ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE)

9th Annual meeting and General Assembly of the Club of National Rural Electrification Agencies in Africa.

Mahama Kappiah,

Executive Director, ECREEE

THE ECOWAS REGION

- *15 COUNTRIES WITH A LAND AREA OF 5 MILLION M²*
- *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 176 MILLION PEOPLE HAVE NO ACCESS TO ELECTRICITY (52%)*

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)

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 kW**h/m2 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 electricty system;

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

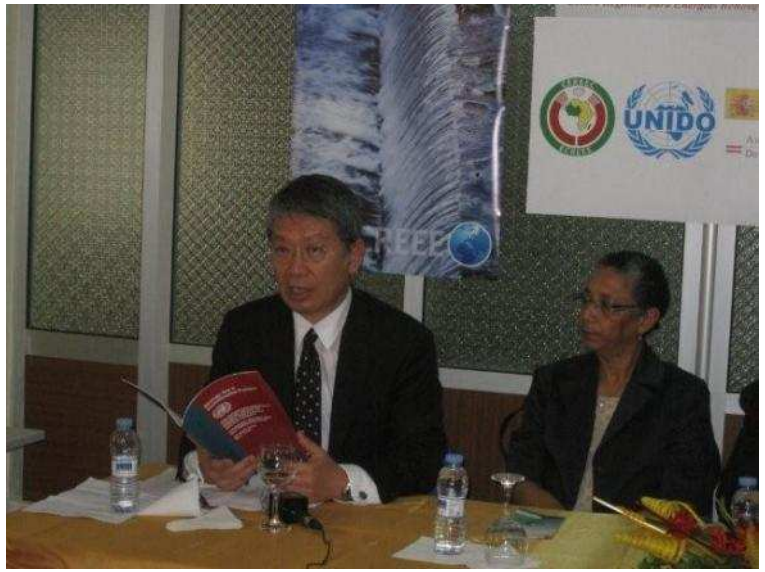
- ECOWAS agency with the mandate to promote RE&EE markets
- Secretariat is based in Praia, Cape Verde
- National Focal Institutions (NFIs) among all ECOWAS countries
- Initial support of Austria, Spain and the United Nations Industrial Development Organization (UNIDO)

Austrian Development Cooperation

MINISTERIO DE ASUNTOS EXTERIORES Y DE COOPERACIÓN aecid

- Official Inauguration of the Centre on 6th July 2010
- Governance Structure: Executive Board/Technical Committee
- ECREEE Business Plan with long-term vision by 2016
- Annual work plans: 2012 edition under execution

ECREEE Inauguration in 2010



ECREEE Objective: Creation of an enabling environment for regional RE&EE markets by mitigating existing barriers

Software → ***TO ENABLE*** → **Hardware**

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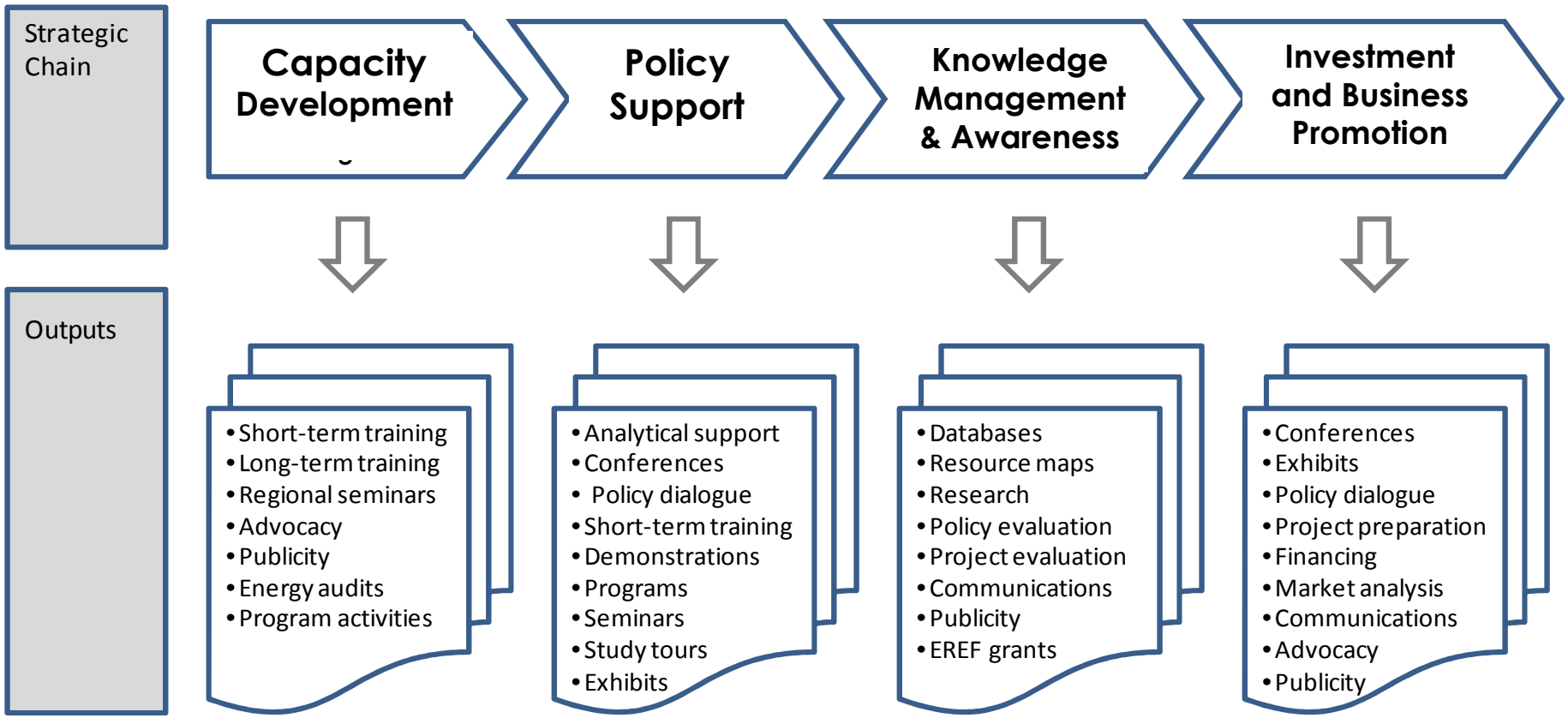


Activity 1: ECOWAS RE&EE Policies

- ECOWAS Renewable Energy Policy and Energy Efficiency Policy developed
- Policy scenarios target SE4ALL in ECOWAS by 2030
- Adopted by ECOWAS Energy Ministers during the High-Level Energy Forum (29-31 Oct 2012, Accra, Ghana)
- ECREEE appointed as focal institution for the implementation of SE4ALL framework in West Africa
- Preparation and of national RE&EE action plans in 2013

ECOWAS RE Policy Targets by 2020/2030

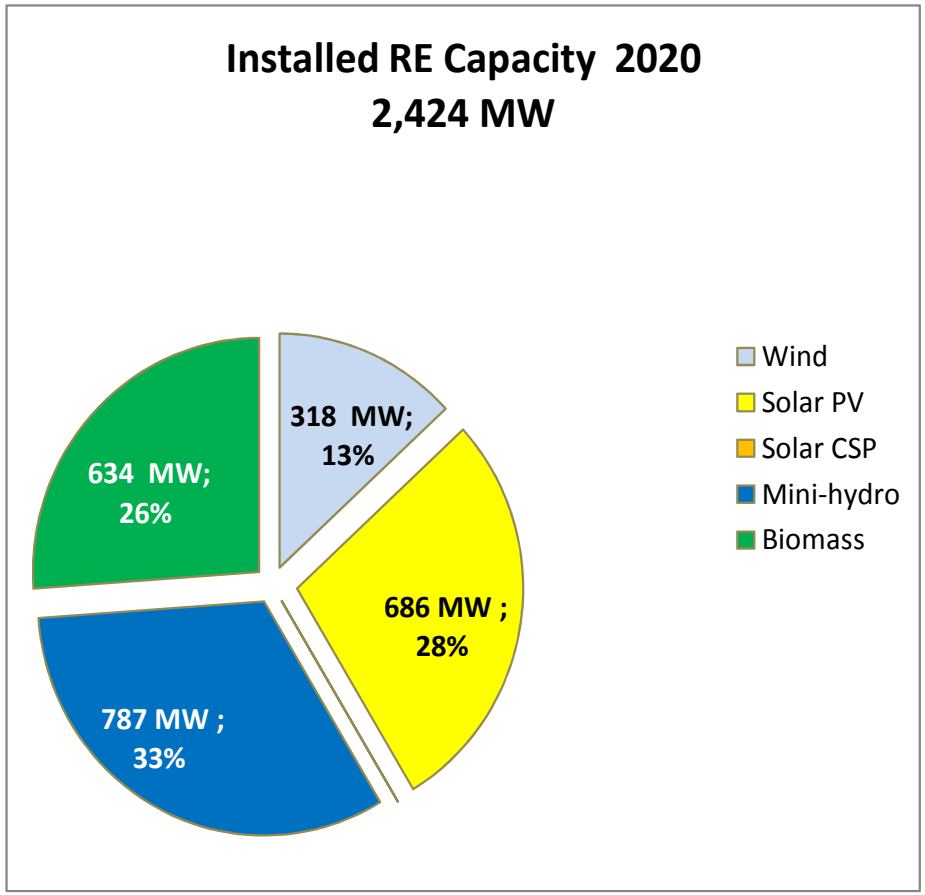
Grid-Connected RE Targets	2020	2030
RE share in toal ECOWAS electricity mix (incl. large hydro)	35%	48%
RE share in total ECOWAS generation capacity (excl. large hydro)	10% 2.425 MW	19% 7.606 MW

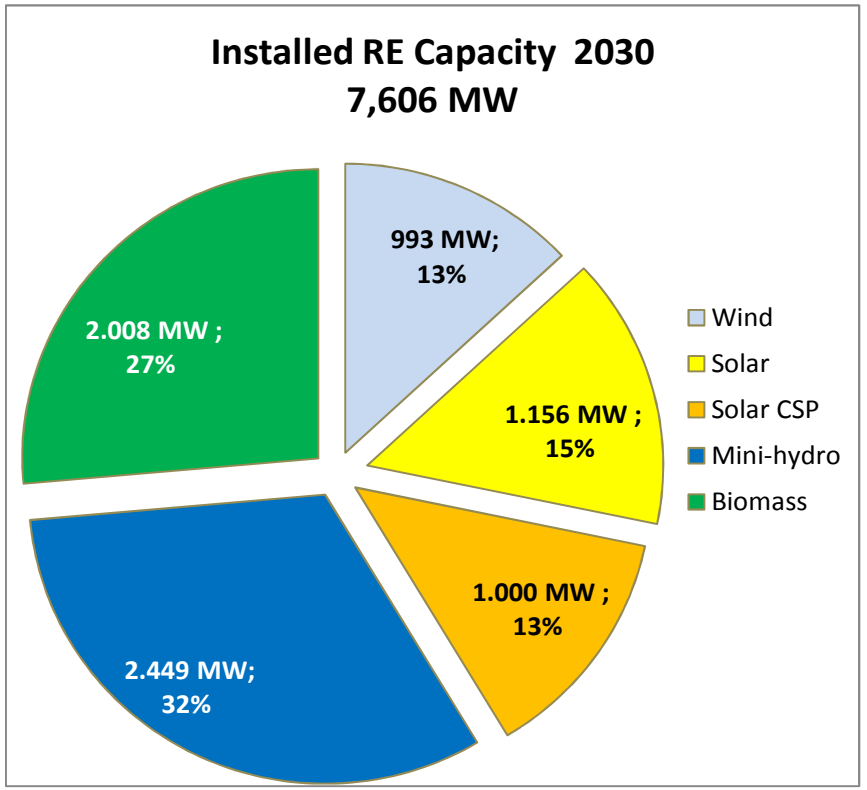
Rural RE Targets	2020	2030
Rural population supplied by mini-grids and stand-alone systems	22%	25%
Mini-Grids to be installed	60,000 3,600 MW	128,000 7,680 MW
Rural population served with improved stoves	100%	100%
Rural pupulation with access to LPG	17%	32%

Grid-connected RE Scenario of ECOWAS by 2020/2030

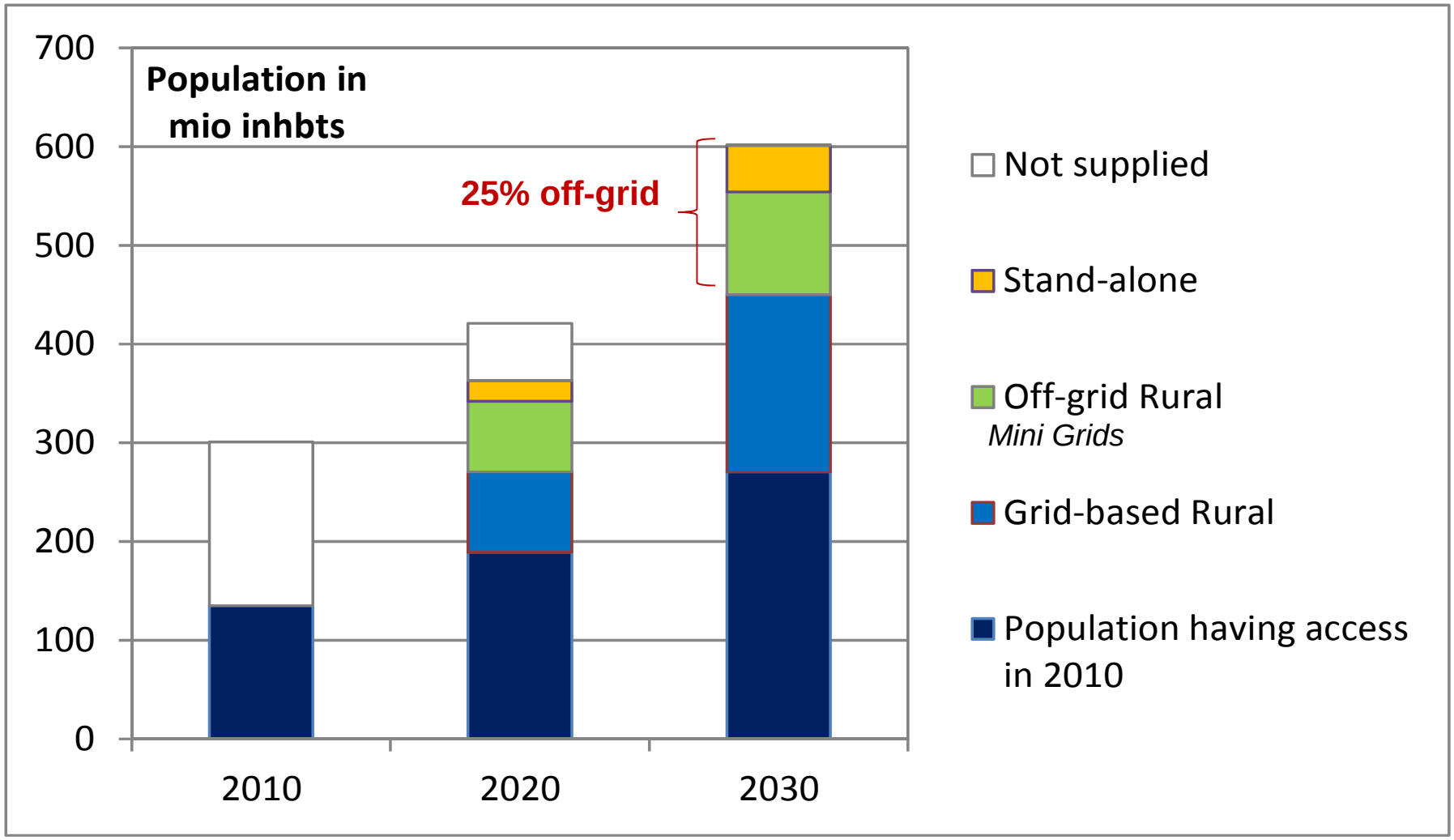
(excluding large hydro)

Individual countries decide finally on RE mix!





Proposed ECOWAS Rural Electrification Targets by 2030



The Energy Efficiency Program

The SEEA-WA Project

Project Components

- **Awareness Raising**
- **Capacity Building**
- **Policy Support**

- ❑ **Managed by ECREEE**
- ❑ **technical support of the Austrian Energy Agency (AEA), AERE, Copper Institue and Energia**
- ❑ **Co-funded by ACP-EU Energy Facility, ADEME, UNDP**
- ❑ **Standard and Labeling Initiative**
- ❑ **Initiative to reduce grid losses in cooperation with the West African Power Pool**

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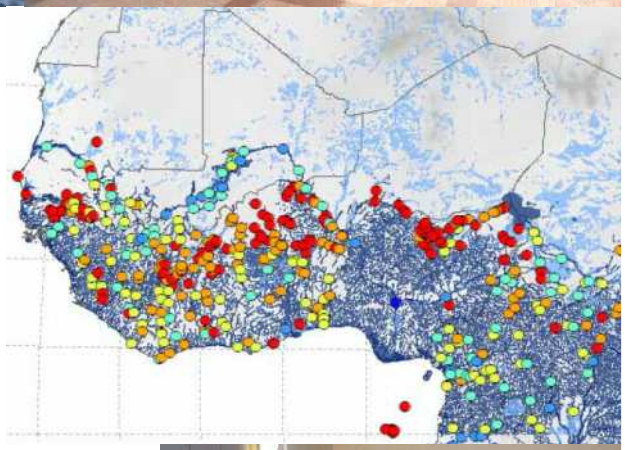
The ECOWAS EE Policy Targets

- **The overall objective of regional EE policy** is to improve energy efficiency in the ECOWAS Regions to levels of international standard **by 2020** .

- **The specific target of the regional policy is to implement efficiency measures that free-up 2 000 MW of power generation capacity by 2020:**
  - phase out inefficient incandescent lamps by 2020;
  - reduce average losses in electricity distribution from the current level of 15 - 40% to the world standard levels of below 10% by 2020;
  - adopt region-wide standards and labels for major energy equipment by end of 2014;
  - create instruments for financing sustainable energy, including carbon finance, by the end of 2013;

Activity 2: ECOWAS Small Scale Hydro Power Program

- Regional workshop from 16 to 20 April 2012, in Monrovia, Liberia, with assistance of UNIDO and ESMAP
- The Five- Year SSHP Program Proposal with a volume of 15m Euro was validated by 80 ECOWAS experts
- Adopted by Ministers at the ECOWAS HLM Meeting in Accra, Ghana
- Program execution is envisaged to start in 2013
- ECREEE-UNIDO Partnership



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Activity 3: ECOWAS Capacity Building Program

- Regional Capacity Needs Assessment
- Regional Capacity Program under development

- Regional Workshop in Kumasi, Ghana, 24 to 26 August 2011
- Seven national follow-up trainings co-organised
- So far more than 170 experts trained
- Five local RETScreen Trainers certified (EN/FR/PT)

CEREEC ECREEE

UNIDO

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Activity 4: ECOWAS Observatory for RE&EE

Executed under the GEF Strategic Program for West Africa (SPWA)

- **RE&EE market data for investors and developers**
- **GIS Maps on RE potentials, and other planning data (e.g. lines, roads, existing and planned stations and systems)**
- **Ongoing Initiatives (e.g. GEF, ACP-EU Facility, ECREEE)**
- **Country profiles and statistics**
- **Document library (e.g. studies, policies, project documents)**

http://www.ecowrex.org

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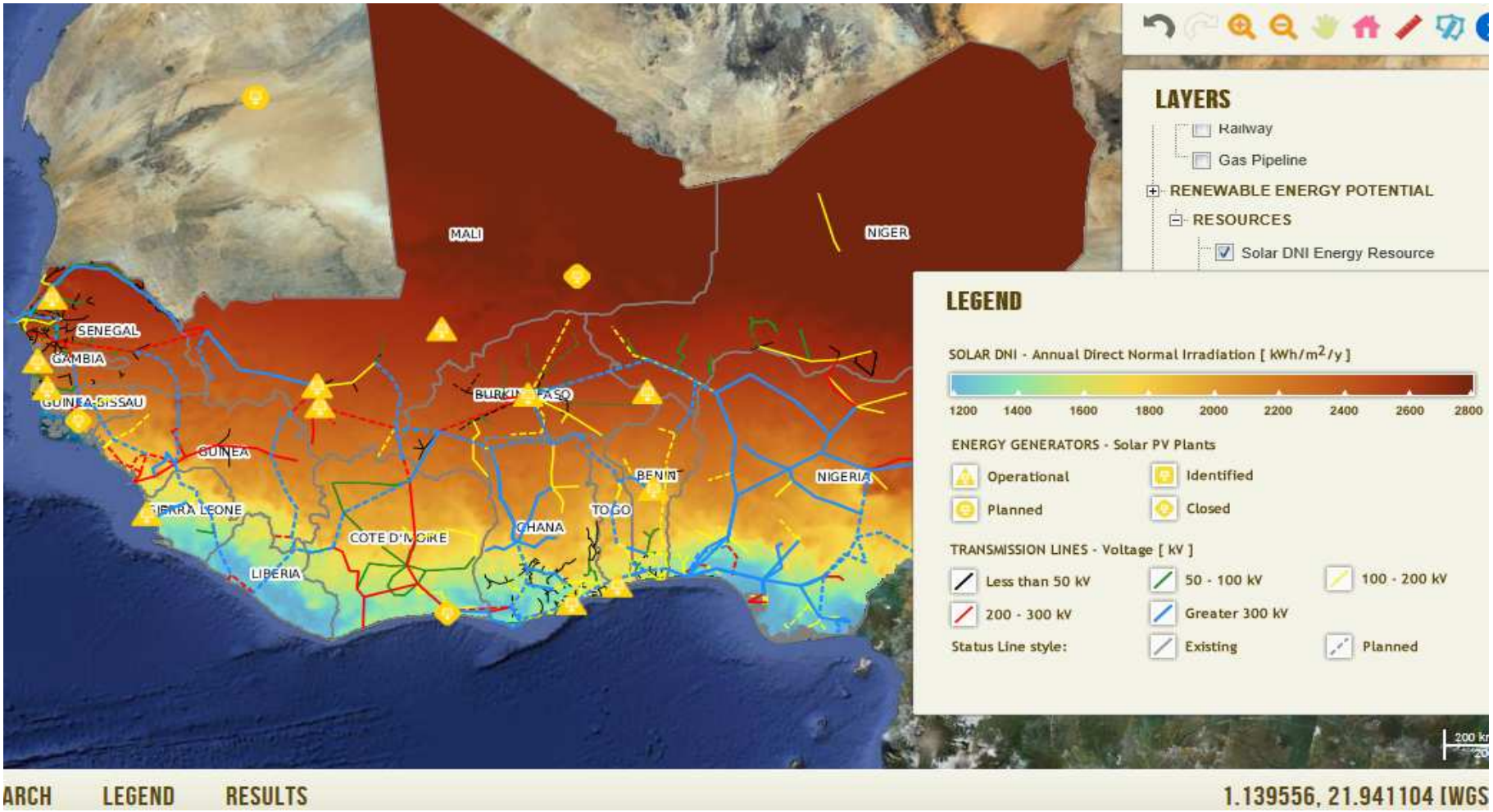

Combining human activities, infrastructure and our resources together, helps us to define "where" and "when" specific RE technologies can be deployed.

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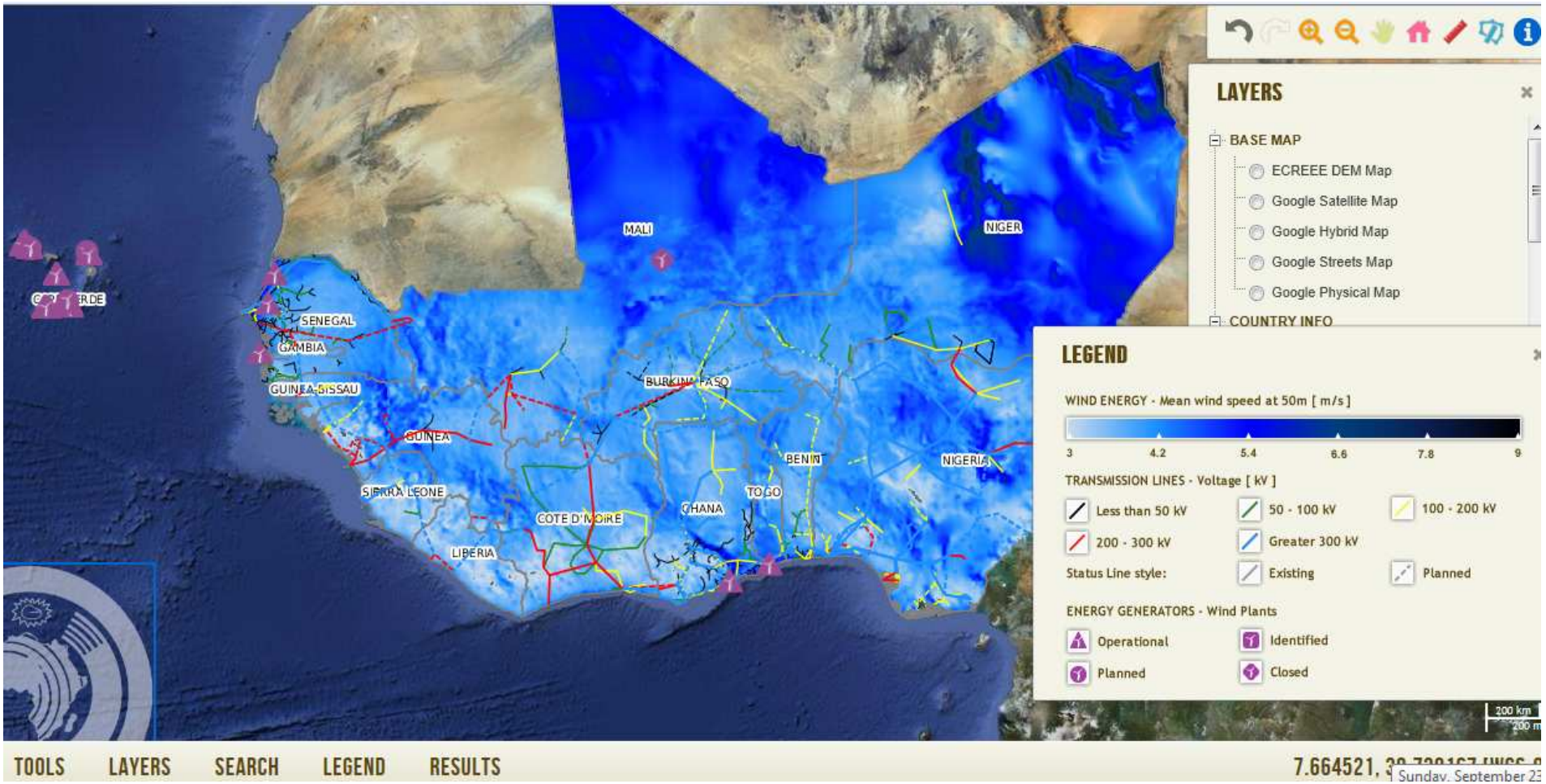

Wind Resource Potential

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Activity 4: ECOWAS Observatory for RE&EE

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Solar Resource Potential

Activity 5: Rural RE&EE Access Program
ECOWAS Renewable Energy Facility (EREF)

- Execution of Action Line 2 of the ECOWAS White Paper to establish a regional rural RE&EE innovation fund
- Managed by ECREEE with support of Austria, Spain and UNIDO
- EREF Objective to co-fund at least 2.000 small-scale projects by 2030 (capital need of 100m EUR)
- makes available grant co-funding for small and medium-scale RE&EE investments and businesses (max. grant 50.000 EUR)
- undertakes regular demand-driven competitive call for proposals
- eligible applicants are private companies, municipalities, NGOs and cooperatives
- participation of local project partners from West Africa is obligatory
- Projects with high social and economic benefits and replication potential

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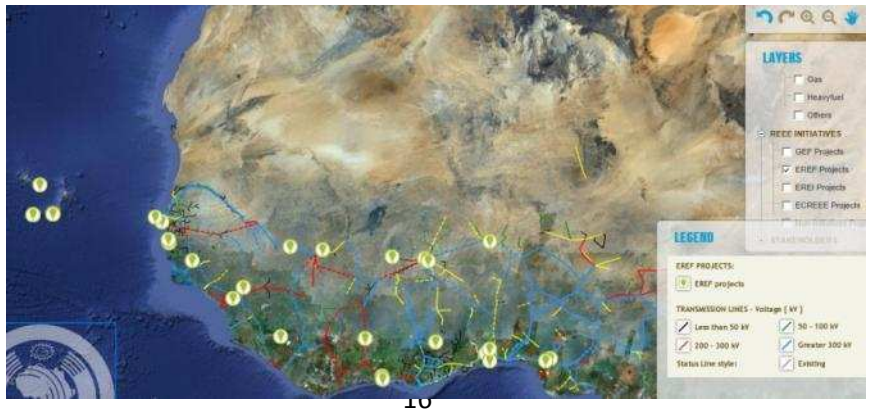
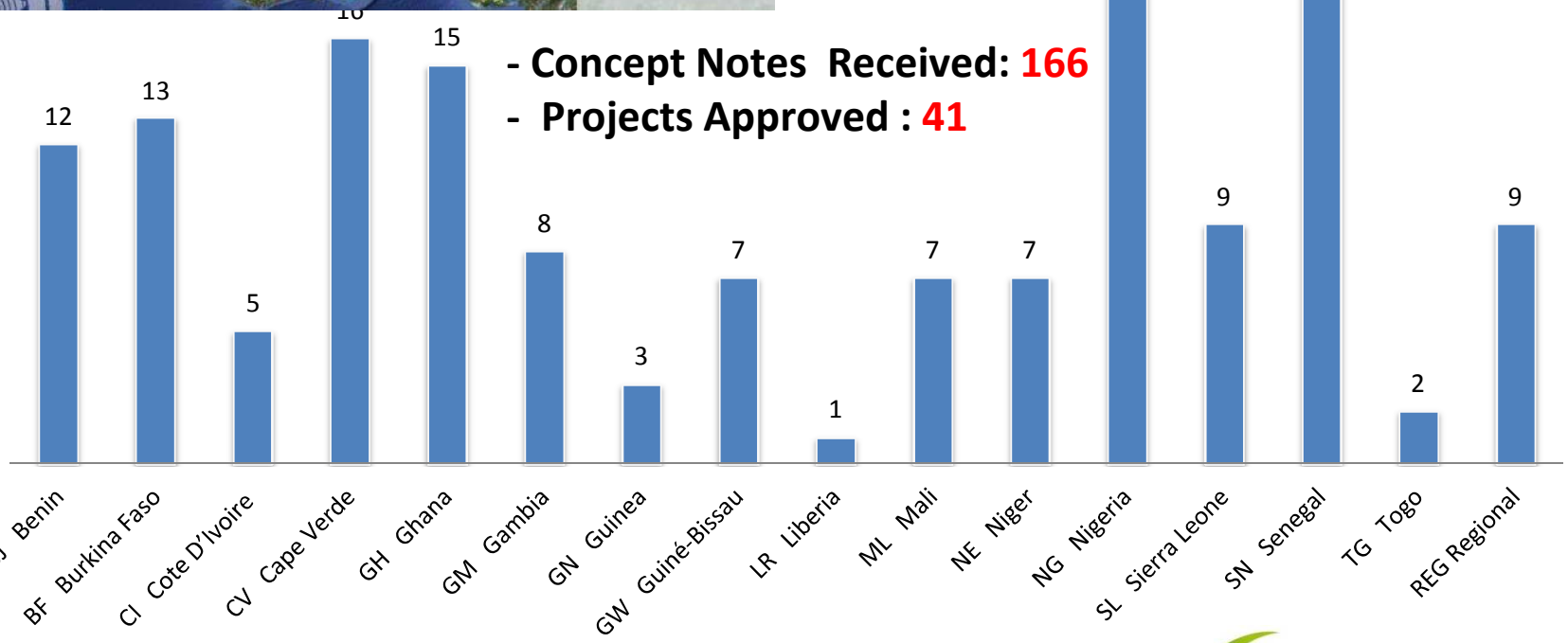
First EREF call – May to July 2011

ECOWAS Renewable Energy Facility (EREF)



- Concept Notes Received: 166
- Projects Approved : 41



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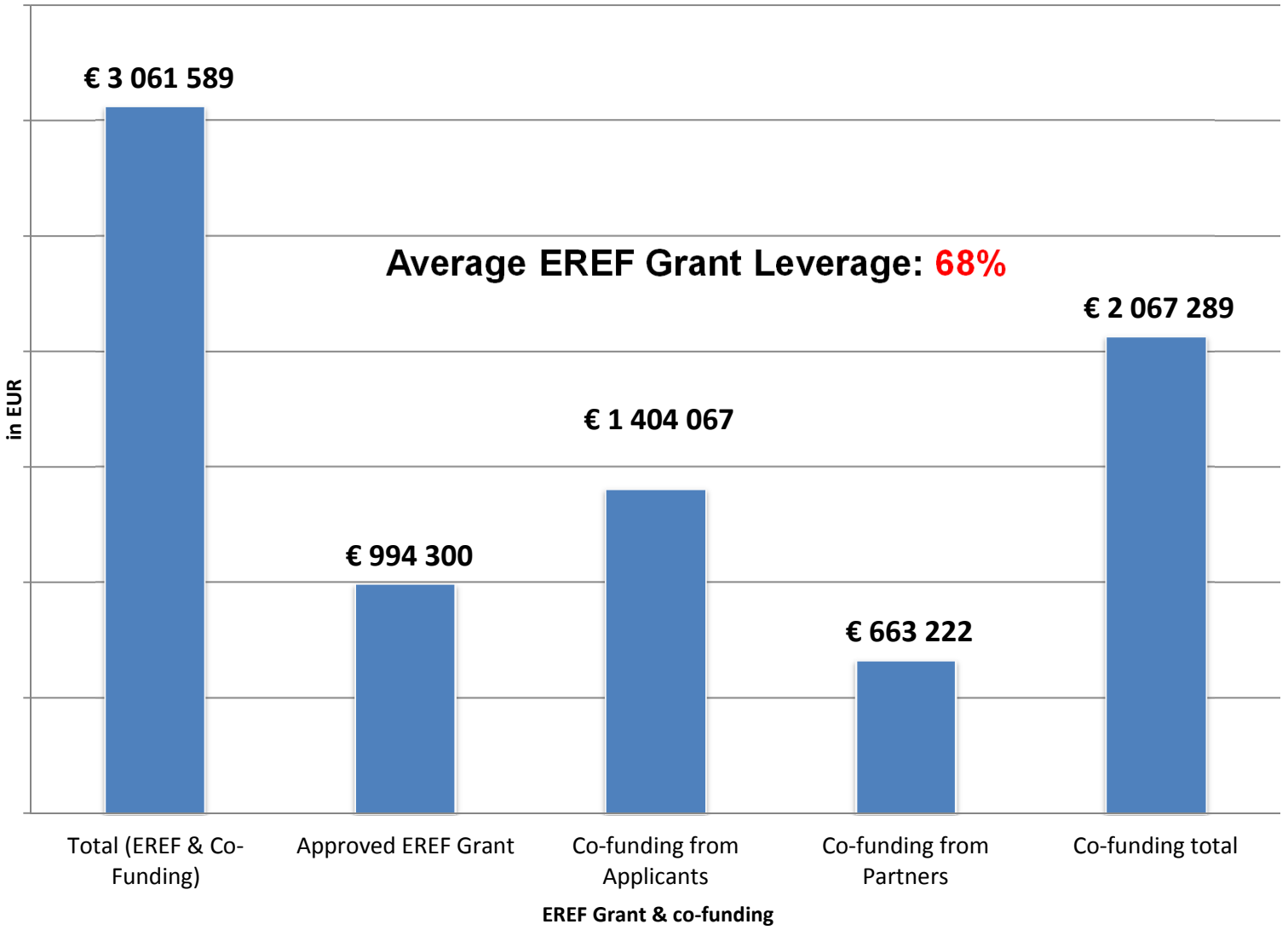
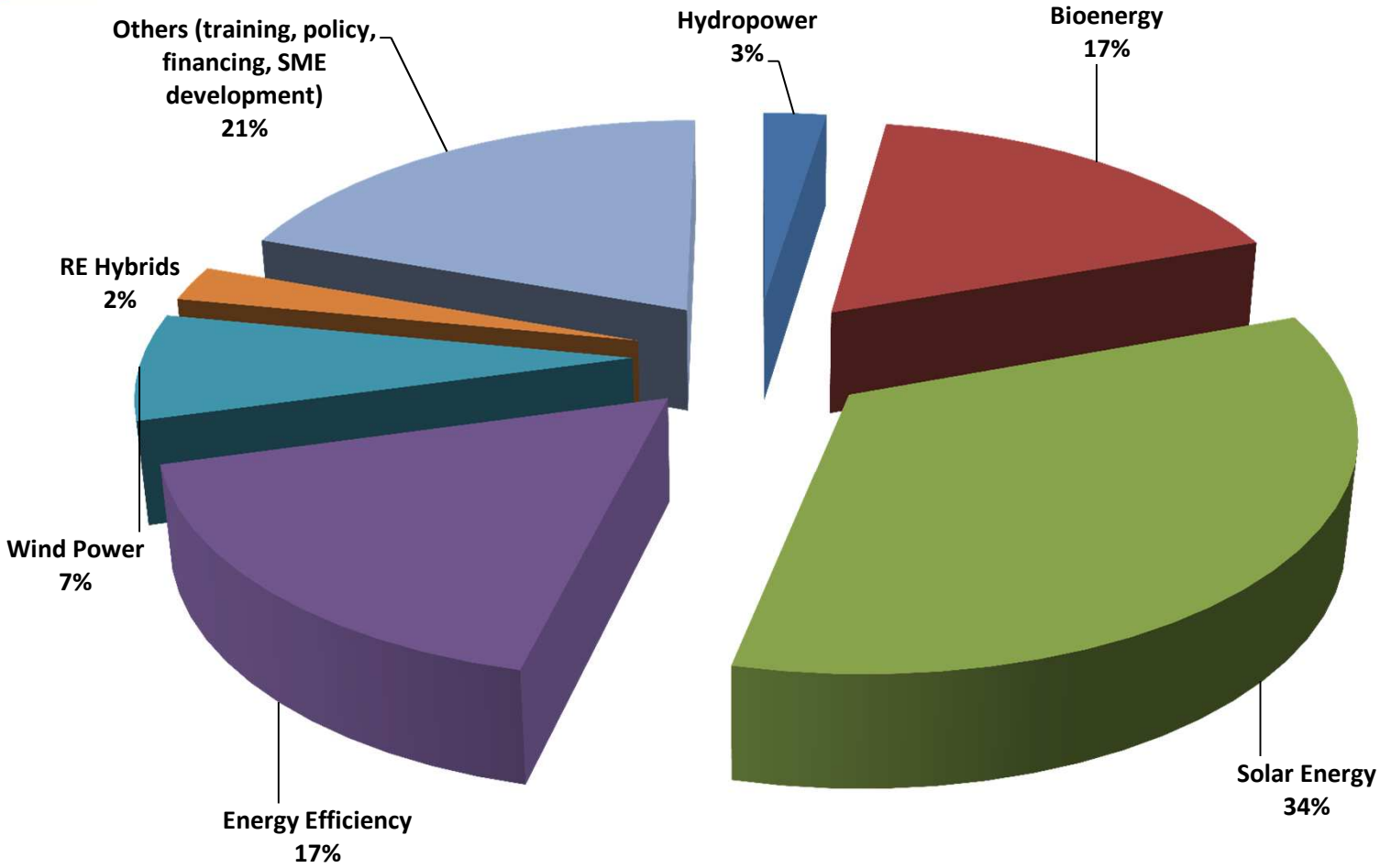
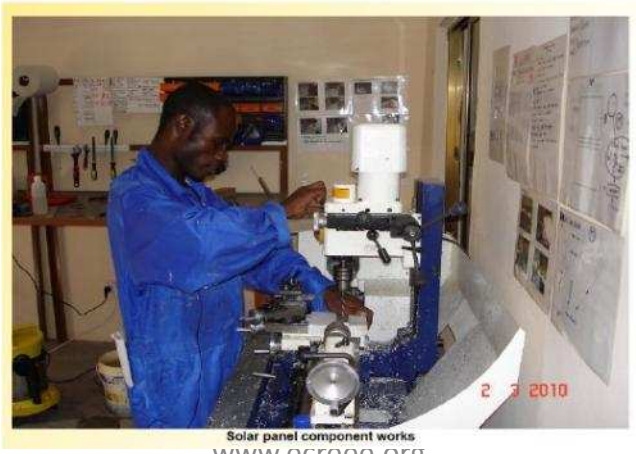
Approved EREF Grants and Co-Funding for 41 Projects



Thematic Focus of Approved EREF Projects



The platform in Tsevikope (a remote fishing & farming community in the BAR) is mounted with an AC electrical generator



Solar panel component works

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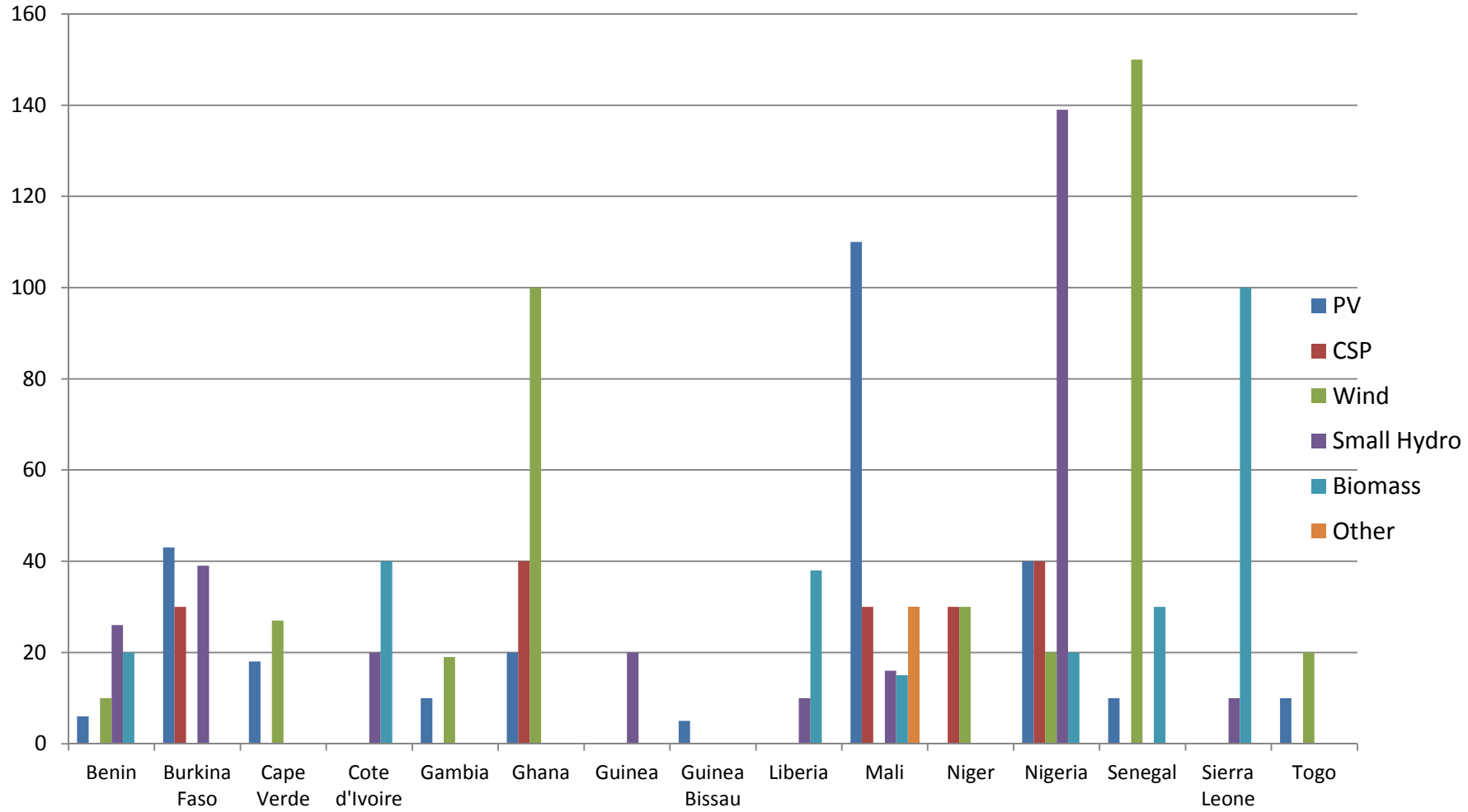
Activity 6: ECOWAS RE Business and Investment Initiative

- ❑ **Managed by ECREEE**
- ❑ **Development of a pipeline of medium to large scale RE projects**
- ❑ **Annual organization of Investment Forums**



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

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

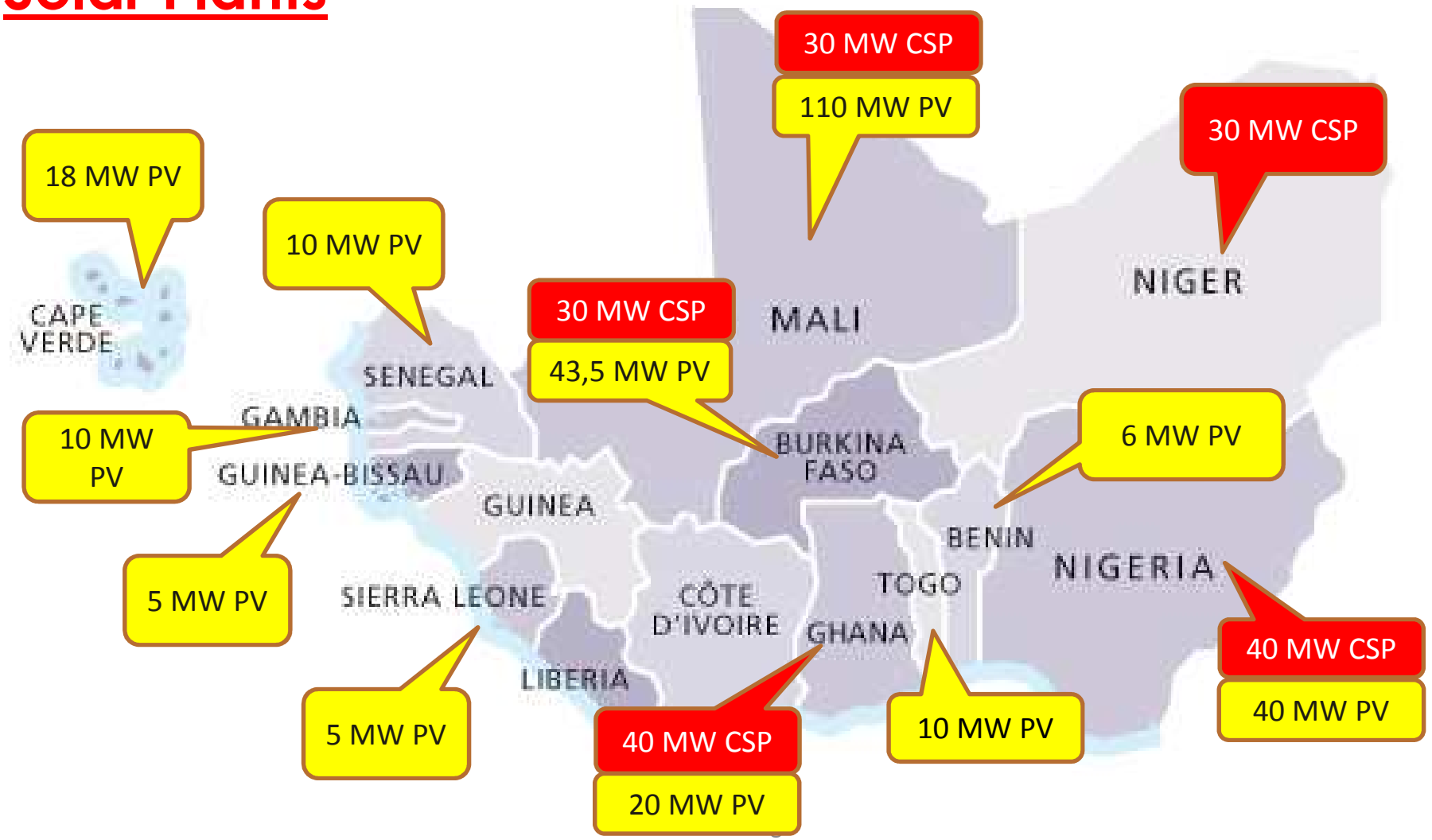
<u>25,5 MW of Wind Power</u>
Cabeólica – PPP between AFC, Finnfund, InfraCo, Electra and the National Government of Cape Verde

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

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

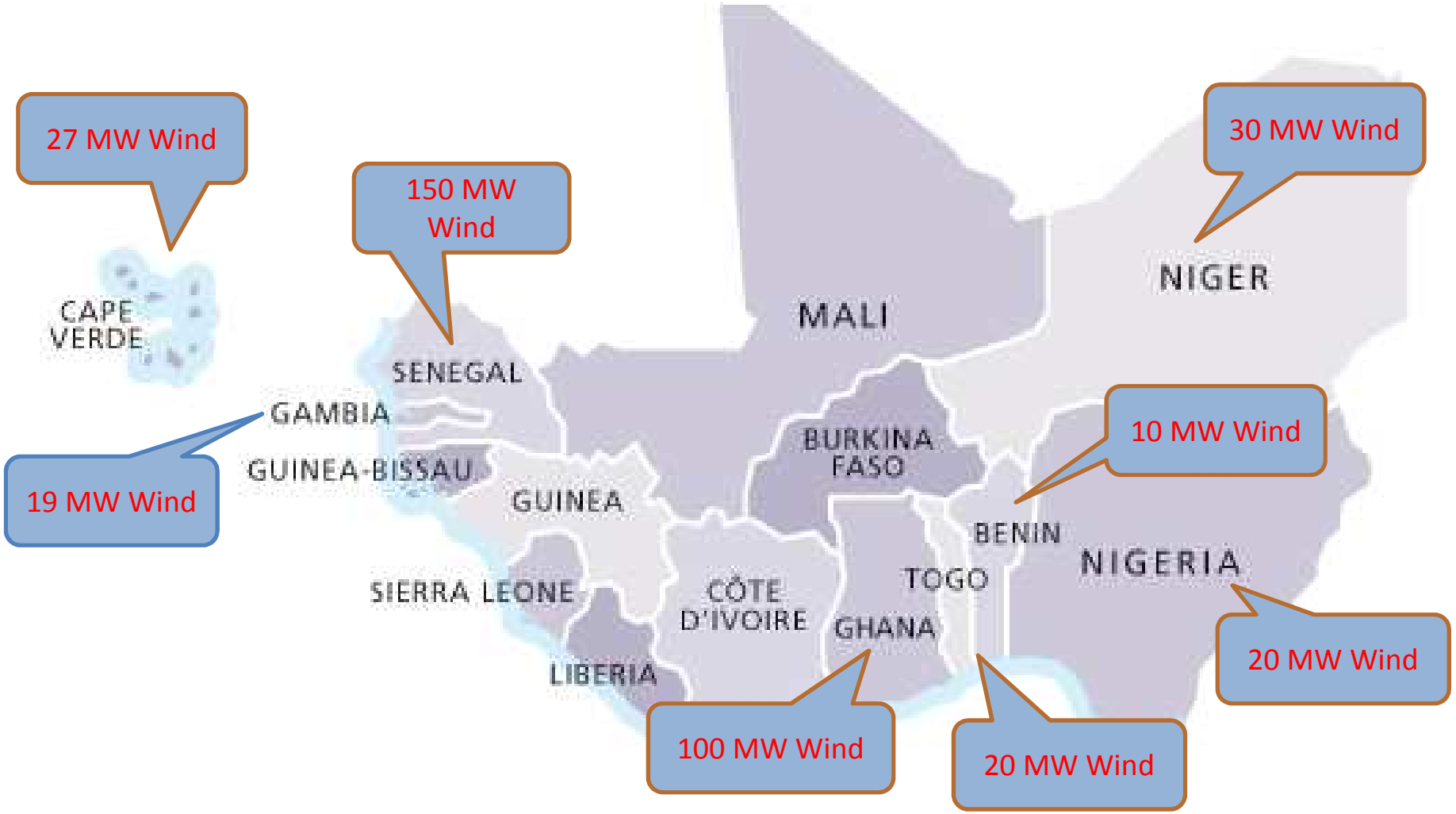
Identified and Potential Projects in the Region 2011-2020

Solar Plants



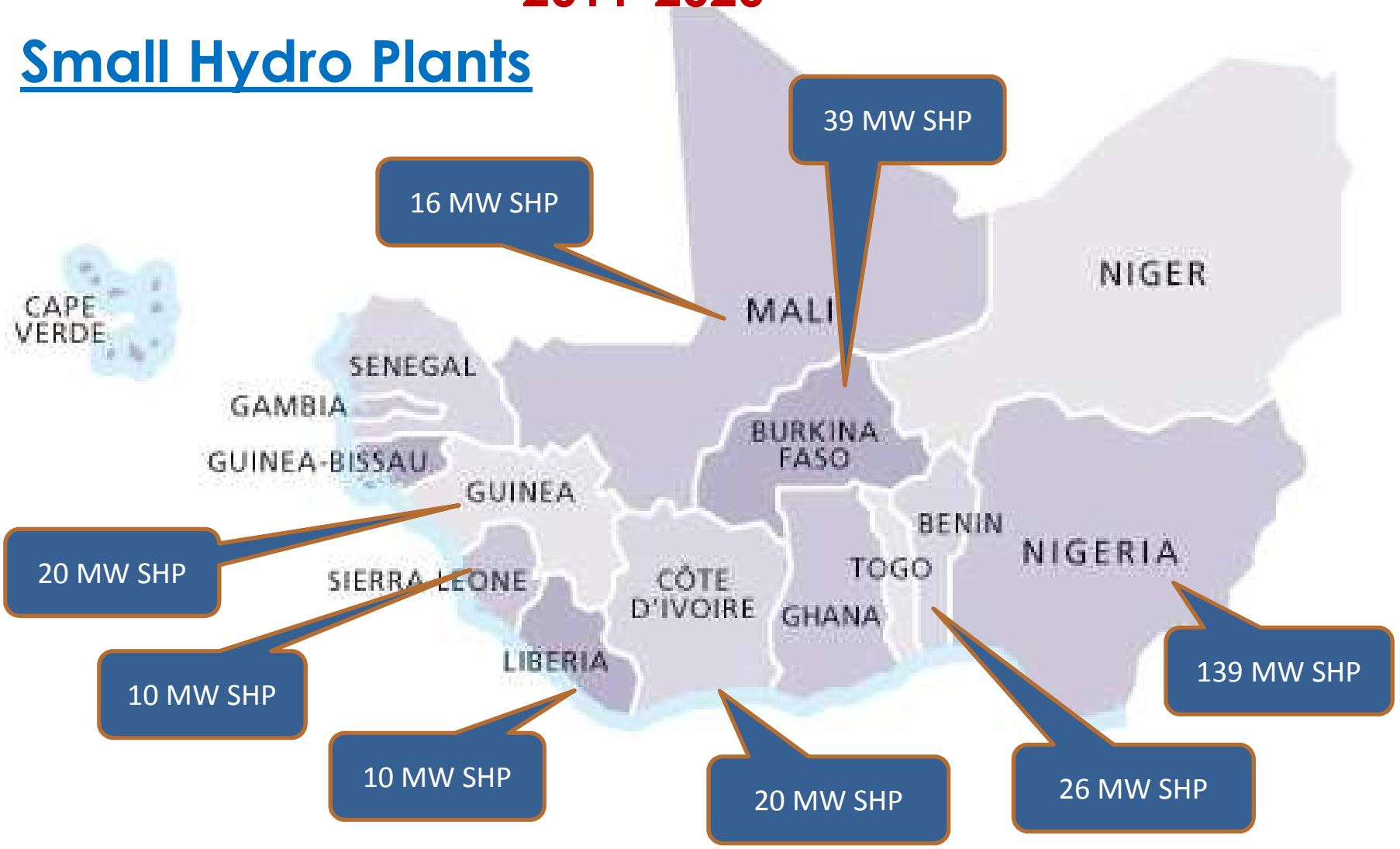
Identified and Potential Projects in the Region
2011-2020

Wind Farms



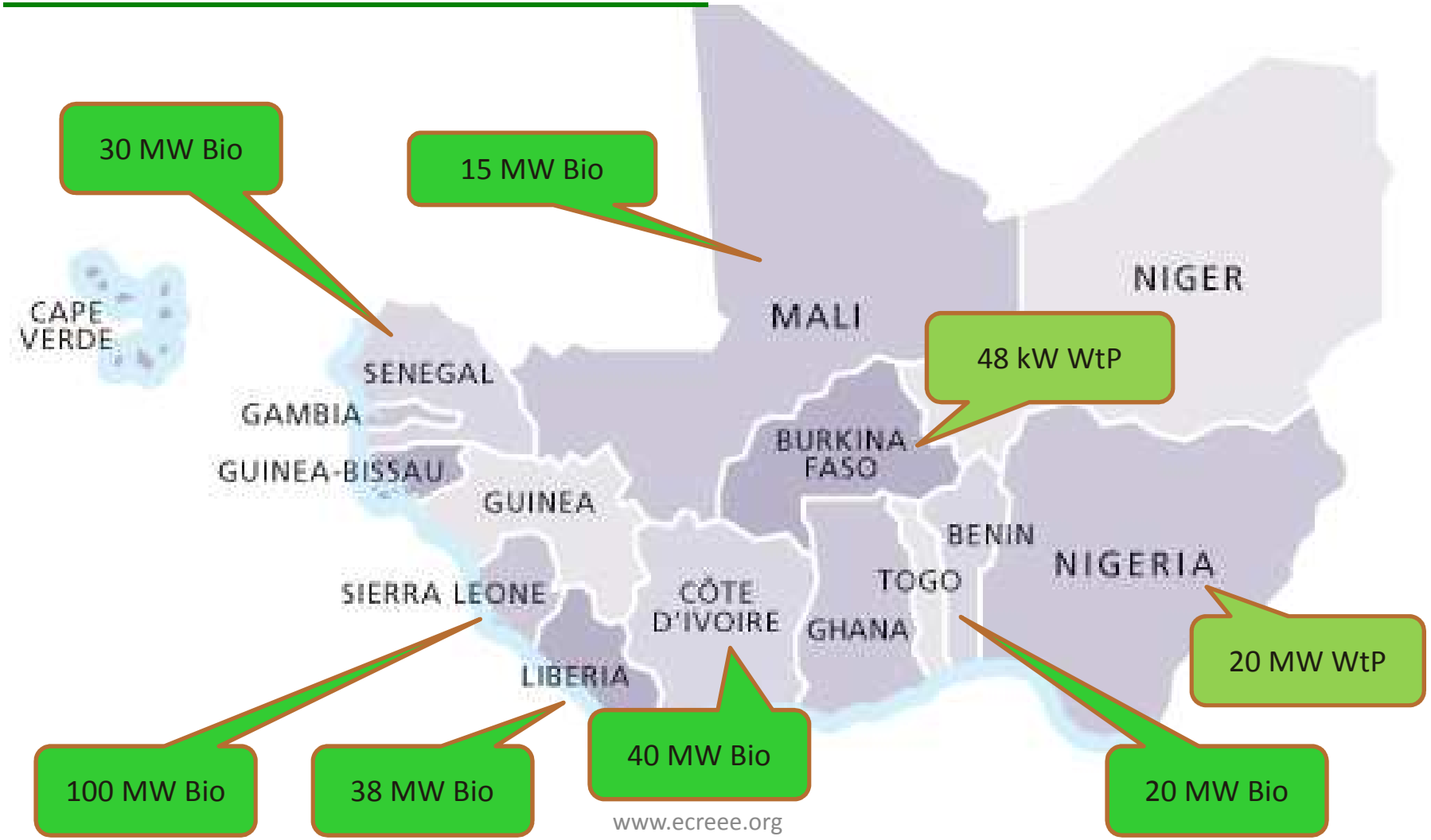
Identified and Potential Projects in the Region 2011-2020

Small Hydro Plants



Identified and Potential Projects in the Region 2011-2020

Biomass and Waste to Power



Perspectives for 2013 and beyond

From Policy to Action

a Contribute to the achievement of the RE&EE Policy targets

b Implementation on EE Initiatives

c Support to National RE policies

d Development of RE projects in grid connected and mini-grids

- Establish south- South cooperation with India / China for Technology transfer to the ECOWAS region

- Development of a Long-term capacity building programme

- SE4All Action Plans and implementation

- Support to the establishment of Similar Centres in EAC and SADC

ECREEE AND PARTNERS

Core Partners

MINISTERIO DE ASUNTOS EXTERIORES Y DE COOPERACIÓN — aecid

Austrian Development Cooperation

UNIDO

New Partners

EU

USAID FROM THE AMERICAN PEOPLE

gef

Other Partners

GERMANY

JAPAN

FRANCE

?

Technical Partners

ESMAP Energy Sector Management Assistance Program

reeep renewable energy & energy efficiency partnership

ADEME Agence de l'Environnement et de la Maîtrise de l'Energie

itc Instituto Tecnológico de Canarias

EUEI Partnership Dialogue Facility Energy policies for development

UNDP

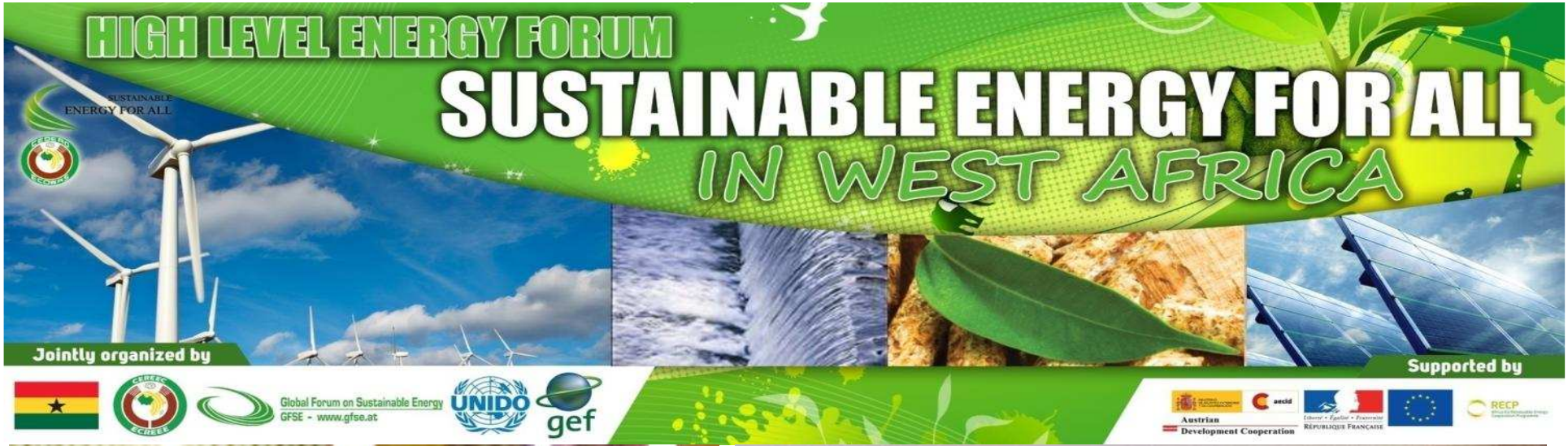
INTERNATIONAL RENEWABLE ENERGY AGENCY IRENA

AUSTRIAN ENERGY AGENCY

Alliance for Rural Electrification

EREC

GBEP Global Bioenergy Partnership



Thank you! Merci! Muito obrigado!