ECOWAS RE INVESTMENT INITIATIVE (EREI) PRESENTATION

THURSDAY, 27TH SEPTEMBER 2012
DAKAR, SENEGAL
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 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)
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;
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.
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

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Enabling Factors: First RE & EE Projects implemented

RE Projects completed in 2011

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

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

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

8 MW Wind Farm, in Sal, Cape Verde

2.5 MW Wind Farm, in Boavista, Cape Verde

www.ecreee.org
Enabling factors: First RE & EE Projects implemented

SPEC-SOLAR
First manufacturing plant of PV panels assembly in ECOWAS. Dakar (Senegal)

25 MW PV module production, in Dakar, Senegal July, 2011
ECREEE’s Strategy

“SOFT ACTIVITIES”  TO ENABLE  HARDWARE

Strategic Chain

Outputs

Awareness and Capacity Building

Support for Policy Development

Knowledge Management and Project Support

Investment Promotion and Advocacy

Strategic Chain

Outputs

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

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

- Databases
- Resource maps
- Research
- Policy evaluation
- Project evaluation
- Communications
- Publicity
- EREF grants

- Conferences
- Exhibits
- Policy dialogue
- Project preparation
- Financing
- Market analysis
- Communications
- Advocacy
- Publicity

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RE&EE Policy Framework

- ECOWAS Renewable Energy Policy and Energy Efficiency Policy developed
- To be adopted at High-Level Forum, 29-31 Oct 2012, in Accra
- Policy scenarios target SE4ALL in ECOWAS by 2030
- Preparation of national RE&EE action plans in 2013
- Execution of regional action plan by ECREEE
- Strong SE4ALL support needed

|---------------|---------------|-------------------------------|------------------------------------------|------------------------------------------|------------------------------------------|
## ECOWAS RE Policy Targets by 2020/2030

<table>
<thead>
<tr>
<th>Grid-Connected RE Targets</th>
<th>2020</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>RE share in total ECOWAS generation capacity (incl. large hydro)</td>
<td>35%</td>
<td>48%</td>
</tr>
<tr>
<td>RE share in total ECOWAS generation capacity (excl. large hydro)</td>
<td>10%</td>
<td>19%</td>
</tr>
<tr>
<td></td>
<td>2.425 MW</td>
<td>7.606 MW</td>
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</table>

<table>
<thead>
<tr>
<th>Rural RE Targets</th>
<th>2020</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural population supplied by mini-grids and stand-alone systems</td>
<td>22%</td>
<td>25%</td>
</tr>
<tr>
<td>Mini-Grids to be installed</td>
<td>60,000</td>
<td>128,000</td>
</tr>
<tr>
<td></td>
<td>3,600 MW</td>
<td>7,680 MW</td>
</tr>
<tr>
<td>Rural population served with improved stoves</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Rural population with access to LPG</td>
<td>17%</td>
<td>32%</td>
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</table>
ECOWAS Capacity Building Program

- Regional Capacity Needs Assessment
- Regional Capacity Program under development

ECOWAS RETScreen Training Network

- 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)
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 grand 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
Promotion of medium to large scale projects

RE Projects existing and under construction

- 25.5 MW Wind (underconst)
- 7.5 MW PV
- 10 MW Wind (underconstr)
- 2 MW PV (under construction)
ECOWAS Renewable Energy Investment Initiative (EREI)

Main activities

• Foster and endorse investment to promote RE infrastructure projects in West Africa
• Facilitate the execution of RE investment projects in the region;
• Link up different stakeholders involved in the finance and development of RE infrastructure projects in West Africa
• Decrease the misperceptions on investment of RE projects in West Africa through the appraisal from ECREEE, an specialized agency of the ECOWAS Regional Government
• Create a link between project promoters and financial partners and potential investors of these infrastructure projects
• Become a meeting point for stakeholders interested by the RE sector of West Africa
• Finance preparatory and feasibility activities of RE Infrastructure Projects in the region
• Provide reliable and updated information about existing and identified RE projects in the region

www.ecreee.org
**EREI: RE Investment Initiative**

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

156 Projects

<table>
<thead>
<tr>
<th>Biofuel</th>
<th>Biomass</th>
<th>CSP</th>
<th>Large Hydro</th>
<th>Small Hydro</th>
<th>PV</th>
<th>Small hydro</th>
<th>Waste to power</th>
<th>Wind</th>
<th>Total</th>
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<td>Benin</td>
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<td>147</td>
<td>6</td>
<td>75</td>
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<tr>
<td>Burkina Faso</td>
<td>30</td>
<td></td>
<td>860</td>
<td>43</td>
<td></td>
<td>171</td>
<td></td>
<td></td>
<td>1,105</td>
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<td>Cape Verde</td>
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<td></td>
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<td>19</td>
<td>20</td>
<td>8</td>
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<td>Cote d'Ivoire</td>
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<td>Guinea</td>
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<td>Guinea Bissau</td>
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<tr>
<td>Liberia</td>
<td>73</td>
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<td>130</td>
<td>12</td>
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<tr>
<td>Mali</td>
<td>30</td>
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<td>Senegal</td>
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<td>270</td>
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<td>Sierra Leone</td>
<td>15</td>
<td>100</td>
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<td>475</td>
<td></td>
<td>10</td>
<td></td>
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<td>Togo</td>
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<td>25</td>
<td></td>
<td></td>
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<td>255</td>
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<tr>
<td><strong>Grand Total</strong></td>
<td><strong>15</strong></td>
<td>246</td>
<td><strong>200</strong></td>
<td><strong>937</strong></td>
<td><strong>2,970</strong></td>
<td><strong>343</strong></td>
<td><strong>978</strong></td>
<td><strong>63</strong></td>
<td><strong>557</strong></td>
</tr>
</tbody>
</table>

**Investment (kEUR)**

4,879,033
EREI: RE Investment Initiative

First screening of Medium-Large Scale Commercial Power Plants identified (January 2012)

64 Projects

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

<table>
<thead>
<tr>
<th>Total technology</th>
<th>PV</th>
<th>Wind</th>
<th>Biomass</th>
<th>Small hydro</th>
<th>Total country</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total investment (Million €)</td>
<td>190.3</td>
<td>245.9</td>
<td>171</td>
<td>218</td>
<td>825.2</td>
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<tr>
<td>Total investment (Million €)</td>
<td>1236.95</td>
<td>368.85</td>
<td>427.5</td>
<td>436</td>
<td>2469.3</td>
</tr>
</tbody>
</table>

List of projects sent to SKM (March 2012)

41 Projects

<table>
<thead>
<tr>
<th>Capacity (MW)</th>
<th>Biomass</th>
<th>PV</th>
<th>Small hydro</th>
<th>Wind</th>
<th>Total</th>
</tr>
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<td>208</td>
<td>552</td>
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EREI: RE Investment Initiative

ECOWAS RE Investment and Business Forum

1st Forum in Dakar with the support of African Development Bank (September 2012)

Objectives:
• Link up different stakeholders involved in the finance and development of RE infrastructure projects in West Africa
• Create a link between project promoters and financial partners and potential investors of these infrastructure projects
• Become a meeting point for stakeholders interested by the RE sector of West Africa
Thank you! Merci! Muito Obrigado!

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