



International Institute for Applied Systems Analysis



## Concept Note / Aid Memoire

Praia, 28 February 2012

# Regional ECREEE Workshop: Training for National Renewable Energy Policy and Incentive Schemes & Global Energy Transformation Pathways and Policy Tools

09<sup>th</sup> and 12<sup>th</sup> of April 2012, Praia, Cape Verde

*Jointly organized by the ECOWAS Regional Centre for Renewable Energy and Energy Efficiency (ECREEE), the International Renewable Energy Agency (IRENA), the Spanish Institute for Energy Diversification and Saving (IDAE), the United Nations Industrial Development Organization (UNIDO) and the International Institute for Applied Systems Analysis (IIASA)*



2012 INTERNATIONAL YEAR OF  
SUSTAINABLE ENERGY  
FOR ALL

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## **Introduction and Context**

### **A. Brief Description**

The ECOWAS Regional Centre for Renewable Energy and Energy Efficiency (ECREEE) in collaboration with the International Renewable Energy Agency (IRENA), the Spanish Institute for Energy Diversification and Saving (IDAE), the United Nations Industrial Development Organization (UNIDO) and the International Institute for Applied Systems Analysis (IIASA) are jointly organizing a four-day workshop from the 9th to 12th of April 2012, in Praia, Cape Verde.

- The first two days of the workshop will provide training on Renewable Energy (RE) Policies and Incentive Schemes with a specific focus on nations in the ECOWAS region. The objective of this part of the workshop is to reinforce capacities amongst the ECOWAS Member States concerning energy planning and policy to promote renewable energies at the national level.
- The third day of the workshop will have a more global, and in certain cases a regional (sub-Saharan African), perspective, and the focus will be on transformational scenario pathways that simultaneously achieve multiple energy sustainability objectives (security of energy supply, climate change mitigation and air-pollution reduction), as well as policy scenarios that achieve universal modern energy access objectives by 2030. The third day will also introduce two Energy Policy and Planning Tools.
- The final day of the workshop includes one morning session for additional practical exercises with the participants.

It is expected that around sixty-five participants from ECOWAS countries from the Ministries of Energy, Ministries of Finance, National Regulators, utilities and regional stakeholders will attend the workshop. The workshop will provide inputs from the ECOWAS member states for the on-going process of drafting a regional ECOWAS Renewable Energy Policy, and will pave the way towards the creation or consolidation of national RE Policies for the member states. Moreover, the workshop will introduce ECOWAS participants to new policy planning tools that can aid decision makers in their assessments of future policy choices and their effectiveness in achieving universal modern energy access goals by 2030 and permits the concurrent assessment of synergies and trade-offs between multiple energy objectives at the global scale. The workshop is a contribution of ECOWAS to the 2012 International Year of Sustainable Energy For All and the UN Goal on Universal Access to Sustainable Energy Services by 2030.

### **B. Background**

#### **1. Energy Challenges in the ECOWAS region**

A severe energy crisis hampers the social and economic development of the fifteen ECOWAS countries. The countries are facing the interrelated challenges of energy access, energy security and climate change mitigation simultaneously. The lack of access to modern, clean, affordable and reliable energy services is interrelated with a variety of economic, social, environmental and political challenges in West Africa.

- a. In “business as usual” scenarios – without considerable additional investments – energy poverty and its consequences for economy and society will continue to be a predominant challenge in the ECOWAS region in 2030. West Africa, with around 300 million inhabitants equivalent to roughly one third of Africa’s total population, has one of the lowest modern energy consumption rates in the world. Household access to electricity across the region is about 20% but wide gaps exist between the access rates in urban areas that average at 40% and in rural areas at 6% to 8%.The electricity networks serve mainly urban centres and suburbs.The poor population in West Africa spend more of their income for poor quality energy services than the better-off for better quality services.
- b. The electricity systems in West Africa are facing challenges due to the growing gap between predicted

demand, existing supply capacities and limited capital to invest. Moreover the energy intensity in the countries remains high and energy is used in an inefficient way throughout all sectors. The estimated technical and commercial electricity losses in the electricity systems lie between 20% and 40% throughout the West African region. Increasing fossil fuel import dependency, shortages and fluctuating fossil fuel prices are major concerns of West African countries and require a diversification of sources. Over 60% of the community's electricity generation capacity is running on oil. In some countries even more than 90% of the electricity generation is satisfied by diesel and heavy oil generation plants. As a result, the steadily increasing and fluctuating oil prices have had a devastating effect on the economies in the region.

- c. With climate change another concern was added to the heavy energy agenda of the ECOWAS region. West Africa is so far only responsible for a fraction of global energy related GHG emissions. However, the energy sector will be highly impacted by mitigation and adaptation costs of climate change in the forthcoming decades. Climate change risks and the need for modern, clean, reliable and affordable energy supply to ensure energy security and energy access create a dilemma. On the one hand urgent investments are required. On the other hand, the expansion of energy supply based on inefficient low-cost fossil fuel combustion technologies will increase GHG emissions and interrelated negative climate change impacts which harm Sub Sahara Africa at most. New energy infrastructure investments have a long life-time and determine the GHG emissions for the coming decades. Climate change impacts (temperature rise, extreme weather events, and droughts) will challenge the energy security of ECOWAS countries and have to be mainstreamed into energy policy planning (e.g. change of water flows).

## **2. Renewable Energy and Energy Efficiency Potentials in the ECOWAS region**

Apart from other low-carbon solutions renewable energy technologies are appropriate tools to address the described challenges simultaneously and in a sustainable manner. Apart from significant fossil fuel resources the ECOWAS countries can rely on a wide range of untapped renewable energy and energy efficiency potentials in various sectors:

- West Africa accounts for one quarter of Africa's total exploited hydropower potential (E.A.K. Kalitsi 2003). The ECOWAS region is endowed with rich perennial and non-perennial rivers. A total of 23,000 MW of hydroelectric potential is concentrated in five of the fifteen ECOWAS countries, of which only 16% has been exploited. According to first estimations the small hydro power potential in the region amounts to more than 6.000 MW.
- There is also a good potential for all forms of modern bioenergy in the ECOWAS region. Traditional biomass is already the main source of energy for the poor majority and accounts for 80% of total energy consumed for domestic purposes.
- There are also considerable wind, tidal, ocean thermal and wave energy resources available in some ECOWAS countries. The region has vast solar energy potential with very high radiation averages of 5 to 6 kWh/m<sup>2</sup> throughout the year.
- There is significant potential to improve demand side and supply side energy efficiency in various sectors (e.g. appliances, buildings, industry and power generation and transmission). In the power sector the technical and commercial energy losses (e.g. theft, illegal operators) lie in the range of 20 to 40% (in comparison to 7% to 10% in Northern America and Western Europe). It is estimated that in West Africa around 30% of the total electricity supply is consumed in the building sector.

## **3. Status of RE Policies in the ECOWAS region**

There is a lack of coherent clear-cut energy policies, regulations and associated budgetary allocations to create an enabling environment for RE investments and businesses in West Africa. Most ECOWAS countries do not put a special focus on RE in their energy policies and rural electrification strategies. The monopoly position of national power utilities and the uncertainties for IPPs are other known constraints.

In 2011, the region has initiated efforts to elaborate a renewable energy regional policy. As part of efforts to accelerate the uptake of RE and EE technologies, ECREEE launched two complementary regional projects on renewable energy and energy efficiency policies.

The Regional Renewable Energy Policy for West Africa (RREP-WA) project, will work towards the development of a regional policy on renewable energy. It will make recommendations on actions to overcome the financial, technical and institutional barriers to the use of renewable energy.

Similarly, the Supporting Energy Efficiency for Access in West Africa (SEEA-WA) project will target development of an ECOWAS regional policy in favour of increased energy efficiency. The project will work with a network of National Stakeholders to stimulate and support national efforts on energy efficiency, through improved framework conditions, awareness raising and capacity building for technical implementation of energy efficient technologies. The project will focus on areas with a high potential for energy savings - cooking, lighting, cooling, buildings, productive activities - where regional action can support national efforts. For instance, regional performance standards and labels for refrigerators could help national efforts to replace obsolete, power-hungry and environmentally damaging equipment with modern energy efficient appliances. Similarly, the project will concentrate on regional support for the creation of effective financing mechanisms (Carbon financing, ESCOs, Micro financing etc.) for implementing EE projects

Moreover, at a national level, some ECOWAS countries have already RE policy and binding RE targets. Cape Verde approved in 2011 the first RE law and a target of 50% RE by 2020. In 2012 Ghana passed a RE bill and FiT mechanism and established a target of 10% RE by 2015. Senegal in 2010 approved a RE law approved and has a target of 15% by 2020. Besides, most of the countries include RE as an option on their National Energy Strategies and Policies.

#### **4. Strategic rationale for proposed RE Policies and Incentives Schemes training workshop**

It is in the framework of ECREEE's mandate, the launching of the RREP-WA and SEEA-WA projects at the regional level as well as several national initiatives already taken place on RE policy and the international context urging for a energy change of paradigm to include RE deployment in the national energy policies all over the world, that this training workshop has been identified.

The training workshop will provide the state of the art and experience of the RE policies and incentive schemes already implemented in some countries worldwide as well as basic knowledge about RE planning, regulation and policy elaboration as part of the National Energy Policies to 15 ECOWAS countries, namely the Ministry of Energy, the Ministry of Finance and the National Regulator.

This training is part of the ECREEE's priorities to create awareness raising and build capacities in the public sector of the ECOWAS member states besides the support to the RE Policy and Regulatory Framework Development at the regional and national level.

During 2012, the ECOWAS region will approve a Regional RE Policy which will be the umbrella for the RE National Policies of its member states. The present training workshop is a quality and knowledge addition to the process.

#### **5. Strategic rationale for the proposed GEF/UNIDO/ IIASA Workshop on Transformational Pathways and Policy Planning Tools**

Day three of the workshop, as already mentioned, will present a more global perspective. As part of the larger UNIDO/GEF project, IIASA scientists have produced several analytical reports that focus on energy pathways for sustainable development, and policies for household energy access, as well as two interactive, web-based policy analysis tools. The purpose of the workshops is to facilitate the presentation of these summary documents and tools. The scenarios and analyses presented will rely on the assessments underlying the Global Energy Assessment (GEA). The analysis and policy tools presented are aimed at informing decision-makers on low-

carbon options to address, energy security, air pollution and reduction of greenhouse gas emissions simultaneously, as well as policies for achieving universal modern energy access targets.

The Cape Verde workshop will be the first of three capacity building workshops UNIDO/IIASA are organizing in Asia, Africa and Latin America. The workshops aim at creating a better understanding among decision makers on key technologies, technology transfer issues, policy instrument choice and major sustainable development issues. In West Africa the workshop is organized in cooperation with ECREEE and will particularly reflect on the opportunities of renewable energy and energy efficiency technologies to address multiple global energy challenges and policies for achieving universal household access to electricity and clean cooking fuels and stoves in sub-Saharan Africa.

## **II. Activity objectives and key results of the workshop**

### **A. Primary objectives and participants**

The overall objective of the workshop is to reinforce capacities among the ECOWAS member states concerning energy planning and policy to promote Renewable Energies at the national level.

Specifically, the workshop will aim to achieve the following:

- Enhance learning on the range of possible policy and incentive schemes to promote RE at the national level, for both grid connected and off-grid RE projects;
- Identify the most suitable mechanisms for promoting RE at the national level;
- Obtain a first input from the ECOWAS Member States regarding suitable policies and incentive mechanisms to be implemented in the region;
- Strengthen cross-country networking of policy makers on the pertinent issues surrounding RE policy issues, incentive schemes and implementation;
- Raise awareness and build capacity concerning RE policy and incentive schemes amongst relevant West African stakeholders.

Participants will be drawn from:

- Ministries of Energy and Finance of ECOWAS Member States,
- National Electricity Regulators;
- Regional and International Organizations;
- Bilateral and Multilateral Partners;
- Utilities and Rural Electrification Agencies;

### **B. Expected Outputs/Deliverables**

It is expected that the training workshop will produce the following **practical results and deliverables**:

- The participants will learn all the range of possible policy and incentive schemes to promote RE at the national level, both for grid connected and for access to energy in rural areas
- The participants will identify the most suitable mechanism to promote RE from the public national level
- ECREEE will obtain a first input from the ECOWAS member states about the type of policies and incentive mechanism to be implemented in the region
- Strengthening of cross-country networking of policy makers on RE policy issues, incentive schemes and implementation
- IDAE and ECREEE will strengthen their strategic partnership in policy activities
- IDAE will contribute to the West African process of drafting regional and national RE policies and incentives schemes

- IRENA will contribute to the West African process of drafting regional and national RE policies and incentives schemes and link ECOWAS RE policy makers with an international network
- IIASA will present to West African experts and practitioners the results of its analyses on energy pathways for sustainable development and on scenarios and policies for household energy access, along with two interactive, web-based policy analysis tools (a scenario analysis tool and an energy access policy tool)
- A process of awareness raising and capacity building concerning RE with policy and incentive schemes will start in West Africa with national public stakeholders

### III. Implementation Arrangements

#### A. The Partners

The workshop will be jointly organized by the:

**The ECOWAS Regional Centre for Renewable Energy and Energy Efficiency (ECREEE):** As a policy response to the rising energy security concerns, continued lack of access to energy services in rural areas and the need for climate change mitigation the ECOWAS Energy Ministers established the first regional renewable energy promotion agency in Sub Sahara Africa. The Secretariat of the ECOWAS Regional Centre for Renewable Energy and Energy Efficiency (ECREEE) was inaugurated on 6<sup>th</sup> July 2010 with support of the ECOWAS Commission, the Governments of Austria, Spain and technical assistance of the United Nations Industrial Development Organization (UNIDO). The ECREEE Secretariat is based in Praia, Cape Verde, and operates with a small multi-national team of full time staff. ECREEE works through a network of National Focal Institutions (NFIs) which interlinks the Secretariat with all ECOWAS Member States. ECREEE aims at the creation of favorable framework conditions for renewable energy and energy efficiency markets. The Centre supports activities, programs and projects directed to mitigate existing technical, legal, institutional, economic, financial, policy and capacity related barriers. The ECREEE activities include fund mobilization, policy support, knowledge management and awareness raising, capacity development and business and investment promotion.

The **International Renewable Energy Agency (IRENA)** is an intergovernmental organization dedicated to renewable energy. In accordance with its Statute, IRENA's objective is to "promote the widespread and increased adoption and the sustainable use of all forms of renewable energy". This concerns all forms of energy produced from renewable sources in a sustainable manner, which include bioenergy, geothermal energy, hydropower, ocean, solar, and wind energy. IRENA was founded in 2009 in Bonn, Germany, by 75 States which signed its Statute. As of February 2012, the membership of IRENA comprises 155 States and the European Union. The Agency is headquartered in Abu Dhabi, United Arab Emirates.

**United Nations Industrial Development Organization:** UNIDO is the United Nations' specialized agency with the mandate to promote industrial development in the world's developing and least developed nations. UNIDO is one of the lead United Nations agencies in the field of renewable energy for productive uses and industrial energy efficiency. UNIDO's services include the implementation of renewable energy demonstration projects, policy support to create a favourable environment for renewable energy technologies, and capacity-building in the form of local training, workshops and targeted publications. UNIDO has provided technical assistance for the establishment and operation of the Regional Centre for Small Hydropower, based in Abuja, Nigeria, and the ECOWAS Regional Centre for Renewable Energy and Energy Efficiency (ECREEE). UNIDO is coordinating the energy component of the GEF Strategic Programme for West Africa.

The **Institute for Energy Diversification and Saving (IDAE)** is a public business body ascribed to the State Secretariat for Energy of the Ministry of Industry, Energy and Tourism, which it depends organically on. The achievement of the objectives established by the planning actions relating to saving and energy efficiency and to renewable energies make up the strategic framework of its activity. IDAE coordinates and jointly manage the measures and funds devoted to these planning actions, and it also carries out actions of dissemination and technical counseling, as well as project financing for technological innovation. The Institute also develops an intense international activity, within the framework of the various European programmes, as well as cooperation

projects with third countries. The implementation of training and awareness campaigns and the drafting of dissemination contents oriented to building a social culture of energy, bearing in mind the value of resources and the need of consuming them in an intelligent way, also account for one of IDAE's engagements. In a nutshell, IDAE's action is oriented towards the achievement of a new energy model that should guarantee the quality and security of supply and enhance the competitiveness of Spanish firms on the basis of sustainability.

Founded in 1972, the **International Institute for Applied Systems Analysis (IIASA)** is an international research organization that conducts policy-oriented research into problems that are too large or too complex to be solved by a single country or academic discipline: (1) problems like climate change that have a global reach and can be resolved only by international cooperative action, or (2) problems of common concern to many countries that need to be addressed at the national level, such as energy security, population aging, and sustainable development. Located in Austria near Vienna, IIASA is sponsored by its National Member Organizations in Africa, Asia, Europe, and the Americas. It is independent and completely unconstrained by political or national self-interest. IIASA's research investigates the critical issues of global environmental, economic, technological, and social change that we face in the twenty-first century. IIASA concentrates its research efforts within three core research themes: (1) Energy and Climate Change; (2) Food and Water; (3) Poverty and Equity.

## B. Team composition

Institution/Experts	Function/Tasks	Contacts
<u>ECOWAS Regional Centre for RE&amp;EE (ECEEEE)</u> <ul style="list-style-type: none"> <li>Mr. David Vilar, ECEEEE, Renewable Energy Expert</li> <li>Mr. Martin Lugmayr, ECEEEE, Renewable Energy Expert</li> <li>Mr. Jansenio Delgado, ECEEEE, Renewable Energy Expert</li> <li>Mr. Hyacinth Elayo, ECEEEE, Energy Policy Expert</li> </ul>	<ul style="list-style-type: none"> <li>Overall Organization</li> <li>Programme Document</li> <li>Workshop Documents</li> <li>Local coordination of training workshop</li> </ul>	ECEEEE Secretariat Achada Santo Antonio 2 <sup>nd</sup> floor, Electra Building C.P. 288, Praia, Cape Verde Tel. +238 2604630 Web: <a href="http://www.ecreee.org">www.ecreee.org</a>
<u>UNIDO</u> <ul style="list-style-type: none"> <li>Alois Mhlanga, UNIDO</li> <li>Bettina Schreck, UNIDO</li> </ul>	<ul style="list-style-type: none"> <li>Co-funding</li> <li>Technical Inputs</li> <li>Coordination IIASA</li> </ul>	UNIDO, PTC Division Vienna, Austria Web: <a href="http://www.unido.org">http://www.unido.org</a>
<u>IRENA, Abu Dhabi</u> Mr. Hugo Lucas, IRENA, Director PACB Ms. Rabia Ferroukhi, IRENA, Senior Programme Officer Policy Advice Ms. Cornelia Marschel, IRENA, Project Officer Capacity Building	<ul style="list-style-type: none"> <li>Co-funding</li> <li>Technical Inputs</li> </ul>	IRENA Secretariat C67 Office Building, Khalidiya (32 <sup>nd</sup> ) Street, PO Box 236, Abu Dhabi, United Arab Emirates Web: <a href="http://www.irena.org">www.irena.org</a>
<u>IDAE</u>	<ul style="list-style-type: none"> <li>Technical Inputs</li> <li>Elaboration of training modules</li> <li>Implement some of the training modules</li> </ul>	Sede IDAE C/Madera 8, 28004-Madrid, Teléfono: 91 456 49 00 Fax: 91 523 04 14 Web: <a href="http://www.idae.es">www.idae.es</a>

<u>IIASA</u> <ul style="list-style-type: none"> <li>• Dr. Shonali Pachauri</li> </ul>	<ul style="list-style-type: none"> <li>- Technical Inputs</li> <li>- Elaboration of training modules</li> <li>- Implement some of the training modules</li> </ul>	International Institute for Applied Systems Analysis (IIASA) Schlossplatz 1, A-2361 Laxenburg Austria Phone : +43 2236 807 475 World Wide Web: <a href="http://www.iiasa.ac.at">http://www.iiasa.ac.at</a>
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### C. Draft Training Workshop Agenda Timetable (2011-2012)

Day One: 09 April 2012		
Workshop on RE policy and incentive schemes		
Location: Praia / Cape Verde		
SETTING THE CONCEPTS		
Time	Session	
08:30	1	<i>Welcome (ECREEE, IDAE and IRENA)</i>
09:00	2	<b>RE NATIONAL PLANNING AND POLICY</b> Challenges for Energy Policy: <ul style="list-style-type: none"> <li>• Increasing Security of Supply (external energy dependency)</li> <li>• Increasing access to sustainable energy (poverty alleviation)</li> <li>• Improving domestic economy competitiveness</li> <li>• Ensuring a sustainable economic, social and environmental development</li> <li>• Implications on public budgets</li> </ul>
10:30		<b>Coffee break</b>
11:00	3	<b>MARKET REGULATION AND TARIFFS</b> The most common support mechanisms for renewables are usually applied where there is some degree of liberalization in the energy system. In non-liberalized systems, renewable energies can be deployed in response to Government demands, without using specific support mechanisms. Regulatory/support options can include power purchase agreements (PPAs), priority of access, setting explicit targets for the share of renewables,
13:00		<b>Lunch break</b>



14:00	4	<p><b>TYPES OF RE INCENTIVE SCHEMES</b></p> <p>The big challenge for the renewable energy industry has been competition from heavily-subsidised conventional energy. Support mechanism shall be able to attract investors by providing sufficient confidence and financial incentives over a long period and for a wide range of technologies: direct policy measures aim to stimulate the installation of RES-E technologies immediately, whereas indirect instruments focus on improving long-term framework conditions. Other important classification criteria are whether policy instruments address price or quantity, and whether they support investments or generation.</p> <p>1-Investment support: public investment, capital grants, tax exemption or reductions on the purchase of goods, free or low interest loans/ interest subsidies,</p> <p>2-Operating support:</p> <ul style="list-style-type: none"> <li>• Quantity-based market instruments: <ul style="list-style-type: none"> <li>○ Renewable Portfolio Standard, quota obligation or mandate. Obligates designated parties to meet minimum RE targets, generally expressed as percentages of total supplies or as an amount of RE capacity, with cost borne by consumers.</li> <li>○ Tenders: bids procedure through which governments purchase a certain electricity given quota of renewable energy supplies or supply capacities.</li> </ul> </li> <li>• Price-based market instruments: Feed-in tariff fixed price or premium price</li> <li>• Fiscal incentives: Tax exemption or reduction, tax credit, accelerated depreciation, custom duties</li> </ul>
15:45		<b>Snack break</b>
16:00	5	<p><b>TYPES OF RE INCENTIVE SCHEMES (Cont.)</b></p> <p>Recommendations to improve investment environment</p>
18:00		<b>End of day</b>

<b>Day Two: 10 April 2012</b>		
<b>Workshop on RE policy and incentive schemes</b>		
<b>Location: Praia / Cape Verde</b>		
<b>WORKING TOWARDS A NATIONAL POLICY</b>		
<b>Time</b>	<b>Session</b>	
08:30	6	<b>Case of National RE Policies and Laws: Ghana, Senegal and Cape Verde</b>
9:30	7	<b>Comments from experts and participants</b>
10:00		<b>Coffee break</b>
10:30	8	<p><b>RE Policies for Rural Electrification</b></p> <ul style="list-style-type: none"> <li>• Overview of lessons learned and success stories in developing countries</li> <li>• Case Study: Mali (AMADER) and Senegal (ASER)</li> </ul>

13:00		Lunch break
14:00	9	NETMETRING and other policies for buildings and households
16:00		Snack break
16:15	10	NETMETRING: Analysis of case for Cape Verde
18:00		End of day

Day Three: 11 April 2012		
Workshop on Energy Policy Tools of the Global Energy Assessment (GEA)		
Location: Praia / Cape Verde		
Time	Session	
09:00	11	<b>Introduction and Overview</b> <ul style="list-style-type: none"> <li>Welcome remarks, UNIDO, ECOWAS Commissioner for Infrastructure, ECREEE</li> <li>Introduction to IIASA's transformational energy pathways, IIASA, Dr. Riahi, (30 min)</li> </ul>
10:00	12	<b>Energy Access (1)</b> <ul style="list-style-type: none"> <li>Main findings of IIASA's energy access work, IIASA, Dr. Pachauri, (25 min)</li> <li>Discussion</li> </ul>
10:40		Coffee break
11:00	13	<b>Energy Access (2)</b> <ul style="list-style-type: none"> <li>Status of implementation of the ECOWAS white paper on access to modern energy services in peri-urban and rural areas, Mr. Mahama Kappiah, Executive Director of ECREEE (20 min)</li> <li>Case studies: Towards 100 % of modern energy access (rural electrification and LPG): Ghana, Cape Verde (25 min)</li> <li>Demonstration of the IIASA Energy Access Tool (ENACT), IIASA (Dr. Pachauri) (20 min)</li> <li>Panel discussions consisting of energy access experts; interactive with the audience</li> </ul>
12:30		Lunch break

14:00	14	<b>Synergies and trade-offs between multiple energy objectives (climate change, air pollution and health, and energy security) (1)</b> <ul style="list-style-type: none"> <li>• Main findings of IIASA's multiple objectives work, IIASA, Dr. McCollum (25 min)</li> <li>• Energy security through the establishment of a regional electricity market in the ECOWAS region, expert of the West African Power Pool (WAPP), (20 min)</li> <li>• Addressing the energy challenges in the ECOWAS simultaneously through the promotion of regional renewable energy and energy efficiency markets, Mr. Martin Lugmayr, ECREEE, (20 min)</li> <li>• Discussion</li> </ul>
15:30		<b>Snack break</b>
15:50	15	<b>Synergies and trade-offs between multiple energy objectives (climate change, air pollution and health, and energy security) (2)</b> <ul style="list-style-type: none"> <li>• Demonstration of the IIASA Energy Multi-Criteria Analysis Policy Tool (ENE-MCA), IIASA, Dr. McCollum, (20 min)</li> <li>• RE policy elaboration of an ECOWAS country</li> <li>• Panel discussions consisting of energy, climate, and air pollution experts; interactive with the audience</li> <li>• Closing remarks: UNIDO, IIASA, ECREEE</li> </ul>
18:00		<b>End of day</b>

<b>Day Four: 12 April 2012</b>		
<b>Workshop on RE policy and incentive schemes and Energy Policy Tools of the Global Energy Assessment (GEA)</b>		
<b>Location: Praia / Cape Verde</b>		
<b>Practical Exercises</b>		
<b>Time</b>	<b>Session</b>	
08:30	16	<b>National exercises: Elaborating proposals adapted to the country</b>
10:30		<b>Coffee break</b>
10:45	17	<b>National exercises: Elaborating proposals adapted to the country</b>
13:00		<b>Lunch break</b>
14:00	18	<b>Exposition of National Exercises</b>
15:30		<b>End of Workshop</b>
15:45	19	<b>Inauguration of Rooftop PV-System in ECREEE's office</b>



*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  
Eficiência Energética da CEDEAO*

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