Promotion of medium to large scale projects



## RE Projects existing and under construction







# EREIF: RE Investment Fund



**First pipeline of Medium-Large Scale Commercial Power Plants identified**

**(November 2011)**

**64 Projects**

**STILL NEED FOR FURTHER PRIORITIZATION!**

	PV (MW)	CSP(MW)	Wind MW)	Small Hydro (MW)	Biomass (MW)	Other (MW)	TOTAL per country (MW)
Benin	6		10	26	20		62
Burkina Faso	43	30		39			112
Cape Verde	18		27				45
Cote d'Ivoire				20	40		60
Gambia	10		19				29
Ghana	20	40	100				160
Guinea				20			20
Guinea Bissau	5						5
Liberia				10	38		48
Mali	110	30		16	15	30	201
Niger		30	30				60
Nigeria	40	40	20	139	20		259
Senegal	10		150		30		190
Sierra Leone				10	100		110
Togo	10		20				30
<b>TOTAL per Technology</b>	<b>272</b>	<b>170</b>	<b>376</b>	<b>300</b>	<b>263</b>	<b>30</b>	<b>1,411</b>



# EREIF: RE Investment Fund



**First pipeline of Medium-Large Scale Commercial Power Plants identified  
(November 2011)**

**64 Projects**

**% RE Penetration in ECOWAS Grid: less than 20% (in capacity installed)**

**Investment needed:**

	PV	CSP	Wind	Small Hydro	Biomass	Other	TOTAL
Investment (million EURO)	952	680	752	420	658	90	3,582

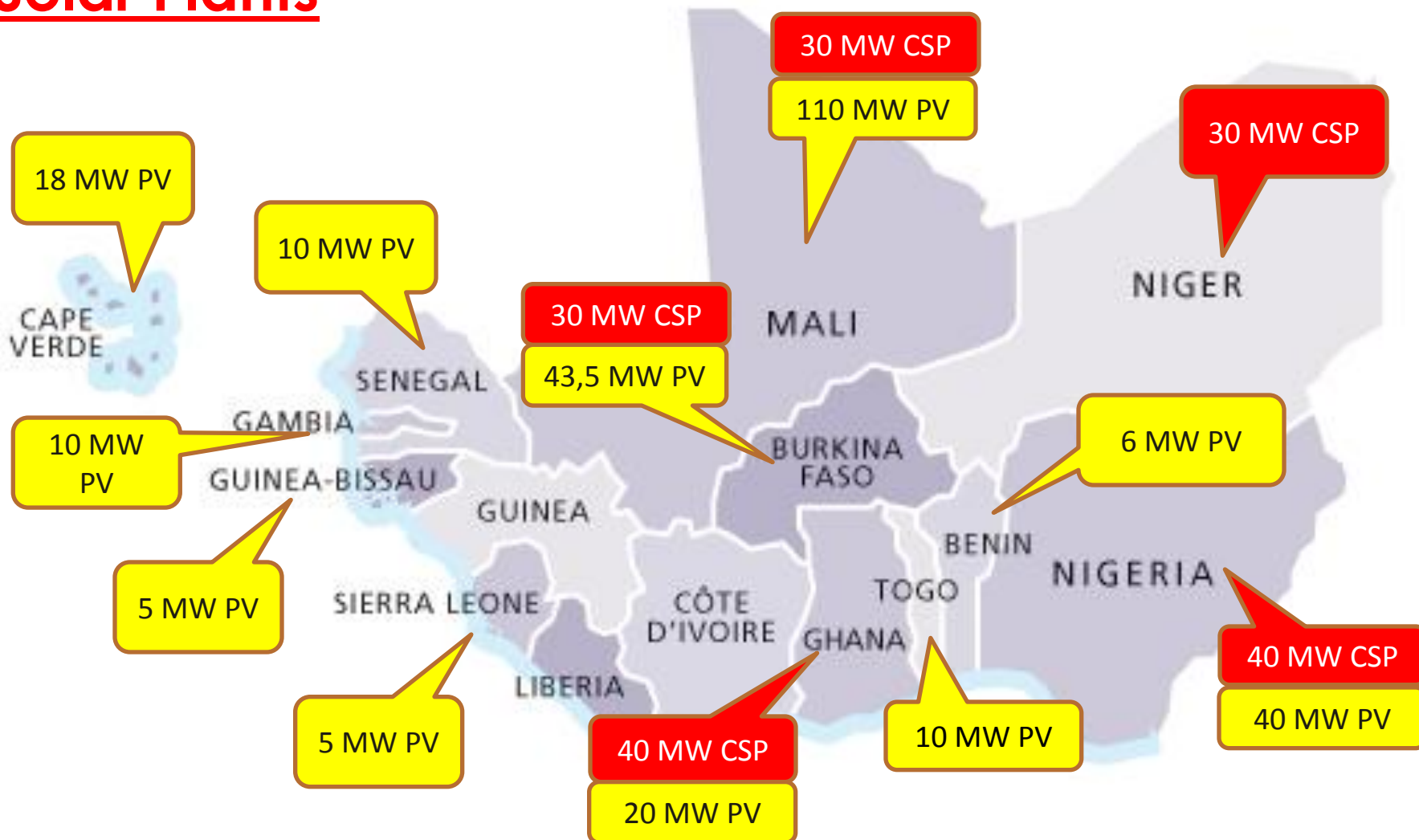


# Identified and Potential Projects in the Region

2011-2020



## Solar Plants



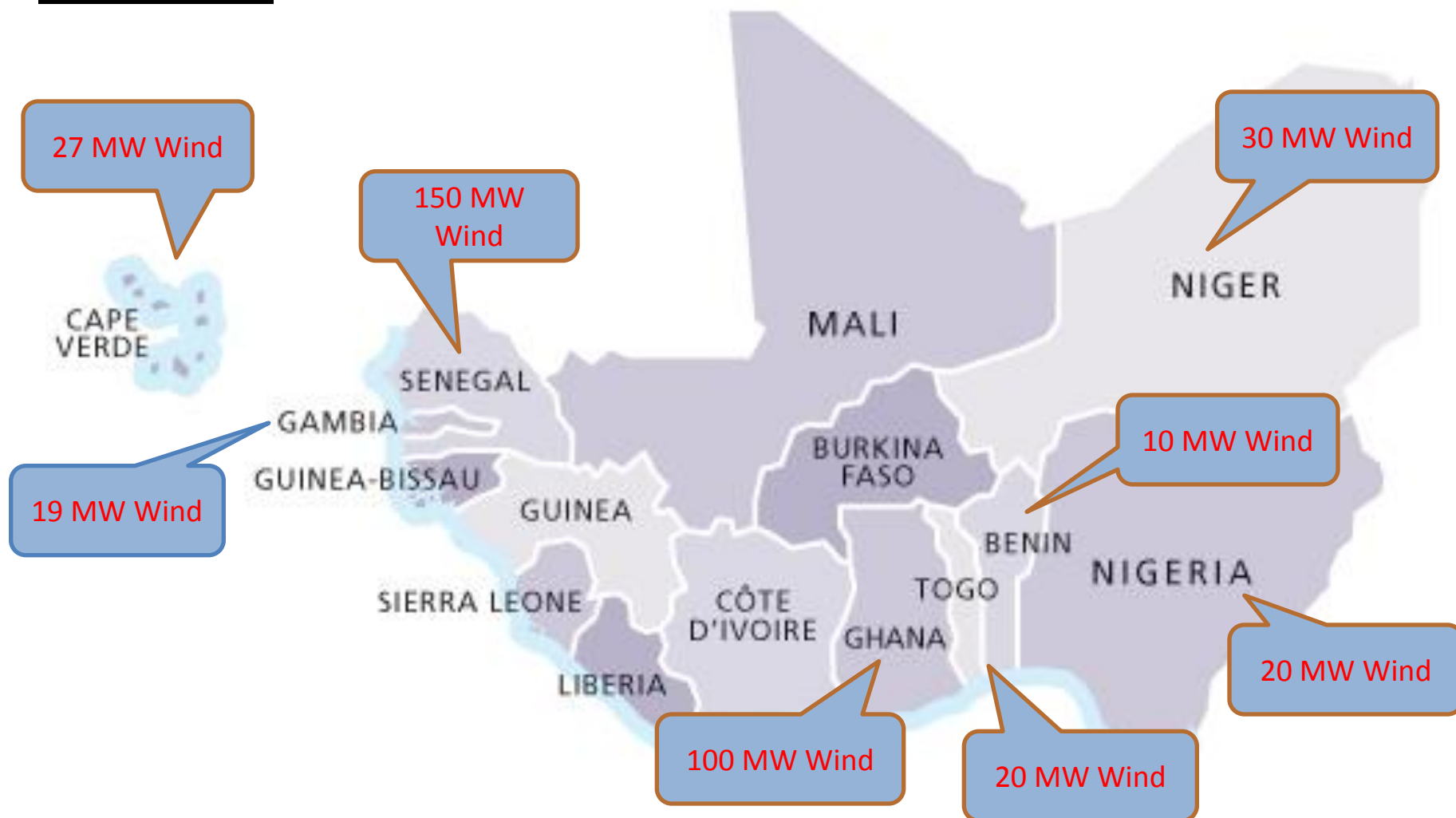


# Identified and Potential Projects in the Region

2011-2020



## Wind Farms



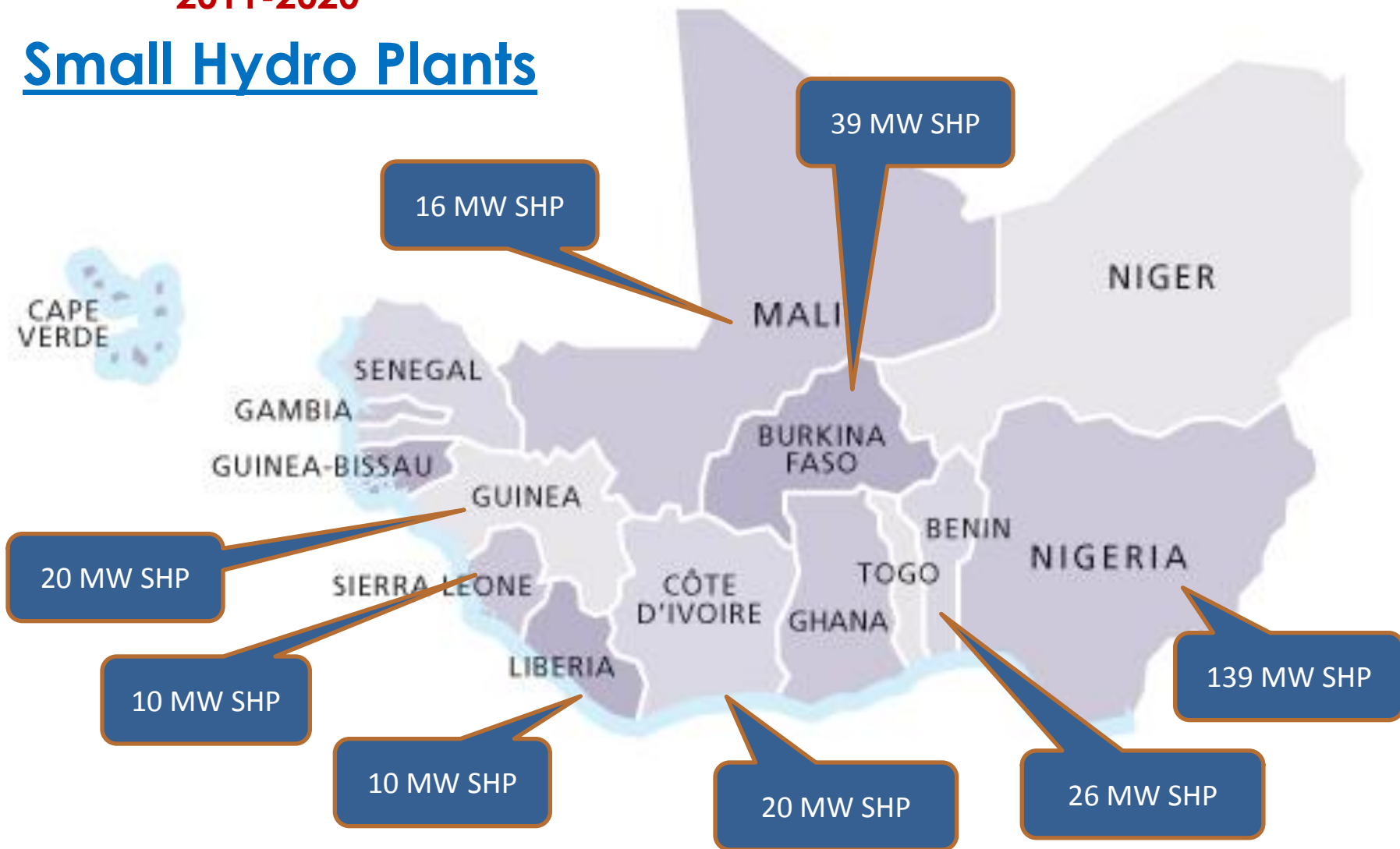


# Identified and Potential Projects in the Region

2011-2020



## Small Hydro Plants



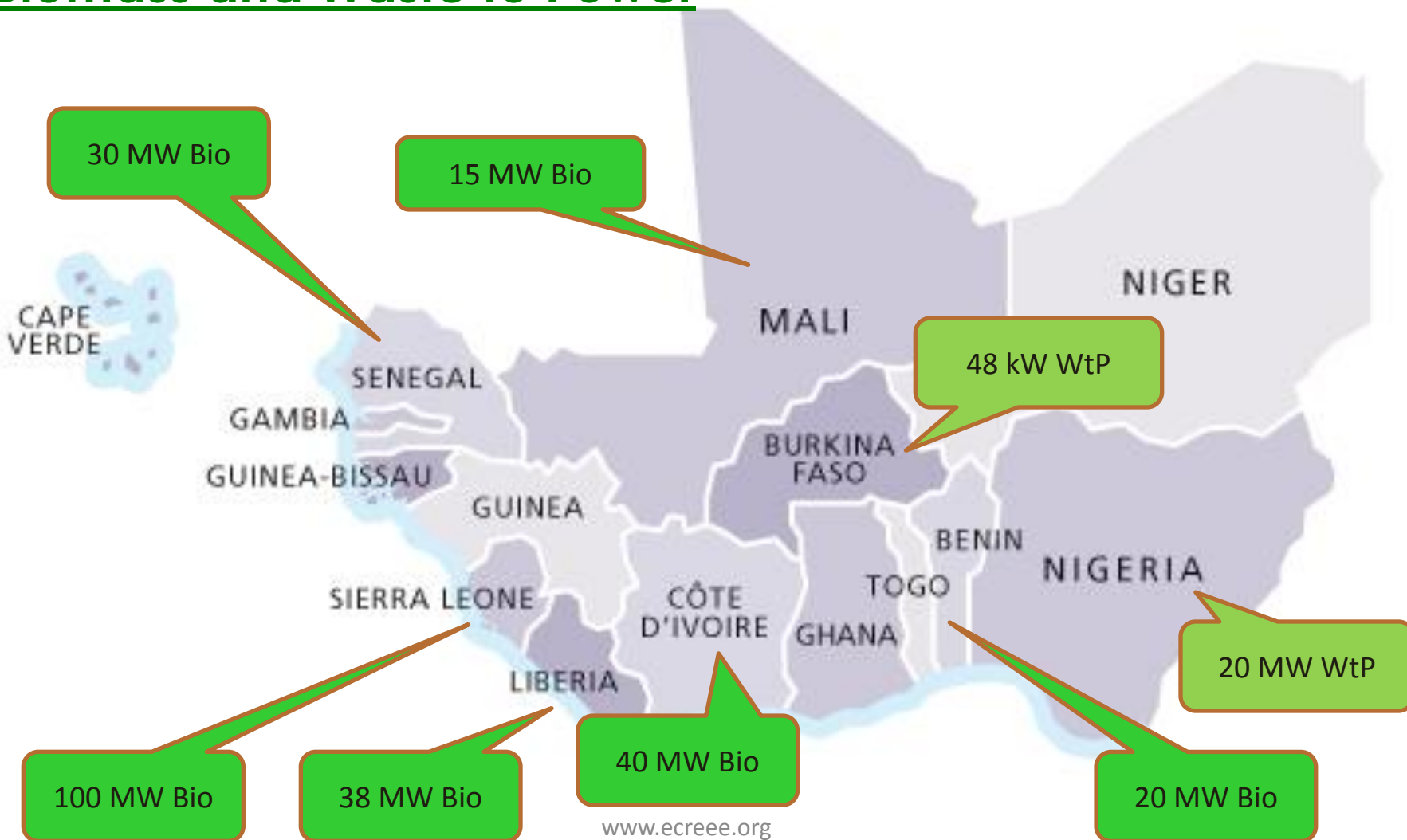


# Identified and Potential Projects in the Region

2011-2020



## Biomass and Waste to Power





# Thank you! Merci! Muito obrigado!



*ECOWAS Regional Centre for  
Renewable Energy and Energy Efficiency*

*Centre Régional pour les Energies Renouvelables  
et l'Efficacité Energétique de la CEDEAO*

*Centro Regional para Energias Renováveis e  
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