

ECOWAS Regional Workshop on Wind Energy, Praia, Cape Verde: 4 & 5 November 2013



**Wind Energy Situation in the
ECOWAS Region: Current
Situation and Trends**



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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 kWh/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 electricity system;

Wind Potentials and Opportunities

- Opportunities

- Cost of wind systems: lower than most renewables and competitive to conventional power plants
- Efficient in operations
- Prices are generally falling
- Used for both grid connected and off-grid applications

- Applications

- Applicable in both rural and urban areas with resource availability
- Electricity generation and
- mechanical power for water pumping

CONSTRAINTS/BARRIERS

- **Financial/Economics:**
 - ✓ High upfront costs compared with smaller scale conventional systems even where competitive;
 - ✓ Lack of large scale projects at regional level to take advantage where there are resource endowments and economies of scale;
 - ✓ Lack of innovative financing mechanisms.
- **Policy and Institutional Issues:**
 - ✓ Regional RE & EE policies adopted but absence of national political targets for renewable energy in general and 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 in many countries.

CONSTRAINTS/BARRIERS

- **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
- **Knowledge and Awareness Raising**
 - ✓ Limited or no data/information on resource availability
 - ✓ Lack of information on opportunities for investment
 - ✓ Lack of networking and information sharing until recently

ECREEE OBJECTIVE: CREATION OF AN ENABLING ENVIRONMENT FOR REGIONAL RE&EE MARKETS BY MITIGATING EXISTING BARRIERS

TO ENABLE

SOFTWARE

- Short-term training
- Long-term training
- Regional seminars
- Program activities
- Energy audits
- Advocacy
- Publicity

Capacity Development

- Databases
- Resource maps
- Research
- Policy Evaluation
- Project evaluation
- Communication
 - Publicity
- EREF grants

Knowledge Management

- Conferences
- Policy dialogue
- Analytical support
- Short-term training
- Demonstration
- Programs
- Seminars
- Study tours
- Exhibits

Policy Support

- Conferences
 - Exhibits
- Policy dialogue
- Project preparation
 - Financing
- Market Analysis
- Communication
 - Advocacy
 - Publicity

Investment & Business Promotion

HARDWARE

Steps taken: 1. ECOWAS RE&EE POLICIES

- ECOWAS Renewable Energy Policy and Energy Efficiency Policies 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)
- Adopted by ECOWAS Council of Ministers and Authority in July 2013
- Preparation of national RE&EE action plans in 2013



ECOWAS RE POLICY TARGETS BY 2020/2030

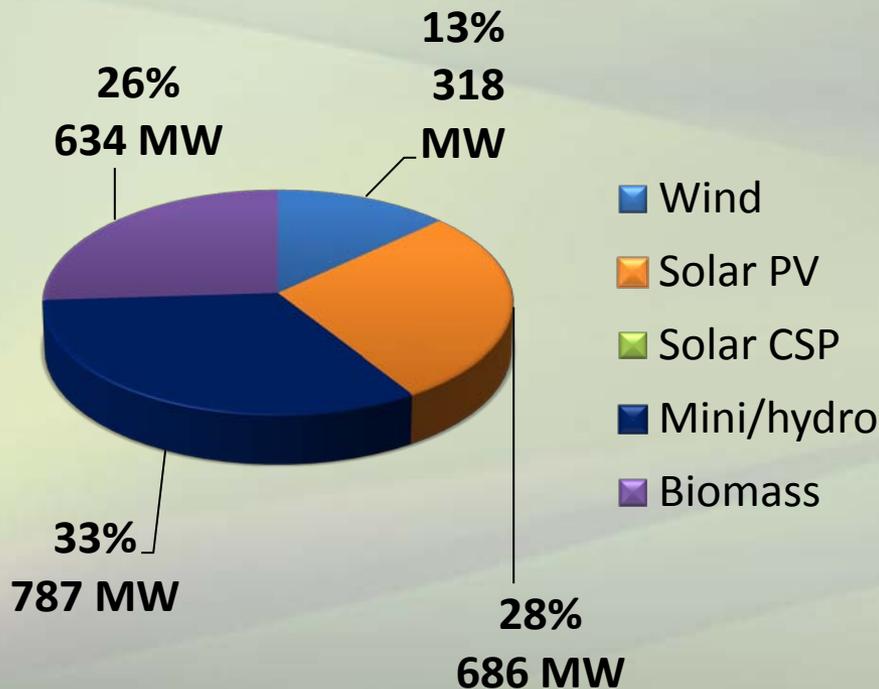
Grid-Connected RE Targets	2020	2030
RE share in total ECOWAS electricity mix (incl. large hydro)	35%	48%
RE share in total ECOWAS generation capacity (excl. large hydro)	10% 2.425 MW	19% 7.606 MW

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

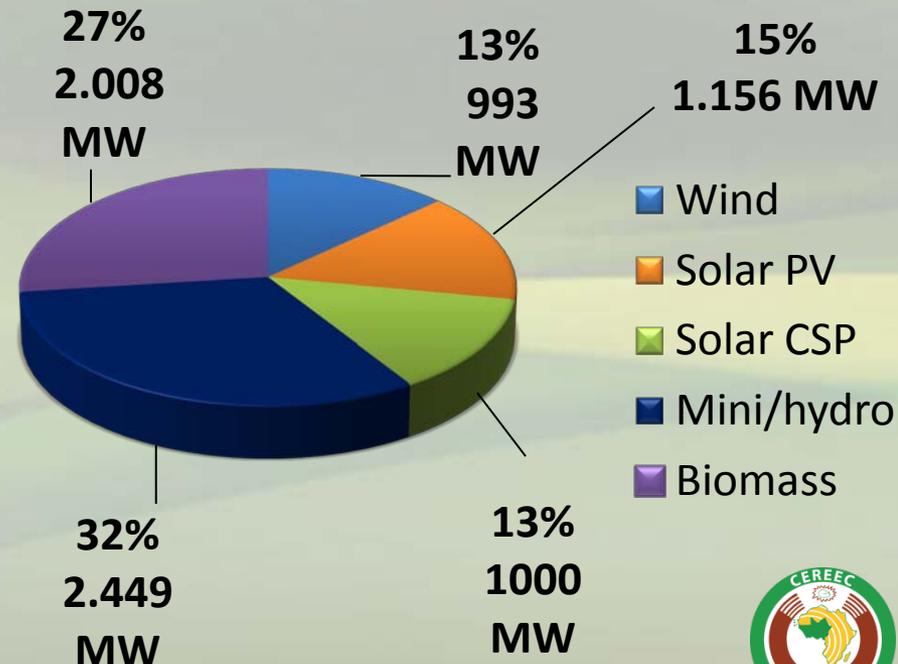
GRID-CONNECTED RE SCENARIO OF ECOWAS BY 2020/2030 (excluding large hydro)

Individual countries decide on RE mix!

Installed RE Capacity 2020
2,424 MW

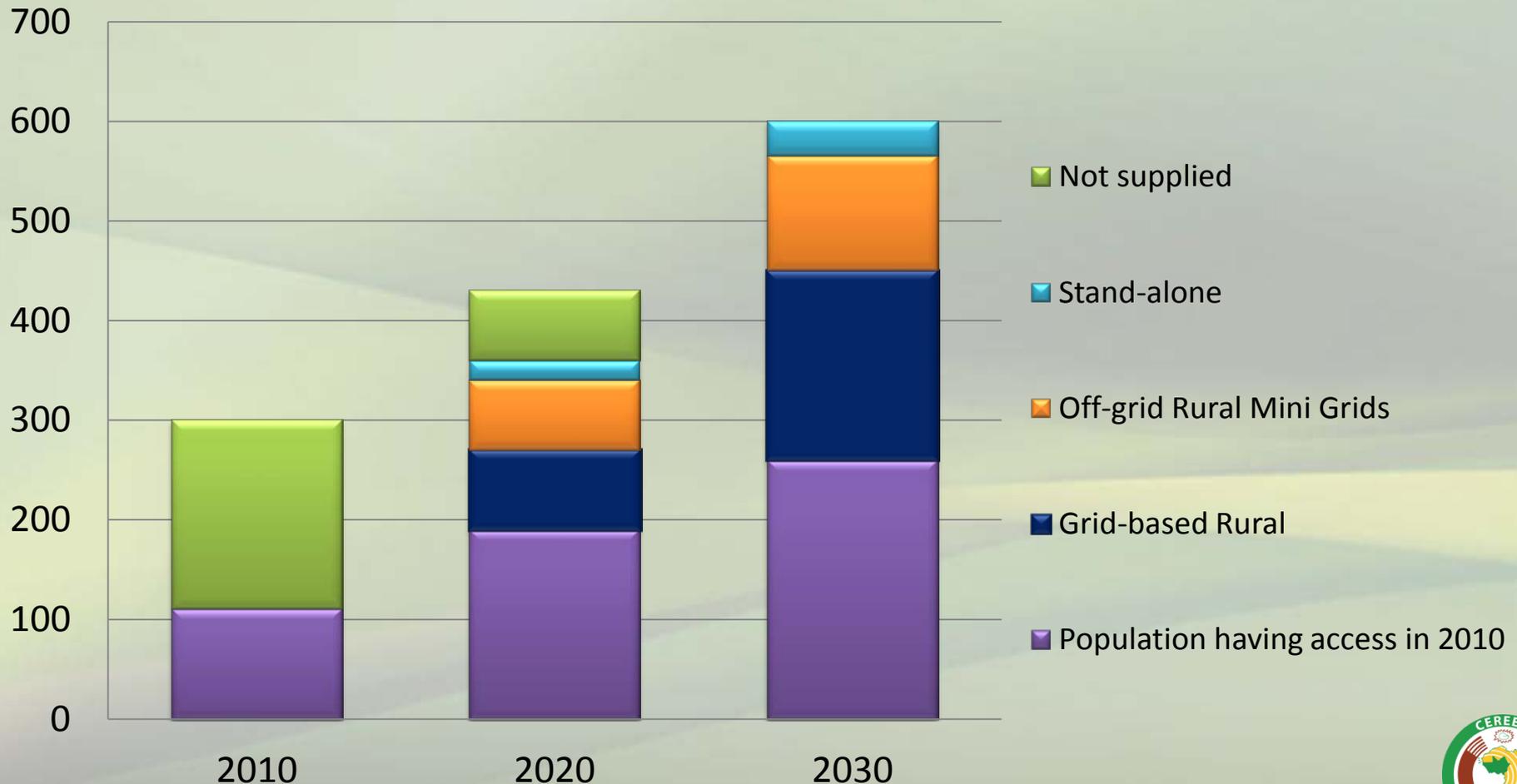


Installed RE Capacity 2030 -
2,424 MW



ECOWAS RURAL ELECTRIFICATION TARGETS BY 2030

Population in mio inhbts



2: ECOWAS OBSERVATORY FOR RENEWABLE ENERGY AND ENERGY EFFICIENCY

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>

ECOWAS OBSERVATORY FOR RENEWABLE ENERGY AND ENERGY EFFICIENCY

ABOUT COUNTRY PROFILES MAPS ANALYSIS & TRENDS EXPLORE FEEDBACK

Interconnected data for KNOWLEDGE transfer

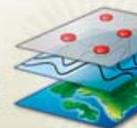
Austrian
Development Cooperation



COUNTRY
PROFILES



MAPS
VIEWER



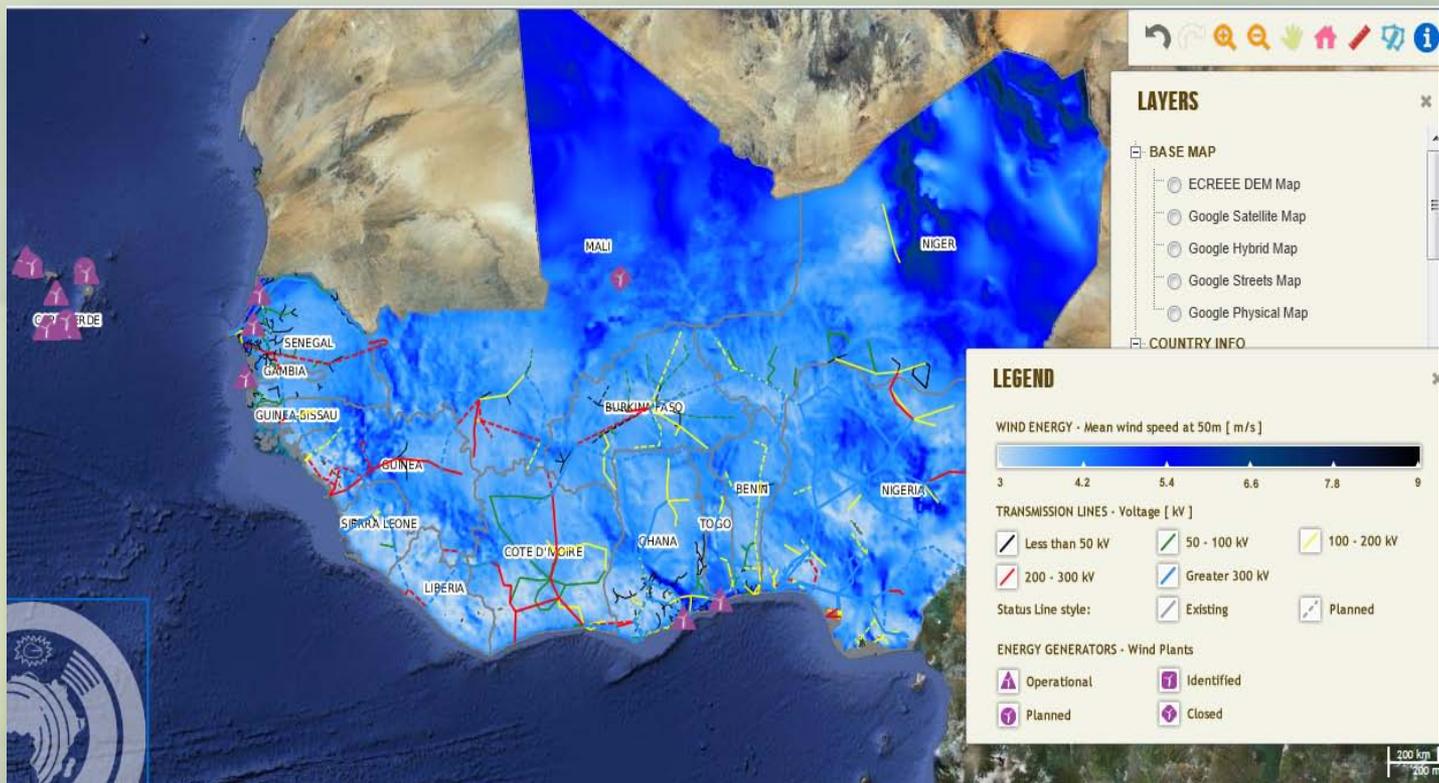
ANALYSIS &
TRENDS



www.ecreee.org



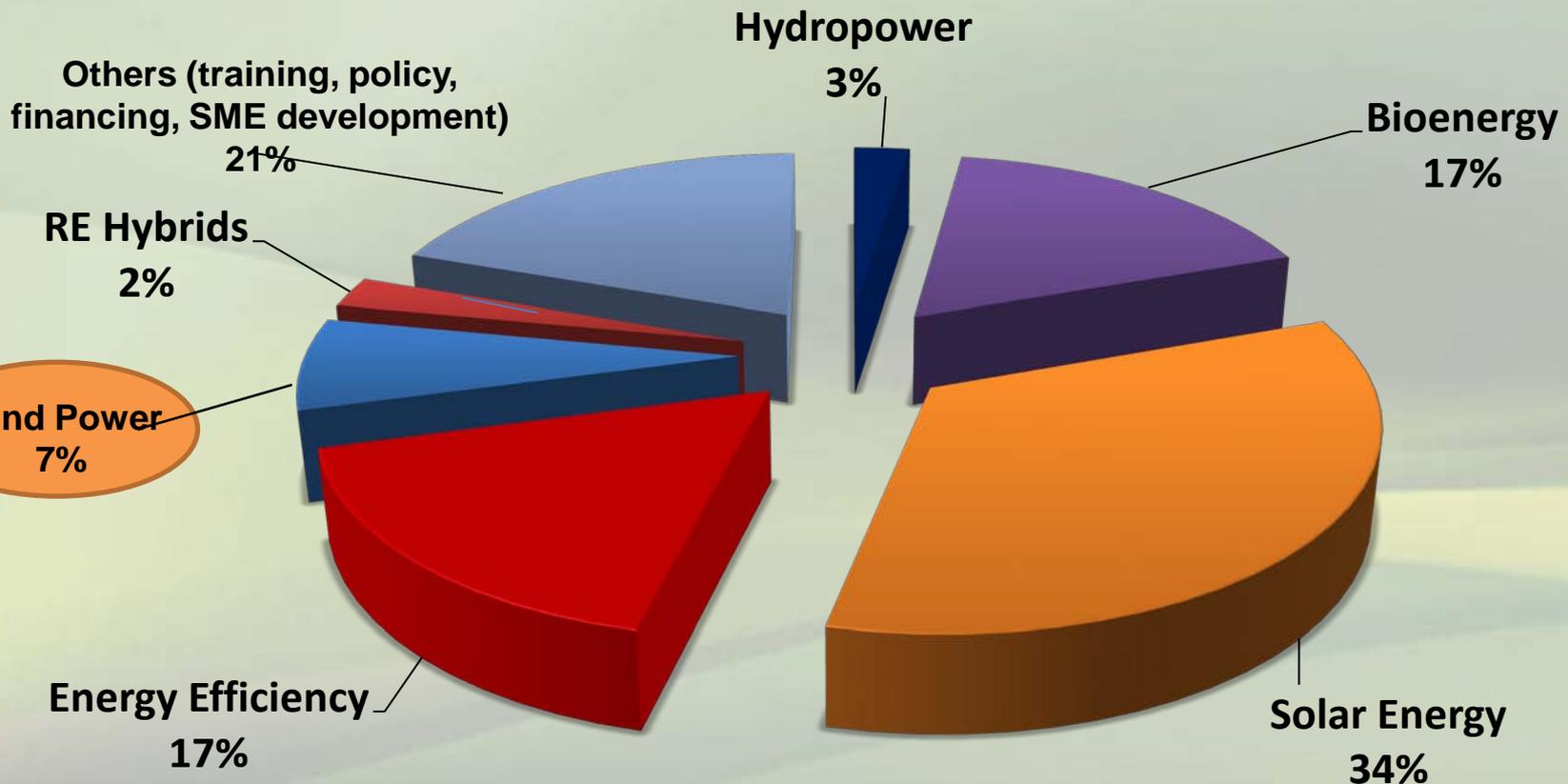
ECREEE Wind Resource Assessment with USAID Support



WIND RESOURCE POTENTIAL, implemented by NEXANT

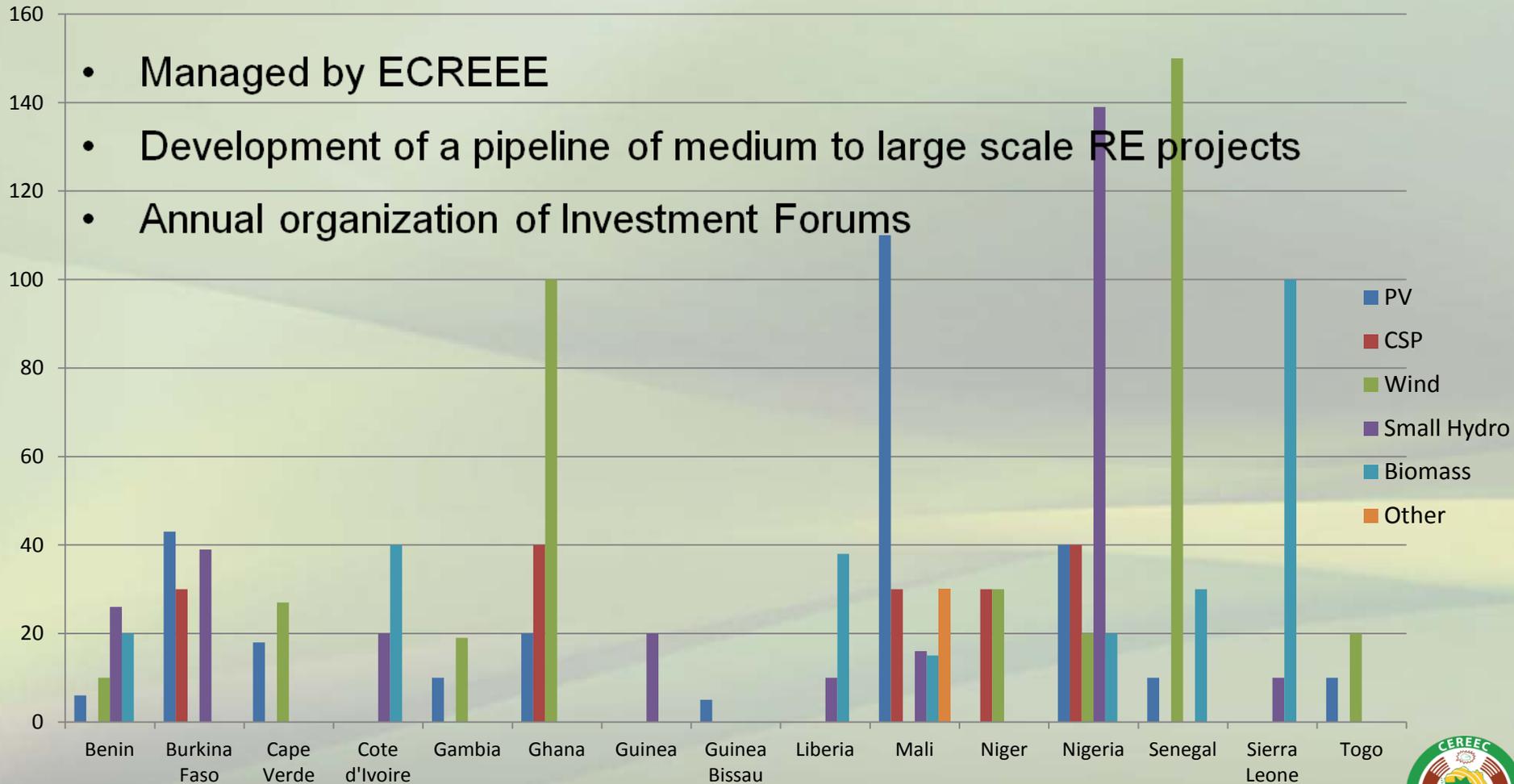
3: EREF - THEMATIC FOCUS OF APPROVED PROJECTS

Launched May 2011, Concept Notes Received: 166 and Projects Approved: 41. Part of implementing the ECOWAS White Paper



4: 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

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

2.5 MW Wind Farm

Boavista, Cape Verde, Under construction



8 MW Wind Farm

Sal, Cape Verde, Under construction



6 MW Wind Farm

Sao Vicente, Cape Verde
Commissioned November, 2011

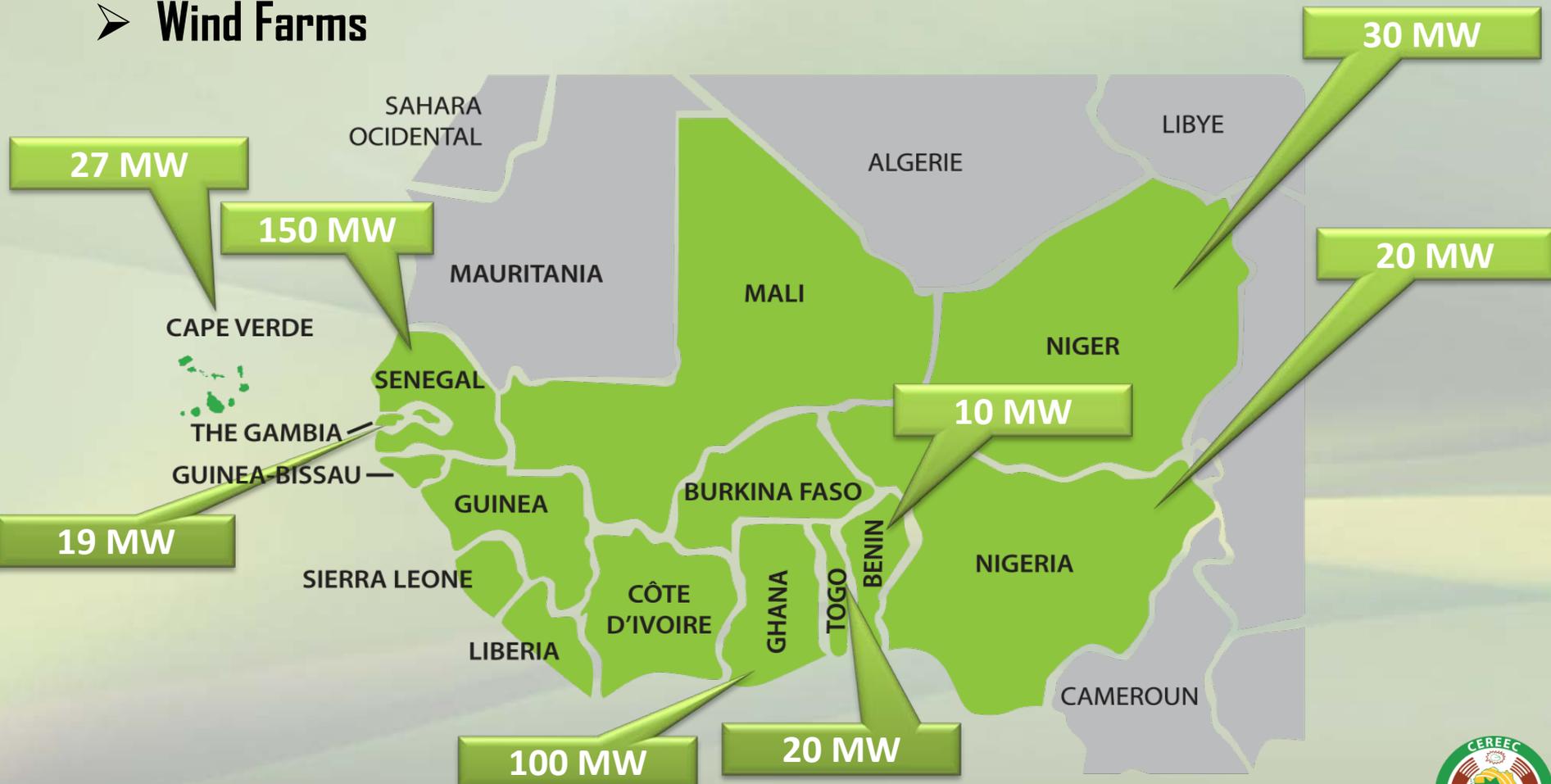


10 MW Wind Farm

Santiago, Cape Verde
Commissioned November, 2011

IDENTIFIED AND POTENTIAL PROJECTS IN THE REGION 2011-2020

➤ Wind Farms



Thank You! Merci! Obrigado!

HIGH LEVEL ENERGY FORUM

SUSTAINABLE ENERGY FOR ALL IN WEST AFRICA

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