



UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

UNIDO's Energy and Climate Change Programme

The Global Network of Regional Sustainable Energy Centres

A Regional Approach for Knowledge Management and Capacity Building

Paving the Way towards Inclusive and Sustainable Industrial Development



INCLUSIVE AND SUSTAINABLE INDUSTRIAL DEVELOPMENT

Energy challenges in developing and transition countries



“Based on our vision of Inclusive and Sustainable Industrial Development, UNIDO will continue to bring policy recommendations and proven energy solutions to the attention of governments, the private sector and civil society. In this way we believe that we will be able to help countries move millions of skilled youth into jobs by generating new employment through an expansion of industries, the creation of businesses and the emergence of opportunities for self-employment.”

Li Yong, Director General, United Nations Industrial Development Organization (UNIDO)



ENERGY POVERTY

- > In 2030, 1.3 billion people may still have no access to modern, affordable and reliable energy services (2.7 billion today)
- > 80% of the global population living in developing countries consumes only 30% of global energy
- > Globally, 90% of urban population and only 60% of rural population have access to electricity
- > Developing countries largely rely on traditional biomass for cooking
- > The poor spend more income for poor-quality energy services than the better-off for high-quality services

ENERGY SECURITY

- > In 2030, cities may consume more than 73% of the globally generated energy
- > Rapidly growing urban electricity demand needs major investment in energy infrastructure in developing and transition countries
- > High vulnerability of some developing countries and islands due to their dependence on imported petroleum products
- > High technical and commercial grid losses in some developing countries
- > Limited oil and gas reserves fail to satisfy the global demand in the long term
- > There are no functioning regional electricity and gas markets in some regions

CLIMATE CHANGE MITIGATION AND ADAPTATION

- > 82% of the global energy supply is generated from fossil fuels (e.g. coal, oil, gas)
- > 66% of global GHG emissions stem from the energy sector
- > In business as usual scenarios, a doubling of pre-industrial levels of GHG emissions is very likely; this would lead to a rise in global temperatures of between 2°C to 6°C
- > Developing countries are most likely to suffer from negative climate change impacts (e.g. sea level rise, droughts, extreme weather events)
- > To stabilize the global temperature rise at the 2°C level until 2050, emissions would have to peak before 2020 and be reduced by 31% to 71% until 2050
- > Today's investment determines the amount of GHG emissions for the next decades



POTENTIAL NEGATIVE IMPACTS

- > Correlation between energy poverty and a low ranking in the Human Development Index
- > Health problems of women and children due to indoor pollution
- > Load shedding and power cuts lead to the increase of private back-up generation
- > Reluctance to pay hardly affordable energy costs
- > High energy generation costs
- > High energy spending and productivity losses of businesses and industry
- > Low efficiency of social facilities (e.g. education, healthcare)
- > Harmful emissions of conventional energy generation lead to local air, water and soil pollution
- > Rural unemployment in off-grid areas
- > Migration to urban areas, especially among younger people



DISCLAIMER

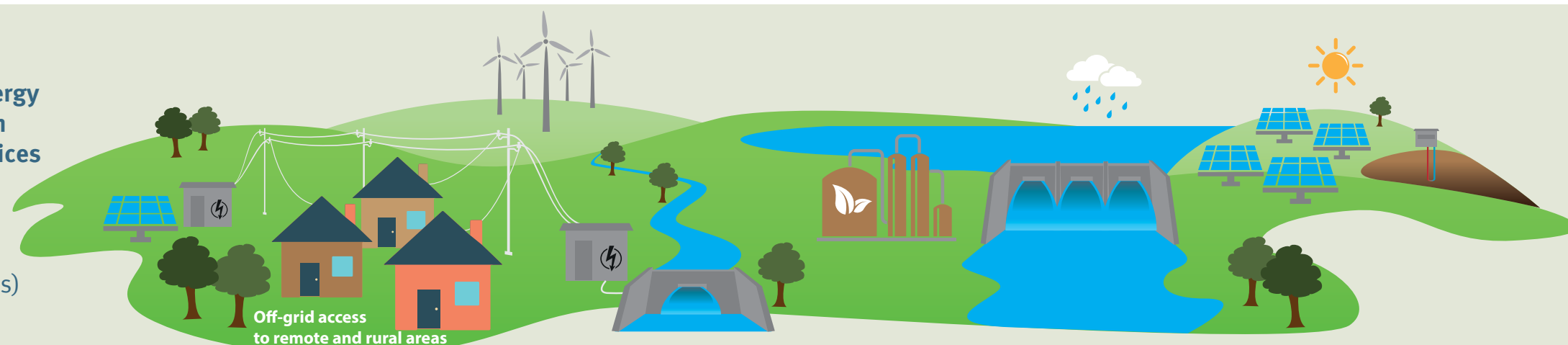
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Addressing the energy challenges simultaneously

RENEWABLE ENERGY (RE)

RE can play an important role to satisfy the growing energy demand for electricity, transport, heating and cooling in urban areas, while boosting access to rural energy services

- » Solar (PV, solar thermal)
- » Wind (on-shore and off-shore)
- » Hydro (large, medium, small)
- » Bioenergy (biogas, sustainable biofuel, efficient stoves)
- » Renewable hydrogen
- » Geothermal
- » Wave and tidal



A GLOBAL OPPORTUNITY

Secretary-General Ban Ki-moon launched the Sustainable Energy for All Initiative, (SE4ALL) to mobilize action from all sectors of society in support of three interlinked objectives to be achieved by 2030: providing universal access to modern energy services; doubling the global rate of improvement in energy efficiency; and doubling the share of renewable energy in the global energy mix.

ENERGY EFFICIENCY (EE)

A low-hanging fruit: energy efficiency and energy saving can play a key role in mitigating energy demand and global GHG emissions at relatively low costs

Modern technologies and targeted investment can help lower energy consumption, reduce emissions and generate income

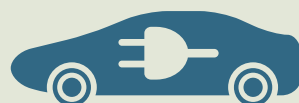


SAVINGS

Through sustainable lifestyle patterns

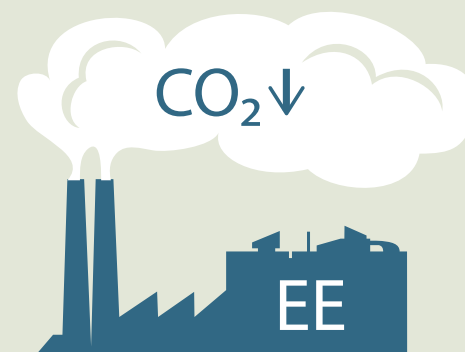
SUSTAINABLE TRANSPORT

Electric vehicles and mass transit systems



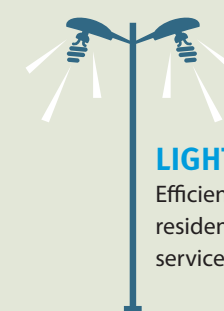
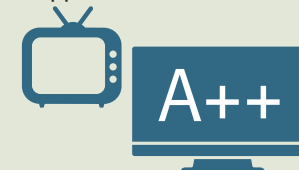
INDUSTRY

More efficient manufacturing and EnMS ISO 5001



APPLIANCES

Complying with national standards for household appliances



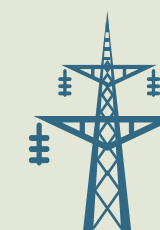
LIGHTING

Efficient residential and services lighting



BUILDINGS

Efficient building upgrades



GENERATION AND TRANSMISSION

Reduction of grid losses
More efficient power plants

Barriers for RE&EE markets and industries

Although major progress has been achieved, the uptake of RE&EE markets and investments still faces barriers that have to be eliminated:

Policy, legal and regulatory barriers

Institutional barriers (lack of national and regional implementation capacities)

Technical barriers

Financial barriers

Lack of capacity, knowledge, data and awareness

UNIDO's Regional Centres Approach



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The Centres promote 'soft' activities to enable hardware investment



Added value

The Energy and Climate Change Branch of UNIDO coordinates the Global Network of Regional Sustainable Energy Centres in cooperation with regional economic communities and organizations. The expanding south-south multi-stakeholder partnership comprises various Centres in Africa, the Caribbean, the Pacific and other regions. The Centres respond to the urgent need for increased regional cooperation and capacities to mitigate

existing barriers to renewable energy and energy efficiency investment and markets. They enjoy high-level support from the Energy Ministers and respond to the individual needs of the respective national governments. The Centres complement and strengthen ongoing national activities in the areas of policy and capacity development, knowledge management and awareness-raising, as well as investment and business promotion.

There is a common understanding that some 'soft' barriers for RE&EE can be addressed more effectively and at a lower cost through regional approaches and methodologies. UNIDO provides key technical services for the establishment and operation of such regional Centres. The Global Network of Regional Sustainable Energy Centres offers a common umbrella for promoting south-south cooperation.

UNIDO's approach

The support model of UNIDO follows a list of quality requirements for the Centres:

- >> Demand-driven and early involvement of local and international stakeholders in the design phase
- >> Strong ownership of the regional counterpart and the host country (including financial and in-kind contributions)
- >> High-level approval and acceptance by Ministries of Energy
- >> Close integration in the regional institutional set-up and decision-making process
- >> Strong technical and action-oriented mandate
- >> Own legal identity and power to sign contracts and execute recruitment and procurement

- >> Transparent and efficient governance structure (i.e. Executive Board)
- >> Effective response to the needs of the countries through a Network of National Focal Institutions (NFIs)
- >> "Form follows function" - a small staff base at the beginning can grow in accordance with mobilized funding and projects
- >> Ability of the Centres to mobilize grants
- >> Qualified local and international staff
- >> Internal quality, appraisal and management framework
- >> Establishment of long-term flagship programmes
- >> Independence through a broad range of local and international partnerships
- >> UNIDO's technical support with a clear exit strategy

Services and functions of the Centres

The Centres offer the following services to national governments, local stakeholders and international partners:

- >> Bridging the gap between global initiatives and local execution
- >> Serving as institutional hubs for SE4All
- >> Coordinating and ensuring coherence of donor and national activities in the sector
- >> Coordinating regional RE&EE programs, projects and activities
- >> Mobilizing grants for programmes and projects
- >> Supporting national governments in developing, executing and monitoring policies, laws and standards

- >> Formulating documents for international and regional negotiation processes
- >> Providing reliable RE&EE investment and market data
- >> Promoting investment in sustainable energy
- >> Enhancing market opportunities for local energy companies
- >> Calling for proposals for projects and programmes
- >> Coordinating regional training, knowledge and applied research networks
- >> Implementing regional awareness-raising campaigns
- >> Facilitating technology transfer and promoting south-south and north-south cooperation

Regional Renewable Energy and Energy Efficiency Centres

Promoting Inclusive and Sustainable Energy Industries

ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE) – 2nd operational phase



Background

- » The Economic Community of West African States (ECOWAS) comprises fifteen Member States: Benin, Burkina Faso, Cape Verde, The Gambia, Ghana, Guinea, Guinea-Bissau, Ivory Coast, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone and Togo.
- » ECOWAS represents a growing population of more than 300 million energy consumers.
- » The Ouagadougou Declaration, adopted at the ECOWAS Conference for Peace and Security on 12 November 2007 in Burkina Faso, articulated the need for a regional sustainable energy centre in light of rapidly growing fossil fuel prices.
- » In 2008, the 61st Session of ECOWAS Council of Ministers adopted Regulation C/REG.23/11/08, providing the ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE) with a legal basis.
- » In July 2010, the Centre was established with key technical support of UNIDO and funding from the Austrian Development Cooperation (ADC) and the Spanish Agency for International Development Cooperation (AECID).
- » The City of Praia in Cape Verde was selected to host the Secretariat of the Centre through a competitive process.

Objectives

- » To improve energy access, energy security and climate change mitigation by promoting an enabling environment for RE&EE investments and industries.
- » To mitigate existing barriers for RE&EE by promoting targeted interventions in the areas of capacity development, policy support, knowledge management and awareness-raising, as well to create investment and business opportunities for local industries and businesses.

Results

- » The ECREEE Secretariat and a network of National Focal Institutions (NFIs) in 15 ECOWAS Member States are fully operational.
- » The ECOWAS Renewable Energy Policy (EREP) and ECOWAS Energy Efficiency Policy (EEEP) were developed and adopted by the Heads of State.
- » ECREEE was appointed by ECOWAS as the technical arm to support the design, implementation and monitoring of the National Renewable Energy Action Plans (NREAPs), the National Energy Efficiency Action Plans (NREEEPs) and the SE4ALL action agenda.
- » ECREEE was appointed by SIDS DOCK as a focal point for sustainable energy activities in small island states of Africa.
- » ECOWAS Observatory for Renewable Energy and Energy Efficiency (ECOWREX), a data portal for investors and developers, became fully operational.
- » Various technical RE&EE programs were designed and are under implementation (e.g. small hydro, bioenergy, gender mainstreaming, efficient lighting, appliances and buildings, high performance distribution of electricity, improved stoves).
- » As an executing agency for various RE&EE projects, the ECREEE is co-funded by the Global Environment Facility (GEF) and the European Union.
- » The first call of the ECOWAS Renewable Energy Facility (EREF) was executed and 41 rural projects with a total budget of EUR 3 million are under execution.
- » More than 1,000 key stakeholders were trained on various sustainable energy aspects (e.g. financing, policy, technical aspects).
- » Various RE&EE conferences and workshops were attended by more than 3,000 participants.
- » Train-the-Trainers Networks for RETScreen and HOMER software packages were established and became operational.

With the establishment of ECREEE, the ECOWAS Member States have demonstrated their resolve to address the challenges of energy poverty, energy security and climate change mitigation simultaneously and in an integrated way. ECREEE therefore represents a carefully thought through and necessary regional response to international declarations, global climate change initiatives and to the specific needs of ECOWAS Member States. The centre empowers local energy industry and companies to take advantage from growing market opportunities.

Mahama Kappiah, ECREEE Executive Director



Donors and Partners

Core Partners: UNIDO, Austrian Development Agency (ADA) and the Spanish Agency for International Cooperation (AECID); other partners: European Union (EU) the United States Agency for International Development (USAID) and the Global Environment Facility (GEF)

East African Centre for Renewable Energy and Energy Efficiency (EACREEE) – 1st operational phase



Background

- » The East African Community (EAC) comprises five Partner States - Burundi, Kenya, Rwanda, Tanzania and Uganda - which represent a growing population of 133 million energy consumers.
- » At the 7th and 8th meetings of the Sectoral Council on Energy, the governments directed the EAC Secretariat to move forward to establish a regional sustainable energy centre.
- » In May 2012, the EAC Secretariat requested support from UNIDO and the Austrian Development Cooperation (ADC) to assist in the creation of such a centre based on the model in West Africa.

Results

- » A RE&EE baseline report and a needs assessment on the technical and institutional design of the Centre were developed.
- » The EACREEE project document was reviewed and validated successfully during a consultative/inception workshop, held from 11 to 12 March 2013 in Arusha, Tanzania, and a validation workshop, held from 6 to 7 May 2013 in Kampala, Uganda.
- » EACREEE was formally approved by the Ministers of Energy during the 9th Meeting of the EAC Sectoral Council on Energy, held on 21 April 2014 in Nairobi, Kenya.
- » A competitive process for the selection of the host city/country has been initiated.

Objectives

- » To improve energy access, energy security and climate change mitigation by promoting an enabling environment for renewable energy and energy efficiency investment and industries.
- » To mitigate existing barriers for RE&EE by promoting targeted interventions in the areas of capacity development, policy support, knowledge management and awareness-raising, as well as to create investment and business opportunities for local companies and industry.

Donors and Partners

UNIDO, Austrian Development Agency (ADA)



Contacts: info@eacreer.org, www.eacreer.org

Southern African Centre for Renewable Energy and Energy Efficiency (SACREEE) 1st operational phase



Background

- » The Southern African Development Community (SADC) comprises fifteen Member States: Angola, Botswana, the Democratic Republic of the Congo, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe.
- » SADC represents a growing population of 280 million energy consumers.
- » At the 32nd SADC Ordinary Summit in Maputo, Mozambique, the Ministers of Energy directed the SADC Secretariat to create a regional sustainable energy centre.
- » In 2012, the SADC Secretariat requested support from UNIDO and the Austrian Development Cooperation (ADC) to assist in the creation of such a centre based on the model in West Africa.

Objectives

- » To improve energy access, energy security and climate change mitigation by promoting an enabling environment for renewable energy and energy efficiency investments and industries.
- » To mitigate existing barriers for RE&EE by promoting targeted interventions in the areas of capacity development, policy support, knowledge management and awareness-raising, as well as to create investment and business opportunities for local companies and industries.

Results

- » A baseline report and a needs assessment on the technical and institutional design of the Centre were prepared.
- » The SACREEE project document and the design of the Centre were reviewed and validated successfully by all Ministries of Energy during a consultative workshop held from 14 to 15 March 2013 in Kempton Park, South Africa, and at a validation workshop held from 18 to 19 July 2013, in Gaborone, Botswana.

Donors and Partners

UNIDO, Austrian Development Agency (ADA), the Africa-EU Renewable Energy Cooperation Programme (RECP)

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Regional Centre for Renewable Energy and Energy Efficiency (RCREEE) in the Arab region 2nd operational phase



Background

- » RCREEE was established according to the Cairo Declaration signed in June 2008 by government representatives from ten Arab countries.
- » Today, RCREEE members include all of the North and West African Arab countries - Algeria, Bahrain, Djibouti, Egypt, Libya, Mauritania, Morocco, Sudan, and Tunisia - in addition to Iraq, Jordan, Palestine, Syria, and Yemen. Which represents over 275 million energy consumers.
- » In close alliance with the League of Arab States, RCREEE acquired its legal status in August 2010 as an independent not-for-profit international organization through a Host Country Agreement with the Government of Egypt.
- » RCREEE and UNIDO signed a Memorandum of Understanding on 18 July 2014



Objectives

- » To diffuse the implementation of cost-effective renewable energy and energy efficiency policies, strategies and technologies in the Arab region.
- » To increase the share of renewable energy and energy efficiency products and services in the Arab region and their share of the global market.
- » To collaborate with policy makers, businesses, international organizations and academic communities in the key working areas: research and analysis, capacity development, and technical assistance.

Results

- » The League of Arab States and the Arab Ministerial Council for Electricity appointed the Centre as the technical arm to support the design and implementation of the Arab Renewable Energy Strategy 2010-2030, the National Energy Efficiency Action Plans (NEEAPs), and the National Renewable Energy Action Plans (NREAPs).
- » The Centre compiled the Arab Future Energy Index™ (AFEX), the first Arab annual index dedicated to monitoring and analyzing renewable energy and energy efficiency competitiveness in the MENA region.
- » The MENA region's RE&EE data collection and indicator analysis mechanisms were streamlined.
- » RCREEE initiated regional policy dialogues by producing and publishing more than 70 publications and studies.
- » The Centre enabled the creation of the first quality certification scheme for the creation of solar thermal products and services in the MENA region.
- » RCREEE developed human and institutional technical capacity by organizing, co-organizing, and facilitating technical training events and workshops for more than 1,300 attendees from the MENA region.
- » Through its successful work, the Centre widened career horizons for member states' young talents by offering more than 15 regional internship opportunities through the Arab Program for Sustainable Energy Youth™ (APSEY).

Donors and Partners

German Development Cooperation (GIZ), Danish International Development Agency (DANIDA), Egypt through the New and Renewable Energy Authority (NREA), UNIDO and others.

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Caribbean Centre for Renewable Energy and Energy Efficiency (CCREEE) preparatory phase



Background

- » In 2013, UNIDO received a request from the Sustainable Energy Island Initiative (SIDS DOCK) of the Alliance of Small Island States (AOSIS) to assist small islands in the Caribbean, Pacific, Indian Ocean and Africa in the establishment of regional sustainable energy centres.
- » A Memorandum of Understanding (MOU) between UNIDO, the Austrian Ministry for Europe, Integration and Foreign Affairs and SIDS DOCK was signed on 17 March 2014.
- » The Centre will promote RE&EE in the Caribbean islands and territories (CITs), including Antigua and Barbuda, The Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Haiti, Jamaica, Montserrat, Saint Lucia, St. Kitts and Nevis, St. Vincent and the Grenadines, Suriname, Trinidad and Tobago, Anguilla, Bermuda, British Virgin Islands, Cayman Islands, Turks and Caicos Islands, Cuba, Dominican Republic and Puerto Rico.

Objectives

- » To increase access to modern energy services and enhance energy security by promoting the adoption of renewable energy and energy efficient technologies and services.
- » To contribute to the development of thriving regional RE&EE markets through knowledge-sharing and technical advice in the areas of policy and regulation, technology cooperation, capacity development and investment promotion.

Results

- » A consultative preparatory phase - in close cooperation with the regional organizations, including the Caribbean Community (CARICOM) and the Organization of Eastern Caribbean States (OECS) - was launched.
- » The needs assessment and the CCREEE project document were discussed by energy experts of CARICOM Member States in a workshop held from 21 to 22 July 2014 in Dominica.

Donors and Partners

UNIDO, Austrian Development Cooperation, SIDS DOCK, CARICOM, OECS



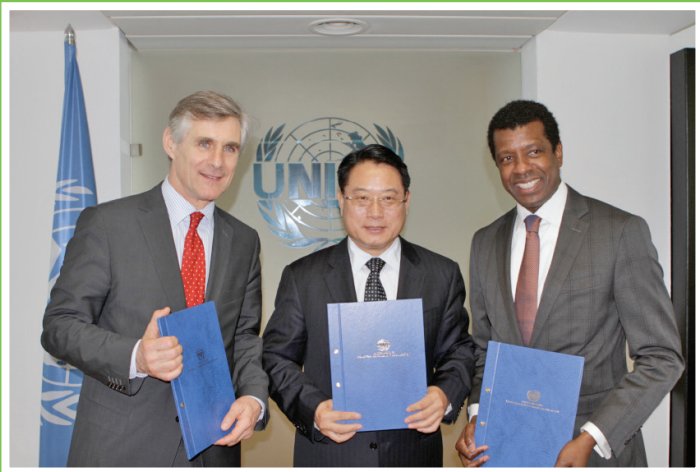
Contacts: info@ccreee.org, www.ccreee.org

Pacific Centre for Renewable Energy and Energy Efficiency (PCREEE)
1st operational phase



Background

- » In 2013, UNIDO received a request from the Sustainable Energy Island Initiative (SIDS DOCK) of the Alliance of Small Island States (AOSIS) to assist small islands in the Caribbean, Pacific, Indian Ocean and Africa in the establishment of regional sustainable energy centres.
- » A Memorandum of Understanding (MOU) between UNIDO, the Austrian Ministry for Europe, Integration and Foreign Affairs and SIDS DOCK was signed on 17 March 2014.
- » The Centre will promote RE&EE in the Pacific Islands and Territories (PICTs), including the Cook Islands, the Federated States of Micronesia, Fiji, Kiribati, Nauru, New Zealand, Niue, Palau, Papua New Guinea, the Republic of Marshall Islands, Samoa, the Solomon Islands, Tonga, Tuvalu and Vanuatu.



Signing of MOU between UNIDO, Austria and SIDS DOCK

Objectives

- » To improve energy access, energy security and climate change mitigation by promoting an enabling environment for renewable energy and energy efficiency investments and industries.
- » To mitigate existing barriers for RE&EE by promoting targeted interventions in the areas of capacity development, knowledge management and awareness-raising, as well as to create business opportunities for the local energy industry.

Results

- » A baseline report and a needs assessment for the technical and institutional design of the centre were developed in close cooperation with the regional organizations, including the Secretariat of the Pacific Community (SPC), the Secretariat of the Pacific Regional Environmental Programme (SPREP) and the Pacific Islands Forum Secretariat (PIFS).
- » The PCREEE project document and the design of the Centre were reviewed and validated successfully by all Ministries of Energy during a regional workshop held from 12 to 13 March 2014 in Nadi, Fiji.
- » The PCREEE project document and the establishment of the centre were approved at the Second Meeting of Pacific Ministers of Energy and Transport held from 2 to 4 April 2014, in Nadi, Fiji.
- » A competitive selection process to determine the host organization has been launched.



Donors and Partners

UNIDO, Government of Austria, SIDS DOCK, SPC, SPREP, PIFS.

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Special Focus: ECOWAS Observatory for Renewable Energy and Energy Efficiency (ECOWREX)
www.ecowrex.org



ECOWREX online platform – a tangible result of ECREEE's work

ECREEE, with the technical assistance of UNIDO, designed the ECOWAS Observatory for Renewable Energy and Energy Efficiency (ECOWREX) under the umbrella of the GEF Strategic Programme for West Africa (SPWA). This online platform provides decision-makers, project developers, investors and other stakeholders with tailored information and data on RE&EE in the ECOWAS region. It boosts knowledge management, networking, advocacy and capacity building.

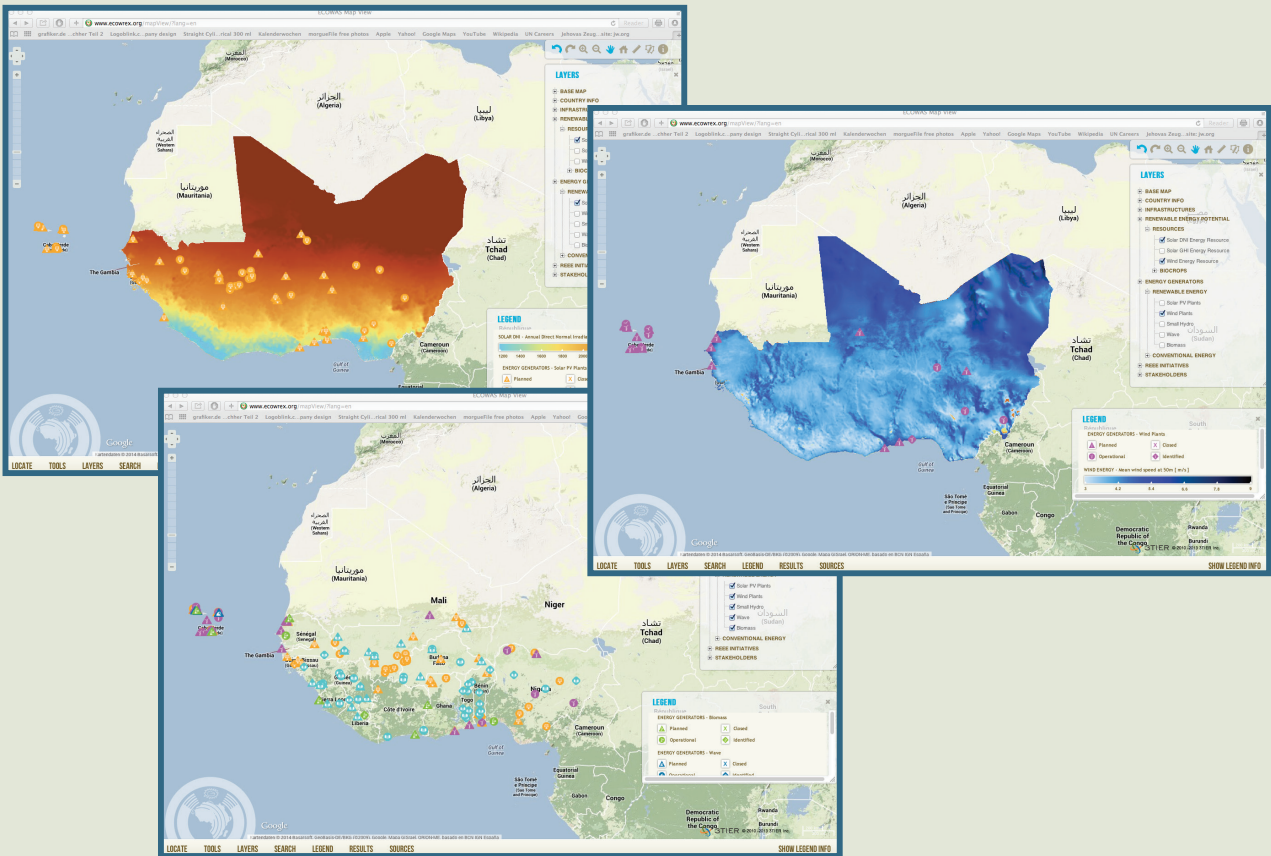
The ECOWREX operates on a streamlined, modern web platform that includes fully integrated Google Earth-based resource and project maps, capacity-building tools and market mechanisms to link together key energy actors and foster collaboration between stakeholders. A comprehensive library of reports, studies, policies and resource assessments is part of the Observatory website. Full connectivity to other resources related to the SPWA energy component is one of the platform's features.

MAPS

ECOWREX provides over 40 different regional map layers related to energy resources and other infrastructure relevant for planning in the energy sector. Users can query and search by well-structured attributes, overlay and analyse these resources together. You can also find data on the interaction among key energy stakeholders and locations of power plants and other energy-related projects.

ECOWREX aims to

- » Provide tailor-made and accurate statistical information on energy resources (especially in the field of RE&EE) including RE resources, policies, projects, power plants and other relevant information about the ECOWAS region, which is key for decision-making; and
- » Facilitate a network of energy experts and support cooperation between key local and international players to share knowledge and experience on best practices and technical knowhow from around the world.




UNIDO's support model is implemented in three phases:

Preparatory Phase	1 st Operational Phase	2 nd Operational Phase
Consultative needs assessment undertaken	Selection of a host country/ organization	
A project document on the technical and institutional design developed	Selection of the Director and recruitment of local and international quality staff	Further consolidation of the institutional structures and expansion of technical program portfolio based on an external evaluation
Consultative and validation workshops organized	Establishment of the Centre's Secretariat, its institutional structure and internal proceedings (staffing, finance, accounting, procurement)	The Centre starts to implement major donor-funded RE&EE programs and projects
Initial funding for the first operational phase mobilized	Organization of the governing meetings and establishment of the National Focal Institutions (NFIs)	Partnership with UNIDO transforms into a partnership for project execution
Approval of the project document and establishment of the Centre by Energy Ministers	Development of a long-term Business Plan	If necessary, UNIDO continues to provide limited capacity-strengthening support to the Centre
	Development and the start of implementation of RE&EE flagship programs and projects	
	Continued fundraising	
	Preparing for independent work without UNIDO's institution-building support	



Global Network of Regional Sustainable Energy Centres

A programmatic approach to promote inclusive and sustainable energy industries and SE4ALL

	ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE)
	Southern African Centre for Renewable Energy and Energy Efficiency (SACREEE)
	Caribbean Centre for Renewable Energy and Energy Efficiency (CCREEE)
	Regional Centre for Renewable Energy and Energy Efficiency (RCREEE)
	East African Centre for Renewable Energy and Energy Efficiency (EACREEE)
	Pacific Centre for Renewable Energy and Energy Efficiency (PCREEE)

The network supported by:

UNIDO'S ENERGY AND CLIMATE CHANGE PROGRAMME

A Joint Effort of the Renewable Energy, Industrial Energy Efficiency and Energy Policy & Partnership Teams

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